



EM35x

# Application Framework Reference: For EmberZNet 5.7.2

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## About This Guide

### Purpose

This document is a unified collection of API reference documentation covering EmberZNet PRO Stack.

Silicon Labs recommends that you use this document as a searchable reference. It includes all of the information contained in the html version of these materials that are provided as an online reference for developers of EmberZNet-based ZigBee wireless applications. There are three key advantages that this document provides over the online html versions:

- Everything is contained in this single document.
- This document is fully searchable using the Adobe Acrobat search engine that is part of the free Acrobat Reader (available from [www.adobe.com](http://www.adobe.com)).
- This document can be easily printed.

### Audience

This document is intended for use by programmers and designers developing ZigBee wireless networking products based on the EmberZNet PRO Stack Software. This document assumes that the reader has a solid understanding of embedded systems design and programming in the C language. Experience with networking and radio frequency systems is useful but not expected.

### Getting Help

Development kit customers are eligible for training and technical support. You can use the Silicon Labs web site [www.silabs.com/zigbee](http://www.silabs.com/zigbee) to obtain information about all Ember products and services.

You can also contact customer support at [www.silabs.com/zigbee-support.html](http://www.silabs.com/zigbee-support.html).

# Chapter 1

## Introduction

The Ember Application Framework V2 Reference documentation includes the following sections:

- [Ember Application Framework API Reference](#)
- [Ember Application Framework Command Line Interface \(CLI\)](#)
- [Application Framework Callback Interface](#)

## Chapter 2

### Deprecated List

Global [EMBER\\_AF\\_OK\\_TO\\_HIBERNATE](#)

Global [EMBER\\_AF\\_OK\\_TO\\_NAP](#)

Global [emberAfRf4ceZrc20ActionMappingClientLookUpActionMapping](#) (uint8\_t pairingIndex,  
EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank,  
EmberAfRf4ceZrcActionCode actionCode, [EmberAfRf4ceZrcActionMapping](#) \*actionMapping)  
This function is deprecated and will be removed in a future release. Customers should use [emberAfRf4ceZrc20ActionMappingClientGetActionMapping](#) instead.

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## Chapter 6

# Module Documentation

## 6.1 Ember Application Framework API Reference

### Modules

- [General Application Framework Interface](#)
- [Application Framework Types](#)
- [Application Framework Callback Interface](#)
- [Application Framework Command Buffer Loading Interface](#)
- [Application Framework V2 Enums Reference](#)

### 6.1.1 Detailed Description

## 6.2 General Application Framework Interface

### Macros

- #define CONFIGURATION\_HEADER

### Attribute Storage

- enum { EMBER\_AF\_DATA\_TYPE\_ANALOG, EMBER\_AF\_DATA\_TYPE\_DISCRETE, EMBER\_AF\_DATA\_TYPE\_NONE }
- EmberAfDefinedEndpoint emAfEndpoints []
- PGM EmAfNetworkType emAfNetworkTypes []
- PGM EmAfNetworkType \* emAfCurrentNetworkType
- PGM EmAfZigbeeProNetwork emAfZigbeeProNetworks []
- PGM EmAfZigbeeProNetwork \* emAfCurrentZigbeeProNetwork
- EmberAfAttributeMetadata \* emberAfLocateAttributeMetadata (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attribute, uint8\_t mask, uint16\_t manufacturerCode)
- bool emberAfContainsAttribute (uint8\_t endpoint, EmberAfClusterId clusterId, EmberAfAttributeId attributeId, uint8\_t mask, uint16\_t manufacturerCode)
- bool emberAfContainsCluster (uint8\_t endpoint, EmberAfClusterId clusterId)
- bool emberAfContainsServer (uint8\_t endpoint, EmberAfClusterId clusterId)
- bool emberAfContainsClient (uint8\_t endpoint, EmberAfClusterId clusterId)
- EmberAfStatus emberAfWriteAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t mask, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteServerAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteClientAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteManufacturerSpecificServerAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteManufacturerSpecificClientAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfVerifyAttributeWrite (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t mask, uint16\_t manufacturerCode, uint8\_t \*buffer, uint8\_t dataType)
- EmberAfStatus emberAfReadAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t mask, uint8\_t \*dataPtr, uint8\_t readLength, uint8\_t \*dataType)
- EmberAfStatus emberAfReadServerAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t \*dataPtr, uint8\_t readLength)
- EmberAfStatus emberAfReadClientAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t \*dataPtr, uint8\_t readLength)
- EmberAfStatus emberAfReadManufacturerSpecificServerAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t readLength)
- EmberAfStatus emberAfReadManufacturerSpecificClientAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t readLength)
- uint8\_t emberAfGetDataSize (uint8\_t dataType)
- uint8\_t emberAfEndpointFromIndex (uint8\_t index)

- `uint8_t emberAfIndexFromEndpoint (uint8_t endpoint)`
- `uint8_t emberAfIndexFromEndpointIncludingDisabledEndpoints (uint8_t endpoint)`
- `uint8_t emberAfFindClusterClientEndpointIndex (uint8_t endpoint, EmberAfClusterId clusterId)`
- `uint8_t emberAfFindClusterServerEndpointIndex (uint8_t endpoint, EmberAfClusterId clusterId)`
- `uint8_t emberAfNetworkIndexFromEndpoint (uint8_t endpoint)`
- `uint8_t emberAfEndpointCount (void)`
- `uint8_t emberAfFixedEndpointCount (void)`
- `uint8_t emberAfGetAttributeAnalogOrDiscreteType (uint8_t dataType)`
- `bool emberAfIsTypeSigned (uint8_t dataType)`
- `uint32_t emberAfGetInt32u (const uint8_t *message, uint16_t currentIndex, uint16_t msgLen)`
- `uint32_t emberAfGetInt24u (const uint8_t *message, uint16_t currentIndex, uint16_t msgLen)`
- `uint16_t emberAfGetInt16u (const uint8_t *message, uint16_t currentIndex, uint16_t msgLen)`
- `uint8_t * emberAfGetString (uint8_t *message, uint16_t currentIndex, uint16_t msgLen)`
- `uint8_t * emberAfGetLongString (uint8_t *message, uint16_t currentIndex, uint16_t msgLen)`
- `uint8_t emberAfGetDate (uint8_t *message, uint16_t currentIndex, uint16_t msgLen, EmberAfDate *dest)`
- `void emberAfCopyInt16u (uint8_t *data, uint16_t index, uint16_t x)`
- `void emberAfCopyInt24u (uint8_t *data, uint16_t index, uint32_t x)`
- `void emberAfCopyInt32u (uint8_t *data, uint16_t index, uint32_t x)`
- `void emberAfCopyString (uint8_t *dest, uint8_t *src, uint8_t size)`
- `void emberAfCopyLongString (uint8_t *dest, uint8_t *src, uint16_t size)`
- `uint8_t emberAfStringLength (const uint8_t *buffer)`
- `uint16_t emberAfLongStringLength (const uint8_t *buffer)`
- `#define emberAfClusterIsManufacturerSpecific(cluster)`
- `#define emberAfAttributeIsReadOnly(metadata)`
- `#define emberAfAttributeIsClient(metadata)`
- `#define emberAfAttributeIsTokenized(metadata)`
- `#define emberAfAttributeIsExternal(metadata)`
- `#define emberAfAttributeIsSingleton(metadata)`
- `#define emberAfAttributeIsManufacturerSpecific(metadata)`
- `#define emberAfAttributeSize(metadata)`
- `#define emAfProIsCurrentNetwork()`
- `#define emberAfProfileIdFromIndex(index)`
- `#define emberAfDeviceIdFromIndex(index)`
- `#define emberAfDeviceVersionFromIndex(index)`
- `#define emberAfNetworkIndexFromEndpointIndex(index)`
- `#define emberAfPrimaryProfileId()`
- `#define emberAfPrimaryEndpoint()`
- `#define emberAfGetInt8u(message, currentIndex, msgLen)`
- `#define emberAfCopyInt8u(data, index, x)`

## Device Control

- `bool emberAfIsDeviceEnabled (uint8_t endpoint)`
- `bool emberAfIsDeviceIdentifying (uint8_t endpoint)`
- `void emberAfSetDeviceEnabled (uint8_t endpoint, bool enabled)`

## Miscellaneous

- PGM `EmberAfOtaImageId` `emberAfInvalidImageId`
- bool `emberAfEndpointEnableDisable` (uint8\_t endpoint, bool enable)
- bool `emberAfEndpointIndexIsEnabled` (uint8\_t index)
- bool `emberAfIsThisDataTypeAStringType` (uint8\_t dataType)
- bool `emberAfIsStringAttributeType` (`EmberAfAttributeType` attributeType)
- bool `emberAfIsLongStringAttributeType` (`EmberAfAttributeType` attributeType)
- uint8\_t `emberAfNextSequence` (void)
- uint8\_t `emberAfGetLastSequenceNumber` (void)
- int8\_t `emberAfCompareValues` (uint8\_t \*val1, uint8\_t \*val2, uint8\_t len, bool signedNumber)
- void `emberAfGetEui64` (`EmberEUI64` returnEui64)
- `EmberNodeId` `emberAfGetNodeId` (void)
- `EmberStatus` `emberAfGenerateRandomKey` (`EmberKeyData` \*result)
- `EmberPanId` `emberAfGetPanId` (void)
- uint8\_t `emberAfGetChannel` (void)
- uint8\_t `emberAfGetBindingIndex` (void)
- uint8\_t `emberAfGetAddressIndex` (void)
- `EmberNetworkStatus` `emberAfNetworkState` (void)
- `EmberStatus` `emberAfGetNetworkParameters` (`EmberNodeType` \*nodeType, `EmberNetworkParameters` \*parameters)
- `EmberStatus` `emberAfGetNodeType` (`EmberNodeType` \*nodeType)
- `EmberStatus` `emberAfPermitJoin` (uint8\_t duration, bool broadcastMgmtPermitJoin)
- `EmberStatus` `emberAfBroadcastPermitJoin` (uint8\_t duration)
- #define `EMBER_AF_NEW_IMAGE_VERIFICATION`
- #define `EMBER_AF_CONTINUE_IMAGE_VERIFY`
- #define `EMBER_AF_ZCL_SEQUENCE_MASK`
- #define `EMBER_AF_MESSAGE_TAG_MASK`
- #define `EMBER_AF_REJOIN_DUE_TO_END_DEVICE_MOVE`
- #define `EMBER_AF_REJOIN_DUE_TO_TC_KEEPALIVE_FAILURE`
- #define `EMBER_AF_REJOIN_DUE_TO_CLI_COMMAND`
- #define `EMBER_AF_REJOIN_FIRST_REASON`
- #define `EMBER_AF_REJOIN_LAST_REASON`

## Printing

- bool `emberAfPrintEnabled` (uint16\_t functionality)
- void `emberAfPrintBuffer` (uint16\_t area, const uint8\_t \*buffer, uint16\_t bufferLen, bool withSpaces)
- void `emberAfPrintString` (uint16\_t area, const uint8\_t \*buffer)
- void `emberAfPrintLongString` (uint16\_t area, const uint8\_t \*buffer)
- void `emberAfPrint` (uint16\_t functionality, PGM\_P formatString,...)
- void `emberAfPrintln` (uint16\_t functionality, PGM\_P formatString,...)
- void `emberAfFlush` (uint16\_t functionality)
- void `emberAfPrintOn` (uint16\_t functionality)
- void `emberAfPrintOff` (uint16\_t functionality)
- void `emberAfPrintAllOn` (void)
- void `emberAfPrintAllOff` (void)
- void `emberAfPrintStatus` (void)
- void `emberAfPrintLittleEndianEui64` (const `EmberEUI64` eui64)
- void `emberAfPrintBigEndianEui64` (const `EmberEUI64` eui64)

- void `emberAfPrintMessageData` (uint8\_t \*data, uint16\_t length)
- #define `emberAfGuaranteedPrint(...)`
- #define `emberAfGuaranteedPrintln(...)`
- #define `emberAfGuaranteedPrintBuffer`(buffer, len, withSpace)
- #define `emberAfGuaranteedPrintString`(buffer)
- #define `emberAfGuaranteedPrintLongString`(buffer)
- #define `emberAfGuaranteedFlush()`

## Sleep Control

- void `emberAfRunEvents` (void)
- EmberStatus `emberAfScheduleTickExtended` (uint8\_t endpoint, EmberAfClusterId clusterId, bool isClient, uint32\_t delayMs, EmberAfEventPollControl pollControl, EmberAfEventSleepControl sleepControl)
- EmberStatus `emberAfScheduleClusterTick` (uint8\_t endpoint, EmberAfClusterId clusterId, bool isClient, uint32\_t delayMs, EmberAfEventSleepControl sleepControl)
- EmberStatus `emberAfScheduleClientTickExtended` (uint8\_t endpoint, EmberAfClusterId clusterId, uint32\_t delayMs, EmberAfEventPollControl pollControl, EmberAfEventSleepControl sleepControl)
- EmberStatus `emberAfScheduleClientTick` (uint8\_t endpoint, EmberAfClusterId clusterId, uint32\_t delayMs)
- EmberStatus `emberAfScheduleServerTickExtended` (uint8\_t endpoint, EmberAfClusterId clusterId, uint32\_t delayMs, EmberAfEventPollControl pollControl, EmberAfEventSleepControl sleepControl)
- EmberStatus `emberAfScheduleServerTick` (uint8\_t endpoint, EmberAfClusterId clusterId, uint32\_t delayMs)
- EmberStatus `emberAfDeactivateClusterTick` (uint8\_t endpoint, EmberAfClusterId clusterId, bool isClient)
- EmberStatus `emberAfDeactivateClientTick` (uint8\_t endpoint, EmberAfClusterId clusterId)
- EmberStatus `emberAfDeactivateServerTick` (uint8\_t endpoint, EmberAfClusterId clusterId)
- EmberStatus `emberAfEventControlSetDelayMS` (EmberEventControl \*control, uint32\_t delayMs)
- EmberStatus `emberAfEventControlSetDelay` (EmberEventControl \*eventControl, uint32\_t delayMs)
- EmberStatus `emberAfEventControlSetDelayQS` (EmberEventControl \*control, uint32\_t delayQs)
- EmberStatus `emberAfEventControlSetDelayMinutes` (EmberEventControl \*control, uint16\_t delayM)
- void `emberAfNetworkEventControlSetInactive` (EmberEventControl \*controls)
- bool `emberAfNetworkEventControlGetActive` (EmberEventControl \*controls)
- void `emberAfNetworkEventControlSetActive` (EmberEventControl \*controls)
- EmberStatus `emberAfNetworkEventControlSetDelayMS` (EmberEventControl \*controls, uint32\_t delayMs)
- EmberStatus `emberAfNetworkEventControlSetDelay` (EmberEventControl \*controls, uint32\_t delayMs)
- EmberStatus `emberAfNetworkEventControlSetDelayQS` (EmberEventControl \*controls, uint32\_t delayQs)
- EmberStatus `emberAfNetworkEventControlSetDelayMinutes` (EmberEventControl \*controls, uint16\_t delayM)
- EmberStatus `emberAfEndpointEventControlSetInactive` (EmberEventControl \*controls, uint8\_t endpoint)
- bool `emberAfEndpointEventControlGetActive` (EmberEventControl \*controls, uint8\_t endpoint)
- EmberStatus `emberAfEndpointEventControlSetActive` (EmberEventControl \*controls, uint8\_t endpoint)

- `EmberStatus emberAfEndpointEventControlSetDelayMS (EmberEventControl *controls, uint8_t endpoint, uint32_t delayMs)`
- `EmberStatus emberAfEndpointEventControlSetDelay (EmberEventControl *controls, uint8_t endpoint, uint32_t delayMs)`
- `EmberStatus emberAfEndpointEventControlSetDelayQS (EmberEventControl *controls, uint8_t endpoint, uint32_t delayQs)`
- `EmberStatus emberAfEndpointEventControlSetDelayMinutes (EmberEventControl *controls, uint8_t endpoint, uint16_t delayM)`
- `uint32_t emberAfMsToNextEvent (uint32_t maxMs)`
- `uint32_t emberAfMsToNextEventExtended (uint32_t maxMs, uint8_t *returnIndex)`
- `#define emberAfAddToCurrentAppTasks(x)`
- `#define emberAfRemoveFromCurrentAppTasks(x)`
- `#define emberAfGetCurrentAppTasks()`
- `#define EMBER_AF_CLIENT_CLUSTER_TICK`
- `#define EMBER_AF_SERVER_CLUSTER_TICK`
- `#define emberAfQSToNextEvent(maxQS)`
- `#define emberAfGetCurrentSleepControl()`
- `#define emberAfSetDefaultSleepControl(x)`
- `#define emberAfGetDefaultSleepControl()`

## Messaging

- `EmberAfClusterCommand * emAfCurrentCommand`
- `EmberStatus emberAfSendResponse (void)`
- `EmberStatus emberAfSendResponseWithCallback (EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendMulticast (EmberMulticastId multicastId, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendMulticastWithAliasWithCallback (EmberMulticastId multicastId, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendMulticastWithCallback (EmberMulticastId multicastId, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendBroadcast (EmberNodeId destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendBroadcastWithCallback (EmberNodeId destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendBroadcastWithAliasWithCallback (EmberNodeId destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendUnicast (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendUnicastWithCallback (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendUnicastToBindings (EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendUnicastToBindingsWithCallback (EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendInterPan (EmberPanId panId, const EmberEUI64 destinationLongId, EmberNodeId destinationShortId, EmberMulticastId multicastId, EmberAfClusterId clusterId, EmberAfProfileId profileId, uint16_t messageLength, uint8_t *messageBytes)`

- `EmberStatus emberAfSendEndDeviceBind (uint8_t endpoint)`
- `EmberStatus emberAfSendCommandUnicastToBindings (void)`
- `EmberStatus emberAfSendCommandUnicastToBindingsWithCallback (EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandMulticast (EmberMulticastId multicastId)`
- `EmberStatus emberAfSendCommandMulticastWithAlias (EmberMulticastId multicastId, EmberNodeId alias, uint8_t sequence)`
- `EmberStatus emberAfSendCommandMulticastWithCallback (EmberMulticastId multicastId, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandUnicast (EmberOutgoingMessageType type, uint16_t indexOrDestination)`
- `EmberStatus emberAfSendCommandUnicastWithCallback (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandBroadcast (EmberNodeId destination)`
- `EmberStatus emberAfSendCommandBroadcastWithCallback (EmberNodeId destination, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandBroadcastWithAlias (EmberNodeId destination, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandInterPan (EmberPanId panId, const EmberEUI64 destinationLongId, EmberNodeId destinationShortId, EmberMulticastId multicastId, EmberAfProfileId profileId)`
- `EmberStatus emberAfSendDefaultResponse (const EmberAfClusterCommand *cmd, EmberAfStatus status)`
- `EmberStatus emberAfSendDefaultResponseWithCallback (const EmberAfClusterCommand *cmd, EmberAfStatus status, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendImmediateDefaultResponse (EmberAfStatus status)`
- `EmberStatus emberAfSendImmediateDefaultResponseWithCallback (EmberAfStatus status, EmberAfMessageSentFunction callback)`
- `uint8_t emberAfMaximumApsPayloadLength (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame)`
- `EmberApsFrame * emberAfGetCommandApsFrame (void)`
- `void emberAfSetCommandEndpoints (uint8_t sourceEndpoint, uint8_t destinationEndpoint)`
- `EmberStatus emberAfFindDevicesByProfileAndCluster (EmberNodeId target, EmberAfProfileId profileId, EmberAfClusterId clusterId, bool serverCluster, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindClustersByDeviceAndEndpoint (EmberNodeId target, uint8_t targetEndpoint, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindIeeeAddress (EmberNodeId shortAddress, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindNodeId (EmberEUI64 longAddress, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindActiveEndpoints (EmberNodeId target, EmberAfServiceDiscoveryCallback *callback)`
- `uint8_t emberAfAddAddressTableEntry (EmberEUI64 longId, EmberNodeId shortId)`
- `EmberStatus emberAfSetAddressTableEntry (uint8_t index, EmberEUI64 longId, EmberNodeId shortId)`
- `EmberStatus emberAfRemoveAddressTableEntry (uint8_t index)`
- `EmberStatus emberAfInitiateKeyEstablishment (EmberNodeId nodeId, uint8_t endpoint)`
- `EmberStatus emberAfInitiateInterPanKeyEstablishment (EmberPanId panId, const EmberEUI64 eui64)`
- `bool emberAfPerformingKeyEstablishment (void)`

- `EmberStatus emberAfInitiatePartnerLinkKeyExchange (EmberNodeId target, uint8_t endpoint, EmberAfPartnerLinkKeyExchangeCallback *callback)`
- `bool emberAfIsCurrentSecurityProfileSmartEnergy (void)`
- `#define EMBER_AF_CLIENT_CLUSTER_DISCOVERY`
- `#define EMBER_AF_SERVER_CLUSTER_DISCOVERY`
- `#define emberAfCurrentCommand()`
- `#define emberAfCurrentEndpoint()`

## ZCL macros

- `#define ZCL_FRAME_CONTROL_FRAME_TYPE_MASK`
- `#define ZCL_CLUSTER_SPECIFIC_COMMAND`
- `#define ZCL_PROFILE_WIDE_COMMAND`
- `#define ZCL_GLOBAL_COMMAND`
- `#define ZCL_MANUFACTURER_SPECIFIC_MASK`
- `#define ZCL_FRAME_CONTROL_DIRECTION_MASK`
- `#define ZCL_FRAME_CONTROL_SERVER_TO_CLIENT`
- `#define ZCL_FRAME_CONTROL_CLIENT_TO_SERVER`
- `#define ZCL_DISABLE_DEFAULT_RESPONSE_MASK`
- `#define ZCL_DIRECTION_CLIENT_TO_SERVER`
- `#define ZCL_DIRECTION_SERVER_TO_CLIENT`
- `#define EMBER_AF_ZCL_OVERHEAD`
- `#define EMBER_AF_ZCL_MANUFACTURER_SPECIFIC_OVERHEAD`

## Network utility functions

- `EmberStatus emberAfFormNetwork (EmberNetworkParameters *parameters)`
- `EmberStatus emberAfJoinNetwork (EmberNetworkParameters *parameters)`
- `EmberStatus emberAfFindUnusedPanIdAndForm (void)`
- `EmberStatus emberAfStartSearchForJoinableNetwork (void)`
- `EmberStatus emberAfPushNetworkIndex (uint8_t networkIndex)`
- `EmberStatus emberAfPushCallbackNetworkIndex (void)`
- `EmberStatus emberAfPushEndpointNetworkIndex (uint8_t endpoint)`
- `EmberStatus emberAfPopNetworkIndex (void)`
- `uint8_t emberAfPrimaryEndpointForNetworkIndex (uint8_t networkIndex)`
- `uint8_t emberAfPrimaryEndpointForCurrentNetworkIndex (void)`
- `EmberStatus emAfInitializeNetworkIndexStack (void)`
- `void emAfAssertNetworkIndexStackIsEmpty (void)`
- `int emberAfMain (MAIN_FUNCTION_PARAMETERS)`

### 6.2.1 Detailed Description

This documentation describes the application programming interface (API) for the Ember Application Framework V2. The file `af.h` is the master include file for the Application Framework V2 modules.

### 6.2.2 Macro Definition Documentation

#### 6.2.2.1 #define CONFIGURATION\_HEADER

Definition at line 24 of file `af.h`.

**6.2.2.2 #define emberAfClusterIsManufacturerSpecific( *cluster* )**

macro that returns true if the cluster is in the manufacturer specific range

**Parameters**

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

Definition at line [354](#) of file [af.h](#).

**6.2.2.3 #define emberAfAttributeIsReadOnly( *metadata* )**

macro that returns true if attribute is read only.

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line [362](#) of file [af.h](#).

**6.2.2.4 #define emberAfAttributeIsClient( *metadata* )**

macro that returns true if this is a client attribute, and false if it is server

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line [369](#) of file [af.h](#).

**6.2.2.5 #define emberAfAttributeIsTokenized( *metadata* )**

macro that returns true if attribute is saved to token.

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line [376](#) of file [af.h](#).

**6.2.2.6 #define emberAfAttributeIsExternal( *metadata* )**

macro that returns true if attribute is saved in external storage.

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line [383](#) of file [af.h](#).

**6.2.2.7 #define emberAfAttributeIsSingleton( *metadata* )**

macro that returns true if attribute is a singleton

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line 390 of file [af.h](#).

**6.2.2.8 #define emberAfAttributeIsManufacturerSpecific( *metadata* )**

macro that returns true if attribute is manufacturer specific

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line 397 of file [af.h](#).

**6.2.2.9 #define emberAfAttributeSize( *metadata* )**

macro that returns size of attribute in bytes.

**Parameters**

<i>metadata</i>	EmberAfAttributeMetadata* to consider.
-----------------	--

Definition at line 405 of file [af.h](#).

**6.2.2.10 #define emAfIsCurrentNetwork( )**

macro that returns true if the cluster is in the manufacturer specific range

**Parameters**

<i>cluster</i>	EmberAfCluster* to consider
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Definition at line 423 of file [af.h](#).

**6.2.2.11 #define emberAfProfileIdFromIndex( *index* )**

Macro that takes index of endpoint, and returns profile Id for it.

Definition at line 453 of file [af.h](#).

**6.2.2.12 #define emberAfDeviceIdFromIndex( *index* )**

Macro that takes index of endpoint, and returns device Id for it.

Definition at line 458 of file [af.h](#).

**6.2.2.13 #define emberAfDeviceVersionFromIndex( *index* )**

Macro that takes index of endpoint, and returns device version for it.

Definition at line [463](#) of file [af.h](#).

**6.2.2.14 #define emberAfNetworkIndexFromEndpointIndex( *index* )**

Macro that takes index of endpoint, and returns network index for it.

Definition at line [468](#) of file [af.h](#).

**6.2.2.15 #define emberAfPrimaryProfileId( )**

Macro that returns primary profile ID.

Primary profile is the profile of a primary endpoint as defined in AppBuilder.

Definition at line [479](#) of file [af.h](#).

**6.2.2.16 #define emberAfPrimaryEndpoint( )**

Macro that returns the primary endpoint.

Definition at line [484](#) of file [af.h](#).

**6.2.2.17 #define emberAfGetInt8u( *message*, *currentIndex*, *msgLen* )**

Macro for consistency, that extracts single byte out of the message.

Definition at line [547](#) of file [af.h](#).

**6.2.2.18 #define emberAfCopyInt8u( *data*, *index*, *x* )**

Macro for consistency that copies an uint8\_t from variable into buffer.

Definition at line [552](#) of file [af.h](#).

**6.2.2.19 #define EMBER\_AF\_NEW\_IMAGE\_VERIFICATION**

This indicates a new image verification is taking place.

Definition at line [644](#) of file [af.h](#).

**6.2.2.20 #define EMBER\_AF\_CONTINUE\_IMAGE\_VERIFY**

This indicates the continuation of an image verification already in progress.

Definition at line [650](#) of file [af.h](#).

**6.2.2.21 #define EMBER\_AF\_ZCL\_SEQUENCE\_MASK**

The mask applied by [emberAfNextSequence](#) when generating ZCL sequence numbers.

Definition at line [684](#) of file [af.h](#).

**6.2.2.22 #define EMBER\_AF\_MESSAGE\_TAG\_MASK**

The mask applied to generated message tags used by the framework when sending messages via EZSP. Customers who call `ezspSend` functions directly must use message tags outside this mask.

Definition at line [690](#) of file [af.h](#).

**6.2.2.23 #define EMBER\_AF\_REJOIN\_DUE\_TO\_END\_DEVICE\_MOVE**

An App. Framework defined rejoin reason.

Definition at line [794](#) of file [af.h](#).

**6.2.2.24 #define EMBER\_AF\_REJOIN\_DUE\_TO\_TC\_KEEPALIVE\_FAILURE**

This indicates a new image verification is taking place.

Definition at line [795](#) of file [af.h](#).

**6.2.2.25 #define EMBER\_AF\_REJOIN\_DUE\_TO\_CLI\_COMMAND**

This indicates a new image verification is taking place.

Definition at line [796](#) of file [af.h](#).

**6.2.2.26 #define EMBER\_AF\_REJOIN\_FIRST\_REASON**

This indicates a new image verification is taking place.

Definition at line [798](#) of file [af.h](#).

**6.2.2.27 #define EMBER\_AF\_REJOIN\_LAST\_REASON**

This indicates a new image verification is taking place.

Definition at line [799](#) of file [af.h](#).

**6.2.2.28 #define emberAfGuaranteedPrint( ... )**

Print that can't be turned off.

Definition at line [845](#) of file [af.h](#).

**6.2.2.29 #define emberAfGuaranteedPrintln( ... )**

Println that can't be turned off.

Definition at line [850](#) of file `af.h`.

#### **6.2.2.30 #define emberAfGuaranteedPrintBuffer( *buffer*, *len*, *withSpace* )**

Buffer print that can't be turned off.

Definition at line [855](#) of file `af.h`.

#### **6.2.2.31 #define emberAfGuaranteedPrintString( *buffer* )**

String print that can't be turned off.

Definition at line [860](#) of file `af.h`.

#### **6.2.2.32 #define emberAfGuaranteedPrintLongString( *buffer* )**

Long string print that can't be turned off.

Definition at line [865](#) of file `af.h`.

#### **6.2.2.33 #define emberAfGuaranteedFlush( )**

Buffer flush for `emberAfGuaranteedPrint()`, `emberAfGuaranteedPrintln()`, `emberAfGuaranteedPrintBuffer()`, and `emberAfGuaranteedPrintString()`.

Definition at line [871](#) of file `af.h`.

#### **6.2.2.34 #define emberAfAddToCurrentAppTasks( *x* )**

A function used to add a task to the task register.

Definition at line [969](#) of file `af.h`.

#### **6.2.2.35 #define emberAfRemoveFromCurrentAppTasks( *x* )**

A function used to remove a task from the task register.

Definition at line [975](#) of file `af.h`.

#### **6.2.2.36 #define emberAfCurrentAppTasks( )**

A macro used to retrieve the bitmask of all application frameowrk tasks currently in progress. This can be useful for debugging if some task is holding the device out of hibernation.

Definition at line [983](#) of file `af.h`.

#### **6.2.2.37 #define EMBER\_AF\_CLIENT\_CLUSTER\_TICK**

Friendly define for use in the scheduling or canceling client events with `emberAfScheduleClusterTick()` and `emberAfDeactivateClusterTick()`.

Definition at line [997](#) of file `af.h`.

### 6.2.2.38 #define EMBER\_AF\_SERVER\_CLUSTER\_TICK

Friendly define for use in the scheduling or canceling server events with [emberAfScheduleClusterTick\(\)](#) and [emberAfDeactivateClusterTick\(\)](#).

Definition at line 1003 of file [af.h](#).

### 6.2.2.39 #define emberAfQSToNextEvent( maxQS )

A function used to retrieve the number of quarter seconds until the next event scheduled in the application framework's event mechanism. This function will round down and will return 0 if the next event must fire within a quarter second.

#### Parameters

<i>maxQS</i> , the	maximum number of quarter seconds until the next event.
--------------------	---

#### Returns

The number of quarter seconds until the next event or maxQS if no event is scheduled before then.

Definition at line 1364 of file [af.h](#).

### 6.2.2.40 #define emberAfGetCurrentSleepControl( )

A function for retrieving the most restrictive sleep control value for all scheduled events. This function is used by [emberAfOkToNap](#) and [emberAfOkToHibernate](#) to makes sure that there are no events scheduled which will keep the device from hibernating or napping.

#### Returns

The most restrictive sleep control value for all scheduled events or the value returned by [emberAfGetDefaultSleepControl\(\)](#) if no events are currently scheduled. The default sleep control value is initialized to EMBER\_AF\_OK\_TO\_HIBERNATE but can be changed at any time using the [emberAfSetDefaultSleepControl\(\)](#) function.

Definition at line 1382 of file [af.h](#).

### 6.2.2.41 #define emberAfSetDefaultSleepControl( x )

A function for setting the default sleep control value against which all scheduled event sleep control values will be evaluated. This can be used to keep a device awake for an extended period of time by setting the default to EMBER\_AF\_STAY\_AWAKE and then resetting the value to EMBER\_AF\_OK\_TO\_HIBERNATE once the wake period is complete.

Definition at line 1394 of file [af.h](#).

### 6.2.2.42 #define emberAfGetDefaultSleepControl( )

A function used to retrive the default sleep control against which all event sleep control values are evaluated. The default sleep control value is initialized to EMBER\_AF\_OK\_TO\_HIBERNATE but can be changed by the application at any time using the [emberAfSetDefaultSleepControl\(\)](#) function.

**Returns**

The current default sleep control value.

Definition at line [1405](#) of file `af.h`.

**6.2.2.43 #define EMBER\_AF\_CLIENT\_CLUSTER\_DISCOVERY**

Friendly define for use in discovering client clusters with `emberAfFindDevicesByProfileAndCluster()`.

Definition at line [1722](#) of file `af.h`.

**6.2.2.44 #define EMBER\_AF\_SERVER\_CLUSTER\_DISCOVERY**

Friendly define for use in discovering server clusters with `emberAfFindDevicesByProfileAndCluster()`.

Definition at line [1728](#) of file `af.h`.

**6.2.2.45 #define emberAfCurrentCommand( )**

Use this macro to retrieve the current command. This macro may only be used within the command parsing context. For instance Any of the command handling callbacks may use this macro. If this macro is used outside the command context, the returned `EmberAfClusterCommand` pointer will be null.

Definition at line [1868](#) of file `af.h`.

**6.2.2.46 #define emberAfCurrentEndpoint( )**

returns the current endpoint that is being served.

The purpose of this macro is mostly to access endpoint that is being served in the command callbacks.

Definition at line [1877](#) of file `af.h`.

**6.2.2.47 #define ZCL\_FRAME\_CONTROL\_FRAME\_TYPE\_MASK**

Definition at line [1946](#) of file `af.h`.

**6.2.2.48 #define ZCL\_CLUSTER\_SPECIFIC\_COMMAND**

Definition at line [1947](#) of file `af.h`.

**6.2.2.49 #define ZCL\_PROFILE\_WIDE\_COMMAND**

Definition at line [1948](#) of file `af.h`.

**6.2.2.50 #define ZCL\_GLOBAL\_COMMAND**

Definition at line [1949](#) of file `af.h`.

**6.2.2.51 #define ZCL\_MANUFACTURER\_SPECIFIC\_MASK**

Definition at line 1951 of file af.h.

**6.2.2.52 #define ZCL\_FRAME\_CONTROL\_DIRECTION\_MASK**

Definition at line 1953 of file af.h.

**6.2.2.53 #define ZCL\_FRAME\_CONTROL\_SERVER\_TO\_CLIENT**

Definition at line 1954 of file af.h.

**6.2.2.54 #define ZCL\_FRAME\_CONTROL\_CLIENT\_TO\_SERVER**

Definition at line 1955 of file af.h.

**6.2.2.55 #define ZCL\_DISABLE\_DEFAULT\_RESPONSE\_MASK**

Definition at line 1957 of file af.h.

**6.2.2.56 #define ZCL\_DIRECTION\_CLIENT\_TO\_SERVER**

Definition at line 1960 of file af.h.

**6.2.2.57 #define ZCL\_DIRECTION\_SERVER\_TO\_CLIENT**

Definition at line 1961 of file af.h.

**6.2.2.58 #define EMBER\_AF\_ZCL\_OVERHEAD**

Definition at line 1967 of file af.h.

**6.2.2.59 #define EMBER\_AF\_ZCL\_MANUFACTURER\_SPECIFIC\_OVERHEAD**

Definition at line 1968 of file af.h.

**6.2.3 Enumeration Type Documentation****6.2.3.1 anonymous enum**

Data types are either analog or discrete. This makes a difference for some of the ZCL global commands

**Enumerator:**

*EMBER\_AF\_DATA\_TYPE\_ANALOG*

*EMBER\_AF\_DATA\_TYPE\_DISCRETE*

*EMBER\_AF\_DATA\_TYPE\_NONE*

Definition at line 501 of file [af.h](#).

## 6.2.4 Function Documentation

**6.2.4.1 EmberAfAttributeMetadata\* emberAfLocateAttributeMetadata ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attribute*, *uint8\_t mask*, *uint16\_t manufacturerCode* )**

locate attribute metadata

Function returns pointer to the attribute metadata structure, or NULL if attribute was not found.

### Parameters

<i>endpoint</i>	Zigbee endpoint number.
<i>cluster</i>	Cluster ID of the sought cluster.
<i>attribute</i>	Attribute ID of the sought attribute.
<i>mask</i>	CLUSTER_MASK_SERVER or CLUSTER_MASK_CLIENT

### Returns

Returns pointer to the attribute metadata location.

**6.2.4.2 bool emberAfContainsAttribute ( *uint8\_t endpoint*, *EmberAfClusterId clusterId*, *EmberAfAttributeId attributelD*, *uint8\_t mask*, *uint16\_t manufacturerCode* )**

Returns true if the attribute exists.

**6.2.4.3 bool emberAfContainsCluster ( *uint8\_t endpoint*, *EmberAfClusterId clusterId* )**

Returns true If endpoint contains cluster.

This function returns true regardless of whether the endpoint contains server, client or both.

**6.2.4.4 bool emberAfContainsServer ( *uint8\_t endpoint*, *EmberAfClusterId clusterId* )**

Returns true If endpoint contains cluster server.

This function returns true if the endpoint contains server of a given cluster.

**6.2.4.5 bool emberAfContainsClient ( *uint8\_t endpoint*, *EmberAfClusterId clusterId* )**

Returns true If endpoint contains cluster client.

This function returns true if the endpoint contains client of a given cluster.

**6.2.4.6 EmberAfStatus emberAfWriteAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t mask*, *uint8\_t \* dataPtr*, *uint8\_t dataType* )**

write an attribute, performing all the checks.

This function will attempt to write the attribute value from the provided pointer. This function will only check that the attribute exists. If it does it will write the value into the attribute table for the given attribute.

This function will not check to see if the attribute is writable since the read only / writable characteristic of an attribute only pertains to external devices writing over the air. Because this function is being called locally it assumes that the device knows what it is doing and has permission to perform the given operation.

#### See Also

[emberAfWriteClientAttribute](#), [emberAfWriteServerAttribute](#), [emberAfWriteManufacturerSpecificClientAttribute](#), [emberAfWriteManufacturerSpecificServerAttribute](#)

#### 6.2.4.7 EmberAfStatus emberAfWriteServerAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t \* dataPtr*, *uint8\_t dataType* )

write a cluster server attribute.

This function is the same as `emberAfWriteAttribute` except that it saves having to pass the cluster mask. this is useful for code savings since write attribute is used frequently throughout the framework

#### See Also

[emberAfWriteClientAttribute](#), [emberAfWriteManufacturerSpecificClientAttribute](#), [emberAfWriteManufacturerSpecificServerAttribute](#)

#### 6.2.4.8 EmberAfStatus emberAfWriteClientAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t \* dataPtr*, *uint8\_t dataType* )

write an cluster client attribute.

This function is the same as `emberAfWriteAttribute` except that it saves having to pass the cluster mask. this is useful for code savings since write attribute is used frequently throughout the framework

#### See Also

[emberAfWriteServerAttribute](#), [emberAfWriteManufacturerSpecificClientAttribute](#), [emberAfWriteManufacturerSpecificServerAttribute](#)

#### 6.2.4.9 EmberAfStatus emberAfWriteManufacturerSpecificServerAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint16\_t manufacturerCode*, *uint8\_t \* dataPtr*, *uint8\_t dataType* )

write an manufacturer specific server attribute.

This function is the same as `emberAfWriteAttribute` except that it saves having to pass the cluster mask. this is useful for code savings since write attribute is used frequently throughout the framework

#### See Also

[emberAfWriteClientAttribute](#), [emberAfWriteServerAttribute](#), [emberAfWriteManufacturerSpecificClientAttribute](#)

**6.2.4.10 EmberAfStatus emberAfWriteManufacturerSpecificClientAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint16\_t manufacturerCode*, *uint8\_t \* dataPtr*, *uint8\_t dataType* )**

write an manufacturer specific client attribute.

This function is the same as `emberAfWriteAttribute` except that it saves having to pass the cluster mask. this is useful for code savings since write attribute is used frequently throughout the framework

#### See Also

[emberAfWriteClientAttribute](#), [emberAfWriteServerAttribute](#), [emberAfWriteManufacturerSpecificServerAttribute](#)

**6.2.4.11 EmberAfStatus emberAfVerifyAttributeWrite ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t mask*, *uint16\_t manufacturerCode*, *uint8\_t \* buffer*, *uint8\_t dataType* )**

Function that test the success of attribute write.

This function returns success if attribute write would be succesfull. It does not actuall write anything, just validates for read-only and data-type.

#### Parameters

<i>endpoint</i>	Zigbee endpoint number
<i>cluster</i>	Cluster ID of the sought cluster.
<i>attribute</i>	Attribute ID of the sought attribute.
<i>mask</i>	CLUSTER_MASK_SERVER or CLUSTER_MASK_CLIENT
<i>buffer</i>	Location where attribute will be written from.
<i>dataType</i>	ZCL attribute type.

**6.2.4.12 EmberAfStatus emberAfReadAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t mask*, *uint8\_t \* dataPtr*, *uint8\_t readLength*, *uint8\_t \* dataType* )**

Read the attribute value, performing all the checks.

This function will attempt to read the attribute and store it into the pointer. It will also read the data type. Both dataPtr and dataType may be NULL, signifying that either value or type is not desired.

#### See Also

[emberAfReadClientAttribute](#), [emberAfReadServerAttribute](#), [emberAfReadManufacturerSpecificClientAttribute](#), [emberAfReadManufacturerSpecificServerAttribute](#)

**6.2.4.13 EmberAfStatus emberAfReadServerAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t \* dataPtr*, *uint8\_t readLength* )**

Read the server attribute value, performing all the checks.

This function will attempt to read the attribute and store it into the pointer. It will also read the data type. Both dataPtr and dataType may be NULL, signifying that either value or type is not desired.

**See Also**

[emberAfReadClientAttribute](#), [emberAfReadManufacturerSpecificClientAttribute](#), [emberAfReadManufacturerSpecificServerAttribute](#)

#### 6.2.4.14 EmberAfStatus emberAfReadClientAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint8\_t \* dataPtr*, *uint8\_t readLength* )

Read the client attribute value, performing all the checks.

This function will attempt to read the attribute and store it into the pointer. It will also read the data type. Both dataPtr and dataType may be NULL, signifying that either value or type is not desired.

**See Also**

[emberAfReadServerAttribute](#), [emberAfReadManufacturerSpecificClientAttribute](#), [emberAfReadManufacturerSpecificServerAttribute](#)

#### 6.2.4.15 EmberAfStatus emberAfReadManufacturerSpecificServerAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint16\_t manufacturerCode*, *uint8\_t \* dataPtr*, *uint8\_t readLength* )

Read the server attribute value, performing all the checks.

This function will attempt to read the attribute and store it into the pointer. It will also read the data type. Both dataPtr and dataType may be NULL, signifying that either value or type is not desired.

**See Also**

[emberAfReadClientAttribute](#), [emberAfReadServerAttribute](#), [emberAfReadManufacturerSpecificClientAttribute](#)

#### 6.2.4.16 EmberAfStatus emberAfReadManufacturerSpecificClientAttribute ( *uint8\_t endpoint*, *EmberAfClusterId cluster*, *EmberAfAttributeId attributeID*, *uint16\_t manufacturerCode*, *uint8\_t \* dataPtr*, *uint8\_t readLength* )

Read the client attribute value, performing all the checks.

This function will attempt to read the attribute and store it into the pointer. It will also read the data type. Both dataPtr and dataType may be NULL, signifying that either value or type is not desired.

**See Also**

[emberAfReadClientAttribute](#), [emberAfReadServerAttribute](#), [emberAfReadManufacturerSpecificServerAttribute](#)

#### 6.2.4.17 uint8\_t emberAfGetDataSize ( *uint8\_t dataType* )

this function returns the size of the ZCL data in bytes.

**Parameters**

<i>dataType</i>	Zcl data type
-----------------	---------------

**Returns**

size in bytes or 0 if invalid data type

**6.2.4.18 `uint8_t emberAfEndpointFromIndex ( uint8_t index )`**

Macro that takes index of endpoint, and returns Zigbee endpoint.

**6.2.4.19 `uint8_t emberAfIndexFromEndpoint ( uint8_t endpoint )`**

Returns the index of a given endpoint

**6.2.4.20 `uint8_t emberAfIndexFromEndpointIncludingDisabledEndpoints ( uint8_t endpoint )`**

Returns the index of a given endpoint; Does not ignore disabled endpoints

**6.2.4.21 `uint8_t emberAfFindClusterClientEndpointIndex ( uint8_t endpoint, EmberAfClusterId clusterId )`**

Returns the endpoint index within a given cluster (Client-side)

**6.2.4.22 `uint8_t emberAfFindClusterServerEndpointIndex ( uint8_t endpoint, EmberAfClusterId clusterId )`**

Returns the endpoint index within a given cluster (Server-side)

**6.2.4.23 `uint8_t emberAfNetworkIndexFromEndpoint ( uint8_t endpoint )`**

Returns the network index of a given endpoint.

**6.2.4.24 `uint8_t emberAfEndpointCount ( void )`**

Returns the total number of endpoints (dynamic and pre-compiled).

**6.2.4.25 `uint8_t emberAfFixedEndpointCount ( void )`**

Returns the number of pre-compiled endpoints.

**6.2.4.26 `uint8_t emberAfGetAttributeAnalogOrDiscreteType ( uint8_t dataType )`**

Returns the type of the attribute, either ANALOG, DISCRETE or NONE.

#### 6.2.4.27 `bool emberAfIsTypeSigned ( uint8_t dataType )`

Returns true if type is signed, false otherwise.

#### 6.2.4.28 `uint32_t emberAfGetInt32u ( const uint8_t * message, uint16_t currentIndex, uint16_t msgLen )`

Function that extracts a 32-bit integer from the message buffer.

#### 6.2.4.29 `uint32_t emberAfGetInt24u ( const uint8_t * message, uint16_t currentIndex, uint16_t msgLen )`

Function that extracts a 24-bit integer from the message buffer.

#### 6.2.4.30 `uint16_t emberAfGetInt16u ( const uint8_t * message, uint16_t currentIndex, uint16_t msgLen )`

Function that extracts a 16-bit integer from the message buffer.

#### 6.2.4.31 `uint8_t* emberAfGetString ( uint8_t * message, uint16_t currentIndex, uint16_t msgLen )`

Function that extracts a ZCL string from the message buffer.

#### 6.2.4.32 `uint8_t* emberAfGetLongString ( uint8_t * message, uint16_t currentIndex, uint16_t msgLen )`

Function that extracts a ZCL long string from the message buffer.

#### 6.2.4.33 `uint8_t emberAfGetDate ( uint8_t * message, uint16_t currentIndex, uint16_t msgLen, EmberAfDate * dest )`

macro that returns true if the cluster is in the manufacturer specific range

##### Parameters

<code>cluster</code>	EmberAfCluster* to consider
----------------------	-----------------------------

#### 6.2.4.34 `void emberAfCopyInt16u ( uint8_t * data, uint16_t index, uint16_t x )`

function that copies an in16u value into a buffer

#### 6.2.4.35 `void emberAfCopyInt24u ( uint8_t * data, uint16_t index, uint32_t x )`

function that copies an in24u value into a buffer

#### 6.2.4.36 `void emberAfCopyInt32u ( uint8_t * data, uint16_t index, uint32_t x )`

function that copies an in32u value into a buffer

#### 6.2.4.37 void emberAfCopyString ( *uint8\_t \* dest, uint8\_t \* src, uint8\_t size* )

macro that returns true if the cluster is in the manufacturer specific range

##### Parameters

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

#### 6.2.4.38 void emberAfCopyLongString ( *uint8\_t \* dest, uint8\_t \* src, uint16\_t size* )

macro that returns true if the cluster is in the manufacturer specific range

##### Parameters

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

#### 6.2.4.39 uint8\_t emberAfStringLength ( *const uint8\_t \* buffer* )

macro that returns true if the cluster is in the manufacturer specific range

##### Parameters

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

#### 6.2.4.40 uint16\_t emberAfLongStringLength ( *const uint8\_t \* buffer* )

macro that returns true if the cluster is in the manufacturer specific range

##### Parameters

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

#### 6.2.4.41 bool emberAfIsDeviceEnabled ( *uint8\_t endpoint* )

Function that checks if endpoint is enabled.

This function returns true if device at a given endpoint is enabled. At startup all endpoints are enabled.

##### Parameters

<i>endpoint</i>	Zigbee endpoint number
-----------------	------------------------

#### 6.2.4.42 bool emberAfIsDeviceIdentifying ( *uint8\_t endpoint* )

Function that checks if endpoint is identifying.

This function returns true if device at a given endpoint is identifying.

**Parameters**

<i>endpoint</i>	Zigbee endpoint number
-----------------	------------------------

**6.2.4.43 void emberAfSetDeviceEnabled ( uint8\_t *endpoint*, bool *enabled* )**

Function that enables or disables an endpoint.

By calling this function, you turn off all processing of incoming traffic for a given endpoint.

**Parameters**

<i>endpoint</i>	Zigbee endpoint number
-----------------	------------------------

**6.2.4.44 bool emberAfEndpointEnableDisable ( uint8\_t *endpoint*, bool *enable* )**

Enable/disable endpoints.

**6.2.4.45 bool emberAfEndpointIndexIsEnabled ( uint8\_t *index* )**

Determine if an endpoint at the specified index is enabled or disabled.

**6.2.4.46 bool emberAfIsThisDataTypeAStringType ( uint8\_t *dataType* )**

Returns true if a given ZCL data type is a string type.

You should use this function if you need to perform a different memory operation on a certain attribute because it is a string type. Since ZCL strings carry length as the first byte(s), it is often required to treat them differently than regular data types.

**Returns**

true if data type is a string.

**6.2.4.47 bool emberAfIsStringAttributeType ( EmberAfAttributeType *attributeType* )**

Returns true if the given attribute type is a string.

**6.2.4.48 bool emberAfIsLongStringAttributeType ( EmberAfAttributeType *attributeType* )**

Returns true if the given attribute type is a long string.

**6.2.4.49 uint8\_t emberAfNextSequence ( void )**

Increments the ZCL sequence number and returns the value.

ZCL messages have sequence numbers so that they can be matched up with other messages in the transaction. To avoid conflicts with sequence numbers generated independently by the application, this API returns sequence numbers with the high bit clear. If the application generates its own sequence numbers, it should use numbers with the high bit set.

**Returns**

The next ZCL sequence number.

**6.2.4.50 uint8\_t emberAfGetLastSequenceNumber ( void )**

Retreives the last sequence number that was used.

**6.2.4.51 int8\_t emberAfCompareValues ( uint8\_t \* val1, uint8\_t \* val2, uint8\_t len, bool signedNumber )**

Simple integer comparison function. Compares two values of a known length as integers. Signed integer comparison are supported for numbers with length of 4 (bytes) or less. The integers are in native endianess.

**Returns**

-1, if val1 is smaller 0, if they are the same or if two negative numbers with length greater than 4 is being compared 1, if val2 is smaller.

**6.2.4.52 void emberAfGetEui64 ( EmberEUI64 returnEui64 )**

populates the eui64 with the local eui64.

**6.2.4.53 EmberNodeId emberAfGetNodeId ( void )**

Returns the node ID of the local node.

**6.2.4.54 EmberStatus emberAfGenerateRandomKey ( EmberKeyData \* result )**

Generates a random key (link, network, or master).

**6.2.4.55 EmberPanId emberAfGetPanId ( void )**

Returns the PAN ID of the local node.

**6.2.4.56 uint8\_t emberAfGetChannel ( void )**

Returns the radioChannel of the current network.

**6.2.4.57 uint8\_t emberAfGetBindingIndex ( void )**

This indicates a new image verification is taking place.

**6.2.4.58 uint8\_t emberAfGetAddressIndex ( void )**

This indicates a new image verification is taking place.

#### 6.2.4.59 EmberNetworkStatus emberAfNetworkState ( void )

Returns the current network state. This call caches the results on the host to prevent frequent EZSP transactions.

#### 6.2.4.60 EmberStatus emberAfGetNetworkParameters ( EmberNodeType \* *nodeType*, EmberNetworkParameters \* *parameters* )

Returns the current network parameters.

#### 6.2.4.61 EmberStatus emberAfGetNodeType ( EmberNodeType \* *nodeType* )

Returns the current node type.

#### 6.2.4.62 EmberStatus emberAfPermitJoin ( uint8\_t *duration*, bool *broadcastMgmtPermitJoin* )

Enables local permit join and optionally broadcasts the ZDO Mgmt\_Permit\_Join\_req message. This API can be called from any device type and still return EMBER\_SUCCESS. If the API is called from an end device, the permit association bit will just be left off.

##### Parameters

<i>duration</i>	the duration that the permit join bit will remain on and other devices will be able to join the current network.
<i>broadcast-MgmtPermit-Join</i>	whether or not to broadcast the ZDO Mgmt_Permit_Join_req message.

##### Returns

status of whether or not permit join was enabled.

#### 6.2.4.63 EmberStatus emberAfBroadcastPermitJoin ( uint8\_t *duration* )

Enables local permit join and broadcasts the ZDO Mgmt\_Permit\_Join\_req message. This API can be called from any device type and still return EMBER\_SUCCESS. If the API is called from an end device, the permit association bit will just be left off.

##### Parameters

<i>duration</i>	the duration that the permit join bit will remain on and other devices will be able to join the current network.
-----------------	--

**Returns**

status of whether or not permit join was enabled.

**6.2.4.64 bool emberAfPrintEnabled ( uint16\_t *functionality* )**

returns true if certain debug area is enabled.

**6.2.4.65 void emberAfPrintBuffer ( uint16\_t *area*, const uint8\_t \* *buffer*, uint16\_t *bufferLen*, bool *withSpaces* )**

Useful function to print a buffer.

**6.2.4.66 void emberAfPrintString ( uint16\_t *area*, const uint8\_t \* *buffer* )**

Useful function to print character strings. The first byte of the buffer specifies the length of the string.

**6.2.4.67 void emberAfPrintLongString ( uint16\_t *area*, const uint8\_t \* *buffer* )**

Useful function to print long character strings. The first two bytes of the buffer specify the length of the string.

**6.2.4.68 void emberAfPrint ( uint16\_t *functionality*, PGM\_P *formatString*, ... )**

prints the specified text if certain debug are is enabled

**Parameters**

<i>functionality</i> .:	one of the EMBER_AF_PRINT_xxx macros as defined by AppBuilder
<i>formatString</i> .:	formatString for varargs

**6.2.4.69 void emberAfPrintln ( uint16\_t *functionality*, PGM\_P *formatString*, ... )**

prints the specified text if certain debug are is enabled. Print-out will include the newline character at the end.

**Parameters**

<i>functionality</i> .:	one of the EMBER_AF_PRINT_xxx macros as defined by AppBuilder
<i>formatString</i> .:	formatString for varargs

**6.2.4.70 void emberAfFlush ( uint16\_t *functionality* )**

buffer flush

**6.2.4.71 void emberAfPrintOn ( uint16\_t *functionality* )**

turns on debugging for certain functional area

**6.2.4.72 void emberAfPrintOff ( uint16\_t *functionality* )**

turns off debugging for certain functional area

**6.2.4.73 void emberAfPrintAllOn ( void )**

turns on debugging for all functional areas

**6.2.4.74 void emberAfPrintAllOff ( void )**

turns off debugging for all functional areas

**6.2.4.75 void emberAfPrintStatus ( void )**

prints current status of functional areas

**6.2.4.76 void emberAfPrintLittleEndianEui64 ( const EmberEUI64 *eui64* )**

prints eui64 stored in little endian format

**6.2.4.77 void emberAfPrintBigEndianEui64 ( const EmberEUI64 *eui64* )**

prints eui64 stored in big endian format

**6.2.4.78 void emberAfPrintMessageData ( uint8\_t \* *data*, uint16\_t *length* )**

prints all message data in message format

**6.2.4.79 void emberAfRunEvents ( void )**

a function used to run the application framework's event mechanism. This function passes the application framework's event tables to the ember stack's event processing code.

**6.2.4.80 EmberStatus emberAfScheduleTickExtended ( uint8\_t *endpoint*, EmberAfClusterId *clusterId*, bool *isClient*, uint32\_t *delayMs*, EmberAfEventPollControl *pollControl*, EmberAfEventSleepControl *sleepControl* )**

This function is used to schedule a cluster-related event inside the application framework's event mechanism. This function provides a wrapper for the Ember stack event mechanism which allows the cluster code to access its events by their endpoint, cluster id, and client/server identity. The passed poll and sleep controls allow the cluster to indicate whether it needs to long or short poll and whether it needs to stay awake or if it can sleep.

#### Parameters

<i>endpoint</i>	the endpoint of the event to be scheduled.
<i>clusterId</i>	the cluster id of the event to be scheduled.
<i>isClient</i>	<a href="#">EMBER_AF_CLIENT_CLUSTER_TICK</a> if the event to be scheduled is associated with a client cluster or <a href="#">EMBER_AF_SERVER_CLUSTER_TICK</a> otherwise.
<i>delayMs</i>	the number of milliseconds until the event should be called.
<i>pollControl</i>	<a href="#">EMBER_AF_SHORT_POLL</a> if the cluster needs to short poll or <a href="#">EMBER_AF_LONG_POLL</a> otherwise.
<i>sleepControl</i>	<a href="#">EMBER_AF_STAY_AWAKE</a> if the cluster needs to stay awake or <a href="#">EMBER_AF_OK_TO_SLEEP</a> otherwise.

#### Returns

`EMBER_SUCCESS` if the event was scheduled or an error otherwise.

#### 6.2.4.81 `EmberStatus emberAfScheduleClusterTick ( uint8_t endpoint, EmberAfClusterId clusterId, bool isClient, uint32_t delayMs, EmberAfEventSleepControl sleepControl )`

This function is used to schedule a cluster-related event inside the This function is a wrapper for [emberAfScheduleTickExtended](#). The cluster on the given endpoint will be set to long poll if sleepControl is set to [EMBER\\_AF\\_OK\\_TO\\_HIBERNATE](#) or will be set to short poll otherwise. It will stay awake if sleepControl is [EMBER\\_AF\\_STAY\\_AWAKE](#) and will sleep otherwise.

#### Parameters

<i>endpoint</i>	the endpoint of the event to be scheduled.
<i>clusterId</i>	the cluster id of the event to be scheduled.
<i>isClient</i>	<a href="#">EMBER_AF_CLIENT_CLUSTER_TICK</a> if the event to be scheduled is associated with a client cluster or <a href="#">EMBER_AF_SERVER_CLUSTER_TICK</a> otherwise.
<i>delayMs</i>	the number of milliseconds until the event should be called.
<i>sleepControl</i>	the priority of the event, what the processor should be allowed to do in terms of sleeping while the event is active.

#### Returns

`EMBER_SUCCESS` if the event was scheduled or an error otherwise.

#### 6.2.4.82 `EmberStatus emberAfScheduleClientTickExtended ( uint8_t endpoint, EmberAfClusterId clusterId, uint32_t delayMs, EmberAfEventPollControl pollControl, EmberAfEventSleepControl sleepControl )`

A function used to schedule a cluster client event. This function is a wrapper for [emberAfScheduleTickExtended](#).

#### Parameters

<i>endpoint</i>	the endpoint of the event to be scheduled
<i>clusterId</i>	the cluster id of the event to be scheduled
<i>delayMs</i>	the number of milliseconds until the event should be called.
<i>pollControl</i>	<a href="#">EMBER_AF_SHORT_POLL</a> if the cluster needs to short poll or <a href="#">EMBER_AF_LONG_POLL</a> otherwise.

<i>sleepControl</i>	<a href="#">EMBER_AF_STAY_AWAKE</a> if the cluster needs to stay awake or <a href="#">EMBER_AF_OFF_TO_SLEEP</a> otherwise.
---------------------	--

**Returns**

[EMBER\\_SUCCESS](#) if the event was scheduled or an error otherwise.

#### 6.2.4.83 EmberStatus [emberAfScheduleClientTick](#) ( *uint8\_t endpoint*, *EmberAfClusterId clusterId*, *uint32\_t delayMs* )

A function used to schedule a cluster client event. This function is a wrapper for [emberAfScheduleClientTickExtended](#). It indicates that the cluster client on the given endpoint can long poll and can sleep.

**Parameters**

<i>endpoint</i>	the endpoint of the event to be scheduled.
<i>clusterId</i>	the cluster id of the event to be scheduled.
<i>delayMs</i>	the number of milliseconds until the event should be called.

**Returns**

[EMBER\\_SUCCESS](#) if the event was scheduled or an error otherwise.

#### 6.2.4.84 EmberStatus [emberAfScheduleServerTickExtended](#) ( *uint8\_t endpoint*, *EmberAfClusterId clusterId*, *uint32\_t delayMs*, *EmberAfEventPollControl pollControl*, *EmberAfEventSleepControl sleepControl* )

A function used to schedule a cluster server event. This function is a wrapper for [emberAfScheduleTickExtended](#).

**Parameters**

<i>endpoint</i>	the endpoint of the event to be scheduled.
<i>clusterId</i>	the cluster id of the event to be scheduled.
<i>delayMs</i>	the number of milliseconds until the event should be called.
<i>pollControl</i>	<a href="#">EMBER_AF_SHORT_POLL</a> if the cluster needs to short poll or <a href="#">EMBER_AF_LONG_POLL</a> otherwise.
<i>sleepControl</i>	<a href="#">EMBER_AF_STAY_AWAKE</a> if the cluster needs to stay awake or <a href="#">EMBER_AF_OFF_TO_SLEEP</a> otherwise.

**Returns**

[EMBER\\_SUCCESS](#) if the event was scheduled or an error otherwise.

#### 6.2.4.85 EmberStatus [emberAfScheduleServerTick](#) ( *uint8\_t endpoint*, *EmberAfClusterId clusterId*, *uint32\_t delayMs* )

A function used to schedule a cluster server event. This function is a wrapper for [emberAfScheduleServerTickExtended](#). It indicates that the cluster server on the given endpoint can long poll and can sleep.

**Parameters**

<i>endpoint</i>	the endpoint of the event to be scheduled
<i>clusterId</i>	the cluster id of the event to be scheduled.
<i>delayMs</i>	the number of milliseconds until the event should be called.

**Returns**

EMBER\_SUCCESS if the event was scheduled or an error otherwise.

**6.2.4.86 EmberStatus emberAfDeactivateClusterTick ( *uint8\_t endpoint*, *EmberAfClusterId clusterId*, *bool isClient* )**

A function used to deactivate a cluster-related event. This function provides a wrapper for the Ember stack's event mechanism which allows an event to be accessed by its endpoint, cluster id, and client/server identity.

**Parameters**

<i>endpoint</i>	the endpoint of the event to be deactivated.
<i>clusterId</i>	the cluster id of the event to be deactivated.
<i>isClient</i>	<a href="#">EMBER_AF_CLIENT_CLUSTER_TICK</a> if the event to be deactivated is a client cluster <a href="#">EMBER_AF_SERVER_CLUSTER_TICK</a> otherwise.

**Returns**

EMBER\_SUCCESS if the event was deactivated or an error otherwise.

**6.2.4.87 EmberStatus emberAfDeactivateClientTick ( *uint8\_t endpoint*, *EmberAfClusterId clusterId* )**

A function used to deactivate a cluster client event. This function is a wrapper for [emberAfDeactivateClusterTick](#).

**Parameters**

<i>endpoint</i>	the endpoint of the event to be deactivated.
<i>clusterId</i>	the cluster id of the event to be deactivated.

**Returns**

EMBER\_SUCCESS if the event was deactivated or an error otherwise.

**6.2.4.88 EmberStatus emberAfDeactivateServerTick ( *uint8\_t endpoint*, *EmberAfClusterId clusterId* )**

A function used to deactivate a cluster server event. This function is a wrapper for [emberAfDeactivateClusterTick](#).

**Parameters**

<i>endpoint</i>	the endpoint of the event to be deactivated.
<i>clusterId</i>	the cluster id of the event to be deactivated.

### Returns

`EMBER_SUCCESS` if the event was deactivated or an error otherwise.

#### 6.2.4.89 `EmberStatus emberAfEventControlSetDelayMS ( EmberEventControl * control, uint32_t delayMs )`

Sets the `EmberEventControl` to run "delayMs" milliseconds in the future. This function first verifies that the delay is within the acceptable range before scheduling the event.

### Parameters

<code>control</code>	a pointer to the event control.
<code>delayMs</code>	the number of milliseconds until the next event.

### Returns

If `delayMs` is less than or equal to `::EMBER_MAX_EVENT_CONTROL_DELAY_MS`, this function will schedule the event and return `EMBER_SUCCESS`. Otherwise it will return `EMBER_BAD_ARGUMENT`.

#### 6.2.4.90 `EmberStatus emberAfEventControlSetDelay ( EmberEventControl * eventControl, uint32_t delayMs )`

Sets the `EmberEventControl` to run "delayMs" milliseconds in the future. See `emberAfEventControlSetDelayMS`.

#### 6.2.4.91 `EmberStatus emberAfEventControlSetDelayQS ( EmberEventControl * control, uint32_t delayQs )`

Sets the `EmberEventControl` to run "delayQs" quarter seconds in the future. The 'quarter seconds' are actually 256 milliseconds long. This function first verifies that the delay is within the acceptable range before scheduling the event.

### Parameters

<code>control</code>	a pointer to the event control.
<code>delayQs</code>	the number of quarter seconds until the next event.

### Returns

If delayQs is less than or equal to ::EMBER\_MAX\_EVENT\_CONTROL\_DELAY\_QS, this function will schedule the event and return [EMBER\\_SUCCESS](#). Otherwise it will return [EMBER\\_BAD\\_ARGUMENT](#).

#### **6.2.4.92 EmberStatus emberAfEventControlSetDelayMinutes ( EmberEventControl \* control, uint16\_t delayM )**

Sets the [EmberEventControl](#) to run "delayM" minutes in the future. The 'minutes' are actually 65536 (0x10000) milliseconds long. This function first verifies that the delay is within the acceptable range before scheduling the event.

### Parameters

<i>control</i>	a pointer to the event control.
<i>delayM</i>	the number of minutes until the next event.

### Returns

If delayM is less than or equal to ::EMBER\_MAX\_EVENT\_CONTROL\_DELAY\_MINUTES, this function will schedule the event and return [EMBER\\_SUCCESS](#). Otherwise it will return [EMBER\\_BAD\\_ARGUMENT](#).

#### **6.2.4.93 void emberAfNetworkEventControlSetInactive ( EmberEventControl \* controls )**

Sets the [EmberEventControl](#) for the current network, and only the current network, as inactive. See - ::emberEventControlSetInactive.

#### **6.2.4.94 bool emberAfNetworkEventControlGetActive ( EmberEventControl \* controls )**

Returns true if the event for the current network, and only the current network, is active. See ::emberEventControlGetActive.

#### **6.2.4.95 void emberAfNetworkEventControlSetActive ( EmberEventControl \* controls )**

Sets the [EmberEventControl](#) for the current network, and only current network, to run at the next available opportunity. See ::emberEventControlSetActive.

#### **6.2.4.96 EmberStatus emberAfNetworkEventControlSetDelayMS ( EmberEventControl \* controls, uint32\_t delayMs )**

Sets the [EmberEventControl](#) for the current network, and only the current network, to run "delayMs" milliseconds in the future. See [emberAfEventControlSetDelayMS](#).

#### **6.2.4.97 EmberStatus emberAfNetworkEventControlSetDelay ( EmberEventControl \* controls, uint32\_t delayMs )**

Sets the [EmberEventControl](#) for the current network, and only the current network, to run "delayMs" milliseconds in the future. See [emberAfEventControlSetDelayMS](#).

**6.2.4.98 EmberStatus emberAfNetworkEventControlSetDelayQS ( `EmberEventControl * controls,`  
`uint32_t delayQs` )**

Sets the [EmberEventControl](#) for the current network, and only the current network, to run "delayQs" quarter seconds in the future. See [emberAfEventControlSetDelayQS](#).

**6.2.4.99 EmberStatus emberAfNetworkEventControlSetDelayMinutes ( `EmberEventControl * controls,`  
`uint16_t delayM` )**

Sets the [EmberEventControl](#) for the current network, and only the current network, to run "delayM" minutes in the future. See [emberAfEventControlSetDelayMinutes](#).

**6.2.4.100 EmberStatus emberAfEndpointEventControlSetInactive ( `EmberEventControl * controls,`  
`uint8_t endpoint` )**

Sets the [EmberEventControl](#) for the specified endpoint as inactive. See [::emberEventControlSetInactive](#).

**6.2.4.101 bool emberAfEndpointEventControlGetActive ( `EmberEventControl * controls,` `uint8_t endpoint` )**

Returns true if the event for the current number is active. See [::emberEventControlGetActive](#).

**6.2.4.102 EmberStatus emberAfEndpointEventControlSetActive ( `EmberEventControl * controls,`  
`uint8_t endpoint` )**

Sets the [EmberEventControl](#) for the specified endpoint to run at the next available opportunity. See [::emberEventControlSetActive](#).

**6.2.4.103 EmberStatus emberAfEndpointEventControlSetDelayMS ( `EmberEventControl * controls,`  
`uint8_t endpoint, uint32_t delayMs` )**

Sets the [EmberEventControl](#) for the specified endpoint to run "delayMs" milliseconds in the future. See [emberAfEventControlSetDelayMS](#).

**6.2.4.104 EmberStatus emberAfEndpointEventControlSetDelay ( `EmberEventControl * controls,`  
`uint8_t endpoint, uint32_t delayMs` )**

Sets the [EmberEventControl](#) for the specified endpoint to run "delayMs" milliseconds in the future. See [emberAfEventControlSetDelayMS](#).

**6.2.4.105 EmberStatus emberAfEndpointEventControlSetDelayQS ( `EmberEventControl * controls,`  
`uint8_t endpoint, uint32_t delayQs` )**

Sets the [EmberEventControl](#) for the specified endpoint to run "delayQs" quarter seconds in the future. See [emberAfEventControlSetDelayQS](#).

**6.2.4.106 EmberStatus emberAfEndpointEventControlSetDelayMinutes ( EmberEventControl \* *controls*, uint8\_t *endpoint*, uint16\_t *delayM* )**

Sets the [EmberEventControl](#) for the specified endpoint to run "delayM" minutes in the future. See [emberAfEventControlSetDelayMinutes](#).

**6.2.4.107 uint32\_t emberAfMsToNextEvent ( uint32\_t *maxMs* )**

A function used to retrieve the number of milliseconds until the next event scheduled in the application framework's event mechanism.

**Parameters**

<i>maxMs</i> , the	maximum number of milliseconds until the next event.
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**Returns**

The number of milliseconds until the next event or maxMs if no event is scheduled before then.

**6.2.4.108 uint32\_t emberAfMsToNextEventExtended ( uint32\_t *maxMs*, uint8\_t \* *returnIndex* )**

This is the same as the function [emberAfMsToNextEvent\(\)](#) with the following addition. If returnIndex is non-NULL it returns the index of the event that is ready to fire next.

**6.2.4.109 EmberStatus emberAfSendResponse ( void )**

This function sends a ZCL response, based on the information that is currently in the outgoing buffer. It is expected that a complete ZCL message is present, including header. The application may use this method directly from within the message handling function and associated callbacks. However this will result in the response being sent before the APS Ack is sent which is not ideal.

NOTE: This will overwrite the ZCL sequence number of the message to use the LAST received sequence number.

**6.2.4.110 EmberStatus emberAfSendResponseWithCallback ( EmberAfMessageSentFunction *callback* )**

Send ZCL response with attached message sent callback.

**6.2.4.111 EmberStatus emberAfSendMulticast ( EmberMulticastId *multicastId*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message* )**

Sends multicast.

**6.2.4.112 EmberStatus emberAfSendMulticastWithAliasWithCallback ( EmberMulticastId *multicastId*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message*, EmberNodeId *alias*, uint8\_t *sequence*, EmberAfMessageSentFunction *callback* )**

Sends Multicast with alias with attached message sent callback.

**6.2.4.113 EmberStatus emberAfSendMulticastWithCallback ( EmberMulticastId *multicastId*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message*, EmberAfMessageSentFunction *callback* )**

Sends multicast with attached message sent callback.

**6.2.4.114 EmberStatus emberAfSendBroadcast ( EmberNodeId *destination*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message* )**

Sends broadcast.

**6.2.4.115 EmberStatus emberAfSendBroadcastWithCallback ( EmberNodeId *destination*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message*, EmberAfMessageSentFunction *callback* )**

Sends broadcast with attached message sent callback.

**6.2.4.116 EmberStatus emberAfSendBroadcastWithAliasWithCallback ( EmberNodeId *destination*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message*, EmberNodeId *alias*, uint8\_t *sequence*, EmberAfMessageSentFunction *callback* )**

Sends broadcast with alias with attached message sent callback.

**6.2.4.117 EmberStatus emberAfSendUnicast ( EmberOutgoingMessageType *type*, uint16\_t *indexOrDestination*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message* )**

Sends unicast.

**6.2.4.118 EmberStatus emberAfSendUnicastWithCallback ( EmberOutgoingMessageType *type*, uint16\_t *indexOrDestination*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message*, EmberAfMessageSentFunction *callback* )**

Sends unicast with attached message sent callback.

**6.2.4.119 EmberStatus emberAfSendUnicastToBindings ( EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message* )**

Unicasts the message to each remote node in the binding table that matches the cluster and source endpoint in the APS frame. Note: if the binding table contains many matching entries, calling this API cause a significant amount of network traffic.

**6.2.4.120 EmberStatus emberAfSendUnicastToBindingsWithCallback ( EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message*, EmberAfMessageSentFunction *callback* )**

emberAfSendUnicastToBindings with attached message sent callback.

**6.2.4.121 EmberStatus emberAfSendInterPan ( EmberPanId *panId*, const EmberEUI64 *destinationLongId*, EmberNodeId *destinationShortId*, EmberMulticastId *multicastId*, EmberAfClusterId *clusterId*, EmberAfProfileId *profileId*, uint16\_t *messageLength*, uint8\_t \* *messageBytes* )**

Sends interpan message.

**6.2.4.122 EmberStatus emberAfSendEndDeviceBind ( uint8\_t *endpoint* )**

Sends end device binding request.

**6.2.4.123 EmberStatus emberAfSendCommandUnicastToBindings ( void )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API. It will be sent as unicast to each remote node in the binding table that matches the cluster and source endpoint in the APS frame. Note: if the binding table contains many matching entries, calling this API cause a significant amount of network traffic.

**6.2.4.124 EmberStatus emberAfSendCommandUnicastToBindingsWithCallback ( EmberAfMessageSentFunction *callback* )**

emberAfSendCommandUnicastToBindings with attached message sent callback.

**6.2.4.125 EmberStatus emberAfSendCommandMulticast ( EmberMulticastId *multicastId* )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API. It will be sent as multicast.

**6.2.4.126 EmberStatus emberAfSendCommandMulticastWithAlias ( EmberMulticastId *multicastId*, EmberNodeId *alias*, uint8\_t *sequence* )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API. It will be sent as multicast.

**6.2.4.127 EmberStatus emberAfSendCommandMulticastWithCallback ( EmberMulticastId *multicastId*, EmberAfMessageSentFunction *callback* )**

emberAfSendCommandMulticast with attached message sent callback.

**6.2.4.128 EmberStatus emberAfSendCommandUnicast ( EmberOutgoingMessageType *type*, uint16\_t *indexOrDestination* )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API. It will be sent as unicast.

**6.2.4.129 EmberStatus emberAfSendCommandUnicastWithCallback ( EmberOutgoingMessageType *type*, uint16\_t *indexOrDestination*, EmberAfMessageSentFunction *callback* )**

emberAfSendCommandUnicast with attached message sent callback.

**6.2.4.130 EmberStatus emberAfSendCommandBroadcast ( EmberNodeId *destination* )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API.

**6.2.4.131 EmberStatus emberAfSendCommandBroadcastWithCallback ( EmberNodeId *destination*, EmberAfMessageSentFunction *callback* )**

emberAfSendCommandBroadcast with attached message sent callback.

**6.2.4.132 EmberStatus emberAfSendCommandBroadcastWithAliasWithCallback ( EmberNodeId *destination*, EmberNodeId *alias*, uint8\_t *sequence*, EmberAfMessageSentFunction *callback* )**

emberAfSendCommandBroadcast from alias with attached message sent callback.

**6.2.4.133 EmberStatus emberAfSendCommandBroadcastWithAlias ( EmberNodeId *destination*, EmberNodeId *alias*, uint8\_t *sequence* )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API.

**6.2.4.134 EmberStatus emberAfSendCommandInterPan ( EmberPanId *panId*, const EmberEUI64 *destinationLongId*, EmberNodeId *destinationShortId*, EmberMulticastId *multicastId*, EmberAfProfileId *profileId* )**

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API. It will be sent via inter-PAN. If destinationLongId is not NULL, the message will be sent to that long address using long addressing mode; otherwise, the message will be sent to destinationShortId using short address mode. IF multicastId is not zero, the message will be sent using multicast mode.

**6.2.4.135 EmberStatus emberAfSendDefaultResponse ( const EmberAfClusterCommand \* *cmd*, EmberAfStatus *status* )**

Sends a default response to a cluster command.

This function is used to prepare and send a default response to a cluster command.

#### Parameters

<i>cmd</i>	The cluster command to which to respond.
<i>status</i>	Status code for the default response command.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of sending the response.

### 6.2.4.136 EmberStatus **emberAfSendDefaultResponseWithCallback** ( const EmberAfClusterCommand \* *cmd*, EmberAfStatus *status*, EmberAfMessageSentFunction *callback* )

emberAfSendDefaultResponse with attached message sent callback.

### 6.2.4.137 EmberStatus **emberAfSendImmediateDefaultResponse** ( EmberAfStatus *status* )

Sends a default response to a cluster command using the current command.

This function is used to prepare and send a default response to a cluster command.

#### Parameters

<i>status</i>	Status code for the default response command.
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#### Returns

An [EmberStatus](#) value that indicates the success or failure of sending the response.

### 6.2.4.138 EmberStatus **emberAfSendImmediateDefaultResponseWithCallback** ( EmberAfStatus *status*, EmberAfMessageSentFunction *callback* )

emberAfSendImmediateDefaultResponse with attached message sent callback.

### 6.2.4.139 uint8\_t **emberAfMaximumApsPayloadLength** ( EmberOutgoingMessageType *type*, uint16\_t *indexOrDestination*, EmberApsFrame \* *apsFrame* )

Returns the maximum size of the payload that the Application Support sub-layer will accept for the given message type, destination, and APS frame.

The size depends on multiple factors, including the security level in use and additional information added to the message to support the various options.

#### Parameters

<i>type</i>	The outgoing message type.
<i>indexOrDestination</i>	Depending on the message type, this is either the EmberNodeId of the destination, an index into the address table, an index into the binding table, the multicast identifier, or a broadcast address.
<i>apsFrame</i>	The APS frame for the message.

## Returns

The maximum APS payload length for the given message.

### 6.2.4.140 EmberApsFrame\* emberAfGetCommandApsFrame ( void )

Access to client API aps frame.

### 6.2.4.141 void emberAfSetCommandEndpoints ( uint8\_t *sourceEndpoint*, uint8\_t *destinationEndpoint* )

Set the source and destination endpoints in the client API APS frame.

### 6.2.4.142 EmberStatus emberAfFindDevicesByProfileAndCluster ( EmberNodeId *target*, EmberAfProfileId *profileId*, EmberAfClusterId *clusterId*, bool *serverCluster*, EmberAfServiceDiscoveryCallback \* *callback* )

Use this function to find devices in the network with endpoints matching a given profile ID and cluster ID in their descriptors. Target may either be a specific device, or the broadcast address EMBER\_RX\_ON\_WHEN\_IDLE\_BROADCAST\_ADDRESS.

With this function a service discovery is initiated and received responses are returned by executing the callback function passed in. For unicast discoveries, the callback will be executed only once. Either the target will return a result or a timeout will occur. For broadcast discoveries, the callback may be called multiple times and after a period of time the discovery will be finished with a final call to the callback.

## Parameters

<i>target</i>	The destination node ID for the discovery; either a specific node's ID or EMBER_RX_ON_WHEN_IDLE_BROADCAST_ADDRESS.
<i>profileId</i>	The application profile for the cluster being discovered.
<i>clusterId</i>	The cluster being discovered.
<i>serverCluster</i>	EMBER_AF_SERVER_CLUSTER_DISCOVERY (true) if discovering servers for the target cluster; EMBER_AF_CLIENT_CLUSTER_DISCOVERY (false) if discovering clients for that cluster.
<i>callback</i>	Function pointer for the callback function triggered when a match is discovered. (For broadcast discoveries, this is called once per matching node, even if a node has multiple matching endpoints.)

### 6.2.4.143 EmberStatus emberAfFindClustersByDeviceAndEndpoint ( EmberNodeId *target*, uint8\_t *targetEndpoint*, EmberAfServiceDiscoveryCallback \* *callback* )

Use this function to find all of the given in and out clusters implemented on a devices given endpoint. Target should only be the short address of a specific device.

With this function a single service discovery is initiated and the response is passed back to the passed callback.

## Parameters

<i>target</i>	The destination node ID for the discovery. This should be a specific node's ID and should not be a broadcast address.
<i>targetEndpoint</i>	The endpoint to target with the discovery process.
<i>callback</i>	Function pointer for the callback function triggered when the discovery is returned.

#### 6.2.4.144 EmberStatus emberAfFindLeeeAddress ( EmberNodeId *shortAddress*, EmberAfServiceDiscoveryCallback \* *callback* )

Use this function to initiate a discovery for the IEEE address of the specified node id. This will send a unicast sent to the target node ID.

#### 6.2.4.145 EmberStatus emberAfFindNodeId ( EmberEUI64 *longAddress*, EmberAfServiceDiscoveryCallback \* *callback* )

Use this function to initiate a discovery for the short ID of the specified long address. This will send a broadcast to all rx-on-when-idle devices (non-sleepies).

#### 6.2.4.146 EmberStatus emberAfFindActiveEndpoints ( EmberNodeId *target*, EmberAfServiceDiscoveryCallback \* *callback* )

Initiate an Active Endpoint request ZDO message to the target node ID.

#### 6.2.4.147 uint8\_t emberAfAddAddressTableEntry ( EmberEUI64 *longId*, EmberNodeId *shortId* )

Use this function to add an entry for a remote device to the address table.

If the EUI64 already exists in the address table, the index of the existing entry will be returned. Otherwise, a new entry will be created and the new new index will be returned. The framework will remember how many times the the returned index has been referenced. When the address table entry is no longer needed, the application should remove its reference by calling [emberAfRemoveAddressTableEntry](#).

##### Parameters

<i>longId</i>	The EUI64 of the remote device.
<i>shortId</i>	The node id of the remote device or <a href="#">EMBER_UNKNOWN_NODE_ID</a> if the node id is currently unknown.

##### Returns

The index of the address table entry for this remove device or [EMBER\\_NULL\\_ADDRESS\\_TABLE\\_INDEX](#) if an error occurred (e.g., the address table is full).

#### 6.2.4.148 EmberStatus emberAfSetAddressTableEntry ( uint8\_t *index*, EmberEUI64 *longId*, EmberNodeId *shortId* )

Use this function to add an entry for a remote device to the address table at a specific location.

The framework will remember how many times an address table index has been referenced through [emberAfAddAddressTableEntry](#). If the reference count for the index passed to this function is not zero, the entry will be not changed. When the address table entry is no longer needed, the application should remove its reference by calling [emberAfRemoveAddressTableEntry](#).

##### Parameters

<i>index</i>	The index of the address table entry.
<i>longId</i>	The EUI64 of the remote device.
<i>shortId</i>	The node id of the remote device or <a href="#">EMBER_UNKNOWN_NODE_ID</a> if the node id is currently unknown.

### Returns

`EMBER_SUCCESS` if the address table entry was successfully set, `EMBER_ADDRESS_TABLE_ENTRY_IS_ACTIVE` if any messages are being sent using the existing entry at that index or the entry is still referenced in the framework, or `EMBER_ADDRESS_TABLE_INDEX_OUT_OF_RANGE` if the index is out of range.

#### 6.2.4.149 EmberStatus emberAfRemoveAddressTableEntry ( `uint8_t index` )

Use this function to remove a specific entry from the address table.

The framework will remember how many times an address table index has been referenced through `emberAfAddAddressTableEntry` and `emberAfSetAddressTableEntry`. The address table entry at this index will not actually be removed until its reference count reaches zero.

### Parameters

<code>index</code>	The index of the address table entry.
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### Returns

`EMBER_SUCCESS` if the address table entry was successfully removed or `EMBER_ADDRESS_TABLE_INDEX_OUT_OF_RANGE` if the index is out of range.

#### 6.2.4.150 EmberStatus emberAfInitiateKeyEstablishment ( `EmberNodeId nodeId, uint8_t endpoint` )

Use this function to initiate key establishment with a remote node. `emberAfKeyEstablishmentCallback` will be called as events occur and when key establishment completes.

### Parameters

<code>nodeId</code>	The node id of the remote device.
<code>endpoint</code>	The endpoint on the remote device.

### Returns

`EMBER_SUCCESS` if key establishment was initiated successfully

#### 6.2.4.151 EmberStatus emberAfInitiateInterPanKeyEstablishment ( `EmberPanId panId, const EmberEUI64 eui64` )

Use this function to initiate key establishment with a remote node on a different PAN. `emberAfInterPanKeyEstablishmentCallback` will be called as events occur and when key establishment completes.

### Parameters

<code>panId</code>	The PAN id of the remote device.
<code>eui64</code>	The EUI64 of the remote device.

**Returns**

[EMBER\\_SUCCESS](#) if key establishment was initiated successfully

**6.2.4.152 bool emberAfPerformingKeyEstablishment ( void )**

Use this function to tell if the device is in the process of performing key establishment.

**Returns**

::true if key establishment is in progress.

**6.2.4.153 EmberStatus emberAfInitiatePartnerLinkKeyExchange ( EmberNodeId *target*, uint8\_t *endpoint*, EmberAfPartnerLinkKeyExchangeCallback \* *callback* )**

Use this function to initiate partner link key exchange with a remote node.

**Parameters**

<i>target</i>	The node id of the remote device.
<i>endpoint</i>	The key establishment endpoint of the remote device.
<i>callback</i>	The callback that should be called when the partner link key exchange completes.

**Returns**

[EMBER\\_SUCCESS](#) if the partner link key exchange was initiated successfully.

**6.2.4.154 bool emberAfIsCurrentSecurityProfileSmartEnergy ( void )**

Use this function to determine if the security profile of the current network was set to Smart Energy. The security profile is configured in AppBuilder. @ return true if the security profile is Smart Energy or false otherwise.

**6.2.4.155 EmberStatus emberAfFormNetwork ( EmberNetworkParameters \* *parameters* )**

Use this function to form a new network using the specified network parameters.

**Parameters**

<i>parameters</i>	Specification of the new network.
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**Returns**

An [EmberStatus](#) value that indicates either the successful formation of the new network or the reason that the network formation failed.

**6.2.4.156 EmberStatus emberAfJoinNetwork ( EmberNetworkParameters \* *parameters* )**

Use this function to associate with the network using the specified network parameters.

**Parameters**

<i>parameters</i>	Specification of the network with which the node should associate.
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**Returns**

An [EmberStatus](#) value that indicates either that the association process began successfully or the reason for failure.

**6.2.4.157 EmberStatus emberAfFindUnusedPanIdAndForm ( void )**

Use this function to find an unused PAN id and form a new network.

**Returns**

An [EmberStatus](#) value that indicates either the process begin successfully or the reason for failure.

**6.2.4.158 EmberStatus emberAfStartSearchForJoinableNetwork ( void )**

Use this function to find a joinable network and join it.

**Returns**

An [EmberStatus](#) value that indicates either the process begin successfully or the reason for failure.

**6.2.4.159 EmberStatus emberAfPushNetworkIndex ( uint8\_t *networkIndex* )**

Sets the current network to that of the given index and adds it to the stack of networks maintained by the framework. Every call to this API must be paired with a subsequent call to [emberAfPopNetworkIndex](#).

**6.2.4.160 EmberStatus emberAfPushCallbackNetworkIndex ( void )**

Sets the current network to the callback network and adds it to the stack of networks maintained by the framework. Every call to this API must be paired with a subsequent call to [emberAfPopNetworkIndex](#).

**6.2.4.161 EmberStatus emberAfPushEndpointNetworkIndex ( uint8\_t *endpoint* )**

Sets the current network to that of the given endpoint and adds it to the stack of networks maintained by the framework. Every call to this API must be paired with a subsequent call to [emberAfPopNetworkIndex](#).

**6.2.4.162 EmberStatus emberAfPopNetworkIndex ( void )**

Removes the topmost network from the stack of networks maintained by the framework and sets the current network to the new topmost network. Every call to this API must be paired with a prior call to [emberAfPushNetworkIndex](#), [emberAfPushCallbackNetworkIndex](#), or [emberAfPushEndpointNetworkIndex](#).

**6.2.4.163 uint8\_t emberAfPrimaryEndpointForNetworkIndex ( uint8\_t *networkIndex* )**

Returns the primary endpoint of the given network index or 0xFF if no endpoints belong to the network.

#### 6.2.4.164 `uint8_t emberAfPrimaryEndpointForCurrentNetworkIndex ( void )`

Returns the primary endpoint of the current network index or 0xFF if no endpoints belong to the current network.

#### 6.2.4.165 `EmberStatus emAfInitializeNetworkIndexStack ( void )`

Use this function to form a new network using the specified network parameters.

##### Parameters

<code>parameters</code>	Specification of the new network.
-------------------------	-----------------------------------

##### Returns

An [EmberStatus](#) value that indicates either the successful formation of the new network or the reason that the network formation failed.

#### 6.2.4.166 `void emAfAssertNetworkIndexStackIsEmpty ( void )`

Use this function to form a new network using the specified network parameters.

##### Parameters

<code>parameters</code>	Specification of the new network.
-------------------------	-----------------------------------

##### Returns

An [EmberStatus](#) value that indicates either the successful formation of the new network or the reason that the network formation failed.

#### 6.2.4.167 `int emberAfMain ( MAIN_FUNCTION_PARAMETERS )`

This function effectively serves as the application main.

## 6.2.5 Variable Documentation

### 6.2.5.1 EmberAfDefinedEndpoint `emAfEndpoints[]`

macro that returns true if the cluster is in the manufacturer specific range

##### Parameters

<code>cluster</code>	EmberAfCluster* to consider
----------------------	-----------------------------

### 6.2.5.2 PGM EmAfNetworkType `emAfNetworkTypes[]`

macro that returns true if the cluster is in the manufacturer specific range

**Parameters**

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

**6.2.5.3 PGM EmAfNetworkType\* emAfCurrentNetworkType**

macro that returns true if the cluster is in the manufacturer specific range

**Parameters**

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

**6.2.5.4 PGM EmAfZigbeeProNetwork emAfZigbeeProNetworks[]**

macro that returns true if the cluster is in the manufacturer specific range

**Parameters**

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

**6.2.5.5 PGM EmAfZigbeeProNetwork\* emAfCurrentZigbeeProNetwork**

macro that returns true if the cluster is in the manufacturer specific range

**Parameters**

<i>cluster</i>	EmberAfCluster* to consider
----------------	-----------------------------

**6.2.5.6 PGM EmberAfOtaImageId emberAfInvalidImageId**

This variable defines an invalid image id. It is used to determine if a returned [EmberAfOtaImageId](#) is valid or not. This is done by passing the data to the function [emberAfIsOtaImageIdValid\(\)](#).

**6.2.5.7 EmberAfClusterCommand\* emAfCurrentCommand**

Friendly define for use in discovering client clusters with [emberAfFindDevicesByProfileAndCluster\(\)](#).

## 6.3 Application Framework Types

### Data Structures

- union [EmberAfDefaultAttributeValue](#)  
*Type for default values.*
- struct [EmberAfAttributeMinMaxValue](#)  
*Type describing the attribute default, min and max values.*
- union [EmberAfDefaultOrMinMaxAttributeValue](#)  
*Union describing the attribute default/min/max values.*
- struct [EmberAfAttributeMetadata](#)  
*Each attribute has it's metadata stored in such struct.*
- struct [EmberAfCluster](#)  
*Struct describing cluster.*
- struct [EmberAfAttributeSearchRecord](#)  
*Struct used to find an attribute in storage. Together the elements in this search record constitute the "primary key" used to identify a unique attribute value in attribute storage.*
- struct [EmberAfManufacturerCodeEntry](#)
- struct [EmberAfIncomingMessage](#)  
*a struct containing the superset of values passed to both emberIncomingMessageHandler on the SOC and ezspIncomingMessageHandler on the host.*
- struct [EmberAfInterpanHeader](#)  
*Interpan header used for sending and receiving interpan messages.*
- struct [EmberAfAllowedInterPanMessage](#)  
*This structure is used define an interpan message that will be accepted by the interpan filters.*
- struct [EmberAfClusterCommand](#)  
*The EmberAFClusterCommand is a struct wrapper for all the data pertaining to a command which comes in over the air. This enables struct is used to encapsulate a command in a single place on the stack and pass a pointer to that location around during command processing.*
- struct [EmberAfEndpointType](#)  
*Endpoint type struct describes clusters that are on the endpoint.*
- struct [EmberAfSecurityProfileData](#)
- struct [EmberAfDefinedEndpoint](#)  
*Struct that maps actual endpoint type, onto a specific endpoint.*
- struct [EmberAfLoadControlEvent](#)  
*Struct that describes a load control event.*
- struct [EmberAfServiceDiscoveryResult](#)  
*A structure containing general information about the service discovery.*
- struct [EmberAfEndpointList](#)  
*A list of endpoints received during a service discovery attempt. This will be returned for a match descriptor request and a active endpoint request.*
- struct [EmberAfClusterList](#)  
*A list of clusters received during a service discovery attempt. This will be returned for a simple descriptor request.*
- struct [EmberAfEventContext](#)  
*a structure used to keep track of cluster related events and their sleep control values. The cluster code will not know at runtime all of the events that it has access to in the event table. This structure is stored by the application framework in an event context table which along with helper functions allows the cluster code to schedule and deactivate its associated events.*

- struct [EmberAfSceneTableEntry](#)  
*A structure used to store scene table entries in RAM or in tokens, depending on a plugin setting. If endpoint field is `EMBER_AF_SCENE_TABLE_UNUSED_ENDPOINT_ID`, the entry is unused.*
- struct [EmberAfPluginMessagingClientMessage](#)
- struct [EmberAfPluginPriceClientPrice](#)
- struct [EmberAfPluginReportingEntry](#)  
*A structure used to store reporting configurations. If endpoint field is `EMBER_AF_PLUGIN_REPORTING_UNUSED_ENDPOINT_ID`, the entry is unused.*
- struct [EmberAfOtaImageId](#)  
*This is a unique identifier for referencing ZigBee Over-the-air upgrade images. It is used by the OTA plugins when passing around information about an upgrade file.*
- struct [EmberAfImageBlockRequestCallbackStruct](#)  
*This is the data structure that is passed to the `emberAfImageBlockRequestCallback()` to let the application decide what to do.*
- struct [EmberAfOtaHeader](#)  
*This structure is an in-memory representation of the Over-the-air header data that resides on disk. It is not a byte-for-byte copy.*
- struct [EmberAfTagData](#)  
*This structure contains information about a tag that resides within an Over-the-air bootload file.*
- struct [EmberAfMessageStruct](#)  
*The `EmberAfMessageStruct` is a struct wrapper that contains all the data about a low-level message to be sent (it may be ZCL or may be some other protocol).*
- struct [EmberAfLinkKeyBackupData](#)  
*A data struct for a link key backup.*
- struct [EmberAfTrustCenterBackupData](#)  
*A data struct for all the trust center backup data.*
- struct [EmberAfStandaloneBootloaderQueryResponseData](#)  
*A data struct for the information retrieved during a response to an Ember Bootloader over-the-air query.*
- struct [EmberAfCommandMetadata](#)  
*A data struct used to keep track of incoming and outgoing commands for command discovery.*
- struct [EmberAfTimeStruct](#)  
*A data structure used to describe the time in a human understandable format (as opposed to 32-bit UTC)*
- struct [EmberAfDate](#)  
*A data structure used to describe the ZCL Date data type.*
- struct [EmberAfDeviceManagementTenancy](#)
- struct [EmberAfDeviceManagementSupplier](#)
- struct [EmberAfDeviceManagementSupply](#)
- struct [EmberAfDeviceManagementSiteId](#)
- struct [EmberAfDeviceManagementCIN](#)
- struct [EmberAfDeviceManagementSupplyStatusFlags](#)
- struct [EmberAfDeviceManagementUncontrolledFlowThreshold](#)
- struct [EmberAfDeviceManagementSupplyStatus](#)
- struct [EmberAfDeviceManagementPassword](#)
- struct [EmberAfDeviceManagementInfo](#)
- struct [EmberAfDeviceManagementAttributeRange](#)
- struct [EmberAfDeviceManagementAttributeTable](#)
- struct [EmberAfGbzMessageData](#)
- struct [EmberAfGpfMessage](#)
- struct [EmberAfRemoteClusterStruct](#)

- struct [EmberAfRemoteBindingStruct](#)
  - Zigbee Internet Client/Server remote cluster struct.*
- struct [EmberAfClusterInfo](#)
  - Zigbee Internet Client/Server Remote Binding struct.*
- struct [EmberAfEndpointInfoStruct](#)
  - A struct containing basic information about an endpoint.*
- struct [EmberAfDeviceInfo](#)
  - A struct containing endpoint information about a device.*
- struct [EmberAfDeviceDatabaseIterator](#)
  -
- struct [EmberAfJoiningDevice](#)
  -

## Macros

- #define [EMBER\\_AF\\_NULL\\_MANUFACTURER\\_CODE](#)
- #define [EMBER\\_AF\\_INVALID\\_PROFILE\\_ID](#)
- #define [EMBER\\_AF\\_INTER\\_PAN\\_UNICAST](#)
- #define [EMBER\\_AF\\_INTER\\_PAN\\_BROADCAST](#)
- #define [EMBER\\_AF\\_INTER\\_PAN\\_MULTICAST](#)
- #define [INTER\\_PAN\\_UNICAST](#)
- #define [INTER\\_PAN\\_BROADCAST](#)
- #define [INTER\\_PAN\\_MULTICAST](#)
- #define [EMBER\\_AF\\_INTERPAN\\_OPTION\\_NONE](#)
- #define [EMBER\\_AF\\_INTERPAN\\_OPTION\\_APS\\_ENCRYPT](#)
- #define [EMBER\\_AF\\_INTERPAN\\_OPTION\\_MAC\\_HAS\\_LONG\\_ADDRESS](#)
- #define [InterPanHeader](#)
- #define [EMBER\\_AF\\_INTERPAN\\_DIRECTION\\_CLIENT\\_TO\\_SERVER](#)
- #define [EMBER\\_AF\\_INTERPAN\\_DIRECTION\\_SERVER\\_TO\\_CLIENT](#)
- #define [EMBER\\_AF\\_INTERPAN\\_DIRECTION\\_BOTH](#)
- #define [EMBER\\_AF\\_INTERPAN\\_GLOBAL\\_COMMAND](#)
- #define [EMBER\\_AF\\_INTERPAN\\_MANUFACTURER\\_SPECIFIC](#)
- #define [EMBER\\_AF\\_ALLOW\\_TC\\_KEY\\_REQUESTS](#)
- #define [EMBER\\_AF\\_DENY\\_TC\\_KEY\\_REQUESTS](#)
- #define [EMBER\\_AF\\_ALLOW\\_APP\\_KEY\\_REQUESTS](#)
- #define [EMBER\\_AF\\_DENY\\_APP\\_KEY\\_REQUESTS](#)
- #define [EM\\_AF\\_DISCOVERY\\_RESPONSE\\_MASK](#)
- #define [emberAfHaveDiscoveryResponseStatus\(status\)](#)
- #define [EMBER\\_AF\\_SCENE\\_TABLE\\_NULL\\_INDEX](#)
- #define [EMBER\\_AF\\_SCENE\\_TABLE\\_UNUSED\\_ENDPOINT\\_ID](#)
- #define [ZCL\\_SCENES\\_CLUSTER\\_MAXIMUM\\_NAME\\_LENGTH](#)
- #define [ZCL\\_SCENES\\_GLOBAL\\_SCENE\\_GROUP\\_ID](#)
- #define [ZCL\\_SCENES\\_GLOBAL\\_SCENE\\_SCENE\\_ID](#)
- #define [EMBER\\_AF\\_PLUGIN\\_MESSAGING\\_CLIENT\\_MESSAGE\\_SIZE](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_MAXIMUM\\_RATE\\_LABEL\\_LENGTH](#)
- #define [EMBER\\_AF\\_PLUGIN\\_REPORTING\\_UNUSED\\_ENDPOINT\\_ID](#)
- #define [EMBER\\_AF\\_OTA\\_MAX\\_HEADER\\_STRING\\_LENGTH](#)
- #define [APP\\_NOTIFY\\_ERROR\\_CODE\\_START](#)
- #define [APP\\_NOTIFY\\_MESSAGE\\_TEXT](#)
- #define [EMBER\\_AF\\_STANDALONE\\_BOOTLOADER\\_HARDWARE\\_TAG\\_LENGTH](#)
- #define [EMBER\\_AF\\_PLUGIN\\_SIMPLE\\_METERING\\_SERVER\\_ELECTRIC\\_METER](#)

- #define EMBER\_AF\_PLUGIN\_SIMPLE\_METERING\_SERVER\_GAS\_METER
- #define EMBER\_AF\_METERING\_FNF\_NEW\_OTA\_FIRMWARE
- #define EMBER\_AF\_METERING\_FNF\_CBKE\_UPDATE\_REQUEST
- #define EMBER\_AF\_METERING\_FNF\_TIME\_SYNC
- #define EMBER\_AF\_METERING\_FNF\_STAY\_AWAKE\_REQUEST\_HAN
- #define EMBER\_AF\_METERING\_FNF\_STAY\_AWAKE\_REQUEST\_WAN
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER
- #define EMBER\_AF\_METERING\_FNF\_NETWORK\_KEY\_ACTIVE
- #define EMBER\_AF\_METERING\_FNF\_DISPLAY\_MESSAGE
- #define EMBER\_AF\_METERING\_FNF\_CANCEL\_ALL\_MESSAGES
- #define EMBER\_AF\_METERING\_FNF\_CHANGE\_SUPPLY
- #define EMBER\_AF\_METERING\_FNF\_LOCAL\_CHANGE\_SUPPLY
- #define EMBER\_AF\_METERING\_FNF\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD
- #define EMBER\_AF\_METERING\_FNF\_TUNNEL\_MESSAGE\_PENDING
- #define EMBER\_AF\_METERING\_FNF\_GET\_SNAPSHOT
- #define EMBER\_AF\_METERING\_FNF\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_PRICE
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BLOCK\_PERIOD
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_TARIFF\_INFORMATION
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CONVERSION\_FACTOR
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CALORIFIC\_VALUE
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CO2\_VALUE
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BILLING\_PERIOD
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CONSOLIDATED\_BILL
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_PRICE\_MATRIX
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BLOCK\_THRESHOLDS
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CURRENCY\_CONVERSION
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CREDIT\_PAYMENT\_INFO
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CPP\_EVENT
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_TIER\_LABELS
- #define EMBER\_AF\_METERING\_NF2\_CANCEL\_TARIFF
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_CALENDAR
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_SPECIAL\_DAYS
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_SEASONS
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_WEEK
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_DAY
- #define EMBER\_AF\_METERING\_NF3\_CANCEL\_CALENDAR
- #define EMBER\_AF\_METERING\_NF4\_SELECT\_AVAILABLE\_EMERGENCY\_CREDIT
- #define EMBER\_AF\_METERING\_NF4\_CHANGE\_DEBT
- #define EMBER\_AF\_METERING\_NF4\_EMERGENCY\_CREDIT\_SETUP
- #define EMBER\_AF\_METERING\_NF4\_CONSUMER\_TOP\_UP
- #define EMBER\_AF\_METERING\_NF4\_CREDIT\_ADJUSTMENT
- #define EMBER\_AF\_METERING\_NF4\_CHANGE\_PAYMENT\_MODE

- #define EMBER\_AF\_METERING\_NF4\_GET\_PREPAY\_SNAPSHOT
- #define EMBER\_AF\_METERING\_NF4\_GET\_TOP\_UP\_LOG
- #define EMBER\_AF\_METERING\_NF4\_SET\_LOW\_CREDIT\_WARNING\_LEVEL
- #define EMBER\_AF\_METERING\_NF4\_GET\_DEBT\_REPAYMENT\_LOG
- #define EMBER\_AF\_METERING\_NF4\_SET\_MAXIMUM\_CREDIT\_LIMIT
- #define EMBER\_AF\_METERING\_NF4\_SET\_OVERALL\_DEBT\_CAP
- #define EMBER\_AF\_METERING\_NF5\_PUBLISH\_CHANGE\_OF\_TENANCY
- #define EMBER\_AF\_METERING\_NF5\_PUBLISH\_CHANGE\_OF\_SUPPLIER
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_1\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_2\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_3\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_4\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_UPDATE\_SITE\_ID
- #define EMBER\_AF\_METERING\_NF5\_RESET\_BATTERY\_COUNTER
- #define EMBER\_AF\_METERING\_NF5\_UPDATE\_CIN
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_NAME\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_CONTACT\_DETAILS\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_SITE\_ID\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_CIN\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PASSWORD\_LENGTH
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_NONE
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_SERVER
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_CLIENT
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_INVALID
- #define EMBER\_AF\_MAX\_CLUSTERS\_PER\_ENDPOINT
- #define EMBER\_AF\_MAX\_ENDPOINTS\_PER\_DEVICE
- #define EMBER\_AF\_INVALID\_CLUSTER\_ID
- #define EMBER\_AF\_INVALID\_ENDPOINT
- #define EMBER\_AF\_INVALID\_PAN\_ID
- #define EMBER\_AF\_PERMIT\_JOIN\_FOREVER
- #define EMBER\_AF\_PERMIT\_JOIN\_MAX\_TIMEOUT
- #define EMBER\_AF\_ZDO\_RESPONSE\_OVERHEAD

## Typedefs

- typedef uint16\_t EmberAfProfileId
- typedef uint16\_t EmberAfAttributeId
- typedef uint16\_t EmberAfClusterId
- typedef uint8\_t EmberAfAttributeType
- typedef uint8\_t EmberAfClusterMask
- typedef uint8\_t EmberAfAttributeMask
- typedef void(\* EmberAfGenericClusterFunction )(void)
- typedef uint8\_t EmberAfInterpanMessageType
- typedef uint16\_t EmberAfInterpanOptions
- typedef uint8\_t EmberAfAllowedInterpanOptions
- typedef EmberLinkKeyRequestPolicy EmberAfLinkKeyRequestPolicy
- typedef uint8\_t EmberAfPluginEsiManagementBitmask
- typedef void( EmberAfServiceDiscoveryCallback )(const EmberAfServiceDiscoveryResult \*result)

- `typedef void( EmberAfPartnerLinkKeyExchangeCallback )(bool success)`
- `typedef void(* EmberAfNetworkEventHandler )(void)`
- `typedef void(* EmberAfEndpointEventHandler )(uint8_t endpoint)`
- `typedef uint8_t EmberAfImageBlockRequestOptions`
- `typedef uint8_t EmberAfOtaDownloadResult`
- `typedef void(* EmberAfTickFunction )(uint8_t endpoint)`
- `typedef void(* EmberAfInitFunction )(uint8_t endpoint)`
- `typedef void(* EmberAfClusterAttributeChangedCallback )(uint8_t endpoint, EmberAfAttributeId attributeId)`
- `typedef void(* EmberAfManufacturerSpecificClusterAttributeChangedCallback )(uint8_t endpoint, EmberAfAttributeId attributeId, uint16_t manufacturerCode)`
- `typedef EmberAfStatus(* EmberAfClusterPreAttributeChangedCallback )(uint8_t endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, uint8_t size, uint8_t *value)`
- `typedef void(* EmberAfDefaultResponseFunction )(uint8_t endpoint, uint8_t commandId, EmberAfStatus status)`
- `typedef void(* EmberAfMessageSentFunction )(EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t msgLen, uint8_t *message, EmberStatus status)`
- `typedef uint16_t EmberAfRemoteClusterType`

## Enumerations

- `enum EmberAfSecurityProfile {  
 EMBER_AF_SECURITY_PROFILE_NONE, EMBER_AF_SECURITY_PROFILE_HA, EMBER_AF_SECURITY_PROFILE_HA12, EMBER_AF_SECURITY_PROFILE_SE_TEST,  
 EMBER_AF_SECURITY_PROFILE_SE_FULL, EMBER_AF_SECURITY_PROFILE_Z3, EMBER_AF_SECURITY_PROFILE_CUSTOM }`
- `enum EmberAfServiceDiscoveryStatus {  
 EMBER_AF_BROADCAST_SERVICE_DISCOVERY_COMPLETE, EMBER_AF_BROADCAST_SERVICE_DISCOVERY_RESPONSE RECEIVED, EMBER_AF_UNICAST_SERVICE_DISCOVERY_TIMEOUT, EMBER_AF_UNICAST_SERVICE_DISCOVERY_COMPLETE_WITH_RESPONSE,  
 EMBER_AF_BROADCAST_SERVICE_DISCOVERY_COMPLETE_WITH_RESPONSE }`
- `enum EmberAfEventPollControl { EMBER_AF_LONG_POLL, EMBER_AF_SHORT_POLL }`
- `enum EmberAfEventSleepControl { EMBER_AF_OK_TO_SLEEP, EMBER_AF_OK_TO_HIBERNATE, EMBER_AF_OK_TO_NAP, EMBER_AF_STAY_AWAKE }`
- `enum EmberAfApplicationTask {  
 EMBER_AF_WAITING_FOR_DATA_ACK, EMBER_AF_LAST_POLL_GOT_DATA, EMBER_AF_WAITING_FOR_SERVICE_DISCOVERY, EMBER_AF_WAITING_FOR_ZDO_RESPONSE,  
 EMBER_AF_WAITING_FOR_ZCL_RESPONSE, EMBER_AF_WAITING_FOR_REGISTRATION, EMBER_AF_WAITING_FOR_PARTNER_LINK_KEY_EXCHANGE, EMBER_AF_FORCE_SHORT_POLL,  
 EMBER_AF_FRAGMENTATION_IN_PROGRESS }`
- `enum EmberAfPluginPriceCppAuth {  
 EMBER_AF_PLUGIN_PRICE_CPP_AUTH_PENDING, EMBER_AF_PLUGIN_PRICE_CPP_AUTH_ACCEPTED, EMBER_AF_PLUGIN_PRICE_CPP_AUTH_REJECTED, EMBER_AF_PLUGIN_PRICE_CPP_AUTH_FORCED,  
 EMBER_AF_PLUGIN_PRICE_CPP_AUTH_RESERVED }`

- enum EmberAfPluginTunnelingClientStatus {
 EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_SUCCESS, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_BUSY, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_NO\_MORE\_TUNNEL\_IDS, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_PROTOCOL\_NOT\_SUPPORTED, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_FLOW\_CONTROL\_NOT\_SUPPORTED, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_IEEE\_ADDRESS\_REQUEST\_FAILED, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_IEEE\_ADDRESS\_NOT\_FOUND, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_ADDRESS\_TABLE\_FULL, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_LINK\_KEY\_EXCHANGE\_REQUEST\_FAILED, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_LINK\_KEY\_EXCHANGE\_FAILED, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_REQUEST\_TUNNEL\_FAILED, EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_REQUEST\_TUNNEL\_TIMEOUT }
- enum { EMBER\_AF\_IMAGE\_BLOCK\_REQUEST\_OPTIONS\_NONE, EMBER\_AF\_IMAGE\_BLOCK\_REQUEST\_MIN\_BLOCK\_REQUEST\_SUPPORTED\_BY\_CLIENT, EMBER\_AF\_IMAGE\_BLOCK\_REQUEST\_MIN\_BLOCK\_REQUEST\_SUPPORTED\_BY\_SERVER }
- enum EmberAfOtaStorageStatus {
 EMBER\_AF\_OTA\_STORAGE\_SUCCESS, EMBER\_AF\_OTA\_STORAGE\_ERROR, EMBER\_AF\_OTA\_STORAGE\_RETURN\_DATA\_TOO\_LONG, EMBER\_AF\_OTA\_STORAGE\_PARTIAL\_FILE\_FOUND, EMBER\_AF\_OTA\_STORAGE\_OPERATION\_IN\_PROGRESS }
- enum {
 EMBER\_AF\_OTA\_DOWNLOAD\_AND\_VERIFY\_SUCCESS, EMBER\_AF\_OTA\_DOWNLOAD\_TIME\_OUT, EMBER\_AF\_OTA\_VERIFY\_FAILED, EMBER\_AF\_OTA\_SERVER\_ABORTED, EMBER\_AF\_OTA\_CLIENT\_ABORTED, EMBER\_AF\_OTA\_ERASE\_FAILED }
- enum EmberAfKeyEstablishmentNotifyMessage {
 NO\_APP\_MESSAGE, RECEIVED\_PARTNER\_CERTIFICATE, GENERATING\_EPHEMERAL\_KEYS, GENERATING\_SHARED\_SECRET, KEY\_GENERATION\_DONE, GENERATE\_SHARED\_SECRET\_DONE, LINK\_KEY\_ESTABLISHED, NO\_LOCAL\_RESOURCES, PARTNER\_NO\_RESOURCES, TIMEOUT\_OCCURRED, INVALID\_APP\_COMMAND, MESSAGE\_SEND\_FAILURE, PARTNER\_SENT\_TERMINATE, INVALID\_PARTNER\_MESSAGE, PARTNER\_SENT\_DEFAULT\_RESPONSE\_ERROR, BAD\_CERTIFICATE\_ISSUER, KEY\_CONFIRM\_FAILURE, BAD\_KEY\_ESTABLISHMENT\_SUITE, KEY\_TABLE\_FULL, NO\_ESTABLISHMENT\_ALLOWED, INVALID\_CERTIFICATE\_KEY\_USAGE }
- enum EmberAfImageVerifyStatus { EMBER\_AF\_IMAGE\_GOOD, EMBER\_AF\_IMAGE\_BAD, EMBER\_AF\_IMAGE\_VERIFY\_IN\_PROGRESS }
- enum EmberAfCbkeKeyEstablishmentSuite { EMBER\_AF\_INVALID\_KEY\_ESTABLISHMENT\_SUITE, EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_163K1, EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_283K1 }
- enum EmberAfDeviceManagementPasswordType { UNUSED\_PASSWORD, SERVICE\_PASSWORD, CONSUMER\_PASSWORD }
- enum EmberAfDeviceManagementChangePendingFlags {
 EMBER\_AF\_DEVICE\_MANAGEMENT\_CHANGE\_OF\_TENANCY\_PENDING\_MASK, EMBER\_AF\_DEVICE\_MANAGEMENT\_CHANGE\_OF\_SUPPLIER\_PENDING\_MASK, EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_SITE\_ID\_PENDING\_MASK, EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_CIN\_PENDING\_MASK, EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_SERVICE\_PASSWORD\_PENDING\_MASK, EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_CONSUMER\_PASSWORD\_PENDING\_MASK }

- enum `EmberAfDeviceDiscoveryStatus` {
 `EMBER_AF_DEVICE_DISCOVERY_STATUS_NONE`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_NEW`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_FIND_ENDPOINTS`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_FIND_CLUSTERS`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_DONE`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_FAILED` }

### 6.3.1 Detailed Description

This documentation describes the types used by the Ember Application Framework V2.

### 6.3.2 Macro Definition Documentation

#### 6.3.2.1 `#define EMBER_AF_NULL_MANUFACTURER_CODE`

A distinguished manufacturer code that is used to indicate the absence of a manufacturer-specific profile, cluster, command, or attribute.

Definition at line [62](#) of file `af-types.h`.

#### 6.3.2.2 `#define EMBER_AF_INVALID_PROFILE_ID`

An invalid profile ID This is a reserved profileId.

Definition at line [68](#) of file `af-types.h`.

#### 6.3.2.3 `#define EMBER_AF_INTER_PAN_UNICAST`

Definition at line [311](#) of file `af-types.h`.

#### 6.3.2.4 `#define EMBER_AF_INTER_PAN_BROADCAST`

Definition at line [312](#) of file `af-types.h`.

#### 6.3.2.5 `#define EMBER_AF_INTER_PAN_MULTICAST`

Definition at line [313](#) of file `af-types.h`.

#### 6.3.2.6 `#define INTER_PAN_UNICAST`

Definition at line [316](#) of file `af-types.h`.

#### 6.3.2.7 `#define INTER_PAN_BROADCAST`

Definition at line [317](#) of file `af-types.h`.

**6.3.2.8 #define INTER\_PAN\_MULTICAST**

Definition at line 318 of file [af-types.h](#).

**6.3.2.9 #define EMBER\_AF\_INTERPAN\_OPTION\_NONE**

Definition at line 321 of file [af-types.h](#).

**6.3.2.10 #define EMBER\_AF\_INTERPAN\_OPTION\_APSS\_ENCRYPT**

Definition at line 322 of file [af-types.h](#).

**6.3.2.11 #define EMBER\_AF\_INTERPAN\_OPTION\_MAC\_HAS\_LONG\_ADDRESS**

Definition at line 323 of file [af-types.h](#).

**6.3.2.12 #define InterPanHeader**

Definition at line 360 of file [af-types.h](#).

**6.3.2.13 #define EMBER\_AF\_INTERPAN\_DIRECTION\_CLIENT\_TO\_SERVER**

Definition at line 367 of file [af-types.h](#).

**6.3.2.14 #define EMBER\_AF\_INTERPAN\_DIRECTION\_SERVER\_TO\_CLIENT**

Definition at line 368 of file [af-types.h](#).

**6.3.2.15 #define EMBER\_AF\_INTERPAN\_DIRECTION\_BOTH**

Definition at line 369 of file [af-types.h](#).

**6.3.2.16 #define EMBER\_AF\_INTERPAN\_GLOBAL\_COMMAND**

Definition at line 370 of file [af-types.h](#).

**6.3.2.17 #define EMBER\_AF\_INTERPAN\_MANUFACTURER\_SPECIFIC**

Definition at line 371 of file [af-types.h](#).

**6.3.2.18 #define EMBER\_AF\_ALLOW\_TC\_KEY\_REQUESTS**

Definition at line 440 of file [af-types.h](#).

**6.3.2.19 #define EMBER\_AF\_DENY\_TC\_KEY\_REQUESTS**

Definition at line [441](#) of file [af-types.h](#).

**6.3.2.20 #define EMBER\_AF\_ALLOW\_APP\_KEY\_REQUESTS**

Definition at line [442](#) of file [af-types.h](#).

**6.3.2.21 #define EMBER\_AF\_DENY\_APP\_KEY\_REQUESTS**

Definition at line [443](#) of file [af-types.h](#).

**6.3.2.22 #define EM\_AF\_DISCOVERY\_RESPONSE\_MASK**

Definition at line [605](#) of file [af-types.h](#).

**6.3.2.23 #define emberAfHaveDiscoveryResponseStatus( *status* )**

A simple way to determine if the service discovery callback has a response.

Definition at line [611](#) of file [af-types.h](#).

**6.3.2.24 #define EMBER\_AF\_SCENE\_TABLE\_NULL\_INDEX**

Indicates the absence of a Scene table entry.

Definition at line [857](#) of file [af-types.h](#).

**6.3.2.25 #define EMBER\_AF\_SCENE\_TABLE\_UNUSED\_ENDPOINT\_ID**

Value used when setting or getting the endpoint in a Scene table entry. It indicates that the entry is not in use.

Definition at line [862](#) of file [af-types.h](#).

**6.3.2.26 #define ZCL\_SCENES\_CLUSTER\_MAXIMUM\_NAME\_LENGTH**

Maximum length of Scene names, not including the length byte.

Definition at line [866](#) of file [af-types.h](#).

**6.3.2.27 #define ZCL\_SCENES\_GLOBAL\_SCENE\_GROUP\_ID**

The group identifier for the global scene.

Definition at line [870](#) of file [af-types.h](#).

**6.3.2.28 #define ZCL\_SCENES\_GLOBAL\_SCENE\_SCENE\_ID**

The scene identifier for the global scene.

Definition at line [874](#) of file `af-types.h`.

**6.3.2.29 #define EMBER\_AF\_PLUGIN\_MESSAGING\_CLIENT\_MESSAGE\_SIZE**

Definition at line [937](#) of file `af-types.h`.

**6.3.2.30 #define ZCL\_PRICE\_CLUSTER\_MAXIMUM\_RATE\_LABEL\_LENGTH**

Definition at line [953](#) of file `af-types.h`.

**6.3.2.31 #define EMBER\_AF\_PLUGIN\_REPORTING\_UNUSED\_ENDPOINT\_ID**

Value used when setting or getting the endpoint in a report table entry. It indicates that the entry is not in use.

Definition at line [1003](#) of file `af-types.h`.

**6.3.2.32 #define EMBER\_AF\_OTA\_MAX\_HEADER\_STRING\_LENGTH**

The maximum size of the string that is present in the header of the ZigBee Over-the-air file format.

Definition at line [1194](#) of file `af-types.h`.

**6.3.2.33 #define APP\_NOTIFY\_ERROR\_CODE\_START**

Definition at line [1295](#) of file `af-types.h`.

**6.3.2.34 #define APP\_NOTIFY\_MESSAGE\_TEXT**

Definition at line [1296](#) of file `af-types.h`.

**6.3.2.35 #define EMBER\_AF\_STANDALONE\_BOOTLOADER\_HARDWARE\_TAG\_LENGTH**

The length of the hardware tag in the Ember Bootloader Query Response.

Definition at line [1462](#) of file `af-types.h`.

**6.3.2.36 #define EMBER\_AF\_PLUGIN\_SIMPLE\_METERING\_SERVER\_ELECTRIC\_METER**

Definition at line [1517](#) of file `af-types.h`.

**6.3.2.37 #define EMBER\_AF\_PLUGIN\_SIMPLE\_METERING\_SERVER\_GAS\_METER**

Definition at line [1518](#) of file `af-types.h`.

**6.3.2.38 #define EMBER\_AF\_METERING\_FNF\_NEW\_OTA\_FIRMWARE**

Definition at line 1521 of file [af-types.h](#).

**6.3.2.39 #define EMBER\_AF\_METERING\_FNF\_CBKE\_UPDATE\_REQUEST**

Definition at line 1522 of file [af-types.h](#).

**6.3.2.40 #define EMBER\_AF\_METERING\_FNF\_TIME\_SYNC**

Definition at line 1523 of file [af-types.h](#).

**6.3.2.41 #define EMBER\_AF\_METERING\_FNF\_STAY\_AWAKE\_REQUEST\_HAN**

Definition at line 1524 of file [af-types.h](#).

**6.3.2.42 #define EMBER\_AF\_METERING\_FNF\_STAY\_AWAKE\_REQUEST\_WAN**

Definition at line 1525 of file [af-types.h](#).

**6.3.2.43 #define EMBER\_AF\_METERING\_FNF\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET**

Definition at line 1526 of file [af-types.h](#).

**6.3.2.44 #define EMBER\_AF\_METERING\_FNF\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET**

Definition at line 1527 of file [af-types.h](#).

**6.3.2.45 #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER**

Definition at line 1528 of file [af-types.h](#).

**6.3.2.46 #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER**

Definition at line 1529 of file [af-types.h](#).

**6.3.2.47 #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER**

Definition at line 1530 of file [af-types.h](#).

**6.3.2.48 #define EMBER\_AF\_METERING\_FNF\_NETWORK\_KEY\_ACTIVE**

Definition at line 1531 of file [af-types.h](#).

**6.3.2.49 #define EMBER\_AF\_METERING\_FNF\_DISPLAY\_MESSAGE**

Definition at line 1532 of file af-types.h.

**6.3.2.50 #define EMBER\_AF\_METERING\_FNF\_CANCEL\_ALL\_MESSAGES**

Definition at line 1533 of file af-types.h.

**6.3.2.51 #define EMBER\_AF\_METERING\_FNF\_CHANGE\_SUPPLY**

Definition at line 1534 of file af-types.h.

**6.3.2.52 #define EMBER\_AF\_METERING\_FNF\_LOCAL\_CHANGE\_SUPPLY**

Definition at line 1535 of file af-types.h.

**6.3.2.53 #define EMBER\_AF\_METERING\_FNF\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD**

Definition at line 1536 of file af-types.h.

**6.3.2.54 #define EMBER\_AF\_METERING\_FNF\_TUNNEL\_MESSAGE\_PENDING**

Definition at line 1537 of file af-types.h.

**6.3.2.55 #define EMBER\_AF\_METERING\_FNF\_GET\_SNAPSHOT**

Definition at line 1538 of file af-types.h.

**6.3.2.56 #define EMBER\_AF\_METERING\_FNF\_GET\_SAMPLED\_DATA**

Definition at line 1539 of file af-types.h.

**6.3.2.57 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_PRICE**

Definition at line 1542 of file af-types.h.

**6.3.2.58 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BLOCK\_PERIOD**

Definition at line 1543 of file af-types.h.

**6.3.2.59 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_TARIFF\_INFORMATION**

Definition at line 1544 of file af-types.h.

**6.3.2.60 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CONVERSION\_FACTOR**

Definition at line [1545](#) of file [af-types.h](#).

**6.3.2.61 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CALORIFIC\_VALUE**

Definition at line [1546](#) of file [af-types.h](#).

**6.3.2.62 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CO2\_VALUE**

Definition at line [1547](#) of file [af-types.h](#).

**6.3.2.63 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BILLING\_PERIOD**

Definition at line [1548](#) of file [af-types.h](#).

**6.3.2.64 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CONSOLIDATED\_BILL**

Definition at line [1549](#) of file [af-types.h](#).

**6.3.2.65 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_PRICE\_MATRIX**

Definition at line [1550](#) of file [af-types.h](#).

**6.3.2.66 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BLOCK\_THRESHOLDS**

Definition at line [1551](#) of file [af-types.h](#).

**6.3.2.67 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CURRENCY\_CONVERSION**

Definition at line [1552](#) of file [af-types.h](#).

**6.3.2.68 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CREDIT\_PAYMENT\_INFO**

Definition at line [1553](#) of file [af-types.h](#).

**6.3.2.69 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CPP\_EVENT**

Definition at line [1554](#) of file [af-types.h](#).

**6.3.2.70 #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_TIER\_LABELS**

Definition at line [1555](#) of file [af-types.h](#).

**6.3.2.71 #define EMBER\_AF\_METERING\_NF2\_CANCEL\_TARIFF**

Definition at line [1556](#) of file [af-types.h](#).

**6.3.2.72 #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_CALENDAR**

Definition at line [1559](#) of file [af-types.h](#).

**6.3.2.73 #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_SPECIAL\_DAYS**

Definition at line [1560](#) of file [af-types.h](#).

**6.3.2.74 #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_SEASONS**

Definition at line [1561](#) of file [af-types.h](#).

**6.3.2.75 #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_WEEK**

Definition at line [1562](#) of file [af-types.h](#).

**6.3.2.76 #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_DAY**

Definition at line [1563](#) of file [af-types.h](#).

**6.3.2.77 #define EMBER\_AF\_METERING\_NF3\_CANCEL\_CALENDAR**

Definition at line [1564](#) of file [af-types.h](#).

**6.3.2.78 #define EMBER\_AF\_METERING\_NF4\_SELECT\_AVAILABLE\_EMERGENCY\_CREDIT**

Definition at line [1567](#) of file [af-types.h](#).

**6.3.2.79 #define EMBER\_AF\_METERING\_NF4\_CHANGE\_DEBT**

Definition at line [1568](#) of file [af-types.h](#).

**6.3.2.80 #define EMBER\_AF\_METERING\_NF4\_EMERGENCY\_CREDIT\_SETUP**

Definition at line [1569](#) of file [af-types.h](#).

**6.3.2.81 #define EMBER\_AF\_METERING\_NF4\_CONSUMER\_TOP\_UP**

Definition at line [1570](#) of file [af-types.h](#).

**6.3.2.82 #define EMBER\_AF\_METERING\_NF4\_CREDIT\_ADJUSTMENT**

Definition at line 1571 of file af-types.h.

**6.3.2.83 #define EMBER\_AF\_METERING\_NF4\_CHANGE\_PAYMENT\_MODE**

Definition at line 1572 of file af-types.h.

**6.3.2.84 #define EMBER\_AF\_METERING\_NF4\_GET\_PREPAY\_SNAPSHOT**

Definition at line 1573 of file af-types.h.

**6.3.2.85 #define EMBER\_AF\_METERING\_NF4\_GET\_TOP\_UP\_LOG**

Definition at line 1574 of file af-types.h.

**6.3.2.86 #define EMBER\_AF\_METERING\_NF4\_SET\_LOW\_CREDIT\_WARNING\_LEVEL**

Definition at line 1575 of file af-types.h.

**6.3.2.87 #define EMBER\_AF\_METERING\_NF4\_GET\_DEBT\_REPAYMENT\_LOG**

Definition at line 1576 of file af-types.h.

**6.3.2.88 #define EMBER\_AF\_METERING\_NF4\_SET\_MAXIMUM\_CREDIT\_LIMIT**

Definition at line 1577 of file af-types.h.

**6.3.2.89 #define EMBER\_AF\_METERING\_NF4\_SET\_OVERALL\_DEBT\_CAP**

Definition at line 1578 of file af-types.h.

**6.3.2.90 #define EMBER\_AF\_METERING\_NF5\_PUBLISH\_CHANGE\_OF\_TENANCY**

Definition at line 1581 of file af-types.h.

**6.3.2.91 #define EMBER\_AF\_METERING\_NF5\_PUBLISH\_CHANGE\_OF\_SUPPLIER**

Definition at line 1582 of file af-types.h.

**6.3.2.92 #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_1\_RESPONSE**

Definition at line 1583 of file af-types.h.

**6.3.2.93 #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_2\_RESPONSE**

Definition at line [1584](#) of file [af-types.h](#).

**6.3.2.94 #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_3\_RESPONSE**

Definition at line [1585](#) of file [af-types.h](#).

**6.3.2.95 #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_4\_RESPONSE**

Definition at line [1586](#) of file [af-types.h](#).

**6.3.2.96 #define EMBER\_AF\_METERING\_NF5\_UPDATE\_SITE\_ID**

Definition at line [1587](#) of file [af-types.h](#).

**6.3.2.97 #define EMBER\_AF\_METERING\_NF5\_RESET\_BATTERY\_COUNTER**

Definition at line [1588](#) of file [af-types.h](#).

**6.3.2.98 #define EMBER\_AF\_METERING\_NF5\_UPDATE\_CIN**

Definition at line [1589](#) of file [af-types.h](#).

**6.3.2.99 #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_NAME\_LENGTH**

Device Management plugin types.

Definition at line [1610](#) of file [af-types.h](#).

**6.3.2.100 #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_CONTACT\_DETAILS\_LENGTH**

Definition at line [1611](#) of file [af-types.h](#).

**6.3.2.101 #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_SITE\_ID\_LENGTH**

Definition at line [1612](#) of file [af-types.h](#).

**6.3.2.102 #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_CIN\_LENGTH**

Definition at line [1613](#) of file [af-types.h](#).

**6.3.2.103 #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PASSWORD\_LENGTH**

Definition at line [1614](#) of file [af-types.h](#).

**6.3.2.104 #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_NONE**

Definition at line [1769](#) of file [af-types.h](#).

**6.3.2.105 #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_SERVER**

Definition at line [1770](#) of file [af-types.h](#).

**6.3.2.106 #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_CLIENT**

Definition at line [1771](#) of file [af-types.h](#).

**6.3.2.107 #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_INVALID**

Definition at line [1772](#) of file [af-types.h](#).

**6.3.2.108 #define EMBER\_AF\_MAX\_CLUSTERS\_PER\_ENDPOINT**

Definition at line [1804](#) of file [af-types.h](#).

**6.3.2.109 #define EMBER\_AF\_MAX\_ENDPOINTS\_PER\_DEVICE**

Definition at line [1819](#) of file [af-types.h](#).

**6.3.2.110 #define EMBER\_AF\_INVALID\_CLUSTER\_ID**

Definition at line [1857](#) of file [af-types.h](#).

**6.3.2.111 #define EMBER\_AF\_INVALID\_ENDPOINT**

Definition at line [1859](#) of file [af-types.h](#).

**6.3.2.112 #define EMBER\_AF\_INVALID\_PAN\_ID**

Definition at line [1861](#) of file [af-types.h](#).

**6.3.2.113 #define EMBER\_AF\_PERMIT\_JOIN\_FOREVER**

Permit join times.

Definition at line [1866](#) of file [af-types.h](#).

**6.3.2.114 #define EMBER\_AF\_PERMIT\_JOIN\_MAX\_TIMEOUT**

Definition at line [1867](#) of file [af-types.h](#).

**6.3.2.115 #define EMBER\_AF\_ZDO\_RESPONSE\_OVERHEAD**

The overhead of the ZDO response. 1 byte for the sequence and 1 byte for the status code.

Definition at line [1874](#) of file [af-types.h](#).

### **6.3.3 Typedef Documentation**

**6.3.3.1 typedef uint16\_t EmberAfProfileId**

Type for referring to ZigBee application profile id.

Definition at line [23](#) of file [af-types.h](#).

**6.3.3.2 typedef uint16\_t EmberAfAttributeId**

Type for referring to ZCL attribute id.

Definition at line [28](#) of file [af-types.h](#).

**6.3.3.3 typedef uint16\_t EmberAfClusterId**

Type for referring to ZCL cluster id.

Definition at line [33](#) of file [af-types.h](#).

**6.3.3.4 typedef uint8\_t EmberAfAttributeType**

Type for referring to ZCL attribute type.

Definition at line [38](#) of file [af-types.h](#).

**6.3.3.5 typedef uint8\_t EmberAfClusterMask**

Type for the cluster mask.

Definition at line [43](#) of file [af-types.h](#).

**6.3.3.6 typedef uint8\_t EmberAfAttributeMask**

Type for the attribute mask.

Definition at line [48](#) of file [af-types.h](#).

**6.3.3.7 typedef void(\* EmberAfGenericClusterFunction)(void)**

Generic function type, used for either of the cluster function.

This type is used for the array of the cluster functions, and should always be cast into one of the specific functions before being called.

Definition at line [56](#) of file [af-types.h](#).

**6.3.3.8 `typedef uint8_t EmberAfInterpanMessageType`**

Interpan Message type: unicast, broadcast, or multicast.

Definition at line [310](#) of file `af-types.h`.

**6.3.3.9 `typedef uint16_t EmberAfInterpanOptions`**

The options for sending/receiving interpan messages.

Definition at line [328](#) of file `af-types.h`.

**6.3.3.10 `typedef uint8_t EmberAfAllowedInterpanOptions`**

The options for what interpan messages are allowed.

Definition at line [365](#) of file `af-types.h`.

**6.3.3.11 `typedef EmberLinkKeyRequestPolicy EmberAfLinkKeyRequestPolicy`**

Definition at line [439](#) of file `af-types.h`.

**6.3.3.12 `typedef uint8_t EmberAfPluginEsiManagementBitmask`**

Bitmask data type for storing one bit of information for each ESI in the ESI table.

Definition at line [541](#) of file `af-types.h`.

**6.3.3.13 `typedef void( EmberAfServiceDiscoveryCallback)(const EmberAfServiceDiscoveryResult *result)`**

This defines a callback where a code element or cluster can be informed as to the result of a service discovery they have requested. For each match, the callback is fired with all the resulting matches from that source. If the discovery was unicast to a specific device, then the callback will only be fired once with either MATCH\_FOUND or COMPLETE (no matches found). If the discovery is broadcast then multiple callbacks may be fired with ::EMBER\_AF\_SERVICE\_DISCOVERY\_RESPONSE\_RECEIVED. After a couple seconds the callback will then be fired with ::EMBER\_AF\_SERVICE\_DISCOVERY\_COMPLETE as the result.

Definition at line [685](#) of file `af-types.h`.

**6.3.3.14 `typedef void( EmberAfPartnerLinkKeyExchangeCallback)(bool success)`**

This defines a callback where a code element or cluster can be informed as to the result of a request to initiate a partner link key exchange. The callback will be triggered with success equal to true if the exchange completed successfully.

Definition at line [693](#) of file `af-types.h`.

**6.3.3.15 `typedef void(* EmberAfNetworkEventHandler)(void)`**

Type for referring to the handler for network events.

Definition at line 818 of file [af-types.h](#).

### **6.3.3.16 `typedef void(* EmberAfEndpointEventHandler)(uint8_t endpoint)`**

Type for referring to the handler for endpoint events.

Definition at line 823 of file [af-types.h](#).

### **6.3.3.17 `typedef uint8_t EmberAfImageBlockRequestOptions`**

Definition at line 1145 of file [af-types.h](#).

### **6.3.3.18 `typedef uint8_t EmberAfOtaDownloadResult`**

Definition at line 1188 of file [af-types.h](#).

### **6.3.3.19 `typedef void(* EmberAfTickFunction)(uint8_t endpoint)`**

Type for referring to the tick callback for cluster.

Tick function will be called once for each tick for each endpoint in the cluster. The rate of tick is determined by the metadata of the cluster.

Definition at line 1350 of file [af-types.h](#).

### **6.3.3.20 `typedef void(* EmberAfInitFunction)(uint8_t endpoint)`**

Type for referring to the init callback for cluster.

Init function is called when the application starts up, once for each cluster/endpoint combination.

Definition at line 1359 of file [af-types.h](#).

### **6.3.3.21 `typedef void(* EmberAfClusterAttributeChangedCallback)(uint8_t endpoint, EmberAfAttributeId attributeld)`**

Type for referring to the attribute changed callback function.

This function is called just after an attribute changes.

Definition at line 1366 of file [af-types.h](#).

### **6.3.3.22 `typedef void(* EmberAfManufacturerSpecificClusterAttributeChangedCallback)(uint8_t endpoint, EmberAfAttributeId attributeld, uint16_t manufacturerCode)`**

Type for referring to the manufacturer specific attribute changed callback function.

This function is called just after a manufacturer specific attribute changes.

Definition at line 1375 of file [af-types.h](#).

**6.3.3.23 `typedef EmberAfStatus(* EmberAfClusterPreAttributeChangedCallback)(uint8_t endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, uint8_t size, uint8_t *value)`**

Type for referring to the pre-attribute changed callback function.

This function is called before an attribute changes.

Definition at line [1384](#) of file `af-types.h`.

**6.3.3.24 `typedef void(* EmberAfDefaultResponseFunction)(uint8_t endpoint, uint8_t commandId, EmberAfStatus status)`**

Type for referring to the default response callback function.

This function is called when default response is received, before the global callback. Global callback is called immediately afterwards.

Definition at line [1396](#) of file `af-types.h`.

**6.3.3.25 `typedef void(* EmberAfMessageSentFunction)(EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t msgLen, uint8_t *message, EmberStatus status)`**

Type for referring to the message sent callback function.

This function is called when a message is sent.

Definition at line [1405](#) of file `af-types.h`.

**6.3.3.26 `typedef uint16_t EmberAfRemoteClusterType`**

Zigbee Internet Client/Server Remote Cluster Types.

Definition at line [1767](#) of file `af-types.h`.

## 6.3.4 Enumeration Type Documentation

**6.3.4.1 `enum EmberAfSecurityProfile`**

Enumerator:

- `EMBER_AF_SECURITY_PROFILE_NONE`**
- `EMBER_AF_SECURITY_PROFILE_HA`**
- `EMBER_AF_SECURITY_PROFILE_HA12`**
- `EMBER_AF_SECURITY_PROFILE_SE_TEST`**
- `EMBER_AF_SECURITY_PROFILE_SE_FULL`**
- `EMBER_AF_SECURITY_PROFILE_Z3`**
- `EMBER_AF_SECURITY_PROFILE_CUSTOM`**

Definition at line [447](#) of file `af-types.h`.

#### 6.3.4.2 enum EmberAfServiceDiscoveryStatus

This is an enum used to indicate the result of the service discovery. Unicast discoveries are completed as soon as a response is received. Broadcast discoveries wait a period of time for multiple responses to be received.

Enumerator:

```
EMBER_AF_BROADCAST_SERVICE_DISCOVERY_COMPLETE
EMBER_AF_BROADCAST_SERVICE_DISCOVERY_RESPONSE RECEIVED
EMBER_AF_UNICAST_SERVICE_DISCOVERY_TIMEOUT
EMBER_AF_UNICAST_SERVICE_DISCOVERY_COMPLETE WITH RESPONSE
EMBER_AF_BROADCAST_SERVICE_DISCOVERY_COMPLETE WITH RESPONSE
```

Definition at line 597 of file af-types.h.

#### 6.3.4.3 enum EmberAfEventPollControl

This is an enum used to control how the device will poll for a given active cluster-related event. When the event is scheduled, the application can pass a poll control value which will be stored along with the event. The processor is only allowed to poll according to the most restrictive value for all active event. For instance, if two events are active, one with EMBER\_AF\_LONG\_POLL and the other with EMBER\_AF\_SHORT\_POLL, then the processor will short poll until the second event is deactivated.

Enumerator:

```
EMBER_AF_LONG_POLL
EMBER_AF_SHORT_POLL
```

Definition at line 704 of file af-types.h.

#### 6.3.4.4 enum EmberAfEventSleepControl

This is an enum used to control how the device will sleep for a given active cluster related event. When the event is scheduled, the scheduling code can pass a sleep control value which will be stored along with the event. The processor is only allowed to sleep according to the most restrictive sleep control value for any active event. For instance, if two events are active, one with EMBER\_AF\_OK\_TO\_HIBERNATE and the other with EMBER\_AF\_OK\_TO\_NAP, then the processor will only be allowed to nap until the second event is deactivated.

Enumerator:

```
EMBER_AF_OK_TO_SLEEP
EMBER_AF_OK_TO_HIBERNATE Deprecated .
EMBER_AF_OK_TO_NAP Deprecated .
EMBER_AF_STAY_AWAKE
```

Definition at line 722 of file af-types.h.

#### 6.3.4.5 enum EmberAfApplicationTask

An enum used to track the tasks that the Application framework cares about. These are intended to be tasks that should keep the device out of hibernation like an application level request / response. If the response does not come in as a data ack, then the application will need to stay out of hibernation to wait and poll for it.

Of course some tasks do not necessarily have a response. For instance, a ZDO request may or may not have a response. In this case, the application framework cannot rely on the fact that a response will come in to end the wake cycle, so the Application framework must timeout the wake cycle if no expected response is received or no other event can be relied upon to end the wake cycle.

Tasks of this type should be added to the wake timeout mask by calling [emberAfSetWakeTimeoutBitmaskCallback](#) so that they can be governed by a timeout instead of a request / response

the current tasks bitmask is an uint32\_t bitmask used to track which tasks are active at any given time. The bottom 16 bits, values 0x01 - 0x8000 are reserved for Ember's use. The top 16 bits are reserved for the customer, values 0x10000 - 0x80000000

Enumerator:

```
EMBER_AF_WAITING_FOR_DATA_ACK
EMBER_AF_LAST_POLL_GOT_DATA
EMBER_AF_WAITING_FOR_SERVICE_DISCOVERY
EMBER_AF_WAITING_FOR_ZDO_RESPONSE
EMBER_AF_WAITING_FOR_ZCL_RESPONSE
EMBER_AF_WAITING_FOR_REGISTRATION
EMBER_AF_WAITING_FOR_PARTNER_LINK_KEY_EXCHANGE
EMBER_AF_FORCE_SHORT_POLL
EMBER_AF_FRAGMENTATION_IN_PROGRESS
```

Definition at line [758](#) of file [af-types.h](#).

#### 6.3.4.6 enum EmberAfPluginPriceCppAuth

Specifies CPP Authorization values.

Enumerator:

```
EMBER_AF_PLUGIN_PRICE_CPP_AUTH_PENDING
EMBER_AF_PLUGIN_PRICE_CPP_AUTH_ACCEPTED
EMBER_AF_PLUGIN_PRICE_CPP_AUTH_REJECTED
EMBER_AF_PLUGIN_PRICE_CPP_AUTH_FORCED
EMBER_AF_PLUGIN_PRICE_CPP_AUTH_RESERVED
```

Definition at line [985](#) of file [af-types.h](#).

#### 6.3.4.7 enum EmberAfPluginTunnelingClientStatus

Enumerator:

```
EMBER_AF_PLUGIN_TUNNELING_CLIENT_SUCCESS
```

```
EMBER_AF_PLUGIN_TUNNELING_CLIENT_BUSY
EMBER_AF_PLUGIN_TUNNELING_CLIENT_NO_MORE_TUNNEL_IDS
EMBER_AF_PLUGIN_TUNNELING_CLIENT_PROTOCOL_NOT_SUPPORTED
EMBER_AF_PLUGIN_TUNNELING_CLIENT_FLOW_CONTROL_NOT_SUPPORTED
EMBER_AF_PLUGIN_TUNNELING_CLIENT_IEEE_ADDRESS_REQUEST_FAILED
EMBER_AF_PLUGIN_TUNNELING_CLIENT_IEEE_ADDRESS_NOT_FOUND
EMBER_AF_PLUGIN_TUNNELING_CLIENT_ADDRESS_TABLE_FULL
EMBER_AF_PLUGIN_TUNNELING_CLIENT_LINK_KEY_EXCHANGE_REQUEST_FAILED

EMBER_AF_PLUGIN_TUNNELING_CLIENT_LINK_KEY_EXCHANGE_FAILED
EMBER_AF_PLUGIN_TUNNELING_CLIENT_REQUEST_TUNNEL_FAILED
EMBER_AF_PLUGIN_TUNNELING_CLIENT_REQUEST_TUNNEL_TIMEOUT
```

Definition at line 1057 of file af-types.h.

#### 6.3.4.8 anonymous enum

The list of options possible for the image block request/response.

Enumerator:

```
EMBER_AF_IMAGE_BLOCK_REQUEST_OPTIONS_NONE
EMBER_AF_IMAGE_BLOCK_REQUEST_MIN_BLOCK_REQUEST_SUPPORTED_BY_CLIENT

EMBER_AF_IMAGE_BLOCK_REQUEST_MIN_BLOCK_REQUEST_SUPPORTED_BY_SERVER
```

Definition at line 1140 of file af-types.h.

#### 6.3.4.9 enum EmberAfOtaStorageStatus

This status contains the success or error code of an OTA storage device operation.

Enumerator:

```
EMBER_AF_OTA_STORAGE_SUCCESS
EMBER_AF_OTA_STORAGE_ERROR
EMBER_AF_OTA_STORAGE_RETURN_DATA_TOO_LONG
EMBER_AF_OTA_STORAGE_PARTIAL_FILE_FOUND
EMBER_AF_OTA_STORAGE_OPERATION_IN_PROGRESS
```

Definition at line 1168 of file af-types.h.

#### 6.3.4.10 anonymous enum

This status contains the success or error code of an OTA download operation.

Enumerator:

```
EMBER_AF_OTA_DOWNLOAD_AND_VERIFY_SUCCESS
EMBER_AF_OTA_DOWNLOAD_TIME_OUT
EMBER_AF_OTA_VERIFY_FAILED
EMBER_AF_OTA_SERVER_ABORTED
EMBER_AF_OTA_CLIENT_ABORTED
EMBER_AF_OTA_ERASE_FAILED
```

Definition at line 1180 of file [af-types.h](#).

#### 6.3.4.11 enum EmberAfKeyEstablishmentNotifyMessage

Enumerator:

```
NO_APP_MESSAGE
RECEIVED_PARTNER_CERTIFICATE
GENERATING_EPHEMERAL_KEYS
GENERATING_SHARED_SECRET
KEY_GENERATION_DONE
GENERATE_SHARED_SECRET_DONE
LINK_KEY_ESTABLISHED LINK_KEY_ESTABLISHED indicates Success, key establishment done.
NO_LOCAL_RESOURCES Error codes: Transient failures where Key Establishment could be re-tried
PARTNER_NO_RESOURCES
TIMEOUT_OCCURRED
INVALID_APP_COMMAND
MESSAGE_SEND_FAILURE
PARTNER_SENT_TERMINATE
INVALID_PARTNER_MESSAGE
PARTNER_SENT_DEFAULT_RESPONSE_ERROR
BAD_CERTIFICATE_ISSUER Fatal Errors: These results are not worth retrying because the outcome will not change
KEY_CONFIRM_FAILURE
BAD_KEY_ESTABLISHMENT_SUITE
KEY_TABLE_FULL
NO_ESTABLISHMENT_ALLOWED Neither initiator nor responder is an ESP/TC so the key establishment is not allowed per the spec.
INVALID_CERTIFICATE_KEY_USAGE
```

Definition at line 1245 of file [af-types.h](#).

#### 6.3.4.12 enum EmberAfImageVerifyStatus

This enumeration is used to indicate the state of an OTA bootload image undergoing verification. This is used both for cryptographic verification and manufacturer specific verification.

Enumerator:

- EMBER\_AF\_IMAGE\_GOOD*
- EMBER\_AF\_IMAGE\_BAD*
- EMBER\_AF\_IMAGE\_VERIFY\_IN\_PROGRESS*

Definition at line [1329](#) of file [af-types.h](#).

#### 6.3.4.13 enum EmberAfCbkeKeyEstablishmentSuite

CBKE Library types.

Enumerator:

- EMBER\_AF\_INVALID\_KEY\_ESTABLISHMENT\_SUITE*
- EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_163K1*
- EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_283K1*

Definition at line [1595](#) of file [af-types.h](#).

#### 6.3.4.14 enum EmberAfDeviceManagementPasswordType

Enumerator:

- UNUSED\_PASSWORD*
- SERVICE\_PASSWORD*
- CONSUMER\_PASSWORD*

Definition at line [1617](#) of file [af-types.h](#).

#### 6.3.4.15 enum EmberAfDeviceManagementChangePendingFlags

Enumerator:

- EMBER\_AF\_DEVICE\_MANAGEMENT\_CHANGE\_OF\_TENANCY\_PENDING\_MASK*
- EMBER\_AF\_DEVICE\_MANAGEMENT\_CHANGE\_OF\_SUPPLIER\_PENDING\_MASK*
- EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_SITE\_ID\_PENDING\_MASK*
- EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_CIN\_PENDING\_MASK*
- EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_SERVICE\_PASSWORD\_PENDING\_MASK*
  
- EMBER\_AF\_DEVICE\_MANAGEMENT\_UPDATE\_CONSUMER\_PASSWORD\_PENDING\_MASK*

Definition at line [1629](#) of file [af-types.h](#).

#### 6.3.4.16 enum EmberAfDeviceDiscoveryStatus

Enumerator:

*EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_NONE*  
*EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_NEW*  
*EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_FIND\_ENDPOINTS*  
*EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_FIND\_CLUSTERS*  
*EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_DONE*  
*EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_FAILED*

Definition at line [1826](#) of file [af-types.h](#).

## 6.4 Application Framework Callback Interface

### Modules

- Framework Callbacks
- Button Callbacks
- Debug Basic Library Callbacks
- ZigBee PRO Core Security Library EZSP Command Handlers Callbacks
- ZigBee PRO Library EZSP Command Handlers Callbacks
- HAL Library Callbacks
- Microphone Codec MSADPCM Callbacks
- Microphone IMAADPCM Callbacks
- Multi-Network Stub Library Callbacks
- STM32F103RET Library Callbacks
- XNCP Library Callbacks
- ZigBee PRO Stack Library Callbacks
- main API Callbacks
- ncp API Callbacks
- sim-eeprom API Callbacks
- stack API Callbacks

### Non-Cluster Related Callbacks

- void `emberAfAddToCurrentAppTasksCallback` (`EmberAfApplicationTask` tasks)
- `EmberAfAttributeWritePermission` `emberAfAllowNetworkWriteAttributeCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeId` attributeId, int8u mask, int16u manufacturerCode, int8u \*value, int8u type)
- boolean `emberAfAttributeReadAccessCallback` (int8u endpoint, `EmberAfClusterId` clusterId, int16u manufacturerCode, int16u attributeId)
- boolean `emberAfAttributeWriteAccessCallback` (int8u endpoint, `EmberAfClusterId` clusterId, int16u manufacturerCode, int16u attributeId)
- `EmberStatus` `emberAfClearReportTableCallback` (void)
- void `emberAfClusterInitCallback` (int8u endpoint, `EmberAfClusterId` clusterId)
- boolean `emberAfClusterSecurityCustomCallback` (`EmberAfProfileId` profileId, `EmberAfClusterId` clusterId, boolean incoming, int8u commandId)
- boolean `emberAfConfigureReportingCommandCallback` (const `EmberAfClusterCommand` \*cmd)
- boolean `emberAfConfigureReportingResponseCallback` (`EmberAfClusterId` clusterId, int8u \*buffer, int16u bufLen)
- boolean `emberAfDefaultResponseCallback` (`EmberAfClusterId` clusterId, int8u commandId, `EmberAfStatus` status)
- boolean `emberAfDiscoverAttributesResponseCallback` (`EmberAfClusterId` clusterId, boolean discoveryComplete, int8u \*buffer, int16u bufLen, boolean extended)
- boolean `emberAfDiscoverCommandsGeneratedResponseCallback` (`EmberAfClusterId` clusterId, int16u manufacturerCode, boolean discoveryComplete, int8u \*commandIds, int16u commandIdCount)
- boolean `emberAfDiscoverCommandsReceivedResponseCallback` (`EmberAfClusterId` clusterId, int16u manufacturerCode, boolean discoveryComplete, int8u \*commandIds, int16u commandIdCount)
- void `emberAfEepromInitCallback` (void)
- void `emberAfEepromNoteInitializedStateCallback` (boolean state)
- void `emberAfEepromShutdownCallback` (void)
- void `emberAfEnergyScanResultCallback` (int8u channel, int8s rssi)

- `EmberAfStatus emberAfExternalAttributeReadCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeMetadata` \*attributeMetadata, int16u manufacturerCode, int8u \*buffer)
- `EmberAfStatus emberAfExternalAttributeWriteCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeMetadata` \*attributeMetadata, int16u manufacturerCode, int8u \*buffer)
- `EmberStatus emberAfFindUnusedPanIdAndFormCallback` (void)
- `EmberAfApplicationTask emberAfGetCurrentAppTasksCallback` (void)
- `EmberAfEventPollControl emberAfGetCurrentPollControlCallback` (void)
- int32u `emberAfGetCurrentPollIntervalMsCallback` (void)
- int32u `emberAfGetCurrentPollIntervalQsCallback` (void)
- `EmberAfEventSleepControl emberAfGetCurrentSleepControlCallback` (void)
- int32u `emberAfGetCurrentTimeCallback` (void)
- `EmberAfEventPollControl emberAfGetDefaultPollControlCallback` (void)
- `EmberAfEventSleepControl emberAfGetDefaultSleepControlCallback` (void)
- boolean `emberAfGetEndpointByIndexCallback` (int8u index, int8u \*endpointReturn)
- boolean `emberAfGetEndpointDescriptionCallback` (int8u endpoint, `EmberEndpointDescription` \*result)
- boolean `emberAfGetEndpointInfoCallback` (int8u endpoint, int8u \*returnNetworkIndex, `EmberAfEndpointInfoStruct` \*returnEndpointInfo)
- void `emberAfGetFormAndJoinExtendedPanIdCallback` (int8u \*resultLocation)
- int32u `emberAfGetLongPollIntervalMsCallback` (void)
- int32u `emberAfGetLongPollIntervalQsCallback` (void)
- int16u `emberAfGetShortPollIntervalMsCallback` (void)
- int16u `emberAfGetShortPollIntervalQsCallback` (void)
- int8u `emberAfGetSourceRouteOverheadCallback` (`EmberNodeId` destination)
- `EmberAfApplicationTask emberAfGetWakeTimeoutBitmaskCallback` (void)
- int16u `emberAfGetWakeTimeoutMsCallback` (void)
- int16u `emberAfGetWakeTimeoutQsCallback` (void)
- void `emberAfHalButtonIsrCallback` (int8u button, int8u state)
- `EmberStatus emberAfInitiateInterPanKeyEstablishmentCallback` (`EmberPanId` panId, const `EmberEUI64` eui64)
- `EmberStatus emberAfInitiateKeyEstablishmentCallback` (`EmberNodeId` nodeId, int8u endpoint)
- `EmberStatus emberAfInitiatePartnerLinkKeyExchangeCallback` (`EmberNodeId` target, int8u endpoint, `EmberAfPartnerLinkKeyExchangeCallback` \*callback)
- boolean `emberAfInterPanKeyEstablishmentCallback` (`EmberAfKeyEstablishmentNotifyMessage` status, boolean amInitiator, `EmberPanId` panId, const `EmberEUI64` eui64, int8u delayInSeconds)
- `EmberStatus emberAfInterpanSendMessageCallback` (`EmberAfInterpanHeader` \*header, int16u messageLength, int8u \*message)
- boolean `emberAfKeyEstablishmentCallback` (`EmberAfKeyEstablishmentNotifyMessage` status, boolean amInitiator, `EmberNodeId` partnerShortId, int8u delayInSeconds)
- void `emberAfMainInitCallback` (void)
- boolean `emberAfMainStartCallback` (int \*returnCode, int argc, char \*\*argv)
- void `emberAfMainTickCallback` (void)
- boolean `emberAfMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- void `emberAfNcpInitCallback` (boolean memoryAllocation)
- void `emberAfNcpIsAwakeIsrCallback` (void)
- void `emberAfNetworkFoundCallback` (`EmberZigbeeNetwork` \*networkFound, int8u lqi, int8s rssi)
- void `emberAfNetworkKeyUpdateCompleteCallback` (`EmberStatus` status)
- int8u `emberAfOtaBootloadCallback` (const `EmberAfOtaImageId` \*id, int16u ncpUpgradeTagId)
- void `emberAfOtaClientBootloadCallback` (const `EmberAfOtaImageId` \*id)
- `EmberAfImageVerifyStatus emberAfOtaClientCustomVerifyCallback` (boolean newVerification, const `EmberAfOtaImageId` \*id)

- boolean `emberAfOtaClientDownloadCompleteCallback` (`EmberAfOtaDownloadResult` success, const `EmberAfOtaImageId` \*id)
- boolean `emberAfOtaClientIncomingMessageRawCallback` (`EmberAfClusterCommand` \*message)
- void `emberAfOtaClientStartCallback` (void)
- void `emberAfOtaClientVersionInfoCallback` (`EmberAfOtaImageId` \*currentImageInfo, int16u \*hardware-Version)
- int8u `emberAfOtaPageRequestServerPolicyCallback` (void)
- int8u `emberAfOtaServerBlockSizeCallback` (`EmberNodeId` clientNodeId)
- int8u `emberAfOtaServerImageBlockRequestCallback` (`EmberAfImageBlockRequestCallbackStruct` \*data)
- boolean `emberAfOtaServerIncomingMessageRawCallback` (`EmberAfClusterCommand` \*message)
- int8u `emberAfOtaServerQueryCallback` (const `EmberAfOtaImageId` \*currentImageId, int16u \*hardware-Version, `EmberAfOtaImageId` \*nextUpgradeImageId)
- boolean `emberAfOtaServerSendImageNotifyCallback` (`EmberNodeId` dest, int8u endpoint, int8u payload-Type, int8u queryJitter, const `EmberAfOtaImageId` \*id)
- boolean `emberAfOtaServerUpgradeEndRequestCallback` (`EmberNodeId` source, int8u status, int32u \*returnValue, const `EmberAfOtaImageId` \*imageId)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageCheckTempDataCallback` (int32u \*currentOffset, int32u \*totalImageSize, `EmberAfOtaImageId` \*newFileInfo)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageClearTempDataCallback` (void)
- void `emberAfOtaStorageCloseCallback` (void)
- void `emberAfOtaStorageDriverDownloadFinishCallback` (int32u offset)
- boolean `emberAfOtaStorageDriverInitCallback` (void)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageDriverInvalidateImageCallback` (void)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageDriverPrepareToResumeDownloadCallback` (void)
- boolean `emberAfOtaStorageDriverReadCallback` (int32u offset, int32u length, int8u \*returnData)
- int32u `emberAfOtaStorageDriverRetrieveLastStoredOffsetCallback` (void)
- boolean `emberAfOtaStorageDriverWriteCallback` (const int8u \*dataToWrite, int32u offset, int32u length)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageFinishDownloadCallback` (int32u offset)
- int8u `emberAfOtaStorageGetCountCallback` (void)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageGetFullHeaderCallback` (const `EmberAfOtaImageId` \*id, `EmberAfOtaHeader` \*returnData)
- int32u `emberAfOtaStorageGetTotalImageSizeCallback` (const `EmberAfOtaImageId` \*id)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageInitCallback` (void)
- `EmberAfOtaImageId` `emberAfOtaStorageIteratorFirstCallback` (void)
- `EmberAfOtaImageId` `emberAfOtaStorageIteratorNextCallback` (void)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageReadImageDataCallback` (const `EmberAfOtaImageId` \*id, int32u offset, int32u length, int8u \*returnData, int32u \*returnedLength)
- `EmberAfOtaImageId` `emberAfOtaStorageSearchCallback` (int16u manufacturerId, int16u imageTypeId, const int16u \*hardwareVersion)
- `EmberAfOtaStorageStatus` `emberAfOtaStorageWriteTempDataCallback` (int32u offset, int32u length, const int8u \*data)
- `EmberStatus` `emberAfPartnerLinkKeyExchangeRequestCallback` (`EmberEUI64` partner)
- void `emberAfPartnerLinkKeyExchangeResponseCallback` (`EmberNodeId` sender, `EmberZdoStatus` status)
- boolean `emberAfPerformingKeyEstablishmentCallback` (void)
- void `emberAfPostAttributeChangeCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeId` attributeId, int8u mask, int16u manufacturerCode, int8u type, int8u size, int8u \*value)
- `EmberAfStatus` `emberAfPreAttributeChangeCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeId` attributeId, int8u mask, int16u manufacturerCode, int8u type, int8u size, int8u \*value)

- boolean `emberAfPreCliSendCallback` (`EmberApsFrame` \*`apsFrame`, `EmberNodeId` `source`, `EmberNodeId` `destination`, `int8u` \*`message`, `int16u` `messageLength`)
- boolean `emberAfPreCommandReceivedCallback` (`EmberAfClusterCommand` \*`cmd`)
- boolean `emberAfPreMessageReceivedCallback` (`EmberAfIncomingMessage` \*`incomingMessage`)
- boolean `emberAfPreMessageSendCallback` (`EmberAfMessageStruct` \*`messageStruct`, `EmberStatus` \*`status`)
- void `emberAfPreNcpResetCallback` (void)
- boolean `emberAfPreZDOMessageReceivedCallback` (`EmberNodeId` `emberNodeId`, `EmberApsFrame` \*`apsFrame`, `int8u` \*`message`, `int16u` `length`)
- boolean `emberAfReadAttributesResponseCallback` (`EmberAfClusterId` `clusterId`, `int8u` \*`buffer`, `int16u` `bufLen`)
- boolean `emberAfReadReportingConfigurationCommandCallback` (const `EmberAfClusterCommand` \*`cmd`)
- boolean `emberAfReadReportingConfigurationResponseCallback` (`EmberAfClusterId` `clusterId`, `int8u` \*`buffer`, `int16u` `bufLen`)
- void `emberAfRegistrationAbortCallback` (void)
- void `emberAfRegistrationCallback` (boolean `success`)
- `EmberStatus` `emberAfRegistrationStartCallback` (void)
- `EmberStatus` `emberAfRemoteDeleteBindingPermissionCallback` (`int8u` `index`)
- `EmberStatus` `emberAfRemoteSetBindingPermissionCallback` (const `EmberBindingTableEntry` \*`entry`)
- void `emberAfRemoveFromCurrentAppTasksCallback` (`EmberAfApplicationTask` `tasks`)
- boolean `emberAfReportAttributesCallback` (`EmberAfClusterId` `clusterId`, `int8u` \*`buffer`, `int16u` `bufLen`)
- void `emberAfReportingAttributeChangeCallback` (`int8u` `endpoint`, `EmberAfClusterId` `clusterId`, `EmberAfAttributId` `attributeId`, `int8u` `mask`, `int16u` `manufacturerCode`, `EmberAfAttributeType` `type`, `int8u` \*`data`)
- void `emberAfScanCompleteCallback` (`int8u` `channel`, `EmberStatus` `status`)
- void `emberAfScanErrorCallback` (`EmberStatus` `status`)
- void `emberAfSecurityInitCallback` (`EmberInitialSecurityState` \*`state`, `EmberExtendedSecurityBitmask` \*`extended`, boolean `trustCenter`)
- void `emberAfSetDefaultPollControlCallback` (`EmberAfEventPollControl` `control`)
- void `emberAfSetDefaultSleepControlCallback` (`EmberAfEventSleepControl` `control`)
- void `emberAfSetFormAndJoinExtendedPanIdCallback` (const `int8u` \*`extendedPanId`)
- void `emberAfSetLongPollIntervalMsCallback` (`int32u` `longPollIntervalMs`)
- void `emberAfSetLongPollIntervalQsCallback` (`int32u` `longPollIntervalQs`)
- void `emberAfSetShortPollIntervalMsCallback` (`int16u` `shortPollIntervalMs`)
- void `emberAfSetShortPollIntervalQsCallback` (`int16u` `shortPollIntervalQs`)
- void `emberAfSetSourceRouteOverheadCallback` (`EmberNodeId` `destination`, `int8u` `overhead`)
- void `emberAfSetTimeCallback` (`int32u` `utcTime`)
- void `emberAfSetWakeTimeoutBitmaskCallback` (`EmberAfApplicationTask` `tasks`)
- void `emberAfSetWakeTimeoutMsCallback` (`int16u` `wakeTimeoutMs`)
- void `emberAfSetWakeTimeoutQsCallback` (`int16u` `wakeTimeoutQs`)
- boolean `emberAfStackStatusCallback` (`EmberStatus` `status`)
- boolean `emberAfStartMoveCallback` (void)
- `EmberStatus` `emberAfStartSearchForJoinableNetworkCallback` (void)
- void `emberAfStopMoveCallback` (void)
- void `emberAfTrustCenterJoinCallback` (`EmberNodeId` `newNodeId`, `EmberEUI64` `newNodeEui64`, `EmberNodeId` `parentOfNewNode`, `EmberDeviceUpdate` `status`, `EmberJoinDecision` `decision`)
- void `emberAfTrustCenterKeepaliveAbortCallback` (void)
- void `emberAfTrustCenterKeepaliveUpdateCallback` (boolean `registrationComplete`)
- void `emberAfUnusedPanIdFoundCallback` (`EmberPanId` `panId`, `int8u` `channel`)
- boolean `emberAfWriteAttributesResponseCallback` (`EmberAfClusterId` `clusterId`, `int8u` \*`buffer`, `int16u` `bufLen`)

## Basic Cluster Callbacks

- void `emberAfBasicClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBasicClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBasicClusterClientInitCallback` (int8u endpoint)
- void `emberAfBasicClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBasicClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBasicClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBasicClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfBasicClusterResetToFactoryDefaultsCallback` (void)
- void `emberAfBasicClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBasicClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBasicClusterServerInitCallback` (int8u endpoint)
- void `emberAfBasicClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBasicClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBasicClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBasicClusterServerTickCallback` (int8u endpoint)

## Power Configuration Cluster Callbacks

- void `emberAfPowerConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerConfigClusterClientInitCallback` (int8u endpoint)
- void `emberAfPowerConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPowerConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPowerConfigClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerConfigClusterClientTickCallback` (int8u endpoint)
- void `emberAfPowerConfigClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerConfigClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerConfigClusterServerInitCallback` (int8u endpoint)
- void `emberAfPowerConfigClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfPowerConfigClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPowerConfigClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerConfigClusterServerTickCallback` (int8u endpoint)

## Device Temperature Configuration Cluster Callbacks

- void `emberAfDeviceTempClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceTempClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceTempClusterClientInitCallback` (int8u endpoint)
- void `emberAfDeviceTempClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceTempClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDeviceTempClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceTempClusterClientTickCallback` (int8u endpoint)
- void `emberAfDeviceTempClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceTempClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceTempClusterServerInitCallback` (int8u endpoint)
- void `emberAfDeviceTempClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceTempClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDeviceTempClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceTempClusterServerTickCallback` (int8u endpoint)

## Identify Cluster Callbacks

- void `emberAfIdentifyClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIdentifyClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIdentifyClusterClientInitCallback` (int8u endpoint)
- void `emberAfIdentifyClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIdentifyClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfIdentifyClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIdentifyClusterClientTickCallback` (int8u endpoint)

- boolean `emberAfIdentifyClusterEZModeInvokeCallback` (int8u action)
- boolean `emberAfIdentifyClusterIdentifyCallback` (int16u identifyTime)
- boolean `emberAfIdentifyClusterIdentifyQueryCallback` (void)
- boolean `emberAfIdentifyClusterIdentifyQueryResponseCallback` (int16u timeout)
- void `emberAfIdentifyClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIdentifyClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIdentifyClusterServerInitCallback` (int8u endpoint)
- void `emberAfIdentifyClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIdentifyClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfIdentifyClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIdentifyClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIdentifyClusterTriggerEffectCallback` (int8u effectId, int8u effectVariant)
- boolean `emberAfIdentifyClusterUpdateCommissionStateCallback` (int8u action, int8u commissionStateMask)

## Groups Cluster Callbacks

- void `emberAfGroupsClusterClearGroupTableCallback` (int8u endpoint)
- boolean `emberAfGroupsClusterEndpointInGroupCallback` (int8u endpoint, int16u groupId)
- boolean `emberAfGroupsClusterAddGroupCallback` (int16u groupId, int8u \*groupName)
- boolean `emberAfGroupsClusterAddGroupIfIdentifyingCallback` (int16u groupId, int8u \*groupName)
- boolean `emberAfGroupsClusterAddGroupResponseCallback` (int8u status, int16u groupId)
- void `emberAfGroupsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGroupsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGroupsClusterClientInitCallback` (int8u endpoint)
- void `emberAfGroupsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGroupsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfGroupsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGroupsClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGroupsClusterGetGroupMembershipCallback` (int8u groupCount, int8u \*groupList)
- boolean `emberAfGroupsClusterGetGroupMembershipResponseCallback` (int8u capacity, int8u groupCount, int8u \*groupList)
- boolean `emberAfGroupsClusterRemoveAllGroupsCallback` (void)
- boolean `emberAfGroupsClusterRemoveGroupCallback` (int16u groupId)
- boolean `emberAfGroupsClusterRemoveGroupResponseCallback` (int8u status, int16u groupId)
- void `emberAfGroupsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfGroupsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGroupsClusterServerInitCallback` (int8u endpoint)
- void `emberAfGroupsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGroupsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGroupsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGroupsClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfGroupsClusterViewGroupCallback` (int16u groupId)
- boolean `emberAfGroupsClusterViewGroupResponseCallback` (int8u status, int16u groupId, int8u \*groupName)

## Scenes Cluster Callbacks

- void `emberAfScenesClusterClearSceneTableCallback` (int8u endpoint)
- `EmberAfStatus` `emberAfScenesClusterMakeInvalidCallback` (int8u endpoint)
- `EmberAfStatus` `emberAfScenesClusterRecallSavedSceneCallback` (int8u endpoint, int16u groupId, int8u sceneId)
- void `emberAfScenesClusterRemoveScenesInGroupCallback` (int8u endpoint, int16u groupId)
- boolean `emberAfScenesClusterAddSceneCallback` (int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- boolean `emberAfScenesClusterAddSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- void `emberAfScenesClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfScenesClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfScenesClusterClientInitCallback` (int8u endpoint)
- void `emberAfScenesClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfScenesClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfScenesClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfScenesClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfScenesClusterCopySceneCallback` (int8u mode, int16u groupIdFrom, int8u sceneIdFrom, int16u groupIdTo, int8u sceneIdTo)
- boolean `emberAfScenesClusterCopySceneResponseCallback` (int8u status, int16u groupIdFrom, int8u sceneIdFrom)
- boolean `emberAfScenesClusterEnhancedAddSceneCallback` (int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- boolean `emberAfScenesClusterEnhancedAddSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterEnhancedViewSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterEnhancedViewSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- boolean `emberAfScenesClusterGetSceneMembershipCallback` (int16u groupId)

- boolean `emberAfScenesClusterGetSceneMembershipResponseCallback` (int8u status, int8u capacity, int16u groupId, int8u sceneCount, int8u \*sceneList)
- boolean `emberAfScenesClusterRecallSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterRemoveAllScenesCallback` (int16u groupId)
- boolean `emberAfScenesClusterRemoveAllScenesResponseCallback` (int8u status, int16u groupId)
- boolean `emberAfScenesClusterRemoveSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterRemoveSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- void `emberAfScenesClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfScenesClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfScenesClusterServerInitCallback` (int8u endpoint)
- void `emberAfScenesClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfScenesClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfScenesClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfScenesClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfScenesClusterStoreSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterStoreSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterViewSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterViewSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- `EmberAfStatus` `emberAfScenesClusterStoreCurrentSceneCallback` (int8u endpoint, int16u groupId, int8u sceneId)

## On/off Cluster Callbacks

- void `emberAfOnOffClusterLevelControlEffectCallback` (int8u endpoint, boolean newValue)
- void `emberAfOnOffClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfOnOffClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffClusterClientInitCallback` (int8u endpoint)
- void `emberAfOnOffClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfOnOffClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfOnOffClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOnOffClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfOnOffClusterOffCallback` (void)
- boolean `emberAfOnOffClusterOffWithEffectCallback` (int8u effectId, int8u effectVariant)
- boolean `emberAfOnOffClusterOnCallback` (void)
- boolean `emberAfOnOffClusterOnWithRecallGlobalSceneCallback` (void)

- boolean `emberAfOnOffClusterOnWithTimedOffCallback` (int8u onOffControl, int16u onTime, int16u offWaitTime)
- boolean `emberAfOnOffClusterSampleMfgSpecificOffWithTransitionCallback` (void)
- boolean `emberAfOnOffClusterSampleMfgSpecificOnWithTransitionCallback` (void)
- boolean `emberAfOnOffClusterSampleMfgSpecificToggleWithTransitionCallback` (void)
- void `emberAfOnOffClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfOnOffClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffClusterServerInitCallback` (int8u endpoint)
- void `emberAfOnOffClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfOnOffClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOnOffClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfOnOffClusterToggleCallback` (void)
- `EmberAfStatus emberAfOnOffClusterSetValueCallback` (int8u endpoint, int8u command, boolean initiatedByLevelChange)

## On/off Switch Configuration Cluster Callbacks

- void `emberAfOnOffSwitchConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfOnOffSwitchConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffSwitchConfigClusterClientInitCallback` (int8u endpoint)
- void `emberAfOnOffSwitchConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfOnOffSwitchConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffSwitchConfigClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOnOffSwitchConfigClusterClientTickCallback` (int8u endpoint)
- void `emberAfOnOffSwitchConfigClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfOnOffSwitchConfigClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffSwitchConfigClusterServerInitCallback` (int8u endpoint)
- void `emberAfOnOffSwitchConfigClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfOnOffSwitchConfigClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffSwitchConfigClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOnOffSwitchConfigClusterServerTickCallback` (int8u endpoint)

## Level Control Cluster Callbacks

- void `emberAfLevelControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfLevelControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfLevelControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfLevelControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfLevelControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfLevelControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfLevelControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfLevelControlClusterMoveCallback` (int8u moveMode, int8u rate)
- boolean `emberAfLevelControlClusterMoveToLevelCallback` (int8u level, int16u transitionTime)
- boolean `emberAfLevelControlClusterMoveToLevelWithOnOffCallback` (int8u level, int16u transitionTime)
- boolean `emberAfLevelControlClusterMoveWithOnOffCallback` (int8u moveMode, int8u rate)
- void `emberAfLevelControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfLevelControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfLevelControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfLevelControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfLevelControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfLevelControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfLevelControlClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfLevelControlClusterStepCallback` (int8u stepMode, int8u stepSize, int16u transitionTime)
- boolean `emberAfLevelControlClusterStepWithOnOffCallback` (int8u stepMode, int8u stepSize, int16u transitionTime)
- boolean `emberAfLevelControlClusterStopCallback` (void)
- boolean `emberAfLevelControlClusterStopWithOnOffCallback` (void)

## Alarms Cluster Callbacks

- boolean `emberAfAlarmClusterAlarmCallback` (int8u alarmCode, int16u clusterId)
- void `emberAfAlarmClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfAlarmClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfAlarmClusterClientInitCallback` (int8u endpoint)
- void `emberAfAlarmClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfAlarmClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfAlarmClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfAlarmClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfAlarmClusterGetAlarmCallback` (void)
- boolean `emberAfAlarmClusterGetAlarmResponseCallback` (int8u status, int8u alarmCode, int16u clusterId, int32u timeStamp)
- boolean `emberAfAlarmClusterResetAlarmCallback` (int8u alarmCode, int16u clusterId)
- boolean `emberAfAlarmClusterResetAlarmLogCallback` (void)
- boolean `emberAfAlarmClusterResetAllAlarmsCallback` (void)
- void `emberAfAlarmClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfAlarmClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfAlarmClusterServerInitCallback` (int8u endpoint)
- void `emberAfAlarmClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfAlarmClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfAlarmClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfAlarmClusterServerTickCallback` (int8u endpoint)

## Time Cluster Callbacks

- void `emberAfTimeClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTimeClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTimeClusterClientInitCallback` (int8u endpoint)
- void `emberAfTimeClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTimeClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfTimeClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTimeClusterClientTickCallback` (int8u endpoint)
- void `emberAfTimeClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTimeClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTimeClusterServerInitCallback` (int8u endpoint)
- void `emberAfTimeClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTimeClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfTimeClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- `void emberAfTimeClusterServerTickCallback` (int8u endpoint)

## RSSI Location Cluster Callbacks

- boolean `emberAfRssiLocationClusterAnchorNodeAnnounceCallback` (int8u \*anchorNodeIeeeAddress, int16s coordinate1, int16s coordinate2, int16s coordinate3)
- void `emberAfRssiLocationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRssiLocationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRssiLocationClusterClientInitCallback` (int8u endpoint)
- void `emberAfRssiLocationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRssiLocationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfRssiLocationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRssiLocationClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfRssiLocationClusterCompactLocationDataNotificationCallback` (int8u locationType, int16s coordinate1, int16s coordinate2, int16s coordinate3, int8u qualityMeasure, int16u locationAge)
- boolean `emberAfRssiLocationClusterDeviceConfigurationResponseCallback` (int8u status, int16s power, int16u pathLossExponent, int16u calculationPeriod, int8u numberRssiMeasurements, int16u reportingPeriod)
- boolean `emberAfRssiLocationClusterGetDeviceConfigurationCallback` (int8u \*targetAddress)
- boolean `emberAfRssiLocationClusterGetLocationDataCallback` (int8u flags, int8u numberResponses, int8u \*targetAddress)
- boolean `emberAfRssiLocationClusterLocationDataNotificationCallback` (int8u locationType, int16s coordinate1, int16s coordinate2, int16s coordinate3, int16s power, int16u pathLossExponent, int8u locationMethod, int8u qualityMeasure, int16u locationAge)
- boolean `emberAfRssiLocationClusterLocationDataResponseCallback` (int8u status, int8u locationType, int16s coordinate1, int16s coordinate2, int16s coordinate3, int16s power, int16u pathLossExponent, int8u locationMethod, int8u qualityMeasure, int16u locationAge)
- boolean `emberAfRssiLocationClusterReportRssiMeasurementsCallback` (int8u \*measuringDevice, int8u neighbors, int8u \*neighborsInfo)
- boolean `emberAfRssiLocationClusterRequestOwnLocationCallback` (int8u \*blindNode)
- boolean `emberAfRssiLocationClusterRssiPingCallback` (int8u locationType)
- boolean `emberAfRssiLocationClusterRssiRequestCallback` (void)
- boolean `emberAfRssiLocationClusterRssiResponseCallback` (int8u \*replyingDevice, int16s coordinate1, int16s coordinate2, int16s coordinate3, int8s rssi, int8u numberRssiMeasurements)
- boolean `emberAfRssiLocationClusterSendPingsCallback` (int8u \*targetAddress, int8u numberRssiMeasurements, int16u calculationPeriod)
- void `emberAfRssiLocationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRssiLocationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRssiLocationClusterServerInitCallback` (int8u endpoint)

- void `emberAfRssiLocationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRssiLocationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfRssiLocationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRssiLocationClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfRssiLocationClusterSetAbsoluteLocationCallback` (int16s coordinate1, int16s coordinate2, int16s coordinate3, int16s power, int16u pathLossExponent)
- boolean `emberAfRssiLocationClusterSetDeviceConfigurationCallback` (int16s power, int16u pathLossExponent, int16u calculationPeriod, int8u numberRssiMeasurements, int16u reportingPeriod)

## Binary Input (Basic) Cluster Callbacks

- void `emberAfBinaryInputBasicClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBinaryInputBasicClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBinaryInputBasicClusterClientInitCallback` (int8u endpoint)
- void `emberAfBinaryInputBasicClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBinaryInputBasicClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBinaryInputBasicClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBinaryInputBasicClusterClientTickCallback` (int8u endpoint)
- void `emberAfBinaryInputBasicClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBinaryInputBasicClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBinaryInputBasicClusterServerInitCallback` (int8u endpoint)
- void `emberAfBinaryInputBasicClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBinaryInputBasicClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBinaryInputBasicClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBinaryInputBasicClusterServerTickCallback` (int8u endpoint)

## Commissioning Cluster Callbacks

- void `emberAfCommissioningClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCommissioningClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCommissioningClusterClientInitCallback` (int8u endpoint)
- void `emberAfCommissioningClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfCommissioningClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfCommissioningClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCommissioningClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfCommissioningClusterResetStartupParametersCallback` (int8u options, int8u index)
- boolean `emberAfCommissioningClusterResetStartupParametersResponseCallback` (int8u status)
- boolean `emberAfCommissioningClusterRestartDeviceCallback` (int8u options, int8u delay, int8u jitter)
- boolean `emberAfCommissioningClusterRestartDeviceResponseCallback` (int8u status)
- boolean `emberAfCommissioningClusterRestoreStartupParametersCallback` (int8u options, int8u index)
- boolean `emberAfCommissioningClusterRestoreStartupParametersResponseCallback` (int8u status)
- boolean `emberAfCommissioningClusterSaveStartupParametersCallback` (int8u options, int8u index)
- boolean `emberAfCommissioningClusterSaveStartupParametersResponseCallback` (int8u status)
- void `emberAfCommissioningClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCommissioningClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCommissioningClusterServerInitCallback` (int8u endpoint)
- void `emberAfCommissioningClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCommissioningClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfCommissioningClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCommissioningClusterServerTickCallback` (int8u endpoint)

## Partition Cluster Callbacks

- void `emberAfPartitionClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPartitionClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPartitionClusterClientInitCallback` (int8u endpoint)
- void `emberAfPartitionClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPartitionClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPartitionClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPartitionClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPartitionClusterMultipleAckCallback` (int8u ackOptions, int8u \*firstFrameIdAndNackList)
- boolean `emberAfPartitionClusterReadHandshakeParamCallback` (int16u partitionedClusterId, int8u \*attributeList)

- boolean `emberAfPartitionClusterReadHandshakeParamResponseCallback` (int16u partitionedClusterId, int8u \*readAttributeStatusRecords)
- void `emberAfPartitionClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPartitionClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPartitionClusterServerInitCallback` (int8u endpoint)
- void `emberAfPartitionClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPartitionClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPartitionClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPartitionClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfPartitionClusterTransferPartitionedFrameCallback` (int8u fragmentationOptions, int8u \*partitionedIndicatorAndFrame)
- boolean `emberAfPartitionClusterWriteHandshakeParamCallback` (int16u partitionedClusterId, int8u \*writeAttributeRecords)

## Over the Air Bootloading Cluster Callbacks

- void `emberAfOtaBootloadClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOtaBootloadClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOtaBootloadClusterClientInitCallback` (int8u endpoint)
- void `emberAfOtaBootloadClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfOtaBootloadClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfOtaBootloadClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOtaBootloadClusterClientTickCallback` (int8u endpoint)
- void `emberAfOtaBootloadClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOtaBootloadClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOtaBootloadClusterServerInitCallback` (int8u endpoint)
- void `emberAfOtaBootloadClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfOtaBootloadClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfOtaBootloadClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOtaBootloadClusterServerTickCallback` (int8u endpoint)

## Power Profile Cluster Callbacks

- void `emberAfPowerProfileClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerProfileClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerProfileClusterClientInitCallback` (int8u endpoint)
- void `emberAfPowerProfileClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPowerProfileClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPowerProfileClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerProfileClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPowerProfileClusterEnergyPhasesScheduleNotificationCallback` (int8u powerProfileId, int8u numOfScheduledPhases, int8u \*scheduledPhases)
- boolean `emberAfPowerProfileClusterEnergyPhasesScheduleRequestCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterEnergyPhasesScheduleResponseCallback` (int8u powerProfileId, int8u numOfScheduledPhases, int8u \*scheduledPhases)
- boolean `emberAfPowerProfileClusterEnergyPhasesScheduleStateNotificationCallback` (int8u powerProfileId, int8u numOfScheduledPhases, int8u \*scheduledPhases)
- boolean `emberAfPowerProfileClusterEnergyPhasesScheduleStateRequestCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterEnergyPhasesScheduleStateResponseCallback` (int8u powerProfileId, int8u numOfScheduledPhases, int8u \*scheduledPhases)
- boolean `emberAfPowerProfileClusterGetOverallSchedulePriceCallback` (void)
- boolean `emberAfPowerProfileClusterGetOverallSchedulePriceResponseCallback` (int16u currency, int32u price, int8u priceTrailingDigit)
- boolean `emberAfPowerProfileClusterGetPowerProfilePriceCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterGetPowerProfilePriceExtendedCallback` (int8u options, int8u powerProfileId, int16u powerProfileStartTime)
- boolean `emberAfPowerProfileClusterGetPowerProfilePriceExtendedResponseCallback` (int8u powerProfileId, int16u currency, int32u price, int8u priceTrailingDigit)
- boolean `emberAfPowerProfileClusterGetPowerProfilePriceResponseCallback` (int8u powerProfileId, int16u currency, int32u price, int8u priceTrailingDigit)
- boolean `emberAfPowerProfileClusterPowerProfileNotificationCallback` (int8u totalProfileNum, int8u powerProfileId, int8u numOfTransferredPhases, int8u \*transferredPhases)
- boolean `emberAfPowerProfileClusterPowerProfileRequestCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterPowerProfileResponseCallback` (int8u totalProfileNum, int8u powerProfileId, int8u numOfTransferredPhases, int8u \*transferredPhases)
- boolean `emberAfPowerProfileClusterPowerProfileScheduleConstraintsNotificationCallback` (int8u powerProfileId, int16u startAfter, int16u stopBefore)
- boolean `emberAfPowerProfileClusterPowerProfileScheduleConstraintsRequestCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterPowerProfileScheduleConstraintsResponseCallback` (int8u powerProfileId, int16u startAfter, int16u stopBefore)
- boolean `emberAfPowerProfileClusterPowerProfileStateRequestCallback` (void)
- boolean `emberAfPowerProfileClusterPowerProfileStateResponseCallback` (int8u powerProfileCount, int8u \*powerProfileRecords)

- boolean `emberAfPowerProfileClusterPowerProfilesStateNotificationCallback` (int8u powerProfileCount, int8u \*powerProfileRecords)
- void `emberAfPowerProfileClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerProfileClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerProfileClusterServerInitCallback` (int8u endpoint)
- void `emberAfPowerProfileClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPowerProfileClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPowerProfileClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerProfileClusterServerTickCallback` (int8u endpoint)

## Appliance Control Cluster Callbacks

- void `emberAfApplianceControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfApplianceControlClusterExecutionOfACommandCallback` (int8u commandId)
- boolean `emberAfApplianceControlClusterOverloadPauseCallback` (void)
- boolean `emberAfApplianceControlClusterOverloadResumeCallback` (void)
- boolean `emberAfApplianceControlClusterOverloadWarningCallback` (int8u warningEvent)
- void `emberAfApplianceControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceControlClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfApplianceControlClusterSignalStateCallback` (void)
- boolean `emberAfApplianceControlClusterSignalStateNotificationCallback` (int8u applianceStatus, int8u remoteEnableFlagsAndDeviceStatus2, int32u applianceStatus2)

- boolean `emberAfApplianceControlClusterSignalStateResponseCallback` (int8u applianceStatus, int8u remoteEnableFlagsAndDeviceStatus2, int32u applianceStatus2)
- boolean `emberAfApplianceControlClusterWriteFunctionsCallback` (int16u functionId, int8u function-  
DataTye, int8u \*functionData)

## Poll Control Cluster Callbacks

- boolean `emberAfPollControlClusterCheckInCallback` (void)
- boolean `emberAfPollControlClusterCheckInResponseCallback` (int8u startFastPolling, int16u fast-  
PollTimeout)
- void `emberAfPollControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-  
Id` attributeId)
- void `emberAfPollControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId,  
`EmberAfStatus` status)
- void `emberAfPollControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfPollControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u end-  
point, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPollControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u  
indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-  
tus)
- `EmberAfStatus emberAfPollControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `Ember-  
AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPollControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPollControlClusterFastPollStopCallback` (void)
- void `emberAfPollControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-  
Id` attributeId)
- void `emberAfPollControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u command-  
Id, `EmberAfStatus` status)
- void `emberAfPollControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfPollControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u end-  
point, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPollControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u  
indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-  
tus)
- `EmberAfStatus emberAfPollControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `Ember-  
AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPollControlClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfPollControlClusterSetLongPollIntervalCallback` (int32u newLongPollInterval)
- boolean `emberAfPollControlClusterSetShortPollIntervalCallback` (int16u newShortPollInterval)

## Green Power Cluster Callbacks

- void `emberAfGreenPowerClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-  
Id` attributeId)
- void `emberAfGreenPowerClusterClientDefaultResponseCallback` (int8u endpoint, int8u command-  
Id, `EmberAfStatus` status)
- void `emberAfGreenPowerClusterClientInitCallback` (int8u endpoint)
- void `emberAfGreenPowerClusterClientManufacturerSpecificAttributeChangedCallback` (int8u end-  
point, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfGreenPowerClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfGreenPowerClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGreenPowerClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGreenPowerClusterGpCommissioningNotificationCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int32u gpdSecurityFrameCounter, int8u gpdCommandId, int8u \*gpdCommandPayload, int16u gppShortAddress, int8u gppLink, int32u mic)
- boolean `emberAfGreenPowerClusterGpNotificationCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u gpdEndpoint, int32u gpdSecurityFrameCounter, int8u gpdCommandId, int8u \*gpdCommandPayload, int16u gppShortAddress, int8u gppDistance)
- boolean `emberAfGreenPowerClusterGpNotificationResponseCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int32u gpdSecurityFrameCounter)
- boolean `emberAfGreenPowerClusterGpPairingCallback` (int32u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u \*sinkIeeeAddress, int16u sinkNwkAddress, int16u sinkGroupId, int8u deviceId, int32u gpdSecurityFrameCounter, int8u \*gpdKey, int16u assignedAlias, int8u forwardingRadius)
- boolean `emberAfGreenPowerClusterGpPairingConfigurationCallback` (int8u actions, int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u deviceId, int16u groupListCount, int8u \*groupList, int16u gpdAssignedAlias, int8u forwardingRadius, int8u securityOptions, int32u gpdSecurityFrameCounter, int8u \*gpdSecurityKey, int8u numberOfPairedEndpoints, int8u \*pairedEndpoints, int8u applicationInformation, int16u manufacturerId, int16u modeId, int8u numberOfGpdCommands, int8u \*gpdCommandIdList, int8u clusterIdListCount, int8u \*clusterListServer, int8u \*clusterListClient)
- boolean `emberAfGreenPowerClusterGpPairingSearchCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint)
- boolean `emberAfGreenPowerClusterGpProxyCommissioningModeCallback` (int8u options, int16u commissioningWindow, int8u channel)
- boolean `emberAfGreenPowerClusterGpProxyTableRequestCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u index)
- boolean `emberAfGreenPowerClusterGpProxyTableResponseCallback` (int8u status, int8u totalNumberOfNonEmptyProxyTableEntries, int8u startIndex, int8u entriesCount, int8u \*proxyTableEntries)
- boolean `emberAfGreenPowerClusterGpResponseCallback` (int8u options, int16u tempMasterShortAddress, int8u tempMasterTxChannel, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u gpdCommandId, int8u \*gpdCommandPayload)
- boolean `emberAfGreenPowerClusterGpSinkCommissioningModeCallback` (int8u options, int16u gpmAddrForSecurity, int16u gpmAddrForPairing, int8u sinkEndpoint)
- boolean `emberAfGreenPowerClusterGpSinkTableRequestCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u index)
- boolean `emberAfGreenPowerClusterGpSinkTableResponseCallback` (int8u status, int8u totalNumberOfNonEmptySinkTableEntries, int8u startIndex, int8u sinkTableEntriesCount, int8u \*sinkTableEntries)
- boolean `emberAfGreenPowerClusterGpTranslationTableRequestCallback` (int8u startIndex)
- boolean `emberAfGreenPowerClusterGpTranslationTableUpdateCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u \*translations)
- boolean `emberAfGreenPowerClusterGpTunnelingStopCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int32u gpdSecurityFrameCounter, int16u gppShortAddress, int8s gppDistance)
- void `emberAfGreenPowerClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGreenPowerClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfGreenPowerClusterServerInitCallback` (int8u endpoint)
- void `emberAfGreenPowerClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGreenPowerClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGreenPowerClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGreenPowerClusterServerTickCallback` (int8u endpoint)

## Keep-Alive Cluster Callbacks

- void `emberAfKeepaliveClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfKeepaliveClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfKeepaliveClusterClientInitCallback` (int8u endpoint)
- void `emberAfKeepaliveClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfKeepaliveClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfKeepaliveClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfKeepaliveClusterClientTickCallback` (int8u endpoint)
- void `emberAfKeepaliveClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfKeepaliveClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfKeepaliveClusterServerInitCallback` (int8u endpoint)
- void `emberAfKeepaliveClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfKeepaliveClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfKeepaliveClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfKeepaliveClusterServerTickCallback` (int8u endpoint)

## Shade Configuration Cluster Callbacks

- void `emberAfShadeConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfShadeConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfShadeConfigClusterClientInitCallback` (int8u endpoint)
- void `emberAfShadeConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfShadeConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfShadeConfigClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfShadeConfigClusterClientTickCallback (int8u endpoint)`
- `void emberAfShadeConfigClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfShadeConfigClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfShadeConfigClusterServerInitCallback (int8u endpoint)`
- `void emberAfShadeConfigClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfShadeConfigClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfShadeConfigClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfShadeConfigClusterServerTickCallback (int8u endpoint)`

## Door Lock Cluster Callbacks

- `boolean emberAfDoorLockClusterClearAllPinsCallback (void)`
- `boolean emberAfDoorLockClusterClearAllPinsResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearAllRfidsCallback (void)`
- `boolean emberAfDoorLockClusterClearAllRfidsResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearHolidayScheduleCallback (int8u scheduleId)`
- `boolean emberAfDoorLockClusterClearHolidayScheduleResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearPinCallback (int16u userId)`
- `boolean emberAfDoorLockClusterClearPinResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearRfidCallback (int16u userId)`
- `boolean emberAfDoorLockClusterClearRfidResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearWeekdayScheduleCallback (int8u scheduleId, int16u userId)`
- `boolean emberAfDoorLockClusterClearWeekdayScheduleResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearYeardayScheduleCallback (int8u scheduleId, int16u userId)`
- `boolean emberAfDoorLockClusterClearYeardayScheduleResponseCallback (int8u status)`
- `void emberAfDoorLockClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfDoorLockClusterClientDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfDoorLockClusterClientInitCallback (int8u endpoint)`
- `void emberAfDoorLockClusterClientManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfDoorLockClusterClientMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfDoorLockClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfDoorLockClusterClientTickCallback (int8u endpoint)`
- `boolean emberAfDoorLockClusterGetHolidayScheduleCallback (int8u scheduleId)`
- `boolean emberAfDoorLockClusterGetHolidayScheduleResponseCallback (int8u scheduleId, int8u status, int32u localStartTime, int32u localEndTime, int8u operatingModeDuringHoliday)`
- `boolean emberAfDoorLockClusterGetLogRecordCallback (int16u logIndex)`

- boolean `emberAfDoorLockClusterGetLogRecordResponseCallback` (int16u logEntryId, int32u timestamp, int8u eventType, int8u source, int8u eventIdOrAlarmCode, int16u userId, int8u \*pin)
- boolean `emberAfDoorLockClusterGetPinCallback` (int16u userId)
- boolean `emberAfDoorLockClusterGetPinResponseCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*pin)
- boolean `emberAfDoorLockClusterGetRfidCallback` (int16u userId)
- boolean `emberAfDoorLockClusterGetRfidResponseCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*rfid)
- boolean `emberAfDoorLockCluster GetUserStatusCallback` (int16u userId)
- boolean `emberAfDoorLockCluster GetUserStatusResponseCallback` (int16u userId, int8u status)
- boolean `emberAfDoorLockCluster GetUserTypeCallback` (int16u userId)
- boolean `emberAfDoorLockCluster GetUserTypeResponseCallback` (int16u userId, int8u userType)
- boolean `emberAfDoorLockClusterGetWeekdayScheduleCallback` (int8u scheduleId, int16u userId)
- boolean `emberAfDoorLockClusterGetWeekdayScheduleResponseCallback` (int8u scheduleId, int16u userId, int8u status, int8u daysMask, int8u startHour, int8u startMinute, int8u endHour, int8u end-Minute)
- boolean `emberAfDoorLockClusterGetYearDayScheduleCallback` (int8u scheduleId, int16u userId)
- boolean `emberAfDoorLockClusterGetYearDayScheduleResponseCallback` (int8u scheduleId, int16u userId, int8u status, int32u localStartTime, int32u localEndTime)
- boolean `emberAfDoorLockClusterLockDoorCallback` (int8u \*PIN)
- boolean `emberAfDoorLockClusterLockDoorResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterOperationEventNotificationCallback` (int8u source, int8u event-Code, int16u userId, int8u \*pin, int32u timeStamp, int8u \*data)
- boolean `emberAfDoorLockClusterProgrammingEventNotificationCallback` (int8u source, int8u event-Code, int16u userId, int8u \*pin, int8u userType, int8u userStatus, int32u timeStamp, int8u \*data)
- void `emberAfDoorLockClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-Id` attributeId)
- void `emberAfDoorLockClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDoorLockClusterServerInitCallback` (int8u endpoint)
- void `emberAfDoorLockClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDoorLockClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-tus)
- `EmberAfStatus` `emberAfDoorLockClusterServerPreAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDoorLockClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfDoorLockClusterSetHolidayScheduleCallback` (int8u scheduleId, int32u localStart-Time, int32u localEndTime, int8u operatingModeDuringHoliday)
- boolean `emberAfDoorLockClusterSetHolidayScheduleResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterSetPinCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*pin)
- boolean `emberAfDoorLockClusterSetPinResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterSetRfidCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*id)
- boolean `emberAfDoorLockClusterSetRfidResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterSetUserStatusCallback` (int16u userId, int8u userStatus)
- boolean `emberAfDoorLockClusterSetUserStatusResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterSetUserTypeCallback` (int16u userId, int8u userType)
- boolean `emberAfDoorLockClusterSetUserTypeResponseCallback` (int8u status)

- boolean `emberAfDoorLockClusterSetWeekdayScheduleCallback` (int8u scheduleId, int16u userId, int8u daysMask, int8u startHour, int8u startMinute, int8u endHour, int8u endMinute)
- boolean `emberAfDoorLockClusterSetWeekdayScheduleResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterSetYearDayScheduleCallback` (int8u scheduleId, int16u userId, int32u localStartTime, int32u localEndTime)
- boolean `emberAfDoorLockClusterSetYearDayScheduleResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterToggleCallback` (int8u \*pin)
- boolean `emberAfDoorLockClusterToggleResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterUnlockDoorCallback` (int8u \*PIN)
- boolean `emberAfDoorLockClusterUnlockDoorResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterUnlockWithTimeoutCallback` (int16u timeoutInSeconds, int8u \*pin)
- boolean `emberAfDoorLockClusterUnlockWithTimeoutResponseCallback` (int8u status)

## Window Covering Cluster Callbacks

- void `emberAfWindowCoveringClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfWindowCoveringClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfWindowCoveringClusterClientInitCallback` (int8u endpoint)
- void `emberAfWindowCoveringClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfWindowCoveringClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfWindowCoveringClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfWindowCoveringClusterClientTickCallback` (int8u endpoint)
- void `emberAfWindowCoveringClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfWindowCoveringClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfWindowCoveringClusterServerInitCallback` (int8u endpoint)
- void `emberAfWindowCoveringClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfWindowCoveringClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfWindowCoveringClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfWindowCoveringClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfWindowCoveringClusterWindowCoveringDownCloseCallback` (void)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToLiftPercentageCallback` (int8u percentageLiftValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToLiftValueCallback` (int16u liftValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToTiltPercentageCallback` (int8u percentageTiltValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToTiltValueCallback` (int16u tiltValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringStopCallback` (void)
- boolean `emberAfWindowCoveringClusterWindowCoveringUpOpenCallback` (void)

## Pump Configuration and Control Cluster Callbacks

- void `emberAfPumpConfigControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPumpConfigControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPumpConfigControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfPumpConfigControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPumpConfigControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPumpConfigControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPumpConfigControlClusterClientTickCallback` (int8u endpoint)
- void `emberAfPumpConfigControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPumpConfigControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPumpConfigControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfPumpConfigControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPumpConfigControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPumpConfigControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPumpConfigControlClusterServerTickCallback` (int8u endpoint)

## Thermostat Cluster Callbacks

- boolean `emberAfThermostatClusterClearWeeklyScheduleCallback` (void)
- void `emberAfThermostatClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatClusterClientInitCallback` (int8u endpoint)
- void `emberAfThermostatClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfThermostatClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfThermostatClusterCurrentWeeklyScheduleCallback` (int8u numberOfTransitionsForSequence, int8u dayOfWeekForSequence, int8u modeForSequence, int8u \*payload)
- boolean `emberAfThermostatClusterGetRelayStatusLogCallback` (void)
- boolean `emberAfThermostatClusterGetWeeklyScheduleCallback` (int8u daysToReturn, int8u modeToReturn)
- boolean `emberAfThermostatClusterRelayStatusLogCallback` (int16u timeOfDay, int16u relayStatus, int16s localTemperature, int8u humidityInPercentage, int16s setpoint, int16u unreadEntries)

- void `emberAfThermostatClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatClusterServerInitCallback` (int8u endpoint)
- void `emberAfThermostatClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfThermostatClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfThermostatClusterSetWeeklyScheduleCallback` (int8u numberOfTransitionsForSequence, int8u dayOfWeekForSequence, int8u modeForSequence, int8u \*payload)
- boolean `emberAfThermostatClusterSetpointRaiseLowerCallback` (int8u mode, int8s amount)

## Fan Control Cluster Callbacks

- void `emberAfFanControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFanControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFanControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfFanControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFanControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFanControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFanControlClusterClientTickCallback` (int8u endpoint)
- void `emberAfFanControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFanControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFanControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfFanControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFanControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFanControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFanControlClusterServerTickCallback` (int8u endpoint)

## Dehumidification Control Cluster Callbacks

- void `emberAfDehumidControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfDehumidControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDehumidControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfDehumidControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDehumidControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDehumidControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDehumidControlClusterClientTickCallback` (int8u endpoint)
- void `emberAfDehumidControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDehumidControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDehumidControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfDehumidControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDehumidControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDehumidControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDehumidControlClusterServerTickCallback` (int8u endpoint)

## Thermostat User Interface Configuration Cluster Callbacks

- void `emberAfThermostatUiConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatUiConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatUiConfigClusterClientInitCallback` (int8u endpoint)
- void `emberAfThermostatUiConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatUiConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfThermostatUiConfigClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatUiConfigClusterClientTickCallback` (int8u endpoint)
- void `emberAfThermostatUiConfigClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatUiConfigClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatUiConfigClusterServerInitCallback` (int8u endpoint)
- void `emberAfThermostatUiConfigClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatUiConfigClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfThermostatUiConfigClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatUiConfigClusterServerTickCallback` (int8u endpoint)

## Color Control Cluster Callbacks

- void `emberAfColorControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfColorControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfColorControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfColorControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfColorControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfColorControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfColorControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfColorControlClusterColorLoopSetCallback` (int8u updateFlags, int8u action, int8u direction, int16u time, int16u startHue)
- boolean `emberAfColorControlClusterEnhancedMoveHueCallback` (int8u moveMode, int16u rate)
- boolean `emberAfColorControlClusterEnhancedMoveToHueAndSaturationCallback` (int16u enhancedHue, int8u saturation, int16u transitionTime)
- boolean `emberAfColorControlClusterEnhancedMoveToHueCallback` (int16u enhancedHue, int8u direction, int16u transitionTime)
- boolean `emberAfColorControlClusterEnhancedStepHueCallback` (int8u stepMode, int16u stepSize, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveColorCallback` (int16s rateX, int16s rateY)
- boolean `emberAfColorControlClusterMoveColorTemperatureCallback` (int8u moveMode, int16u rate, int16u colorTemperatureMinimum, int16u colorTemperatureMaximum)
- boolean `emberAfColorControlClusterMoveHueCallback` (int8u moveMode, int8u rate)
- boolean `emberAfColorControlClusterMoveSaturationCallback` (int8u moveMode, int8u rate)
- boolean `emberAfColorControlClusterMoveToColorCallback` (int16u colorX, int16u colorY, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToColorTemperatureCallback` (int16u colorTemperature, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToHueAndSaturationCallback` (int8u hue, int8u saturation, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToHueCallback` (int8u hue, int8u direction, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToSaturationCallback` (int8u saturation, int16u transitionTime)
- void `emberAfColorControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfColorControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfColorControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfColorControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfColorControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfColorControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfColorControlClusterServerTickCallback` (int8u endpoint)

- boolean `emberAfColorControlClusterStepColorCallback` (int16s stepX, int16s stepY, int16u transitionTime)
- boolean `emberAfColorControlClusterStepColorTemperateCallback` (int8u stepMode, int16u stepSize, int16u transitionTime, int16u colorTemperatureMinimum, int16u colorTemperatureMaximum)
- boolean `emberAfColorControlClusterStepHueCallback` (int8u stepMode, int8u stepSize, int8u transitionTime)
- boolean `emberAfColorControlClusterStepSaturationCallback` (int8u stepMode, int8u stepSize, int8u transitionTime)
- boolean `emberAfColorControlClusterStopMoveStepCallback` (void)

## Ballast Configuration Cluster Callbacks

- void `emberAfBallastConfigurationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBallastConfigurationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBallastConfigurationClusterClientInitCallback` (int8u endpoint)
- void `emberAfBallastConfigurationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBallastConfigurationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBallastConfigurationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBallastConfigurationClusterClientTickCallback` (int8u endpoint)
- void `emberAfBallastConfigurationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBallastConfigurationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBallastConfigurationClusterServerInitCallback` (int8u endpoint)
- void `emberAfBallastConfigurationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBallastConfigurationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBallastConfigurationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBallastConfigurationClusterServerTickCallback` (int8u endpoint)

## Illuminance Measurement Cluster Callbacks

- void `emberAfIllumMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIllumMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIllumMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfIllumMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIllumMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfIllumMeasurementClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfIllumMeasurementClusterClientTickCallback (int8u endpoint)`
- `void emberAfIllumMeasurementClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfIllumMeasurementClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfIllumMeasurementClusterServerInitCallback (int8u endpoint)`
- `void emberAfIllumMeasurementClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfIllumMeasurementClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfIllumMeasurementClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfIllumMeasurementClusterServerTickCallback (int8u endpoint)`

## Illuminance Level Sensing Cluster Callbacks

- `void emberAfIllumLevelSensingClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfIllumLevelSensingClusterClientDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfIllumLevelSensingClusterClientInitCallback (int8u endpoint)`
- `void emberAfIllumLevelSensingClusterClientManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfIllumLevelSensingClusterClientMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfIllumLevelSensingClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfIllumLevelSensingClusterClientTickCallback (int8u endpoint)`
- `void emberAfIllumLevelSensingClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfIllumLevelSensingClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfIllumLevelSensingClusterServerInitCallback (int8u endpoint)`
- `void emberAfIllumLevelSensingClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfIllumLevelSensingClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfIllumLevelSensingClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfIllumLevelSensingClusterServerTickCallback (int8u endpoint)`

## Temperature Measurement Cluster Callbacks

- `void emberAfTempMeasurementClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`

- void `emberAfTempMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTempMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfTempMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTempMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfTempMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTempMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfTempMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTempMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTempMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfTempMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTempMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfTempMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTempMeasurementClusterServerTickCallback` (int8u endpoint)

## Pressure Measurement Cluster Callbacks

- void `emberAfPressureMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPressureMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPressureMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfPressureMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPressureMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPressureMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPressureMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfPressureMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPressureMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPressureMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfPressureMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPressureMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPressureMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPressureMeasurementClusterServerTickCallback` (int8u endpoint)

## Flow Measurement Cluster Callbacks

- void `emberAfFlowMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFlowMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFlowMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfFlowMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFlowMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFlowMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFlowMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfFlowMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFlowMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFlowMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfFlowMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFlowMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFlowMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFlowMeasurementClusterServerTickCallback` (int8u endpoint)

## Relative Humidity Measurement Cluster Callbacks

- void `emberAfRelativeHumidityMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRelativeHumidityMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRelativeHumidityMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfRelativeHumidityMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRelativeHumidityMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfRelativeHumidityMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRelativeHumidityMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfRelativeHumidityMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRelativeHumidityMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRelativeHumidityMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfRelativeHumidityMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfRelativeHumidityMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfRelativeHumidityMeasurementClusterServerPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` size, `int8u` \*`value`)
- void `emberAfRelativeHumidityMeasurementClusterServerTickCallback` (`int8u` endpoint)

## Occupancy Sensing Cluster Callbacks

- void `emberAfOccupancySensingClusterClientAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`)
- void `emberAfOccupancySensingClusterClientDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` `status`)
- void `emberAfOccupancySensingClusterClientInitCallback` (`int8u` endpoint)
- void `emberAfOccupancySensingClusterClientManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `int16u` manufacturerCode)
- void `emberAfOccupancySensingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfOccupancySensingClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` size, `int8u` \*`value`)
- void `emberAfOccupancySensingClusterClientTickCallback` (`int8u` endpoint)
- void `emberAfOccupancySensingClusterServerAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`)
- void `emberAfOccupancySensingClusterServerDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` `status`)
- void `emberAfOccupancySensingClusterServerInitCallback` (`int8u` endpoint)
- void `emberAfOccupancySensingClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `int16u` manufacturerCode)
- void `emberAfOccupancySensingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfOccupancySensingClusterServerPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` size, `int8u` \*`value`)
- void `emberAfOccupancySensingClusterServerTickCallback` (`int8u` endpoint)

## IAS Zone Cluster Callbacks

- void `emberAfIasZoneClusterClientAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`)
- void `emberAfIasZoneClusterClientDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` `status`)
- void `emberAfIasZoneClusterClientInitCallback` (`int8u` endpoint)
- void `emberAfIasZoneClusterClientManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `int16u` manufacturerCode)
- void `emberAfIasZoneClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfIasZoneClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` size, `int8u` \*`value`)

- void `emberAfIasZoneClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfIasZoneClusterInitiateNormalOperationModeCallback` (void)
- boolean `emberAfIasZoneClusterInitiateNormalOperationModeResponseCallback` (void)
- boolean `emberAfIasZoneClusterInitiateTestModeCallback` (int8u testModeDuration, int8u currentZoneSensitivityLevel)
- boolean `emberAfIasZoneClusterInitiateTestModeResponseCallback` (void)
- void `emberAfIasZoneClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasZoneClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasZoneClusterServerInitCallback` (int8u endpoint)
- void `emberAfIasZoneClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasZoneClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasZoneClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasZoneClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIasZoneClusterZoneEnrollRequestCallback` (int16u zoneType, int16u manufacturerCode)
- boolean `emberAfIasZoneClusterZoneEnrollResponseCallback` (int8u enrollResponseCode, int8u zoneId)
- boolean `emberAfIasZoneClusterZoneStatusChangeNotificationCallback` (int16u zoneStatus, int8u extendedStatus, int8u zoneId, int16u delay)

## IAS ACE Cluster Callbacks

- boolean `emberAfIasAceClusterArmCallback` (int8u armMode, int8u \*armDisarmCode, int8u zoneId)
- boolean `emberAfIasAceClusterArmResponseCallback` (int8u armNotification)
- boolean `emberAfIasAceClusterBypassCallback` (int8u numberOfZones, int8u \*zoneIds, int8u \*armDisarmCode)
- boolean `emberAfIasAceClusterBypassResponseCallback` (int8u numberOfZones, int8u \*bypassResult)
- void `emberAfIasAceClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasAceClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasAceClusterClientInitCallback` (int8u endpoint)
- void `emberAfIasAceClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasAceClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasAceClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasAceClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfIasAceClusterEmergencyCallback` (void)
- boolean `emberAfIasAceClusterFireCallback` (void)
- boolean `emberAfIasAceClusterGetBypassedZoneListCallback` (void)
- boolean `emberAfIasAceClusterGetPanelStatusCallback` (void)

- boolean `emberAfIasAceClusterGetPanelStatusResponseCallback` (int8u panelStatus, int8u secondsRemaining, int8u audibleNotification, int8u alarmStatus)
- boolean `emberAfIasAceClusterGetZoneIdMapCallback` (void)
- boolean `emberAfIasAceClusterGetZoneIdMapResponseCallback` (int16u section0, int16u section1, int16u section2, int16u section3, int16u section4, int16u section5, int16u section6, int16u section7, int16u section8, int16u section9, int16u section10, int16u section11, int16u section12, int16u section13, int16u section14, int16u section15)
- boolean `emberAfIasAceClusterGetZoneInformationCallback` (int8u zoneId)
- boolean `emberAfIasAceClusterGetZoneInformationResponseCallback` (int8u zoneId, int16u zoneType, int8u \*ieeeAddress, int8u \*zoneLabel)
- boolean `emberAfIasAceClusterGetZoneStatusCallback` (int8u startingZoneId, int8u maxNumberOfZoneIds, int8u zoneStatusMaskFlag, int16u zoneStatusMask)
- boolean `emberAfIasAceClusterGetZoneStatusResponseCallback` (int8u zoneStatusComplete, int8u numberOfZones, int8u \*zoneStatusResult)
- boolean `emberAfIasAceClusterPanelStatusChangedCallback` (int8u panelStatus, int8u secondsRemaining, int8u audibleNotification, int8u alarmStatus)
- boolean `emberAfIasAceClusterPanicCallback` (void)
- void `emberAfIasAceClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasAceClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasAceClusterServerInitCallback` (int8u endpoint)
- void `emberAfIasAceClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasAceClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasAceClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasAceClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIasAceClusterSetBypassedZoneListCallback` (int8u numberOfZones, int8u \*zoneIds)
- boolean `emberAfIasAceClusterZoneStatusChangedCallback` (int8u zoneId, int16u zoneStatus, int8u audibleNotification, int8u \*zoneLabel)

## IAS WD Cluster Callbacks

- void `emberAfIasWdClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasWdClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasWdClusterClientInitCallback` (int8u endpoint)
- void `emberAfIasWdClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasWdClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasWdClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasWdClusterClientTickCallback` (int8u endpoint)

- void `emberAfIasWdClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasWdClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasWdClusterServerInitCallback` (int8u endpoint)
- void `emberAfIasWdClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasWdClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasWdClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasWdClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIasWdClusterSquawkCallback` (int8u squawkInfo)
- boolean `emberAfIasWdClusterStartWarningCallback` (int8u warningInfo, int16u warningDuration, int8u strobeDutyCycle, int8u strobeLevel)

## Generic Tunnel Cluster Callbacks

- boolean `emberAfGenericTunnelClusterAdvertiseProtocolAddressCallback` (int8u \*protocolAddress)
- void `emberAfGenericTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGenericTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGenericTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAfGenericTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGenericTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGenericTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGenericTunnelClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGenericTunnelClusterMatchProtocolAddressCallback` (int8u \*protocolAddress)
- boolean `emberAfGenericTunnelClusterMatchProtocolAddressResponseCallback` (int8u \*deviceIeeeAddress, int8u \*protocolAddress)
- void `emberAfGenericTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGenericTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGenericTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAfGenericTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGenericTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGenericTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGenericTunnelClusterServerTickCallback` (int8u endpoint)

## BACnet Protocol Tunnel Cluster Callbacks

- void `emberAfBacnetProtocolTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBacnetProtocolTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBacnetProtocolTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAfBacnetProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBacnetProtocolTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBacnetProtocolTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBacnetProtocolTunnelClusterClientTickCallback` (int8u endpoint)
- void `emberAfBacnetProtocolTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBacnetProtocolTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBacnetProtocolTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAfBacnetProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBacnetProtocolTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBacnetProtocolTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBacnetProtocolTunnelClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfBacnetProtocolTunnelClusterTransferNpduCallback` (int8u \*npdu)

## 11073 Protocol Tunnel Cluster Callbacks

- void `emberAf11073ProtocolTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAf11073ProtocolTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAf11073ProtocolTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAf11073ProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAf11073ProtocolTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAf11073ProtocolTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAf11073ProtocolTunnelClusterClientTickCallback` (int8u endpoint)
- boolean `emberAf11073ProtocolTunnelClusterConnectRequestCallback` (int8u connectControl, int16u idleTimeout, int8u \*managerTarget, int8u managerEndpoint)
- boolean `emberAf11073ProtocolTunnelClusterConnectStatusNotificationCallback` (int8u connectStatus)
- boolean `emberAf11073ProtocolTunnelClusterDisconnectRequestCallback` (int8u \*managerIEEEAddress)
- void `emberAf11073ProtocolTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAf11073ProtocolTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAf11073ProtocolTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAf11073ProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAf11073ProtocolTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAf11073ProtocolTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAf11073ProtocolTunnelClusterServerTickCallback` (int8u endpoint)
- boolean `emberAf11073ProtocolTunnelClusterTransferAPDUCallback` (int8u \*apdu)

## ISO 7816 Protocol Tunnel Cluster Callbacks

- void `emberAfIso7816ProtocolTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIso7816ProtocolTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIso7816ProtocolTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAfIso7816ProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIso7816ProtocolTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIso7816ProtocolTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIso7816ProtocolTunnelClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfIso7816ProtocolTunnelClusterExtractSmartCardCallback` (void)
- boolean `emberAfIso7816ProtocolTunnelClusterInsertSmartCardCallback` (void)
- void `emberAfIso7816ProtocolTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIso7816ProtocolTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIso7816ProtocolTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAfIso7816ProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIso7816ProtocolTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIso7816ProtocolTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIso7816ProtocolTunnelClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIso7816ProtocolTunnelClusterTransferApduCallback` (int8u \*apdu)

## Price Cluster Callbacks

- boolean `emberAfPriceClusterCancelTariffCallback` (int32u providerId, int32u issuerTariffId, int8u tariffType)
- void `emberAfPriceClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfPriceClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPriceClusterClientInitCallback` (int8u endpoint)
- void `emberAfPriceClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPriceClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPriceClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPriceClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPriceClusterCppEventResponseCallback` (int32u issuerEventId, int8u cppAuth)
- boolean `emberAfPriceClusterGetBillingPeriodCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetBlockPeriodsCallback` (int32u startTime, int8u numberOfEvents, int8u tariffType)
- boolean `emberAfPriceClusterGetBlockThresholdsCallback` (int32u issuerTariffId)
- boolean `emberAfPriceClusterGetCO2ValueCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetCalorificValueCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands)
- boolean `emberAfPriceClusterGetConsolidatedBillCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetConversionFactorCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands)
- boolean `emberAfPriceClusterGetCreditPaymentCallback` (int32u latestEndTime, int8u numberOfRecords)
- boolean `emberAfPriceClusterGetCurrencyConversionCommandCallback` (void)
- boolean `emberAfPriceClusterGetCurrentPriceCallback` (int8u commandOptions)
- boolean `emberAfPriceClusterGetPriceMatrixCallback` (int32u issuerTariffId)
- boolean `emberAfPriceClusterGetScheduledPricesCallback` (int32u startTime, int8u numberOfEvents)
- boolean `emberAfPriceClusterGetTariffCancellationCallback` (void)
- boolean `emberAfPriceClusterGetTariffInformationCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetTierLabelsCallback` (int32u issuerTariffId)
- boolean `emberAfPriceClusterPriceAcknowledgementCallback` (int32u providerId, int32u issuerEventId, int32u priceAckTime, int8u control)
- boolean `emberAfPriceClusterPublishBillingPeriodCallback` (int32u providerId, int32u issuerEventId, int32u billingPeriodStartTime, int32u billingPeriodDuration, int8u billingPeriodDurationType, int8u tariffType)
- boolean `emberAfPriceClusterPublishBlockPeriodCallback` (int32u providerId, int32u issuerEventId, int32u blockPeriodStartTime, int32u blockPeriodDuration, int8u blockPeriodControl, int8u blockPeriodDurationType, int8u tariffType, int8u tariffResolutionPeriod)
- boolean `emberAfPriceClusterPublishBlockThresholdsCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int32u issuerTariffId, int8u commandIndex, int8u numberOfCommands, int8u subPayloadControl, int8u \*payload)
- boolean `emberAfPriceClusterPublishCO2ValueCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int8u tariffType, int32u cO2Value, int8u cO2ValueUnit, int8u cO2ValueTrailingDigit)
- boolean `emberAfPriceClusterPublishCalorificValueCallback` (int32u issuerEventId, int32u startTime, int32u calorificValue, int8u calorificValueUnit, int8u calorificValueTrailingDigit)

- boolean `emberAfPriceClusterPublishConsolidatedBillCallback` (int32u providerId, int32u issuerEventId, int32u billingPeriodStartTime, int32u billingPeriodDuration, int8u billingPeriodDurationType, int8u tariffType, int32u consolidatedBill, int16u currency, int8u billTrailingDigit)
- boolean `emberAfPriceClusterPublishConversionFactorCallback` (int32u issuerEventId, int32u startTime, int32u conversionFactor, int8u conversionFactorTrailingDigit)
- boolean `emberAfPriceClusterPublishCppEventCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int16u durationInMinutes, int8u tariffType, int8u cppPriceTier, int8u cppAuth)
- boolean `emberAfPriceClusterPublishCreditPaymentCallback` (int32u providerId, int32u issuerEventId, int32u creditPaymentDueDate, int32u creditPaymentOverDueAmount, int8u creditPaymentStatus, int32u creditPayment, int32u creditPaymentDate, int8u \*creditPaymentRef)
- boolean `emberAfPriceClusterPublishCurrencyConversionCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int16u oldCurrency, int16u newCurrency, int32u conversionFactor, int8u conversionFactorTrailingDigit, int32u currencyChangeControlFlags)
- boolean `emberAfPriceClusterPublishPriceCallback` (int32u providerId, int8u \*rateLabel, int32u issuerEventId, int32u currentTime, int8u unitOfMeasure, int16u currency, int8u priceTrailingDigitAndPriceTier, int8u numberOfPriceTiersAndRegisterTier, int32u startTime, int16u durationInMinutes, int32u price, int8u priceRatio, int32u generationPrice, int8u generationPriceRatio, int32u alternateCostDelivered, int8u alternateCostUnit, int8u alternateCostTrailingDigit, int8u numberOfBlockThresholds, int8u priceControl, int8u numberOfGenerationTiers, int8u generationTier, int8u extendedNumberOfPriceTiers, int8u extendedPriceTier, int8u extendedRegisterTier)
- boolean `emberAfPriceClusterPublishPriceMatrixCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int32u issuerTariffId, int8u commandIndex, int8u numberOfCommands, int8u subPayloadControl, int8u \*payload)
- boolean `emberAfPriceClusterPublishTariffInformationCallback` (int32u providerId, int32u issuerEventId, int32u issuerTariffId, int32u startTime, int8u tariffTypeChargingScheme, int8u \*tariffLabel, int8u numberOfPriceTiersInUse, int8u numberOfBlockThresholdsInUse, int8u unitOfMeasure, int16u currency, int8u priceTrailingDigit, int32u standingCharge, int8u tierBlockMode, int32u blockThresholdMultiplier, int32u blockThresholdDivisor)
- boolean `emberAfPriceClusterPublishTierLabelsCallback` (int32u providerId, int32u issuerEventId, int32u issuerTariffId, int8u commandIndex, int8u numberOfCommands, int8u numberOfLabels, int8u \*tierLabelsPayload)
- void `emberAfPriceClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPriceClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPriceClusterServerInitCallback` (int8u endpoint)
- void `emberAfPriceClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPriceClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPriceClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPriceClusterServerTickCallback` (int8u endpoint)

## Demand Response and Load Control Cluster Callbacks

- boolean `emberAfDemandResponseLoadControlClusterCancelAllLoadControlEventsCallback` (int8u cancelControl)
- boolean `emberAfDemandResponseLoadControlClusterCancelLoadControlEventCallback` (int32u issuerEventId, int16u deviceClass, int8u utilityEnrollmentGroup, int8u cancelControl, int32u effectiveTime)

- void `emberAfDemandResponseLoadControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDemandResponseLoadControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDemandResponseLoadControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfDemandResponseLoadControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDemandResponseLoadControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDemandResponseLoadControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDemandResponseLoadControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDemandResponseLoadControlClusterGetScheduledEventsCallback` (int32u startTime, int8u numberOfEvents, int32u issuerEventId)
- boolean `emberAfDemandResponseLoadControlClusterLoadControlEventCallback` (int32u issuerEventId, int16u deviceClass, int8u utilityEnrollmentGroup, int32u startTime, int16u durationInMinutes, int8u criticalityLevel, int8u coolingTemperatureOffset, int8u heatingTemperatureOffset, int16s coolingTemperatureSetPoint, int16s heatingTemperatureSetPoint, int8s averageLoadAdjustmentPercentage, int8u dutyCycle, int8u eventControl)
- boolean `emberAfDemandResponseLoadControlClusterReportEventStatusCallback` (int32u issuerEventId, int8u eventStatus, int32u eventStatusTime, int8u criticalityLevelApplied, int16u coolingTemperatureSetPointApplied, int16u heatingTemperatureSetPointApplied, int8s averageLoadAdjustmentPercentageApplied, int8u dutyCycleApplied, int8u eventControl, int8u signatureType, int8u \*signature)
- void `emberAfDemandResponseLoadControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDemandResponseLoadControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDemandResponseLoadControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfDemandResponseLoadControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDemandResponseLoadControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDemandResponseLoadControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDemandResponseLoadControlClusterServerTickCallback` (int8u endpoint)

## Simple Metering Cluster Callbacks

- boolean `emberAfSimpleMeteringClusterChangeSupplyCallback` (int32u providerId, int32u issuerEventId, int32u requestDateTime, int32u implementationDateTime, int8u proposedSupplyStatus, int8u supplyControlBits)
- void `emberAfSimpleMeteringClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSimpleMeteringClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSimpleMeteringClusterClientInitCallback` (int8u endpoint)
- void `emberAfSimpleMeteringClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfSimpleMeteringClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfSimpleMeteringClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSimpleMeteringClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfSimpleMeteringClusterConfigureMirrorCallback` (int32u issuerEventId, int32u reportingInterval, int8u mirrorNotificationReporting, int8u notificationScheme)
- boolean `emberAfSimpleMeteringClusterConfigureNotificationFlagsCallback` (int32u issuerEventId, int8u notificationScheme, int16u notificationFlagAttributeId, int16u clusterId, int16u manufacturerCode, int8u numberOfCommands, int8u \*commandIds)
- boolean `emberAfSimpleMeteringClusterConfigureNotificationSchemeCallback` (int32u issuerEventId, int8u notificationScheme, int32u notificationFlagOrder)
- boolean `emberAfSimpleMeteringClusterGetNotifiedMessageCallback` (int8u notificationScheme, int16u notificationFlagAttributeId, int32u notificationFlagsN)
- boolean `emberAfSimpleMeteringClusterGetProfileCallback` (int8u intervalChannel, int32u endTime, int8u numberOfPeriods)
- boolean `emberAfSimpleMeteringClusterGetProfileResponseCallback` (int32u endTime, int8u status, int8u profileIntervalPeriod, int8u numberOfPeriodsDelivered, int8u \*intervals)
- boolean `emberAfSimpleMeteringClusterGetSampledDataCallback` (int16u sampleId, int32u earliestSampleTime, int8u sampleType, int16u numberOfSamples)
- boolean `emberAfSimpleMeteringClusterGetSampledDataResponseCallback` (int16u sampleId, int32u sampleStartTime, int8u sampleType, int16u sampleRequestInterval, int16u numberOfSamples, int8u \*samples)
- boolean `emberAfSimpleMeteringClusterGetSnapshotCallback` (int32u earliestStartTime, int32u latestEndTime, int8u snapshotOffset, int32u snapshotCause)
- boolean `emberAfSimpleMeteringClusterLocalChangeSupplyCallback` (int8u proposedSupplyStatus)
- boolean `emberAfSimpleMeteringClusterMirrorRemovedCallback` (int16u endpointId)
- boolean `emberAfSimpleMeteringClusterMirrorReportAttributeResponseCallback` (int8u notificationScheme, int8u \*notificationFlags)
- boolean `emberAfSimpleMeteringClusterPublishSnapshotCallback` (int32u snapshotId, int32u snapshotTime, int8u totalSnapshotsFound, int8u commandIndex, int8u totalCommands, int32u snapshotCause, int8u snapshotPayloadType, int8u \*snapshotPayload)
- boolean `emberAfSimpleMeteringClusterRemoveMirrorCallback` (void)
- boolean `emberAfSimpleMeteringClusterRequestFastPollModeCallback` (int8u fastPollUpdatePeriod, int8u duration)
- boolean `emberAfSimpleMeteringClusterRequestFastPollModeResponseCallback` (int8u appliedUpdatePeriod, int32u fastPollModeEndtime)
- boolean `emberAfSimpleMeteringClusterRequestMirrorCallback` (void)
- boolean `emberAfSimpleMeteringClusterRequestMirrorResponseCallback` (int16u endpointId)
- boolean `emberAfSimpleMeteringClusterResetLoadLimitCounterCallback` (int32u providerId, int32u issuerEventId)
- boolean `emberAfSimpleMeteringClusterScheduleSnapshotCallback` (int32u issuerEventId, int8u commandIndex, int8u commandCount, int8u \*snapshotSchedulePayload)
- boolean `emberAfSimpleMeteringClusterScheduleSnapshotResponseCallback` (int32u issuerEventId, int8u \*snapshotResponsePayload)
- void `emberAfSimpleMeteringClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSimpleMeteringClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSimpleMeteringClusterServerInitCallback` (int8u endpoint)

- void `emberAfSimpleMeteringClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSimpleMeteringClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfSimpleMeteringClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSimpleMeteringClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfSimpleMeteringClusterSetSupplyStatusCallback` (int32u issuerEventId, int8u supplyTamperState, int8u supplyDepletionState, int8u supplyUncontrolledFlowState, int8u loadLimitSupplyState)
- boolean `emberAfSimpleMeteringClusterSetUncontrolledFlowThresholdCallback` (int32u providerId, int32u issuerEventId, int16u uncontrolledFlowThreshold, int8u unitOfMeasure, int16u multiplier, int16u divisor, int8u stabilisationPeriod, int16u measurementPeriod)
- boolean `emberAfSimpleMeteringClusterStartSamplingCallback` (int32u issuerEventId, int32u startSamplingTime, int8u sampleType, int16u sampleRequestInterval, int16u maxNumberOfSamples)
- boolean `emberAfSimpleMeteringClusterStartSamplingResponseCallback` (int16u sampleId)
- boolean `emberAfSimpleMeteringClusterSupplyStatusResponseCallback` (int32u providerId, int32u issuerEventId, int32u implementationDate, int8u supplyStatus)
- boolean `emberAfSimpleMeteringClusterTakeSnapshotCallback` (int32u snapshotCause)
- boolean `emberAfSimpleMeteringClusterTakeSnapshotResponseCallback` (int32u snapshotId, int8u snapshotConfirmation)

## Messaging Cluster Callbacks

- boolean `emberAfMessagingClusterCancelAllMessagesCallback` (int32u implementationDate)
- boolean `emberAfMessagingClusterCancelMessageCallback` (int32u messageId, int8u messageControl)
- void `emberAfMessagingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMessagingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMessagingClusterClientInitCallback` (int8u endpoint)
- void `emberAfMessagingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMessagingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMessagingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMessagingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfMessagingClusterDisplayMessageCallback` (int32u messageId, int8u messageControl, int32u startTime, int16u durationInMinutes, int8u \*message, int8u optionalExtendedMessageControl)
- boolean `emberAfMessagingClusterDisplayProtectedMessageCallback` (int32u messageId, int8u messageControl, int32u startTime, int16u durationInMinutes, int8u \*message, int8u optionalExtendedMessageControl)
- boolean `emberAfMessagingClusterGetLastMessageCallback` (void)
- boolean `emberAfMessagingClusterGetMessageCancellationCallback` (int32u earliestImplementationTime)
- boolean `emberAfMessagingClusterMessageConfirmationCallback` (int32u messageId, int32u confirmationTime, int8u messageConfirmationControl, int8u \*messageResponse)

- void `emberAfMessagingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMessagingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMessagingClusterServerInitCallback` (int8u endpoint)
- void `emberAfMessagingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMessagingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfMessagingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMessagingClusterServerTickCallback` (int8u endpoint)

## Tunneling Cluster Callbacks

- boolean `emberAfTunnelingClusterAckTransferDataClientToServerCallback` (int16u tunnelId, int16u numberBytesLeft)
- boolean `emberAfTunnelingClusterAckTransferDataServerToClientCallback` (int16u tunnelId, int16u numberBytesLeft)
- void `emberAfTunnelingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTunnelingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTunnelingClusterClientInitCallback` (int8u endpoint)
- void `emberAfTunnelingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTunnelingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfTunnelingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTunnelingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfTunnelingClusterCloseTunnelCallback` (int16u tunnelId)
- boolean `emberAfTunnelingClusterGetSupportedTunnelProtocolsCallback` (int8u protocolOffset)
- boolean `emberAfTunnelingClusterReadyDataClientToServerCallback` (int16u tunnelId, int16u numberOctetsLeft)
- boolean `emberAfTunnelingClusterReadyDataServerToClientCallback` (int16u tunnelId, int16u numberOctetsLeft)
- boolean `emberAfTunnelingClusterRequestTunnelCallback` (int8u protocolId, int16u manufacturerCode, int8u flowControlSupport, int16u maximumIncomingTransferSize)
- boolean `emberAfTunnelingClusterRequestTunnelResponseCallback` (int16u tunnelId, int8u tunnelStatus, int16u maximumIncomingTransferSize)
- void `emberAfTunnelingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTunnelingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTunnelingClusterServerInitCallback` (int8u endpoint)
- void `emberAfTunnelingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfTunnelingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfTunnelingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTunnelingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfTunnelingClusterSupportedTunnelProtocolsResponseCallback` (int8u protocolListComplete, int8u protocolCount, int8u \*protocolList)
- boolean `emberAfTunnelingClusterTransferDataClientToServerCallback` (int16u tunnelId, int8u \*data)
- boolean `emberAfTunnelingClusterTransferDataErrorClientToServerCallback` (int16u tunnelId, int8u transferDataStatus)
- boolean `emberAfTunnelingClusterTransferDataErrorServerToClientCallback` (int16u tunnelId, int8u transferDataStatus)
- boolean `emberAfTunnelingClusterTransferDataServerToClientCallback` (int16u tunnelId, int8u \*data)
- boolean `emberAfTunnelingClusterTunnelClosureNotificationCallback` (int16u tunnelId)

## Prepayment Cluster Callbacks

- boolean `emberAfPrepaymentClusterChangeDebtCallback` (int32u issuerEventId, int8u \*debtLabel, int32u debtAmount, int8u debtRecoveryMethod, int8u debtAmountType, int32u debtRecoveryStartTime, int16u debtRecoveryCollectionTime, int8u debtRecoveryFrequency, int32u debtRecoveryAmount, int16u debtRecoveryBalancePercentage)
- boolean `emberAfPrepaymentClusterChangePaymentModeCallback` (int32u providerId, int32u issuerEventId, int32u implementationDateTime, int16u proposedPaymentControlConfiguration, int32u cutOffValue)
- boolean `emberAfPrepaymentClusterChangePaymentModeResponseCallback` (int8u friendlyCredit, int32u friendlyCreditCalendarId, int32u emergencyCreditLimit, int32u emergencyCreditThreshold)
- void `emberAfPrepaymentClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPrepaymentClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPrepaymentClusterClientInitCallback` (int8u endpoint)
- void `emberAfPrepaymentClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPrepaymentClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPrepaymentClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPrepaymentClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPrepaymentClusterConsumerTopUpCallback` (int8u originatingDevice, int8u \*topUpCode)
- boolean `emberAfPrepaymentClusterConsumerTopUpResponseCallback` (int8u resultType, int32u topUpValue, int8u sourceOfTopUp, int32u creditRemaining)
- boolean `emberAfPrepaymentClusterCreditAdjustmentCallback` (int32u issuerEventId, int32u startTime, int8u creditAdjustmentType, int32u creditAdjustmentValue)
- boolean `emberAfPrepaymentClusterEmergencyCreditSetupCallback` (int32u issuerEventId, int32u startTime, int32u emergencyCreditLimit, int32u emergencyCreditThreshold)
- boolean `emberAfPrepaymentClusterGetDebtRepaymentLogCallback` (int32u latestEndTime, int8u numberOfDebts, int8u debtType)
- boolean `emberAfPrepaymentClusterGetPrepaySnapshotCallback` (int32u earliestStartTime, int32u latestEndTime, int8u snapshotOffset, int32u snapshotCause)

- boolean `emberAfPrepaymentClusterGetTopUpLogCallback` (int32u latestEndTime, int8u number-OfRecords)
- boolean `emberAfPrepaymentClusterPublishDebtLogCallback` (int8u commandIndex, int8u totalNumber-OfCommands, int8u \*debtPayload)
- boolean `emberAfPrepaymentClusterPublishPrepaySnapshotCallback` (int32u snapshotId, int32u snapshot-Time, int8u totalSnapshotsFound, int8u commandIndex, int8u totalNumberOfCommands, int32u snapshotCause, int8u snapshotPayloadType, int8u \*snapshotPayload)
- boolean `emberAfPrepaymentClusterPublishTopUpLogCallback` (int8u commandIndex, int8u total-NumberOfCommands, int8u \*topUpPayload)
- boolean `emberAfPrepaymentClusterSelectAvailableEmergencyCreditCallback` (int32u commandIssue-DateTime, int8u originatingDevice)
- void `emberAfPrepaymentClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-Id` attributeId)
- void `emberAfPrepaymentClusterServerDefaultResponseCallback` (int8u endpoint, int8u command-Id, `EmberAfStatus` status)
- void `emberAfPrepaymentClusterServerInitCallback` (int8u endpoint)
- void `emberAfPrepaymentClusterServerManufacturerSpecificAttributeChangedCallback` (int8u end-point, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPrepaymentClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-tus)
- `EmberAfStatus emberAfPrepaymentClusterServerPreAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPrepaymentClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfPrepaymentClusterSetLowCreditWarningLevelCallback` (int32u lowCreditWarning-Level)
- boolean `emberAfPrepaymentClusterSetMaximumCreditLimitCallback` (int32u providerId, int32u issuer-EventId, int32u implementationDateTime, int32u maximumCreditLevel, int32u maximumCredit-PerTopUp)
- boolean `emberAfPrepaymentClusterSetOverallDebtCapCallback` (int32u providerId, int32u issuer-EventId, int32u implementationDateTime, int32u overallDebtCap)

## Energy Management Cluster Callbacks

- void `emberAfEnergyManagementClusterClientAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId)
- void `emberAfEnergyManagementClusterClientDefaultResponseCallback` (int8u endpoint, int8u command-Id, `EmberAfStatus` status)
- void `emberAfEnergyManagementClusterClientInitCallback` (int8u endpoint)
- void `emberAfEnergyManagementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfEnergyManagementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfEnergyManagementClusterClientPreAttributeChangedCallback` (int8u end-point, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEnergyManagementClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfEnergyManagementClusterManageEventCallback` (int32u issuerEventId, int16u device-Class, int8u utilityEnrollmentGroup, int8u actionRequired)

- boolean `emberAfEnergyManagementClusterReportEventStatusCallback` (int32u issuerEventId, int8u eventStatus, int32u eventStatusTime, int8u criticalityLevelApplied, int16u coolingTemperatureSetPointApplied, int16u heatingTemperatureSetPointApplied, int8s averageLoadAdjustmentPercentageApplied, int8u dutyCycleApplied, int8u eventControl)
- void `emberAfEnergyManagementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfEnergyManagementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEnergyManagementClusterServerInitCallback` (int8u endpoint)
- void `emberAfEnergyManagementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfEnergyManagementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfEnergyManagementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEnergyManagementClusterServerTickCallback` (int8u endpoint)

## Calendar Cluster Callbacks

- boolean `emberAfCalendarClusterCancelCalendarCallback` (int32u providerId, int32u issuerCalendarId, int8u calendarType)
- void `emberAfCalendarClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCalendarClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCalendarClusterClientInitCallback` (int8u endpoint)
- void `emberAfCalendarClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCalendarClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfCalendarClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCalendarClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfCalendarClusterGetCalendarCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCalendars, int8u calendarType, int32u providerId)
- boolean `emberAfCalendarClusterGetCalendarCancellationCallback` (void)
- boolean `emberAfCalendarClusterGetDayProfilesCallback` (int32u providerId, int32u issuerCalendarId, int8u startDayId, int8u numberOfDays)
- boolean `emberAfCalendarClusterGetSeasonsCallback` (int32u providerId, int32u issuerCalendarId)
- boolean `emberAfCalendarClusterGetSpecialDaysCallback` (int32u startTime, int8u numberOfEvents, int8u calendarType, int32u providerId, int32u issuerCalendarId)
- boolean `emberAfCalendarClusterGetWeekProfilesCallback` (int32u providerId, int32u issuerCalendarId, int8u startWeekId, int8u numberOfWeeks)
- boolean `emberAfCalendarClusterPublishCalendarCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int32u startTime, int8u calendarType, int8u calendarTimeReference, int8u \*calendarName, int8u numberOfSeasons, int8u numberOfWeekProfiles, int8u numberOfDayProfiles)
- boolean `emberAfCalendarClusterPublishDayProfileCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int8u dayId, int8u totalNumberOfScheduleEntries, int8u commandIndex, int8u totalNumberOfCommands, int8u calendarType, int8u \*dayScheduleEntries)

- boolean `emberAfCalendarClusterPublishSeasonsCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int8u commandIndex, int8u totalNumberOfCommands, int8u \*seasonEntries)
- boolean `emberAfCalendarClusterPublishSpecialDaysCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int32u startTime, int8u calendarType, int8u totalNumberOfSpecialDays, int8u commandIndex, int8u totalNumberOfCommands, int8u \*specialDayEntries)
- boolean `emberAfCalendarClusterPublishWeekProfileCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int8u weekId, int8u dayIdRefMonday, int8u dayIdRefTuesday, int8u dayIdRefWednesday, int8u dayIdRefThursday, int8u dayIdRefFriday, int8u dayIdRefSaturday, int8u dayIdRefSunday)
- void `emberAfCalendarClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCalendarClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCalendarClusterServerInitCallback` (int8u endpoint)
- void `emberAfCalendarClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCalendarClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfCalendarClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCalendarClusterServerTickCallback` (int8u endpoint)

## Device Management Cluster Callbacks

- void `emberAfDeviceManagementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceManagementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceManagementClusterClientInitCallback` (int8u endpoint)
- void `emberAfDeviceManagementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceManagementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDeviceManagementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceManagementClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDeviceManagementClusterGetCINCallback` (void)
- boolean `emberAfDeviceManagementClusterGetChangeOfSupplierCallback` (void)
- boolean `emberAfDeviceManagementClusterGetChangeOfTenancyCallback` (void)
- boolean `emberAfDeviceManagementClusterGetEventConfigurationCallback` (int16u eventId)
- boolean `emberAfDeviceManagementClusterGetSiteIdCallback` (void)
- boolean `emberAfDeviceManagementClusterPublishChangeOfSupplierCallback` (int32u currentProviderId, int32u issuerEventId, int8u tariffType, int32u proposedProviderId, int32u providerChangeImplementationTime, int32u providerChangeControl, int8u \*proposedProviderName, int8u \*proposedProviderContactDetails)
- boolean `emberAfDeviceManagementClusterPublishChangeOfTenancyCallback` (int32u providerId, int32u issuerEventId, int8u tariffType, int32u implementationDateTime, int32u proposedTenancyChangeControl)

- boolean `emberAfDeviceManagementClusterReportEventConfigurationCallback` (int8u commandIndex, int8u totalCommands, int8u \*eventConfigurationPayload)
- boolean `emberAfDeviceManagementClusterRequestNewPasswordCallback` (int8u passwordType)
- boolean `emberAfDeviceManagementClusterRequestNewPasswordResponseCallback` (int32u issuerEventId, int32u implementationDateTime, int16u durationInMinutes, int8u passwordType, int8u \*password)
- void `emberAfDeviceManagementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceManagementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceManagementClusterServerInitCallback` (int8u endpoint)
- void `emberAfDeviceManagementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceManagementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDeviceManagementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceManagementClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfDeviceManagementClusterSetEventConfigurationCallback` (int32u issuerEventId, int32u startTime, int8u eventConfiguration, int8u configurationControl, int8u \*eventConfigurationPayload)
- boolean `emberAfDeviceManagementClusterUpdateCINCallback` (int32u issuerEventId, int32u implementationTime, int32u providerId, int8u \*customerIdNumber)
- boolean `emberAfDeviceManagementClusterUpdateSiteIdCallback` (int32u issuerEventId, int32u siteIdTime, int32u providerId, int8u \*siteId)

## Events Cluster Callbacks

- boolean `emberAfEventsClusterClearEventLogRequestCallback` (int8u logId)
- boolean `emberAfEventsClusterClearEventLogResponseCallback` (int8u clearedEventsLogs)
- void `emberAfEventsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfEventsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEventsClusterClientInitCallback` (int8u endpoint)
- void `emberAfEventsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfEventsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfEventsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEventsClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfEventsClusterGetEventLogCallback` (int8u eventControlLogId, int16u eventId, int32u startTime, int32u endTime, int8u numberOfEvents, int16u eventOffset)
- boolean `emberAfEventsClusterPublishEventCallback` (int8u logId, int16u eventId, int32u eventTime, int8u eventControl, int8u \*EventData)
- boolean `emberAfEventsClusterPublishEventLogCallback` (int16u totalNumberOfEvents, int8u commandIndex, int8u totalCommands, int8u logPayloadControl, int8u \*logPayload)

- void `emberAfEventsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfEventsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEventsClusterServerInitCallback` (int8u endpoint)
- void `emberAfEventsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfEventsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfEventsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEventsClusterServerTickCallback` (int8u endpoint)

## MDU Pairing Cluster Callbacks

- void `emberAfMduPairingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMduPairingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMduPairingClusterClientInitCallback` (int8u endpoint)
- void `emberAfMduPairingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMduPairingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfMduPairingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMduPairingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfMduPairingClusterPairingRequestCallback` (int32u localPairingInformationVersion, int8u \*eui64OfRequestingDevice)
- boolean `emberAfMduPairingClusterPairingResponseCallback` (int32u pairingInformationVersion, int8u totalNumberOfDevices, int8u commandIndex, int8u totalNumberOfCommands, int8u \*eui64s)
- void `emberAfMduPairingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMduPairingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMduPairingClusterServerInitCallback` (int8u endpoint)
- void `emberAfMduPairingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMduPairingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfMduPairingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMduPairingClusterServerTickCallback` (int8u endpoint)

## Key Establishment Cluster Callbacks

- boolean `emberAfKeyEstablishmentClusterClientCommandReceivedCallback` (`EmberAfClusterCommand *cmd`)
- void `emberAfKeyEstablishmentClusterClientAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId`)
- void `emberAfKeyEstablishmentClusterClientDefaultResponseCallback` (`int8u endpoint, int8u commandId, EmberAfStatus status`)
- void `emberAfKeyEstablishmentClusterClientInitCallback` (`int8u endpoint`)
- void `emberAfKeyEstablishmentClusterClientManufacturerSpecificAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode`)
- void `emberAfKeyEstablishmentClusterClientMessageSentCallback` (`EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status`)
- `EmberAfStatus emberAfKeyEstablishmentClusterClientPreAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value`)
- void `emberAfKeyEstablishmentClusterClientTickCallback` (`int8u endpoint`)
- boolean `emberAfKeyEstablishmentClusterConfirmKeyDataRequestCallback` (`int8u *secureMessageAuthenticationCode`)
- boolean `emberAfKeyEstablishmentClusterConfirmKeyDataResponseCallback` (`int8u *secureMessageAuthenticationCode`)
- boolean `emberAfKeyEstablishmentClusterEphemeralDataRequestCallback` (`int8u *ephemeralData`)
- boolean `emberAfKeyEstablishmentClusterEphemeralDataResponseCallback` (`int8u *ephemeralData`)
- boolean `emberAfKeyEstablishmentClusterInitiateKeyEstablishmentRequestCallback` (`int16u keyEstablishmentSuite, int8u ephemeralDataGenerateTime, int8u confirmKeyGenerateTime, int8u *identity`)
- boolean `emberAfKeyEstablishmentClusterInitiateKeyEstablishmentResponseCallback` (`int16u requestedKeyEstablishmentSuite, int8u ephemeralDataGenerateTime, int8u confirmKeyGenerateTime, int8u *identity`)
- void `emberAfKeyEstablishmentClusterServerAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId`)
- void `emberAfKeyEstablishmentClusterServerDefaultResponseCallback` (`int8u endpoint, int8u commandId, EmberAfStatus status`)
- void `emberAfKeyEstablishmentClusterServerInitCallback` (`int8u endpoint`)
- void `emberAfKeyEstablishmentClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode`)
- void `emberAfKeyEstablishmentClusterServerMessageSentCallback` (`EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status`)
- `EmberAfStatus emberAfKeyEstablishmentClusterServerPreAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value`)
- void `emberAfKeyEstablishmentClusterServerTickCallback` (`int8u endpoint`)
- boolean `emberAfKeyEstablishmentClusterTerminateKeyEstablishmentCallback` (`int8u statusCode, int8u waitTime, int16u keyEstablishmentSuite`)
- boolean `emberAfKeyEstablishmentClusterServerCommandReceivedCallback` (`EmberAfClusterCommand *cmd`)

## Information Cluster Callbacks

- void `emberAfInformationClusterClientAttributeChangedCallback` (`int8u endpoint, EmberAfAttributeId attributeId`)
- void `emberAfInformationClusterClientDefaultResponseCallback` (`int8u endpoint, int8u commandId, EmberAfStatus status`)

- void `emberAfInformationClusterClientInitCallback` (int8u endpoint)
- void `emberAfInformationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfInformationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfInformationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfInformationClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfInformationClusterConfigureDeliveryEnableCallback` (int8u enable)
- boolean `emberAfInformationClusterConfigureNodeDescriptionCallback` (int8u \*description)
- boolean `emberAfInformationClusterConfigurePushInformationTimerCallback` (int32u timer)
- boolean `emberAfInformationClusterConfigureSetRootIdCallback` (int16u rootId)
- boolean `emberAfInformationClusterDeleteCallback` (int8u deletionOptions, int8u \*contentIds)
- boolean `emberAfInformationClusterDeleteResponseCallback` (int8u \*notificationList)
- boolean `emberAfInformationClusterPushInformationCallback` (int8u \*contents)
- boolean `emberAfInformationClusterPushInformationResponseCallback` (int8u \*notificationList)
- boolean `emberAfInformationClusterRequestInformationCallback` (int8u inquiryId, int8u dataTypeId, int8u \*requestInformationPayload)
- boolean `emberAfInformationClusterRequestInformationResponseCallback` (int8u number, int8u \*buffer)
- boolean `emberAfInformationClusterRequestPreferenceConfirmationCallback` (int8u \*statusFeedbackList)
- boolean `emberAfInformationClusterRequestPreferenceResponseCallback` (int8u statusFeedback, int16u preferenceType, int8u \*preferencePayload)
- boolean `emberAfInformationClusterSendPreferenceCallback` (int16u preferenceType, int8u \*preferencePayload)
- boolean `emberAfInformationClusterSendPreferenceResponseCallback` (int8u \*statusFeedbackList)
- void `emberAfInformationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfInformationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfInformationClusterServerInitCallback` (int8u endpoint)
- void `emberAfInformationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfInformationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfInformationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- boolean `emberAfInformationClusterServerRequestPreferenceCallback` (void)
- void `emberAfInformationClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfInformationClusterUpdateCallback` (int8u accessControl, int8u option, int8u \*contents)
- boolean `emberAfInformationClusterUpdateResponseCallback` (int8u \*notificationList)

## Data Sharing Cluster Callbacks

- void `emberAfDataSharingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataSharingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataSharingClusterClientInitCallback` (int8u endpoint)

- void `emberAfDataSharingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataSharingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDataSharingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataSharingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDataSharingClusterFileTransmissionCallback` (int8u transmitOptions, int8u \*buffer)
- boolean `emberAfDataSharingClusterModifyFileRequestCallback` (int16u fileIndex, int32u fileStartPosition, int32u octetCount)
- boolean `emberAfDataSharingClusterModifyRecordRequestCallback` (int16u fileIndex, int16u fileStartRecord, int16u recordCount)
- boolean `emberAfDataSharingClusterReadFileRequestCallback` (int16u fileIndex, int8u \*fileStartPositionAndRequestedOctetCount)
- boolean `emberAfDataSharingClusterReadRecordRequestCallback` (int16u fileIndex, int8u \*fileStartRecordAndRequestedRecordCount)
- boolean `emberAfDataSharingClusterRecordTransmissionCallback` (int8u transmitOptions, int8u \*buffer)
- void `emberAfDataSharingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataSharingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataSharingClusterServerInitCallback` (int8u endpoint)
- void `emberAfDataSharingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataSharingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDataSharingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataSharingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfDataSharingClusterWriteFileRequestCallback` (int8u writeOptions, int8u \*fileSize)
- boolean `emberAfDataSharingClusterWriteFileResponseCallback` (int8u status, int8u \*fileIndex)

## Gaming Cluster Callbacks

- boolean `emberAfGamingClusterActionControlCallback` (int32u actions)
- void `emberAfGamingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGamingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGamingClusterClientInitCallback` (int8u endpoint)
- void `emberAfGamingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGamingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfGamingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGamingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGamingClusterDownloadGameCallback` (void)

- boolean `emberAfGamingClusterEndGameCallback` (void)
- boolean `emberAfGamingClusterGameAnnouncementCallback` (int16u gameId, int8u gameMaster, int8u \*listOfGame)
- boolean `emberAfGamingClusterGeneralResponseCallback` (int8u commandId, int8u status, int8u \*message)
- boolean `emberAfGamingClusterJoinGameCallback` (int16u gameId, int8u joinAsMaster, int8u \*nameOfGame)
- boolean `emberAfGamingClusterPauseGameCallback` (void)
- boolean `emberAfGamingClusterQuitGameCallback` (void)
- boolean `emberAfGamingClusterResumeGameCallback` (void)
- boolean `emberAfGamingClusterSearchGameCallback` (int8u specificGame, int16u gameId)
- void `emberAfGamingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGamingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGamingClusterServerInitCallback` (int8u endpoint)
- void `emberAfGamingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGamingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGamingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGamingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfGamingClusterStartGameCallback` (void)
- boolean `emberAfGamingClusterStartOverCallback` (void)

## Data Rate Control Cluster Callbacks

- void `emberAfDataRateControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataRateControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataRateControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfDataRateControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataRateControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDataRateControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataRateControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDataRateControlClusterDataRateControlCallback` (int16u originatorAddress, int16u destinationAddress, int8u dataRate)
- boolean `emberAfDataRateControlClusterDataRateNotificationCallback` (int16u originatorAddress, int16u destinationAddress, int8u dataRate)
- boolean `emberAfDataRateControlClusterPathCreationCallback` (int16u originatorAddress, int16u destinationAddress, int8u dataRate)
- boolean `emberAfDataRateControlClusterPathDeletionCallback` (int16u originatorAddress, int16u destinationAddress)

- void `emberAfDataRateControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataRateControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataRateControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfDataRateControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataRateControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDataRateControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataRateControlClusterServerTickCallback` (int8u endpoint)

## Voice over ZigBee Cluster Callbacks

- void `emberAfVoiceOverZigbeeClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfVoiceOverZigbeeClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfVoiceOverZigbeeClusterClientInitCallback` (int8u endpoint)
- void `emberAfVoiceOverZigbeeClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfVoiceOverZigbeeClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfVoiceOverZigbeeClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfVoiceOverZigbeeClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfVoiceOverZigbeeClusterControlCallback` (int8u controlType)
- boolean `emberAfVoiceOverZigbeeClusterControlResponseCallback` (int8u ackNack)
- boolean `emberAfVoiceOverZigbeeClusterEstablishmentRequestCallback` (int8u flag, int8u codecType, int8u sampFreq, int8u codecRate, int8u serviceType, int8u \*buffer)
- boolean `emberAfVoiceOverZigbeeClusterEstablishmentResponseCallback` (int8u ackNack, int8u codecType)
- void `emberAfVoiceOverZigbeeClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfVoiceOverZigbeeClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfVoiceOverZigbeeClusterServerInitCallback` (int8u endpoint)
- void `emberAfVoiceOverZigbeeClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfVoiceOverZigbeeClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfVoiceOverZigbeeClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfVoiceOverZigbeeClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfVoiceOverZigbeeClusterVoiceTransmissionCallback` (int8u \*voiceData)
- boolean `emberAfVoiceOverZigbeeClusterVoiceTransmissionCompletionCallback` (void)
- boolean `emberAfVoiceOverZigbeeClusterVoiceTransmissionResponseCallback` (int8u sequenceNumber, int8u errorFlag)

## Chatting Cluster Callbacks

- boolean `emberAfChattingClusterChatMessageCallback` (int16u destinationUid, int16u sourceUid, int16u cid, int8u \*nickname, int8u \*message)
- void `emberAfChattingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfChattingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfChattingClusterClientInitCallback` (int8u endpoint)
- void `emberAfChattingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfChattingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfChattingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfChattingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfChattingClusterGetNodeInformationRequestCallback` (int16u cid, int16u uid)
- boolean `emberAfChattingClusterGetNodeInformationResponseCallback` (int8u status, int16u cid, int16u uid, int8u \*addressEndpointAndNickname)
- boolean `emberAfChattingClusterJoinChatRequestCallback` (int16u uid, int8u \*nickname, int16u cid)
- boolean `emberAfChattingClusterJoinChatResponseCallback` (int8u status, int16u cid, int8u \*chatParticipantList)
- boolean `emberAfChattingClusterLeaveChatRequestCallback` (int16u cid, int16u uid)
- boolean `emberAfChattingClusterSearchChatRequestCallback` (void)
- boolean `emberAfChattingClusterSearchChatResponseCallback` (int8u options, int8u \*chatRoomList)
- void `emberAfChattingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfChattingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfChattingClusterServerInitCallback` (int8u endpoint)
- void `emberAfChattingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfChattingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfChattingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfChattingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfChattingClusterStartChatRequestCallback` (int8u \*name, int16u uid, int8u \*nickname)
- boolean `emberAfChattingClusterStartChatResponseCallback` (int8u status, int16u cid)
- boolean `emberAfChattingClusterSwitchChairmanConfirmCallback` (int16u cid, int8u \*nodeInformationList)
- boolean `emberAfChattingClusterSwitchChairmanNotificationCallback` (int16u cid, int16u uid, int16u address, int8u endpoint)
- boolean `emberAfChattingClusterSwitchChairmanRequestCallback` (int16u cid)
- boolean `emberAfChattingClusterSwitchChairmanResponseCallback` (int16u cid, int16u uid)
- boolean `emberAfChattingClusterUserJoinedCallback` (int16u cid, int16u uid, int8u \*nickname)
- boolean `emberAfChattingClusterUserLeftCallback` (int16u cid, int16u uid, int8u \*nickname)

## Payment Cluster Callbacks

- boolean `emberAfPaymentClusterAcceptPaymentCallback` (int8u \*userId, int16u userType, int16u serviceId, int8u \*goodId)
- boolean `emberAfPaymentClusterBuyConfirmCallback` (int8u \*serialNumber, int32u currency, int8u priceTrailingDigit, int32u price, int8u \*timestamp, int16u transId, int8u transStatus)
- boolean `emberAfPaymentClusterBuyRequestCallback` (int8u \*userId, int16u userType, int16u serviceId, int8u \*goodId)
- void `emberAfPaymentClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPaymentClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPaymentClusterClientInitCallback` (int8u endpoint)
- void `emberAfPaymentClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPaymentClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPaymentClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPaymentClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPaymentClusterPaymentConfirmCallback` (int8u \*serialNumber, int16u transId, int8u transStatus)
- boolean `emberAfPaymentClusterReceiptDeliveryCallback` (int8u \*serialNumber, int32u currency, int8u priceTrailingDigit, int32u price, int8u \*timestamp)
- void `emberAfPaymentClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPaymentClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPaymentClusterServerInitCallback` (int8u endpoint)
- void `emberAfPaymentClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPaymentClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPaymentClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPaymentClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfPaymentClusterTransactionEndCallback` (int8u \*serialNumber, int8u status)

## Billing Cluster Callbacks

- boolean `emberAfBillingClusterBillStatusNotificationCallback` (int8u \*userId, int8u status)
- boolean `emberAfBillingClusterCheckBillStatusCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId)
- void `emberAfBillingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBillingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBillingClusterClientInitCallback` (int8u endpoint)
- void `emberAfBillingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfBillingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfBillingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBillingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfBillingClusterSendBillRecordCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId, int8u \*timestamp, int16u duration)
- void `emberAfBillingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBillingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBillingClusterServerInitCallback` (int8u endpoint)
- void `emberAfBillingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBillingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfBillingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBillingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfBillingClusterSessionKeepAliveCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId)
- boolean `emberAfBillingClusterStartBillingSessionCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId)
- boolean `emberAfBillingClusterStopBillingSessionCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId)
- boolean `emberAfBillingClusterSubscribeCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId)
- boolean `emberAfBillingClusterUnsubscribeCallback` (int8u \*userId, int16u serviceId, int16u serviceProviderId)

## Appliance Identification Cluster Callbacks

- void `emberAfApplianceIdentificationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceIdentificationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceIdentificationClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceIdentificationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceIdentificationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceIdentificationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceIdentificationClusterClientTickCallback` (int8u endpoint)
- void `emberAfApplianceIdentificationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceIdentificationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfApplianceIdentificationClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceIdentificationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceIdentificationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceIdentificationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceIdentificationClusterServerTickCallback` (int8u endpoint)

## Meter Identification Cluster Callbacks

- void `emberAfMeterIdentificationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMeterIdentificationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMeterIdentificationClusterClientInitCallback` (int8u endpoint)
- void `emberAfMeterIdentificationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMeterIdentificationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMeterIdentificationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMeterIdentificationClusterClientTickCallback` (int8u endpoint)
- void `emberAfMeterIdentificationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMeterIdentificationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMeterIdentificationClusterServerInitCallback` (int8u endpoint)
- void `emberAfMeterIdentificationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMeterIdentificationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMeterIdentificationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMeterIdentificationClusterServerTickCallback` (int8u endpoint)

## Appliance Events and Alert Cluster Callbacks

- boolean `emberAfApplianceEventsAndAlertClusterAlertsNotificationCallback` (int8u alertsCount, int8u \*alertStructures)
- void `emberAfApplianceEventsAndAlertClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceEventsAndAlertClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceEventsAndAlertClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceEventsAndAlertClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfApplianceEventsAndAlertClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceEventsAndAlertClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceEventsAndAlertClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfApplianceEventsAndAlertClusterEventsNotificationCallback` (int8u eventHeader, int8u eventId)
- boolean `emberAfApplianceEventsAndAlertClusterGetAlertsCallback` (void)
- boolean `emberAfApplianceEventsAndAlertClusterGetAlertsResponseCallback` (int8u alertsCount, int8u \*alertStructures)
- void `emberAfApplianceEventsAndAlertClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceEventsAndAlertClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceEventsAndAlertClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceEventsAndAlertClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceEventsAndAlertClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceEventsAndAlertClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceEventsAndAlertClusterServerTickCallback` (int8u endpoint)

## Appliance Statistics Cluster Callbacks

- void `emberAfApplianceStatisticsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceStatisticsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceStatisticsClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceStatisticsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceStatisticsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceStatisticsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceStatisticsClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfApplianceStatisticsClusterLogNotificationCallback` (int32u timeStamp, int32u logId, int32u logLength, int8u \*logPayload)
- boolean `emberAfApplianceStatisticsClusterLogQueueRequestCallback` (void)
- boolean `emberAfApplianceStatisticsClusterLogQueueResponseCallback` (int8u logQueueSize, int8u \*logIds)
- boolean `emberAfApplianceStatisticsClusterLogRequestCallback` (int32u logId)
- boolean `emberAfApplianceStatisticsClusterLogResponseCallback` (int32u timeStamp, int32u logId, int32u logLength, int8u \*logPayload)

- void `emberAfApplianceStatisticsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceStatisticsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceStatisticsClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceStatisticsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceStatisticsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceStatisticsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceStatisticsClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfApplianceStatisticsClusterStatisticsAvailableCallback` (int8u logQueueSize, int8u \*logIds)

## Electrical Measurement Cluster Callbacks

- void `emberAfElectricalMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfElectricalMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfElectricalMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfElectricalMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfElectricalMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfElectricalMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfElectricalMeasurementClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfElectricalMeasurementClusterGetMeasurementProfileCommandCallback` (int16u attributeId, int32u startTime, int8u numberOfIntervals)
- boolean `emberAfElectricalMeasurementClusterGetMeasurementProfileResponseCommandCallback` (int32u startTime, int8u status, int8u profileIntervalPeriod, int8u numberOfIntervalsDelivered, int16u attributeId, int8u \*intervals)
- boolean `emberAfElectricalMeasurementClusterGetProfileInfoCommandCallback` (void)
- boolean `emberAfElectricalMeasurementClusterGetProfileInfoResponseCommandCallback` (int8u profileCount, int8u profileIntervalPeriod, int8u maxNumberOfIntervals, int8u \*listOfAttributes)
- void `emberAfElectricalMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfElectricalMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfElectricalMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfElectricalMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfElectricalMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfElectricalMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfElectricalMeasurementClusterServerTickCallback` (int8u endpoint)

## Diagnostics Cluster Callbacks

- void `emberAfDiagnosticsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDiagnosticsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDiagnosticsClusterClientInitCallback` (int8u endpoint)
- void `emberAfDiagnosticsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDiagnosticsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDiagnosticsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDiagnosticsClusterClientTickCallback` (int8u endpoint)
- void `emberAfDiagnosticsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDiagnosticsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDiagnosticsClusterServerInitCallback` (int8u endpoint)
- void `emberAfDiagnosticsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDiagnosticsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDiagnosticsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDiagnosticsClusterServerTickCallback` (int8u endpoint)

## ZLL Commissioning Cluster Callbacks

- void `emberAfZllCommissioningClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfZllCommissioningClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfZllCommissioningClusterClientInitCallback` (int8u endpoint)
- void `emberAfZllCommissioningClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfZllCommissioningClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfZllCommissioningClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfZllCommissioningClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfZllCommissioningClusterDeviceInformationRequestCallback` (int32u transaction, int8u startIndex)
- boolean `emberAfZllCommissioningClusterDeviceInformationResponseCallback` (int32u transaction, int8u numberofSubDevices, int8u startIndex, int8u deviceInformationRecordCount, int8u \*deviceInformationRecordList)
- boolean `emberAfZllCommissioningClusterEndpointInformationCallback` (int8u \*ieeeAddress, int16u networkAddress, int8u endpointId, int16u profileId, int16u deviceId, int8u version)

- boolean `emberAfZllCommissioningClusterGetEndpointListRequestCallback` (int8u startIndex)
- boolean `emberAfZllCommissioningClusterGetEndpointListResponseCallback` (int8u total, int8u startIndex, int8u count, int8u \*endpointInformationRecordList)
- boolean `emberAfZllCommissioningClusterGetGroupIdentifiersRequestCallback` (int8u startIndex)
- boolean `emberAfZllCommissioningClusterGetGroupIdentifiersResponseCallback` (int8u total, int8u startIndex, int8u count, int8u \*groupInformationRecordList)
- boolean `emberAfZllCommissioningClusterIdentifyRequestCallback` (int32u transaction, int16u identifyDuration)
- boolean `emberAfZllCommissioningClusterNetworkJoinEndDeviceRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u keyIndex, int8u \*encryptedNetworkKey, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd)
- boolean `emberAfZllCommissioningClusterNetworkJoinEndDeviceResponseCallback` (int32u transaction, int8u status)
- boolean `emberAfZllCommissioningClusterNetworkJoinRouterRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u keyIndex, int8u \*encryptedNetworkKey, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd)
- boolean `emberAfZllCommissioningClusterNetworkJoinRouterResponseCallback` (int32u transaction, int8u status)
- boolean `emberAfZllCommissioningClusterNetworkStartRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u keyIndex, int8u \*encryptedNetworkKey, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd, int8u \*initiatorIeeeAddress, int16u initiatorNetworkAddress)
- boolean `emberAfZllCommissioningClusterNetworkStartResponseCallback` (int32u transaction, int8u status, int8u \*extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId)
- boolean `emberAfZllCommissioningClusterNetworkUpdateRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress)
- boolean `emberAfZllCommissioningClusterResetToFactoryNewRequestCallback` (int32u transaction)
- boolean `emberAfZllCommissioningClusterScanRequestCallback` (int32u transaction, int8u zigbeeInformation, int8u zllInformation)
- boolean `emberAfZllCommissioningClusterScanResponseCallback` (int32u transaction, int8u rssiCorrection, int8u zigbeeInformation, int8u zllInformation, int16u keyBitmask, int32u responseId, int8u \*extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int8u numberOfSubDevices, int8u totalGroupIds, int8u endpointId, int16u profileId, int16u deviceId, int8u version, int8u groupIdCount)
- void `emberAfZllCommissioningClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfZllCommissioningClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfZllCommissioningClusterServerInitCallback` (int8u endpoint)
- void `emberAfZllCommissioningClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfZllCommissioningClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfZllCommissioningClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfZllCommissioningClusterServerTickCallback` (int8u endpoint)

## Sample Mfg Specific Cluster Cluster Callbacks

- void `emberAfSampleMfgSpecificClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSampleMfgSpecificClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSampleMfgSpecificClusterClientInitCallback` (int8u endpoint)
- void `emberAfSampleMfgSpecificClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSampleMfgSpecificClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfSampleMfgSpecificClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSampleMfgSpecificClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfSampleMfgSpecificClusterCommandOneCallback` (int8u argOne)
- void `emberAfSampleMfgSpecificClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSampleMfgSpecificClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSampleMfgSpecificClusterServerInitCallback` (int8u endpoint)
- void `emberAfSampleMfgSpecificClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSampleMfgSpecificClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfSampleMfgSpecificClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSampleMfgSpecificClusterServerTickCallback` (int8u endpoint)

## Basic Server Cluster Plugin Callbacks

- void `emberAfPluginBasicResetToFactoryDefaultsCallback` (uint8\_t endpoint)

## Bulb PWM Configuration Plugin Callbacks

- void `emberAfPluginBulbPwmConfigurationBlinkStopCallback` (uint8\_t endpoint)

## Bulb user interface Plugin Callbacks

- void `emberAfPluginBulbUiFinishedCallback` (`EmberStatus` status)

## Button Form/Join Code Plugin Callbacks

- void `emberAfPluginButtonJoiningButtonEventCallback` (uint8\_t buttonNumber, uint32\_t buttonPressDurationMs)

## Calendar Server Plugin Callbacks

- void `emberAfPluginCalendarServerPublishInfoCallback` (uint8\_t publishCommandId, EmberNodeId clientNodeId, uint8\_t clientEndpoint, uint8\_t totalCommands)

## Color Control Cluster Plugin Callbacks

- bool `emberAfPluginColorControlsColorSupportedCallback` (uint8\_t hue, uint8\_t saturation)

## Comms Hub Function (CHF) Plugin Callbacks

- void `emberAfPluginCommsHubFunctionSendCallback` (uint8\_t status, EmberEUI64 destinationDeviceId, uint16\_t dataLen, uint8\_t \*data)
- void `emberAfPluginCommsHubFunctionReceivedCallback` (EmberEUI64 senderDeviceId, uint16\_t dataLen, uint8\_t \*data)
- void `emberAfPluginCommsHubFunctionAlertWANCallback` (uint16\_t alertCode, uint8\_t \*gbzAlert, uint16\_t gbzAlertLength)
- void `emberAfPluginCommsHubFunctionTunnelOpenedCallback` (EmberEUI64 remoteDeviceId)

## Concentrator Support Plugin Callbacks

- void `emberAfPluginConcentratorBroadcastSentCallback` (void)

## Counters Plugin Callbacks

- void `emberAfPluginCountersRolloverCallback` (EmberCounterType type)

## Device Database Plugin Callbacks

- void `emberAfPluginDeviceDatabaseDiscoveryCompleteCallback` (const EmberAfDeviceInfo \*device)

## Device Management Client Plugin Callbacks

- void `emberAfPluginDeviceManagementClientEnactChangeOfTenancyCallback` (uint8\_t endpoint, EmberAfDeviceManagementTenancy \*tenancy)
- void `emberAfPluginDeviceManagementClientEnactChangeOfSupplierCallback` (uint8\_t endpoint, EmberAfDeviceManagementSupplier \*supplier)
- EmberStatus `emberAfPluginDeviceManagementClientEnactChangeSupplyCallback` (uint8\_t endpoint, EmberAfDeviceManagementSupply \*supply)
- void `emberAfPluginDeviceManagementClientSetSupplyStatusCallback` (uint8\_t endpoint, EmberAfDeviceManagementSupplyStatusFlags \*supplyStatus)
- void `emberAfPluginDeviceManagementClientEnactUpdateUncontrolledFlowThresholdCallback` (uint8\_t endpoint, EmberAfDeviceManagementUncontrolledFlowThreshold \*supplier)

## Device Management Server Plugin Callbacks

- void `emberAfPluginDeviceManagementServerGetPasswordCallback` (EmberNodeId senderNodeId, EmberAfDeviceManagementPasswordType passwordType, EmberAfDeviceManagementPassword passwordInfo)

## Door Lock Server Cluster Plugin Callbacks

- bool `emberAfPluginDoorLockServerActivateDoorLockCallback` (bool activate)

## Demand Response Load Control Cluster Client Plugin Callbacks

- bool `emberAfPluginDrlcEventActionCallback` (`EmberAfLoadControlEvent` \*loadControlEvent, `EmberAfAmiEventStatus` eventStatus, `uint8_t` sequenceNumber)

## End Device Support Plugin Callbacks

- void `emberAfPluginEndDeviceSupportPollCompletedCallback` (`EmberStatus` status)

## Events Server Plugin Callbacks

- bool `emberAfPluginEventsServerOkToClearLogCallback` (`EmberAfEventLogId` logId)
- void `emberAfPluginEventsServerLogDataUpdatedCallback` (`const EmberAfClusterCommand` \*cmd)

## EZ-Mode Commissioning Plugin Callbacks

- void `emberAfPluginEzmodeCommissioningClientCompleteCallback` (`uint8_t` bindingIndex)

## Find and Bind Initiator Plugin Callbacks

- bool `emberAfPluginFindAndBindInitiatorBindTargetCallback` (`EmberNodeId` nodeId, `EmberBindingTableEntry` \*bindingEntry, `uint8_t` \*groupName)
- void `emberAfPluginFindAndBindInitiatorCompleteCallback` (`EmberStatus` status)

## Form and Join Library Plugin Callbacks

- void `emberAfPluginFormAndJoinNetworkFoundCallback` (`EmberZigbeeNetwork` \*networkFound, `uint8_t` lqi, `int8_t` rssi)
- void `emberAfPluginFormAndJoinUnusedPanIdFoundCallback` (`EmberPanId` panId, `uint8_t` channel)

## Gas Proxy Function (GPF) Plugin Callbacks

- void `emberAfPluginGasProxyFunctionNonTapOffMessageHandlerCompletedCallback` (`uint8_t` \*gbzCommandsResponse, `uint16_t` gbzCommandsResponseLength)
- void `emberAfPluginGasProxyFunctionAlertWANCallback` (`uint16_t` alertCode, `uint8_t` \*gbzAlert, `uint16_t` gbzAlertLength)
- void `emberAfPluginGasProxyFunctionTapOffMessageFutureCommandIgnoredCallback` (`const EmberAfGpfMessage` \*gpfMessage, `const EmberAfClusterCommand` \*zclClusterCommand)
- bool `emberAfPluginGasProxyFunctionDataLogAccessRequestCallback` (`const EmberAfGpfMessage` \*gpfMessage, `const EmberAfClusterCommand` \*zclClusterCommand)
- `EmberAfGpfZclCommandPermission` `emberAfPluginGasProxyFunctionValidateIncomingZclCommandCallback` (`const EmberAfClusterCommand` \*cmd, `uint16_t` messageCode)

- void `emberAfPluginGasProxyFunctionUnknownSeasonWeekIdCallback` (uint32\_t issuerCalendarId, uint8\_t \*seasonEntries, uint8\_t seasonEntriesLength, uint8\_t unknownWeekIdSeasonsMask)
- void `emberAfPluginGasProxyFunctionUnknownSpecialDaysDayIdCallback` (uint32\_t issuerCalendarId, uint8\_t \*specialDayEntries, uint8\_t specialDayEntriesLength, uint8\_t unknownDayIdMask)

## GBCS Device Log Plugin Callbacks

- void `emberAfPluginGbcDeviceLogDeviceRemovedCallback` (EmberEUI64 deviceId)

## GBZ Message Controller Plugin Callbacks

- void `emberAfPluginGbzMessagControllerDecryptDataCallback` (EmberAfGbzMessaageData \*data)
- void `emberAfPluginGbzMessagControllerEncryptDataCallback` (EmberAfGbzMessaageData \*data)

## Green Power Server Plugin Callbacks

- bool `emberAfPluginGreenPowerServerGpdCommissioningCallback` (EmberGpApplicationInfo \*appInfo)

## Groups Server Cluster Plugin Callbacks

- void `emberAfPluginGroupsServerGetGroupNameCallback` (uint8\_t endpoint, uint16\_t groupId, uint8\_t \*groupName)
- void `emberAfPluginGroupsServerSetGroupNameCallback` (uint8\_t endpoint, uint16\_t groupId, uint8\_t \*groupName)
- bool `emberAfPluginGroupsServerGroupNamesSupportedCallback` (uint8\_t endpoint)

## Identify Cluster Plugin Callbacks

- void `emberAfPluginIdentifyStartFeedbackCallback` (uint8\_t endpoint, uint16\_t identifyTime)
- void `emberAfPluginIdentifyStopFeedbackCallback` (uint8\_t endpoint)

## Interpan Plugin Callbacks

- bool `emberAfPluginInterpanPreMessageReceivedCallback` (const EmberAfInterpanHeader \*header, uint8\_t msgLen, uint8\_t \*message)
- void `emberAfPluginInterpanMessageReceivedOverFragmentsCallback` (const EmberAfInterpanHeader \*header, uint8\_t msgLen, uint8\_t \*message)
- void `emberAfPluginInterpanFragmentTransmissionFailedCallback` (uint8\_t interpanFragmentationStatus, uint8\_t fragmentNum)

## Messaging Client Cluster Plugin Callbacks

- bool `emberAfPluginMessagingClientPreDisplayMessageCallback` (uint32\_t messageId, uint8\_t messageControl, uint32\_t startTime, uint16\_t durationInMinutes, uint8\_t \*message, uint8\_t optionalExtendedMessageControl)
- void `emberAfPluginMessagingClientDisplayMessageCallback` (EmberAfPluginMessagingClientMessage \*message)

- void `emberAfPluginMessagingClientCancelMessageCallback` (`EmberAfPluginMessagingClientMessage *message`)

## Meter Mirror Plugin Callbacks

- void `emberAfPluginMeterMirrorAddedCallback` (`const EmberEUI64 requestingDeviceIeeeAddress, uint8_t endpoint`)
- void `emberAfPluginMeterMirrorRemovedCallback` (`const EmberEUI64 requestingDeviceIeeeAddress, uint8_t endpoint`)
- void `emberAfPluginMeterMirrorReportingCompleteCallback` (`uint8_t endpoint`)

## Meter Snapshot Server Plugin Callbacks

- void `emberAfPluginMeterSnapshotServerScheduleSnapshotCallback` (`uint8_t srcEndpoint, uint8_t dstEndpoint, EmberNodeId dest, uint8_t *snapshotPayload, uint8_t *responsePayload`)
- `uint32_t emberAfPluginMeterSnapshotServerTakeSnapshotCallback` (`uint8_t endpoint, uint32_t snapshotCause, uint8_t *snapshotConfirmation`)
- void `emberAfPluginMeterSnapshotServerGetSnapshotCallback` (`uint8_t srcEndpoint, uint8_t dstEndpoint, EmberNodeId dest, uint8_t *snapshotCriteria`)

## Network Creator Plugin Callbacks

- void `emberAfPluginNetworkCreatorCompleteCallback` (`const EmberNetworkParameters *network, bool usedSecondaryChannels`)
- `EmberPanId emberAfPluginNetworkCreatorGetPanIdCallback` (`void`)

## Network Find Plugin Callbacks

- void `emberAfPluginNetworkFindFinishedCallback` (`EmberStatus status`)
- `int8_t emberAfPluginNetworkFindGetRadioPowerForChannelCallback` (`uint8_t channel`)
- `bool emberAfPluginNetworkFindJoinCallback` (`EmberZigbeeNetwork *networkFound, uint8_t lqi, int8_t rssi`)

## Network Steering Plugin Callbacks

- void `emberAfPluginNetworkSteeringCompleteCallback` (`EmberStatus status, uint8_t totalBeacons, uint8_t joinAttempts, uint8_t finalState`)
- `int8_t emberAfPluginNetworkSteeringGetPowerForRadioChannelCallback` (`uint8_t channel`)
- `EmberNodeType emberAfPluginNetworkSteeringGetNodeTypeCallback` (`EmberAfPluginNetworkSteeringJoiningState state`)

## OTA Simple Storage EEPROM Driver Plugin Callbacks

- void `emberAfPluginOtaStorageSimpleEepromEraseCompleteCallback` (`bool success`)

## Prepayment Server Plugin Callbacks

- `bool emberAfPluginPrepaymentServerConsumerTopUpCallback` (`uint8_t originatingDevice, uint8_t *topUpCode`)

## Price Client Plugin Callbacks

- void `emberAfPluginPriceClientPriceStartedCallback` (`EmberAfPluginPriceClientPrice` \*price)
- void `emberAfPluginPriceClientPriceExpiredCallback` (`EmberAfPluginPriceClientPrice` \*price)
- uint8\_t `emberAfPluginPriceClientPendingCppEventCallback` (uint8\_t cppAuth)

## Price Server Plugin Callbacks

- void `emberAfPluginPriceServerNewActivePriceMatrixCallback` (const `EmberAfPriceCommonInfo` \*priceCommonInfo, const `EmberAfScheduledPriceMatrix` \*priceMatrix)
- void `emberAfPluginPriceServerNewActiveTariffInformationCallback` (const `EmberAfPriceCommonInfo` \*priceCommonInfo, const `EmberAfScheduledTariff` \*priceTariffInfo)
- void `emberAfPluginPriceServerNewActiveBlockThresholdsInformationCallback` (const `EmberAfPriceCommonInfo` \*priceCommonInfo, const `EmberAfScheduledBlockThresholds` \*priceBlockThresholds)
- void `emberAfPluginPriceServerNewActiveBlockPeriodInformationCallback` (const `EmberAfPriceCommonInfo` \*priceCommonInfo, const `EmberAfPriceBlockPeriod` \*priceBlockPeriods)

## Reporting Plugin Callbacks

- `EmberAfStatus emberAfPluginReportingConfiguredCallback` (const `EmberAfPluginReportingEntry` \*entry)

## Generic Device Profile Plugin Callbacks

- bool `emberAfPluginRf4ceGdpZrc20StartConfigurationCallback` (bool isOriginator, uint8\_t pairingIndex)
- void `emberAfPluginRf4ceGdpZrc20BindingCompleteCallback` (`EmberAfRf4ceGdpBindingStatus` status, uint8\_t pairingIndex)
- void `emberAfPluginRf4ceGdpStartValidationCallback` (uint8\_t pairingIndex)
- void `emberAfPluginRf4ceGdpBindingCompleteCallback` (`EmberAfRf4ceGdpBindingStatus` status, uint8\_t pairingIndex)
- bool `emberAfPluginRf4ceGdpIncomingBindProxyCallback` (const `EmberEUI64` ieeeAddr)
- void `emberAfPluginRf4ceGdpHeartbeatPollingEstablishedCallback` (uint8\_t pairingIndex, `EmberAfRf4ceGdpPollingTrigger` triggers)
- void `emberAfPluginRf4ceGdpIdentifyCallback` (`EmberAfRf4ceGdpClientNotificationIdentifyFlags` flags, uint16\_t timeS)
- void `emberAfPluginRf4ceGdpIdentifyClientFoundCallback` (`EmberAfRf4ceGdpClientNotificationIdentifyFlags` flags)
- void `emberAfPluginRf4ceGdpKeyExchangeCompleteCallback` (`EmberStatus` status)
- bool `emberAfPluginRf4ceGdpVendorSpecificKeyExchangeCallback` (uint8\_t initiatorVendorSpecificParam, uint8\_t \*responderVendorSpecificParam, uint8\_t \*sharedSecret)

## RF4CE Multiple System Operators Profile Plugin Callbacks

- void `emberAfPluginRf4ceMsoStartValidationCallback` (uint8\_t pairingIndex)
- void `emberAfPluginRf4ceMsoBindingCompleteCallback` (`EmberAfRf4ceMsoBindingStatus` status, uint8\_t pairingIndex)
- void `emberAfPluginRf4ceMsoUserControlCallback` (const `EmberAfRf4ceMsoUserControlRecord` \*record)

- `EmberAfRf4ceStatus emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback (uint8_t pairingIndex, uint8_t entryIndex, uint8_t *valueLength, uint8_t *value)`
- `bool emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback (uint8_t pairingIndex, uint8_t entryIndex)`
- `void emberAfPluginRf4ceMsoIncomingIrRfDatabaseAttributeCallback (uint8_t pairingIndex, uint8_t entryIndex, uint8_t valueLength, const uint8_t *value)`
- `EmberStatus emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback (EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry *entry)`

## RF4CE Profile Support Plugin Callbacks

- `bool emberAfPluginRf4ceProfileGdpMessageSentCallback (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, uint8_t messageTag, const uint8_t *message, uint8_t messageLength, EmberStatus status)`
- `void emberAfPluginRf4ceProfileRemoteControl11MessageSentCallback (uint8_t pairingIndex, uint16_t vendorId, uint8_t messageTag, const uint8_t *message, uint8_t messageLength, EmberStatus status)`
- `void emberAfPluginRf4ceProfileZrc20MessageSentCallback (uint8_t pairingIndex, uint16_t vendorId, uint8_t messageTag, const uint8_t *message, uint8_t messageLength, EmberStatus status)`
- `void emberAfPluginRf4ceProfileMsoMessageSentCallback (uint8_t pairingIndex, uint16_t vendorId, uint8_t messageTag, const uint8_t *message, uint8_t messageLength, EmberStatus status)`
- `void emberAfPluginRf4ceProfileMessageSentCallback (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, uint8_t messageTag, const uint8_t *message, uint8_t messageLength, EmberStatus status)`
- `bool emberAfPluginRf4ceProfileGdpIncomingMessageCallback (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, EmberRf4ceTxOption txOptions, const uint8_t *message, uint8_t messageLength)`
- `void emberAfPluginRf4ceProfileRemoteControl11IncomingMessageCallback (uint8_t pairingIndex, uint16_t vendorId, EmberRf4ceTxOption txOptions, const uint8_t *message, uint8_t messageLength)`
- `void emberAfPluginRf4ceProfileZrc20IncomingMessageCallback (uint8_t pairingIndex, uint16_t vendorId, EmberRf4ceTxOption txOptions, const uint8_t *message, uint8_t messageLength)`
- `void emberAfPluginRf4ceProfileMsoIncomingMessageCallback (uint8_t pairingIndex, uint16_t vendorId, EmberRf4ceTxOption txOptions, const uint8_t *message, uint8_t messageLength)`
- `void emberAfPluginRf4ceProfileIncomingMessageCallback (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, EmberRf4ceTxOption txOptions, const uint8_t *message, uint8_t messageLength)`
- `bool emberAfPluginRf4ceProfileGdpDiscoveryRequestCallback (const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo *vendorInfo, const EmberRf4ceApplicationInfo *appInfo, uint8_t searchDevType, uint8_t rxLinkQuality)`
- `bool emberAfPluginRf4ceProfileRemoteControl11DiscoveryRequestCallback (const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo *vendorInfo, const EmberRf4ceApplicationInfo *appInfo, uint8_t searchDevType, uint8_t rxLinkQuality)`
- `bool emberAfPluginRf4ceProfileZrc20DiscoveryRequestCallback (const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo *vendorInfo, const EmberRf4ceApplicationInfo *appInfo, uint8_t searchDevType, uint8_t rxLinkQuality)`
- `bool emberAfPluginRf4ceProfileMsoDiscoveryRequestCallback (const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo *vendorInfo, const EmberRf4ceApplicationInfo *appInfo, uint8_t searchDevType, uint8_t rxLinkQuality)`
- `bool emberAfPluginRf4ceProfileGdpDiscoveryResponseCallback (bool atCapacity, uint8_t channel, EmberPanId panId, const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo *vendorInfo, const EmberRf4ceApplicationInfo *appInfo, uint8_t rxLinkQuality, uint8_t discRequestLqi)`

- bool `emberAfPluginRf4ceProfileRemoteControl11DiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- bool `emberAfPluginRf4ceProfileZrc20DiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- bool `emberAfPluginRf4ceProfileMsoDiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- void `emberAfPluginRf4ceProfileGdpDiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileRemoteControl11DiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileZrc20DiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileMsoDiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileGdpAutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t searchDevType)
- void `emberAfPluginRf4ceProfileRemoteControl11AutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t searchDevType)
- void `emberAfPluginRf4ceProfileZrc20AutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t searchDevType)
- void `emberAfPluginRf4ceProfileMsoAutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t searchDevType)
- bool `emberAfPluginRf4ceProfileGdpPairRequestCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberEUI64` sourceIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t keyExchangeTransferCount)
- bool `emberAfPluginRf4ceProfileRemoteControl11PairRequestCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberEUI64` sourceIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t keyExchangeTransferCount)
- bool `emberAfPluginRf4ceProfileZrc20PairRequestCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberEUI64` sourceIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t keyExchangeTransferCount)
- bool `emberAfPluginRf4ceProfileMsoPairRequestCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberEUI64` sourceIeeeAddr, uint8\_t nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, uint8\_t keyExchangeTransferCount)
- void `emberAfPluginRf4ceProfileGdpPairCompleteCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)
- void `emberAfPluginRf4ceProfileRemoteControl11PairCompleteCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)
- void `emberAfPluginRf4ceProfileZrc20PairCompleteCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)
- void `emberAfPluginRf4ceProfileMsoPairCompleteCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)

## ZigBee Remote Control 1.1 Profile Plugin Callbacks

- void `emberAfPluginRf4ceZrc11PairingCompleteCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberEUI64` eui64, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*applicationInfo)
- void `emberAfPluginRf4ceZrc11UserControlCallback` (const `EmberAfRf4ceZrcUserControlRecord` \*record)
- void `emberAfPluginRf4ceZrc11CommandDiscoveryResponseCallback` (`EmberStatus` status, const `EmberAfRf4ceZrcCommandsSupported` \*commandsSupported)

## ZigBee Remote Control 2.0 Profile Plugin Callbacks

- void `emberAfPluginRf4ceZrc20ActionCallback` (const `EmberAfRf4ceZrcActionRecord` \*record)
- void `emberAfPluginRf4ceZrc20HaActionCallback` (const `EmberAfRf4ceZrcActionRecord` \*record)
- void `emberAfPluginRf4ceZrc20LegacyCommandDiscoveryCompleteCallback` (`EmberStatus` status, const `EmberAfRf4ceZrcCommandsSupported` \*commandsSupported)
- void `emberAfPluginRf4ceZrc20ActionMappingsNegotiationCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceZrc20IncomingMappableActionCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcMappableAction` \*mappableAction)
- `EmberStatus` `emberAfPluginRf4ceZrc20GetMappableActionCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcMappableAction` \*mappableAction)
- `uint16_t` `emberAfPluginRf4ceZrc20GetMappableActionCountCallback` (`uint8_t` pairingIndex)
- void `emberAfPluginRf4ceZrc20IncomingActionMappingCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcActionMapping` \*actionMapping)
- `EmberStatus` `emberAfPluginRf4ceZrc20GetActionMappingCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcActionMapping` \*actionMapping)
- `EmberStatus` `emberAfPluginRf4ceZrc20SetActionMappingCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcActionMapping` \*actionMapping)
- void `emberAfPluginRf4ceZrc20HomeAutomationSupportedAnnouncementCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceZrc20IncomingHomeAutomationSupportedCallback` (`uint8_t` pairingIndex, `uint8_t` haInstanceId, `EmberAfRf4ceZrcHomeAutomationSupported` \*haSupported)
- `EmberStatus` `emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCallback` (`uint8_t` pairingIndex, `uint8_t` haInstanceId, `EmberAfRf4ceZrcHomeAutomationSupported` \*haSupported)
- `EmberAfRf4ceGdpAttributeStatus` `emberAfPluginRf4ceZrc20GetHomeAutomationAttributeCallback` (`uint8_t` pairingIndex, `uint8_t` haInstanceId, `uint8_t` haAttributeId, `EmberAfRf4ceZrcHomeAutomationAttribute` \*haAttribute)
- void `emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback` (`EmberAfRf4ceGdpAttributeStatus` responseStatus, `EmberAfRf4ceZrcHomeAutomationAttribute` \*haAttribute)

## ZigBee Remote Control 2.0 Home Automation Server Plugin Callbacks

- void `emberAfPluginRf4ceZrc20HaServerHaActionSentCallback` (`EmberOutgoingMessageType` type, `uint16_t` indexOrDestination, `EmberApsFrame` \*apsFrame, `uint16_t` msgLen, `uint8_t` \*message, `EmberStatus` status)

## Simple Metering Client Plugin Callbacks

- `uint16_t` `emberAfPluginSimpleMeteringClientRequestMirrorCallback` (`EmberEUI64` requestingDeviceIeeeAddress)
- `uint16_t` `emberAfPluginSimpleMeteringClientRemoveMirrorCallback` (`EmberEUI64` requestingDeviceIeeeAddress)

## Simple Metering Server Plugin Callbacks

- void `emberAfPluginSimpleMeteringServerProcessNotificationFlagsCallback` (uint16\_t attributeId, uint32\_t attributeValue)

## Sleepy Message Queue Plugin Callbacks

- void `emberAfPluginSleepyMessageQueueMessageTimedOutCallback` (uint8\_t sleepyMsgId)

## Standalone Bootloader Client Plugin Callbacks

- bool `emberAfPluginStandaloneBootloaderClientAllowIncomingMessageCallback` (EmberEUI64 sourceEui64, uint8\_t command)
- bool `emberAfPluginStandaloneBootloaderClientAllowBootloadLaunchCallback` (EmberEUI64 sourceEui64)

## Standalone Bootloader Common Plugin Callbacks

- bool `emberAfPluginStandaloneBootloaderCommonIncomingMessageCallback` (EmberEUI64 longId, uint8\_t length, uint8\_t \*message)

## Standalone Bootloader Server Plugin Callbacks

- void `emberAfPluginStandaloneBootloaderServerQueryResponseCallback` (bool queryWasBroadcast, const `EmberAfStandaloneBootloaderQueryResponseData` \*queryData)
- void `emberAfPluginStandaloneBootloaderServerFinishedCallback` (bool success)

## Tunneling Client Cluster Plugin Callbacks

- void `emberAfPluginTunnelingClientTunnelOpenedCallback` (uint8\_t tunnelIndex, `EmberAfPluginTunnelingClientStatus` tunnelStatus, uint16\_t maximumIncomingTransferSize)
- void `emberAfPluginTunnelingClientDataReceivedCallback` (uint8\_t tunnelIndex, uint8\_t \*data, uint16\_t dataLen)
- void `emberAfPluginTunnelingClientDataErrorCallback` (uint8\_t tunnelIndex, `EmberAfTunnelingTransferDataStatus` transferDataStatus)
- void `emberAfPluginTunnelingClientTunnelClosedCallback` (uint8\_t tunnelIndex)
- void `emberAfPluginTunnelingClientTransferDataFailureCallback` (uint16\_t indexOfDestination, `EmberApsFrame` \*apsFrame, uint16\_t msgLen, uint8\_t \*message, `EmberStatus` status)

## Tunneling Server Cluster Plugin Callbacks

- bool `emberAfPluginTunnelingServerIsProtocolSupportedCallback` (uint8\_t protocolId, uint16\_t manufacturerCode)
- void `emberAfPluginTunnelingServerTunnelOpenedCallback` (uint16\_t tunnelIndex, uint8\_t protocolId, uint16\_t manufacturerCode, bool flowControlSupport, uint16\_t maximumIncomingTransferSize)
- void `emberAfPluginTunnelingServerDataReceivedCallback` (uint16\_t tunnelIndex, uint8\_t \*data, uint16\_t dataLen)
- void `emberAfPluginTunnelingServerDataErrorCallback` (uint16\_t tunnelIndex, `EmberAfTunnelingTransferDataStatus` transferDataStatus)
- void `emberAfPluginTunnelingServerTunnelClosedCallback` (uint16\_t tunnelIndex, bool clientInitiated)

## Update TC Link Key Plugin Callbacks

- bool `emberAfPluginUpdateTcLinkKeyStatusCallback` (EmberKeyStatus keyStatus)

## ZLL Commissioning Plugin Callbacks

- void `emberAfPluginZllCommissioningInitialSecurityStateCallback` (EmberZllInitialSecurityState \*securityState)
- void `emberAfPluginZllCommissioningTouchLinkCompleteCallback` (const EmberZllNetwork \*networkInfo, uint8\_t deviceInformationRecordCount, const EmberZllDeviceInfoRecord \*deviceInformationRecordList)
- void `emberAfPluginZllCommissioningTouchLinkFailedCallback` (EmberAfZllCommissioningStatus status)
- uint8\_t `emberAfPluginZllCommissioningGroupIdentifierCountCallback` (uint8\_t endpoint)
- bool `emberAfPluginZllCommissioningGroupIdentifierCallback` (uint8\_t endpoint, uint8\_t index, EmberAfPluginZllCommissioningGroupInformationRecord \*record)
- uint8\_t `emberAfPluginZllCommissioningEndpointInformationCountCallback` (uint8\_t endpoint)
- bool `emberAfPluginZllCommissioningEndpointInformationCallback` (uint8\_t endpoint, uint8\_t index, EmberAfPluginZllCommissioningEndpointInformationRecord \*record)
- void `emberAfPluginZllCommissioningIdentifyCallback` (uint16\_t durationS)
- void `emberAfPluginZllCommissioningResetToFactoryNewCallback` (void)
- bool `emberAfPluginZllCommissioningJoinCallback` (EmberZigbeeNetwork \*networkFound, uint8\_t lqi, int8\_t rssi)

## ZLL On/Off Server Cluster Enhancements Plugin Callbacks

- EmberAfStatus `emberAfPluginZllOnOffServerOffWithEffectCallback` (uint8\_t endpoint, uint8\_t effectId, uint8\_t effectVariant)

## Connection Manager Plugin Callbacks

- void `emberAfPluginConnectionManagerFinishedCallback` (EmberStatus status)
- void `emberAfPluginConnectionManagerStartNetworkSearchCallback` (void)
- void `emberAfPluginConnectionManagerLeaveNetworkCallback` (void)

## Idle/Sleep Plugin Callbacks

- bool `emberAfPluginIdleSleepOkToSleepCallback` (uint32\_t durationMs)
- void `emberAfPluginIdleSleepWakeUpCallback` (uint32\_t durationMs)
- bool `emberAfPluginIdleSleepOkToIdleCallback` (void)
- void `emberAfPluginIdleSleepActiveCallback` (void)

## Low Voltage Shutdown Plugin Callbacks

- bool `emberAfPluginLowVoltageShutdownOkToShutdownCallback` (uint16\_t shutdownVoltage)
- void `emberAfPluginLowVoltageShutdownPreShutdownCallback` (uint16\_t shutdownVoltage)

## Battery Monitor Plugin Callbacks

- void `emberAfPluginBatteryMonitorDataReadyCallback` (uint16\_t batteryVoltageMilliV)

## Button Interface Plugin Callbacks

- void `emberAfPluginButtonInterfaceButton0PressedShortCallback` (uint16\_t timePressedMs)
- void `emberAfPluginButtonInterfaceButton1PressedShortCallback` (uint16\_t timePressedMs)
- void `emberAfPluginButtonInterfaceButton0PressedLongCallback` (uint16\_t timePressedMs, bool pressedAtReset)
- void `emberAfPluginButtonInterfaceButton1PressedLongCallback` (uint16\_t timePressedMs, bool pressedAtReset)
- void `emberAfPluginButtonInterfaceButton0PressingCallback` (void)
- void `emberAfPluginButtonInterfaceButton1PressingCallback` (void)
- void `emberAfPluginButtonInterfaceButton0LowCallback` (void)
- void `emberAfPluginButtonInterfaceButton0HighCallback` (void)
- void `emberAfPluginButtonInterfaceButton1LowCallback` (void)
- void `emberAfPluginButtonInterfaceButton1HighCallback` (void)

## GPIO Sensor Interface Plugin Callbacks

- void `emberAfPluginGpioSensorStateChangedCallback` (uint8\_t newSensorState)

## SB1 Gesture Sensor Plugin Callbacks

- void `emberAfPluginSb1GestureSensorGestureReceivedCallback` (uint8\_t gestureReceived, uint8\_t switchNumber)

## Tamper Switch Interface Plugin Callbacks

- void `emberAfPluginTamperSwitchTamperActiveCallback` (void)
- void `emberAfPluginTamperSwitchTamperAlarmCallback` (void)

### 6.4.1 Detailed Description

This header provides callback function prototypes to interface the developer's application code with the Ember Application Framework.

### 6.4.2 Function Documentation

#### 6.4.2.1 void `emberAfAddToCurrentAppTasksCallback` ( EmberAfApplicationTask tasks )

Add To Current App Tasks.

This function is only useful to sleepy end devices. This function will note the passed item as part of a set of tasks the application has outstanding (e.g. message sent requiring APS acknowledgement). This will affect how the application behaves with regard to sleeping and polling. Until the outstanding task is completed, the device may poll more frequently and sleep less often.

### Parameters

<i>tasks</i>	Ver.: always
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**6.4.2.2 EmberAfAttributeWritePermission emberAfAllowNetworkWriteAttributeCallback ( int8u *endpoint*, EmberAfClusterId *clusterId*, EmberAfAttributeId *attributeld*, int8u *mask*, int16u *manufacturerCode*, int8u \* *value*, int8u *type* )**

Allow Network Write Attribute.

This function is called by the application framework before it writes an attribute in response to a write attribute request from an external device. The value passed into this callback is the value to which the attribute is to be set by the framework. Example: In mirroring simple metering data on an Energy Services Interface (ESI) (formerly called Energy Service Portal (ESP) in SE 1.0.), a mirrored simple meter needs to write read-only attributes on its mirror. The-meter-mirror sample application, located in app/framework/sample-apps, uses this callback to allow the mirrored device to write simple metering attributes on the mirror regardless of the fact that most simple metering attributes are defined as read-only by the ZigBee specification. Note: The ZCL specification does not (as of this writing) specify any permission-level security for writing writeable attributes. As far as the ZCL specification is concerned, if an attribute is writeable, any device that has a link key for the device should be able to write that attribute. Furthermore if an attribute is read only, it should not be written over the air. Thus, if you implement permissions for writing attributes as a feature, you MAY be operating outside the specification. This is unlikely to be a problem for writing read-only attributes, but it may be a problem for attributes that are writeable according to the specification but restricted by the application implementing this callback.

### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>attributeId</i>	Ver.: always
<i>mask</i>	Ver.: always
<i>manufacturerCode</i>	Ver.: always
<i>value</i>	Ver.: always
<i>type</i>	Ver.: always

**6.4.2.3 boolean emberAfAttributeReadAccessCallback ( int8u *endpoint*, EmberAfClusterId *clusterId*, int16u *manufacturerCode*, int16u *attributeld* )**

Attribute Read Access.

This function is called whenever the Application Framework needs to check access permission for an attribute read.

### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>manufacturerCode</i>	Ver.: always
<i>attributeId</i>	Ver.: always

#### 6.4.2.4 boolean emberAfAttributeWriteAccessCallback ( int8u *endpoint*, EmberAfClusterId *clusterId*, int16u *manufacturerCode*, int16u *attributeId* )

Attribute Write Access.

This function is called whenever the Application Framework needs to check access permission for an attribute write.

##### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>manufacturer-Code</i>	Ver.: always
<i>attributeId</i>	Ver.: always

#### 6.4.2.5 EmberStatus emberAfClearReportTableCallback ( void )

Clear Report Table.

This function is called by the framework when the application should clear the report table.

#### 6.4.2.6 void emberAfClusterInitCallback ( int8u *endpoint*, EmberAfClusterId *clusterId* )

Cluster Init.

This function is called when a specific cluster is initialized. It gives the application an opportunity to take care of cluster initialization procedures. It is called exactly once for each endpoint where cluster is present.

##### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always

#### 6.4.2.7 boolean emberAfClusterSecurityCustomCallback ( EmberAfProfileId *profileId*, EmberAfClusterId *clusterId*, boolean *incoming*, int8u *commandId* )

Cluster Security Custom.

This callback is fired when determining if APS encryption is required for a cluster outside of the specification's required clusters. In other words, for the Smart Energy profile this would be a cluster beyond the list that normally requires APS encryption.

##### Parameters

<i>profileId</i>	The profile ID Ver.: always
<i>clusterId</i>	The cluster ID Ver.: always
<i>incoming</i>	Whether this is an incoming or outgoing message. Ver.: always
<i>commandId</i>	The ZCL command ID being sent/received. Ver.: always

#### 6.4.2.8 boolean emberAfConfigureReportingCommandCallback ( const EmberAfClusterCommand \* *cmd* )

Configure Reporting Command.

This function is called by the application framework when a Configure Reporting command is received from an external device. The Configure Reporting command contains a series of attribute reporting configuration records. The application should return true if the message was processed or false if it was not.

##### Parameters

<i>cmd</i>	Ver.: always
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#### 6.4.2.9 boolean emberAfConfigureReportingResponseCallback ( EmberAfClusterId *clusterId*, int8u \* *buffer*, int16u *bufLen* )

Configure Reporting Response.

This function is called by the application framework when a Configure Reporting Response command is received from an external device. The application should return true if the message was processed or false if it was not.

##### Parameters

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>buffer</i>	Buffer containing the list of attribute status records. Ver.: always
<i>bufLen</i>	The length in bytes of the list. Ver.: always

#### 6.4.2.10 boolean emberAfDefaultResponseCallback ( EmberAfClusterId *clusterId*, int8u *commandId*, EmberAfStatus *status* )

Default Response.

This function is called by the application framework when a Default Response command is received from an external device. The application should return true if the message was processed or false if it was not.

##### Parameters

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>commandId</i>	The command identifier to which this is a response. Ver.: always
<i>status</i>	Specifies either SUCCESS or the nature of the error that was detected in the received command. Ver.: always

#### 6.4.2.11 boolean emberAfDiscoverAttributesResponseCallback ( EmberAfClusterId *clusterId*, boolean *discoveryComplete*, int8u \* *buffer*, int16u *bufLen*, boolean *extended* )

Discover Attributes Response.

This function is called by the application framework when a Discover Attributes Response or Discover Attributes Extended Response command is received from an external device. The Discover Attributes Response command contains a bool indicating if discovery is complete and a list of zero or more attribute identifier/type records. The final argument indicates whether the response is in the extended format or not. The application should return true if the message was processed or false if it was not.

#### Parameters

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>discoveryComplete</i>	Indicates whether there are more attributes to be discovered. true if there are no more attributes to be discovered. Ver.: always
<i>buffer</i>	Buffer containing the list of attribute identifier/type records. Ver.: always
<i>bufLen</i>	The length in bytes of the list. Ver.: always
<i>extended</i>	Indicates whether the response is in the extended format or not. Ver.: always

**6.4.2.12 boolean emberAfDiscoverCommandsGeneratedResponseCallback ( EmberAfClusterId *clusterId*, int16u *manufacturerCode*, boolean *discoveryComplete*, int8u \* *commandIds*, int16u *commandIdCount* )**

Discover Commands Generated Response.

This function is called by the framework when Discover Commands Generated Response is received.

#### Parameters

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>manufacturerCode</i>	Manufacturer code Ver.: always
<i>discoveryComplete</i>	Indicates whether there are more commands to be discovered. Ver.: always
<i>commandIds</i>	Buffer containing the list of command identifiers. Ver.: always
<i>commandIdCount</i>	The length of bytes of the list, which is the same as the number of identifiers. Ver.: always

**6.4.2.13 boolean emberAfDiscoverCommandsReceivedResponseCallback ( EmberAfClusterId *clusterId*, int16u *manufacturerCode*, boolean *discoveryComplete*, int8u \* *commandIds*, int16u *commandIdCount* )**

Discover Commands Received Response.

This function is called by the framework when Discover Commands Received Response is received.

#### Parameters

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>manufacturerCode</i>	Manufacturer code Ver.: always
<i>discoveryComplete</i>	Indicates whether there are more commands to be discovered. Ver.: always
<i>commandIds</i>	Buffer containing the list of command identifiers. Ver.: always
<i>commandIdCount</i>	The length of bytes of the list, which is the same as the number of identifiers. Ver.: always

#### 6.4.2.14 void emberAfEepromInitCallback ( void )

Eeprom Init.

Tells the system to initialize the EEPROM if it is not already initialized.

#### 6.4.2.15 void emberAfEepromNoteInitializedStateCallback ( boolean state )

Eeprom Note Initialized State.

Records the state of the EEPROM so that an intelligent driver (like the EEPROM plugin) can re-initialize the driver prior to any calls to it.

##### Parameters

<i>state</i>	The state of the EEPROM, false=re-initialization needed, true=no-re-init needed Ver.: always
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#### 6.4.2.16 void emberAfEepromShutdownCallback ( void )

Eeprom Shutdown.

Tells the system to shutdown the EEPROM if it is not already shutdown.

#### 6.4.2.17 void emberAfEnergyScanResultCallback ( int8u channel, int8s rssi )

Energy Scan Result.

This is called by the low-level stack code when an 802.15.4 energy scan completes.

##### Parameters

<i>channel</i>	The channel where the energy scan took place. Ver.: always
<i>rssi</i>	The receive signal strength indicator for the channel. Ver.: always

#### 6.4.2.18 EmberAfStatus emberAfExternalAttributeReadCallback ( int8u endpoint, EmberAfClusterId clusterId, EmberAfAttributeMetadata \* attributeMetadata, int16u manufacturerCode, int8u \* buffer )

External Attribute Read.

Like `emberAfExternalAttributeWriteCallback` above, this function is called when the framework needs to read an attribute that is not stored within the Application Framework's data structures. All of the important information about the attribute itself is passed as a pointer to an `EmberAfAttributeMetadata` struct, which is stored within the application and used to manage the attribute. A complete description of the `EmberAfAttributeMetadata` struct is provided in [app/framework/include/af-types.h](#). This function assumes that the application is able to read the attribute, write it into the passed buffer, and return immediately. Any attributes that require a state machine for reading and writing are not really candidates for externalization at the present time. The Application Framework does not currently include a state machine for reading or writing attributes that must take place across a series of application ticks. Attributes that cannot be read in a timely manner should be stored within the Application Framework and updated occasionally by the application code from within the `emberAfMainTickCallback`. If the application was successfully able to read the attribute and write it into the passed buffer, it should return a value of `EMBER_ZCL_STATUS_SUCCESS`. Any other return value indicates the application was not able to read the attribute.

#### Parameters

<code>endpoint</code>	Ver.: always
<code>clusterId</code>	Ver.: always
<code>attribute-Metadata</code>	Ver.: always
<code>manufacturer-Code</code>	Ver.: always
<code>buffer</code>	Ver.: always

#### 6.4.2.19 `EmberAfStatus emberAfExternalAttributeWriteCallback ( int8u endpoint, EmberAfClusterId clusterId, EmberAfAttributeMetadata * attributeMetadata, int16u manufacturerCode, int8u * buffer )`

External Attribute Write.

This function is called whenever the Application Framework needs to write an attribute which is not stored within the data structures of the Application Framework itself. One of the new features in Version 2 is the ability to store attributes outside the Framework. This is particularly useful for attributes that do not need to be stored because they can be read off the hardware when they are needed, or are stored in some central location used by many modules within the system. In this case, you can indicate that the attribute is stored externally. When the framework needs to write an external attribute, it makes a call to this callback. This callback is very useful for host micros which need to store attributes in persistent memory. Because each host micro (used with an Ember NCP) has its own type of persistent memory storage, the Application Framework does not include the ability to mark attributes as stored in flash the way that it does for Ember SoCs like the EM35x. On a host micro, any attributes that need to be stored in persistent memory should be marked as external and accessed through the external read and write callbacks. Any host code associated with the persistent storage should be implemented within this callback. All of the important information about the attribute itself is passed as a pointer to an `EmberAfAttributeMetadata` struct, which is stored within the application and used to manage the attribute. A complete description of the `EmberAfAttributeMetadata` struct is provided in [app/framework/include/af-types.h](#). This function assumes that the application is able to write the attribute and return immediately. Any attributes that require a state machine for reading and writing are not candidates for externalization at the present time. The Application Framework does not currently include a state machine for reading or writing attributes that must take place across a series of application ticks. Attributes that cannot be written immediately should be stored within the Application Framework and updated occasionally by the application code from within the `emberAfMainTickCallback`. If the application was successfully able to write the attribute, it returns a value of `EMBER_ZCL_STATUS_SUCCESS`. Any other return value indicates the application was not able to write the attribute.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>attribute-Metadata</i>	Ver.: always
<i>manufacturer-Code</i>	Ver.: always
<i>buffer</i>	Ver.: always

**6.4.2.20 EmberStatus emberAfFindUnusedPanIdAndFormCallback ( void )**

Find Unused Pan Id And Form.

This function is called by the framework to search for an unused PAN id and form a new network. The application should return EMBER\_SUCCESS if the operation was initiated successfully.

**6.4.2.21 EmberAfApplicationTask emberAfGetCurrentAppTasksCallback ( void )**

Get Current App Tasks.

This function is only useful to sleepy end devices. This function will return the set of tasks the application has outstanding. These tasks affect how the application behaves with regard to sleeping and polling.

**6.4.2.22 EmberAfEventPollControl emberAfGetCurrentPollControlCallback ( void )**

Get Current Poll Control.

This function will retrieve the current poll control that the system is using for the current network. This is determined by examining all the scheduled events and obtaining the most restrictive poll control context across all events. The most restrictive poll control is EMBER\_AF\_SHORT\_POLL followed by EMBER\_AF\_LONG\_POLL.

**6.4.2.23 int32u emberAfGetCurrentPollIntervalMsCallback ( void )**

Get Current Poll Interval Ms.

This function is only useful to end devices. This function will return the current poll interval (in milliseconds) for the current network. This interval is the maximum amount of time a child is currently waiting between polls of its parent.

**6.4.2.24 int32u emberAfGetCurrentPollIntervalQsCallback ( void )**

Get Current Poll Interval Qs.

This function is only useful to end devices. This function will return the current poll interval (in quarter seconds) for the current network. This interval is the maximum amount of time a child is currently waiting between polls of its parent.

**6.4.2.25 EmberAfEventSleepControl emberAfGetCurrentSleepControlCallback ( void )**

Get Current Sleep Control.

This function will retrieve the current sleep control that the system is using. This is determined by examining all the scheduled events and obtaining the most restrictive sleep control context across all events. The most restrictive sleep control is EMBER\_AF\_STAY\_AWAKE followed by EMBER\_AF\_OK\_TO\_SLEEP.

#### **6.4.2.26 int32u emberAfGetCurrentTimeCallback ( void )**

Get Current Time.

This callback is called when device attempts to get current time from the hardware. If this device has means to retrieve exact time, then this method should implement it. If the callback can't provide the exact time it should return 0 to indicate failure. Default action is to return 0, which indicates that device does not have access to real time.

#### **6.4.2.27 EmberAfEventPollControl emberAfGetDefaultPollControlCallback ( void )**

Get Default Poll Control.

This function will retrieve the default poll control for the current network as previously set by [emberAfSetDefaultPollControlCallback\(\)](#). The default poll control will limit whether the network can long poll.

#### **6.4.2.28 EmberAfEventSleepControl emberAfGetDefaultSleepControlCallback ( void )**

Get Default Sleep Control.

This function will retrieve the default sleep control the system is using as previously set by [emberAfSetDefaultSleepControlCallback\(\)](#). The default sleep control will limit whether the device can sleep.

#### **6.4.2.29 boolean emberAfGetEndpointByIndexCallback ( int8u index, int8u \* endpointReturn )**

Get Endpoint By Index.

Get the endpoint number based on the passed index. By default the framework handles this by managing endpoints based on the precompiled configuration defined in AppBuilder. This callback can override this behavior at runtime and provide additional endpoints or different data than the compiled values. If the index is overridden than the callback shall return true and set the endpointReturn parameter accordingly. A value of 0xFF means the endpoint doesn't exist at that index. Otherwise false must be returned by the callback and the default framework behavior will be executed. This is only applicable to the SOC devices.

#### **Parameters**

<i>index</i>	The index of the endpoint. Ver.: always
<i>endpointReturn</i>	The value of endpoint. Ver.: always

#### **6.4.2.30 boolean emberAfGetEndpointDescriptionCallback ( int8u endpoint, EmberEndpointDescription \* result )**

Get Endpoint Description.

This callback is called by the framework whenever it receives a ZDO request to enumerate the details about an endpoint. By default the framework provides the information based on the precompiled endpoint information as defined in AppBuilder. This callback can override that behavior at runtime and return different information. If the endpoint information is being overridden then the callback must return true. Otherwise it should return false, which allows the framework to perform its default behavior. This is only applicable to SOC devices.

#### Parameters

<i>endpoint</i>	The endpoint number that is being queried. Ver.: always
<i>result</i>	This is a pointer to a data structure where the endpoint information is written if the callback is providing the information. Ver.: always

#### 6.4.2.31 boolean emberAfGetEndpointInfoCallback ( int8u *endpoint*, int8u \* *returnNetworkIndex*, EmberAfEndpointInfoStruct \* *returnEndpointInfo* )

Get Endpoint Info.

This function is a callback to an application implemented endpoint that operates outside the normal application framework. When the framework wishes to perform operations with that endpoint it uses this callback to retrieve the endpoint's information. If the endpoint exists and the application can provide data then true shall be returned. Otherwise the callback must return false.

#### Parameters

<i>endpoint</i>	The endpoint to retrieve data for. Ver.: always
<i>returnNetwork-Index</i>	The index corresponding to the ZigBee network the endpoint belongs to. If not using a multi-network device, 0 must be returned. Otherwise on a multi-network device the stack will switch to this network before sending the message. Ver.: always
<i>return-EndpointInfo</i>	A pointer to a data struct that will be written with information about the endpoint. Ver.: always

#### 6.4.2.32 void emberAfGetFormAndJoinExtendedPanIdCallback ( int8u \* *resultLocation* )

Get Form And Join Extended Pan Id.

This callback is called by the framework to get the extended PAN ID used by the current network for forming and joining. The extended PAN ID used for forming and joining is not necessarily the same extended PAN ID actually in use on the network.

#### Parameters

<i>resultLocation</i>	Ver.: always
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#### 6.4.2.33 int32u emberAfGetLongPollIntervalMsCallback ( void )

Get Long Poll Interval Ms.

This function is only useful to end devices. This function will return the long poll interval (in milliseconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is not expecting data.

#### **6.4.2.34 int32u emberAfGetLongPollIntervalQsCallback ( void )**

Get Long Poll Interval Qs.

This function is only useful to end devices. This function will return the long poll interval (in quarter seconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is not expecting data.

#### **6.4.2.35 int16u emberAfGetShortPollIntervalMsCallback ( void )**

Get Short Poll Interval Ms.

This function is only useful to sleepy end devices. This function will return the short poll interval (in milliseconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is expecting data.

#### **6.4.2.36 int16u emberAfGetShortPollIntervalQsCallback ( void )**

Get Short Poll Interval Qs.

This function is only useful to sleepy end devices. This function will return the short poll interval (in quarter seconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is expecting data.

#### **6.4.2.37 int8u emberAfGetSourceRouteOverheadCallback ( EmberNodeId *destination* )**

Get Source Route Overhead.

This function is called by the framework to determine the overhead required in the network frame for source routing to a particular destination.

##### **Parameters**

<i>destination</i>	The node id of the destination Ver.: always
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#### **6.4.2.38 EmberAfApplicationTask emberAfGetWakeTimeoutBitmaskCallback ( void )**

Get Wake Timeout Bitmask.

This function is only useful to sleepy end devices. This function will return the wake timeout bitmask for the current network. The bitmask determines which tasks will timeout automatically and which tasks require manual removal from the task list.

#### **6.4.2.39 int16u emberAfGetWakeTimeoutMsCallback ( void )**

Get Wake Timeout Ms.

This function is only useful to sleepy end devices. This function will return the wake timeout (in milliseconds) for the current network. This timeout is the maximum amount of time a child will wait for a task in the wake bitmask to finish. While waiting, the device will short poll.

#### 6.4.2.40 int16u emberAfGetWakeTimeoutQsCallback ( void )

Get Wake Timeout Qs.

This function is only useful to sleepy end devices. This function will return the wake timeout (in quarter seconds) for the current network. This timeout is the maximum amount of time a child will wait for a task in the wake bitmask to finish. While waiting, the device will short poll.

#### 6.4.2.41 void emberAfHalButtonIsrCallback ( int8u button, int8u state )

Hal Button Isr.

This callback is called by the framework whenever a button is pressed on the device. This callback is called within ISR context.

##### Parameters

<i>button</i>	The button which has changed state, either BUTTON0 or BUTTON1 as defined in the appropriate BOARD_HEADER. Ver.: always
<i>state</i>	The new state of the button referenced by the button parameter, either ::BUTTON_PRESSED if the button has been pressed or ::BUTTON_RELEASED if the button has been released. Ver.: always

#### 6.4.2.42 EmberStatus emberAfInitiateInterPanKeyEstablishmentCallback ( EmberPanId *panId*, const EmberEUI64 *eui64* )

Initiate Inter Pan Key Establishment.

This function is called by the framework to initiate key establishment with a remote device on a different PAN. The application should return EMBER\_SUCCESS if key establishment was initiated successfully. The application should call [emberAfInterPanKeyEstablishmentCallback](#) as events occur.

##### Parameters

<i>panId</i>	The PAN id of the remote device. Ver.: always
<i>eui64</i>	The EUI64 of the remote device. Ver.: always

#### 6.4.2.43 EmberStatus emberAfInitiateKeyEstablishmentCallback ( EmberNodeId *nodeId*, int8u *endpoint* )

Initiate Key Establishment.

This function is called by the framework to initiate key establishment with a remote device. The application should return EMBER\_SUCCESS if key establishment was initiated successfully. The application should call [emberAfKeyEstablishmentCallback](#) as events occur.

##### Parameters

<i>nodeId</i>	The node id of the remote device. Ver.: always
<i>endpoint</i>	The endpoint on the remote device. Ver.: always

#### 6.4.2.44 EmberStatus emberAfInitiatePartnerLinkKeyExchangeCallback ( EmberNodeId *target*, int8u *endpoint*, EmberAfPartnerLinkKeyExchangeCallback \* *callback* )

Initiate Partner Link Key Exchange.

This function is called by the framework to initiate a partner link key exchange with a remote device. The application should return EMBER\_SUCCESS if the partner link key exchange was initiated successfully. When the partner link key exchange completes, the application should call the given callback.

##### Parameters

<i>target</i>	The node id of the remote device. Ver.: always
<i>endpoint</i>	The key establishment endpoint of the remote device. Ver.: always
<i>callback</i>	The callback that should be called when the partner link key exchange complets. Ver.: always

#### 6.4.2.45 boolean emberAfInterPanKeyEstablishmentCallback ( EmberAfKeyEstablishmentNotify-Message *status*, boolean *amInitiator*, EmberPanId *panId*, const EmberEUI64 *eui64*, int8u *delayInSeconds* )

Inter Pan Key Establishment.

A callback by the key-establishment code to indicate an event has occurred. For error codes this is purely a notification. For non-error status codes (besides LINK\_KEY\_ESTABLISHED), it is the application's chance to allow or disallow the operation. If the application returns true then the key establishment is allowed to proceed. If it returns false, then key establishment is aborted. LINK\_KEY\_ESTABLISHED is a notification of success.

##### Parameters

<i>status</i>	Ver.: always
<i>amInitiator</i>	Ver.: always
<i>panId</i>	Ver.: always
<i>eui64</i>	Ver.: always
<i>delayInSeconds</i>	Ver.: always

#### 6.4.2.46 EmberStatus emberAfInterpanSendMessageCallback ( EmberAfInterpanHeader \* *header*, int16u *messageLength*, int8u \* *message* )

Interpan Send Message.

This function will send a raw MAC message with interpan frame format using the passed parameters.

##### Parameters

<i>header</i>	Interpan header info Ver.: always
<i>messageLength</i>	The length of the message received or to send Ver.: always
<i>message</i>	The message data received or to send. Ver.: always

#### 6.4.2.47 boolean emberAfKeyEstablishmentCallback ( EmberAfKeyEstablishmentNotifyMessage status, boolean amInitiator, EmberNodeId partnerShortId, int8u delayInSeconds )

Key Establishment.

A callback by the key-establishment code to indicate an event has occurred. For error codes this is purely a notification. For non-error status codes (besides LINK\_KEY\_ESTABLISHED), it is the application's chance to allow or disallow the operation. If the application returns true then the key establishment is allowed to proceed. If it returns false, then key establishment is aborted. LINK\_KEY\_ESTABLISHED is a notification of success.

##### Parameters

<i>status</i>	Ver.: always
<i>amInitiator</i>	Ver.: always
<i>partnerShortId</i>	Ver.: always
<i>delayInSeconds</i>	Ver.: always

#### 6.4.2.48 void emberAfMainInitCallback ( void )

Main Init.

This function is called from the application's main function. It gives the application a chance to do any initialization required at system startup. Any code that you would normally put into the top of the application's [main\(\)](#) routine should be put into this function. This is called before the clusters, plugins, and the network are initialized so some functionality is not yet available. Note: No callback in the Application Framework is associated with resource cleanup. If you are implementing your application on a Unix host where resource cleanup is a consideration, we expect that you will use the standard Posix system calls, including the use of atexit() and handlers for signals such as SIGTERM, SIGINT, SIGCHLD, SIGPIPE and so on. If you use the signal() function to register your signal handler, please mind the returned value which may be an Application Framework function. If the return value is non-null, please make sure that you call the returned function from your handler to avoid negating the resource cleanup of the Application Framework itself.

This function is called when the application starts and can be used to perform any additional initialization required at system startup.

Definition at line [490](#) of file [ncp/doc/callback.doc](#).

#### 6.4.2.49 boolean emberAfMainStartCallback ( int \* returnCode, int argc, char \*\* argv )

Main Start.

This function is called at the start of main after the HAL has been initialized. The standard main function arguments of argc and argv are passed in. However not all platforms have support for [main\(\)](#) function arguments. Those that do not are passed NULL for argv, therefore argv should be checked for NULL before using it. If the callback determines that the program must exit, it should return true. The value returned by [main\(\)](#) will be the value written to the returnCode pointer. Otherwise the callback should return false to let normal execution continue.

##### Parameters

<i>returnCode</i>	Ver.: always
<i>argc</i>	Ver.: always
<i>argv</i>	Ver.: always

#### 6.4.2.50 void emberAfMainTickCallback ( void )

Main Tick.

Whenever main application tick is called, this callback will be called at the end of the main tick execution. This function is called in each iteration of the main application loop and can be used to perform periodic functions. The frequency with which this function is called depends on how quickly the main loop runs. If the application blocks at any time during the main loop, this function will not be called until execution resumes.

Definition at line 502 of file [ncp/doc/callback.doc](#).

#### 6.4.2.51 boolean emberAfMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Message Sent.

This function is called by the application framework from the message sent handler, when it is informed by the stack regarding the message sent status. All of the values passed to the emberMessageSentHandler are passed on to this callback. This provides an opportunity for the application to verify that its message has been sent successfully and take the appropriate action. This callback should return a bool value of true or false. A value of true indicates that the message sent notification has been handled and should not be handled by the application framework.

##### Parameters

<i>type</i>	Ver.: always
<i>indexOrDestination</i>	Ver.: always
<i>apsFrame</i>	Ver.: always
<i>msgLen</i>	Ver.: always
<i>message</i>	Ver.: always
<i>status</i>	Ver.: always

#### 6.4.2.52 void emberAfNcpInitCallback ( boolean *memoryAllocation* )

Ncp Init.

This function is called when the network coprocessor is being initialized, either at startup or upon reset. It provides applications an opportunity to perform additional configuration of the NCP. The function is always called twice when the NCP is initialized. In the first invocation, *memoryAllocation* will be true and the application should only issue EZSP commands that affect memory allocation on the NCP. For example, tables on the NCP can be resized in the first call. In the second invocation, *memoryAllocation* will be false and the application should only issue EZSP commands that do not affect memory allocation. For example, tables on the NCP can be populated in the second call. This callback is not called on SoCs.

##### Parameters

<i>memoryAllocation</i>	Ver.: always
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#### 6.4.2.53 void emberAfNcpIsAwakeIsrCallback ( void )

Ncp Is Awake Isr.

This function is called IN ISR CONTEXT. It notes that the NCP is awake after sleeping. Care should be taken to do minimal processing in this ISR handler function.

#### 6.4.2.54 void emberAfNetworkFoundCallback ( EmberZigbeeNetwork \* *networkFound*, int8u *lqi*, int8s *rssi* )

Network Found.

This callback is generated when an active scan finds a 802.15.4 network.

##### Parameters

<i>networkFound</i>	A struct containing information about the network found. Ver.: always
<i>lqi</i>	The link quality indication of the network found. Ver.: always
<i>rssi</i>	The received signal strength indication of the network found. Ver.: always

#### 6.4.2.55 void emberAfNetworkKeyUpdateCompleteCallback ( EmberStatus *status* )

Network Key Update Complete.

This is called by the framework when a network key update operation started by the trust center is complete.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.56 int8u emberAfOtaBootloadCallback ( const EmberAfOtaImageId \* *id*, int16u *ncpUpgradeTagId* )

Ota Bootload.

The platform specific routine to bootload the device from a ZigBee over-the-air upgrade file.

##### Parameters

<i>id</i>	A pointer to the structure that contains the information about what OTA image to bootload. Ver.: always
<i>ncpUpgradeTagId</i>	The tag ID of the upgrade data that will be used to bootload the device. Ver.: always

#### 6.4.2.57 void emberAfOtaClientBootloadCallback ( const EmberAfOtaImageId \* *id* )

Ota Client Bootload.

This callback is fired when the OTA Client receives a command to bootload the newly downloaded OTA image. This callback will perform the platform specific to bootload their device.

**Parameters**

<i>id</i>	This is the identifier relating to the image that has been downloaded and is ready for bootload. Ver.: always
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**6.4.2.58** `boolean emberAfImageVerifyStatus emberAfOtaClientCustomVerifyCallback ( boolean newVerification, const EmberAfOtaImageId * id )`

Ota Client Custom Verify.

This callback is executed by the OTA client after the signature verification has successfully completed. It allows the device to do its own custom verification of the image (such as verifying that the EBL is intact).

**Parameters**

<i>newVerification</i>	This indicates if a new verification should be started. Ver.: always
<i>id</i>	This is ID of the image to be verified. Ver.: always

**6.4.2.59** `boolean emberAfOtaClientDownloadCompleteCallback ( EmberAfOtaDownloadResult success, const EmberAfOtaImageId * id )`

Ota Client Download Complete.

This callback indicates that the OTA client has completed the download of a file. If the file has been completely downloaded and cryptographic checks have been turned on, then those will be performed prior to this callback and that outcome included in the 'success' result. On failure, this callback is merely informative, and the return type is ignored. On successful download, this callback allows the client to perform any additional verification of the downloaded image and return that result to the OTA server.

**Parameters**

<i>success</i>	This indicates the success or failure of the download and cryptographic verification process (if applicable). Ver.: always
<i>id</i>	This is the image identifier information that corresponds to the download result. Ver.: always

**6.4.2.60** `boolean emberAfOtaClientIncomingMessageRawCallback ( EmberAfClusterCommand * message )`

Ota Client Incoming Message Raw.

This callback is for processing incoming messages for the Over-the-air bootload cluster client. ZCL will not process the message and instead hand the raw over the air data to the callback for its own processing.

**Parameters**

<i>message</i>	A pointer to the structure containing the message buffer and other information about it. Ver.: always
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#### 6.4.2.61 void emberAfOtaClientStartCallback ( void )

Ota Client Start.

This callback should be called when the profile specific registration has completed successfully. It will start the client's state machine that will find the OTA server, query it for the next image, download the image, wait for the bootload message, and kick off the bootload.

#### 6.4.2.62 void emberAfOtaClientVersionInfoCallback ( EmberAfOtaImageId \* *currentImageInfo*, int16u \* *hardwareVersion* )

Ota Client Version Info.

This function is called by the OTA client when a new query will occur to the server asking what the next version of firmware is. The client can inform the cluster software as to what information to use in the query (and subsequent download).

##### Parameters

<i>currentImage-Info</i>	This is the information to use in the next query by the client cluster code. It contains the manufacturer ID, image type ID, and the firmware version to be specified in the query message sent to the server. Ver.: always
<i>hardware-Version</i>	This is a pointer to the hardware version to use in the query. If no hardware version should be used, then EMBER_AF_INVALID_HARDWARE_VERSION should be used. Ver.: always

#### 6.4.2.63 int8u emberAfOtaPageRequestServerPolicyCallback ( void )

Ota Page Request Server Policy.

This callback is called by the OTA server page request code when it wants to determine if it is allowed for an OTA client to make a page request. It is only called if page request support has been enabled on the server. It should return EMBER\_ZCL\_STATUS\_SUCCESS if it allows the page request, and EMBER\_ZCL\_STATUS\_UNSUP\_CLUSTER\_COMMAND if it does not want to allow it.

#### 6.4.2.64 int8u emberAfOtaServerBlockSizeCallback ( EmberNodeId *clientNodeId* )

Ota Server Block Size.

This function provides a way for the server to adjust the block size of its response to an Image block request by a client.

##### Parameters

<i>clientNodeId</i>	The node Id of OTA client making an image block request. Ver.: always
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#### 6.4.2.65 int8u emberAfOtaServerImageBlockRequestCallback ( EmberAfImageBlockRequestCallback-Struct \* *data* )

Ota Server Image Block Request.

This function is called when the server application receives an image block request by a client.

**Parameters**

<i>data</i>	A struct containing the details of the image block response and values that can be returned by the application to effect the behavior of the server's response. Ver.: always
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**6.4.2.66 boolean emberAfOtaServerIncomingMessageRawCallback ( EmberAfClusterCommand \* message )**

Ota Server Incoming Message Raw.

This callback is for processing incoming messages for the Over-the-air bootload cluster server. ZCL will not process the message and instead hand the raw over the air data to the callback for its own processing.

**Parameters**

<i>message</i>	A pointer to the structure containing the message buffer and other information about it. Ver.: always
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**6.4.2.67 int8u emberAfOtaServerQueryCallback ( const EmberAfOtaImageId \* currentImageId, int16u \* hardwareVersion, EmberAfOtaImageId \* nextUpgradeImageId )**

Ota Server Query.

This callback is fired when the OTA server receives a query request by the client. The callback lets the server application indicate to the client what the 'next' version of software is for the device, or if there is not one available.

**Parameters**

<i>currentImageId</i>	This is the current software image that the client has. Ver.: always
<i>hardware-Version</i>	If this value is non-NULL, it indicates the hardware version of the client device. If NULL, the client did not specify a hardware version. Ver.: always
<i>nextUpgrade-ImageId</i>	This is a pointer to a data structure containing the 'next' software version for the client to download. Ver.: always

**6.4.2.68 boolean emberAfOtaServerSendImageNotifyCallback ( EmberNodeId dest, int8u endpoint, int8u payloadType, int8u queryJitter, const EmberAfOtaImageId \* id )**

Ota Server Send Image Notify.

This callback is an indication to the OTA server that it should send out notification about an OTA file that is available for download.

**Parameters**

<i>dest</i>	The destination of the image notify message. May be a broadcast address. Ver.: always
<i>endpoint</i>	The destination endpoint of the image notify message. May be a broadcast endpoint. Ver.: always
<i>payloadType</i>	The type of data the image notify message will contain. 0 = no data. 1 = Manufacturer ID. 2 = Manufacturer ID and the image type ID. 3 = Manufacturer ID, image type ID, and firmware version. Ver.: always
<i>queryJitter</i>	The percentage of nodes that should respond to this message, from 1-100. On receipt of this message, each recipient will randomly choose a percentage and only query the server if their percentage is below this value. Ver.: always

<i>id</i>	The image information that will be put in the message. The data within this struct that will be appended to the message is determined by the previous 'payloadType' argument. Ver.: always
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#### 6.4.2.69 boolean emberAfOtaServerUpgradeEndRequestCallback ( EmberNodeId *source*, int8u *status*, int32u \* *returnValue*, const EmberAfOtaImageId \* *imageId* )

Ota Server Upgrade End Request.

This function is called when the OTA server receives a request an upgrade end request. If the request indicated a successful download by the client, the server must tell the client when and if to upgrade to the downloaded image.

##### Parameters

<i>source</i>	The node ID of the device that sent the upgrade end request. Ver.: always
<i>status</i>	This is the ZCL status sent by the client indicating the result of its attempt to download the new upgrade image. If the status is not EMBER_ZCL_STATUS_SUCCESS then this callback is merely informative and no response mesasge will be generated by the server. Ver.: always
<i>returnValue</i>	If the server returns true indicating that the client should apply the upgrade, this time value indicates when in the future the client should apply the upgrade. Ver.: always
<i>imageId</i>	This variable indicates the software version that the client successfully downloaded and is asking to upgrade to. Ver.: always

#### 6.4.2.70 EmberAfOtaStorageStatus emberAfOtaStorageCheckTempDataCallback ( int32u \* *currentOffset*, int32u \* *totalImageSize*, EmberAfOtaImageId \* *newFileInfo* )

Ota Storage Check Temp Data.

This callback will validate temporary data in the storage device to determine whether it is a complete file, a partially downloaded file, or there is no file present. When a complete or partial file is found it will return EMBER\_AF\_OTA\_STORAGE\_SUCCESS or EMBER\_AF\_OTA\_STORAGE\_PARTIAL\_FILE\_FOUND, respectively. In that case, the currentOffset, totalImageSize, and newFileInfo will be populated with data. When EMBER\_AF\_OTA\_STORAGE\_ERROR is returned, no temporary data is present.

##### Parameters

<i>currentOffset</i>	A pointer to a value that will be written with the offset within the total file size that has been successfully stored in the storage device. This will indicate how much data has been currently dowloaded. Ver.: always
<i>totalImageSize</i>	A pointer to a value that will be written with the total image size of the OTA file when a download has completed. This does not indicate how much data has actually been downloaded currently. Ver.: always
<i>newFileInfo</i>	This is the image id of the temporary file data stored in the storage device. Ver.: always

#### 6.4.2.71 EmberAfOtaStorageStatus emberAfOtaStorageClearTempDataCallback ( void )

Ota Storage Clear Temp Data.

This function clears any existing temp data that was downloaded. It is used immediately prior to downloading a raw image over the air.

#### **6.4.2.72 void emberAfOtaStorageCloseCallback ( void )**

Ota Storage Close.

This callback shuts down the ZigBee Over-the-air storage module.

#### **6.4.2.73 void emberAfOtaStorageDriverDownloadFinishCallback ( int32u offset )**

Ota Storage Driver Download Finish.

This callback defines the low-level means by which a device records the final offset value of the download image.

##### **Parameters**

<i>offset</i>	The value of the final offset of the image download. Ver.: always
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#### **6.4.2.74 boolean emberAfOtaStorageDriverInitCallback ( void )**

Ota Storage Driver Init.

The initialization code for the OTA storage driver.

#### **6.4.2.75 EmberAfOtaStorageStatus emberAfOtaStorageDriverInvalidateImageCallback ( void )**

Ota Storage Driver Invalidate Image.

This callback invalidates the image stored on disk so that it will not be booted, and it will not be a valid image that is in the middle of downloading.

#### **6.4.2.76 EmberAfOtaStorageStatus emberAfOtaStorageDriverPrepareToResumeDownloadCallback ( void )**

Ota Storage Driver Prepare To Resume Download.

This callback allows the underlying storage driver to prepare to resume the OTA file download. For example, the driver may execute a page erase to insure the next page is ready to be written to.

#### **6.4.2.77 boolean emberAfOtaStorageDriverReadCallback ( int32u offset, int32u length, int8u \* returnData )**

Ota Storage Driver Read.

This callback defines the low-level means by which a device reads from the OTA storage device.

##### **Parameters**

<i>offset</i>	The address offset from the start of the storage device where data is to be read. Ver.: always
<i>length</i>	The length of the data to be read from the storage device. Ver.: always
<i>returnData</i>	A pointer where the data read from the device should be written to. Ver.: always

#### 6.4.2.78 int32u emberAfOtaStorageDriverRetrieveLastStoredOffsetCallback ( void )

Ota Storage Driver Retrieve Last Stored Offset.

This callback defines the low-level means by which a device retrieves the last persistently recorded download offset. This may be different than last actual download offset.

#### 6.4.2.79 boolean emberAfOtaStorageDriverWriteCallback ( const int8u \* *dataToWrite*, int32u *offset*, int32u *length* )

Ota Storage Driver Write.

This callback defines the low-level means by which a device reads from the OTA storage device.

##### Parameters

<i>dataToWrite</i>	A pointer to the data that will be written to the storage device. Ver.: always
<i>offset</i>	The address offset from the start of the storage device where data will be written. Ver.: always
<i>length</i>	The length of the data to be written to the storage device. Ver.: always

#### 6.4.2.80 EmberAfOtaStorageStatus emberAfOtaStorageFinishDownloadCallback ( int32u *offset* )

Ota Storage Finish Download.

This function indicates to the storage module that the download has finished.

##### Parameters

<i>offset</i>	The final offset of the downloaded file (i.e. the total size) Ver.: always
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#### 6.4.2.81 int8u emberAfOtaStorageGetCountCallback ( void )

Ota Storage Get Count.

This callback returns the total number of ZigBee Over-the-air upgrade images stored in the storage module.

#### 6.4.2.82 EmberAfOtaStorageStatus emberAfOtaStorageGetFullHeaderCallback ( const EmberAfOtaImageId \* *id*, EmberAfOtaHeader \* *returnData* )

Ota Storage Get Full Header.

This callback populates the [EmberAfOtaHeader](#) structure pointed to by the returnData with data about the OTA file stored in the storage module.

##### Parameters

<i>id</i>	This is a pointer to the image id for the OTA file to retrieve information about. Ver.: always
<i>returnData</i>	This is a pointer to the location of the structure that will be populated with data. Ver.: always

#### 6.4.2.83 int32u emberAfOtaStorageGetTotalImageSizeCallback ( const EmberAfOtaImageId \* *id* )

Ota Storage Get Total Image Size.

This function returns the total size of the ZigBee Over-the-air file with the passed parameters. If no file is found with those parameters, 0 is returned.

##### Parameters

<i>id</i>	A pointer to the image identifier for the OTA file to retrieve information for. Ver.: always
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#### 6.4.2.84 EmberAfOtaStorageStatus emberAfOtaStorageInitCallback ( void )

Ota Storage Init.

This callback initializes the ZigBee Over-the-air storage module.

#### 6.4.2.85 EmberAfOtaImageId emberAfOtaStorageIteratorFirstCallback ( void )

Ota Storage Iterator First.

This callback lets you walk through the list of all OTA files by jumping to the first file in the list maintained by the storage module. If there is no file then emberAfOtaInvalidImageId is returned.

#### 6.4.2.86 EmberAfOtaImageId emberAfOtaStorageIteratorNextCallback ( void )

Ota Storage Iterator Next.

This callback lets you walk through the list of all OTA files by jumping to the next file in the list maintained by the storage module. If there is no next file then emberAfOtaInvalidImageId is returned.

#### 6.4.2.87 EmberAfOtaStorageStatus emberAfOtaStorageReadImageDataCallback ( const EmberAfOtaImageId \* *id*, int32u *offset*, int32u *length*, int8u \* *returnData*, int32u \* *returnedLength* )

Ota Storage Read Image Data.

This callback reads data from the specified OTA file and returns that data to the caller.

##### Parameters

<i>id</i>	This is a pointer to the image id for the OTA file to retrieve data from. Ver.: always
<i>offset</i>	This is the offset relative to the start of the image where the data should be read from. Ver.: always
<i>length</i>	This is the length of data that will be read. Ver.: always
<i>returnData</i>	This is a pointer to where the data read out of the file will be written to Ver.: always
<i>returnedLength</i>	This is a pointer to a variable where the actual length of data read will be written to. A short read may occur if the end of file was reached. Ver.: always

#### 6.4.2.88 EmberAfOtaImageId emberAfOtaStorageSearchCallback ( int16u *manufacturerId*, int16u *imageTypeId*, const int16u \* *hardwareVersion* )

Ota Storage Search.

This callback searches through the list of all images for one that matches the passed parameters. On success an image identifier is returned with a matching image. On failure emberAfInvalidImageId is returned.

##### Parameters

<i>manufacturerId</i>	The ZigBee assigned identifier of the manufacturer contained in the OTA image being searched for. Ver.: always
<i>imageTypeId</i>	The image type identifier contained in the OTA image being searched for. Ver.: always
<i>hardwareVersion</i>	This is a pointer to the hardware version that will be used in the search. If the pointer is NULL, hardware version will not be considered when searching for matching images. If it points to a value, the search will only consider images where that value falls between the minimum and maximum hardware version specified in the OTA file. If no hardware version is present in an OTA file but the other parameters match, the file will be considered a match Ver.: always

#### 6.4.2.89 EmberAfOtaStorageStatus emberAfOtaStorageWriteTempDataCallback ( int32u *offset*, int32u *length*, const int8u \* *data* )

Ota Storage Write Temp Data.

This function writes to the temporary data in the storage device at the specified offset. It is used when downloading a raw image over the air.

##### Parameters

<i>offset</i>	The location within the download image file where to write the data. Ver.: always
<i>length</i>	The length of data to write. Ver.: always
<i>data</i>	A pointer to the temporary data that will be written to the storage device. Ver.: always

#### 6.4.2.90 EmberStatus emberAfPartnerLinkKeyExchangeRequestCallback ( EmberEUI64 *partner* )

Partner Link Key Exchange Request.

This function is called by the framework on SOC platforms when a remote node requests a partner link key exchange. The application should return EMBER\_SUCCESS to accept the request or any other status to reject it. On network coprocessor platforms, this function will not be called because the NCP handles partner link key exchange requests based on the binding policy.

##### Parameters

<i>partner</i>	The EUI of the remote node. Ver.: always
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#### 6.4.2.91 void emberAfPartnerLinkKeyExchangeResponseCallback ( EmberNodeId *sender*, EmberZdoStatus *status* )

Partner Link Key Exchange Response.

This function is called by the framework when a remote node requests a partner link key exchange. The application should return true to accept the request or false to reject it. On network coprocessor platforms, this function will not be called because the NCP handles partner link key exchange requests based on the binding policy.

#### Parameters

<i>sender</i>	The EUI of the remote node. Ver.: always
<i>status</i>	The ZDO response status. Ver.: always

#### 6.4.2.92 boolean emberAfPerformingKeyEstablishmentCallback ( void )

Performing Key Establishment.

This function is called by the framework to determine if the device is performing key establishment. The application should return true if key establishment is in progress.

#### 6.4.2.93 void emberAfPostAttributeChangeCallback ( int8u *endpoint*, EmberAfClusterId *clusterId*, EmberAfAttributeId *attributeId*, int8u *mask*, int16u *manufacturerCode*, int8u *type*, int8u *size*, int8u \* *value* )

Post Attribute Change.

This function is called by the application framework after it changes an attribute value. The value passed into this callback is the value to which the attribute was set by the framework.

#### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>attributeId</i>	Ver.: always
<i>mask</i>	Ver.: always
<i>manufacturerCode</i>	Ver.: always
<i>type</i>	Ver.: always
<i>size</i>	Ver.: always
<i>value</i>	Ver.: always

#### 6.4.2.94 EmberAfStatus emberAfPreAttributeChangeCallback ( int8u *endpoint*, EmberAfClusterId *clusterId*, EmberAfAttributeId *attributeId*, int8u *mask*, int16u *manufacturerCode*, int8u *type*, int8u *size*, int8u \* *value* )

Pre Attribute Change.

This function is called by the application framework before it changes an attribute value. The value passed into this callback is the value to which the attribute is to be set by the framework. The application should return [EMBER\\_ZCL\\_STATUS\\_SUCCESS](#) to permit the change or any other [EmberAfStatus](#) to reject it.

#### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always

<i>attributeId</i>	Ver.: always
<i>mask</i>	Ver.: always
<i>manufacturer-Code</i>	Ver.: always
<i>type</i>	Ver.: always
<i>size</i>	Ver.: always
<i>value</i>	Ver.: always

#### 6.4.2.95 boolean emberAfPreCliSendCallback ( EmberApsFrame \* *apsFrame*, EmberNodeId *source*, EmberNodeId *destination*, int8u \* *message*, int16u *messageLength* )

Pre Cli Send.

This function is called by the framework when it is about to pass a message constructed over CLI to the stack primitives for sending. If the function returns true it is assumed that the callback has consumed and processed the message. The framework will not do any further processing on the message.

If the function returns false then it is assumed that the callback has

not processed the message and the framework will continue to process accordingly.

##### Parameters

<i>apsFrame</i>	The structure containing the APS frame Ver.: always
<i>source</i>	Source Node Id Ver.: always
<i>destination</i>	Destintion Node Id Ver.: always
<i>message</i>	Pointer to the message payload Ver.: always
<i>messageLength</i>	Length of the message payload Ver.: always

#### 6.4.2.96 boolean emberAfPreCommandReceivedCallback ( EmberAfClusterCommand \* *cmd* )

Pre Command Received.

This callback is the second in the Application Framework's message processing chain. At this point in the processing of incoming over-the-air messages, the application has determined that the incoming message is a ZCL command. It parses enough of the message to populate an [EmberAfClusterCommand](#) struct. The Application Framework defines this struct value in a local scope to the command processing but also makes it available through a global pointer called `emberAfCurrentCommand`, in `app/framework/util/util.c`. When command processing is complete, this pointer is cleared.

##### Parameters

<i>cmd</i>	Ver.: always
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#### 6.4.2.97 boolean emberAfPreMessageReceivedCallback ( EmberAfIncomingMessage \* *incomingMessage* )

Pre Message Received.

This callback is the first in the Application Framework's message processing chain. The Application Framework calls it when a message has been received over the air but has not yet been parsed by the ZCL command-handling code. If you wish to parse some messages that are completely outside the ZCL specification or are not handled by the Application Framework's command handling code, you should intercept them for parsing in this callback.

This callback returns a Boolean value indicating whether or not the message has been handled. If the callback returns a value of true, then the Application Framework assumes that the message has been handled and it does nothing else with it. If the callback returns a value of false, then the application framework continues to process the message as it would with any incoming message. Note: This callback receives a pointer to an incoming message struct. This struct allows the application framework to provide a unified interface between both Host devices, which receive their message through the ezspIncomingMessageHandler, and SoC devices, which receive their message through emberIncomingMessageHandler.

#### Parameters

<i>incoming-Message</i>	Ver.: always
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#### 6.4.2.98 boolean emberAfPreMessageSendCallback ( EmberAfMessageStruct \* *messageStruct*, EmberStatus \* *status* )

Pre Message Send.

This function is called by the framework when it is about to pass a message to the stack primitives for sending. This message may or may not be ZCL, ZDO, or some other protocol. This is called prior to any ZigBee fragmentation that may be done. If the function returns true it is assumed the callback has consumed and processed the message. The callback must also set the EmberStatus status code to be passed back to the caller. The framework will do no further processing on the message. If the function returns false then it is assumed that the callback has not processed the mesasge and the framework will continue to process accordingly.

#### Parameters

<i>messageStruct</i>	The structure containing the parameters of the APS message to be sent. Ver.: always
<i>status</i>	A pointer to the status code value that will be returned to the caller. Ver.: always

#### 6.4.2.99 void emberAfPreNcpResetCallback ( void )

Pre Ncp Reset.

This function will be called prior to the reset of the NCP by the host.

#### 6.4.2.100 boolean emberAfPreZDOMessageReceivedCallback ( EmberNodeId *emberNodeId*, EmberApsFrame \* *apsFrame*, int8u \* *message*, int16u *length* )

Pre ZDO Message Received.

This function passes the application an incoming ZDO message and gives the application the opportunity to handle it. By default, this callback returns false indicating that the incoming ZDO message has not been handled and should be handled by the Application Framework.

**Parameters**

<i>emberNodeId</i>	Ver.: always
<i>apsFrame</i>	Ver.: always
<i>message</i>	Ver.: always
<i>length</i>	Ver.: always

**6.4.2.101 boolean emberAfReadAttributesResponseCallback ( EmberAfClusterId *clusterId*, int8u \* *buffer*, int16u *bufLen* )**

Read Attributes Response.

This function is called by the application framework when a Read Attributes Response command is received from an external device. The application should return true if the message was processed or false if it was not.

**Parameters**

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>buffer</i>	Buffer containing the list of read attribute status records. Ver.: always
<i>bufLen</i>	The length in bytes of the list. Ver.: always

**6.4.2.102 boolean emberAfReadReportingConfigurationCommandCallback ( const EmberAfClusterCommand \* *cmd* )**

Read Reporting Configuration Command.

This function is called by the application framework when a Read Reporting Configuration command is received from an external device. The application should return true if the message was processed or false if it was not.

**Parameters**

<i>cmd</i>	Ver.: always
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**6.4.2.103 boolean emberAfReadReportingConfigurationResponseCallback ( EmberAfClusterId *clusterId*, int8u \* *buffer*, int16u *bufLen* )**

Read Reporting Configuration Response.

This function is called by the application framework when a Read Reporting Configuration Response command is received from an external device. The application should return true if the message was processed or false if it was not.

**Parameters**

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>buffer</i>	Buffer containing the list of attribute reporting configuration records. Ver.: always
<i>bufLen</i>	The length in bytes of the list. Ver.: always

#### 6.4.2.104 void emberAfRegistrationAbortCallback ( void )

Registration Abort.

This callback is called when the device should abort the registration process.

#### 6.4.2.105 void emberAfRegistrationCallback ( boolean success )

Registration.

This callback is called when the device joins a network and the process of registration is complete. This callback provides a success value of true if the registration process was successful and a value of false if registration failed.

##### Parameters

<i>success</i>	true if registration succeeded, false otherwise. Ver.: always
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#### 6.4.2.106 EmberStatus emberAfRegistrationStartCallback ( void )

Registration Start.

This callback is called when the device joins a network and the registration process should begin. The application should return EMBER\_SUCCESS if the registration process started successfully. When registration is complete, the application should call emberAfRegistrationCallback with an indication of success or failure.

#### 6.4.2.107 EmberStatus emberAfRemoteDeleteBindingPermissionCallback ( int8u index )

Remote Delete Binding Permission.

This function is called by the framework to request permission to service the remote delete binding request. Return EMBER\_SUCCESS to allow request, anything else to disallow request.

##### Parameters

<i>index</i>	index to an Ember binding table entry Ver.: always
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#### 6.4.2.108 EmberStatus emberAfRemoteSetBindingPermissionCallback ( const EmberBindingTableEntry \* entry )

Remote Set Binding Permission.

This function is called by the framework to request permission to service the remote set binding request. Return EMBER\_SUCCESS to allow request, anything else to disallow request.

##### Parameters

<i>entry</i>	Ember Binding Table Entry Ver.: always
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#### 6.4.2.109 void emberAfRemoveFromCurrentAppTasksCallback ( EmberAfApplicationTask *tasks* )

Remove From Current App Tasks.

This function is only useful to sleepy end devices. This function will remove the passed item from the set of tasks the application has outstanding (e.g. message sent requiring APS acknowledgement). This will affect how the application behaves with regard to sleeping and polling. Removing the item from the list of outstanding tasks may allow the device to sleep longer and poll less frequently. If there are other outstanding tasks the system may still have to stay awake and poll more often.

##### Parameters

<i>tasks</i>	Ver.: always
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#### 6.4.2.110 boolean emberAfReportAttributesCallback ( EmberAfClusterId *clusterId*, int8u \* *buffer*, int16u *bufLen* )

Report Attributes.

This function is called by the application framework when a Report Attributes command is received from an external device. The application should return true if the message was processed or false if it was not.

##### Parameters

<i>clusterId</i>	The cluster identifier of this command. Ver.: always
<i>buffer</i>	Buffer containing the list of attribute report records. Ver.: always
<i>bufLen</i>	The length in bytes of the list. Ver.: always

#### 6.4.2.111 void emberAfReportingAttributeChangeCallback ( int8u *endpoint*, EmberAfClusterId *clusterId*, EmberAfAttributeId *attributeId*, int8u *mask*, int16u *manufacturerCode*, EmberAfAttributeType *type*, int8u \* *data* )

Reporting Attribute Change.

This function is called by the framework when an attribute managed by the framework changes. The application should call this function when an externally-managed attribute changes. The application should use the change notification to inform its reporting decisions.

##### Parameters

<i>endpoint</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>attributeId</i>	Ver.: always
<i>mask</i>	Ver.: always
<i>manufacturer-Code</i>	Ver.: always
<i>type</i>	Ver.: always
<i>data</i>	Ver.: always

#### 6.4.2.112 void emberAfScanCompleteCallback ( int8u *channel*, EmberStatus *status* )

Scan Complete.

This is called by the low-level stack code when an 802.15.4 active scan completes.

#### Parameters

<i>channel</i>	If the status indicates an error, the channel on which the error occurred. Otherwise it is undefined for EMBER_SUCCESS. Ver.: always
<i>status</i>	The status of the scan. Ver.: always

#### 6.4.2.113 void emberAfScanErrorCallback ( EmberStatus *status* )

Scan Error.

This is called by the framework on behalf of the form-and-join library to notify the application if an error occurs while scanning. See form-and-join documentation for more information.

#### Parameters

<i>status</i>	The status of the scan. Ver.: always
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#### 6.4.2.114 void emberAfSecurityInitCallback ( EmberInitialSecurityState \* *state*, EmberExtendedSecurityBitmask \* *extended*, boolean *trustCenter* )

Security Init.

This callback is called by the framework to give the application a chance to modify the security settings of the node during network initialization. Depending on the context when this callback is called, the pointer to the initial security state may be NULL, which means the initial security state can no longer be modified as the node is already operating on the network.

#### Parameters

<i>state</i>	Ver.: always
<i>extended</i>	Ver.: always
<i>trustCenter</i>	Ver.: always

#### 6.4.2.115 void emberAfSetDefaultPollControlCallback ( EmberAfEventPollControl *control* )

Set Default Poll Control.

This function will set the default poll control for the current network to control whether or not it can long poll.

#### Parameters

<i>control</i>	Ver.: always
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#### 6.4.2.116 void emberAfSetDefaultSleepControlCallback ( EmberAfEventSleepControl *control* )

Set Default Sleep Control.

This function will set the default behavior of a sleeping device to control whether or not it must stay awake. A device that stays awake does not sleep at all. Otherwise, the device can sleep between events when appropriate.

#### Parameters

<i>control</i>	Ver.: always
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### 6.4.2.117 void emberAfSetFormAndJoinExtendedPanIdCallback ( const int8u \* *extendedPanId* )

Set Form And Join Extended Pan Id.

This callback is called by the framework to set the extended PAN ID used by the current network for forming and joining. The extended PAN ID used for forming and joining is not necessarily the same extended PAN ID actually in use on the network.

#### Parameters

<i>extendedPanId</i>	Ver.: always
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### 6.4.2.118 void emberAfSetLongPollIntervalMsCallback ( int32u *longPollIntervalMs* )

Set Long Poll Interval Ms.

This function is only useful to end devices. This function will set the long poll interval (in milliseconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is not expecting data.

#### Parameters

<i>longPoll- IntervalMs</i>	Ver.: always
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### 6.4.2.119 void emberAfSetLongPollIntervalQsCallback ( int32u *longPollIntervalQs* )

Set Long Poll Interval Qs.

This function is only useful to end devices. This function will set the long poll interval (in quarter seconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is not expecting data.

#### Parameters

<i>longPoll- IntervalQs</i>	Ver.: always
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### 6.4.2.120 void emberAfSetShortPollIntervalMsCallback ( int16u *shortPollIntervalMs* )

Set Short Poll Interval Ms.

This function is only useful to sleepy end devices. This function will set the short poll interval (in milliseconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is expecting data.

#### Parameters

<i>shortPoll-IntervalMs</i>	Ver.: always
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#### 6.4.2.121 void emberAfSetShortPollIntervalQsCallback ( int16u *shortPollIntervalQs* )

Set Short Poll Interval Qs.

This function is only useful to sleepy end devices. This function will set the short poll interval (in quarter seconds) for the current network. This interval is the maximum amount of time a child will wait between polls of its parent when it is expecting data.

#### Parameters

<i>shortPoll-IntervalQs</i>	Ver.: always
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#### 6.4.2.122 void emberAfSetSourceRouteOverheadCallback ( EmberNodeId *destination*, int8u *overhead* )

Set Source Route Overhead.

This function is called by the framework when it has information about the source route overhead to a particular destination. The application may use this information to cache the source route overhead.

#### Parameters

<i>destination</i>	The node id of the destination Ver.: always
<i>overhead</i>	The overhead in bytes Ver.: always

#### 6.4.2.123 void emberAfSetTimeCallback ( int32u *utcTime* )

Set Time.

This callback should be implemented, if the device has access to real time clock, and has an ability to update that clock. The application framework expects to be passed the utcTime which is the number of seconds since the year 2000. Default implementation does nothing. Note: This function used to take time in year, month, day, hour, min, sec. We have changed this to utcTime in order to conserve code space.

#### Parameters

<i>utcTime</i>	Ver.: always
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#### 6.4.2.124 void emberAfSetWakeTimeoutBitmaskCallback ( EmberAfApplicationTask *tasks* )

Set Wake Timeout Bitmask.

This function is only useful to sleepy end devices. This function will set the wake timeout bitmask for the current network. The bitmask determines which tasks will timeout automatically and which tasks require manual removal from the task list.

#### Parameters

<i>tasks</i>	Ver.: always
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#### 6.4.2.125 void emberAfSetWakeTimeoutMsCallback ( int16u *wakeTimeoutMs* )

Set Wake Timeout Ms.

This function is only useful to sleepy end devices. This function will set the wake timeout (in milliseconds) for the current network. This timeout is the maximum amount of time a child will wait for a task in the wake bitmask to finish. While waiting, the device will short poll.

#### Parameters

<i>wakeTimeout-</i> <i>Ms</i>	Ver.: always
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#### 6.4.2.126 void emberAfSetWakeTimeoutQsCallback ( int16u *wakeTimeoutQs* )

Set Wake Timeout Qs.

This function is only useful to sleepy end devices. This function will set the wake timeout (in quarter seconds) for the current network. This timeout is the maximum amount of time a child will wait for a task in the wake bitmask to finish. While waiting, the device will short poll.

#### Parameters

<i>wakeTimeout-</i> <i>Qs</i>	Ver.: always
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#### 6.4.2.127 boolean emberAfStackStatusCallback ( EmberStatus *status* )

Stack Status.

This function is called by the application framework from the stack status handler. This callbacks provides applications an opportunity to be notified of changes to the stack status and take appropriate action. The return code from this callback is ignored by the framework. The framework will always process the stack status after the callback returns.

#### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.128 boolean emberAfStartMoveCallback ( void )

Start Move.

This function is called to initiate the process for a device to move (rejoin) to a new parent.

#### 6.4.2.129 EmberStatus emberAfStartSearchForJoinableNetworkCallback ( void )

Start Search For Joinable Network.

This function is called by the framework to search for joinable networks and join a network. The application should return EMBER\_SUCCESS if the operation was initiated successfully.

#### 6.4.2.130 void emberAfStopMoveCallback ( void )

Stop Move.

This function is called to cancel a previously scheduled move (rejoin) to a new parent.

#### 6.4.2.131 void emberAfTrustCenterJoinCallback ( EmberNodeId *newNodeId*, EmberEUI64 *newNodeEui64*, EmberNodeId *parentOfNewNode*, EmberDeviceUpdate *status*, EmberJoinDecision *decision* )

Trust Center Join.

This callback is called from within the application framework's implementation of emberTrustCenterJoinHandler or ezspTrustCenterJoinHandler. This callback provides the same arguments passed to the TrustCenterJoinHandler. For more information about the TrustCenterJoinHandler please see documentation included in stack/include/trust-center.h.

##### Parameters

<i>newNodeId</i>	Ver.: always
<i>newNodeEui64</i>	Ver.: always
<i>parentOfNew- Node</i>	Ver.: always
<i>status</i>	Ver.: always
<i>decision</i>	Ver.: always

#### 6.4.2.132 void emberAfTrustCenterKeepaliveAbortCallback ( void )

Trust Center Keepalive Abort.

This callback is called when the device should abort the trust center keepalive process.

#### 6.4.2.133 void emberAfTrustCenterKeepaliveUpdateCallback ( boolean *registrationComplete* )

Trust Center Keepalive Update.

This callback is called when the device finishes registration (successfully or otherwise) and the trust center keepalive process must be updated. If the keepalive process has not been started, then it is started. Otherwise if the keepalive is in the process of searching for the TC, it will process the result of that Trust Center search operation.

##### Parameters

<i>registration- Complete</i>	Ver.: always
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#### 6.4.2.134 void emberAfUnusedPanIdFoundCallback ( EmberPanId *panId*, int8u *channel* )

Unused Pan Id Found.

This is called by the framework on behalf of the form-and-join library to notify the application of the PAN id and channel found following a call to ::emberScanForUnusedPanId(). See form-and-join documentation for more information.

##### Parameters

<i>panId</i>	Ver.: always
<i>channel</i>	Ver.: always

#### 6.4.2.135 boolean emberAfWriteAttributesResponseCallback ( EmberAfClusterId *clusterId*, int8u \* *buffer*, int16u *bufLen* )

Write Attributes Response.

This function is called by the application framework when a Write Attributes Response command is received from an external device. The application should return true if the message was processed or false if it was not.

##### Parameters

<i>clusterId</i>	The cluster identifier of this response. Ver.: always
<i>buffer</i>	Buffer containing the list of write attribute status records. Ver.: always
<i>bufLen</i>	The length in bytes of the list. Ver.: always

#### 6.4.2.136 void emberAfBasicClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Basic Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.137 void emberAfBasicClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Basic Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.138 void emberAfBasicClusterClientInitCallback ( int8u *endpoint* )

Basic Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.139 void emberAfBasicClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, int16u *manufacturerCode* )

Basic Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelid</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.140 void emberAfBasicClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Basic Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.141 EmberAfStatus emberAfBasicClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Basic Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.142 void emberAfBasicClusterClientTickCallback ( int8u *endpoint* )**

Basic Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.143 boolean emberAfBasicClusterResetToFactoryDefaultsCallback ( void )**

Basic Cluster Reset To Factory Defaults.

**6.4.2.144 void emberAfBasicClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Basic Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.145 void emberAfBasicClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Basic Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.146 void emberAfBasicClusterServerInitCallback ( int8u *endpoint* )**

Basic Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.147 void emberAfBasicClusterServerManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode )**

Basic Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.148 void emberAfBasicClusterServerMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Basic Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.149 EmberAfStatus emberAfBasicClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Basic Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.150 void emberAfBasicClusterServerTickCallback ( int8u *endpoint* )

Basic Cluster Server Tick.

Server Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.151 void emberAfPowerConfigClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )

Power Configuration Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.152 void emberAfPowerConfigClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Power Configuration Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.153 void emberAfPowerConfigClusterClientInitCallback ( int8u *endpoint* )

Power Configuration Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.154 void emberAfPowerConfigClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Power Configuration Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.155 void emberAfPowerConfigClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Power Configuration Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.156 EmberAfStatus emberAfPowerConfigClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Power Configuration Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.157 void emberAfPowerConfigClusterClientTickCallback ( int8u *endpoint* )**

Power Configuration Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.158 void emberAfPowerConfigClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Power Configuration Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.159 void emberAfPowerConfigClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Power Configuration Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.160 void emberAfPowerConfigClusterServerInitCallback ( int8u *endpoint* )**

Power Configuration Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.161 void emberAfPowerConfigClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Power Configuration Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.162 void emberAfPowerConfigClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Power Configuration Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.163 EmberAfStatus emberAfPowerConfigClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Power Configuration Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.164 void emberAfPowerConfigClusterServerTickCallback ( int8u *endpoint* )**

Power Configuration Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.165 void emberAfDeviceTempClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Device Temperature Configuration Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.166 void emberAfDeviceTempClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Device Temperature Configuration Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.167 void emberAfDeviceTempClusterClientInitCallback ( int8u *endpoint* )**

Device Temperature Configuration Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.168 void emberAfDeviceTempClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Device Temperature Configuration Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.169 void emberAfDeviceTempClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Device Temperature Configuration Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.170 EmberAfStatus emberAfDeviceTempClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Device Temperature Configuration Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.171 void emberAfDeviceTempClusterClientTickCallback ( int8u endpoint )**

Device Temperature Configuration Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.172 void emberAfDeviceTempClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Device Temperature Configuration Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.173 void emberAfDeviceTempClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Device Temperature Configuration Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.174 void emberAfDeviceTempClusterServerInitCallback ( int8u *endpoint* )**

Device Temperature Configuration Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.175 void emberAfDeviceTempClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Device Temperature Configuration Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.176 void emberAfDeviceTempClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Device Temperature Configuration Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.177 EmberAfStatus emberAfDeviceTempClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Device Temperature Configuration Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.178 void emberAfDeviceTempClusterServerTickCallback ( int8u *endpoint* )**

Device Temperature Configuration Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.179 void emberAfIdentifyClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Identify Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.180 void emberAfIdentifyClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Identify Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.181 void emberAfIdentifyClusterClientInitCallback ( int8u *endpoint* )**

Identify Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.182 void emberAfIdentifyClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Identify Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.183 void emberAfIdentifyClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Identify Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.184 EmberAfStatus emberAfIdentifyClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Identify Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.185 void emberAfIdentifyClusterClientTickCallback ( int8u *endpoint* )**

Identify Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.186 boolean emberAfIdentifyClusterEZModeInvokeCallback ( int8u *action* )**

Identify Cluster E Z Mode Invoke.

**Parameters**

<i>action</i>	Ver.: always
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**6.4.2.187 boolean emberAfIdentifyClusterIdentifyCallback ( int16u *identifyTime* )**

Identify Cluster Identify.

**Parameters**

<i>identifyTime</i>	Ver.: always
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**6.4.2.188 boolean emberAfIdentifyClusterIdentifyQueryCallback ( void )**

Identify Cluster Identify Query.

**6.4.2.189 boolean emberAfIdentifyClusterIdentifyQueryResponseCallback ( int16u *timeout* )**

Identify Cluster Identify Query Response.

**Parameters**

<i>timeout</i>	Ver.: always
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**6.4.2.190 void emberAfIdentifyClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Identify Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.191 void emberAfIdentifyClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Identify Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.192 void emberAfIdentifyClusterServerInitCallback ( int8u *endpoint* )**

Identify Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.193 void emberAfIdentifyClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Identify Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.194 void emberAfIdentifyClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Identify Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.195 EmberAfStatus emberAfIdentifyClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Identify Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.196 void emberAfIdentifyClusterServerTickCallback ( int8u *endpoint* )**

Identify Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.197 boolean emberAfIdentifyClusterTriggerEffectCallback ( int8u *effectId*, int8u *effectVariant* )**

Identify Cluster Trigger Effect.

#### Parameters

<i>effectId</i>	Ver.: always
<i>effectVariant</i>	Ver.: always

**6.4.2.198 boolean emberAfIdentifyClusterUpdateCommissionStateCallback ( int8u *action*, int8u *commissionStateMask* )**

Identify Cluster Update Commission State.

**Parameters**

<i>action</i>	Ver.: always
<i>commission-StateMask</i>	Ver.: always

**6.4.2.199 void emberAfGroupsClusterClearGroupTableCallback ( int8u *endpoint* )**

Groups Cluster Clear Group Table.

This function is called by the framework when the application should clear the group table.

**Parameters**

<i>endpoint</i>	The endpoint. Ver.: always
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**6.4.2.200 boolean emberAfGroupsClusterEndpointInGroupCallback ( int8u *endpoint*, int16u *groupId* )**

Groups Cluster Endpoint In Group.

This function is called by the framework when it needs to determine if an endpoint is a member of a group. The application should return true if the endpoint is a member of the group and false otherwise.

**Parameters**

<i>endpoint</i>	The endpoint. Ver.: always
<i>groupId</i>	The group identifier. Ver.: always

**6.4.2.201 boolean emberAfGroupsClusterAddGroupCallback ( int16u *groupId*, int8u \* *groupName* )**

Groups Cluster Add Group.

**Parameters**

<i>groupId</i>	Ver.: always
<i>groupName</i>	Ver.: always

**6.4.2.202 boolean emberAfGroupsClusterAddGroupIfIdentifyingCallback ( int16u *groupId*, int8u \* *groupName* )**

Groups Cluster Add Group If Identifying.

**Parameters**

<i>groupId</i>	Ver.: always
<i>groupName</i>	Ver.: always

#### 6.4.2.203 boolean emberAfGroupsClusterAddGroupResponseCallback ( int8u *status*, int16u *groupId* )

Groups Cluster Add Group Response.

##### Parameters

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always

#### 6.4.2.204 void emberAfGroupsClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Groups Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.205 void emberAfGroupsClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Groups Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.206 void emberAfGroupsClusterClientInitCallback ( int8u *endpoint* )

Groups Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.207 void emberAfGroupsClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Groups Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.208 void emberAfGroupsClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Groups Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.209 EmberAfStatus emberAfGroupsClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Groups Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.210 void emberAfGroupsClusterClientTickCallback ( int8u *endpoint* )**

Groups Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.211 boolean emberAfGroupsClusterGetGroupMembershipCallback ( int8u *groupCount*, int8u \* *groupList* )**

Groups Cluster Get Group Membership.

**Parameters**

<i>groupCount</i>	Ver.: always
<i>groupList</i>	Ver.: always

**6.4.2.212 boolean emberAfGroupsClusterGetGroupMembershipResponseCallback ( int8u *capacity*, int8u *groupCount*, int8u \* *groupList* )**

Groups Cluster Get Group Membership Response.

**Parameters**

<i>capacity</i>	Ver.: always
<i>groupCount</i>	Ver.: always
<i>groupList</i>	Ver.: always

**6.4.2.213 boolean emberAfGroupsClusterRemoveAllGroupsCallback ( void )**

Groups Cluster Remove All Groups.

**6.4.2.214 boolean emberAfGroupsClusterRemoveGroupCallback ( int16u *groupId* )**

Groups Cluster Remove Group.

**Parameters**

<i>groupId</i>	Ver.: always
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**6.4.2.215 boolean emberAfGroupsClusterRemoveGroupResponseCallback ( int8u *status*, int16u *groupId* )**

Groups Cluster Remove Group Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always

**6.4.2.216 void emberAfGroupsClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Groups Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.217 void emberAfGroupsClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Groups Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.218 void emberAfGroupsClusterServerInitCallback ( int8u *endpoint* )**

Groups Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.219 void emberAfGroupsClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Groups Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.220 void emberAfGroupsClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Groups Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.221 EmberAfStatus emberAfGroupsClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Groups Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.222 void emberAfGroupsClusterServerTickCallback ( int8u *endpoint* )**

Groups Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.223 boolean emberAfGroupsClusterViewGroupCallback ( int16u *groupId* )**

Groups Cluster View Group.

**Parameters**

<i>groupId</i>	Ver.: always
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**6.4.2.224 boolean emberAfGroupsClusterViewGroupResponseCallback ( int8u *status*, int16u *groupId*, int8u \* *groupName* )**

Groups Cluster View Group Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>groupName</i>	Ver.: always

**6.4.2.225 void emberAfScenesClusterClearSceneTableCallback ( int8u endpoint )**

Scenes Cluster ClearSceneTable.

This function is called by the framework when the application should clear the scene table.

**Parameters**

<i>endpoint</i>	The endpoint. Ver.: always
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**6.4.2.226 EmberAfStatus emberAfScenesClusterMakeInvalidCallback ( int8u endpoint )**

Scenes Cluster Make Invalid.

This function is called to invalidate the valid attribute in the Scenes cluster.

**Parameters**

<i>endpoint</i>	Ver.: always
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**6.4.2.227 EmberAfStatus emberAfScenesClusterRecallSavedSceneCallback ( int8u endpoint, int16u groupId, int8u sceneId )**

Scenes Cluster Recall Saved Scene.

This function is called by the framework when the application should recall a saved scene.

**Parameters**

<i>endpoint</i>	The endpoint. Ver.: always
<i>groupId</i>	The group identifier. Ver.: always
<i>sceneId</i>	The scene identifier. Ver.: always

**6.4.2.228 void emberAfScenesClusterRemoveScenesInGroupCallback ( int8u endpoint, int16u groupId )**

Scenes Cluster Remove Scenes In Group.

This function removes the scenes from a specified group.

**Parameters**

<i>endpoint</i>	Endpoint Ver.: always
<i>groupId</i>	Group ID Ver.: always

**6.4.2.229 boolean emberAfScenesClusterAddSceneCallback ( int16u *groupId*, int8u *sceneId*, int16u *transitionTime*, int8u \* *sceneName*, int8u \* *extensionFieldSets* )**

Scenes Cluster Add Scene.

#### Parameters

<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always
<i>transitionTime</i>	Ver.: always
<i>sceneName</i>	Ver.: always
<i>extensionFieldSets</i>	Ver.: always

**6.4.2.230 boolean emberAfScenesClusterAddSceneResponseCallback ( int8u *status*, int16u *groupId*, int8u *sceneId* )**

Scenes Cluster Add Scene Response.

#### Parameters

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

**6.4.2.231 void emberAfScenesClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Scenes Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.232 void emberAfScenesClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Scenes Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.233 void emberAfScenesClusterClientInitCallback ( int8u *endpoint* )

Scenes Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.234 void emberAfScenesClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Scenes Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.235 void emberAfScenesClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Scenes Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.236 EmberAfStatus emberAfScenesClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Scenes Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.237 void emberAfScenesClusterClientTickCallback ( int8u endpoint )**

Scenes Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.238 boolean emberAfScenesClusterCopySceneCallback ( int8u mode, int16u groupIdFrom, int8u scenIdFrom, int16u groupIdTo, int8u scenIdTo )**

Scenes Cluster Copy Scene.

**Parameters**

<i>mode</i>	Ver.: always
<i>groupIdFrom</i>	Ver.: always
<i>scenIdFrom</i>	Ver.: always
<i>groupIdTo</i>	Ver.: always
<i>scenIdTo</i>	Ver.: always

**6.4.2.239 boolean emberAfScenesClusterCopySceneResponseCallback ( int8u status, int16u groupIdFrom, int8u scenIdFrom )**

Scenes Cluster Copy Scene Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupIdFrom</i>	Ver.: always
<i>scenIdFrom</i>	Ver.: always

**6.4.2.240 boolean emberAfScenesClusterEnhancedAddSceneCallback ( int16u groupId, int8u scenId, int16u transitionTime, int8u \* sceneName, int8u \* extensionFieldSets )**

Scenes Cluster Enhanced Add Scene.

**Parameters**

<i>groupId</i>	Ver.: always
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<i>sceneId</i>	Ver.: always
<i>transitionTime</i>	Ver.: always
<i>sceneName</i>	Ver.: always
<i>extensionFieldSets</i>	Ver.: always

#### 6.4.2.241 boolean emberAfScenesClusterEnhancedAddSceneResponseCallback ( int8u *status*, int16u *groupId*, int8u *sceneId* )

Scenes Cluster Enhanced Add Scene Response.

##### Parameters

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

#### 6.4.2.242 boolean emberAfScenesClusterEnhancedViewSceneCallback ( int16u *groupId*, int8u *sceneId* )

Scenes Cluster Enhanced View Scene.

##### Parameters

<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

#### 6.4.2.243 boolean emberAfScenesClusterEnhancedViewSceneResponseCallback ( int8u *status*, int16u *groupId*, int8u *sceneId*, int16u *transitionTime*, int8u \* *sceneName*, int8u \* *extensionFieldSets* )

Scenes Cluster Enhanced View Scene Response.

##### Parameters

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always
<i>transitionTime</i>	Ver.: always
<i>sceneName</i>	Ver.: always
<i>extensionFieldSets</i>	Ver.: always

#### 6.4.2.244 boolean emberAfScenesClusterGetSceneMembershipCallback ( int16u *groupId* )

Scenes Cluster Get Scene Membership.

**Parameters**

<i>groupId</i>	Ver.: always
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**6.4.2.245 boolean emberAfScenesClusterGetSceneMembershipResponseCallback ( int8u *status*, int8u *capacity*, int16u *groupId*, int8u *sceneCount*, int8u \* *sceneList* )**

Scenes Cluster Get Scene Membership Response.

**Parameters**

<i>status</i>	Ver.: always
<i>capacity</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneCount</i>	Ver.: always
<i>sceneList</i>	Ver.: always

**6.4.2.246 boolean emberAfScenesClusterRecallSceneCallback ( int16u *groupId*, int8u *sceneId* )**

Scenes Cluster Recall Scene.

**Parameters**

<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

**6.4.2.247 boolean emberAfScenesClusterRemoveAllScenesCallback ( int16u *groupId* )**

Scenes Cluster Remove All Scenes.

**Parameters**

<i>groupId</i>	Ver.: always
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**6.4.2.248 boolean emberAfScenesClusterRemoveAllScenesResponseCallback ( int8u *status*, int16u *groupId* )**

Scenes Cluster Remove All Scenes Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always

**6.4.2.249 boolean emberAfScenesClusterRemoveSceneCallback ( int16u *groupId*, int8u *sceneId* )**

Scenes Cluster Remove Scene.

**Parameters**

<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

**6.4.2.250 boolean emberAfScenesClusterRemoveSceneResponseCallback ( int8u *status*, int16u *groupId*, int8u *sceneId* )**

Scenes Cluster Remove Scene Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

**6.4.2.251 void emberAfScenesClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Scenes Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.252 void emberAfScenesClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Scenes Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.253 void emberAfScenesClusterServerInitCallback ( int8u *endpoint* )**

Scenes Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.254 void emberAfScenesClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Scenes Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.255 void emberAfScenesClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Scenes Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.256 EmberAfStatus emberAfScenesClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Scenes Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.257 void emberAfScenesClusterServerTickCallback ( int8u *endpoint* )**

Scenes Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.258 boolean emberAfScenesClusterStoreSceneCallback ( int16u *groupId*, int8u *sceneId* )

Scenes Cluster Store Scene.

**Parameters**

<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

#### 6.4.2.259 boolean emberAfScenesClusterStoreSceneResponseCallback ( int8u *status*, int16u *groupId*, int8u *sceneId* )

Scenes Cluster Store Scene Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

#### 6.4.2.260 boolean emberAfScenesClusterViewSceneCallback ( int16u *groupId*, int8u *sceneId* )

Scenes Cluster View Scene.

**Parameters**

<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always

#### 6.4.2.261 boolean emberAfScenesClusterViewSceneResponseCallback ( int8u *status*, int16u *groupId*, int8u *sceneId*, int16u *transitionTime*, int8u \* *sceneName*, int8u \* *extensionFieldSets* )

Scenes Cluster View Scene Response.

**Parameters**

<i>status</i>	Ver.: always
<i>groupId</i>	Ver.: always
<i>sceneId</i>	Ver.: always
<i>transitionTime</i>	Ver.: always
<i>sceneName</i>	Ver.: always
<i>extensionFieldSets</i>	Ver.: always

#### 6.4.2.262 EmberAfStatus emberAfScenesClusterStoreCurrentSceneCallback ( int8u *endpoint*, int16u *groupId*, int8u *sceneId* )

Scenes Cluster Store Current Scene.

This function is called by the framework when the application should store the current scene. If an entry already exists in the scene table with the same scene and group ids, the application should update the entry with the current scene. Otherwise, a new entry should be added to the scene table, if possible.

##### Parameters

<i>endpoint</i>	The endpoint. Ver.: always
<i>groupId</i>	The group identifier. Ver.: always
<i>sceneId</i>	The scene identifier. Ver.: always

#### 6.4.2.263 void emberAfOnOffClusterLevelControlEffectCallback ( int8u *endpoint*, boolean *newValue* )

On/off Cluster Level Control Effect.

This is called by the framework when the on/off cluster initiates a command that must effect a level control change. The implementation assumes that the client will handle any effect on the On/Off Cluster.

##### Parameters

<i>endpoint</i>	Ver.: always
<i>newValue</i>	Ver.: always

#### 6.4.2.264 void emberAfOnOffClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

On/off Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.265 void emberAfOnOffClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

On/off Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.266 void emberAfOnOffClusterClientInitCallback ( int8u *endpoint* )

On/off Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.267 void emberAfOnOffClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, int16u *manufacturerCode* )

On/off Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelid</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.268 void emberAfOnOffClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

On/off Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.269 EmberAfStatus emberAfOnOffClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

On/off Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.270 void emberAfOnOffClusterClientTickCallback ( int8u endpoint )**

On/off Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.271 boolean emberAfOnOffClusterOffCallback ( void )**

On/off Cluster Off.

**6.4.2.272 boolean emberAfOnOffClusterOffWithEffectCallback ( int8u effectId, int8u effectVariant )**

On/off Cluster Off With Effect.

**Parameters**

<i>effectId</i>	Ver.: always
<i>effectVariant</i>	Ver.: always

**6.4.2.273 boolean emberAfOnOffClusterOnCallback ( void )**

On/off Cluster On.

**6.4.2.274 boolean emberAfOnOffClusterOnWithRecallGlobalSceneCallback ( void )**

On/off Cluster On With Recall Global Scene.

**6.4.2.275 boolean emberAfOnOffClusterOnWithTimedOffCallback ( int8u onOffControl, int16u onTime, int16u offWaitTime )**

On/off Cluster On With Timed Off.

**Parameters**

<i>onOffControl</i>	Ver.: always
<i>onTime</i>	Ver.: always
<i>offWaitTime</i>	Ver.: always

**6.4.2.276 boolean emberAfOnOffClusterSampleMfgSpecificOffWithTransitionCallback ( void )**

On/off Cluster Sample Mfg Specific Off With Transition.

**6.4.2.277 boolean emberAfOnOffClusterSampleMfgSpecificOnWithTransitionCallback ( void )**

On/off Cluster Sample Mfg Specific On With Transition.

**6.4.2.278 boolean emberAfOnOffClusterSampleMfgSpecificToggleWithTransitionCallback ( void )**

On/off Cluster Sample Mfg Specific Toggle With Transition.

**6.4.2.279 void emberAfOnOffClusterServerAttributeChangedCallback ( int8u endpoint,  
EmberAfAttributeId attributeId )**

On/off Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.280 void emberAfOnOffClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId,  
EmberAfStatus status )**

On/off Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.281 void emberAfOnOffClusterServerInitCallback ( int8u endpoint )**

On/off Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.282 void emberAfOnOffClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

On/off Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.283 void emberAfOnOffClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

On/off Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.284 EmberAfStatus emberAfOnOffClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

On/off Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.285 void emberAfOnOffClusterServerTickCallback ( int8u *endpoint* )**

On/off Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.286 boolean emberAfOnOffClusterToggleCallback ( void )**

On/off Cluster Toggle.

**6.4.2.287 EmberAfStatus emberAfOnOffClusterSetValueCallback ( int8u *endpoint*, int8u *command*, boolean *initiatedByLevelChange* )**

On/off Cluster Set Value.

This function is called when the on/off value needs to be set, either through normal channels or as a result of a level change.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>command</i>	Ver.: always
<i>initiatedByLevelChange</i>	Ver.: always

**6.4.2.288 void emberAfOnOffSwitchConfigClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

On/off Switch Configuration Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.289 void emberAfOnOffSwitchConfigClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

On/off Switch Configuration Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.290 void emberAfOnOffSwitchConfigClusterClientInitCallback ( int8u endpoint )

On/off Switch Configuration Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.291 void emberAfOnOffSwitchConfigClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )

On/off Switch Configuration Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.292 void emberAfOnOffSwitchConfigClusterClientMessageSentCallback ( EmberOutgoing-MessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )

On/off Switch Configuration Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.293 EmberAfStatus emberAfOnOffSwitchConfigClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, EmberAfAttributeType attributeType, int8u size, int8u \* value )

On/off Switch Configuration Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.294 void emberAfOnOffSwitchConfigClusterClientTickCallback ( int8u endpoint )**

On/off Switch Configuration Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.295 void emberAfOnOffSwitchConfigClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

On/off Switch Configuration Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.296 void emberAfOnOffSwitchConfigClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

On/off Switch Configuration Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.297 void emberAfOnOffSwitchConfigClusterServerInitCallback ( int8u endpoint )**

On/off Switch Configuration Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.298 void emberAfOnOffSwitchConfigClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

On/off Switch Configuration Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.299 void emberAfOnOffSwitchConfigClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

On/off Switch Configuration Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.300 EmberAfStatus emberAfOnOffSwitchConfigClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

On/off Switch Configuration Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.301 void emberAfOnOffSwitchConfigClusterServerTickCallback ( int8u *endpoint* )

On/off Switch Configuration Cluster Server Tick.

Server Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.302 void emberAfLevelControlClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )

Level Control Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.303 void emberAfLevelControlClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Level Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.304 void emberAfLevelControlClusterClientInitCallback ( int8u *endpoint* )

Level Control Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.305 void emberAfLevelControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Level Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.306 void emberAfLevelControlClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Level Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.307 EmberAfStatus emberAfLevelControlClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Level Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.308 void emberAfLevelControlClusterClientTickCallback ( int8u *endpoint* )**

Level Control Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.309 boolean emberAfLevelControlClusterMoveCallback ( int8u *moveMode*, int8u *rate* )

Level Control Cluster Move.

##### Parameters

<i>moveMode</i>	Ver.: always
<i>rate</i>	Ver.: always

#### 6.4.2.310 boolean emberAfLevelControlClusterMoveToLevelCallback ( int8u *level*, int16u *transitionTime* )

Level Control Cluster Move To Level.

##### Parameters

<i>level</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.311 boolean emberAfLevelControlClusterMoveToLevelWithOnOffCallback ( int8u *level*, int16u *transitionTime* )

Level Control Cluster Move To Level With On Off.

##### Parameters

<i>level</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.312 boolean emberAfLevelControlClusterMoveWithOnOffCallback ( int8u *moveMode*, int8u *rate* )

Level Control Cluster Move With On Off.

##### Parameters

<i>moveMode</i>	Ver.: always
<i>rate</i>	Ver.: always

#### 6.4.2.313 void emberAfLevelControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Level Control Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.314 void emberAfLevelControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Level Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.315 void emberAfLevelControlClusterServerInitCallback ( int8u *endpoint* )**

Level Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.316 void emberAfLevelControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Level Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.317 void emberAfLevelControlClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Level Control Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.318 EmberAfStatus emberAfLevelControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Level Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.319 void emberAfLevelControlClusterServerTickCallback ( int8u *endpoint* )**

Level Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.320 boolean emberAfLevelControlClusterStepCallback ( int8u *stepMode*, int8u *stepSize*, int16u *transitionTime* )**

Level Control Cluster Step.

#### Parameters

<i>stepMode</i>	Ver.: always
<i>stepSize</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.321 boolean emberAfLevelControlClusterStepWithOnOffCallback ( int8u *stepMode*, int8u *stepSize*, int16u *transitionTime* )**

Level Control Cluster Step With On Off.

#### Parameters

<i>stepMode</i>	Ver.: always
<i>stepSize</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.322 boolean emberAfLevelControlClusterStopCallback ( void )

Level Control Cluster Stop.

#### 6.4.2.323 boolean emberAfLevelControlClusterStopWithOnOffCallback ( void )

Level Control Cluster Stop With On Off.

#### 6.4.2.324 boolean emberAfAlarmClusterAlarmCallback ( int8u *alarmCode*, int16u *clusterId* )

Alarms Cluster Alarm.

##### Parameters

<i>alarmCode</i>	Ver.: always
<i>clusterId</i>	Ver.: always

#### 6.4.2.325 void emberAfAlarmClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Alarms Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.326 void emberAfAlarmClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Alarms Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.327 void emberAfAlarmClusterClientInitCallback ( int8u *endpoint* )

Alarms Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.328 void emberAfAlarmClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, int16u *manufacturerCode* )**

Alarms Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.329 void emberAfAlarmClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Alarms Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.330 EmberAfStatus emberAfAlarmClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Alarms Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.331 void emberAfAlarmClusterClientTickCallback ( int8u *endpoint* )

Alarms Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.332 boolean emberAfAlarmClusterGetAlarmCallback ( void )

Alarms Cluster Get Alarm.

#### 6.4.2.333 boolean emberAfAlarmClusterGetAlarmResponseCallback ( int8u *status*, int8u *alarmCode*, int16u *clusterId*, int32u *timeStamp* )

Alarms Cluster Get Alarm Response.

##### Parameters

<i>status</i>	Ver.: always
<i>alarmCode</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>timeStamp</i>	Ver.: always

#### 6.4.2.334 boolean emberAfAlarmClusterResetAlarmCallback ( int8u *alarmCode*, int16u *clusterId* )

Alarms Cluster Reset Alarm.

##### Parameters

<i>alarmCode</i>	Ver.: always
<i>clusterId</i>	Ver.: always

#### 6.4.2.335 boolean emberAfAlarmClusterResetAlarmLogCallback ( void )

Alarms Cluster Reset Alarm Log.

#### 6.4.2.336 boolean emberAfAlarmClusterResetAllAlarmsCallback ( void )

Alarms Cluster Reset All Alarms.

#### 6.4.2.337 void emberAfAlarmClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Alarms Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.338 void emberAfAlarmClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Alarms Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.339 void emberAfAlarmClusterServerInitCallback ( int8u *endpoint* )**

Alarms Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.340 void emberAfAlarmClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Alarms Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.341 void emberAfAlarmClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Alarms Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.342 EmberAfStatus emberAfAlarmClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Alarms Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.343 void emberAfAlarmClusterServerTickCallback ( int8u *endpoint* )**

Alarms Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.344 void emberAfTimeClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Time Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.345 void emberAfTimeClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Time Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.346 void emberAfTimeClusterClientInitCallback ( int8u *endpoint* )**

Time Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.347 void emberAfTimeClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Time Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.348 void emberAfTimeClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Time Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.349 EmberAfStatus emberAfTimeClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Time Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.350 void emberAfTimeClusterClientTickCallback ( int8u *endpoint* )**

Time Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.351 void emberAfTimeClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Time Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.352 void emberAfTimeClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Time Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.353 void emberAfTimeClusterServerInitCallback ( int8u *endpoint* )**

Time Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.354 void emberAfTimeClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Time Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.355 void emberAfTimeClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Time Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.356 EmberAfStatus emberAfTimeClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Time Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.357 void emberAfTimeClusterServerTickCallback ( int8u *endpoint* )**

Time Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.358 boolean emberAfRssiLocationClusterAnchorNodeAnnounceCallback ( int8u \* *anchorNodeIeeeAddress*, int16s *coordinate1*, int16s *coordinate2*, int16s *coordinate3* )**

RSSI Location Cluster Anchor Node Announce.

**Parameters**

<i>anchorNode-IeeeAddress</i>	Ver.: always
<i>coordinate1</i>	Ver.: always
<i>coordinate2</i>	Ver.: always
<i>coordinate3</i>	Ver.: always

**6.4.2.359 void emberAfRssiLocationClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

RSSI Location Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.360 void emberAfRssiLocationClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

RSSI Location Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.361 void emberAfRssiLocationClusterClientInitCallback ( int8u *endpoint* )**

RSSI Location Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.362 void emberAfRssiLocationClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

RSSI Location Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.363 void emberAfRssiLocationClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

RSSI Location Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.364 EmberAfStatus emberAfRssiLocationClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

RSSI Location Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.365 void emberAfRssiLocationClusterClientTickCallback ( int8u *endpoint* )**

RSSI Location Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.366 boolean emberAfRssiLocationClusterCompactLocationDataNotificationCallback ( int8u *locationType*, int16s *coordinate1*, int16s *coordinate2*, int16s *coordinate3*, int8u *qualityMeasure*, int16u *locationAge* )**

RSSI Location Cluster Compact Location Data Notification.

#### Parameters

<i>locationType</i>	Ver.: always
<i>coordinate1</i>	Ver.: always
<i>coordinate2</i>	Ver.: always
<i>coordinate3</i>	Ver.: always
<i>qualityMeasure</i>	Ver.: always
<i>locationAge</i>	Ver.: always

**6.4.2.367 boolean emberAfRssiLocationClusterDeviceConfigurationResponseCallback ( int8u *status*, int16s *power*, int16u *pathLossExponent*, int16u *calculationPeriod*, int8u *numberRssiMeasurements*, int16u *reportingPeriod* )**

RSSI Location Cluster Device Configuration Response.

**Parameters**

<i>status</i>	Ver.: always
<i>power</i>	Ver.: always
<i>pathLoss-Exponent</i>	Ver.: always
<i>calculation-Period</i>	Ver.: always
<i>numberRssi-Measurements</i>	Ver.: always
<i>reporting-Period</i>	Ver.: always

**6.4.2.368 boolean emberAfRssiLocationClusterGetDeviceConfigurationCallback ( int8u \* *targetAddress* )**

RSSI Location Cluster Get Device Configuration.

**Parameters**

<i>targetAddress</i>	Ver.: always
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**6.4.2.369 boolean emberAfRssiLocationClusterGetLocationDataCallback ( int8u *flags*, int8u *numberResponses*, int8u \* *targetAddress* )**

RSSI Location Cluster Get Location Data.

**Parameters**

<i>flags</i>	Ver.: always
<i>number-Responses</i>	Ver.: always
<i>targetAddress</i>	Ver.: always

**6.4.2.370 boolean emberAfRssiLocationClusterLocationDataNotificationCallback ( int8u *locationType*, int16s *coordinate1*, int16s *coordinate2*, int16s *coordinate3*, int16s *power*, int16u *pathLossExponent*, int8u *locationMethod*, int8u *qualityMeasure*, int16u *locationAge* )**

RSSI Location Cluster Location Data Notification.

**Parameters**

<i>locationType</i>	Ver.: always
<i>coordinate1</i>	Ver.: always
<i>coordinate2</i>	Ver.: always
<i>coordinate3</i>	Ver.: always
<i>power</i>	Ver.: always
<i>pathLoss-Exponent</i>	Ver.: always
<i>locationMethod</i>	Ver.: always
<i>qualityMeasure</i>	Ver.: always
<i>locationAge</i>	Ver.: always

**6.4.2.371 boolean emberAfRssiLocationClusterLocationDataResponseCallback ( int8u *status*, int8u *locationType*, int16s *coordinate1*, int16s *coordinate2*, int16s *coordinate3*, int16s *power*, int16u *pathLossExponent*, int8u *locationMethod*, int8u *qualityMeasure*, int16u *locationAge* )**

RSSI Location Cluster Location Data Response.

#### Parameters

<i>status</i>	Ver.: always
<i>locationType</i>	Ver.: always
<i>coordinate1</i>	Ver.: always
<i>coordinate2</i>	Ver.: always
<i>coordinate3</i>	Ver.: always
<i>power</i>	Ver.: always
<i>pathLoss-Exponent</i>	Ver.: always
<i>locationMethod</i>	Ver.: always
<i>qualityMeasure</i>	Ver.: always
<i>locationAge</i>	Ver.: always

**6.4.2.372 boolean emberAfRssiLocationClusterReportRssiMeasurementsCallback ( int8u \* *measuringDevice*, int8u *neighbors*, int8u \* *neighborsInfo* )**

RSSI Location Cluster Report Rssi Measurements.

#### Parameters

<i>measuring-Device</i>	Ver.: always
<i>neighbors</i>	Ver.: always
<i>neighborsInfo</i>	Ver.: always

**6.4.2.373 boolean emberAfRssiLocationClusterRequestOwnLocationCallback ( int8u \* *blindNode* )**

RSSI Location Cluster Request Own Location.

#### Parameters

<i>blindNode</i>	Ver.: always
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**6.4.2.374 boolean emberAfRssiLocationClusterRssiPingCallback ( int8u *locationType* )**

RSSI Location Cluster Rssi Ping.

#### Parameters

<i>locationType</i>	Ver.: always
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#### 6.4.2.375 boolean emberAfRssiLocationClusterRssiRequestCallback ( void )

RSSI Location Cluster Rssi Request.

#### 6.4.2.376 boolean emberAfRssiLocationClusterRssiResponseCallback ( int8u \* *replyingDevice*, int16s *coordinate1*, int16s *coordinate2*, int16s *coordinate3*, int8s *rssi*, int8u *numberRssiMeasurements* )

RSSI Location Cluster Rssi Response.

##### Parameters

<i>replyingDevice</i>	Ver.: always
<i>coordinate1</i>	Ver.: always
<i>coordinate2</i>	Ver.: always
<i>coordinate3</i>	Ver.: always
<i>rssi</i>	Ver.: always
<i>numberRssiMeasurements</i>	Ver.: always

#### 6.4.2.377 boolean emberAfRssiLocationClusterSendPingsCallback ( int8u \* *targetAddress*, int8u *numberRssiMeasurements*, int16u *calculationPeriod* )

RSSI Location Cluster Send Pings.

##### Parameters

<i>targetAddress</i>	Ver.: always
<i>numberRssiMeasurements</i>	Ver.: always
<i>calculationPeriod</i>	Ver.: always

#### 6.4.2.378 void emberAfRssiLocationClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

RSSI Location Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.379 void emberAfRssiLocationClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

RSSI Location Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.380 void emberAfRssiLocationClusterServerInitCallback ( int8u *endpoint* )

RSSI Location Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.381 void emberAfRssiLocationClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

RSSI Location Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.382 void emberAfRssiLocationClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

RSSI Location Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.383 EmberAfStatus emberAfRssiLocationClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

RSSI Location Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.384 void emberAfRssiLocationClusterServerTickCallback ( int8u *endpoint* )**

RSSI Location Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.385 boolean emberAfRssiLocationClusterSetAbsoluteLocationCallback ( int16s *coordinate1*, int16s *coordinate2*, int16s *coordinate3*, int16s *power*, int16u *pathLossExponent* )**

RSSI Location Cluster Set Absolute Location.

#### Parameters

<i>coordinate1</i>	Ver.: always
<i>coordinate2</i>	Ver.: always
<i>coordinate3</i>	Ver.: always
<i>power</i>	Ver.: always
<i>pathLoss-Exponent</i>	Ver.: always

**6.4.2.386 boolean emberAfRssiLocationClusterSetDeviceConfigurationCallback ( int16s *power*, int16u *pathLossExponent*, int16u *calculationPeriod*, int8u *numberRssiMeasurements*, int16u *reportingPeriod* )**

RSSI Location Cluster Set Device Configuration.

#### Parameters

<i>power</i>	Ver.: always
<i>pathLoss-Exponent</i>	Ver.: always

<i>calculation-Period</i>	Ver.: always
<i>numberRssi-Measurements</i>	Ver.: always
<i>reporting-Period</i>	Ver.: always

**6.4.2.387 void emberAfBinaryInputBasicClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Binary Input (Basic) Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.388 void emberAfBinaryInputBasicClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Binary Input (Basic) Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.389 void emberAfBinaryInputBasicClusterClientInitCallback ( int8u *endpoint* )**

Binary Input (Basic) Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.390 void emberAfBinaryInputBasicClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Binary Input (Basic) Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.391 void emberAfBinaryInputBasicClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Binary Input (Basic) Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.392 EmberAfStatus emberAfBinaryInputBasicClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Binary Input (Basic) Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelid</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.393 void emberAfBinaryInputBasicClusterClientTickCallback ( int8u *endpoint* )**

Binary Input (Basic) Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.394 void emberAfBinaryInputBasicClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Binary Input (Basic) Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.395 void emberAfBinaryInputBasicClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Binary Input (Basic) Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.396 void emberAfBinaryInputBasicClusterServerInitCallback ( int8u *endpoint* )**

Binary Input (Basic) Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.397 void emberAfBinaryInputBasicClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Binary Input (Basic) Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.398 void emberAfBinaryInputBasicClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Binary Input (Basic) Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.399 EmberAfStatus emberAfBinaryInputBasicClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Binary Input (Basic) Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.400 void emberAfBinaryInputBasicClusterServerTickCallback ( int8u *endpoint* )**

Binary Input (Basic) Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.401 void emberAfCommissioningClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Commissioning Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.402 void emberAfCommissioningClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Commissioning Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.403 void emberAfCommissioningClusterClientInitCallback ( int8u *endpoint* )**

Commissioning Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.404 void emberAfCommissioningClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Commissioning Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.405 void emberAfCommissioningClusterClientMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Commissioning Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.406 EmberAfStatus emberAfCommissioningClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Commissioning Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.407 void emberAfCommissioningClusterClientTickCallback ( int8u endpoint )**

Commissioning Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.408 boolean emberAfCommissioningClusterResetStartupParametersCallback ( int8u options, int8u index )**

Commissioning Cluster Reset Startup Parameters.

**Parameters**

<i>options</i>	Ver.: always
<i>index</i>	Ver.: always

**6.4.2.409 boolean emberAfCommissioningClusterResetStartupParametersResponseCallback ( int8u status )**

Commissioning Cluster Reset Startup Parameters Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.410 boolean emberAfCommissioningClusterRestartDeviceCallback ( int8u *options*, int8u *delay*, int8u *jitter* )**

Commissioning Cluster Restart Device.

**Parameters**

<i>options</i>	Ver.: always
<i>delay</i>	Ver.: always
<i>jitter</i>	Ver.: always

**6.4.2.411 boolean emberAfCommissioningClusterRestartDeviceResponseCallback ( int8u *status* )**

Commissioning Cluster Restart Device Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.412 boolean emberAfCommissioningClusterRestoreStartupParametersCallback ( int8u *options*, int8u *index* )**

Commissioning Cluster Restore Startup Parameters.

**Parameters**

<i>options</i>	Ver.: always
<i>index</i>	Ver.: always

**6.4.2.413 boolean emberAfCommissioningClusterRestoreStartupParametersResponseCallback ( int8u *status* )**

Commissioning Cluster Restore Startup Parameters Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.414 boolean emberAfCommissioningClusterSaveStartupParametersCallback ( int8u *options*, int8u *index* )**

Commissioning Cluster Save Startup Parameters.

**Parameters**

<i>options</i>	Ver.: always
<i>index</i>	Ver.: always

**6.4.2.415 boolean emberAfCommissioningClusterSaveStartupParametersResponseCallback ( int8u *status* )**

Commissioning Cluster Save Startup Parameters Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.416 void emberAfCommissioningClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Commissioning Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.417 void emberAfCommissioningClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Commissioning Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.418 void emberAfCommissioningClusterServerInitCallback ( int8u *endpoint* )**

Commissioning Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.419 void emberAfCommissioningClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Commissioning Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.420 void emberAfCommissioningClusterServerMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Commissioning Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.421 EmberAfStatus emberAfCommissioningClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Commissioning Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.422 void emberAfCommissioningClusterServerTickCallback ( int8u *endpoint* )**

Commissioning Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.423 void emberAfPartitionClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Partition Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.424 void emberAfPartitionClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Partition Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.425 void emberAfPartitionClusterClientInitCallback ( int8u *endpoint* )**

Partition Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.426 void emberAfPartitionClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Partition Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always
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**6.4.2.427 void emberAfPartitionClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Partition Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.428 EmberAfStatus emberAfPartitionClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Partition Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.429 void emberAfPartitionClusterClientTickCallback ( int8u *endpoint* )**

Partition Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.430 boolean emberAfPartitionClusterMultipleAckCallback ( int8u *ackOptions*, int8u \* *firstFrameIdAndNackList* )**

Partition Cluster Multiple Ack.

**Parameters**

<i>ackOptions</i>	Ver.: always
<i>firstFrameId-AndNackList</i>	Ver.: always

**6.4.2.431 boolean emberAfPartitionClusterReadHandshakeParamCallback ( int16u *partitionedClusterId*, int8u \* *attributeList* )**

Partition Cluster Read Handshake Param.

**Parameters**

<i>partitioned-ClusterId</i>	Ver.: always
<i>attributeList</i>	Ver.: always

**6.4.2.432 boolean emberAfPartitionClusterReadHandshakeParamResponseCallback ( int16u *partitionedClusterId*, int8u \* *readAttributeStatusRecords* )**

Partition Cluster Read Handshake Param Response.

**Parameters**

<i>partitioned-ClusterId</i>	Ver.: always
<i>readAttribute-StatusRecords</i>	Ver.: always

**6.4.2.433 void emberAfPartitionClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Partition Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.434 void emberAfPartitionClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Partition Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.435 void emberAfPartitionClusterServerInitCallback ( int8u *endpoint* )

Partition Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.436 void emberAfPartitionClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Partition Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.437 void emberAfPartitionClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Partition Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.438 EmberAfStatus emberAfPartitionClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Partition Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.439 void emberAfPartitionClusterServerTickCallback ( int8u *endpoint* )**

Partition Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.440 boolean emberAfPartitionClusterTransferPartitionedFrameCallback ( int8u *fragmentationOptions*, int8u \* *partitionedIndicatorAndFrame* )**

Partition Cluster Transfer Partitioned Frame.

**Parameters**

<i>fragmentation-Options</i>	Ver.: always
<i>partitioned-IndicatorAnd-Frame</i>	Ver.: always

**6.4.2.441 boolean emberAfPartitionClusterWriteHandshakeParamCallback ( int16u *partitionedClusterId*, int8u \* *writeAttributeRecords* )**

Partition Cluster Write Handshake Param.

**Parameters**

<i>partitioned-ClusterId</i>	Ver.: always
<i>writeAttribute-Records</i>	Ver.: always

**6.4.2.442 void emberAfOtaBootloadClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Over the Air Bootloading Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.443 void emberAfOtaBootloadClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Over the Air Bootloading Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.444 void emberAfOtaBootloadClusterClientInitCallback ( int8u *endpoint* )**

Over the Air Bootloading Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.445 void emberAfOtaBootloadClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Over the Air Bootloading Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.446 void emberAfOtaBootloadClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Over the Air Bootloading Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.447 EmberAfStatus emberAfOtaBootloadClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Over the Air Bootloading Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.448 void emberAfOtaBootloadClusterClientTickCallback ( int8u *endpoint* )**

Over the Air Bootloading Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.449 void emberAfOtaBootloadClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Over the Air Bootloading Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.450 void emberAfOtaBootloadClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Over the Air Bootloading Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.451 void emberAfOtaBootloadClusterServerInitCallback ( int8u *endpoint* )**

Over the Air Bootloading Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.452 void emberAfOtaBootloadClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Over the Air Bootloading Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.453 void emberAfOtaBootloadClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Over the Air Bootloading Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.454 EmberAfStatus emberAfOtaBootloadClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Over the Air Bootloading Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.455 void emberAfOtaBootloadClusterServerTickCallback ( int8u endpoint )**

Over the Air Bootloading Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.456 void emberAfPowerProfileClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Power Profile Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.457 void emberAfPowerProfileClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Power Profile Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.458 void emberAfPowerProfileClusterClientInitCallback ( int8u *endpoint* )**

Power Profile Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.459 void emberAfPowerProfileClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Power Profile Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.460 void emberAfPowerProfileClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Power Profile Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.461 EmberAfStatus emberAfPowerProfileClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Power Profile Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.462 void emberAfPowerProfileClusterClientTickCallback ( int8u *endpoint* )**

Power Profile Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.463 boolean emberAfPowerProfileClusterEnergyPhasesScheduleNotificationCallback ( int8u *powerProfileId*, int8u *numOfScheduledPhases*, int8u \* *scheduledPhases* )**

Power Profile Cluster Energy Phases Schedule Notification.

#### Parameters

<i>powerProfileId</i>	Ver.: always
<i>numOfScheduledPhases</i>	Ver.: always
<i>scheduledPhases</i>	Ver.: always

**6.4.2.464 boolean emberAfPowerProfileClusterEnergyPhasesScheduleRequestCallback ( int8u *powerProfileId* )**

Power Profile Cluster Energy Phases Schedule Request.

**Parameters**

<i>powerProfileId</i>	Ver.: always
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**6.4.2.465 boolean emberAfPowerProfileClusterEnergyPhasesScheduleResponseCallback ( int8u powerProfileId, int8u numOfScheduledPhases, int8u \* scheduledPhases )**

Power Profile Cluster Energy Phases Schedule Response.

**Parameters**

<i>powerProfileId</i>	Ver.: always
<i>numOfScheduledPhases</i>	Ver.: always
<i>scheduledPhases</i>	Ver.: always

**6.4.2.466 boolean emberAfPowerProfileClusterEnergyPhasesScheduleStateNotificationCallback ( int8u powerProfileId, int8u numOfScheduledPhases, int8u \* scheduledPhases )**

Power Profile Cluster Energy Phases Schedule State Notification.

**Parameters**

<i>powerProfileId</i>	Ver.: always
<i>numOfScheduledPhases</i>	Ver.: always
<i>scheduledPhases</i>	Ver.: always

**6.4.2.467 boolean emberAfPowerProfileClusterEnergyPhasesScheduleStateRequestCallback ( int8u powerProfileId )**

Power Profile Cluster Energy Phases Schedule State Request.

**Parameters**

<i>powerProfileId</i>	Ver.: always
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**6.4.2.468 boolean emberAfPowerProfileClusterEnergyPhasesScheduleStateResponseCallback ( int8u powerProfileId, int8u numOfScheduledPhases, int8u \* scheduledPhases )**

Power Profile Cluster Energy Phases Schedule State Response.

**Parameters**

<i>powerProfileId</i>	Ver.: always
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<i>numOf-Scheduled-Phases</i>	Ver.: always
<i>scheduled-Phases</i>	Ver.: always

#### 6.4.2.469 boolean emberAfPowerProfileClusterGetOverallSchedulePriceCallback ( void )

Power Profile Cluster Get Overall Schedule Price.

#### 6.4.2.470 boolean emberAfPowerProfileClusterGetOverallSchedulePriceResponseCallback ( int16u currency, int32u price, int8u priceTrailingDigit )

Power Profile Cluster Get Overall Schedule Price Response.

##### Parameters

<i>currency</i>	Ver.: always
<i>price</i>	Ver.: always
<i>priceTrailing-Digit</i>	Ver.: always

#### 6.4.2.471 boolean emberAfPowerProfileClusterGetPowerProfilePriceCallback ( int8u powerProfileId )

Power Profile Cluster Get Power Profile Price.

##### Parameters

<i>powerProfileId</i>	Ver.: always
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#### 6.4.2.472 boolean emberAfPowerProfileClusterGetPowerProfilePriceExtendedCallback ( int8u options, int8u powerProfileId, int16u powerProfileStartTime )

Power Profile Cluster Get Power Profile Price Extended.

##### Parameters

<i>options</i>	Ver.: always
<i>powerProfileId</i>	Ver.: always
<i>powerProfile-StartTime</i>	Ver.: always

#### 6.4.2.473 boolean emberAfPowerProfileClusterGetPowerProfilePriceExtendedResponseCallback ( int8u powerProfileId, int16u currency, int32u price, int8u priceTrailingDigit )

Power Profile Cluster Get Power Profile Price Extended Response.

**Parameters**

<i>powerProfileId</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>price</i>	Ver.: always
<i>priceTrailing-Digit</i>	Ver.: always

**6.4.2.474 boolean emberAfPowerProfileClusterGetPowerProfilePriceResponseCallback ( int8u powerProfileId, int16u currency, int32u price, int8u priceTrailingDigit )**

Power Profile Cluster Get Power Profile Price Response.

**Parameters**

<i>powerProfileId</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>price</i>	Ver.: always
<i>priceTrailing-Digit</i>	Ver.: always

**6.4.2.475 boolean emberAfPowerProfileClusterPowerProfileNotificationCallback ( int8u totalProfileNum, int8u powerProfileId, int8u numOfTransferredPhases, int8u \* transferredPhases )**

Power Profile Cluster Power Profile Notification.

**Parameters**

<i>totalProfile-Num</i>	Ver.: always
<i>powerProfileId</i>	Ver.: always
<i>numOf-Transferred-Phases</i>	Ver.: always
<i>transferred-Phases</i>	Ver.: always

**6.4.2.476 boolean emberAfPowerProfileClusterPowerProfileRequestCallback ( int8u powerProfileId )**

Power Profile Cluster Power Profile Request.

**Parameters**

<i>powerProfileId</i>	Ver.: always
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**6.4.2.477 boolean emberAfPowerProfileClusterPowerProfileResponseCallback ( int8u totalProfileNum, int8u powerProfileId, int8u numOfTransferredPhases, int8u \* transferredPhases )**

Power Profile Cluster Power Profile Response.

**Parameters**

<i>totalProfile-Num</i>	Ver.: always
<i>powerProfileId</i>	Ver.: always
<i>numOf-Transferred-Phases</i>	Ver.: always
<i>transferred-Phases</i>	Ver.: always

**6.4.2.478 boolean emberAfPowerProfileClusterPowerProfileScheduleConstraintsNotificationCallback ( int8u *powerProfileId*, int16u *startAfter*, int16u *stopBefore* )**

Power Profile Cluster Power Profile Schedule Constraints Notification.

**Parameters**

<i>powerProfileId</i>	Ver.: always
<i>startAfter</i>	Ver.: always
<i>stopBefore</i>	Ver.: always

**6.4.2.479 boolean emberAfPowerProfileClusterPowerProfileScheduleConstraintsRequestCallback ( int8u *powerProfileId* )**

Power Profile Cluster Power Profile Schedule Constraints Request.

**Parameters**

<i>powerProfileId</i>	Ver.: always
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**6.4.2.480 boolean emberAfPowerProfileClusterPowerProfileScheduleConstraintsResponseCallback ( int8u *powerProfileId*, int16u *startAfter*, int16u *stopBefore* )**

Power Profile Cluster Power Profile Schedule Constraints Response.

**Parameters**

<i>powerProfileId</i>	Ver.: always
<i>startAfter</i>	Ver.: always
<i>stopBefore</i>	Ver.: always

**6.4.2.481 boolean emberAfPowerProfileClusterPowerProfileStateRequestCallback ( void )**

Power Profile Cluster Power Profile State Request.

**6.4.2.482 boolean emberAfPowerProfileClusterPowerProfileStateResponseCallback ( int8u powerProfileCount, int8u \* powerProfileRecords )**

Power Profile Cluster Power Profile State Response.

**Parameters**

<i>powerProfile-Count</i>	Ver.: always
<i>powerProfile-Records</i>	Ver.: always

**6.4.2.483 boolean emberAfPowerProfileClusterPowerProfilesStateNotificationCallback ( int8u powerProfileCount, int8u \* powerProfileRecords )**

Power Profile Cluster Power Profiles State Notification.

**Parameters**

<i>powerProfile-Count</i>	Ver.: always
<i>powerProfile-Records</i>	Ver.: always

**6.4.2.484 void emberAfPowerProfileClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Power Profile Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.485 void emberAfPowerProfileClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Power Profile Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.486 void emberAfPowerProfileClusterServerInitCallback ( int8u *endpoint* )

Power Profile Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.487 void emberAfPowerProfileClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Power Profile Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.488 void emberAfPowerProfileClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Power Profile Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.489 EmberAfStatus emberAfPowerProfileClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Power Profile Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.490 void emberAfPowerProfileClusterServerTickCallback ( int8u endpoint )**

Power Profile Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.491 void emberAfApplianceControlClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Appliance Control Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.492 void emberAfApplianceControlClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Appliance Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.493 void emberAfApplianceControlClusterClientInitCallback ( int8u endpoint )**

Appliance Control Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.494 void emberAfApplianceControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Appliance Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.495 void emberAfApplianceControlClusterClientMessageSentCallback ( EmberOutgoingMessage- Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Appliance Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.496 EmberAfStatus emberAfApplianceControlClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Appliance Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.497 void emberAfApplianceControlClusterClientTickCallback ( int8u *endpoint* )

Appliance Control Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.498 boolean emberAfApplianceControlClusterExecutionOfACommandCallback ( int8u *commandId* )

Appliance Control Cluster Execution Of A Command.

##### Parameters

<i>commandId</i>	Ver.: always
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#### 6.4.2.499 boolean emberAfApplianceControlClusterOverloadPauseCallback ( void )

Appliance Control Cluster Overload Pause.

#### 6.4.2.500 boolean emberAfApplianceControlClusterOverloadPauseResumeCallback ( void )

Appliance Control Cluster Overload Pause Resume.

#### 6.4.2.501 boolean emberAfApplianceControlClusterOverloadWarningCallback ( int8u *warningEvent* )

Appliance Control Cluster Overload Warning.

##### Parameters

<i>warningEvent</i>	Ver.: always
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#### 6.4.2.502 void emberAfApplianceControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Appliance Control Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.503 void emberAfApplianceControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Appliance Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.504 void emberAfApplianceControlClusterServerInitCallback ( int8u *endpoint* )**

Appliance Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.505 void emberAfApplianceControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Appliance Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.506 void emberAfApplianceControlClusterServerMessageSentCallback ( EmberOutgoingMessage-  
Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \*  
*message*, EmberStatus *status* )**

Appliance Control Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.507 EmberAfStatus emberAfApplianceControlClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Appliance Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.508 void emberAfApplianceControlClusterServerTickCallback ( int8u endpoint )**

Appliance Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.509 boolean emberAfApplianceControlClusterSignalStateCallback ( void )**

Appliance Control Cluster Signal State.

**6.4.2.510 boolean emberAfApplianceControlClusterSignalStateNotificationCallback ( int8u applianceStatus, int8u remoteEnableFlagsAndDeviceStatus2, int32u applianceStatus2 )**

Appliance Control Cluster Signal State Notification.

#### Parameters

<i>appliance-Status</i>	Ver.: always
<i>remoteEnable-FlagsAnd-DeviceStatus2</i>	Ver.: always
<i>appliance-Status2</i>	Ver.: always

**6.4.2.511 boolean emberAfApplianceControlClusterSignalStateResponseCallback ( int8u *applianceStatus*, int8u *remoteEnableFlagsAndDeviceStatus2*, int32u *applianceStatus2* )**

Appliance Control Cluster Signal State Response.

**Parameters**

<i>appliance-Status</i>	Ver.: always
<i>remoteEnable-FlagsAnd-DeviceStatus2</i>	Ver.: always
<i>appliance-Status2</i>	Ver.: always

**6.4.2.512 boolean emberAfApplianceControlClusterWriteFunctionsCallback ( int16u *functionId*, int8u *functionDataType*, int8u \* *functionData* )**

Appliance Control Cluster Write Functions.

**Parameters**

<i>functionId</i>	Ver.: always
<i>functionData-Type</i>	Ver.: always
<i>functionData</i>	Ver.: always

**6.4.2.513 boolean emberAfPollControlClusterCheckInCallback ( void )**

Poll Control Cluster Check In.

**6.4.2.514 boolean emberAfPollControlClusterCheckInResponseCallback ( int8u *startFastPolling*, int16u *fastPollTimeout* )**

Poll Control Cluster Check In Response.

**Parameters**

<i>startFast-Polling</i>	Ver.: always
<i>fastPollTimeout</i>	Ver.: always

**6.4.2.515 void emberAfPollControlClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Poll Control Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.516 void emberAfPollControlClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Poll Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.517 void emberAfPollControlClusterClientInitCallback ( int8u *endpoint* )**

Poll Control Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.518 void emberAfPollControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Poll Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.519 void emberAfPollControlClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Poll Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.520 EmberAfStatus emberAfPollControlClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Poll Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.521 void emberAfPollControlClusterClientTickCallback ( int8u *endpoint* )**

Poll Control Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.522 boolean emberAfPollControlClusterFastPollStopCallback ( void )**

Poll Control Cluster Fast Poll Stop.

**6.4.2.523 void emberAfPollControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Poll Control Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.524 void emberAfPollControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Poll Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.525 void emberAfPollControlClusterServerInitCallback ( int8u *endpoint* )**

Poll Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.526 void emberAfPollControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Poll Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.527 void emberAfPollControlClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Poll Control Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.528 EmberAfStatus emberAfPollControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Poll Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.529 void emberAfPollControlClusterServerTickCallback ( int8u *endpoint* )**

Poll Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.530 boolean emberAfPollControlClusterSetLongPollIntervalCallback ( int32u *newLongPollInterval* )**

Poll Control Cluster Set Long Poll Interval.

#### Parameters

<i>newLongPoll- Interval</i>	Ver.: always
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**6.4.2.531 boolean emberAfPollControlClusterSetShortPollIntervalCallback ( int16u *newShortPollInterval* )**

Poll Control Cluster Set Short Poll Interval.

#### Parameters

<i>newShortPoll- Interval</i>	Ver.: always
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**6.4.2.532 void emberAfGreenPowerClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Green Power Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.533 void emberAfGreenPowerClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Green Power Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.534 void emberAfGreenPowerClusterClientInitCallback ( int8u *endpoint* )**

Green Power Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.535 void emberAfGreenPowerClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Green Power Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.536 void emberAfGreenPowerClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Green Power Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.537 EmberAfStatus emberAfGreenPowerClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Green Power Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.538 void emberAfGreenPowerClusterClientTickCallback ( int8u *endpoint* )**

Green Power Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.539 boolean emberAfGreenPowerClusterGpCommissioningNotificationCallback ( int16u *options*, int32u *gpdSrcId*, int8u \* *gpdIEEE*, int8u *endpoint*, int32u *gpdSecurityFrameCounter*, int8u *gpdCommandId*, int8u \* *gpdCommandPayload*, int16u *gppShortAddress*, int8u *gppLink*, int32u *mic* )**

Green Power Cluster Gp Commissioning Notification.

**Parameters**

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSecurityFrameCounter</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdCommandId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdCommandPayload</i>	Ver.: since gp-1.0-09-5499-24
<i>gppShortAddress</i>	Ver.: since gp-1.0-09-5499-24
<i>gppLink</i>	Ver.: since gp-1.0-09-5499-24
<i>mic</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.540 boolean emberAfGreenPowerClusterGpNotificationCallback ( int16u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *gpdEndpoint*, int32u *gpdSecurityFrameCounter*, int8u *gpdCommandId*, int8u \* *gpdCommandPayload*, int16u *gppShortAddress*, int8u *gppDistance* )**

Green Power Cluster Gp Notification.

**Parameters**

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdEndpoint</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSecurityFrameCounter</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdCommandId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdCommandPayload</i>	Ver.: since gp-1.0-09-5499-24
<i>gppShortAddress</i>	Ver.: since gp-1.0-09-5499-24
<i>gppDistance</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.541 boolean emberAfGreenPowerClusterGpNotificationResponseCallback ( int8u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int32u *gpdSecurityFrameCounter* )**

Green Power Cluster Gp Notification Response.

**Parameters**

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSecurityFrameCounter</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.542 boolean emberAfGreenPowerClusterGpPairingCallback ( int32u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int8u \* *sinkIeeeAddress*, int16u *sinkNwkAddress*, int16u *sinkGroupId*, int8u *deviceId*, int32u *gpdSecurityFrameCounter*, int8u \* *gpdKey*, int16u *assignedAlias*, int8u *forwardingRadius* )**

Green Power Cluster Gp Pairing.

#### Parameters

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: since gp-1.0-09-5499-24
<i>sinkIeee-Address</i>	Ver.: since gp-1.0-09-5499-24
<i>sinkNwk-Address</i>	Ver.: since gp-1.0-09-5499-24
<i>sinkGroupId</i>	Ver.: since gp-1.0-09-5499-24
<i>deviceId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSecurity-FrameCounter</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdKey</i>	Ver.: since gp-1.0-09-5499-24
<i>assignedAlias</i>	Ver.: since gp-1.0-09-5499-24
<i>forwarding-Radius</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.543 boolean emberAfGreenPowerClusterGpPairingConfigurationCallback ( int8u *actions*, int16u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int8u *deviceId*, int8u *groupListCount*, int8u \* *groupList*, int16u *gpdAssignedAlias*, int8u *forwardingRadius*, int8u *securityOptions*, int32u *gpdSecurityFrameCounter*, int8u \* *gpdSecurityKey*, int8u *numberOfPairedEndpoints*, int8u \* *pairedEndpoints*, int8u *applicationInformation*, int16u *manufacturerId*, int16u *modelId*, int8u *numberOfGpdCommands*, int8u \* *gpdCommandIdList*, int8u *clusterIdListCount*, int8u \* *clusterListServer*, int8u \* *clusterListClient* )**

Green Power Cluster Gp Pairing Configuration.

#### Parameters

<i>actions</i>	Ver.: since gp-1.0-09-5499-24
<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: since gp-1.0-09-5499-24
<i>deviceId</i>	Ver.: since gp-1.0-09-5499-24
<i>groupListCount</i>	Ver.: since gp-1.0-09-5499-24
<i>groupList</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdAssigned-Alias</i>	Ver.: since gp-1.0-09-5499-24
<i>forwarding-Radius</i>	Ver.: since gp-1.0-09-5499-24
<i>securityOptions</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSecurity-FrameCounter</i>	Ver.: since gp-1.0-09-5499-24

<i>gpdSecurityKey</i>	Ver.: since gp-1.0-09-5499-24
<i>numberOfPairedEndpoints</i>	Ver.: since gp-1.0-09-5499-24
<i>pairedEndpoints</i>	Ver.: since gp-1.0-09-5499-24
<i>applicationInformation</i>	Ver.: always
<i>manufacturerId</i>	Ver.: always
<i>modeId</i>	Ver.: always
<i>numberOfGpdCommands</i>	Ver.: always
<i>gpdCommandIdList</i>	Ver.: always
<i>clusterIdListCount</i>	Ver.: always
<i>clusterListServer</i>	Ver.: always
<i>clusterListClient</i>	Ver.: always

**6.4.2.544 boolean emberAfGreenPowerClusterGpPairingSearchCallback ( int16u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint* )**

Green Power Cluster Gp Pairing Search.

#### Parameters

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: always

**6.4.2.545 boolean emberAfGreenPowerClusterGpProxyCommissioningModeCallback ( int8u *options*, int16u *commissioningWindow*, int8u *channel* )**

Green Power Cluster Gp Proxy Commissioning Mode.

#### Parameters

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>commissioningWindow</i>	Ver.: since gp-1.0-09-5499-24
<i>channel</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.546 boolean emberAfGreenPowerClusterGpProxyTableRequestCallback ( int8u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int8u *index* )**

Green Power Cluster Gp Proxy Table Request.

**Parameters**

<i>options</i>	Ver.: always
<i>gpdSrcId</i>	Ver.: always
<i>gpdIeee</i>	Ver.: always
<i>endpoint</i>	Ver.: always
<i>index</i>	Ver.: always

**6.4.2.547 boolean emberAfGreenPowerClusterGpProxyTableResponseCallback ( int8u *status*, int8u *totalNumberOfNonEmptyProxyTableEntries*, int8u *startIndex*, int8u *entriesCount*, int8u \* *proxyTableEntries* )**

Green Power Cluster Gp Proxy Table Response.

**Parameters**

<i>status</i>	Ver.: always
<i>totalNumberOfNonEmptyProxyTableEntries</i>	Ver.: always
<i>startIndex</i>	Ver.: always
<i>entriesCount</i>	Ver.: always
<i>proxyTableEntries</i>	Ver.: always

**6.4.2.548 boolean emberAfGreenPowerClusterGpResponseCallback ( int8u *options*, int16u *tempMasterShortAddress*, int8u *tempMasterTxChannel*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int8u *gpdCommandId*, int8u \* *gpdCommandPayload* )**

Green Power Cluster Gp Response.

**Parameters**

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>tempMasterShortAddress</i>	Ver.: since gp-1.0-09-5499-24
<i>tempMasterTxChannel</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: always
<i>gpdCommandId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdCommandPayload</i>	Ver.: always

**6.4.2.549 boolean emberAfGreenPowerClusterGpSinkCommissioningModeCallback ( int8u *options*, int16u *gpmAddrForSecurity*, int16u *gpmAddrForPairing*, int8u *sinkEndpoint* )**

Green Power Cluster Gp Sink Commissioning Mode.

#### Parameters

<i>options</i>	Ver.: always
<i>gpmAddrForSecurity</i>	Ver.: always
<i>gpmAddrForPairing</i>	Ver.: always
<i>sinkEndpoint</i>	Ver.: always

**6.4.2.550 boolean emberAfGreenPowerClusterGpSinkTableRequestCallback ( int8u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int8u *index* )**

Green Power Cluster Gp Sink Table Request.

#### Parameters

<i>options</i>	Ver.: always
<i>gpdSrcId</i>	Ver.: always
<i>gpdIeee</i>	Ver.: always
<i>endpoint</i>	Ver.: always
<i>index</i>	Ver.: always

**6.4.2.551 boolean emberAfGreenPowerClusterGpSinkTableResponseCallback ( int8u *status*, int8u *totalNumberOfNonEmptySinkTableEntries*, int8u *startIndex*, int8u *sinkTableEntriesCount*, int8u \* *sinkTableEntries* )**

Green Power Cluster Gp Sink Table Response.

#### Parameters

<i>status</i>	Ver.: always
<i>totalNumberOfNonEmptySinkTableEntries</i>	Ver.: always
<i>startIndex</i>	Ver.: always
<i>sinkTableEntriesCount</i>	Ver.: always
<i>sinkTableEntries</i>	Ver.: always

**6.4.2.552 boolean emberAfGreenPowerClusterGpTranslationTableRequestCallback ( int8u *startIndex* )**

Green Power Cluster Gp Translation Table Request.

**Parameters**

<i>startIndex</i>	Ver.: since gp-1.0-09-5499-24
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**6.4.2.553 boolean emberAfGreenPowerClusterGpTranslationTableUpdateCallback ( int16u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int8u \* *translations* )**

Green Power Cluster Gp Translation Table Update.

**Parameters**

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: since gp-1.0-09-5499-24
<i>translations</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.554 boolean emberAfGreenPowerClusterGpTunnelingStopCallback ( int8u *options*, int32u *gpdSrcId*, int8u \* *gpdIeee*, int8u *endpoint*, int32u *gpdSecurityFrameCounter*, int16u *gppShortAddress*, int8s *gppDistance* )**

Green Power Cluster Gp Tunneling Stop.

**Parameters**

<i>options</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSrcId</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdIeee</i>	Ver.: since gp-1.0-09-5499-24
<i>endpoint</i>	Ver.: since gp-1.0-09-5499-24
<i>gpdSecurity-FrameCounter</i>	Ver.: since gp-1.0-09-5499-24
<i>gppShort-Address</i>	Ver.: since gp-1.0-09-5499-24
<i>gppDistance</i>	Ver.: since gp-1.0-09-5499-24

**6.4.2.555 void emberAfGreenPowerClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Green Power Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.556 void emberAfGreenPowerClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Green Power Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.557 void emberAfGreenPowerClusterServerInitCallback ( int8u *endpoint* )**

Green Power Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.558 void emberAfGreenPowerClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Green Power Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.559 void emberAfGreenPowerClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Green Power Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.560 EmberAfStatus emberAfGreenPowerClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Green Power Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.561 void emberAfGreenPowerClusterServerTickCallback ( int8u endpoint )**

Green Power Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.562 void emberAfKeepaliveClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Keep-Alive Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.563 void emberAfKeepaliveClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Keep-Alive Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.564 void emberAfKeepaliveClusterClientInitCallback ( int8u *endpoint* )**

Keep-Alive Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.565 void emberAfKeepaliveClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Keep-Alive Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.566 void emberAfKeepaliveClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Keep-Alive Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.567 EmberAfStatus emberAfKeepaliveClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Keep-Alive Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.568 void emberAfKeepaliveClusterClientTickCallback ( int8u *endpoint* )**

Keep-Alive Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.569 void emberAfKeepaliveClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Keep-Alive Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.570 void emberAfKeepaliveClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Keep-Alive Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.571 void emberAfKeepaliveClusterServerInitCallback ( int8u *endpoint* )

Keep-Alive Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.572 void emberAfKeepaliveClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Keep-Alive Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.573 void emberAfKeepaliveClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Keep-Alive Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.574 EmberAfStatus emberAfKeepaliveClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u \* *size*, int8u \* *value* )

Keep-Alive Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.575 void emberAfKeepaliveClusterServerTickCallback ( int8u endpoint )**

Keep-Alive Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.576 void emberAfShadeConfigClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Shade Configuration Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.577 void emberAfShadeConfigClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Shade Configuration Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.578 void emberAfShadeConfigClusterClientInitCallback ( int8u endpoint )**

Shade Configuration Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.579 void emberAfShadeConfigClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode )**

Shade Configuration Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.580 void emberAfShadeConfigClusterClientMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Shade Configuration Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.581 EmberAfStatus emberAfShadeConfigClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Shade Configuration Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.582 void emberAfShadeConfigClusterClientTickCallback ( int8u *endpoint* )

Shade Configuration Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.583 void emberAfShadeConfigClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )

Shade Configuration Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.584 void emberAfShadeConfigClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Shade Configuration Cluster Server Default Response.

This function is called when the server receives the default response from the client.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.585 void emberAfShadeConfigClusterServerInitCallback ( int8u *endpoint* )

Shade Configuration Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.586 void emberAfShadeConfigClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Shade Configuration Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.587 void emberAfShadeConfigClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Shade Configuration Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.588 EmberAfStatus emberAfShadeConfigClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Shade Configuration Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelid</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.589 void emberAfShadeConfigClusterServerTickCallback ( int8u *endpoint* )**

Shade Configuration Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.590 boolean emberAfDoorLockClusterClearAllPinsCallback ( void )

Door Lock Cluster Clear All Pins.

#### 6.4.2.591 boolean emberAfDoorLockClusterClearAllPinsResponseCallback ( int8u status )

Door Lock Cluster Clear All Pins Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.592 boolean emberAfDoorLockClusterClearAllRfidsCallback ( void )

Door Lock Cluster Clear All Rfids.

#### 6.4.2.593 boolean emberAfDoorLockClusterClearAllRfidsResponseCallback ( int8u status )

Door Lock Cluster Clear All Rfids Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.594 boolean emberAfDoorLockClusterClearHolidayScheduleCallback ( int8u scheduleId )

Door Lock Cluster Clear Holiday Schedule.

##### Parameters

<i>scheduleId</i>	Ver.: always
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#### 6.4.2.595 boolean emberAfDoorLockClusterClearHolidayScheduleResponseCallback ( int8u status )

Door Lock Cluster Clear Holiday Schedule Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.596 boolean emberAfDoorLockClusterClearPinCallback ( int16u userId )

Door Lock Cluster Clear Pin.

##### Parameters

<i>userId</i>	Ver.: always
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#### 6.4.2.597 boolean emberAfDoorLockClusterClearPinResponseCallback ( int8u *status* )

Door Lock Cluster Clear Pin Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.598 boolean emberAfDoorLockClusterClearRfidCallback ( int16u *userId* )

Door Lock Cluster Clear Rfid.

##### Parameters

<i>userId</i>	Ver.: always
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#### 6.4.2.599 boolean emberAfDoorLockClusterClearRfidResponseCallback ( int8u *status* )

Door Lock Cluster Clear Rfid Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.600 boolean emberAfDoorLockClusterClearWeekdayScheduleCallback ( int8u *scheduleId*, int16u *userId* )

Door Lock Cluster Clear Weekday Schedule.

##### Parameters

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always

#### 6.4.2.601 boolean emberAfDoorLockClusterClearWeekdayScheduleResponseCallback ( int8u *status* )

Door Lock Cluster Clear Weekday Schedule Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.602 boolean emberAfDoorLockClusterClearYeardayScheduleCallback ( int8u *scheduleId*, int16u *userId* )

Door Lock Cluster Clear Yearday Schedule.

**Parameters**

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always

**6.4.2.603 boolean emberAfDoorLockClusterClearYeardayScheduleResponseCallback ( int8u status )**

Door Lock Cluster Clear Yearday Schedule Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.604 void emberAfDoorLockClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Door Lock Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.605 void emberAfDoorLockClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Door Lock Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.606 void emberAfDoorLockClusterClientInitCallback ( int8u endpoint )**

Door Lock Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.607 void emberAfDoorLockClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Door Lock Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.608 void emberAfDoorLockClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Door Lock Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.609 EmberAfStatus emberAfDoorLockClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Door Lock Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.610 void emberAfDoorLockClusterClientTickCallback ( int8u *endpoint* )**

Door Lock Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.611 boolean emberAfDoorLockClusterGetHolidayScheduleCallback ( int8u *scheduleId* )

Door Lock Cluster Get Holiday Schedule.

**Parameters**

<i>scheduleId</i>	Ver.: always
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#### 6.4.2.612 boolean emberAfDoorLockClusterGetHolidayScheduleResponseCallback ( int8u *scheduleId*, int8u *status*, int32u *localStartTime*, int32u *localEndTime*, int8u *operatingModeDuringHoliday* )

Door Lock Cluster Get Holiday Schedule Response.

**Parameters**

<i>scheduleId</i>	Ver.: always
<i>status</i>	Ver.: always
<i>localStartTime</i>	Ver.: since ha-1.2-05-3520-29
<i>localEndTime</i>	Ver.: since ha-1.2-05-3520-29
<i>operating- ModeDuring- Holiday</i>	Ver.: since ha-1.2-05-3520-29

#### 6.4.2.613 boolean emberAfDoorLockClusterGetLogRecordCallback ( int16u *logIndex* )

Door Lock Cluster Get Log Record.

**Parameters**

<i>logIndex</i>	Ver.: always
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#### 6.4.2.614 boolean emberAfDoorLockClusterGetLogRecordResponseCallback ( int16u *logEntryId*, int32u *timestamp*, int8u *eventType*, int8u *source*, int8u *eventIdOrAlarmCode*, int16u *userId*, int8u \* *pin* )

Door Lock Cluster Get Log Record Response.

**Parameters**

<i>logEntryId</i>	Ver.: always
<i>timestamp</i>	Ver.: always
<i>eventType</i>	Ver.: always
<i>source</i>	Ver.: always

<i>eventIdOrAlarmCode</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>pin</i>	Ver.: always

#### 6.4.2.615 boolean emberAfDoorLockClusterGetPinCallback ( int16u *userId* )

Door Lock Cluster Get Pin.

##### Parameters

<i>userId</i>	Ver.: always
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#### 6.4.2.616 boolean emberAfDoorLockClusterGetPinResponseCallback ( int16u *userId*, int8u *userStatus*, int8u *userType*, int8u \* *pin* )

Door Lock Cluster Get Pin Response.

##### Parameters

<i>userId</i>	Ver.: always
<i>userStatus</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>pin</i>	Ver.: always

#### 6.4.2.617 boolean emberAfDoorLockClusterGetRfidCallback ( int16u *userId* )

Door Lock Cluster Get Rfid.

##### Parameters

<i>userId</i>	Ver.: always
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#### 6.4.2.618 boolean emberAfDoorLockClusterGetRfidResponseCallback ( int16u *userId*, int8u *userStatus*, int8u *userType*, int8u \* *rfid* )

Door Lock Cluster Get Rfid Response.

##### Parameters

<i>userId</i>	Ver.: always
<i>userStatus</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>rfid</i>	Ver.: always

#### 6.4.2.619 boolean emberAfDoorLockCluster GetUserStatusCallback ( int16u *userId* )

Door Lock Cluster Get User Status.

##### Parameters

<i>userId</i>	Ver.: always
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#### 6.4.2.620 boolean emberAfDoorLockCluster GetUserStatusResponseCallback ( int16u *userId*, int8u *status* )

Door Lock Cluster Get User Status Response.

##### Parameters

<i>userId</i>	Ver.: always
<i>status</i>	Ver.: always

#### 6.4.2.621 boolean emberAfDoorLockCluster GetUserTypeCallback ( int16u *userId* )

Door Lock Cluster Get User Type.

##### Parameters

<i>userId</i>	Ver.: always
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#### 6.4.2.622 boolean emberAfDoorLockCluster GetUserTypeResponseCallback ( int16u *userId*, int8u *userType* )

Door Lock Cluster Get User Type Response.

##### Parameters

<i>userId</i>	Ver.: always
<i>userType</i>	Ver.: always

#### 6.4.2.623 boolean emberAfDoorLockCluster GetWeekdayScheduleCallback ( int8u *scheduleId*, int16u *userId* )

Door Lock Cluster Get Weekday Schedule.

##### Parameters

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always

**6.4.2.624 boolean emberAfDoorLockClusterGetWeekdayScheduleResponseCallback ( int8u *scheduleId*, int16u *userId*, int8u *status*, int8u *daysMask*, int8u *startHour*, int8u *startMinute*, int8u *endHour*, int8u *endMinute* )**

Door Lock Cluster Get Weekday Schedule Response.

#### Parameters

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>status</i>	Ver.: always
<i>daysMask</i>	Ver.: since ha-1.2-05-3520-29
<i>startHour</i>	Ver.: since ha-1.2-05-3520-29
<i>startMinute</i>	Ver.: since ha-1.2-05-3520-29
<i>endHour</i>	Ver.: since ha-1.2-05-3520-29
<i>endMinute</i>	Ver.: since ha-1.2-05-3520-29

**6.4.2.625 boolean emberAfDoorLockClusterGetYearDayScheduleCallback ( int8u *scheduleId*, int16u *userId* )**

Door Lock Cluster Get Yearday Schedule.

#### Parameters

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always

**6.4.2.626 boolean emberAfDoorLockClusterGetYearDayScheduleResponseCallback ( int8u *scheduleId*, int16u *userId*, int8u *status*, int32u *localStartTime*, int32u *localEndTime* )**

Door Lock Cluster Get Yearday Schedule Response.

#### Parameters

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>status</i>	Ver.: always
<i>localStartTime</i>	Ver.: since ha-1.2-05-3520-29
<i>localEndTime</i>	Ver.: since ha-1.2-05-3520-29

**6.4.2.627 boolean emberAfDoorLockClusterLockDoorCallback ( int8u \* *PIN* )**

Door Lock Cluster Lock Door.

#### Parameters

<i>PIN</i>	Ver.: since ha-1.2-05-3520-29
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#### 6.4.2.628 boolean emberAfDoorLockClusterLockDoorResponseCallback ( int8u *status* )

Door Lock Cluster Lock Door Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.629 boolean emberAfDoorLockClusterOperationEventNotificationCallback ( int8u *source*, int8u *eventCode*, int16u *userId*, int8u \* *pin*, int32u *timeStamp*, int8u \* *data* )

Door Lock Cluster Operation Event Notification.

##### Parameters

<i>source</i>	Ver.: always
<i>eventCode</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>pin</i>	Ver.: always
<i>timeStamp</i>	Ver.: always
<i>data</i>	Ver.: since ha-1.2-05-3520-29

#### 6.4.2.630 boolean emberAfDoorLockClusterProgrammingEventNotificationCallback ( int8u *source*, int8u *eventCode*, int16u *userId*, int8u \* *pin*, int8u *userType*, int8u *userStatus*, int32u *timeStamp*, int8u \* *data* )

Door Lock Cluster Programming Event Notification.

##### Parameters

<i>source</i>	Ver.: always
<i>eventCode</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>pin</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>userStatus</i>	Ver.: always
<i>timeStamp</i>	Ver.: always
<i>data</i>	Ver.: since ha-1.2-05-3520-29

#### 6.4.2.631 void emberAfDoorLockClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Door Lock Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.632 void emberAfDoorLockClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Door Lock Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.633 void emberAfDoorLockClusterServerInitCallback ( int8u *endpoint* )**

Door Lock Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.634 void emberAfDoorLockClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Door Lock Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.635 void emberAfDoorLockClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Door Lock Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.636 EmberAfStatus emberAfDoorLockClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Door Lock Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.637 void emberAfDoorLockClusterServerTickCallback ( int8u *endpoint* )**

Door Lock Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.638 boolean emberAfDoorLockClusterSetHolidayScheduleCallback ( int8u *scheduleId*, int32u *localStartTime*, int32u *localEndTime*, int8u *operatingModeDuringHoliday* )**

Door Lock Cluster Set Holiday Schedule.

#### Parameters

<i>scheduleId</i>	Ver.: always
<i>localStartTime</i>	Ver.: always
<i>localEndTime</i>	Ver.: always
<i>operating- ModeDuring- Holiday</i>	Ver.: always

**6.4.2.639 boolean emberAfDoorLockClusterSetHolidayScheduleResponseCallback ( int8u *status* )**

Door Lock Cluster Set Holiday Schedule Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.640 boolean emberAfDoorLockClusterSetPinCallback ( int16u *userId*, int8u *userStatus*, int8u *userType*, int8u \* *pin* )**

Door Lock Cluster Set Pin.

**Parameters**

<i>userId</i>	Ver.: always
<i>userStatus</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>pin</i>	Ver.: always

**6.4.2.641 boolean emberAfDoorLockClusterSetPinResponseCallback ( int8u *status* )**

Door Lock Cluster Set Pin Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.642 boolean emberAfDoorLockClusterSetRfidCallback ( int16u *userId*, int8u *userStatus*, int8u *userType*, int8u \* *id* )**

Door Lock Cluster Set Rfid.

**Parameters**

<i>userId</i>	Ver.: always
<i>userStatus</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>id</i>	Ver.: always

**6.4.2.643 boolean emberAfDoorLockClusterSetRfidResponseCallback ( int8u *status* )**

Door Lock Cluster Set Rfid Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.644 boolean emberAfDoorLockClusterSetUserStatusCallback ( int16u *userId*, int8u *userStatus* )**

Door Lock Cluster Set User Status.

**Parameters**

<i>userId</i>	Ver.: always
<i>userStatus</i>	Ver.: always

**6.4.2.645 boolean emberAfDoorLockClusterSetUserStatusResponseCallback ( int8u status )**

Door Lock Cluster Set User Status Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.646 boolean emberAfDoorLockClusterSetUserTypeCallback ( int16u userId, int8u userType )**

Door Lock Cluster Set User Type.

**Parameters**

<i>userId</i>	Ver.: always
<i>userType</i>	Ver.: always

**6.4.2.647 boolean emberAfDoorLockClusterSetUserTypeResponseCallback ( int8u status )**

Door Lock Cluster Set User Type Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.648 boolean emberAfDoorLockClusterSetWeekdayScheduleCallback ( int8u scheduleId, int16u userId, int8u daysMask, int8u startHour, int8u startMinute, int8u endHour, int8u endMinute )**

Door Lock Cluster Set Weekday Schedule.

**Parameters**

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>daysMask</i>	Ver.: always
<i>startHour</i>	Ver.: always
<i>startMinute</i>	Ver.: always
<i>endHour</i>	Ver.: always
<i>endMinute</i>	Ver.: always

**6.4.2.649 boolean emberAfDoorLockClusterSetWeekdayScheduleResponseCallback ( int8u status )**

Door Lock Cluster Set Weekday Schedule Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.650 boolean emberAfDoorLockClusterSetYeardayScheduleCallback ( int8u *scheduleId*, int16u *userId*, int32u *localStartTime*, int32u *localEndTime* )**

Door Lock Cluster Set Yearday Schedule.

**Parameters**

<i>scheduleId</i>	Ver.: always
<i>userId</i>	Ver.: always
<i>localStartTime</i>	Ver.: always
<i>localEndTime</i>	Ver.: always

**6.4.2.651 boolean emberAfDoorLockClusterSetYeardayScheduleResponseCallback ( int8u *status* )**

Door Lock Cluster Set Yearday Schedule Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.652 boolean emberAfDoorLockClusterToggleCallback ( int8u \* *pin* )**

Door Lock Cluster Toggle.

**Parameters**

<i>pin</i>	Ver.: since ha-1.2-05-3520-29
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**6.4.2.653 boolean emberAfDoorLockClusterToggleResponseCallback ( int8u *status* )**

Door Lock Cluster Toggle Response.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.654 boolean emberAfDoorLockClusterUnlockDoorCallback ( int8u \* *PIN* )**

Door Lock Cluster Unlock Door.

**Parameters**

<i>PIN</i>	Ver.: since ha-1.2-05-3520-29
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#### 6.4.2.655 boolean emberAfDoorLockClusterUnlockDoorResponseCallback ( int8u *status* )

Door Lock Cluster Unlock Door Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.656 boolean emberAfDoorLockClusterUnlockWithTimeoutCallback ( int16u *timeoutInSeconds*, int8u \* *pin* )

Door Lock Cluster Unlock With Timeout.

##### Parameters

<i>timeoutIn-Seconds</i>	Ver.: always
<i>pin</i>	Ver.: since ha-1.2-05-3520-29

#### 6.4.2.657 boolean emberAfDoorLockClusterUnlockWithTimeoutResponseCallback ( int8u *status* )

Door Lock Cluster Unlock With Timeout Response.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.658 void emberAfWindowCoveringClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Window Covering Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.659 void emberAfWindowCoveringClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Window Covering Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.660 void emberAfWindowCoveringClusterClientInitCallback ( int8u *endpoint* )

Window Covering Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.661 void emberAfWindowCoveringClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Window Covering Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.662 void emberAfWindowCoveringClusterClientMessageSentCallback ( EmberOutgoingMessage- Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Window Covering Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.663 EmberAfStatus emberAfWindowCoveringClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Window Covering Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.664 void emberAfWindowCoveringClusterClientTickCallback ( int8u endpoint )**

Window Covering Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.665 void emberAfWindowCoveringClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Window Covering Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.666 void emberAfWindowCoveringClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Window Covering Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.667 void emberAfWindowCoveringClusterServerInitCallback ( int8u endpoint )**

Window Covering Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.668 void emberAfWindowCoveringClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Window Covering Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.669 void emberAfWindowCoveringClusterServerMessageSentCallback ( EmberOutgoingMessage- Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Window Covering Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.670 EmberAfStatus emberAfWindowCoveringClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Window Covering Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.671 void emberAfWindowCoveringClusterServerTickCallback ( int8u *endpoint* )

Window Covering Cluster Server Tick.

Server Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.672 boolean emberAfWindowCoveringClusterWindowCoveringDownCloseCallback ( void )

Window Covering Cluster Window Covering Down Close.

#### 6.4.2.673 boolean emberAfWindowCoveringClusterWindowCoveringGoToLiftPercentageCallback ( int8u *percentageLiftValue* )

Window Covering Cluster Window Covering Go To Lift Percentage.

##### Parameters

<i>percentageLiftValue</i>	Ver.: always
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#### 6.4.2.674 boolean emberAfWindowCoveringClusterWindowCoveringGoToLiftValueCallback ( int16u *liftValue* )

Window Covering Cluster Window Covering Go To Lift Value.

##### Parameters

<i>liftValue</i>	Ver.: always
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#### 6.4.2.675 boolean emberAfWindowCoveringClusterWindowCoveringGoToTiltPercentageCallback ( int8u *percentageTiltValue* )

Window Covering Cluster Window Covering Go To Tilt Percentage.

##### Parameters

<i>percentageTiltValue</i>	Ver.: always
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#### 6.4.2.676 boolean emberAfWindowCoveringClusterWindowCoveringGoToTiltValueCallback ( int16u *tiltValue* )

Window Covering Cluster Window Covering Go To Tilt Value.

**Parameters**

<i>tiltValue</i>	Ver.: always
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**6.4.2.677 boolean emberAfWindowCoveringClusterWindowCoveringStopCallback ( void )**

Window Covering Cluster Window Covering Stop.

**6.4.2.678 boolean emberAfWindowCoveringClusterWindowCoveringUpOpenCallback ( void )**

Window Covering Cluster Window Covering Up Open.

**6.4.2.679 void emberAfPumpConfigControlClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Pump Configuration and Control Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.680 void emberAfPumpConfigControlClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Pump Configuration and Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.681 void emberAfPumpConfigControlClusterClientInitCallback ( int8u *endpoint* )**

Pump Configuration and Control Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.682 void emberAfPumpConfigControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Pump Configuration and Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.683 void emberAfPumpConfigControlClusterClientMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Pump Configuration and Control Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.684 EmberAfStatus emberAfPumpConfigControlClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Pump Configuration and Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.685 void emberAfPumpConfigControlClusterClientTickCallback ( int8u *endpoint* )**

Pump Configuration and Control Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.686 void emberAfPumpConfigControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Pump Configuration and Control Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.687 void emberAfPumpConfigControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Pump Configuration and Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.688 void emberAfPumpConfigControlClusterServerInitCallback ( int8u *endpoint* )**

Pump Configuration and Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.689 void emberAfPumpConfigControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Pump Configuration and Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always
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**6.4.2.690 void emberAfPumpConfigControlClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Pump Configuration and Control Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.691 EmberAfStatus emberAfPumpConfigControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Pump Configuration and Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.692 void emberAfPumpConfigControlClusterServerTickCallback ( int8u *endpoint* )**

Pump Configuration and Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.693 boolean emberAfThermostatClusterClearWeeklyScheduleCallback ( void )

Thermostat Cluster Clear Weekly Schedule.

#### 6.4.2.694 void emberAfThermostatClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )

Thermostat Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

#### 6.4.2.695 void emberAfThermostatClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Thermostat Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.696 void emberAfThermostatClusterClientInitCallback ( int8u *endpoint* )

Thermostat Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.697 void emberAfThermostatClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Thermostat Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.698 void emberAfThermostatClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Thermostat Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.699 EmberAfStatus emberAfThermostatClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Thermostat Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.700 void emberAfThermostatClusterClientTickCallback ( int8u *endpoint* )**

Thermostat Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.701 boolean emberAfThermostatClusterCurrentWeeklyScheduleCallback ( int8u *numberOfTransitionsForSequence*, int8u *dayOfWeekForSequence*, int8u *modeForSequence*, int8u \* *payload* )**

Thermostat Cluster Current Weekly Schedule.

**Parameters**

<i>numberOfTransitionsForSequence</i>	Ver.: always
<i>dayOfWeekForSequence</i>	Ver.: always
<i>modeForSequence</i>	Ver.: always
<i>payload</i>	Ver.: always

**6.4.2.702 boolean emberAfThermostatClusterGetRelayStatusLogCallback ( void )**

Thermostat Cluster Get Relay Status Log.

**6.4.2.703 boolean emberAfThermostatClusterGetWeeklyScheduleCallback ( int8u daysToReturn, int8u modeToReturn )**

Thermostat Cluster Get Weekly Schedule.

**Parameters**

<i>daysToReturn</i>	Ver.: always
<i>modeToReturn</i>	Ver.: always

**6.4.2.704 boolean emberAfThermostatClusterRelayStatusLogCallback ( int16u timeOfDay, int16u relayStatus, int16s localTemperature, int8u humidityInPercentage, int16s setpoint, int16u unreadEntries )**

Thermostat Cluster Relay Status Log.

**Parameters**

<i>timeOfDay</i>	Ver.: always
<i>relayStatus</i>	Ver.: always
<i>localTemperature</i>	Ver.: always
<i>humidityInPercentage</i>	Ver.: always
<i>setpoint</i>	Ver.: always
<i>unreadEntries</i>	Ver.: always

**6.4.2.705 void emberAfThermostatClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Thermostat Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.706 void emberAfThermostatClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Thermostat Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.707 void emberAfThermostatClusterServerInitCallback ( int8u *endpoint* )**

Thermostat Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.708 void emberAfThermostatClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Thermostat Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.709 void emberAfThermostatClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Thermostat Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.710 EmberAfStatus emberAfThermostatClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Thermostat Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.711 void emberAfThermostatClusterServerTickCallback ( int8u endpoint )**

Thermostat Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.712 boolean emberAfThermostatClusterSetWeeklyScheduleCallback ( int8u number\_of\_transitions\_for\_sequence, int8u day\_of\_week\_for\_sequence, int8u mode\_for\_sequence, int8u \* payload )**

Thermostat Cluster Set Weekly Schedule.

**Parameters**

<i>number_of_transitions_for_sequence</i>	Ver.: always
<i>day_of_week_for_sequence</i>	Ver.: always
<i>mode_for_sequence</i>	Ver.: always
<i>payload</i>	Ver.: always

#### 6.4.2.713 boolean emberAfThermostatClusterSetpointRaiseLowerCallback ( int8u mode, int8s amount )

Thermostat Cluster Setpoint Raise Lower.

##### Parameters

<i>mode</i>	Ver.: always
<i>amount</i>	Ver.: always

#### 6.4.2.714 void emberAfFanControlClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )

Fan Control Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.715 void emberAfFanControlClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )

Fan Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.716 void emberAfFanControlClusterClientInitCallback ( int8u endpoint )

Fan Control Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.717 void emberAfFanControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )

Fan Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.718 void emberAfFanControlClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Fan Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.719 EmberAfStatus emberAfFanControlClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Fan Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.720 void emberAfFanControlClusterClientTickCallback ( int8u *endpoint* )**

Fan Control Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.721 void emberAfFanControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Fan Control Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.722 void emberAfFanControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Fan Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.723 void emberAfFanControlClusterServerInitCallback ( int8u *endpoint* )**

Fan Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.724 void emberAfFanControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Fan Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.725 void emberAfFanControlClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Fan Control Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.726 EmberAfStatus emberAfFanControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Fan Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.727 void emberAfFanControlClusterServerTickCallback ( int8u *endpoint* )**

Fan Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.728 void emberAfDehumidControlClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Dehumidification Control Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.729 void emberAfDehumidControlClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Dehumidification Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.730 void emberAfDehumidControlClusterClientInitCallback ( int8u *endpoint* )**

Dehumidification Control Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.731 void emberAfDehumidControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Dehumidification Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.732 void emberAfDehumidControlClusterClientMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Dehumidification Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.733 EmberAfStatus emberAfDehumidControlClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Dehumidification Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.734 void emberAfDehumidControlClusterClientTickCallback ( int8u endpoint )**

Dehumidification Control Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.735 void emberAfDehumidControlClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Dehumidification Control Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.736 void emberAfDehumidControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Dehumidification Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.737 void emberAfDehumidControlClusterServerInitCallback ( int8u *endpoint* )**

Dehumidification Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.738 void emberAfDehumidControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Dehumidification Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.739 void emberAfDehumidControlClusterServerMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Dehumidification Control Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.740 EmberAfStatus emberAfDehumidControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Dehumidification Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.741 void emberAfDehumidControlClusterServerTickCallback ( int8u *endpoint* )**

Dehumidification Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.742 void emberAfThermostatUiConfigClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Thermostat User Interface Configuration Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.743 void emberAfThermostatUiConfigClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Thermostat User Interface Configuration Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.744 void emberAfThermostatUiConfigClusterClientInitCallback ( int8u *endpoint* )**

Thermostat User Interface Configuration Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.745 void emberAfThermostatUiConfigClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Thermostat User Interface Configuration Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.746 void emberAfThermostatUiConfigClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Thermostat User Interface Configuration Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.747 EmberAfStatus emberAfThermostatUiConfigClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Thermostat User Interface Configuration Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.748 void emberAfThermostatUiConfigClusterClientTickCallback ( int8u *endpoint* )**

Thermostat User Interface Configuration Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.749 void emberAfThermostatUiConfigClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Thermostat User Interface Configuration Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.750 void emberAfThermostatUiConfigClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Thermostat User Interface Configuration Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.751 void emberAfThermostatUiConfigClusterServerInitCallback ( int8u *endpoint* )

Thermostat User Interface Configuration Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.752 void emberAfThermostatUiConfigClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Thermostat User Interface Configuration Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.753 void emberAfThermostatUiConfigClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Thermostat User Interface Configuration Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.754 EmberAfStatus emberAfThermostatUiConfigClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Thermostat User Interface Configuration Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.755 void emberAfThermostatUiConfigClusterServerTickCallback ( int8u endpoint )**

Thermostat User Interface Configuration Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.756 void emberAfColorControlClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Color Control Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.757 void emberAfColorControlClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Color Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.758 void emberAfColorControlClusterClientInitCallback ( int8u endpoint )**

Color Control Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.759 void emberAfColorControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode )**

Color Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.760 void emberAfColorControlClusterClientMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Color Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.761 EmberAfStatus emberAfColorControlClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Color Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.762 void emberAfColorControlClusterClientTickCallback ( int8u *endpoint* )

Color Control Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.763 boolean emberAfColorControlClusterColorLoopSetCallback ( int8u *updateFlags*, int8u *action*, int8u *direction*, int16u *time*, int16u *startHue* )

Color Control Cluster Color Loop Set.

##### Parameters

<i>updateFlags</i>	Ver.: always
<i>action</i>	Ver.: always
<i>direction</i>	Ver.: always
<i>time</i>	Ver.: always
<i>startHue</i>	Ver.: always

#### 6.4.2.764 boolean emberAfColorControlClusterEnhancedMoveHueCallback ( int8u *moveMode*, int16u *rate* )

Color Control Cluster Enhanced Move Hue.

##### Parameters

<i>moveMode</i>	Ver.: always
<i>rate</i>	Ver.: always

#### 6.4.2.765 boolean emberAfColorControlClusterEnhancedMoveToHueAndSaturationCallback ( int16u *enhancedHue*, int8u *saturation*, int16u *transitionTime* )

Color Control Cluster Enhanced Move To Hue And Saturation.

##### Parameters

<i>enhancedHue</i>	Ver.: always
<i>saturation</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.766 boolean emberAfColorControlClusterEnhancedMoveToHueCallback ( int16u *enhancedHue*, int8u *direction*, int16u *transitionTime* )

Color Control Cluster Enhanced Move To Hue.

**Parameters**

<i>enhancedHue</i>	Ver.: always
<i>direction</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.767 boolean emberAfColorControlClusterEnhancedStepHueCallback ( int8u *stepMode*, int16u *stepSize*, int16u *transitionTime* )**

Color Control Cluster Enhanced Step Hue.

**Parameters**

<i>stepMode</i>	Ver.: always
<i>stepSize</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.768 boolean emberAfColorControlClusterMoveColorCallback ( int16s *rateX*, int16s *rateY* )**

Color Control Cluster Move Color.

**Parameters**

<i>rateX</i>	Ver.: always
<i>rateY</i>	Ver.: always

**6.4.2.769 boolean emberAfColorControlClusterMoveColorTemperatureCallback ( int8u *moveMode*, int16u *rate*, int16u *colorTemperatureMinimum*, int16u *colorTemperatureMaximum* )**

Color Control Cluster Move Color Temperature.

**Parameters**

<i>moveMode</i>	Ver.: always
<i>rate</i>	Ver.: always
<i>colorTemperatureMinimum</i>	Ver.: always
<i>colorTemperatureMaximum</i>	Ver.: always

**6.4.2.770 boolean emberAfColorControlClusterMoveHueCallback ( int8u *moveMode*, int8u *rate* )**

Color Control Cluster Move Hue.

**Parameters**

<i>moveMode</i>	Ver.: always
<i>rate</i>	Ver.: always

#### 6.4.2.771 boolean emberAfColorControlClusterMoveSaturationCallback ( int8u *moveMode*, int8u *rate* )

Color Control Cluster Move Saturation.

##### Parameters

<i>moveMode</i>	Ver.: always
<i>rate</i>	Ver.: always

#### 6.4.2.772 boolean emberAfColorControlClusterMoveToColorCallback ( int16u *colorX*, int16u *colorY*, int16u *transitionTime* )

Color Control Cluster Move To Color.

##### Parameters

<i>colorX</i>	Ver.: always
<i>colorY</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.773 boolean emberAfColorControlClusterMoveToColorTemperatureCallback ( int16u *colorTemperature*, int16u *transitionTime* )

Color Control Cluster Move To Color Temperature.

##### Parameters

<i>colorTemperature</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.774 boolean emberAfColorControlClusterMoveToHueAndSaturationCallback ( int8u *hue*, int8u *saturation*, int16u *transitionTime* )

Color Control Cluster Move To Hue And Saturation.

##### Parameters

<i>hue</i>	Ver.: always
<i>saturation</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

#### 6.4.2.775 boolean emberAfColorControlClusterMoveToHueCallback ( int8u *hue*, int8u *direction*, int16u *transitionTime* )

Color Control Cluster Move To Hue.

**Parameters**

<i>hue</i>	Ver.: always
<i>direction</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.776 boolean emberAfColorControlClusterMoveToSaturationCallback ( int8u *saturation*, int16u *transitionTime* )**

Color Control Cluster Move To Saturation.

**Parameters**

<i>saturation</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.777 void emberAfColorControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Color Control Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.778 void emberAfColorControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Color Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.779 void emberAfColorControlClusterServerInitCallback ( int8u *endpoint* )**

Color Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.780 void emberAfColorControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Color Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.781 void emberAfColorControlClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Color Control Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.782 EmberAfStatus emberAfColorControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Color Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.783 void emberAfColorControlClusterServerTickCallback ( int8u *endpoint* )**

Color Control Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.784 boolean emberAfColorControlClusterStepColorCallback ( int16s *stepX*, int16s *stepY*, int16u *transitionTime* )**

Color Control Cluster Step Color.

**Parameters**

<i>stepX</i>	Ver.: always
<i>stepY</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.785 boolean emberAfColorControlClusterStepColorTemperatureCallback ( int8u *stepMode*, int16u *stepSize*, int16u *transitionTime*, int16u *colorTemperatureMinimum*, int16u *colorTemperatureMaximum* )**

Color Control Cluster Step Color Temperature.

**Parameters**

<i>stepMode</i>	Ver.: always
<i>stepSize</i>	Ver.: always
<i>transitionTime</i>	Ver.: always
<i>color-Temperature-Minimum</i>	Ver.: always
<i>color-Temperature-Maximum</i>	Ver.: always

**6.4.2.786 boolean emberAfColorControlClusterStepHueCallback ( int8u *stepMode*, int8u *stepSize*, int8u *transitionTime* )**

Color Control Cluster Step Hue.

**Parameters**

<i>stepMode</i>	Ver.: always
<i>stepSize</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.787 boolean emberAfColorControlClusterStepSaturationCallback ( int8u *stepMode*, int8u *stepSize*, int8u *transitionTime* )**

Color Control Cluster Step Saturation.

**Parameters**

<i>stepMode</i>	Ver.: always
<i>stepSize</i>	Ver.: always
<i>transitionTime</i>	Ver.: always

**6.4.2.788 boolean emberAfColorControlClusterStopMoveStepCallback ( void )**

Color Control Cluster Stop Move Step.

**6.4.2.789 void emberAfBallastConfigurationClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Ballast Configuration Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.790 void emberAfBallastConfigurationClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Ballast Configuration Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.791 void emberAfBallastConfigurationClusterClientInitCallback ( int8u *endpoint* )**

Ballast Configuration Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.792 void emberAfBallastConfigurationClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Ballast Configuration Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.793 void emberAfBallastConfigurationClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Ballast Configuration Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.794 EmberAfStatus emberAfBallastConfigurationClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Ballast Configuration Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.795 void emberAfBallastConfigurationClusterClientTickCallback ( int8u *endpoint* )**

Ballast Configuration Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.796 void emberAfBallastConfigurationClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Ballast Configuration Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.797 void emberAfBallastConfigurationClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Ballast Configuration Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.798 void emberAfBallastConfigurationClusterServerInitCallback ( int8u *endpoint* )**

Ballast Configuration Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.799 void emberAfBallastConfigurationClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Ballast Configuration Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always
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**6.4.2.800 void emberAfBallastConfigurationClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Ballast Configuration Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.801 EmberAfStatus emberAfBallastConfigurationClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Ballast Configuration Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.802 void emberAfBallastConfigurationClusterServerTickCallback ( int8u *endpoint* )**

Ballast Configuration Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.803 void emberAfIllumMeasurementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Illuminance Measurement Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.804 void emberAfIllumMeasurementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Illuminance Measurement Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.805 void emberAfIllumMeasurementClusterClientInitCallback ( int8u *endpoint* )**

Illuminance Measurement Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.806 void emberAfIllumMeasurementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Illuminance Measurement Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.807 void emberAfIllumMeasurementClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Illuminance Measurement Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.808 EmberAfStatus emberAfIllumMeasurementClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Illuminance Measurement Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.809 void emberAfIllumMeasurementClusterClientTickCallback ( int8u *endpoint* )**

Illuminance Measurement Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.810 void emberAfIllumMeasurementClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Illuminance Measurement Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.811 void emberAfIllumMeasurementClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Illuminance Measurement Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.812 void emberAfIllumMeasurementClusterServerInitCallback ( int8u *endpoint* )**

Illuminance Measurement Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.813 void emberAfIllumMeasurementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Illuminance Measurement Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.814 void emberAfIllumMeasurementClusterServerMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Illuminance Measurement Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.815 EmberAfStatus emberAfIllumMeasurementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Illuminance Measurement Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.816 void emberAfIllumMeasurementClusterServerTickCallback ( int8u *endpoint* )**

Illuminance Measurement Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.817 void emberAfIllumLevelSensingClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Illuminance Level Sensing Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.818 void emberAfIllumLevelSensingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Illuminance Level Sensing Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.819 void emberAfIllumLevelSensingClusterClientInitCallback ( int8u *endpoint* )**

Illuminance Level Sensing Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.820 void emberAfIllumLevelSensingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Illuminance Level Sensing Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.821 void emberAfIllumLevelSensingClusterClientMessageSentCallback ( EmberOutgoingMessage-  
Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \*  
*message*, EmberStatus *status* )**

Illuminance Level Sensing Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.822 EmberAfStatus emberAfIllumLevelSensingClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Illuminance Level Sensing Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.823 void emberAfIllumLevelSensingClusterClientTickCallback ( int8u endpoint )**

Illuminance Level Sensing Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.824 void emberAfIllumLevelSensingClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Illuminance Level Sensing Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.825 void emberAfIllumLevelSensingClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Illuminance Level Sensing Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.826 void emberAfIllumLevelSensingClusterServerInitCallback ( int8u *endpoint* )**

Illuminance Level Sensing Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.827 void emberAfIllumLevelSensingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Illuminance Level Sensing Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.828 void emberAfIllumLevelSensingClusterServerMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Illuminance Level Sensing Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.829 EmberAfStatus emberAfIllumLevelSensingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Illuminance Level Sensing Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.830 void emberAfIllumLevelSensingClusterServerTickCallback ( int8u *endpoint* )**

Illuminance Level Sensing Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.831 void emberAfTempMeasurementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Temperature Measurement Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.832 void emberAfTempMeasurementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Temperature Measurement Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.833 void emberAfTempMeasurementClusterClientInitCallback ( int8u *endpoint* )

Temperature Measurement Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.834 void emberAfTempMeasurementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Temperature Measurement Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.835 void emberAfTempMeasurementClusterClientMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Temperature Measurement Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.836 EmberAfStatus emberAfTempMeasurementClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Temperature Measurement Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.837 void emberAfTempMeasurementClusterClientTickCallback ( int8u endpoint )**

Temperature Measurement Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.838 void emberAfTempMeasurementClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Temperature Measurement Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.839 void emberAfTempMeasurementClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Temperature Measurement Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.840 void emberAfTempMeasurementClusterServerInitCallback ( int8u endpoint )**

Temperature Measurement Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.841 void emberAfTempMeasurementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Temperature Measurement Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.842 void emberAfTempMeasurementClusterServerMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Temperature Measurement Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.843 EmberAfStatus emberAfTempMeasurementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Temperature Measurement Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.844 void emberAfTempMeasurementClusterServerTickCallback ( int8u *endpoint* )

Temperature Measurement Cluster Server Tick.

Server Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.845 void emberAfPressureMeasurementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )

Pressure Measurement Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.846 void emberAfPressureMeasurementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Pressure Measurement Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.847 void emberAfPressureMeasurementClusterClientInitCallback ( int8u *endpoint* )

Pressure Measurement Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.848 void emberAfPressureMeasurementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Pressure Measurement Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.849 void emberAfPressureMeasurementClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Pressure Measurement Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.850 EmberAfStatus emberAfPressureMeasurementClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Pressure Measurement Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.851 void emberAfPressureMeasurementClusterClientTickCallback ( int8u *endpoint* )**

Pressure Measurement Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.852 void emberAfPressureMeasurementClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Pressure Measurement Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.853 void emberAfPressureMeasurementClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Pressure Measurement Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.854 void emberAfPressureMeasurementClusterServerInitCallback ( int8u *endpoint* )**

Pressure Measurement Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.855 void emberAfPressureMeasurementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Pressure Measurement Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.856 void emberAfPressureMeasurementClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Pressure Measurement Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.857 EmberAfStatus emberAfPressureMeasurementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Pressure Measurement Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.858 void emberAfPressureMeasurementClusterServerTickCallback ( int8u *endpoint* )**

Pressure Measurement Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.859 void emberAfFlowMeasurementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Flow Measurement Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.860 void emberAfFlowMeasurementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Flow Measurement Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.861 void emberAfFlowMeasurementClusterClientInitCallback ( int8u *endpoint* )**

Flow Measurement Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.862 void emberAfFlowMeasurementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Flow Measurement Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.863 void emberAfFlowMeasurementClusterClientMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Flow Measurement Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.864 EmberAfStatus emberAfFlowMeasurementClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Flow Measurement Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.865 void emberAfFlowMeasurementClusterClientTickCallback ( int8u endpoint )**

Flow Measurement Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.866 void emberAfFlowMeasurementClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Flow Measurement Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.867 void emberAfFlowMeasurementClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Flow Measurement Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.868 void emberAfFlowMeasurementClusterServerInitCallback ( int8u *endpoint* )**

Flow Measurement Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.869 void emberAfFlowMeasurementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Flow Measurement Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.870 void emberAfFlowMeasurementClusterServerMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Flow Measurement Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.871 EmberAfStatus emberAfFlowMeasurementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Flow Measurement Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.872 void emberAfFlowMeasurementClusterServerTickCallback ( int8u *endpoint* )**

Flow Measurement Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.873 void emberAfRelativeHumidityMeasurementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Relative Humidity Measurement Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.874 void emberAfRelativeHumidityMeasurementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Relative Humidity Measurement Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.875 void emberAfRelativeHumidityMeasurementClusterClientInitCallback ( int8u *endpoint* )**

Relative Humidity Measurement Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.876 void emberAfRelativeHumidityMeasurementClusterClientManufacturerSpecificAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Relative Humidity Measurement Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.877 void emberAfRelativeHumidityMeasurementClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Relative Humidity Measurement Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.878 EmberAfStatus emberAfRelativeHumidityMeasurementClusterClientPreAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Relative Humidity Measurement Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.879 void emberAfRelativeHumidityMeasurementClusterClientTickCallback ( int8u *endpoint* )**

Relative Humidity Measurement Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.880 void emberAfRelativeHumidityMeasurementClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Relative Humidity Measurement Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.881 void emberAfRelativeHumidityMeasurementClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Relative Humidity Measurement Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.882 void emberAfRelativeHumidityMeasurementClusterServerInitCallback ( int8u *endpoint* )

Relative Humidity Measurement Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.883 void emberAfRelativeHumidityMeasurementClusterServerManufacturerSpecificAttribute-ChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Relative Humidity Measurement Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.884 void emberAfRelativeHumidityMeasurementClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Relative Humidity Measurement Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.885 EmberAfStatus emberAfRelativeHumidityMeasurementClusterServerPreAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Relative Humidity Measurement Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.886 void emberAfRelativeHumidityMeasurementClusterServerTickCallback ( int8u endpoint )**

Relative Humidity Measurement Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.887 void emberAfOccupancySensingClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Occupancy Sensing Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.888 void emberAfOccupancySensingClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Occupancy Sensing Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.889 void emberAfOccupancySensingClusterClientInitCallback ( int8u endpoint )**

Occupancy Sensing Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.890 void emberAfOccupancySensingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Occupancy Sensing Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.891 void emberAfOccupancySensingClusterClientMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Occupancy Sensing Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.892 EmberAfStatus emberAfOccupancySensingClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Occupancy Sensing Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.893 void emberAfOccupancySensingClusterClientTickCallback ( int8u *endpoint* )

Occupancy Sensing Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.894 void emberAfOccupancySensingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )

Occupancy Sensing Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.895 void emberAfOccupancySensingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Occupancy Sensing Cluster Server Default Response.

This function is called when the server receives the default response from the client.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.896 void emberAfOccupancySensingClusterServerInitCallback ( int8u *endpoint* )

Occupancy Sensing Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.897 void emberAfOccupancySensingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )

Occupancy Sensing Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.898 void emberAfOccupancySensingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Occupancy Sensing Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.899 EmberAfStatus emberAfOccupancySensingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Occupancy Sensing Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.900 void emberAfOccupancySensingClusterServerTickCallback ( int8u *endpoint* )**

Occupancy Sensing Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.901 void emberAfIasZoneClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

IAS Zone Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.902 void emberAfIasZoneClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

IAS Zone Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.903 void emberAfIasZoneClusterClientInitCallback ( int8u *endpoint* )**

IAS Zone Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.904 void emberAfIasZoneClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

IAS Zone Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.905 void emberAflasZoneClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

IAS Zone Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.906 EmberAfStatus emberAflasZoneClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

IAS Zone Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.907 void emberAflasZoneClusterClientTickCallback ( int8u *endpoint* )**

IAS Zone Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.908 boolean emberAflasZoneClusterInitiateNormalOperationModeCallback ( void )**

IAS Zone Cluster Initiate Normal Operation Mode.

**6.4.2.909 boolean emberAflasZoneClusterInitiateNormalOperationModeResponseCallback ( void )**

IAS Zone Cluster Initiate Normal Operation Mode Response.

**6.4.2.910 boolean emberAfIasZoneClusterInitiateTestModeCallback ( int8u testModeDuration, int8u currentZoneSensitivityLevel )**

IAS Zone Cluster Initiate Test Mode.

**Parameters**

<i>testModeDuration</i>	Ver.: always
<i>currentZoneSensitivityLevel</i>	Ver.: always

**6.4.2.911 boolean emberAfIasZoneClusterInitiateTestModeResponseCallback ( void )**

IAS Zone Cluster Initiate Test Mode Response.

**6.4.2.912 void emberAfIasZoneClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

IAS Zone Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.913 void emberAfIasZoneClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

IAS Zone Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.914 void emberAfIasZoneClusterServerInitCallback ( int8u endpoint )**

IAS Zone Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.915 void emberAfIasZoneClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

IAS Zone Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.916 void emberAfIasZoneClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

IAS Zone Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.917 EmberAfStatus emberAfIasZoneClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

IAS Zone Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.918 void emberAfIasZoneClusterServerTickCallback ( int8u *endpoint* )**

IAS Zone Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.919 boolean emberAfIasZoneClusterZoneEnrollRequestCallback ( int16u zoneType, int16u manufacturerCode )**

IAS Zone Cluster Zone Enroll Request.

**Parameters**

<i>zoneType</i>	Ver.: always
<i>manufacturerCode</i>	Ver.: always

**6.4.2.920 boolean emberAfIasZoneClusterZoneEnrollResponseCallback ( int8u enrollResponseCode, int8u zoneId )**

IAS Zone Cluster Zone Enroll Response.

**Parameters**

<i>enroll-ResponseCode</i>	Ver.: always
<i>zoneId</i>	Ver.: always

**6.4.2.921 boolean emberAfIasZoneClusterZoneStatusChangeNotificationCallback ( int16u zoneStatus, int8u extendedStatus, int8u zoneId, int16u delay )**

IAS Zone Cluster Zone Status Change Notification.

**Parameters**

<i>zoneStatus</i>	Ver.: always
<i>extendedStatus</i>	Ver.: always
<i>zoneId</i>	Ver.: since ha-1.2-05-3520-29
<i>delay</i>	Ver.: since ha-1.2-05-3520-29

**6.4.2.922 boolean emberAfIasAceClusterArmCallback ( int8u armMode, int8u \* armDisarmCode, int8u zoneId )**

IAS ACE Cluster Arm.

**Parameters**

<i>armMode</i>	Ver.: always
<i>armDisarmCode</i>	Ver.: since ha-1.2-05-3520-29

<i>zoneId</i>	Ver.: since ha-1.2-05-3520-29
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#### 6.4.2.923 boolean emberAflasAceClusterArmResponseCallback ( int8u *armNotification* )

IAS ACE Cluster Arm Response.

##### Parameters

<i>armNotification</i>	Ver.: always
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#### 6.4.2.924 boolean emberAflasAceClusterBypassCallback ( int8u *numberOfZones*, int8u \* *zoneIds*, int8u \* *armDisarmCode* )

IAS ACE Cluster Bypass.

##### Parameters

<i>numberOfZones</i>	Ver.: always
<i>zoneIds</i>	Ver.: always
<i>armDisarmCode</i>	Ver.: since ha-1.2.1-05-3520-30

#### 6.4.2.925 boolean emberAflasAceClusterBypassResponseCallback ( int8u *numberOfZones*, int8u \* *bypassResult* )

IAS ACE Cluster Bypass Response.

##### Parameters

<i>numberOfZones</i>	Ver.: always
<i>bypassResult</i>	Ver.: always

#### 6.4.2.926 void emberAflasAceClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

IAS ACE Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.927 void emberAflasAceClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

IAS ACE Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.928 void emberAflasAceClusterClientInitCallback ( int8u *endpoint* )**

IAS ACE Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.929 void emberAflasAceClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

IAS ACE Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.930 void emberAflasAceClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

IAS ACE Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.931 EmberAfStatus emberAfIasAceClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

IAS ACE Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.932 void emberAfIasAceClusterClientTickCallback ( int8u *endpoint* )**

IAS ACE Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.933 boolean emberAfIasAceClusterEmergencyCallback ( void )**

IAS ACE Cluster Emergency.

**6.4.2.934 boolean emberAfIasAceClusterFireCallback ( void )**

IAS ACE Cluster Fire.

**6.4.2.935 boolean emberAfIasAceClusterGetBypassedZoneListCallback ( void )**

IAS ACE Cluster Get Bypassed Zone List.

**6.4.2.936 boolean emberAfIasAceClusterGetPanelStatusCallback ( void )**

IAS ACE Cluster Get Panel Status.

**6.4.2.937 boolean emberAfIasAceClusterGetPanelStatusResponseCallback ( int8u *panelStatus*, int8u *secondsRemaining*, int8u *audibleNotification*, int8u *alarmStatus* )**

IAS ACE Cluster Get Panel Status Response.

#### Parameters

<i>panelStatus</i>	Ver.: always
<i>seconds-Remaining</i>	Ver.: always
<i>audible-Notification</i>	Ver.: always
<i>alarmStatus</i>	Ver.: always

**6.4.2.938 boolean emberAfIasAceClusterGetZoneIdMapCallback ( void )**

IAS ACE Cluster Get Zone Id Map.

**6.4.2.939 boolean emberAfIasAceClusterGetZoneIdMapResponseCallback ( int16u *section0*, int16u *section1*, int16u *section2*, int16u *section3*, int16u *section4*, int16u *section5*, int16u *section6*, int16u *section7*, int16u *section8*, int16u *section9*, int16u *section10*, int16u *section11*, int16u *section12*, int16u *section13*, int16u *section14*, int16u *section15* )**

IAS ACE Cluster Get Zone Id Map Response.

#### Parameters

<i>section0</i>	Ver.: always
<i>section1</i>	Ver.: always
<i>section2</i>	Ver.: always
<i>section3</i>	Ver.: always
<i>section4</i>	Ver.: always
<i>section5</i>	Ver.: always
<i>section6</i>	Ver.: always
<i>section7</i>	Ver.: always
<i>section8</i>	Ver.: always
<i>section9</i>	Ver.: always
<i>section10</i>	Ver.: always
<i>section11</i>	Ver.: always
<i>section12</i>	Ver.: always
<i>section13</i>	Ver.: always
<i>section14</i>	Ver.: always
<i>section15</i>	Ver.: always

**6.4.2.940 boolean emberAfIasAceClusterGetZoneInformationCallback ( int8u *zoneId* )**

IAS ACE Cluster Get Zone Information.

**Parameters**

<i>zoneId</i>	Ver.: always
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**6.4.2.941 boolean emberAfIasAceClusterGetZoneInformationResponseCallback ( int8u *zoneId*, int16u *zoneType*, int8u \* *ieeeAddress*, int8u \* *zoneLabel* )**

IAS ACE Cluster Get Zone Information Response.

**Parameters**

<i>zoneId</i>	Ver.: always
<i>zoneType</i>	Ver.: always
<i>ieeeAddress</i>	Ver.: always
<i>zoneLabel</i>	Ver.: since ha-1.2.1-05-3520-30

**6.4.2.942 boolean emberAfIasAceClusterGetZoneStatusCallback ( int8u *startingZoneId*, int8u *maxNumberOfZoneIds*, int8u *zoneStatusMaskFlag*, int16u *zoneStatusMask* )**

IAS ACE Cluster Get Zone Status.

**Parameters**

<i>startingZoneId</i>	Ver.: always
<i>maxNumberOfZoneIds</i>	Ver.: always
<i>zoneStatus-MaskFlag</i>	Ver.: always
<i>zoneStatus-Mask</i>	Ver.: always

**6.4.2.943 boolean emberAfIasAceClusterGetZoneStatusResponseCallback ( int8u *zoneStatusComplete*, int8u *numberOfZones*, int8u \* *zoneStatusResult* )**

IAS ACE Cluster Get Zone Status Response.

**Parameters**

<i>zoneStatus-Complete</i>	Ver.: always
<i>numberOfZones</i>	Ver.: always
<i>zoneStatus-Result</i>	Ver.: always

**6.4.2.944 boolean emberAfIasAceClusterPanelStatusChangedCallback ( int8u *panelStatus*, int8u *secondsRemaining*, int8u *audibleNotification*, int8u *alarmStatus* )**

IAS ACE Cluster Panel Status Changed.

**Parameters**

<i>panelStatus</i>	Ver.: always
<i>seconds-Remaining</i>	Ver.: always
<i>audible-Notification</i>	Ver.: since ha-1.2.1-05-3520-30
<i>alarmStatus</i>	Ver.: since ha-1.2.1-05-3520-30

**6.4.2.945 boolean emberAflasAceClusterPanicCallback ( void )**

IAS ACE Cluster Panic.

**6.4.2.946 void emberAflasAceClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

IAS ACE Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.947 void emberAflasAceClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

IAS ACE Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.948 void emberAflasAceClusterServerInitCallback ( int8u *endpoint* )**

IAS ACE Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.949 void emberAfIasAceClusterServerManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode )**

IAS ACE Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.950 void emberAfIasAceClusterServerMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

IAS ACE Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.951 EmberAfStatus emberAfIasAceClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

IAS ACE Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.952 void emberAfIasAceClusterServerTickCallback ( int8u endpoint )**

IAS ACE Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.953 boolean emberAfIasAceClusterSetBypassedZoneListCallback ( int8u *numberOfZones*, int8u \* *zoneIds* )**

IAS ACE Cluster Set Bypassed Zone List.

**Parameters**

<i>numberOfZones</i>	Ver.: always
<i>zoneIds</i>	Ver.: always

**6.4.2.954 boolean emberAfIasAceClusterZoneStatusChangedCallback ( int8u *zoneId*, int16u *zoneStatus*, int8u *audibleNotification*, int8u \* *zoneLabel* )**

IAS ACE Cluster Zone Status Changed.

**Parameters**

<i>zoneId</i>	Ver.: always
<i>zoneStatus</i>	Ver.: always
<i>audibleNotification</i>	Ver.: since ha-1.2.1-05-3520-30
<i>zoneLabel</i>	Ver.: since ha-1.2.1-05-3520-30

**6.4.2.955 void emberAfIasWdClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

IAS WD Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.956 void emberAfIasWdClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

IAS WD Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.957 void emberAflasWdClusterClientInitCallback ( int8u *endpoint* )**

IAS WD Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.958 void emberAflasWdClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

IAS WD Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.959 void emberAflasWdClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

IAS WD Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.960 EmberAfStatus emberAflasWdClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

IAS WD Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.961 void emberAflasWdClusterClientTickCallback ( int8u *endpoint* )**

IAS WD Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.962 void emberAflasWdClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

IAS WD Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.963 void emberAflasWdClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

IAS WD Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.964 void emberAfIasWdClusterServerInitCallback ( int8u *endpoint* )

IAS WD Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.965 void emberAfIasWdClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

IAS WD Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.966 void emberAfIasWdClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

IAS WD Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.967 EmberAfStatus emberAfIasWdClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

IAS WD Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.968 void emberAfIasWdClusterServerTickCallback ( int8u endpoint )**

IAS WD Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.969 boolean emberAfIasWdClusterSquawkCallback ( int8u squawkInfo )**

IAS WD Cluster Squawk.

**Parameters**

<i>squawkInfo</i>	Ver.: always
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**6.4.2.970 boolean emberAfIasWdClusterStartWarningCallback ( int8u warningInfo, int16u warningDuration, int8u strobeDutyCycle, int8u strobeLevel )**

IAS WD Cluster Start Warning.

**Parameters**

<i>warningInfo</i>	Ver.: always
<i>warningDuration</i>	Ver.: always
<i>strobeDutyCycle</i>	Ver.: since ha-1.2-05-3520-29
<i>strobeLevel</i>	Ver.: since ha-1.2-05-3520-29

**6.4.2.971 boolean emberAfGenericTunnelClusterAdvertiseProtocolAddressCallback ( int8u \* protocolAddress )**

Generic Tunnel Cluster Advertise Protocol Address.

**Parameters**

<i>protocolAddress</i>	Ver.: always
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**6.4.2.972 void emberAfGenericTunnelClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Generic Tunnel Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.973 void emberAfGenericTunnelClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Generic Tunnel Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.974 void emberAfGenericTunnelClusterClientInitCallback ( int8u *endpoint* )**

Generic Tunnel Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.975 void emberAfGenericTunnelClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Generic Tunnel Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.976 void emberAfGenericTunnelClusterClientMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Generic Tunnel Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.977 EmberAfStatus emberAfGenericTunnelClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Generic Tunnel Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.978 void emberAfGenericTunnelClusterClientTickCallback ( int8u endpoint )**

Generic Tunnel Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.979 boolean emberAfGenericTunnelClusterMatchProtocolAddressCallback ( int8u \* protocolAddress )**

Generic Tunnel Cluster Match Protocol Address.

**Parameters**

<i>protocol-Address</i>	Ver.: always
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**6.4.2.980 boolean emberAfGenericTunnelClusterMatchProtocolAddressResponseCallback ( int8u \* deviceIeeeAddress, int8u \* protocolAddress )**

Generic Tunnel Cluster Match Protocol Address Response.

**Parameters**

<i>deviceIeee-Address</i>	Ver.: always
<i>protocol-Address</i>	Ver.: always

**6.4.2.981 void emberAfGenericTunnelClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Generic Tunnel Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.982 void emberAfGenericTunnelClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Generic Tunnel Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.983 void emberAfGenericTunnelClusterServerInitCallback ( int8u endpoint )**

Generic Tunnel Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.984 void emberAfGenericTunnelClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Generic Tunnel Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.985 void emberAfGenericTunnelClusterServerMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Generic Tunnel Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.986 EmberAfStatus emberAfGenericTunnelClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Generic Tunnel Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.987 void emberAfGenericTunnelClusterServerTickCallback ( int8u *endpoint* )**

Generic Tunnel Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.988 void emberAfBacnetProtocolTunnelClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

BACnet Protocol Tunnel Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.989 void emberAfBacnetProtocolTunnelClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

BACnet Protocol Tunnel Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.990 void emberAfBacnetProtocolTunnelClusterClientInitCallback ( int8u *endpoint* )**

BACnet Protocol Tunnel Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.991 void emberAfBacnetProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

BACnet Protocol Tunnel Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always
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**6.4.2.992 void emberAfBacnetProtocolTunnelClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

BACnet Protocol Tunnel Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.993 EmberAfStatus emberAfBacnetProtocolTunnelClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

BACnet Protocol Tunnel Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.994 void emberAfBacnetProtocolTunnelClusterClientTickCallback ( int8u *endpoint* )**

BACnet Protocol Tunnel Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.995 void emberAfBacnetProtocolTunnelClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

BACnet Protocol Tunnel Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.996 void emberAfBacnetProtocolTunnelClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

BACnet Protocol Tunnel Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.997 void emberAfBacnetProtocolTunnelClusterServerInitCallback ( int8u *endpoint* )**

BACnet Protocol Tunnel Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.998 void emberAfBacnetProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

BACnet Protocol Tunnel Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.999 void emberAfBacnetProtocolTunnelClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

BACnet Protocol Tunnel Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1000 EmberAfStatus emberAfBacnetProtocolTunnelClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

BACnet Protocol Tunnel Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1001 void emberAfBacnetProtocolTunnelClusterServerTickCallback ( int8u *endpoint* )**

BACnet Protocol Tunnel Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1002 boolean emberAfBacnetProtocolTunnelClusterTransferNpduCallback ( int8u \* *npdu* )**

BACnet Protocol Tunnel Cluster Transfer Npdu.

#### Parameters

<i>npdu</i>	Ver.: always
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**6.4.2.1003 void emberAf11073ProtocolTunnelClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

11073 Protocol Tunnel Cluster Client Attribute Changed

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.1004 void emberAf11073ProtocolTunnelClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

11073 Protocol Tunnel Cluster Client Default Response

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1005 void emberAf11073ProtocolTunnelClusterClientInitCallback ( int8u *endpoint* )**

11073 Protocol Tunnel Cluster Client Init

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1006 void emberAf11073ProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

11073 Protocol Tunnel Cluster Client Manufacturer Specific Attribute Changed

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1007 void emberAf11073ProtocolTunnelClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

11073 Protocol Tunnel Cluster Client Message Sent

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1008 EmberAfStatus emberAf11073ProtocolTunnelClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

11073 Protocol Tunnel Cluster Client Pre Attribute Changed

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1009 void emberAf11073ProtocolTunnelClusterClientTickCallback ( int8u *endpoint* )**

11073 Protocol Tunnel Cluster Client Tick

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1010 boolean emberAf11073ProtocolTunnelClusterConnectRequestCallback ( int8u *connectControl*, int16u *idleTimeout*, int8u \* *managerTarget*, int8u *managerEndpoint* )**

11073 Protocol Tunnel Cluster Connect Request

**Parameters**

<i>connectControl</i>	Ver.: always
<i>idleTimeout</i>	Ver.: always
<i>managerTarget</i>	Ver.: always
<i>manager-Endpoint</i>	Ver.: always

**6.4.2.1011 boolean emberAf11073ProtocolTunnelClusterConnectStatusNotificationCallback ( int8u connectStatus )**

11073 Protocol Tunnel Cluster Connect Status Notification

**Parameters**

<i>connectStatus</i>	Ver.: always
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**6.4.2.1012 boolean emberAf11073ProtocolTunnelClusterDisconnectRequestCallback ( int8u \* managerIEEEAddress )**

11073 Protocol Tunnel Cluster Disconnect Request

**Parameters**

<i>managerIEEE-Address</i>	Ver.: always
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**6.4.2.1013 void emberAf11073ProtocolTunnelClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

11073 Protocol Tunnel Cluster Server Attribute Changed

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1014 void emberAf11073ProtocolTunnelClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

11073 Protocol Tunnel Cluster Server Default Response

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1015 void emberAf11073ProtocolTunnelClusterServerInitCallback ( int8u *endpoint* )

11073 Protocol Tunnel Cluster Server Init

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1016 void emberAf11073ProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, int16u *manufacturerCode* )

11073 Protocol Tunnel Cluster Server Manufacturer Specific Attribute Changed

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelid</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1017 void emberAf11073ProtocolTunnelClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

11073 Protocol Tunnel Cluster Server Message Sent

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1018 EmberAfStatus emberAf11073ProtocolTunnelClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

11073 Protocol Tunnel Cluster Server Pre Attribute Changed

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1019 void emberAf11073ProtocolTunnelClusterServerTickCallback ( int8u endpoint )**

11073 Protocol Tunnel Cluster Server Tick  
Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1020 boolean emberAf11073ProtocolTunnelClusterTransferAPDUCallback ( int8u \* apdu )**

11073 Protocol Tunnel Cluster Transfer A P D U

**Parameters**

<i>apdu</i>	Ver.: always
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**6.4.2.1021 void emberAfIso7816ProtocolTunnelClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

ISO 7816 Protocol Tunnel Cluster Client Attribute Changed.  
Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1022 void emberAfIso7816ProtocolTunnelClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

ISO 7816 Protocol Tunnel Cluster Client Default Response.  
This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1023 void emberAfIso7816ProtocolTunnelClusterClientInitCallback ( int8u *endpoint* )

ISO 7816 Protocol Tunnel Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1024 void emberAfIso7816ProtocolTunnelClusterClientManufacturerSpecificAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

ISO 7816 Protocol Tunnel Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1025 void emberAfIso7816ProtocolTunnelClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

ISO 7816 Protocol Tunnel Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1026 EmberAfStatus emberAfIso7816ProtocolTunnelClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

ISO 7816 Protocol Tunnel Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1027 void emberAfIso7816ProtocolTunnelClusterClientTickCallback ( int8u endpoint )**

ISO 7816 Protocol Tunnel Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1028 boolean emberAfIso7816ProtocolTunnelClusterExtractSmartCardCallback ( void )**

ISO 7816 Protocol Tunnel Cluster Extract Smart Card.

**6.4.2.1029 boolean emberAfIso7816ProtocolTunnelClusterInsertSmartCardCallback ( void )**

ISO 7816 Protocol Tunnel Cluster Insert Smart Card.

**6.4.2.1030 void emberAfIso7816ProtocolTunnelClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

ISO 7816 Protocol Tunnel Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1031 void emberAfIso7816ProtocolTunnelClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

ISO 7816 Protocol Tunnel Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1032 void emberAfIso7816ProtocolTunnelClusterServerInitCallback ( int8u *endpoint* )

ISO 7816 Protocol Tunnel Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1033 void emberAfIso7816ProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

ISO 7816 Protocol Tunnel Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1034 void emberAfIso7816ProtocolTunnelClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

ISO 7816 Protocol Tunnel Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1035 EmberAfStatus emberAfIso7816ProtocolTunnelClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

ISO 7816 Protocol Tunnel Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1036 void emberAfIso7816ProtocolTunnelClusterServerTickCallback ( int8u endpoint )**

ISO 7816 Protocol Tunnel Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1037 boolean emberAfIso7816ProtocolTunnelClusterTransferApduCallback ( int8u \* apdu )**

ISO 7816 Protocol Tunnel Cluster Transfer Apdu.

**Parameters**

<i>apdu</i>	Ver.: always
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**6.4.2.1038 boolean emberAfPriceClusterCancelTariffCallback ( int32u providerId, int32u issuerTariffId, int8u tariffType )**

Price Cluster Cancel Tariff.

**Parameters**

<i>providerId</i>	Ver.: always
<i>issuerTariffId</i>	Ver.: always
<i>tariffType</i>	Ver.: always

**6.4.2.1039 void emberAfPriceClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Price Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1040 void emberAfPriceClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Price Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1041 void emberAfPriceClusterClientInitCallback ( int8u *endpoint* )**

Price Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1042 void emberAfPriceClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Price Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1043 void emberAfPriceClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Price Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1044 EmberAfStatus emberAfPriceClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Price Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1045 void emberAfPriceClusterClientTickCallback ( int8u *endpoint* )**

Price Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1046 boolean emberAfPriceClusterCppEventResponseCallback ( int32u *issuerEventId*, int8u *cppAuth* )**

Price Cluster Cpp Event Response.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>cppAuth</i>	Ver.: always

**6.4.2.1047 boolean emberAfPriceClusterGetBillingPeriodCallback ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCommands*, int8u *tariffType* )**

Price Cluster Get Billing Period.

#### Parameters

<i>earliestStartTime</i>	Ver.: always
<i>minIssuerEventId</i>	Ver.: always

<i>numberOfCommands</i>	Ver.: always
<i>tariffType</i>	Ver.: always

6.4.2.1048 boolean emberAfPriceClusterGetBlockPeriodsCallback ( int32u *startTime*, int8u *numberOfEvents*, int8u *tariffType* )

Price Cluster Get Block Periods.

#### Parameters

<i>startTime</i>	Ver.: always
<i>numberOfEvents</i>	Ver.: always
<i>tariffType</i>	Ver.: always

6.4.2.1049 boolean emberAfPriceClusterGetBlockThresholdsCallback ( int32u *issuerTariffId* )

Price Cluster Get Block Thresholds.

#### Parameters

<i>issuerTariffId</i>	Ver.: always
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6.4.2.1050 boolean emberAfPriceClusterGetCO2ValueCallback ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCommands*, int8u *tariffType* )

Price Cluster Get C O2 Value.

#### Parameters

<i>earliestStartTime</i>	Ver.: always
<i>minIssuerEventId</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always
<i>tariffType</i>	Ver.: always

6.4.2.1051 boolean emberAfPriceClusterGetCalorificValueCallback ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCommands* )

Price Cluster Get Calorific Value.

#### Parameters

<i>earliestStartTime</i>	Ver.: always
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<i>minIssuer-EventId</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always

6.4.2.1052 boolean **emberAfPriceClusterGetConsolidatedBillCallback** ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCommands*, int8u *tariffType* )

Price Cluster Get Consolidated Bill.

#### Parameters

<i>earliestStartTime</i>	Ver.: always
<i>minIssuerEventId</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always
<i>tariffType</i>	Ver.: always

6.4.2.1053 boolean **emberAfPriceClusterGetConversionFactorCallback** ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCommands* )

Price Cluster Get Conversion Factor.

#### Parameters

<i>earliestStartTime</i>	Ver.: always
<i>minIssuerEventId</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always

6.4.2.1054 boolean **emberAfPriceClusterGetCreditPaymentCallback** ( int32u *latestEndTime*, int8u *numberOfRecords* )

Price Cluster Get Credit Payment.

#### Parameters

<i>latestEndTime</i>	Ver.: always
<i>numberOfRecords</i>	Ver.: always

6.4.2.1055 boolean **emberAfPriceClusterGetCurrencyConversionCommandCallback** ( void )

Price Cluster Get Currency Conversion Command.

#### 6.4.2.1056 boolean emberAfPriceClusterGetCurrentPriceCallback ( int8u *commandOptions* )

Price Cluster Get Current Price.

##### Parameters

<i>command- Options</i>	Ver.: always
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#### 6.4.2.1057 boolean emberAfPriceClusterGetPriceMatrixCallback ( int32u *issuerTariffId* )

Price Cluster Get Price Matrix.

##### Parameters

<i>issuerTariffId</i>	Ver.: always
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#### 6.4.2.1058 boolean emberAfPriceClusterGetScheduledPricesCallback ( int32u *startTime*, int8u *numberOfEvents* )

Price Cluster Get Scheduled Prices.

##### Parameters

<i>startTime</i>	Ver.: always
<i>numberOf- Events</i>	Ver.: always

#### 6.4.2.1059 boolean emberAfPriceClusterGetTariffCancellationCallback ( void )

Price Cluster Get Tariff Cancellation.

#### 6.4.2.1060 boolean emberAfPriceClusterGetTariffInformationCallback ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCommands*, int8u *tariffType* )

Price Cluster Get Tariff Information.

##### Parameters

<i>earliestStart- Time</i>	Ver.: always
<i>minIssuer- EventId</i>	Ver.: always
<i>numberOf- Commands</i>	Ver.: always
<i>tariffType</i>	Ver.: always

#### 6.4.2.1061 boolean emberAfPriceClusterGetTierLabelsCallback ( int32u *issuerTariffId* )

Price Cluster Get Tier Labels.

##### Parameters

<i>issuerTariffId</i>	Ver.: always
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#### 6.4.2.1062 boolean emberAfPriceClusterPriceAcknowledgementCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *priceAckTime*, int8u *control* )

Price Cluster Price Acknowledgement.

##### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>priceAckTime</i>	Ver.: always
<i>control</i>	Ver.: always

#### 6.4.2.1063 boolean emberAfPriceClusterPublishBillingPeriodCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *billingPeriodStartTime*, int32u *billingPeriodDuration*, int8u *billingPeriodDurationType*, int8u *tariffType* )

Price Cluster Publish Billing Period.

##### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>billingPeriodStartTime</i>	Ver.: always
<i>billingPeriodDuration</i>	Ver.: always
<i>billingPeriodDurationType</i>	Ver.: always
<i>tariffType</i>	Ver.: always

#### 6.4.2.1064 boolean emberAfPriceClusterPublishBlockPeriodCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *blockPeriodStartTime*, int32u *blockPeriodDuration*, int8u *blockPeriodControl*, int8u *blockPeriodDurationType*, int8u *tariffType*, int8u *tariffResolutionPeriod* )

Price Cluster Publish Block Period.

##### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>blockPeriodStartTime</i>	Ver.: always

<i>blockPeriod-Duration</i>	Ver.: always
<i>blockPeriod-Control</i>	Ver.: always
<i>blockPeriod-DurationType</i>	Ver.: since se-1.2a-07-5356-19
<i>tariffType</i>	Ver.: since se-1.2a-07-5356-19
<i>tariff-Resolution-Period</i>	Ver.: since se-1.2a-07-5356-19

6.4.2.1065 boolean *emberAfPriceClusterPublishBlockThresholdsCallback* ( int32u *providerId*, int32u *issuerEventId*, int32u *startTime*, int32u *issuerTariffId*, int8u *commandIndex*, int8u *numberOfCommands*, int8u *subPayloadControl*, int8u \* *payload* )

Price Cluster Publish Block Thresholds.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>issuerTariffId</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always
<i>subPayloadControl</i>	Ver.: always
<i>payload</i>	Ver.: always

6.4.2.1066 boolean *emberAfPriceClusterPublishCO2ValueCallback* ( int32u *providerId*, int32u *issuerEventId*, int32u *startTime*, int8u *tariffType*, int32u *cO2Value*, int8u *cO2ValueUnit*, int8u *cO2ValueTrailingDigit* )

Price Cluster Publish C O2 Value.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>tariffType</i>	Ver.: always
<i>cO2Value</i>	Ver.: always
<i>cO2ValueUnit</i>	Ver.: always
<i>cO2Value-TrailingDigit</i>	Ver.: always

**6.4.2.1067 boolean emberAfPriceClusterPublishCalorificValueCallback ( int32u *issuerEventId*, int32u *startTime*, int32u *calorificValue*, int8u *calorificValueUnit*, int8u *calorificValueTrailingDigit* )**

Price Cluster Publish Calorific Value.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>calorificValue</i>	Ver.: always
<i>calorificValueUnit</i>	Ver.: always
<i>calorificValueTrailingDigit</i>	Ver.: always

**6.4.2.1068 boolean emberAfPriceClusterPublishConsolidatedBillCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *billingPeriodStartTime*, int32u *billingPeriodDuration*, int8u *billingPeriodDurationType*, int8u *tariffType*, int32u *consolidatedBill*, int16u *currency*, int8u *billTrailingDigit* )**

Price Cluster Publish Consolidated Bill.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>billingPeriodStartTime</i>	Ver.: always
<i>billingPeriodDuration</i>	Ver.: always
<i>billingPeriodDurationType</i>	Ver.: always
<i>tariffType</i>	Ver.: always
<i>consolidatedBill</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>billTrailingDigit</i>	Ver.: always

**6.4.2.1069 boolean emberAfPriceClusterPublishConversionFactorCallback ( int32u *issuerEventId*, int32u *startTime*, int32u *conversionFactor*, int8u *conversionFactorTrailingDigit* )**

Price Cluster Publish Conversion Factor.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>conversionFactor</i>	Ver.: always
<i>conversionFactorTrailingDigit</i>	Ver.: always

**6.4.2.1070 boolean emberAfPriceClusterPublishCppEventCallback ( int32u providerId, int32u issuerEventId, int32u startTime, int16u durationInMinutes, int8u tariffType, int8u cppPriceTier, int8u cppAuth )**

Price Cluster Publish Cpp Event.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>durationInMinutes</i>	Ver.: always
<i>tariffType</i>	Ver.: always
<i>cppPriceTier</i>	Ver.: always
<i>cppAuth</i>	Ver.: always

**6.4.2.1071 boolean emberAfPriceClusterPublishCreditPaymentCallback ( int32u providerId, int32u issuerEventId, int32u creditPaymentDueDate, int32u creditPaymentOverDueAmount, int8u creditPaymentStatus, int32u creditPayment, int32u creditPaymentDate, int8u \* creditPaymentRef )**

Price Cluster Publish Credit Payment.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>creditPayment-DueDate</i>	Ver.: always
<i>creditPayment-OverDue-Amount</i>	Ver.: always
<i>creditPayment-Status</i>	Ver.: always
<i>creditPayment</i>	Ver.: always
<i>creditPayment-Date</i>	Ver.: always
<i>creditPayment-Ref</i>	Ver.: always

**6.4.2.1072 boolean emberAfPriceClusterPublishCurrencyConversionCallback ( int32u providerId, int32u issuerEventId, int32u startTime, int16u oldCurrency, int16u newCurrency, int32u conversionFactor, int8u conversionFactorTrailingDigit, int32u currencyChangeControlFlags )**

Price Cluster Publish Currency Conversion.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always

<i>startTime</i>	Ver.: always
<i>oldCurrency</i>	Ver.: always
<i>newCurrency</i>	Ver.: always
<i>conversionFactor</i>	Ver.: always
<i>conversionFactorTrailingDigit</i>	Ver.: always
<i>currencyChangeControlFlags</i>	Ver.: always

6.4.2.1073 boolean emberAfPriceClusterPublishPriceCallback ( int32u *providerId*, int8u \* *rateLabel*, int32u *issuerEventId*, int32u *currentTime*, int8u *unitOfMeasure*, int16u *currency*, int8u *priceTrailingDigitAndPriceTier*, int8u *numberOfPriceTiersAndRegisterTier*, int32u *startTime*, int16u *durationInMinutes*, int32u *price*, int8u *priceRatio*, int32u *generationPrice*, int8u *generationPriceRatio*, int32u *alternateCostDelivered*, int8u *alternateCostUnit*, int8u *alternateCostTrailingDigit*, int8u *numberOfBlockThresholds*, int8u *priceControl*, int8u *numberOfGenerationTiers*, int8u *generationTier*, int8u *extendedNumberOfPriceTiers*, int8u *extendedPriceTier*, int8u *extendedRegisterTier* )

Price Cluster Publish Price.

#### Parameters

<i>providerId</i>	Ver.: always
<i>rateLabel</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>currentTime</i>	Ver.: always
<i>unitOfMeasure</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>priceTrailingDigitAndPriceTier</i>	Ver.: always
<i>numberOfPriceTiersAndRegisterTier</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>durationInMinutes</i>	Ver.: always
<i>price</i>	Ver.: always
<i>priceRatio</i>	Ver.: always
<i>generationPrice</i>	Ver.: always
<i>generationPriceRatio</i>	Ver.: always
<i>alternateCostDelivered</i>	Ver.: since se-1.0-07-5356-15
<i>alternateCostUnit</i>	Ver.: since se-1.0-07-5356-15
<i>alternateCostTrailingDigit</i>	Ver.: since se-1.0-07-5356-15

<i>numberOfBlockThresholds</i>	Ver.: since se-1.1-07-5356-16
<i>priceControl</i>	Ver.: since se-1.1-07-5356-16
<i>numberOfGenerationTiers</i>	Ver.: since se-1.2a-07-5356-19
<i>generationTier</i>	Ver.: since se-1.2a-07-5356-19
<i>extendedNumberOfPriceTiers</i>	Ver.: since se-1.2a-07-5356-19
<i>extendedPriceTier</i>	Ver.: since se-1.2a-07-5356-19
<i>extendedRegisterTier</i>	Ver.: since se-1.2a-07-5356-19

**6.4.2.1074 boolean emberAfPriceClusterPublishPriceMatrixCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *startTime*, int32u *issuerTariffId*, int8u *commandIndex*, int8u *numberOfCommands*, int8u \* *subPayloadControl*, int8u \* *payload* )**

Price Cluster Publish Price Matrix.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>issuerTariffId</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always
<i>subPayloadControl</i>	Ver.: always
<i>payload</i>	Ver.: always

**6.4.2.1075 boolean emberAfPriceClusterPublishTariffInformationCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerTariffId*, int32u *startTime*, int8u *tariffTypeChargingScheme*, int8u \* *tariffLabel*, int8u *numberOfPriceTiersInUse*, int8u *numberOfBlockThresholdsInUse*, int8u *unitOfMeasure*, int16u *currency*, int8u *priceTrailingDigit*, int32u *standingCharge*, int8u *tierBlockMode*, int32u *blockThresholdMultiplier*, int32u *blockThresholdDivisor* )**

Price Cluster Publish Tariff Information.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>issuerTariffId</i>	Ver.: always
<i>startTime</i>	Ver.: always

<i>tariffType-Charging-Scheme</i>	Ver.: always
<i>tariffLabel</i>	Ver.: always
<i>numberOfPriceTiersIn-Use</i>	Ver.: always
<i>numberOfBlock-ThresholdsIn-Use</i>	Ver.: always
<i>unitOfMeasure</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>priceTrailing-Digit</i>	Ver.: always
<i>standing-Charge</i>	Ver.: always
<i>tierBlockMode</i>	Ver.: always
<i>block-Threshold-Multiplier</i>	Ver.: always
<i>block-Threshold-Divisor</i>	Ver.: always

6.4.2.1076 boolean emberAfPriceClusterPublishTierLabelsCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerTariffId*, int8u *commandIndex*, int8u *numberOfCommands*, int8u *numberOfLabels*, int8u \* *tierLabelsPayload* )

Price Cluster Publish Tier Labels.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>issuerTariffId</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always
<i>numberOfLabels</i>	Ver.: always
<i>tierLabels-Payload</i>	Ver.: always

6.4.2.1077 void emberAfPriceClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Price Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1078 void emberAfPriceClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Price Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1079 void emberAfPriceClusterServerInitCallback ( int8u *endpoint* )**

Price Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1080 void emberAfPriceClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Price Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1081 void emberAfPriceClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Price Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1082 EmberAfStatus emberAfPriceClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Price Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1083 void emberAfPriceClusterServerTickCallback ( int8u *endpoint* )**

Price Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1084 boolean emberAfDemandResponseLoadControlClusterCancelAllLoadControlEventsCallback ( int8u *cancelControl* )**

Demand Response and Load Control Cluster Cancel All Load Control Events.

**Parameters**

<i>cancelControl</i>	Ver.: always
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**6.4.2.1085 boolean emberAfDemandResponseLoadControlClusterCancelLoadControlEventCallback ( int32u *issuerEventId*, int16u *deviceClass*, int8u *utilityEnrollmentGroup*, int8u *cancelControl*, int32u *effectiveTime* )**

Demand Response and Load Control Cluster Cancel Load Control Event.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>deviceClass</i>	Ver.: always
<i>utility- Enrollment- Group</i>	Ver.: always
<i>cancelControl</i>	Ver.: always
<i>effectiveTime</i>	Ver.: always

**6.4.2.1086 void emberAfDemandResponseLoadControlClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Demand Response and Load Control Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1087 void emberAfDemandResponseLoadControlClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Demand Response and Load Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1088 void emberAfDemandResponseLoadControlClusterClientInitCallback ( int8u endpoint )**

Demand Response and Load Control Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1089 void emberAfDemandResponseLoadControlClusterClientManufacturerSpecificAttribute-  
ChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )**

Demand Response and Load Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1090 void emberAfDemandResponseLoadControlClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Demand Response and Load Control Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1091 EmberAfStatus emberAfDemandResponseLoadControlClusterClientPreAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Demand Response and Load Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1092 void emberAfDemandResponseLoadControlClusterClientTickCallback ( int8u *endpoint* )**

Demand Response and Load Control Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1093 boolean emberAfDemandResponseLoadControlClusterGetScheduledEventsCallback ( int32u startTime, int8u numberOfEvents, int32u issuerEventId )**

Demand Response and Load Control Cluster Get Scheduled Events.

#### Parameters

<i>startTime</i>	Ver.: always
<i>numberOfEvents</i>	Ver.: always
<i>issuerEventId</i>	Ver.: since se-1.2b-15-0131-02

**6.4.2.1094 boolean emberAfDemandResponseLoadControlClusterLoadControlEventCallback ( int32u issuerEventId, int16u deviceClass, int8u utilityEnrollmentGroup, int32u startTime, int16u durationInMinutes, int8u criticalityLevel, int8u coolingTemperatureOffset, int8u heatingTemperatureOffset, int16s coolingTemperatureSetPoint, int16s heatingTemperatureSetPoint, int8s averageLoadAdjustmentPercentage, int8u dutyCycle, int8u eventControl )**

Demand Response and Load Control Cluster Load Control Event.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>deviceClass</i>	Ver.: always
<i>utility- Enrollment- Group</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>durationIn- Minutes</i>	Ver.: always
<i>criticalityLevel</i>	Ver.: always
<i>cooling- Temperature- Offset</i>	Ver.: always
<i>heating- Temperature- Offset</i>	Ver.: always
<i>cooling- Temperature- SetPoint</i>	Ver.: always
<i>heating- Temperature- SetPoint</i>	Ver.: always
<i>averageLoad- Adjustment- Percentage</i>	Ver.: always
<i>dutyCycle</i>	Ver.: always
<i>eventControl</i>	Ver.: always

**6.4.2.1095** boolean `emberAfDemandResponseLoadControlClusterReportEventStatusCallback ( int32u issuerEventId, int8u eventStatus, int32u eventStatusTime, int8u criticalityLevelApplied, int16u coolingTemperatureSetPointApplied, int16u heatingTemperatureSetPointApplied, int8s averageLoadAdjustmentPercentageApplied, int8u dutyCycleApplied, int8u eventControl, int8u signatureType, int8u * signature )`

Demand Response and Load Control Cluster Report Event Status.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>eventStatus</i>	Ver.: always
<i>eventStatusTime</i>	Ver.: always
<i>criticalityLevelApplied</i>	Ver.: always
<i>coolingTemperatureSetPointApplied</i>	Ver.: always
<i>heatingTemperatureSetPointApplied</i>	Ver.: always
<i>averageLoadAdjustmentPercentageApplied</i>	Ver.: always
<i>dutyCycleApplied</i>	Ver.: always
<i>eventControl</i>	Ver.: always
<i>signatureType</i>	Ver.: always
<i>signature</i>	Ver.: always

**6.4.2.1096** void `emberAfDemandResponseLoadControlClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )`

Demand Response and Load Control Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1097** void `emberAfDemandResponseLoadControlClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )`

Demand Response and Load Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1098 void emberAfDemandResponseLoadControlClusterServerInitCallback ( int8u *endpoint* )**

Demand Response and Load Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1099 void emberAfDemandResponseLoadControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Demand Response and Load Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1100 void emberAfDemandResponseLoadControlClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Demand Response and Load Control Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1101 EmberAfStatus emberAfDemandResponseLoadControlClusterServerPreAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Demand Response and Load Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1102 void emberAfDemandResponseLoadControlClusterServerTickCallback ( int8u *endpoint* )**

Demand Response and Load Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1103 boolean emberAfSimpleMeteringClusterChangeSupplyCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *requestDateTime*, int32u *implementationDateTime*, int8u *proposedSupplyStatus*, int8u *supplyControlBits* )**

Simple Metering Cluster Change Supply.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>requestDate-Time</i>	Ver.: always
<i>implementation-DateTime</i>	Ver.: always
<i>proposed-SupplyStatus</i>	Ver.: always
<i>supplyControl-Bits</i>	Ver.: always

**6.4.2.1104 void emberAfSimpleMeteringClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Simple Metering Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1105 void emberAfSimpleMeteringClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Simple Metering Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1106 void emberAfSimpleMeteringClusterClientInitCallback ( int8u *endpoint* )**

Simple Metering Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1107 void emberAfSimpleMeteringClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Simple Metering Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1108 void emberAfSimpleMeteringClusterClientMessageSentCallback ( EmberOutgoingMessage-Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Simple Metering Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1109 EmberAfStatus emberAfSimpleMeteringClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Simple Metering Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1110 void emberAfSimpleMeteringClusterClientTickCallback ( int8u *endpoint* )**

Simple Metering Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1111 boolean emberAfSimpleMeteringClusterConfigureMirrorCallback ( int32u *issuerEventId*, int32u *reportingInterval*, int8u *mirrorNotificationReporting*, int8u *notificationScheme* )**

Simple Metering Cluster Configure Mirror.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>reporting-Interval</i>	Ver.: always
<i>mirror-Notification-Reporting</i>	Ver.: always
<i>notification-Scheme</i>	Ver.: always

**6.4.2.1112 boolean emberAfSimpleMeteringClusterConfigureNotificationFlagsCallback ( int32u *issuerEventId*, int8u *notificationScheme*, int16u *notificationFlagAttributeId*, int16u *clusterId*, int16u *manufacturerCode*, int8u *numberOfCommands*, int8u \* *commandIds* )**

Simple Metering Cluster Configure Notification Flags.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>notification-Scheme</i>	Ver.: always
<i>notification-FlagAttributeId</i>	Ver.: always
<i>clusterId</i>	Ver.: always
<i>manufacturer-Code</i>	Ver.: always
<i>numberOfCommands</i>	Ver.: always
<i>commandIds</i>	Ver.: always

**6.4.2.1113 boolean emberAfSimpleMeteringClusterConfigureNotificationSchemeCallback ( int32u *issuerEventId*, int8u *notificationScheme*, int32u *notificationFlagOrder* )**

Simple Metering Cluster Configure Notification Scheme.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>notification-Scheme</i>	Ver.: always
<i>notification-FlagOrder</i>	Ver.: always

**6.4.2.1114 boolean emberAfSimpleMeteringClusterGetNotifiedMessageCallback ( int8u *notificationScheme*, int16u *notificationFlagAttributeId*, int32u *notificationFlagsN* )**

Simple Metering Cluster Get Notified Message.

#### Parameters

<i>notification-Scheme</i>	Ver.: always
<i>notification-FlagAttributeId</i>	Ver.: always
<i>notification-FlagsN</i>	Ver.: always

**6.4.2.1115 boolean emberAfSimpleMeteringClusterGetProfileCallback ( int8u *intervalChannel*, int32u *endTime*, int8u *numberOfPeriods* )**

Simple Metering Cluster Get Profile.

#### Parameters

<i>interval- Channel</i>	Ver.: always
<i>endTime</i>	Ver.: always
<i>numberOf- Periods</i>	Ver.: always

**6.4.2.1116 boolean emberAfSimpleMeteringClusterGetProfileResponseCallback ( int32u *endTime*, int8u *status*, int8u *profileIntervalPeriod*, int8u *numberOfPeriodsDelivered*, int8u \* *intervals* )**

Simple Metering Cluster Get Profile Response.

#### Parameters

<i>endTime</i>	Ver.: always
<i>status</i>	Ver.: always
<i>profileInterval- Period</i>	Ver.: always
<i>numberOf- Periods- Delivered</i>	Ver.: always
<i>intervals</i>	Ver.: always

**6.4.2.1117 boolean emberAfSimpleMeteringClusterGetSampledDataCallback ( int16u *sampleId*, int32u *earliestSampleTime*, int8u *sampleType*, int16u *numberOfSamples* )**

Simple Metering Cluster Get Sampled Data.

#### Parameters

<i>sampleId</i>	Ver.: always
<i>earliestSample- Time</i>	Ver.: always
<i>sampleType</i>	Ver.: always
<i>numberOf- Samples</i>	Ver.: always

**6.4.2.1118 boolean emberAfSimpleMeteringClusterGetSampledDataResponseCallback ( int16u *sampleId*, int32u *sampleStartTime*, int8u *sampleType*, int16u *sampleRequestInterval*, int16u *numberOfSamples*, int8u \* *samples* )**

Simple Metering Cluster Get Sampled Data Response.

**Parameters**

<i>sampleId</i>	Ver.: always
<i>sampleStart-Time</i>	Ver.: always
<i>sampleType</i>	Ver.: always
<i>sampleRequest-Interval</i>	Ver.: always
<i>numberOfSamples</i>	Ver.: always
<i>samples</i>	Ver.: always

**6.4.2.1119 boolean emberAfSimpleMeteringClusterGetSnapshotCallback ( int32u earliestStartTime, int32u latestEndTime, int8u snapshotOffset, int32u snapshotCause )**

Simple Metering Cluster Get Snapshot.

**Parameters**

<i>earliestStartTime</i>	Ver.: always
<i>latestEndTime</i>	Ver.: always
<i>snapshotOffset</i>	Ver.: always
<i>snapshotCause</i>	Ver.: always

**6.4.2.1120 boolean emberAfSimpleMeteringClusterLocalChangeSupplyCallback ( int8u proposedSupplyStatus )**

Simple Metering Cluster Local Change Supply.

**Parameters**

<i>proposed-SupplyStatus</i>	Ver.: always
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**6.4.2.1121 boolean emberAfSimpleMeteringClusterMirrorRemovedCallback ( int16u endpointId )**

Simple Metering Cluster Mirror Removed.

**Parameters**

<i>endpointId</i>	Ver.: always
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**6.4.2.1122 boolean emberAfSimpleMeteringClusterMirrorReportAttributeResponseCallback ( int8u notificationScheme, int8u \* notificationFlags )**

Simple Metering Cluster Mirror Report Attribute Response.

**Parameters**

<i>notification-Scheme</i>	Ver.: always
<i>notification-Flags</i>	Ver.: always

**6.4.2.1123 boolean emberAfSimpleMeteringClusterPublishSnapshotCallback ( int32u *snapshotId*, int32u *snapshotTime*, int8u *totalSnapshotsFound*, int8u *commandIndex*, int8u *totalCommands*, int32u *snapshotCause*, int8u *snapshotPayloadType*, int8u \* *snapshotPayload* )**

Simple Metering Cluster Publish Snapshot.

**Parameters**

<i>snapshotId</i>	Ver.: always
<i>snapshotTime</i>	Ver.: always
<i>totalSnapshots-Found</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>totalCommands</i>	Ver.: always
<i>snapshotCause</i>	Ver.: always
<i>snapshot-PayloadType</i>	Ver.: always
<i>snapshot-Payload</i>	Ver.: always

**6.4.2.1124 boolean emberAfSimpleMeteringClusterRemoveMirrorCallback ( void )**

Simple Metering Cluster Remove Mirror.

**6.4.2.1125 boolean emberAfSimpleMeteringClusterRequestFastPollModeCallback ( int8u *fastPollUpdatePeriod*, int8u *duration* )**

Simple Metering Cluster Request Fast Poll Mode.

**Parameters**

<i>fastPollUpdate-Period</i>	Ver.: always
<i>duration</i>	Ver.: always

**6.4.2.1126 boolean emberAfSimpleMeteringClusterRequestFastPollModeResponseCallback ( int8u *appliedUpdatePeriod*, int32u *fastPollModeEndtime* )**

Simple Metering Cluster Request Fast Poll Mode Response.

**Parameters**

<i>appliedUpdate-Period</i>	Ver.: always
<i>fastPollMode-Endtime</i>	Ver.: always

**6.4.2.1127 boolean emberAfSimpleMeteringClusterRequestMirrorCallback ( void )**

Simple Metering Cluster Request Mirror.

**6.4.2.1128 boolean emberAfSimpleMeteringClusterRequestMirrorResponseCallback ( int16u endpointId )**

Simple Metering Cluster Request Mirror Response.

**Parameters**

<i>endpointId</i>	Ver.: always
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**6.4.2.1129 boolean emberAfSimpleMeteringClusterResetLoadLimitCounterCallback ( int32u providerId, int32u issuerEventId )**

Simple Metering Cluster Reset Load Limit Counter.

**Parameters**

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always

**6.4.2.1130 boolean emberAfSimpleMeteringClusterScheduleSnapshotCallback ( int32u issuerEventId, int8u commandIndex, int8u commandCount, int8u \* snapshotSchedulePayload )**

Simple Metering Cluster Schedule Snapshot.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>commandCount</i>	Ver.: always
<i>snapshot-Schedule-Payload</i>	Ver.: always

**6.4.2.1131 boolean emberAfSimpleMeteringClusterScheduleSnapshotResponseCallback ( int32u issuerEventId, int8u \* snapshotResponsePayload )**

Simple Metering Cluster Schedule Snapshot Response.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>snapshot-Response-Payload</i>	Ver.: always

**6.4.2.1132 void emberAfSimpleMeteringClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Simple Metering Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1133 void emberAfSimpleMeteringClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Simple Metering Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1134 void emberAfSimpleMeteringClusterServerInitCallback ( int8u *endpoint* )**

Simple Metering Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1135 void emberAfSimpleMeteringClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Simple Metering Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1136 void emberAfSimpleMeteringClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Simple Metering Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1137 EmberAfStatus emberAfSimpleMeteringClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Simple Metering Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1138 void emberAfSimpleMeteringClusterServerTickCallback ( int8u *endpoint* )**

Simple Metering Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1139 boolean emberAfSimpleMeteringClusterSetSupplyStatusCallback ( int32u *issuerEventId*, int8u *supplyTamperState*, int8u *supplyDepletionState*, int8u *supplyUncontrolledFlowState*, int8u *loadLimitSupplyState* )**

Simple Metering Cluster Set Supply Status.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>supplyTamperState</i>	Ver.: always
<i>supplyDepletionState</i>	Ver.: always
<i>supplyUncontrolledFlowState</i>	Ver.: always
<i>loadLimitSupplyState</i>	Ver.: always

**6.4.2.1140 boolean emberAfSimpleMeteringClusterSetUncontrolledFlowThresholdCallback ( int32u *providerId*, int32u *issuerEventId*, int16u *uncontrolledFlowThreshold*, int8u *unitOfMeasure*, int16u *multiplier*, int16u *divisor*, int8u *stabilisationPeriod*, int16u *measurementPeriod* )**

Simple Metering Cluster Set Uncontrolled Flow Threshold.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>uncontrolledFlowThreshold</i>	Ver.: always
<i>unitOfMeasure</i>	Ver.: always
<i>multiplier</i>	Ver.: always
<i>divisor</i>	Ver.: always
<i>stabilisationPeriod</i>	Ver.: always
<i>measurementPeriod</i>	Ver.: always

**6.4.2.1141 boolean emberAfSimpleMeteringClusterStartSamplingCallback ( int32u *issuerEventId*, int32u *startSamplingTime*, int8u *sampleType*, int16u *sampleRequestInterval*, int16u *maxNumberOfSamples* )**

Simple Metering Cluster Start Sampling.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>startSamplingTime</i>	Ver.: always
<i>sampleType</i>	Ver.: always

<i>sampleRequest-Interval</i>	Ver.: always
<i>maxNumberOfSamples</i>	Ver.: always

#### 6.4.2.1142 boolean emberAfSimpleMeteringClusterStartSamplingResponseCallback ( int16u *sampleId* )

Simple Metering Cluster Start Sampling Response.

##### Parameters

<i>sampleId</i>	Ver.: always
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#### 6.4.2.1143 boolean emberAfSimpleMeteringClusterSupplyStatusResponseCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *implementationDateTime*, int8u *supplyStatus* )

Simple Metering Cluster Supply Status Response.

##### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>implementation-DateTime</i>	Ver.: always
<i>supplyStatus</i>	Ver.: always

#### 6.4.2.1144 boolean emberAfSimpleMeteringClusterTakeSnapshotCallback ( int32u *snapshotCause* )

Simple Metering Cluster Take Snapshot.

##### Parameters

<i>snapshotCause</i>	Ver.: always
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#### 6.4.2.1145 boolean emberAfSimpleMeteringClusterTakeSnapshotResponseCallback ( int32u *snapshotId*, int8u *snapshotConfirmation* )

Simple Metering Cluster Take Snapshot Response.

##### Parameters

<i>snapshotId</i>	Ver.: always
<i>snapshot-Confirmation</i>	Ver.: always

**6.4.2.1146 boolean emberAfMessagingClusterCancelAllMessagesCallback ( int32u *implementationDateTime* )**

Messaging Cluster Cancel All Messages.

#### Parameters

<i>implementation- DateTime</i>	Ver.: always
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**6.4.2.1147 boolean emberAfMessagingClusterCancelMessageCallback ( int32u *messageId*, int8u *messageControl* )**

Messaging Cluster Cancel Message.

#### Parameters

<i>messageId</i>	Ver.: always
<i>message- Control</i>	Ver.: always

**6.4.2.1148 void emberAfMessagingClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Messaging Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1149 void emberAfMessagingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Messaging Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1150 void emberAfMessagingClusterClientInitCallback ( int8u *endpoint* )**

Messaging Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1151 void emberAfMessagingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode )**

Messaging Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1152 void emberAfMessagingClusterClientMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Messaging Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1153 EmberAfStatus emberAfMessagingClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Messaging Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.1154 void emberAfMessagingClusterClientTickCallback ( int8u *endpoint* )

Messaging Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1155 boolean emberAfMessagingClusterDisplayMessageCallback ( int32u *messageId*, int8u *messageControl*, int32u *startTime*, int16u *durationInMinutes*, int8u \* *message*, int8u *optionalExtendedMessageControl* )

Messaging Cluster Display Message.

##### Parameters

<i>messageId</i>	Ver.: always
<i>message-</i> <i>Control</i>	Ver.: always
<i>start</i> <i>Time</i>	Ver.: always
<i>durationIn-</i> <i>Minutes</i>	Ver.: always
<i>message</i>	Ver.: always
<i>optional-</i> <i>Extended-</i> <i>Message-</i> <i>Control</i>	Ver.: since se-1.2a-07-5356-19

#### 6.4.2.1156 boolean emberAfMessagingClusterDisplayProtectedMessageCallback ( int32u *messageId*, int8u *messageControl*, int32u *startTime*, int16u *durationInMinutes*, int8u \* *message*, int8u *optionalExtendedMessageControl* )

Messaging Cluster Display Protected Message.

##### Parameters

<i>messageId</i>	Ver.: always
<i>message-</i> <i>Control</i>	Ver.: always
<i>start</i> <i>Time</i>	Ver.: always
<i>durationIn-</i> <i>Minutes</i>	Ver.: always
<i>message</i>	Ver.: always
<i>optional-</i> <i>Extended-</i> <i>Message-</i> <i>Control</i>	Ver.: always

#### 6.4.2.1157 boolean emberAfMessagingClusterGetLastMessageCallback ( void )

Messaging Cluster Get Last Message.

#### 6.4.2.1158 boolean emberAfMessagingClusterGetMessageCancellationCallback ( int32u earliestImplementationTime )

Messaging Cluster Get Message Cancellation.

##### Parameters

<i>earliest- Implementation- Time</i>	Ver.: always
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#### 6.4.2.1159 boolean emberAfMessagingClusterMessageConfirmationCallback ( int32u messageId, int32u confirmationTime, int8u messageConfirmationControl, int8u \* messageResponse )

Messaging Cluster Message Confirmation.

##### Parameters

<i>messageId</i>	Ver.: always
<i>confirmation- Time</i>	Ver.: always
<i>message- Confirmation- Control</i>	Ver.: since se-1.2a-07-5356-19
<i>message- Response</i>	Ver.: since se-1.2a-07-5356-19

#### 6.4.2.1160 void emberAfMessagingClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )

Messaging Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.1161 void emberAfMessagingClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )

Messaging Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1162 void emberAfMessagingClusterServerInitCallback ( int8u *endpoint* )**

Messaging Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1163 void emberAfMessagingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Messaging Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1164 void emberAfMessagingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Messaging Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1165 EmberAfStatus emberAfMessagingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Messaging Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1166 void emberAfMessagingClusterServerTickCallback ( int8u *endpoint* )**

Messaging Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1167 boolean emberAfTunnelingClusterAckTransferDataClientToServerCallback ( int16u *tunnelId*, int16u *numberOfBytesLeft* )**

Tunneling Cluster Ack Transfer Data Client To Server.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>numberOfBytesLeft</i>	Ver.: always

**6.4.2.1168 boolean emberAfTunnelingClusterAckTransferDataServerToClientCallback ( int16u *tunnelId*, int16u *numberOfBytesLeft* )**

Tunneling Cluster Ack Transfer Data Server To Client.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>numberOfBytesLeft</i>	Ver.: always

**6.4.2.1169 void emberAfTunnelingClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Tunneling Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1170 void emberAfTunnelingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Tunneling Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1171 void emberAfTunnelingClusterClientInitCallback ( int8u *endpoint* )**

Tunneling Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1172 void emberAfTunnelingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Tunneling Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1173 void emberAfTunnelingClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Tunneling Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1174 EmberAfStatus emberAfTunnelingClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Tunneling Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1175 void emberAfTunnelingClusterClientTickCallback ( int8u *endpoint* )**

Tunneling Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1176 boolean emberAfTunnelingClusterCloseTunnelCallback ( int16u *tunnelId* )**

Tunneling Cluster Close Tunnel.

#### Parameters

<i>tunnelId</i>	Ver.: always
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**6.4.2.1177 boolean emberAfTunnelingClusterGetSupportedTunnelProtocolsCallback ( int8u protocolOffset )**

Tunneling Cluster Get Supported Tunnel Protocols.

**Parameters**

<i>protocolOffset</i>	Ver.: always
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**6.4.2.1178 boolean emberAfTunnelingClusterReadyDataClientToServerCallback ( int16u tunnelId, int16u numberOfOctetsLeft )**

Tunneling Cluster Ready Data Client To Server.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>numberOfOctetsLeft</i>	Ver.: always

**6.4.2.1179 boolean emberAfTunnelingClusterReadyDataServerToClientCallback ( int16u tunnelId, int16u numberOfOctetsLeft )**

Tunneling Cluster Ready Data Server To Client.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>numberOfOctetsLeft</i>	Ver.: always

**6.4.2.1180 boolean emberAfTunnelingClusterRequestTunnelCallback ( int8u protocolId, int16u manufacturerCode, int8u flowControlSupport, int16u maximumIncomingTransferSize )**

Tunneling Cluster Request Tunnel.

**Parameters**

<i>protocolId</i>	Ver.: always
<i>manufacturerCode</i>	Ver.: always
<i>flowControlSupport</i>	Ver.: always
<i>maximumIncomingTransferSize</i>	Ver.: since se-1.1a-07-5356-17

**6.4.2.1181 boolean emberAfTunnelingClusterRequestTunnelResponseCallback ( int16u *tunnelId*, int8u *tunnelStatus*, int16u *maximumIncomingTransferSize* )**

Tunneling Cluster Request Tunnel Response.

#### Parameters

<i>tunnelId</i>	Ver.: always
<i>tunnelStatus</i>	Ver.: always
<i>maximum-Incoming-TransferSize</i>	Ver.: since se-1.1a-07-5356-17

**6.4.2.1182 void emberAfTunnelingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Tunneling Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1183 void emberAfTunnelingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Tunneling Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1184 void emberAfTunnelingClusterServerInitCallback ( int8u *endpoint* )**

Tunneling Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1185 void emberAfTunnelingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Tunneling Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1186 void emberAfTunnelingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Tunneling Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1187 EmberAfStatus emberAfTunnelingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Tunneling Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1188 void emberAfTunnelingClusterServerTickCallback ( int8u *endpoint* )**

Tunneling Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1189 boolean emberAfTunnelingClusterSupportedTunnelProtocolsResponseCallback ( int8u protocolListComplete, int8u protocolCount, int8u \* protocolList )**

Tunneling Cluster Supported Tunnel Protocols Response.

**Parameters**

<i>protocolList-Complete</i>	Ver.: always
<i>protocolCount</i>	Ver.: always
<i>protocolList</i>	Ver.: always

**6.4.2.1190 boolean emberAfTunnelingClusterTransferDataClientToServerCallback ( int16u tunnelId, int8u \* data )**

Tunneling Cluster Transfer Data Client To Server.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>data</i>	Ver.: always

**6.4.2.1191 boolean emberAfTunnelingClusterTransferDataErrorClientToServerCallback ( int16u tunnelId, int8u transferDataStatus )**

Tunneling Cluster Transfer Data Error Client To Server.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>transferData-Status</i>	Ver.: always

**6.4.2.1192 boolean emberAfTunnelingClusterTransferDataErrorServerToClientCallback ( int16u tunnelId, int8u transferDataStatus )**

Tunneling Cluster Transfer Data Error Server To Client.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>transferData-Status</i>	Ver.: always

**6.4.2.1193 boolean emberAfTunnelingClusterTransferDataServerToClientCallback ( int16u *tunnelId*, int8u \* *data* )**

Tunneling Cluster Transfer Data Server To Client.

**Parameters**

<i>tunnelId</i>	Ver.: always
<i>data</i>	Ver.: always

**6.4.2.1194 boolean emberAfTunnelingClusterTunnelClosureNotificationCallback ( int16u *tunnelId* )**

Tunneling Cluster Tunnel Closure Notification.

**Parameters**

<i>tunnelId</i>	Ver.: always
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**6.4.2.1195 boolean emberAfPrepaymentClusterChangeDebtCallback ( int32u *issuerEventId*, int8u \* *debtLabel*, int32u *debtAmount*, int8u *debtRecoveryMethod*, int8u *debtAmountType*, int32u *debtRecoveryStartTime*, int16u *debtRecoveryCollectionTime*, int8u *debtRecoveryFrequency*, int32u *debtRecoveryAmount*, int16u *debtRecoveryBalancePercentage* )**

Prepayment Cluster Change Debt.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>debtLabel</i>	Ver.: always
<i>debtAmount</i>	Ver.: always
<i>debtRecovery- Method</i>	Ver.: always
<i>debtAmount- Type</i>	Ver.: always
<i>debtRecovery- StartTime</i>	Ver.: always
<i>debtRecovery- CollectionTime</i>	Ver.: always
<i>debtRecovery- Frequency</i>	Ver.: always
<i>debtRecovery- Amount</i>	Ver.: always
<i>debtRecovery- Balance- Percentage</i>	Ver.: always

**6.4.2.1196 boolean emberAfPrepaymentClusterChangePaymentModeCallback ( int32u providerId, int32u issuerEventId, int32u implementationDateTime, int16u proposedPaymentControlConfiguration, int32u cutOffValue )**

Prepayment Cluster Change Payment Mode.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>implementation- DateTime</i>	Ver.: always
<i>proposed- Payment- Control- Configuration</i>	Ver.: always
<i>cutOffValue</i>	Ver.: always

**6.4.2.1197 boolean emberAfPrepaymentClusterChangePaymentModeResponseCallback ( int8u friendlyCredit, int32u friendlyCreditCalendarId, int32u emergencyCreditLimit, int32u emergencyCreditThreshold )**

Prepayment Cluster Change Payment Mode Response.

#### Parameters

<i>friendlyCredit</i>	Ver.: always
<i>friendlyCredit- CalendarId</i>	Ver.: always
<i>emergency- CreditLimit</i>	Ver.: always
<i>emergency- Credit- Threshold</i>	Ver.: always

**6.4.2.1198 void emberAfPrepaymentClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Prepayment Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1199 void emberAfPrepaymentClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Prepayment Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1200 void emberAfPrepaymentClusterClientInitCallback ( int8u *endpoint* )**

Prepayment Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1201 void emberAfPrepaymentClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Prepayment Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1202 void emberAfPrepaymentClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Prepayment Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1203 EmberAfStatus emberAfPrepaymentClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Prepayment Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1204 void emberAfPrepaymentClusterClientTickCallback ( int8u *endpoint* )**

Prepayment Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1205 boolean emberAfPrepaymentClusterConsumerTopUpCallback ( int8u *originatingDevice*, int8u \* *topUpCode* )**

Prepayment Cluster Consumer Top Up.

#### Parameters

<i>originating-Device</i>	Ver.: always
<i>topUpCode</i>	Ver.: always

**6.4.2.1206 boolean emberAfPrepaymentClusterConsumerTopUpResponseCallback ( int8u *resultType*, int32u *topUpValue*, int8u *sourceOfTopUp*, int32u *creditRemaining* )**

Prepayment Cluster Consumer Top Up Response.

#### Parameters

<i>resultType</i>	Ver.: always
<i>topUpValue</i>	Ver.: always
<i>sourceOfTopUp</i>	Ver.: always

<i>credit- Remaining</i>	Ver.: always
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6.4.2.1207 boolean emberAfPrepaymentClusterCreditAdjustmentCallback ( int32u *issuerEventId*, int32u *startTime*, int8u *creditAdjustmentType*, int32u *creditAdjustmentValue* )

Prepayment Cluster Credit Adjustment.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>credit- Adjustment- Type</i>	Ver.: always
<i>credit- Adjustment- Value</i>	Ver.: always

6.4.2.1208 boolean emberAfPrepaymentClusterEmergencyCreditSetupCallback ( int32u *issuerEventId*, int32u *startTime*, int32u *emergencyCreditLimit*, int32u *emergencyCreditThreshold* )

Prepayment Cluster Emergency Credit Setup.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>emergency- CreditLimit</i>	Ver.: always
<i>emergency- Credit- Threshold</i>	Ver.: always

6.4.2.1209 boolean emberAfPrepaymentClusterGetDebtRepaymentLogCallback ( int32u *latestEndTime*, int8u *numberOfDebts*, int8u *debtType* )

Prepayment Cluster Get Debt Repayment Log.

#### Parameters

<i>latestEndTime</i>	Ver.: always
<i>numberOf- Debts</i>	Ver.: always
<i>debtType</i>	Ver.: always

**6.4.2.1210 boolean emberAfPrepaymentClusterGetPrepaySnapshotCallback ( int32u *earliestStartTime*, int32u *latestEndTime*, int8u *snapshotOffset*, int32u *snapshotCause* )**

Prepayment Cluster Get Prepay Snapshot.

**Parameters**

<i>earliestStartTime</i>	Ver.: always
<i>latestEndTime</i>	Ver.: always
<i>snapshotOffset</i>	Ver.: always
<i>snapshotCause</i>	Ver.: always

**6.4.2.1211 boolean emberAfPrepaymentClusterGetTopUpLogCallback ( int32u *latestEndTime*, int8u *numberOfRecords* )**

Prepayment Cluster Get Top Up Log.

**Parameters**

<i>latestEndTime</i>	Ver.: always
<i>numberOfRecords</i>	Ver.: always

**6.4.2.1212 boolean emberAfPrepaymentClusterPublishDebtLogCallback ( int8u *commandIndex*, int8u *totalNumberOfCommands*, int8u \* *debtPayload* )**

Prepayment Cluster Publish Debt Log.

**Parameters**

<i>commandIndex</i>	Ver.: always
<i>totalNumberOfCommands</i>	Ver.: always
<i>debtPayload</i>	Ver.: always

**6.4.2.1213 boolean emberAfPrepaymentClusterPublishPrepaySnapshotCallback ( int32u *snapshotId*, int32u *snapshotTime*, int8u *totalSnapshotsFound*, int8u *commandIndex*, int8u *totalNumberOfCommands*, int32u *snapshotCause*, int8u *snapshotPayloadType*, int8u \* *snapshotPayload* )**

Prepayment Cluster Publish Prepay Snapshot.

**Parameters**

<i>snapshotId</i>	Ver.: always
<i>snapshotTime</i>	Ver.: always
<i>totalSnapshotsFound</i>	Ver.: always
<i>commandIndex</i>	Ver.: always

<i>totalNumber-OfCommands</i>	Ver.: always
<i>snapshotCause</i>	Ver.: always
<i>snapshot-PayloadType</i>	Ver.: always
<i>snapshot-Payload</i>	Ver.: always

**6.4.2.1214 boolean emberAfPrepaymentClusterPublishTopUpLogCallback ( int8u *commandIndex*, int8u *totalNumberOfCommands*, int8u \* *topUpPayload* )**

Prepayment Cluster Publish Top Up Log.

#### Parameters

<i>commandIndex</i>	Ver.: always
<i>totalNumberOfCommands</i>	Ver.: always
<i>topUpPayload</i>	Ver.: always

**6.4.2.1215 boolean emberAfPrepaymentClusterSelectAvailableEmergencyCreditCallback ( int32u *commandIssueDateTime*, int8u *originatingDevice* )**

Prepayment Cluster Select Available Emergency Credit.

#### Parameters

<i>commandIssue-DateTime</i>	Ver.: always
<i>originating-Device</i>	Ver.: always

**6.4.2.1216 void emberAfPrepaymentClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Prepayment Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1217 void emberAfPrepaymentClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Prepayment Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1218 void emberAfPrepaymentClusterServerInitCallback ( int8u *endpoint* )

Prepayment Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1219 void emberAfPrepaymentClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Prepayment Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1220 void emberAfPrepaymentClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Prepayment Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1221 EmberAfStatus emberAfPrepaymentClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Prepayment Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1222 void emberAfPrepaymentClusterServerTickCallback ( int8u *endpoint* )**

Prepayment Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1223 boolean emberAfPrepaymentClusterSetLowCreditWarningLevelCallback ( int32u *lowCreditWarningLevel* )**

Prepayment Cluster Set Low Credit Warning Level.

#### Parameters

<i>lowCreditWarningLevel</i>	Ver.: always
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**6.4.2.1224 boolean emberAfPrepaymentClusterSetMaximumCreditLimitCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *implementationDateTime*, int32u *maximumCreditLevel*, int32u *maximumCreditPerTopUp* )**

Prepayment Cluster Set Maximum Credit Limit.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>implementationDateTime</i>	Ver.: always
<i>maximumCreditLevel</i>	Ver.: always

<i>maximum-CreditPerTop-Up</i>	Ver.: always
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**6.4.2.1225 boolean emberAfPrepaymentClusterSetOverallDebtCapCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *implementationDateTime*, int32u *overallDebtCap* )**

Prepayment Cluster Set Overall Debt Cap.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>implementation-DateTime</i>	Ver.: always
<i>overallDebt-Cap</i>	Ver.: always

**6.4.2.1226 void emberAfEnergyManagementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Energy Management Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1227 void emberAfEnergyManagementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Energy Management Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1228 void emberAfEnergyManagementClusterClientInitCallback ( int8u *endpoint* )**

Energy Management Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1229 void emberAfEnergyManagementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Energy Management Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1230 void emberAfEnergyManagementClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Energy Management Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1231 EmberAfStatus emberAfEnergyManagementClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Energy Management Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.1232 void emberAfEnergyManagementClusterClientTickCallback ( int8u *endpoint* )

Energy Management Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1233 boolean emberAfEnergyManagementClusterManageEventCallback ( int32u *issuerEventId*, int16u *deviceClass*, int8u *utilityEnrollmentGroup*, int8u *actionRequired* )

Energy Management Cluster Manage Event.

##### Parameters

<i>issuerEventId</i>	Ver.: always
<i>deviceClass</i>	Ver.: always
<i>utility- Enrollment- Group</i>	Ver.: always
<i>actionRequired</i>	Ver.: always

#### 6.4.2.1234 boolean emberAfEnergyManagementClusterReportEventStatusCallback ( int32u *issuerEventId*, int8u *eventStatus*, int32u *eventStatusTime*, int8u *criticalityLevelApplied*, int16u *coolingTemperatureSetPointApplied*, int16u *heatingTemperatureSetPointApplied*, int8s *averageLoadAdjustmentPercentageApplied*, int8u *dutyCycleApplied*, int8u *eventControl* )

Energy Management Cluster Report Event Status.

##### Parameters

<i>issuerEventId</i>	Ver.: always
<i>eventStatus</i>	Ver.: always
<i>eventStatus- Time</i>	Ver.: always
<i>criticality- LevelApplied</i>	Ver.: always
<i>cooling- Temperature- SetPoint- Applied</i>	Ver.: always
<i>heating- Temperature- SetPoint- Applied</i>	Ver.: always
<i>averageLoad- Adjustment- Percentage- Applied</i>	Ver.: always
<i>dutyCycle- Applied</i>	Ver.: always

<i>eventControl</i>	Ver.: always
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**6.4.2.1235 void emberAfEnergyManagementClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Energy Management Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1236 void emberAfEnergyManagementClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Energy Management Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1237 void emberAfEnergyManagementClusterServerInitCallback ( int8u *endpoint* )**

Energy Management Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1238 void emberAfEnergyManagementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Energy Management Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1239 void emberAfEnergyManagementClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Energy Management Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1240 EmberAfStatus emberAfEnergyManagementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Energy Management Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1241 void emberAfEnergyManagementClusterServerTickCallback ( int8u *endpoint* )**

Energy Management Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1242 boolean emberAfCalendarClusterCancelCalendarCallback ( int32u *providerId*, int32u *issuerCalendarId*, int8u *calendarType* )**

Calendar Cluster Cancel Calendar.

**Parameters**

<i>providerId</i>	Ver.: always
<i>issuer- CalendarId</i>	Ver.: always
<i>calendarType</i>	Ver.: always

**6.4.2.1243 void emberAfCalendarClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Calendar Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1244 void emberAfCalendarClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Calendar Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1245 void emberAfCalendarClusterClientInitCallback ( int8u *endpoint* )**

Calendar Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1246 void emberAfCalendarClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Calendar Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1247 void emberAfCalendarClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Calendar Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1248 EmberAfStatus emberAfCalendarClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Calendar Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1249 void emberAfCalendarClusterClientTickCallback ( int8u *endpoint* )**

Calendar Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1250 boolean emberAfCalendarClusterGetCalendarCallback ( int32u *earliestStartTime*, int32u *minIssuerEventId*, int8u *numberOfCalendars*, int8u *calendarType*, int32u *providerId* )**

Calendar Cluster Get Calendar.

#### Parameters

<i>earliestStartTime</i>	Ver.: always
<i>minIssuerEventId</i>	Ver.: always
<i>numberOfCalendars</i>	Ver.: always
<i>calendarType</i>	Ver.: always
<i>providerId</i>	Ver.: always

**6.4.2.1251 boolean emberAfCalendarClusterGetCalendarCancellationCallback ( void )**

Calendar Cluster Get Calendar Cancellation.

**6.4.2.1252 boolean emberAfCalendarClusterGetDayProfilesCallback ( int32u *providerId*, int32u *issuerCalendarId*, int8u *startDayId*, int8u *numberOfDays* )**

Calendar Cluster Get Day Profiles.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always
<i>startDayId</i>	Ver.: always
<i>numberOfDays</i>	Ver.: always

**6.4.2.1253 boolean emberAfCalendarClusterGetSeasonsCallback ( int32u *providerId*, int32u *issuerCalendarId* )**

Calendar Cluster Get Seasons.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always

**6.4.2.1254 boolean emberAfCalendarClusterGetSpecialDaysCallback ( int32u *startTime*, int8u *numberOfEvents*, int8u *calendarType*, int32u *providerId*, int32u *issuerCalendarId* )**

Calendar Cluster Get Special Days.

**Parameters**

<i>startTime</i>	Ver.: always
<i>numberOfEvents</i>	Ver.: always
<i>calendarType</i>	Ver.: always
<i>providerId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always

6.4.2.1255 boolean emberAfCalendarClusterGetWeekProfilesCallback ( int32u *providerId*, int32u *issuerCalendarId*, int8u *startWeekId*, int8u *numberOfWeeks* )

Calendar Cluster Get Week Profiles.

**Parameters**

<i>providerId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always
<i>startWeekId</i>	Ver.: always
<i>numberOfWeeks</i>	Ver.: always

6.4.2.1256 boolean emberAfCalendarClusterPublishCalendarCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerCalendarId*, int32u *startTime*, int8u *calendarType*, int8u *calendarTimeReference*, int8u \* *calendarName*, int8u *numberOfSeasons*, int8u *numberOfWeekProfiles*, int8u *numberOfDayProfiles* )

Calendar Cluster Publish Calendar.

**Parameters**

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>calendarType</i>	Ver.: always
<i>calendarTimeReference</i>	Ver.: always
<i>calendarName</i>	Ver.: always
<i>numberOfSeasons</i>	Ver.: always
<i>numberOfWeekProfiles</i>	Ver.: always
<i>numberOfDayProfiles</i>	Ver.: always

**6.4.2.1257 boolean emberAfCalendarClusterPublishDayProfileCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerCalendarId*, int8u *dayId*, int8u *totalNumberOfScheduleEntries*, int8u *commandIndex*, int8u *totalNumberOfCommands*, int8u *calendarType*, int8u \* *dayScheduleEntries* )**

Calendar Cluster Publish Day Profile.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always
<i>dayId</i>	Ver.: always
<i>totalNumberOfScheduleEntries</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>totalNumberOfCommands</i>	Ver.: always
<i>calendarType</i>	Ver.: always
<i>dayScheduleEntries</i>	Ver.: always

**6.4.2.1258 boolean emberAfCalendarClusterPublishSeasonsCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerCalendarId*, int8u *commandIndex*, int8u *totalNumberOfCommands*, int8u \* *seasonEntries* )**

Calendar Cluster Publish Seasons.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>issuerCalendarId</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>totalNumberOfCommands</i>	Ver.: always
<i>seasonEntries</i>	Ver.: always

**6.4.2.1259 boolean emberAfCalendarClusterPublishSpecialDaysCallback ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerCalendarId*, int32u *startTime*, int8u *calendarType*, int8u *totalNumberOfSpecialDays*, int8u *commandIndex*, int8u *totalNumberOfCommands*, int8u \* *specialDayEntries* )**

Calendar Cluster Publish Special Days.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always

<i>issuer- CalendarId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>calendarType</i>	Ver.: always
<i>totalNumber- OfSpecialDays</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>totalNumber- OfCommands</i>	Ver.: always
<i>specialDay- Entries</i>	Ver.: always

6.4.2.1260 boolean **emberAfCalendarClusterPublishWeekProfileCallback** ( int32u *providerId*, int32u *issuerEventId*, int32u *issuerCalendarId*, int8u *weekId*, int8u *dayIdRefMonday*, int8u *dayIdRefTuesday*, int8u *dayIdRefWednesday*, int8u *dayIdRefThursday*, int8u *dayIdRefFriday*, int8u *dayIdRefSaturday*, int8u *dayIdRefSunday* )

Calendar Cluster Publish Week Profile.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>issuer- CalendarId</i>	Ver.: always
<i>weekId</i>	Ver.: always
<i>dayIdRef- Monday</i>	Ver.: always
<i>dayIdRef- Tuesday</i>	Ver.: always
<i>dayIdRef- Wednesday</i>	Ver.: always
<i>dayIdRef- Thursday</i>	Ver.: always
<i>dayIdRefFriday</i>	Ver.: always
<i>dayIdRef- Saturday</i>	Ver.: always
<i>dayIdRef- Sunday</i>	Ver.: always

6.4.2.1261 void **emberAfCalendarClusterServerAttributeChangedCallback** ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Calendar Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1262 void emberAfCalendarClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Calendar Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1263 void emberAfCalendarClusterServerInitCallback ( int8u *endpoint* )**

Calendar Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1264 void emberAfCalendarClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Calendar Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1265 void emberAfCalendarClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Calendar Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1266 EmberAfStatus emberAfCalendarClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Calendar Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1267 void emberAfCalendarClusterServerTickCallback ( int8u *endpoint* )**

Calendar Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1268 void emberAfDeviceManagementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Device Management Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1269 void emberAfDeviceManagementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Device Management Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1270 void emberAfDeviceManagementClusterClientInitCallback ( int8u *endpoint* )**

Device Management Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1271 void emberAfDeviceManagementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Device Management Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1272 void emberAfDeviceManagementClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Device Management Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1273 EmberAfStatus emberAfDeviceManagementClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Device Management Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1274 void emberAfDeviceManagementClusterClientTickCallback ( int8u *endpoint* )**

Device Management Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1275 boolean emberAfDeviceManagementClusterGetCINCallback ( void )**

Device Management Cluster Get C I N.

**6.4.2.1276 boolean emberAfDeviceManagementClusterGetChangeOfSupplierCallback ( void )**

Device Management Cluster Get Change Of Supplier.

**6.4.2.1277 boolean emberAfDeviceManagementClusterGetChangeOfTenancyCallback ( void )**

Device Management Cluster Get Change Of Tenancy.

**6.4.2.1278 boolean emberAfDeviceManagementClusterGetEventConfigurationCallback ( int16u *eventId* )**

Device Management Cluster Get Event Configuration.

**Parameters**

<i>eventId</i>	Ver.: always
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**6.4.2.1279 boolean emberAfDeviceManagementClusterGetSiteIdCallback ( void )**

Device Management Cluster Get Site Id.

**6.4.2.1280 boolean emberAfDeviceManagementClusterPublishChangeOfSupplierCallback ( int32u *currentProviderId*, int32u *issuerEventId*, int8u *tariffType*, int32u *proposedProviderId*, int32u *providerChangeImplementationTime*, int32u *providerChangeControl*, int8u \* *proposedProviderName*, int8u \* *proposedProviderContactDetails* )**

Device Management Cluster Publish Change Of Supplier.

#### Parameters

<i>current-ProviderId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>tariffType</i>	Ver.: always
<i>proposed-ProviderId</i>	Ver.: always
<i>provider-Change-Implementation-Time</i>	Ver.: always
<i>provider-ChangeControl</i>	Ver.: always
<i>proposed-ProviderName</i>	Ver.: always
<i>proposed-Provider-ContactDetails</i>	Ver.: always

**6.4.2.1281 boolean emberAfDeviceManagementClusterPublishChangeOfTenancyCallback ( int32u *providerId*, int32u *issuerEventId*, int8u *tariffType*, int32u *implementationDateTime*, int32u *proposedTenancyChangeControl* )**

Device Management Cluster Publish Change Of Tenancy.

#### Parameters

<i>providerId</i>	Ver.: always
<i>issuerEventId</i>	Ver.: always
<i>tariffType</i>	Ver.: always
<i>implementation-DateTime</i>	Ver.: always
<i>proposed-Tenancy-ChangeControl</i>	Ver.: always

**6.4.2.1282 boolean emberAfDeviceManagementClusterReportEventConfigurationCallback ( int8u *commandIndex*, int8u *totalCommands*, int8u \* *eventConfigurationPayload* )**

Device Management Cluster Report Event Configuration.

**Parameters**

<i>commandIndex</i>	Ver.: always
<i>totalCommands</i>	Ver.: always
<i>event-Configuration-Payload</i>	Ver.: always

**6.4.2.1283 boolean emberAfDeviceManagementClusterRequestNewPasswordCallback ( int8u passwordType )**

Device Management Cluster Request New Password.

**Parameters**

<i>passwordType</i>	Ver.: always
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**6.4.2.1284 boolean emberAfDeviceManagementClusterRequestNewPasswordResponseCallback ( int32u issuerEventId, int32u implementationDateTime, int16u durationInMinutes, int8u passwordType, int8u \* password )**

Device Management Cluster Request New Password Response.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>implementation-DateTime</i>	Ver.: always
<i>durationIn-Minutes</i>	Ver.: always
<i>passwordType</i>	Ver.: always
<i>password</i>	Ver.: always

**6.4.2.1285 void emberAfDeviceManagementClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Device Management Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1286 void emberAfDeviceManagementClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Device Management Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1287 void emberAfDeviceManagementClusterServerInitCallback ( int8u *endpoint* )

Device Management Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1288 void emberAfDeviceManagementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Device Management Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1289 void emberAfDeviceManagementClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Device Management Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1290 EmberAfStatus emberAfDeviceManagementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Device Management Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1291 void emberAfDeviceManagementClusterServerTickCallback ( int8u *endpoint* )**

Device Management Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1292 boolean emberAfDeviceManagementClusterSetEventConfigurationCallback ( int32u *issuerEventId*, int32u *startDateTime*, int8u *eventConfiguration*, int8u *configurationControl*, int8u \* *eventConfigurationPayload* )**

Device Management Cluster Set Event Configuration.

#### Parameters

<i>issuerEventId</i>	Ver.: always
<i>startDateTime</i>	Ver.: always
<i>event-Configuration</i>	Ver.: always
<i>configuration-Control</i>	Ver.: always
<i>event-Configuration-Payload</i>	Ver.: always

**6.4.2.1293 boolean emberAfDeviceManagementClusterUpdateCINCallback ( int32u *issuerEventId*, int32u *implementationTime*, int32u *providerId*, int8u \* *customerIdNumber* )**

Device Management Cluster Update C I N.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>implementation-Time</i>	Ver.: always
<i>providerId</i>	Ver.: always
<i>customerId-Number</i>	Ver.: always

**6.4.2.1294 boolean emberAfDeviceManagementClusterUpdateSiteIdCallback ( int32u *issuerEventId*, int32u *siteIdTime*, int32u *providerId*, int8u \* *siteId* )**

Device Management Cluster Update Site Id.

**Parameters**

<i>issuerEventId</i>	Ver.: always
<i>siteIdTime</i>	Ver.: always
<i>providerId</i>	Ver.: always
<i>siteId</i>	Ver.: always

**6.4.2.1295 boolean emberAfEventsClusterClearEventLogRequestCallback ( int8u *logId* )**

Events Cluster Clear Event Log Request.

**Parameters**

<i>logId</i>	Ver.: always
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**6.4.2.1296 boolean emberAfEventsClusterClearEventLogResponseCallback ( int8u *clearedEventsLogs* )**

Events Cluster Clear Event Log Response.

**Parameters**

<i>clearedEvents-Logs</i>	Ver.: always
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**6.4.2.1297 void emberAfEventsClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Events Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1298 void emberAfEventsClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Events Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1299 void emberAfEventsClusterClientInitCallback ( int8u *endpoint* )**

Events Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1300 void emberAfEventsClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Events Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1301 void emberAfEventsClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Events Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1302 EmberAfStatus emberAfEventsClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Events Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1303 void emberAfEventsClusterClientTickCallback ( int8u *endpoint* )**

Events Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1304 boolean emberAfEventsClusterGetEventLogCallback ( int8u *eventControlLogId*, int16u *eventId*, int32u *startTime*, int32u *endTime*, int8u *numberOfEvents*, int16u *eventOffset* )**

Events Cluster Get Event Log.

#### Parameters

<i>eventControl- LogId</i>	Ver.: always
<i>eventId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>endTime</i>	Ver.: always
<i>numberOf- Events</i>	Ver.: always
<i>eventOffset</i>	Ver.: always

**6.4.2.1305 boolean emberAfEventsClusterPublishEventCallback ( int8u *logId*, int16u *eventId*, int32u *eventTime*, int8u *eventControl*, int8u \* *eventData* )**

Events Cluster Publish Event.

**Parameters**

<i>logId</i>	Ver.: always
<i>eventId</i>	Ver.: always
<i>eventTime</i>	Ver.: always
<i>eventControl</i>	Ver.: always
<i>EventData</i>	Ver.: always

**6.4.2.1306 boolean emberAfEventsClusterPublishEventLogCallback ( int16u *totalNumberOfEvents*, int8u *commandIndex*, int8u *totalCommands*, int8u *logPayloadControl*, int8u \* *logPayload* )**

Events Cluster Publish Event Log.

**Parameters**

<i>totalNumberOfEvents</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>totalCommands</i>	Ver.: always
<i>logPayloadControl</i>	Ver.: always
<i>logPayload</i>	Ver.: always

**6.4.2.1307 void emberAfEventsClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Events Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1308 void emberAfEventsClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Events Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1309 void emberAfEventsClusterServerInitCallback ( int8u *endpoint* )

Events Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1310 void emberAfEventsClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Events Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1311 void emberAfEventsClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Events Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1312 EmberAfStatus emberAfEventsClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Events Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1313 void emberAfEventsClusterServerTickCallback ( int8u endpoint )**

Events Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1314 void emberAfMduPairingClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

MDU Pairing Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1315 void emberAfMduPairingClusterClientDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

MDU Pairing Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1316 void emberAfMduPairingClusterClientInitCallback ( int8u endpoint )**

MDU Pairing Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1317 void emberAfMduPairingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode )**

MDU Pairing Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1318 void emberAfMduPairingClusterClientMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

MDU Pairing Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1319 EmberAfStatus emberAfMduPairingClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

MDU Pairing Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.1320 void emberAfMduPairingClusterClientTickCallback ( int8u *endpoint* )

MDU Pairing Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1321 boolean emberAfMduPairingClusterPairingRequestCallback ( int32u *localPairingInformationVersion*, int8u \* *eui64OfRequestingDevice* )

MDU Pairing Cluster Pairing Request.

##### Parameters

<i>localPairingInformationVersion</i>	Ver.: always
<i>eui64OfRequestingDevice</i>	Ver.: always

#### 6.4.2.1322 boolean emberAfMduPairingClusterPairingResponseCallback ( int32u *pairingInformationVersion*, int8u *totalNumberOfDevices*, int8u *commandIndex*, int8u *totalNumberOfCommands*, int8u \* *eui64s* )

MDU Pairing Cluster Pairing Response.

##### Parameters

<i>pairingInformationVersion</i>	Ver.: always
<i>totalNumberOfDevices</i>	Ver.: always
<i>commandIndex</i>	Ver.: always
<i>totalNumberOfCommands</i>	Ver.: always
<i>eui64s</i>	Ver.: always

#### 6.4.2.1323 void emberAfMduPairingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

MDU Pairing Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1324 void emberAfMduPairingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

MDU Pairing Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1325 void emberAfMduPairingClusterServerInitCallback ( int8u *endpoint* )**

MDU Pairing Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1326 void emberAfMduPairingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

MDU Pairing Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1327 void emberAfMduPairingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

MDU Pairing Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1328 EmberAfStatus emberAfMduPairingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

MDU Pairing Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1329 void emberAfMduPairingClusterServerTickCallback ( int8u *endpoint* )**

MDU Pairing Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1330 boolean emberAfKeyEstablishmentClusterClientCommandReceivedCallback ( EmberAfClusterCommand \* *cmd* )**

Key Establishment Cluster Client Command Received.

This function is called by the application framework when a server-to-client key establishment command is received but has yet to be handled by the framework code. This function should return a bool value indicating whether the command has been handled by the application code and should not be further processed by the framework.

**Parameters**

<i>cmd</i>	Ver.: always
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**6.4.2.1331 void emberAfKeyEstablishmentClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Key Establishment Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1332 void emberAfKeyEstablishmentClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Key Establishment Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1333 void emberAfKeyEstablishmentClusterClientInitCallback ( int8u *endpoint* )**

Key Establishment Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1334 void emberAfKeyEstablishmentClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Key Establishment Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1335 void emberAfKeyEstablishmentClusterClientMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Key Establishment Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1336 EmberAfStatus emberAfKeyEstablishmentClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Key Establishment Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1337 void emberAfKeyEstablishmentClusterClientTickCallback ( int8u *endpoint* )**

Key Establishment Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1338 boolean emberAfKeyEstablishmentClusterConfirmKeyDataRequestCallback ( int8u \* *secureMessageAuthenticationCode* )**

Key Establishment Cluster Confirm Key Data Request.

**Parameters**

<i>secure-Message-Authentication-Code</i>	Ver.: always
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6.4.2.1339 boolean **emberAfKeyEstablishmentClusterConfirmKeyDataResponseCallback** ( int8u \* *secureMessageAuthenticationCode* )

Key Establishment Cluster Confirm Key Data Response.

**Parameters**

<i>secure-Message-Authentication-Code</i>	Ver.: always
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6.4.2.1340 boolean **emberAfKeyEstablishmentClusterEphemeralDataRequestCallback** ( int8u \* *ephemeralData* )

Key Establishment Cluster Ephemeral Data Request.

**Parameters**

<i>ephemeralData</i>	Ver.: always
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6.4.2.1341 boolean **emberAfKeyEstablishmentClusterEphemeralDataResponseCallback** ( int8u \* *ephemeralData* )

Key Establishment Cluster Ephemeral Data Response.

**Parameters**

<i>ephemeralData</i>	Ver.: always
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6.4.2.1342 boolean **emberAfKeyEstablishmentClusterInitiateKeyEstablishmentRequestCallback** ( int16u *keyEstablishmentSuite*, int8u *ephemeralDataGenerateTime*, int8u *confirmKeyGenerateTime*, int8u \* *identity* )

Key Establishment Cluster Initiate Key Establishment Request.

**Parameters**

<i>key-Establishment-Suite</i>	Ver.: always
<i>ephemeral-DataGenerate-Time</i>	Ver.: always

<i>confirmKey-GenerateTime</i>	Ver.: always
<i>identity</i>	Ver.: always

**6.4.2.1343 boolean emberAfKeyEstablishmentClusterInitiateKeyEstablishmentResponseCallback ( int16u requestedKeyEstablishmentSuite, int8u ephemeralDataGenerateTime, int8u confirmKeyGenerateTime, int8u \* identity )**

Key Establishment Cluster Initiate Key Establishment Response.

#### Parameters

<i>requestedKey-Establishment-Suite</i>	Ver.: always
<i>ephemeral-DataGenerate-Time</i>	Ver.: always
<i>confirmKey-GenerateTime</i>	Ver.: always
<i>identity</i>	Ver.: always

**6.4.2.1344 void emberAfKeyEstablishmentClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Key Establishment Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1345 void emberAfKeyEstablishmentClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Key Establishment Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1346 void emberAfKeyEstablishmentClusterServerInitCallback ( int8u *endpoint* )

Key Establishment Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1347 void emberAfKeyEstablishmentClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Key Establishment Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1348 void emberAfKeyEstablishmentClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Key Establishment Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1349 EmberAfStatus emberAfKeyEstablishmentClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Key Establishment Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1350 void emberAfKeyEstablishmentClusterServerTickCallback ( int8u endpoint )**

Key Establishment Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1351 boolean emberAfKeyEstablishmentClusterTerminateKeyEstablishmentCallback ( int8u statusCode, int8u waitTime, int16u keyEstablishmentSuite )**

Key Establishment Cluster Terminate Key Establishment.

**Parameters**

<i>statusCode</i>	Ver.: always
<i>waitTime</i>	Ver.: always
<i>keyEstablishmentSuite</i>	Ver.: always

**6.4.2.1352 boolean emberAfKeyEstablishmentClusterServerCommandReceivedCallback ( EmberAfClusterCommand \* cmd )**

Key Establishment Cluster Server Command Received.

This function is called by the application framework when a client-to-server key establishment command is received but has yet to be handled by the framework code. This function should return a bool value indicating whether the command has been handled by the application code and should not be further processed by the framework.

**Parameters**

<i>cmd</i>	Ver.: always
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**6.4.2.1353 void emberAfInformationClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Information Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1354 void emberAfInformationClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Information Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1355 void emberAfInformationClusterClientInitCallback ( int8u *endpoint* )**

Information Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1356 void emberAfInformationClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Information Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1357 void emberAfInformationClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Information Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1358 EmberAfStatus emberAfInformationClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Information Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1359 void emberAfInformationClusterClientTickCallback ( int8u *endpoint* )**

Information Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1360 boolean emberAfInformationClusterConfigureDeliveryEnableCallback ( int8u *enable* )**

Information Cluster Configure Delivery Enable.

**Parameters**

<i>enable</i>	Ver.: always
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**6.4.2.1361 boolean emberAfInformationClusterConfigureNodeDescriptionCallback ( int8u \* *description* )**

Information Cluster Configure Node Description.

**Parameters**

<i>description</i>	Ver.: always
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**6.4.2.1362 boolean emberAfInformationClusterConfigurePushInformationTimerCallback ( int32u *timer* )**

Information Cluster Configure Push Information Timer.

**Parameters**

<i>timer</i>	Ver.: always
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**6.4.2.1363 boolean emberAfInformationClusterConfigureSetRootIdCallback ( int16u *rootId* )**

Information Cluster Configure Set Root Id.

**Parameters**

<i>rootId</i>	Ver.: always
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**6.4.2.1364 boolean emberAfInformationClusterDeleteCallback ( int8u *deletionOptions*, int8u \* *contentIds* )**

Information Cluster Delete.

**Parameters**

<i>deletion- Options</i>	Ver.: always
<i>contentIds</i>	Ver.: always

**6.4.2.1365 boolean emberAfInformationClusterDeleteResponseCallback ( int8u \* *notificationList* )**

Information Cluster Delete Response.

**Parameters**

<i>notificationList</i>	Ver.: always
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**6.4.2.1366 boolean emberAfInformationClusterPushInformationCallback ( int8u \* *contents* )**

Information Cluster Push Information.

**Parameters**

<i>contents</i>	Ver.: always
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6.4.2.1367 boolean emberAfInformationClusterPushInformationResponseCallback ( int8u \* *notificationList* )

Information Cluster Push Information Response.

**Parameters**

<i>notificationList</i>	Ver.: always
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6.4.2.1368 boolean emberAfInformationClusterRequestInformationCallback ( int8u *inquiryId*, int8u *dataTypeId*, int8u \* *requestInformationPayload* )

Information Cluster Request Information.

**Parameters**

<i>inquiryId</i>	Ver.: always
<i>dataTypeId</i>	Ver.: always
<i>request-Information-Payload</i>	Ver.: always

6.4.2.1369 boolean emberAfInformationClusterRequestInformationResponseCallback ( int8u *number*, int8u \* *buffer* )

Information Cluster Request Information Response.

**Parameters**

<i>number</i>	Ver.: always
<i>buffer</i>	Ver.: always

6.4.2.1370 boolean emberAfInformationClusterRequestPreferenceConfirmationCallback ( int8u \* *statusFeedbackList* )

Information Cluster Request Preference Confirmation.

**Parameters**

<i>status-FeedbackList</i>	Ver.: always
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6.4.2.1371 boolean emberAfInformationClusterRequestPreferenceResponseCallback ( int8u *statusFeedback*, int16u *preferenceType*, int8u \* *preferencePayload* )

Information Cluster Request Preference Response.

**Parameters**

<i>statusFeedback</i>	Ver.: always
<i>preferenceType</i>	Ver.: always
<i>preference-Payload</i>	Ver.: always

**6.4.2.1372 boolean emberAfInformationClusterSendPreferenceCallback ( int16u *preferenceType*, int8u \* *preferencePayload* )**

Information Cluster Send Preference.

**Parameters**

<i>preferenceType</i>	Ver.: always
<i>preference-Payload</i>	Ver.: always

**6.4.2.1373 boolean emberAfInformationClusterSendPreferenceResponseCallback ( int8u \* *statusFeedbackList* )**

Information Cluster Send Preference Response.

**Parameters**

<i>status-FeedbackList</i>	Ver.: always
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**6.4.2.1374 void emberAfInformationClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Information Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1375 void emberAfInformationClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Information Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1376 void emberAfInformationClusterServerInitCallback ( int8u *endpoint* )

Information Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1377 void emberAfInformationClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Information Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1378 void emberAfInformationClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Information Cluster Server Message Sent.

Server Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1379 EmberAfStatus emberAfInformationClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Information Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1380 boolean emberAfInformationClusterServerRequestPreferenceCallback ( void )**

Information Cluster Server Request Preference.

**6.4.2.1381 void emberAfInformationClusterServerTickCallback ( int8u endpoint )**

Information Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1382 boolean emberAfInformationClusterUpdateCallback ( int8u accessControl, int8u option, int8u \* contents )**

Information Cluster Update.

**Parameters**

<i>accessControl</i>	Ver.: always
<i>option</i>	Ver.: always
<i>contents</i>	Ver.: always

**6.4.2.1383 boolean emberAfInformationClusterUpdateResponseCallback ( int8u \* notificationList )**

Information Cluster Update Response.

**Parameters**

<i>notificationList</i>	Ver.: always
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**6.4.2.1384 void emberAfDataSharingClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Data Sharing Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1385 void emberAfDataSharingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Data Sharing Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1386 void emberAfDataSharingClusterClientInitCallback ( int8u *endpoint* )**

Data Sharing Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1387 void emberAfDataSharingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Data Sharing Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1388 void emberAfDataSharingClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Data Sharing Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1389 EmberAfStatus emberAfDataSharingClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Data Sharing Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1390 void emberAfDataSharingClusterClientTickCallback ( int8u endpoint )**

Data Sharing Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1391 boolean emberAfDataSharingClusterFileTransmissionCallback ( int8u transmitOptions, int8u \* buffer )**

Data Sharing Cluster File Transmission.

**Parameters**

<i>transmit-Options</i>	Ver.: always
<i>buffer</i>	Ver.: always

**6.4.2.1392 boolean emberAfDataSharingClusterModifyFileRequestCallback ( int16u *fileIndex*, int32u *fileStartPosition*, int32u *octetCount* )**

Data Sharing Cluster Modify File Request.

**Parameters**

<i>fileIndex</i>	Ver.: always
<i>fileStartPosition</i>	Ver.: always
<i>octetCount</i>	Ver.: always

**6.4.2.1393 boolean emberAfDataSharingClusterModifyRecordRequestCallback ( int16u *fileIndex*, int16u *fileStartRecord*, int16u *recordCount* )**

Data Sharing Cluster Modify Record Request.

**Parameters**

<i>fileIndex</i>	Ver.: always
<i>fileStartRecord</i>	Ver.: always
<i>recordCount</i>	Ver.: always

**6.4.2.1394 boolean emberAfDataSharingClusterReadFileRequestCallback ( int16u *fileIndex*, int8u \* *fileStartPositionAndRequestedOctetCount* )**

Data Sharing Cluster Read File Request.

**Parameters**

<i>fileIndex</i>	Ver.: always
<i>fileStartPositionAndRequestedOctetCount</i>	Ver.: always

**6.4.2.1395 boolean emberAfDataSharingClusterReadRecordRequestCallback ( int16u *fileIndex*, int8u \* *fileStartPositionAndRequestedRecordCount* )**

Data Sharing Cluster Read Record Request.

**Parameters**

<i>fileIndex</i>	Ver.: always
<i>fileStartPositionAndRequestedRecordCount</i>	Ver.: always

**6.4.2.1396 boolean emberAfDataSharingClusterRecordTransmissionCallback ( int8u *transmitOptions*, int8u \* *buffer* )**

Data Sharing Cluster Record Transmission.

**Parameters**

<i>transmit-Options</i>	Ver.: always
<i>buffer</i>	Ver.: always

**6.4.2.1397 void emberAfDataSharingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Data Sharing Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1398 void emberAfDataSharingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Data Sharing Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1399 void emberAfDataSharingClusterServerInitCallback ( int8u *endpoint* )**

Data Sharing Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1400 void emberAfDataSharingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

Data Sharing Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1401 void emberAfDataSharingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Data Sharing Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1402 EmberAfStatus emberAfDataSharingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Data Sharing Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1403 void emberAfDataSharingClusterServerTickCallback ( int8u *endpoint* )**

Data Sharing Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1404 boolean emberAfDataSharingClusterWriteFileRequestCallback ( int8u *writeOptions*, int8u \* *fileSize* )**

Data Sharing Cluster Write File Request.

**Parameters**

<i>writeOptions</i>	Ver.: always
<i>fileSize</i>	Ver.: always

**6.4.2.1405 boolean emberAfDataSharingClusterWriteFileResponseCallback ( int8u *status*, int8u \* *fileIndex* )**

Data Sharing Cluster Write File Response.

**Parameters**

<i>status</i>	Ver.: always
<i>fileIndex</i>	Ver.: always

**6.4.2.1406 boolean emberAfGamingClusterActionControlCallback ( int32u *actions* )**

Gaming Cluster Action Control.

**Parameters**

<i>actions</i>	Ver.: always
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**6.4.2.1407 void emberAfGamingClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Gaming Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1408 void emberAfGamingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Gaming Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1409 void emberAfGamingClusterClientInitCallback ( int8u *endpoint* )

Gaming Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1410 void emberAfGamingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Gaming Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1411 void emberAfGamingClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Gaming Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1412 EmberAfStatus emberAfGamingClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Gaming Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1413 void emberAfGamingClusterClientTickCallback ( int8u *endpoint* )**

Gaming Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1414 boolean emberAfGamingClusterDownloadGameCallback ( void )**

Gaming Cluster Download Game.

**6.4.2.1415 boolean emberAfGamingClusterEndGameCallback ( void )**

Gaming Cluster End Game.

**6.4.2.1416 boolean emberAfGamingClusterGameAnnouncementCallback ( int16u *gameId*, int8u *gameMaster*, int8u \* *listOfGame* )**

Gaming Cluster Game Announcement.

**Parameters**

<i>gameId</i>	Ver.: always
<i>gameMaster</i>	Ver.: always
<i>listOfGame</i>	Ver.: always

**6.4.2.1417 boolean emberAfGamingClusterGeneralResponseCallback ( int8u *commandId*, int8u *status*, int8u \* *message* )**

Gaming Cluster General Response.

**Parameters**

<i>commandId</i>	Ver.: always
<i>status</i>	Ver.: always
<i>message</i>	Ver.: always

**6.4.2.1418 boolean emberAfGamingClusterJoinGameCallback ( int16u *gameId*, int8u *joinAsMaster*, int8u \* *nameOfGame* )**

Gaming Cluster Join Game.

**Parameters**

<i>gameId</i>	Ver.: always
<i>joinAsMaster</i>	Ver.: always
<i>nameOfGame</i>	Ver.: always

**6.4.2.1419 boolean emberAfGamingClusterPauseGameCallback ( void )**

Gaming Cluster Pause Game.

**6.4.2.1420 boolean emberAfGamingClusterQuitGameCallback ( void )**

Gaming Cluster Quit Game.

**6.4.2.1421 boolean emberAfGamingClusterResumeGameCallback ( void )**

Gaming Cluster Resume Game.

**6.4.2.1422 boolean emberAfGamingClusterSearchGameCallback ( int8u *specificGame*, int16u *gameId* )**

Gaming Cluster Search Game.

**Parameters**

<i>specificGame</i>	Ver.: always
<i>gameId</i>	Ver.: always

**6.4.2.1423 void emberAfGamingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Gaming Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1424 void emberAfGamingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Gaming Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1425 void emberAfGamingClusterServerInitCallback ( int8u *endpoint* )**

Gaming Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1426 void emberAfGamingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Gaming Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1427 void emberAfGamingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Gaming Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1428 EmberAfStatus emberAfGamingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Gaming Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1429 void emberAfGamingClusterServerTickCallback ( int8u *endpoint* )**

Gaming Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1430 boolean emberAfGamingClusterStartGameCallback ( void )**

Gaming Cluster Start Game.

**6.4.2.1431 boolean emberAfGamingClusterStartOverCallback ( void )**

Gaming Cluster Start Over.

**6.4.2.1432 void emberAfDataRateControlClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Data Rate Control Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1433 void emberAfDataRateControlClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Data Rate Control Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1434 void emberAfDataRateControlClusterClientInitCallback ( int8u *endpoint* )**

Data Rate Control Cluster Client Init.

Client Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1435 void emberAfDataRateControlClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Data Rate Control Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1436 void emberAfDataRateControlClusterClientMessageSentCallback ( EmberOutgoingMessage-  
Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \*  
*message*, EmberStatus *status* )**

Data Rate Control Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1437 EmberAfStatus emberAfDataRateControlClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Data Rate Control Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1438 void emberAfDataRateControlClusterClientTickCallback ( int8u *endpoint* )**

Data Rate Control Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1439 boolean emberAfDataRateControlClusterDataRateControlCallback ( int16u *originatorAddress*, int16u *destinationAddress*, int8u *dataRate* )**

Data Rate Control Cluster Data Rate Control.

#### Parameters

<i>originator-Address</i>	Ver.: always
<i>destination-Address</i>	Ver.: always
<i>dataRate</i>	Ver.: always

**6.4.2.1440 boolean emberAfDataRateControlClusterDataRateNotificationCallback ( int16u *originatorAddress*, int16u *destinationAddress*, int8u *dataRate* )**

Data Rate Control Cluster Data Rate Notification.

**Parameters**

<i>originator-Address</i>	Ver.: always
<i>destination-Address</i>	Ver.: always
<i>dataRate</i>	Ver.: always

**6.4.2.1441 boolean emberAfDataRateControlClusterPathCreationCallback ( int16u *originatorAddress*, int16u *destinationAddress*, int8u *dataRate* )**

Data Rate Control Cluster Path Creation.

**Parameters**

<i>originator-Address</i>	Ver.: always
<i>destination-Address</i>	Ver.: always
<i>dataRate</i>	Ver.: always

**6.4.2.1442 boolean emberAfDataRateControlClusterPathDeletionCallback ( int16u *originatorAddress*, int16u *destinationAddress* )**

Data Rate Control Cluster Path Deletion.

**Parameters**

<i>originator-Address</i>	Ver.: always
<i>destination-Address</i>	Ver.: always

**6.4.2.1443 void emberAfDataRateControlClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Data Rate Control Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1444 void emberAfDataRateControlClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Data Rate Control Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1445 void emberAfDataRateControlClusterServerInitCallback ( int8u *endpoint* )**

Data Rate Control Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1446 void emberAfDataRateControlClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Data Rate Control Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1447 void emberAfDataRateControlClusterServerMessageSentCallback ( EmberOutgoingMessage-  
Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \*  
*message*, EmberStatus *status* )**

Data Rate Control Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destinat</i> ion	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1448 EmberAfStatus emberAfDataRateControlClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Data Rate Control Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1449 void emberAfDataRateControlClusterServerTickCallback ( int8u *endpoint* )**

Data Rate Control Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1450 void emberAfVoiceOverZigbeeClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Voice over ZigBee Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1451 void emberAfVoiceOverZigbeeClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Voice over ZigBee Cluster Client Default Response.

This function is called when the client receives the default response from the server.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1452 void emberAfVoiceOverZigbeeClusterClientInitCallback ( int8u *endpoint* )

Voice over ZigBee Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1453 void emberAfVoiceOverZigbeeClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, int16u *manufacturerCode* )

Voice over ZigBee Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributelid</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1454 void emberAfVoiceOverZigbeeClusterClientMessageSentCallback ( EmberOutgoingMessage- Type *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Voice over ZigBee Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1455 EmberAfStatus emberAfVoiceOverZigbeeClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Voice over ZigBee Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1456 void emberAfVoiceOverZigbeeClusterClientTickCallback ( int8u endpoint )**

Voice over ZigBee Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1457 boolean emberAfVoiceOverZigbeeClusterControlCallback ( int8u controlType )**

Voice over ZigBee Cluster Control.

**Parameters**

<i>controlType</i>	Ver.: always
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**6.4.2.1458 boolean emberAfVoiceOverZigbeeClusterControlResponseCallback ( int8u ackNack )**

Voice over ZigBee Cluster Control Response.

**Parameters**

<i>ackNack</i>	Ver.: always
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**6.4.2.1459 boolean emberAfVoiceOverZigbeeClusterEstablishmentRequestCallback ( int8u flag, int8u codecType, int8u sampFreq, int8u codecRate, int8u serviceType, int8u \* buffer )**

Voice over ZigBee Cluster Establishment Request.

**Parameters**

<i>flag</i>	Ver.: always
<i>codecType</i>	Ver.: always
<i>sampFreq</i>	Ver.: always
<i>codecRate</i>	Ver.: always
<i>serviceType</i>	Ver.: always
<i>buffer</i>	Ver.: always

**6.4.2.1460 boolean emberAfVoiceOverZigbeeClusterEstablishmentResponseCallback ( int8u ackNack, int8u codecType )**

Voice over ZigBee Cluster Establishment Response.

**Parameters**

<i>ackNack</i>	Ver.: always
<i>codecType</i>	Ver.: always

**6.4.2.1461 void emberAfVoiceOverZigbeeClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Voice over ZigBee Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.1462 void emberAfVoiceOverZigbeeClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )**

Voice over ZigBee Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1463 void emberAfVoiceOverZigbeeClusterServerInitCallback ( int8u endpoint )**

Voice over ZigBee Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1464 void emberAfVoiceOverZigbeeClusterServerManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )**

Voice over ZigBee Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1465 void emberAfVoiceOverZigbeeClusterServerMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Voice over ZigBee Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1466 EmberAfStatus emberAfVoiceOverZigbeeClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Voice over ZigBee Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1467 void emberAfVoiceOverZigbeeClusterServerTickCallback ( int8u *endpoint* )**

Voice over ZigBee Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1468 boolean emberAfVoiceOverZigbeeClusterVoiceTransmissionCallback ( int8u \* *voiceData* )

Voice over ZigBee Cluster Voice Transmission.

##### Parameters

<i>voiceData</i>	Ver.: always
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#### 6.4.2.1469 boolean emberAfVoiceOverZigbeeClusterVoiceTransmissionCompletionCallback ( void )

Voice over ZigBee Cluster Voice Transmission Completion.

#### 6.4.2.1470 boolean emberAfVoiceOverZigbeeClusterVoiceTransmissionResponseCallback ( int8u *sequenceNumber*, int8u *errorFlag* )

Voice over ZigBee Cluster Voice Transmission Response.

##### Parameters

<i>sequence-Number</i>	Ver.: always
<i>errorFlag</i>	Ver.: always

#### 6.4.2.1471 boolean emberAfChattingClusterChatMessageCallback ( int16u *destinationUid*, int16u *sourceUid*, int16u *cid*, int8u \* *nickname*, int8u \* *message* )

Chatting Cluster Chat Message.

##### Parameters

<i>destinationUid</i>	Ver.: always
<i>sourceUid</i>	Ver.: always
<i>cid</i>	Ver.: always
<i>nickname</i>	Ver.: always
<i>message</i>	Ver.: always

#### 6.4.2.1472 void emberAfChattingClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )

Chatting Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1473 void emberAfChattingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Chatting Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1474 void emberAfChattingClusterClientInitCallback ( int8u *endpoint* )**

Chatting Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1475 void emberAfChattingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Chatting Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1476 void emberAfChattingClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Chatting Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1477 EmberAfStatus emberAfChattingClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Chatting Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1478 void emberAfChattingClusterClientTickCallback ( int8u *endpoint* )**

Chatting Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1479 boolean emberAfChattingClusterGetNodeInformationRequestCallback ( int16u *cid*, int16u *uid* )**

Chatting Cluster Get Node Information Request.

#### Parameters

<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always

**6.4.2.1480 boolean emberAfChattingClusterGetNodeInformationResponseCallback ( int8u *status*, int16u *cid*, int16u *uid*, int8u \* *addressEndpointAndNickname* )**

Chatting Cluster Get Node Information Response.

#### Parameters

<i>status</i>	Ver.: always
<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always
<i>address-EndpointAnd-Nickname</i>	Ver.: always

**6.4.2.1481 boolean emberAfChattingClusterJoinChatRequestCallback ( int16u *uid*, int8u \* *nickname*, int16u *cid* )**

Chatting Cluster Join Chat Request.

**Parameters**

<i>uid</i>	Ver.: always
<i>nickname</i>	Ver.: always
<i>cid</i>	Ver.: always

**6.4.2.1482 boolean emberAfChattingClusterJoinChatResponseCallback ( int8u *status*, int16u *cid*, int8u \* *chatParticipantList* )**

Chatting Cluster Join Chat Response.

**Parameters**

<i>status</i>	Ver.: always
<i>cid</i>	Ver.: always
<i>chatParticipantList</i>	Ver.: always

**6.4.2.1483 boolean emberAfChattingClusterLeaveChatRequestCallback ( int16u *cid*, int16u *uid* )**

Chatting Cluster Leave Chat Request.

**Parameters**

<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always

**6.4.2.1484 boolean emberAfChattingClusterSearchChatRequestCallback ( void )**

Chatting Cluster Search Chat Request.

**6.4.2.1485 boolean emberAfChattingClusterSearchChatResponseCallback ( int8u *options*, int8u \* *chatRoomList* )**

Chatting Cluster Search Chat Response.

**Parameters**

<i>options</i>	Ver.: always
<i>chatRoomList</i>	Ver.: always

**6.4.2.1486 void emberAfChattingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Chatting Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1487 void emberAfChattingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Chatting Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1488 void emberAfChattingClusterServerInitCallback ( int8u *endpoint* )**

Chatting Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1489 void emberAfChattingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Chatting Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1490 void emberAfChattingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Chatting Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1491 EmberAfStatus emberAfChattingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Chatting Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1492 void emberAfChattingClusterServerTickCallback ( int8u *endpoint* )**

Chatting Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1493 boolean emberAfChattingClusterStartChatRequestCallback ( int8u \* *name*, int16u *uid*, int8u \* *nickname* )**

Chatting Cluster Start Chat Request.

**Parameters**

<i>name</i>	Ver.: always
<i>uid</i>	Ver.: always
<i>nickname</i>	Ver.: always

**6.4.2.1494 boolean emberAfChattingClusterStartChatResponseCallback ( int8u *status*, int16u *cid* )**

Chatting Cluster Start Chat Response.

**Parameters**

<i>status</i>	Ver.: always
<i>cid</i>	Ver.: always

**6.4.2.1495 boolean emberAfChattingClusterSwitchChairmanConfirmCallback ( int16u *cid*, int8u \* *nodeInformationList* )**

Chatting Cluster Switch Chairman Confirm.

**Parameters**

<i>cid</i>	Ver.: always
<i>node-InformationList</i>	Ver.: always

**6.4.2.1496 boolean emberAfChattingClusterSwitchChairmanNotificationCallback ( int16u *cid*, int16u *uid*, int16u *address*, int8u *endpoint* )**

Chatting Cluster Switch Chairman Notification.

**Parameters**

<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always
<i>address</i>	Ver.: always
<i>endpoint</i>	Ver.: always

**6.4.2.1497 boolean emberAfChattingClusterSwitchChairmanRequestCallback ( int16u *cid* )**

Chatting Cluster Switch Chairman Request.

**Parameters**

<i>cid</i>	Ver.: always
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#### 6.4.2.1498 boolean emberAfChattingClusterSwitchChairmanResponseCallback ( int16u *cid*, int16u *uid* )

Chatting Cluster Switch Chairman Response.

##### Parameters

<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always

#### 6.4.2.1499 boolean emberAfChattingClusterUserJoinedCallback ( int16u *cid*, int16u *uid*, int8u \* *nickname* )

Chatting Cluster User Joined.

##### Parameters

<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always
<i>nickname</i>	Ver.: always

#### 6.4.2.1500 boolean emberAfChattingClusterUserLeftCallback ( int16u *cid*, int16u *uid*, int8u \* *nickname* )

Chatting Cluster User Left.

##### Parameters

<i>cid</i>	Ver.: always
<i>uid</i>	Ver.: always
<i>nickname</i>	Ver.: always

#### 6.4.2.1501 boolean emberAfPaymentClusterAcceptPaymentCallback ( int8u \* *userId*, int16u *userType*, int16u *serviceId*, int8u \* *goodId* )

Payment Cluster Accept Payment.

##### Parameters

<i>userId</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>goodId</i>	Ver.: always

#### 6.4.2.1502 boolean emberAfPaymentClusterBuyConfirmCallback ( int8u \* *serialNumber*, int32u *currency*, int8u *priceTrailingDigit*, int32u *price*, int8u \* *timestamp*, int16u *transId*, int8u *transStatus* )

Payment Cluster Buy Confirm.

**Parameters**

<i>serialNumber</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>priceTrailing-Digit</i>	Ver.: always
<i>price</i>	Ver.: always
<i>timestamp</i>	Ver.: always
<i>transId</i>	Ver.: always
<i>transStatus</i>	Ver.: always

**6.4.2.1503 boolean emberAfPaymentClusterBuyRequestCallback ( int8u \* *userId*, int16u *userType*, int16u *serviceId*, int8u \* *goodId* )**

Payment Cluster Buy Request.

**Parameters**

<i>userId</i>	Ver.: always
<i>userType</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>goodId</i>	Ver.: always

**6.4.2.1504 void emberAfPaymentClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Payment Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1505 void emberAfPaymentClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Payment Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1506 void emberAfPaymentClusterClientInitCallback ( int8u *endpoint* )

Payment Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1507 void emberAfPaymentClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )

Payment Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

#### 6.4.2.1508 void emberAfPaymentClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )

Payment Cluster Client Message Sent.

Client Message Sent

##### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

#### 6.4.2.1509 EmberAfStatus emberAfPaymentClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )

Payment Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1510 void emberAfPaymentClusterClientTickCallback ( int8u endpoint )**

Payment Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1511 boolean emberAfPaymentClusterPaymentConfirmCallback ( int8u \* serialNumber, int16u transId, int8u transStatus )**

Payment Cluster Payment Confirm.

**Parameters**

<i>serialNumber</i>	Ver.: always
<i>transId</i>	Ver.: always
<i>transStatus</i>	Ver.: always

**6.4.2.1512 boolean emberAfPaymentClusterReceiptDeliveryCallback ( int8u \* serialNumber, int32u currency, int8u priceTrailingDigit, int32u price, int8u \* timestamp )**

Payment Cluster Receipt Delivery.

**Parameters**

<i>serialNumber</i>	Ver.: always
<i>currency</i>	Ver.: always
<i>priceTrailing-Digit</i>	Ver.: always
<i>price</i>	Ver.: always
<i>timestamp</i>	Ver.: always

**6.4.2.1513 void emberAfPaymentClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributId )**

Payment Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1514 void emberAfPaymentClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Payment Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1515 void emberAfPaymentClusterServerInitCallback ( int8u *endpoint* )**

Payment Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1516 void emberAfPaymentClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Payment Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1517 void emberAfPaymentClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Payment Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1518 EmberAfStatus emberAfPaymentClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Payment Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1519 void emberAfPaymentClusterServerTickCallback ( int8u *endpoint* )**

Payment Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1520 boolean emberAfPaymentClusterTransactionEndCallback ( int8u \* *serialNumber*, int8u *status* )**

Payment Cluster Transaction End.

**Parameters**

<i>serialNumber</i>	Ver.: always
<i>status</i>	Ver.: always

**6.4.2.1521 boolean emberAfBillingClusterBillStatusNotificationCallback ( int8u \* *userId*, int8u *status* )**

Billing Cluster Bill Status Notification.

**Parameters**

<i>userId</i>	Ver.: always
<i>status</i>	Ver.: always

**6.4.2.1522 boolean emberAfBillingClusterCheckBillStatusCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId* )**

Billing Cluster Check Bill Status.

**Parameters**

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>service- ProviderId</i>	Ver.: always

**6.4.2.1523 void emberAfBillingClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Billing Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1524 void emberAfBillingClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Billing Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1525 void emberAfBillingClusterClientInitCallback ( int8u *endpoint* )**

Billing Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1526 void emberAfBillingClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Billing Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1527 void emberAfBillingClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Billing Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1528 EmberAfStatus emberAfBillingClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Billing Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1529 void emberAfBillingClusterClientTickCallback ( int8u *endpoint* )**

Billing Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1530 boolean emberAfBillingClusterSendBillRecordCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId*, int8u \* *timestamp*, int16u *duration* )**

Billing Cluster Send Bill Record.

**Parameters**

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>service-ProviderId</i>	Ver.: always
<i>timestamp</i>	Ver.: always
<i>duration</i>	Ver.: always

**6.4.2.1531 void emberAfBillingClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Billing Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1532 void emberAfBillingClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Billing Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1533 void emberAfBillingClusterServerInitCallback ( int8u *endpoint* )**

Billing Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1534 void emberAfBillingClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Billing Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1535 void emberAfBillingClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Billing Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1536 EmberAfStatus emberAfBillingClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Billing Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.1537 void emberAfBillingClusterServerTickCallback ( int8u *endpoint* )

Billing Cluster Server Tick.

Server Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1538 boolean emberAfBillingClusterSessionKeepAliveCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId* )

Billing Cluster Session Keep Alive.

##### Parameters

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>service- ProviderId</i>	Ver.: always

#### 6.4.2.1539 boolean emberAfBillingClusterStartBillingSessionCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId* )

Billing Cluster Start Billing Session.

##### Parameters

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>service- ProviderId</i>	Ver.: always

#### 6.4.2.1540 boolean emberAfBillingClusterStopBillingSessionCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId* )

Billing Cluster Stop Billing Session.

##### Parameters

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>service- ProviderId</i>	Ver.: always

#### 6.4.2.1541 boolean emberAfBillingClusterSubscribeCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId* )

Billing Cluster Subscribe.

**Parameters**

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>serviceProviderId</i>	Ver.: always

**6.4.2.1542 boolean emberAfBillingClusterUnsubscribeCallback ( int8u \* *userId*, int16u *serviceId*, int16u *serviceProviderId* )**

Billing Cluster Unsubscribe.

**Parameters**

<i>userId</i>	Ver.: always
<i>serviceId</i>	Ver.: always
<i>serviceProviderId</i>	Ver.: always

**6.4.2.1543 void emberAfApplianceIdentificationClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Appliance Identification Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1544 void emberAfApplianceIdentificationClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Appliance Identification Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1545 void emberAfApplianceIdentificationClusterClientInitCallback ( int8u *endpoint* )**

Appliance Identification Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1546 void emberAfApplianceIdentificationClusterClientManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )**

Appliance Identification Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1547 void emberAfApplianceIdentificationClusterClientMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Appliance Identification Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1548 EmberAfStatus emberAfApplianceIdentificationClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Appliance Identification Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.1549 void emberAfApplianceIdentificationClusterClientTickCallback ( int8u endpoint )

Appliance Identification Cluster Client Tick.

Client Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1550 void emberAfApplianceIdentificationClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )

Appliance Identification Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.1551 void emberAfApplianceIdentificationClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )

Appliance Identification Cluster Server Default Response.

This function is called when the server receives the default response from the client.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1552 void emberAfApplianceIdentificationClusterServerInitCallback ( int8u endpoint )

Appliance Identification Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1553 void emberAfApplianceIdentificationClusterServerManufacturerSpecificAttributeChanged-Callback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )

Appliance Identification Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1554 void emberAfApplianceIdentificationClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Appliance Identification Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1555 EmberAfStatus emberAfApplianceIdentificationClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Appliance Identification Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1556 void emberAfApplianceIdentificationClusterServerTickCallback ( int8u *endpoint* )**

Appliance Identification Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1557 void emberAfMeterIdentificationClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Meter Identification Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1558 void emberAfMeterIdentificationClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Meter Identification Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1559 void emberAfMeterIdentificationClusterClientInitCallback ( int8u *endpoint* )**

Meter Identification Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1560 void emberAfMeterIdentificationClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Meter Identification Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1561 void emberAfMeterIdentificationClusterClientMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Meter Identification Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr- Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1562 EmberAfStatus emberAfMeterIdentificationClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Meter Identification Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1563 void emberAfMeterIdentificationClusterClientTickCallback ( int8u *endpoint* )**

Meter Identification Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1564 void emberAfMeterIdentificationClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Meter Identification Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1565 void emberAfMeterIdentificationClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Meter Identification Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1566 void emberAfMeterIdentificationClusterServerInitCallback ( int8u *endpoint* )**

Meter Identification Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1567 void emberAfMeterIdentificationClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Meter Identification Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1568 void emberAfMeterIdentificationClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Meter Identification Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1569 EmberAfStatus emberAfMeterIdentificationClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Meter Identification Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1570 void emberAfMeterIdentificationClusterServerTickCallback ( int8u endpoint )**

Meter Identification Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1571 boolean emberAfApplianceEventsAndAlertClusterAlertsNotificationCallback ( int8u alertsCount, int8u \* alertStructures )**

Appliance Events and Alert Cluster Alerts Notification.

**Parameters**

<i>alertsCount</i>	Ver.: always
<i>alertStructures</i>	Ver.: always

**6.4.2.1572 void emberAfApplianceEventsAndAlertClusterClientAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Appliance Events and Alert Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1573 void emberAfApplianceEventsAndAlertClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Appliance Events and Alert Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1574 void emberAfApplianceEventsAndAlertClusterClientInitCallback ( int8u *endpoint* )**

Appliance Events and Alert Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1575 void emberAfApplianceEventsAndAlertClusterClientManufacturerSpecificAttributeChanged-Callback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Appliance Events and Alert Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1576 void emberAfApplianceEventsAndAlertClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Appliance Events and Alert Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1577 EmberAfStatus emberAfApplianceEventsAndAlertClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Appliance Events and Alert Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1578 void emberAfApplianceEventsAndAlertClusterClientTickCallback ( int8u *endpoint* )**

Appliance Events and Alert Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1579 boolean emberAfApplianceEventsAndAlertClusterEventsNotificationCallback ( int8u *eventHeader*, int8u *eventId* )**

Appliance Events and Alert Cluster Events Notification.

#### Parameters

<i>eventHeader</i>	Ver.: always
<i>eventId</i>	Ver.: always

#### 6.4.2.1580 boolean emberAfApplianceEventsAndAlertClusterGetAlertsCallback ( void )

Appliance Events and Alert Cluster Get Alerts.

#### 6.4.2.1581 boolean emberAfApplianceEventsAndAlertClusterGetAlertsResponseCallback ( int8u alertsCount, int8u \* alertStructures )

Appliance Events and Alert Cluster Get Alerts Response.

##### Parameters

<i>alertsCount</i>	Ver.: always
<i>alertStructures</i>	Ver.: always

#### 6.4.2.1582 void emberAfApplianceEventsAndAlertClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )

Appliance Events and Alert Cluster Server Attribute Changed.

Server Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.1583 void emberAfApplianceEventsAndAlertClusterServerDefaultResponseCallback ( int8u endpoint, int8u commandId, EmberAfStatus status )

Appliance Events and Alert Cluster Server Default Response.

This function is called when the server receives the default response from the client.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1584 void emberAfApplianceEventsAndAlertClusterServerInitCallback ( int8u endpoint )

Appliance Events and Alert Cluster Server Init.

Server Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1585 void emberAfApplianceEventsAndAlertClusterServerManufacturerSpecificAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, int16u manufacturerCode )**

Appliance Events and Alert Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1586 void emberAfApplianceEventsAndAlertClusterServerMessageSentCallback ( EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \* apsFrame, int16u msgLen, int8u \* message, EmberStatus status )**

Appliance Events and Alert Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1587 EmberAfStatus emberAfApplianceEventsAndAlertClusterServerPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Appliance Events and Alert Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

#### 6.4.2.1588 void emberAfApplianceEventsAndAlertClusterServerTickCallback ( int8u *endpoint* )

Appliance Events and Alert Cluster Server Tick.

Server Tick

##### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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#### 6.4.2.1589 void emberAfApplianceStatisticsClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid* )

Appliance Statistics Cluster Client Attribute Changed.

Client Attribute Changed

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

#### 6.4.2.1590 void emberAfApplianceStatisticsClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )

Appliance Statistics Cluster Client Default Response.

This function is called when the client receives the default response from the server.

##### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

#### 6.4.2.1591 void emberAfApplianceStatisticsClusterClientInitCallback ( int8u *endpoint* )

Appliance Statistics Cluster Client Init.

Client Init

##### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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#### 6.4.2.1592 void emberAfApplianceStatisticsClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributelid*, int16u *manufacturerCode* )

Appliance Statistics Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1593 void emberAfApplianceStatisticsClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Appliance Statistics Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1594 EmberAfStatus emberAfApplianceStatisticsClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Appliance Statistics Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1595 void emberAfApplianceStatisticsClusterClientTickCallback ( int8u *endpoint* )**

Appliance Statistics Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1596 boolean emberAfApplianceStatisticsClusterLogNotificationCallback ( int32u *timeStamp*, int32u *logId*, int32u *logLength*, int8u \* *logPayload* )**

Appliance Statistics Cluster Log Notification.

**Parameters**

<i>timeStamp</i>	Ver.: always
<i>logId</i>	Ver.: always
<i>logLength</i>	Ver.: always
<i>logPayload</i>	Ver.: always

**6.4.2.1597 boolean emberAfApplianceStatisticsClusterLogQueueRequestCallback ( void )**

Appliance Statistics Cluster Log Queue Request.

**6.4.2.1598 boolean emberAfApplianceStatisticsClusterLogQueueResponseCallback ( int8u *logQueueSize*, int8u \* *logIds* )**

Appliance Statistics Cluster Log Queue Response.

**Parameters**

<i>logQueueSize</i>	Ver.: always
<i>logIds</i>	Ver.: always

**6.4.2.1599 boolean emberAfApplianceStatisticsClusterLogRequestCallback ( int32u *logId* )**

Appliance Statistics Cluster Log Request.

**Parameters**

<i>logId</i>	Ver.: always
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**6.4.2.1600 boolean emberAfApplianceStatisticsClusterLogResponseCallback ( int32u *timeStamp*, int32u *logId*, int32u *logLength*, int8u \* *logPayload* )**

Appliance Statistics Cluster Log Response.

**Parameters**

<i>timeStamp</i>	Ver.: always
<i>logId</i>	Ver.: always
<i>logLength</i>	Ver.: always
<i>logPayload</i>	Ver.: always

**6.4.2.1601 void emberAfApplianceStatisticsClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Appliance Statistics Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1602 void emberAfApplianceStatisticsClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Appliance Statistics Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1603 void emberAfApplianceStatisticsClusterServerInitCallback ( int8u *endpoint* )**

Appliance Statistics Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1604 void emberAfApplianceStatisticsClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Appliance Statistics Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1605 void emberAfApplianceStatisticsClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Appliance Statistics Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1606 EmberAfStatus emberAfApplianceStatisticsClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Appliance Statistics Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1607 void emberAfApplianceStatisticsClusterServerTickCallback ( int8u *endpoint* )**

Appliance Statistics Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1608 boolean emberAfApplianceStatisticsClusterStatisticsAvailableCallback ( int8u *logQueueSize*, int8u \* *logIds* )**

Appliance Statistics Cluster Statistics Available.

**Parameters**

<i>logQueueSize</i>	Ver.: always
<i>logIds</i>	Ver.: always

**6.4.2.1609 void emberAfElectricalMeasurementClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Electrical Measurement Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1610 void emberAfElectricalMeasurementClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Electrical Measurement Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1611 void emberAfElectricalMeasurementClusterClientInitCallback ( int8u *endpoint* )**

Electrical Measurement Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1612 void emberAfElectricalMeasurementClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Electrical Measurement Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always
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**6.4.2.1613 void emberAfElectricalMeasurementClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Electrical Measurement Cluster Client Message Sent.

Client Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1614 EmberAfStatus emberAfElectricalMeasurementClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Electrical Measurement Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1615 void emberAfElectricalMeasurementClusterClientTickCallback ( int8u *endpoint* )**

Electrical Measurement Cluster Client Tick.

Client Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1616 boolean emberAfElectricalMeasurementClusterGetMeasurementProfileCommandCallback ( int16u attributeId, int32u startTime, int8u numberofIntervals )**

Electrical Measurement Cluster Get Measurement Profile Command.

**Parameters**

<i>attributeId</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>numberofIntervals</i>	Ver.: always

**6.4.2.1617 boolean emberAfElectricalMeasurementClusterGetMeasurementProfileResponse-CommandCallback ( int32u startTime, int8u status, int8u profileIntervalPeriod, int8u numberofIntervalsDelivered, int16u attributeId, int8u \* intervals )**

Electrical Measurement Cluster Get Measurement Profile Response Command.

**Parameters**

<i>startTime</i>	Ver.: always
<i>status</i>	Ver.: always
<i>profileInterval-Period</i>	Ver.: always
<i>numberof-Intervals-Delivered</i>	Ver.: always
<i>attributeId</i>	Ver.: always
<i>intervals</i>	Ver.: always

**6.4.2.1618 boolean emberAfElectricalMeasurementClusterGetProfileInfoCommandCallback ( void )**

Electrical Measurement Cluster Get Profile Info Command.

**6.4.2.1619 boolean emberAfElectricalMeasurementClusterGetProfileInfoResponseCommandCallback ( int8u profileCount, int8u profileIntervalPeriod, int8u maxNumberofIntervals, int8u \* listOfAttributes )**

Electrical Measurement Cluster Get Profile Info Response Command.

**Parameters**

<i>profileCount</i>	Ver.: always
<i>profileInterval-Period</i>	Ver.: always
<i>maxNumberof-Intervals</i>	Ver.: always
<i>listOfAttributes</i>	Ver.: always

**6.4.2.1620 void emberAfElectricalMeasurementClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Electrical Measurement Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1621 void emberAfElectricalMeasurementClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Electrical Measurement Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1622 void emberAfElectricalMeasurementClusterServerInitCallback ( int8u *endpoint* )**

Electrical Measurement Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1623 void emberAfElectricalMeasurementClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Electrical Measurement Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1624 void emberAfElectricalMeasurementClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Electrical Measurement Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1625 EmberAfStatus emberAfElectricalMeasurementClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Electrical Measurement Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1626 void emberAfElectricalMeasurementClusterServerTickCallback ( int8u *endpoint* )**

Electrical Measurement Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1627 void emberAfDiagnosticsClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

Diagnostics Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1628 void emberAfDiagnosticsClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Diagnostics Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1629 void emberAfDiagnosticsClusterClientInitCallback ( int8u *endpoint* )**

Diagnostics Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1630 void emberAfDiagnosticsClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Diagnostics Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1631 void emberAfDiagnosticsClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Diagnostics Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1632 EmberAfStatus emberAfDiagnosticsClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Diagnostics Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1633 void emberAfDiagnosticsClusterClientTickCallback ( int8u endpoint )**

Diagnostics Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1634 void emberAfDiagnosticsClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeld )**

Diagnostics Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeld</i>	Attribute that changed Ver.: always

**6.4.2.1635 void emberAfDiagnosticsClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Diagnostics Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1636 void emberAfDiagnosticsClusterServerInitCallback ( int8u *endpoint* )**

Diagnostics Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1637 void emberAfDiagnosticsClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Diagnostics Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1638 void emberAfDiagnosticsClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Diagnostics Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always

<i>status</i>	The status of the sent message Ver.: always
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**6.4.2.1639 EmberAfStatus emberAfDiagnosticsClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Diagnostics Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1640 void emberAfDiagnosticsClusterServerTickCallback ( int8u *endpoint* )**

Diagnostics Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1641 void emberAfZllCommissioningClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

ZLL Commissioning Cluster Client Attribute Changed.

Client Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1642 void emberAfZllCommissioningClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

ZLL Commissioning Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1643 void emberAfZllCommissioningClusterClientInitCallback ( int8u *endpoint* )**

ZLL Commissioning Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1644 void emberAfZllCommissioningClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

ZLL Commissioning Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1645 void emberAfZllCommissioningClusterClientMessageSentCallback ( EmberOutgoing-MessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

ZLL Commissioning Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1646 EmberAfStatus emberAfZllCommissioningClusterClientPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

ZLL Commissioning Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1647 void emberAfZllCommissioningClusterClientTickCallback ( int8u *endpoint* )**

ZLL Commissioning Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1648 boolean emberAfZllCommissioningClusterDeviceInformationRequestCallback ( int32u *transaction*, int8u *startIndex* )**

ZLL Commissioning Cluster Device Information Request.

**Parameters**

<i>transaction</i>	Ver.: always
<i>startIndex</i>	Ver.: always

**6.4.2.1649 boolean emberAfZllCommissioningClusterDeviceInformationResponseCallback ( int32u *transaction*, int8u *numberOfSubDevices*, int8u *startIndex*, int8u *deviceInformationRecordCount*, int8u \* *deviceInformationRecordList* )**

ZLL Commissioning Cluster Device Information Response.

**Parameters**

<i>transaction</i>	Ver.: always
<i>numberOfSub- Devices</i>	Ver.: always
<i>startIndex</i>	Ver.: always
<i>device- Information- RecordCount</i>	Ver.: always

<i>device-Information-RecordList</i>	Ver.: always
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6.4.2.1650 boolean **emberAfZllCommissioningClusterEndpointInformationCallback** ( int8u \* *ieeeAddress*, int16u *networkAddress*, int8u *endpointId*, int16u *profileId*, int16u *deviceId*, int8u *version* )

ZLL Commissioning Cluster Endpoint Information.

#### Parameters

<i>ieeeAddress</i>	Ver.: always
<i>network-Address</i>	Ver.: always
<i>endpointId</i>	Ver.: always
<i>profileId</i>	Ver.: always
<i>deviceId</i>	Ver.: always
<i>version</i>	Ver.: always

6.4.2.1651 boolean **emberAfZllCommissioningClusterGetEndpointListRequestCallback** ( int8u *startIndex* )

ZLL Commissioning Cluster Get Endpoint List Request.

#### Parameters

<i>startIndex</i>	Ver.: always
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6.4.2.1652 boolean **emberAfZllCommissioningClusterGetEndpointListResponseCallback** ( int8u *total*, int8u *startIndex*, int8u *count*, int8u \* *endpointInformationRecordList* )

ZLL Commissioning Cluster Get Endpoint List Response.

#### Parameters

<i>total</i>	Ver.: always
<i>startIndex</i>	Ver.: always
<i>count</i>	Ver.: always
<i>endpoint-Information-RecordList</i>	Ver.: always

6.4.2.1653 boolean **emberAfZllCommissioningClusterGetGroupIdentifiersRequestCallback** ( int8u *startIndex* )

ZLL Commissioning Cluster Get Group Identifiers Request.

**Parameters**

<i>startIndex</i>	Ver.: always
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**6.4.2.1654 boolean emberAfZllCommissioningClusterGetGroupIdentifiersResponseCallback ( int8u *total*, int8u *startIndex*, int8u *count*, int8u \* *groupInformationRecordList* )**

ZLL Commissioning Cluster Get Group Identifiers Response.

**Parameters**

<i>total</i>	Ver.: always
<i>startIndex</i>	Ver.: always
<i>count</i>	Ver.: always
<i>groupInformationRecordList</i>	Ver.: always

**6.4.2.1655 boolean emberAfZllCommissioningClusterIdentifyRequestCallback ( int32u *transaction*, int16u *identifyDuration* )**

ZLL Commissioning Cluster Identify Request.

**Parameters**

<i>transaction</i>	Ver.: always
<i>identifyDuration</i>	Ver.: always

**6.4.2.1656 boolean emberAfZllCommissioningClusterNetworkJoinEndDeviceRequestCallback ( int32u *transaction*, int8u \* *extendedPanId*, int8u *keyIndex*, int8u \* *encryptedNetworkKey*, int8u *networkUpdateId*, int8u *logicalChannel*, int16u *panId*, int16u *networkAddress*, int16u *groupIdentifiersBegin*, int16u *groupIdentifiersEnd*, int16u *freeNetworkAddressRangeBegin*, int16u *freeNetworkAddressRangeEnd*, int16u *freeGroupIdentifierRangeBegin*, int16u *freeGroupIdentifierRangeEnd* )**

ZLL Commissioning Cluster Network Join End Device Request.

**Parameters**

<i>transaction</i>	Ver.: always
<i>extendedPanId</i>	Ver.: always
<i>keyIndex</i>	Ver.: always
<i>encryptedNetworkKey</i>	Ver.: always
<i>networkUpdateId</i>	Ver.: always
<i>logicalChannel</i>	Ver.: always
<i>panId</i>	Ver.: always
<i>networkAddress</i>	Ver.: always

<i>group-IdentifiersBegin</i>	Ver.: always
<i>group-IdentifiersEnd</i>	Ver.: always
<i>freeNetwork-AddressRange-Begin</i>	Ver.: always
<i>freeNetwork-AddressRange-End</i>	Ver.: always
<i>freeGroup-Identifier-RangeBegin</i>	Ver.: always
<i>freeGroup-Identifier-RangeEnd</i>	Ver.: always

**6.4.2.1657 boolean emberAfZllCommissioningClusterNetworkJoinEndDeviceResponseCallback ( int32u transaction, int8u status )**

ZLL Commissioning Cluster Network Join End Device Response.

#### Parameters

<i>transaction</i>	Ver.: always
<i>status</i>	Ver.: always

**6.4.2.1658 boolean emberAfZllCommissioningClusterNetworkJoinRouterRequestCallback ( int32u transaction, int8u \* extendedPanId, int8u keyIndex, int8u \* encryptedNetworkKey, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd )**

ZLL Commissioning Cluster Network Join Router Request.

#### Parameters

<i>transaction</i>	Ver.: always
<i>extendedPanId</i>	Ver.: always
<i>keyIndex</i>	Ver.: always
<i>encrypted-NetworkKey</i>	Ver.: always
<i>network-UpdateId</i>	Ver.: always
<i>logicalChannel</i>	Ver.: always
<i>panId</i>	Ver.: always
<i>network-Address</i>	Ver.: always
<i>group-IdentifiersBegin</i>	Ver.: always

<i>group- IdentifiersEnd</i>	Ver.: always
<i>freeNetwork- AddressRange- Begin</i>	Ver.: always
<i>freeNetwork- AddressRange- End</i>	Ver.: always
<i>freeGroup- Identifier- RangeBegin</i>	Ver.: always
<i>freeGroup- Identifier- RangeEnd</i>	Ver.: always

**6.4.2.1659 boolean emberAfZllCommissioningClusterNetworkJoinRouterResponseCallback ( int32u transaction, int8u status )**

ZLL Commissioning Cluster Network Join Router Response.

#### Parameters

<i>transaction</i>	Ver.: always
<i>status</i>	Ver.: always

**6.4.2.1660 boolean emberAfZllCommissioningClusterNetworkStartRequestCallback ( int32u transaction, int8u \* extendedPanId, int8u keyIndex, int8u \* encryptedNetworkKey, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd, int8u \* initiatorIEEEAddress, int16u initiatorNetworkAddress )**

ZLL Commissioning Cluster Network Start Request.

#### Parameters

<i>transaction</i>	Ver.: always
<i>extendedPanId</i>	Ver.: always
<i>keyIndex</i>	Ver.: always
<i>encrypted- NetworkKey</i>	Ver.: always
<i>logicalChannel</i>	Ver.: always
<i>panId</i>	Ver.: always
<i>network- Address</i>	Ver.: always
<i>group- IdentifiersBegin</i>	Ver.: always
<i>group- IdentifiersEnd</i>	Ver.: always

<i>freeNetwork-AddressRange-Begin</i>	Ver.: always
<i>freeNetwork-AddressRange-End</i>	Ver.: always
<i>freeGroup-Identifier-RangeBegin</i>	Ver.: always
<i>freeGroup-Identifier-RangeEnd</i>	Ver.: always
<i>initiatorIeee-Address</i>	Ver.: always
<i>initiator-Network-Address</i>	Ver.: always

**6.4.2.1661 boolean emberAfZllCommissioningClusterNetworkStartResponseCallback ( int32u *transaction*, int8u *status*, int8u \* *extendedPanId*, int8u *networkUpdateId*, int8u *logicalChannel*, int16u *panId* )**

ZLL Commissioning Cluster Network Start Response.

#### Parameters

<i>transaction</i>	Ver.: always
<i>status</i>	Ver.: always
<i>extendedPanId</i>	Ver.: always
<i>network-UpdateId</i>	Ver.: always
<i>logicalChannel</i>	Ver.: always
<i>panId</i>	Ver.: always

**6.4.2.1662 boolean emberAfZllCommissioningClusterNetworkUpdateRequestCallback ( int32u *transaction*, int8u \* *extendedPanId*, int8u *networkUpdateId*, int8u *logicalChannel*, int16u *panId*, int16u *networkAddress* )**

ZLL Commissioning Cluster Network Update Request.

#### Parameters

<i>transaction</i>	Ver.: always
<i>extendedPanId</i>	Ver.: always
<i>network-UpdateId</i>	Ver.: always
<i>logicalChannel</i>	Ver.: always
<i>panId</i>	Ver.: always
<i>network-Address</i>	Ver.: always

**6.4.2.1663 boolean emberAfZllCommissioningClusterResetToFactoryNewRequestCallback ( int32u transaction )**

ZLL Commissioning Cluster Reset To Factory New Request.

**Parameters**

<i>transaction</i>	Ver.: always
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**6.4.2.1664 boolean emberAfZllCommissioningClusterScanRequestCallback ( int32u transaction, int8u zigbeeInformation, int8u zllInformation )**

ZLL Commissioning Cluster Scan Request.

**Parameters**

<i>transaction</i>	Ver.: always
<i>zigbeeInformation</i>	Ver.: always
<i>zllInformation</i>	Ver.: always

**6.4.2.1665 boolean emberAfZllCommissioningClusterScanResponseCallback ( int32u transaction, int8u rssiCorrection, int8u zigbeeInformation, int8u zllInformation, int16u keyBitmask, int32u responseId, int8u \* extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int8u numberOfSubDevices, int8u totalGroupIds, int8u endpointId, int16u profileId, int16u deviceId, int8u version, int8u groupIdCount )**

ZLL Commissioning Cluster Scan Response.

**Parameters**

<i>transaction</i>	Ver.: always
<i>rssiCorrection</i>	Ver.: always
<i>zigbeeInformation</i>	Ver.: always
<i>zllInformation</i>	Ver.: always
<i>keyBitmask</i>	Ver.: always
<i>responseId</i>	Ver.: always
<i>extendedPanId</i>	Ver.: always
<i>networkUpdateId</i>	Ver.: always
<i>logicalChannel</i>	Ver.: always
<i>panId</i>	Ver.: always
<i>networkAddress</i>	Ver.: always
<i>numberOfSubDevices</i>	Ver.: always
<i>totalGroupIds</i>	Ver.: always
<i>endpointId</i>	Ver.: always
<i>profileId</i>	Ver.: always
<i>deviceId</i>	Ver.: always

<i>version</i>	Ver.: always
<i>groupIdCount</i>	Ver.: always

**6.4.2.1666 void emberAfZllCommissioningClusterServerAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld* )**

ZLL Commissioning Cluster Server Attribute Changed.

Server Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1667 void emberAfZllCommissioningClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

ZLL Commissioning Cluster Server Default Response.

This function is called when the server receives the default response from the client.

#### Parameters

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1668 void emberAfZllCommissioningClusterServerInitCallback ( int8u *endpoint* )**

ZLL Commissioning Cluster Server Init.

Server Init

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1669 void emberAfZllCommissioningClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeld*, int16u *manufacturerCode* )**

ZLL Commissioning Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturerCode</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1670 void emberAfZllCommissioningClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

ZLL Commissioning Cluster Server Message Sent.

Server Message Sent

#### Parameters

<i>type</i>	The type of message sent Ver.: always
<i>indexOrDestination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1671 EmberAfStatus emberAfZllCommissioningClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

ZLL Commissioning Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

#### Parameters

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1672 void emberAfZllCommissioningClusterServerTickCallback ( int8u *endpoint* )**

ZLL Commissioning Cluster Server Tick.

Server Tick

#### Parameters

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1673 void emberAfSampleMfgSpecificClusterClientAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId* )**

Sample Mfg Specific Cluster Cluster Client Attribute Changed.

Client Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1674 void emberAfSampleMfgSpecificClusterClientDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Sample Mfg Specific Cluster Cluster Client Default Response.

This function is called when the client receives the default response from the server.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1675 void emberAfSampleMfgSpecificClusterClientInitCallback ( int8u *endpoint* )**

Sample Mfg Specific Cluster Cluster Client Init.

Client Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1676 void emberAfSampleMfgSpecificClusterClientManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, int16u *manufacturerCode* )**

Sample Mfg Specific Cluster Cluster Client Manufacturer Specific Attribute Changed.

Client Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1677 void emberAfSampleMfgSpecificClusterClientMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Sample Mfg Specific Cluster Cluster Client Message Sent.

Client Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1678 EmberAfStatus emberAfSampleMfgSpecificClusterClientPreAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \* value )**

Sample Mfg Specific Cluster Cluster Client Pre Attribute Changed.

Client Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1679 void emberAfSampleMfgSpecificClusterClientTickCallback ( int8u endpoint )**

Sample Mfg Specific Cluster Cluster Client Tick.

Client Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1680 boolean emberAfSampleMfgSpecificClusterCommandOneCallback ( int8u argOne )**

Sample Mfg Specific Cluster Cluster Command One.

**Parameters**

<i>argOne</i>	Ver.: always
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**6.4.2.1681 void emberAfSampleMfgSpecificClusterServerAttributeChangedCallback ( int8u endpoint, EmberAfAttributeId attributeId )**

Sample Mfg Specific Cluster Cluster Server Attribute Changed.

Server Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute that changed Ver.: always

**6.4.2.1682 void emberAfSampleMfgSpecificClusterServerDefaultResponseCallback ( int8u *endpoint*, int8u *commandId*, EmberAfStatus *status* )**

Sample Mfg Specific Cluster Cluster Server Default Response.

This function is called when the server receives the default response from the client.

**Parameters**

<i>endpoint</i>	Destination endpoint Ver.: always
<i>commandId</i>	Command id Ver.: always
<i>status</i>	Status in default response Ver.: always

**6.4.2.1683 void emberAfSampleMfgSpecificClusterServerInitCallback ( int8u *endpoint* )**

Sample Mfg Specific Cluster Cluster Server Init.

Server Init

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
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**6.4.2.1684 void emberAfSampleMfgSpecificClusterServerManufacturerSpecificAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributId*, int16u *manufacturerCode* )**

Sample Mfg Specific Cluster Cluster Server Manufacturer Specific Attribute Changed.

Server Manufacturer Specific Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributId</i>	Attribute that changed Ver.: always
<i>manufacturer-Code</i>	Manufacturer Code of the attribute that changed Ver.: always

**6.4.2.1685 void emberAfSampleMfgSpecificClusterServerMessageSentCallback ( EmberOutgoingMessageType *type*, int16u *indexOrDestination*, EmberApsFrame \* *apsFrame*, int16u *msgLen*, int8u \* *message*, EmberStatus *status* )**

Sample Mfg Specific Cluster Cluster Server Message Sent.

Server Message Sent

**Parameters**

<i>type</i>	The type of message sent Ver.: always
<i>indexOr-Destination</i>	The destination or address to which the message was sent Ver.: always
<i>apsFrame</i>	The APS frame for the message Ver.: always
<i>msgLen</i>	The length of the message Ver.: always
<i>message</i>	The message that was sent Ver.: always
<i>status</i>	The status of the sent message Ver.: always

**6.4.2.1686 EmberAfStatus emberAfSampleMfgSpecificClusterServerPreAttributeChangedCallback ( int8u *endpoint*, EmberAfAttributeId *attributeId*, EmberAfAttributeType *attributeType*, int8u *size*, int8u \* *value* )**

Sample Mfg Specific Cluster Cluster Server Pre Attribute Changed.

Server Pre Attribute Changed

**Parameters**

<i>endpoint</i>	Endpoint that is being initialized Ver.: always
<i>attributeId</i>	Attribute to be changed Ver.: always
<i>attributeType</i>	Attribute type Ver.: always
<i>size</i>	Attribute size Ver.: always
<i>value</i>	Attribute value Ver.: always

**6.4.2.1687 void emberAfSampleMfgSpecificClusterServerTickCallback ( int8u *endpoint* )**

Sample Mfg Specific Cluster Cluster Server Tick.

Server Tick

**Parameters**

<i>endpoint</i>	Endpoint that is being served Ver.: always
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**6.4.2.1688 void emberAfPluginBasicResetToFactoryDefaultsCallback ( uint8\_t *endpoint* )**

Reset To Factory Defaults.

This function is called by the Basic server plugin when a request to reset to factory defaults is received. The plugin will reset attributes managed by the framework to their default values. The application should perform any other necessary reset-related operations in this callback, including resetting any externally-stored attributes.

**Parameters**

<i>endpoint</i>	Ver.: always
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#### 6.4.2.1689 void emberAfPluginBulbPwmConfigurationBlinkStopCallback ( uint8\_t *endpoint* )

BlinkStop.

This callback is called when it is time for the bulb to stop any blinking that may be underway.

##### Parameters

<i>endpoint</i>	Ver.: always
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#### 6.4.2.1690 void emberAfPluginBulbUiFinishedCallback ( EmberStatus *status* )

Finished.

This callback is fired when the bulb-ui plugin is finished with the forming or joining process. The result of the operation will be returned in the status parameter.

##### Parameters

<i>status</i>	Ver.: always
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#### 6.4.2.1691 void emberAfPluginButtonJoiningButtonEventCallback ( uint8\_t *buttonNumber*, uint32\_t *buttonPressDurationMs* )

Button Event.

This allows another module to get notification when a button is pressed and released but the button joining plugin did not handle it. This callback is NOT called in ISR context so there are no restrictions on what code can execute.

##### Parameters

<i>buttonNumber</i>	The button number that was pressed. Ver.: always
<i>buttonPressDurationMs</i>	The length of time button was held down before it was released. Ver.: always

#### 6.4.2.1692 void emberAfPluginCalendarServerPublishInfoCallback ( uint8\_t *publishCommandId*, EmberNodeId *clientNodeId*, uint8\_t *clientEndpoint*, uint8\_t *totalCommands* )

Publish Info.

This function is called by the calendar-server plugin after receiving any of the following commands and just before it starts publishing the response: GetCalendar, GetDayProfiles, GetSeasons, GetSpecialDays, and GetWeekProfiles.

##### Parameters

<i>publishCommandId</i>	ZCL command to be published Ver.: always
<i>clientNodeId</i>	Destination nodeId Ver.: always
<i>clientEndpoint</i>	Destination endpoint Ver.: always
<i>totalCommands</i>	Total number of publish commands to be sent Ver.: always

#### 6.4.2.1693 bool emberAfPluginColorControlsColorSupportedCallback ( uint8\_t hue, uint8\_t saturation )

Is Color Supported.

This function will be called to determine whether a color is supported by a device. The color will be specified by hue and saturation.

##### Parameters

<i>hue</i>	Ver.: always
<i>saturation</i>	Ver.: always

#### 6.4.2.1694 void emberAfPluginCommsHubFunctionSendCallback ( uint8\_t status, EmberEUI64 destinationDeviceId, uint16\_t dataLen, uint8\_t \* data )

Send.

This callback is called by the Comms Hub Function (CHF) plugin to report the status of a message that was previously sent.

##### Parameters

<i>status</i>	The status of the message that was sent Ver.: always
<i>destinationDeviceId</i>	The EUI64 of the destination device to which the data was sent Ver.: always
<i>dataLen</i>	The length in octets of the data that was sent Ver.: always
<i>data</i>	Buffer containing the raw octets of the data that was sent Ver.: always

#### 6.4.2.1695 void emberAfPluginCommsHubFunctionReceivedCallback ( EmberEUI64 senderDeviceId, uint16\_t dataLen, uint8\_t \* data )

Received.

This callback is called by the Comms Hub Function (CHF) plugin whenever a message is received.

##### Parameters

<i>senderDeviceId</i>	The EUI64 of the sending device Ver.: always
<i>dataLen</i>	The length in octets of the data Ver.: always
<i>data</i>	Buffer containing the raw octets of the data Ver.: always

#### 6.4.2.1696 void emberAfPluginCommsHubFunctionAlertWANCallback ( uint16\_t alertCode, uint8\_t \* gbzAlert, uint16\_t gbzAlertLength )

Alert WAN.

Notify the application of an Alert that should be sent to the WAN. The second argument is a pointer to the gbz alert buffer. The application is responsible for freeing this buffer.

##### Parameters

<i>alertCode</i>	The 16 bit alert code as defined by GBCS Ver.: always
<i>gbzAlert</i>	Buffer containing the GBZ formatted Alert Ver.: always

<i>gbzAlertLength</i>	The length in octets of the GBZ formatted Alert Ver.: always
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**6.4.2.1697 void emberAfPluginCommsHubFunctionTunnelOpenedCallback ( EmberEUI64 *remoteDeviceId* )**

Tunnel Opened.

This function is called by the Comms Hub Function (CHF) plugin when a tunnel is opened.

**Parameters**

<i>remoteDeviceId</i>	The EUI64 of the remote device for which a tunnel is opened Ver.: always
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**6.4.2.1698 void emberAfPluginConcentratorBroadcastSentCallback ( void )**

Broadcast Sent.

This function is called when a new MTORR broadcast has been successfully sent by the concentrator plugin.

**6.4.2.1699 void emberAfPluginCountersRolloverCallback ( EmberCounterType *type* )**

Rollover.

This function is called every time a counter exceeds its threshold.

**Parameters**

<i>type</i>	The counter that rolled over Ver.: always
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**6.4.2.1700 void emberAfPluginDeviceDatabaseDiscoveryCompleteCallback ( const EmberAfDeviceInfo \* *device* )**

Discovery Complete.

This function is called when a device in the database has been set to EMBER\_AF\_DEVICE\_DISCOVERY\_STATUS\_DONE.

**Parameters**

<i>device</i>	A pointer to the information struct about the device. Ver.: always
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**6.4.2.1701 void emberAfPluginDeviceManagementClientEnactChangeOfTenancyCallback ( uint8\_t *endpoint*, EmberAfDeviceManagementTenancy \* *tenancy* )**

Enact Change Of Tenancy.

This callback will be implemented by a meter to enact a change of tenancy at the requested time of implementation.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>tenancy</i>	Ver.: always

**6.4.2.1702 void emberAfPluginDeviceManagementClientEnactChangeOfSupplierCallback ( uint8\_t *endpoint*, EmberAfDeviceManagementSupplier \* *supplier* )**

Enact Change Of Supplier.

This callback will be implemented by a meter to enact a change of supplier at the requested time of implementation.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>supplier</i>	Ver.: always

**6.4.2.1703 EmberStatus emberAfPluginDeviceManagementClientEnactChangeSupplyCallback ( uint8\_t *endpoint*, EmberAfDeviceManagementSupply \* *supply* )**

Enact Change Supply.

This callback will be implemented by a meter to enact a supply change at the requested time of implementation.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>supply</i>	Ver.: always

**6.4.2.1704 void emberAfPluginDeviceManagementClientSetSupplyStatusCallback ( uint8\_t *endpoint*, EmberAfDeviceManagementSupplyStatusFlags \* *supplyStatus* )**

Set Supply Status.

This callback will be implemented by a meter to appropriately set the supply status.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>supplyStatus</i>	Ver.: always

**6.4.2.1705 void emberAfPluginDeviceManagementClientEnactUpdateUncontrolledFlowThresholdCallback ( uint8\_t *endpoint*, EmberAfDeviceManagementUncontrolledFlowThreshold \* *supplier* )**

Enact Update Uncontrolled Flow Threshold.

This callback will be implemented by a meter to enact an update to the uncontrolled flow threshold as specified.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>supplier</i>	Ver.: always

**6.4.2.1706 void emberAfPluginDeviceManagementServerGetPasswordCallback ( EmberNodeId *senderNodeId*, EmberAfDeviceManagementPasswordType *passwordType*, EmberAfDeviceManagementPassword *passwordInfo* )**

Get Password.

This callback will be implemented by an esi to provide device specific password information.

**Parameters**

<i>senderNodeId</i>	Ver.: always
<i>passwordType</i>	Ver.: always
<i>passwordInfo</i>	Ver.: always

**6.4.2.1707 bool emberAfPluginDoorLockServerActivateDoorLockCallback ( bool *activate* )**

Activate Door Lock.

This function is provided by the door lock server plugin. It is

**Parameters**

<i>activate</i>	True if the lock should move to the locked position, false if it should move to the unlocked position Ver.: always
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**6.4.2.1708 bool emberAfPluginDrlcEventActionCallback ( EmberAfLoadControlEvent \* *loadControlEvent*, EmberAfAmiEventStatus *eventStatus*, uint8\_t *sequenceNumber* )**

Event Action.

This function is called by the demand response and load control client plugin whenever an event status changes within the DRLC event table. The list of possible event status values is defined by the ZCL spec and is listed in the Application Framework's generated enums located in enums.h. For example, an event status may be: AMI\_EVENT\_STATUS\_LOAD\_CONTROL\_EVENT\_COMMAND\_RX indicating that a properly formatted event was received; AMI\_EVENT\_STATUS\_EVENT\_STARTED indicating that an event has started; AMI\_EVENT\_STATUS\_THE\_EVENT\_HAS\_BEEN\_CANCELED, indicating that the event was canceled. This callback is intended to give the device an opportunity to take action on the event in question. For instance if an event starts, the device should take the appropriate event action on the hardware. This callback returns a bool, if returned value is true, then a notification will be send over the air automatically to the originator of the event. If it is false, then nothing will be sent back to the originator of the event. Please note that in order for your application to be ZigBee compliant, a notification must be sent over the air to the originator of the event, so a value of false should only be returned if your application code takes care of sending this message or there is some other reason a message does not need to be sent by the framework.

**Parameters**

<i>loadControl-Event</i>	Actual event Ver.: always
<i>eventStatus</i>	Status of event Ver.: always
<i>sequence-Number</i>	Sequence number Ver.: always

**6.4.2.1709 void emberAfPluginEndDeviceSupportPollCompletedCallback ( EmberStatus *status* )**

Poll Completed.

This function is called by the End Device Support plugin after a poll is completed.

**Parameters**

<i>status</i>	Return status of a completed poll operation Ver.: always
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**6.4.2.1710 bool emberAfPluginEventsServerOkToClearLogCallback ( EmberAfEventLogId *logId* )**

Ok To Clear Log.

This function is called by the Events server plugin whenever a Clear Event Log Request command is received. The application should return true if it is Ok to clear the given log and false otherwise. If the request is to clear all logs (i.e. *logId* == EMBER\_ZCL\_EVENT\_LOG\_ID\_ALL\_LOGS) and the application allows all logs to be cleared then the application should return true. If the application does not allow all logs to be cleared it should return false in which case the plugin will subsequently call this callback for each event log allowing the application to selectively choose which event logs are Ok to be cleared.

**Parameters**

<i>logId</i>	The identifier of the log requested to be cleared. Ver.: always
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**6.4.2.1711 void emberAfPluginEventsServerLogDataUpdatedCallback ( const EmberAfClusterCommand \* *cmd* )**

Log Data Updated.

This function is called by the Events server plugin when any modification to the plugin's event logs has been made. The argument will hint the ZCL command that might be used to triggered the data change. If null, it means the logging data have been updated through other means, e.g. CLI.

**Parameters**

<i>cmd</i>	ZCL command Ver.: always
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**6.4.2.1712 void emberAfPluginEzmodeCommissioningClientCompleteCallback ( uint8\_t *bindingIndex* )**

Client Complete.

This function is called by the EZ-Mode Commissioning plugin when client commissioning completes.

**Parameters**

<i>bindingIndex</i>	The binding index that was created or <a href="#">EMBER_NULL_BINDING</a> if an error occurred. Ver.: always
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**6.4.2.1713 bool emberAfPluginFindAndBindInitiatorBindTargetCallback ( EmberNodeId *nodeId*, EmberBindingTableEntry \* *bindingEntry*, uint8\_t \* *groupName* )**

Bind Target.

This callback will enable the user to programmatically decide if they want to bind with a potential target. The plugin will try to bind with this target if and only if the function returns true. By default, the callback tells the plugin to try to bind with the target. If the binding type is changed to [EMBER\\_MULTICAST\\_BINDING](#), a multicast binding will be created.

**Parameters**

<i>nodeId</i>	short ID of the potential target Ver.: always
<i>bindingEntry</i>	The binding entry for that target. Ver.: always
<i>groupName</i>	The name of the group if a multicast binding is created. Ver.: always

**6.4.2.1714 void emberAfPluginFindAndBindInitiatorCompleteCallback ( EmberStatus *status* )**

Complete.

This callback is fired by the initiator when the Find and Bind process is complete.

**Parameters**

<i>status</i>	Status code describing the completion of the find and bind process Ver.: always
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**6.4.2.1715 void emberAfPluginFormAndJoinNetworkFoundCallback ( EmberZigbeeNetwork \* *networkFound*, uint8\_t *lqi*, int8\_t *rssi* )**

Network Found.

This is called by the form-and-join library to notify the application of the network found after a call to ::emberScanForJoinableNetwork() or ::emberScanForNextJoinableNetwork(). See form-and-join documentation for more information.

**Parameters**

<i>networkFound</i>	Ver.: always
<i>lqi</i>	Ver.: always
<i>rssi</i>	Ver.: always

**6.4.2.1716 void emberAfPluginFormAndJoinUnusedPanIdFoundCallback ( EmberPanId *panId*, uint8\_t *channel* )**

Unused Pan Id Found.

This function is called when the form-and-join library finds an unused PAN ID that can be used to form a new network on.

#### Parameters

<i>panId</i>	A randomly generated PAN ID without other devices on it. Ver.: always
<i>channel</i>	The channel where the PAN ID can be used to form a new network. Ver.: always

#### 6.4.2.1717 void emberAfPluginGasProxyFunctionNonTapOffMessageHandlerCompletedCallback ( uint8\_t \* *gbzCommandsResponse*, uint16\_t *gbzCommandsResponseLength* )

Non Tap Off Message Handler Completed.

Notify the application that the Non Tap Off Message (Non-TOM) have been handled by the mirror endpoint. This callback is invoked when the Non Tap Off Message have been processed. The first argument is a pointer to the gbz commands response buffer. The application is responsible for freeing this buffer.

#### Parameters

<i>gbzCommands-Response</i>	Ver.: always
<i>gbzCommands-Response-Length</i>	Ver.: always

#### 6.4.2.1718 void emberAfPluginGasProxyFunctionAlertWANCallback ( uint16\_t *alertCode*, uint8\_t \* *gbzAlert*, uint16\_t *gbzAlertLength* )

Alert WAN.

Notify the application of an Alert that should be sent to the WAN. The second argument is a pointer to the gbz alert buffer. The application is responsible for freeing this buffer.

#### Parameters

<i>alertCode</i>	The 16 bit alert code as defined by GBCS Ver.: always
<i>gbzAlert</i>	Buffer containing the GBZ formatted Alert Ver.: always
<i>gbzAlertLength</i>	The length in octets of the GBZ formatted Alert Ver.: always

#### 6.4.2.1719 void emberAfPluginGasProxyFunctionTapOffMessageFutureCommandIgnoredCallback ( const EmberAfGpfMessage \* *gpfMessage*, const EmberAfClusterCommand \* *zclClusterCommand* )

Tap Off Message Future Command Ignored.

Notify the application that an elemental ZCL command, embedded within the Tap Off Message (TOM), has been ignored by the GPF as it is a future dated command. The application can utilize the callback to store the discarded command for later retrieval. When the future dated command becomes active on the GSME, it will inform the CommsHub about the activation via an Alert message. The CommsHub should be able to correlate the matching messages and pass the previously stored ZCL commands to the TOM message handler for processing.

**Parameters**

<i>gpfMessage</i>	Ver.: always
<i>zclCluster-Command</i>	Ver.: always

**6.4.2.1720** `bool emberAfPluginGasProxyFunctionDataLogAccessRequestCallback ( const EmberAfGpfMessage * gpfMessage, const EmberAfClusterCommand * zclClusterCommand )`

Data Log Access Request.

Query the application regarding the processing of the current GBCS specific command. Depending on the vendor specific information, such as the Tenancy attribute in the Device Management Cluster, the callback's return value determines whether the current command gets processed or not. With a return value of true, the plugin will process the message. Otherwise, the plugin will reject the message.

**Parameters**

<i>gpfMessage</i>	Ver.: always
<i>zclCluster-Command</i>	Ver.: always

**6.4.2.1721** `EmberAfGpfZclCommandPermission emberAfPluginGasProxyFunctionValidateIncomingZclCommandCallback ( const EmberAfClusterCommand * cmd, uint16_t messageCode )`

Validate Incoming Zcl Command.

Query the application to check if a specific ZCL command should be processed given the UseCase # and ZCL command payload information. This function should capture the behavior detailed by the GBCS Use Case documentation. Please refer to EmberAfGpfZclCommandPermission enum for specific return data types.

**Parameters**

<i>cmd</i>	Ver.: always
<i>messageCode</i>	Ver.: always

**6.4.2.1722** `void emberAfPluginGasProxyFunctionUnknownSeasonWeekIdCallback ( uint32_t issuerCalendarId, uint8_t * seasonEntries, uint8_t seasonEntriesLength, uint8_t unknownWeekIdSeasonsMask )`

Unknown Season Week Id.

This callback is called when the GPF receives a PublishSeasons command with an unknown week ID in one of the seasons. The callback contains a mask, unknownWeekIdSeasonsMask, with bits set corresponding to season entries that were not published because of an unknown week ID reference.

**Parameters**

<i>issuer- CalendarId</i>	The calendar ID associated with these seasons. Ver.: always
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<i>seasonEntries</i>	The season entries for this publish command. Ver.: always
<i>seasonEntries- Length</i>	The length of the season entries. Ver.: always
<i>unknownWeek- IdSeasonsMask</i>	A mask where bit N indicates that the Nth season entry contains an unknown week ID reference. Ver.: always

**6.4.2.1723 void emberAfPluginGasProxyFunctionUnknownSpecialDaysDayIdCallback ( uint32\_t issuerCalendarId, uint8\_t \* specialDayEntries, uint8\_t specialDayEntriesLength, uint8\_t unknownDayIdMask )**

Unknown Special Days Day Id.

This callback is called when the GPF receives a PublishSpecialDays command with an unknown day ID for one of the special days. The callback contains a mask, unknownDayIdMask, with bits set corresponding to special day entries that were not published because of an unknown day ID reference.

#### Parameters

<i>issuer- CalendarId</i>	The calendar ID associated with these special days. Ver.: always
<i>specialDay- Entries</i>	The special day entries for this publish command. Ver.: always
<i>specialDay- EntriesLength</i>	The length of the special day entries. Ver.: always
<i>unknownDay- IdMask</i>	A mask where bit N indicates that the Nth special day entry contains an unknown day ID reference. Ver.: always

**6.4.2.1724 void emberAfPluginGbcsDeviceLogDeviceRemovedCallback ( EmberEUI64 deviceId )**

Device Removed.

This callback is called by the plugin when a device is removed from the device log.

#### Parameters

<i>deviceId</i>	Identifier of the device removed Ver.: always
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**6.4.2.1725 void emberAfPluginGbzMessControllerDecryptDataCallback ( EmberAfGbzMessaData \* data )**

Decrypt Data.

This function is called by the Gbz Message Controller plugin to decrypt a ZCL payload. If the decryption is successful, the application is responsible for allocating the memory for the new decrypted data and passing the pointer via the "plainPayload" field as well as the plainPayloadLength field for the length. The framework will be responsible for free-ing the allocated memory. If the decryption fails, the callback return false and should not modify any data.

**Parameters**

<i>data</i>	Ver.: always
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**6.4.2.1726 void emberAfPluginGbzMessagControllerEncryptDataCallback ( EmberAfGbzMessaData \* *data* )**

Encrypt Data.

This function is called by the Gbz Message Controller plugin to encrypt a ZCL payload. If the encryption is successful, the application is responsible for allocating the memory for the new encrypted data and passing the pointer via the "encryptedPayload" field as well as the encryptedPayloadLength field for the length. The framework will be responsible for free-ing the allocated memory. If the encryption fails, the callback return false and should not modify any data.

**Parameters**

<i>data</i>	Ver.: always
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**6.4.2.1727 bool emberAfPluginGreenPowerServerGpdCommissioningCallback ( EmberGpApplicationInfo \* *appInfo* )**

Gpd Commissioning.

This function is called by the Green Power Sink Plugin to notify the application of a Green Power Device that has requested commissioning with this sink. Return true to accept, false to reject.

**Parameters**

<i>appInfo</i>	Ver.: always
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**6.4.2.1728 void emberAfPluginGroupsServerGetGroupNameCallback ( uint8\_t *endpoint*, uint16\_t *groupId*, uint8\_t \* *groupName* )**

Get Group Name.

This function returns the name of a group with the provided group ID, should it exist.

**Parameters**

<i>endpoint</i>	Endpoint Ver.: always
<i>groupId</i>	Group ID Ver.: always
<i>groupName</i>	Group Name Ver.: always

**6.4.2.1729 void emberAfPluginGroupsServerSetGroupNameCallback ( uint8\_t *endpoint*, uint16\_t *groupId*, uint8\_t \* *groupName* )**

Set Group Name.

This function sets the name of a group with the provided group ID.

**Parameters**

<i>endpoint</i>	Endpoint Ver.: always
<i>groupId</i>	Group ID Ver.: always
<i>groupName</i>	Group Name Ver.: always

**6.4.2.1730 bool emberAfPluginGroupsServerGroupNamesSupportedCallback ( uint8\_t endpoint )**

Group Names Supported.

This function returns whether or not group names are supported.

**Parameters**

<i>endpoint</i>	Endpoint Ver.: always
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**6.4.2.1731 void emberAfPluginIdentifyStartFeedbackCallback ( uint8\_t endpoint, uint16\_t identifyTime )**

Start Feedback.

This function is called by the Identify plugin when identification begins. It informs the Identify Feedback plugin that it should begin providing its implemented feedback functionality (e.g. LED blinking, buzzer sounding, etc.) until the Identify plugin tells it to stop. The identify time is purely a matter of informational convenience; this plugin does not need to know how long it will identify (the Identify plugin will perform the necessary timekeeping.)

**Parameters**

<i>endpoint</i>	The identifying endpoint Ver.: always
<i>identifyTime</i>	The identify time Ver.: always

**6.4.2.1732 void emberAfPluginIdentifyStopFeedbackCallback ( uint8\_t endpoint )**

Stop Feedback.

This function is called by the Identify plugin when identification is finished. It tells the Identify Feedback plugin to stop providing its implemented feedback functionality.

**Parameters**

<i>endpoint</i>	The identifying endpoint Ver.: always
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**6.4.2.1733 bool emberAfPluginInterpanPreMessageReceivedCallback ( const EmberAfInterpanHeader \* header, uint8\_t msgLen, uint8\_t \* message )**

Pre Message Received.

This function is called by the Interpan plugin when an interpan message is received but has not yet been handled by the plugin or the framework. The application should return true if the message was handled.

**Parameters**

<i>header</i>	The inter-PAN header Ver.: always
<i>msgLen</i>	The message payload length Ver.: always
<i>message</i>	The message payload Ver.: always

**6.4.2.1734 void emberAfPluginInterpanMessageReceivedOverFragmentsCallback ( const EmberAfInterpanHeader \* *header*, uint8\_t *msgLen*, uint8\_t \* *message* )**

Message Received Over Fragments.

This function is called by the Interpan plugin when a fully reconstructed message has been received over inter-PAN fragments, or IPMFs.

**Parameters**

<i>header</i>	The inter-PAN header Ver.: always
<i>msgLen</i>	The message payload length Ver.: always
<i>message</i>	The message payload Ver.: always

**6.4.2.1735 void emberAfPluginInterpanFragmentTransmissionFailedCallback ( uint8\_t *interpanFragmentationStatus*, uint8\_t *fragmentNum* )**

Fragment Transmission Failed.

This function is called by the Interpan plugin when a fragmented transmission has failed.

**Parameters**

<i>interpan-Fragmentation-Status</i>	The status describing why transmission failed Ver.: always
<i>fragmentNum</i>	The fragment number that encountered the failure Ver.: always

**6.4.2.1736 bool emberAfPluginMessagingClientPreDisplayMessageCallback ( uint32\_t *messageId*, uint8\_t *messageControl*, uint32\_t *startTime*, uint16\_t *durationInMinutes*, uint8\_t \* *message*, uint8\_t *optionalExtendedMessageControl* )**

Pre Display Message.

This function is called by the Messaging client plugin when a DisplayMessage command is received. If callback returns true, the plugin assumes the message have been handled and will not do anything with the message. Otherwise, the plugin will go through with its own implementation.

**Parameters**

<i>messageId</i>	Ver.: always
<i>message-Control</i>	Ver.: always
<i>startTime</i>	Ver.: always
<i>durationIn-Minutes</i>	Ver.: always

<i>message</i>	Ver.: always
<i>optional-Extended-Message-Control</i>	Ver.: always

#### 6.4.2.1737 void emberAfPluginMessagingClientDisplayMessageCallback ( EmberAfPluginMessagingClientMessage \* *message* )

Display Message.

This function is called by the Messaging client plugin whenever the application should display a message.

##### Parameters

<i>message</i>	The message that should be displayed. Ver.: always
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#### 6.4.2.1738 void emberAfPluginMessagingClientCancelMessageCallback ( EmberAfPluginMessagingClientMessage \* *message* )

Cancel Message.

This function is called by the Messaging client plugin whenever the application should stop displaying a message.

##### Parameters

<i>message</i>	The message that should no longer be displayed. Ver.: always
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#### 6.4.2.1739 void emberAfPluginMeterMirrorMirrorAddedCallback ( const EmberEUI64 *requestingDeviceIeeeAddress*, uint8\_t *endpoint* )

Mirror Added.

This function is called by the Meter Mirror plugin whenever a RequestMirror command is successfully processed.

##### Parameters

<i>requesting-DeviceIeee-Address</i>	Ver.: always
<i>endpoint</i>	Ver.: always

#### 6.4.2.1740 void emberAfPluginMeterMirrorMirrorRemovedCallback ( const EmberEUI64 *requestingDeviceIeeeAddress*, uint8\_t *endpoint* )

Mirror Removed.

This function is called by the Meter Mirror plugin whenever a RemoveMirror command is successfully processed.

#### Parameters

<i>requesting-DeviceIeee-Address</i>	Ver.: always
<i>endpoint</i>	Ver.: always

#### 6.4.2.1741 void emberAfPluginMeterMirrorReportingCompleteCallback ( uint8\_t *endpoint* )

Reporting Complete.

This function is called by the Meter Mirror plugin after processing an AttributeReportingStatus attribute set to ReportingComplete. If the application needs to do any post attribute reporting processing it can do it from within this callback.

#### Parameters

<i>endpoint</i>	Ver.: always
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#### 6.4.2.1742 void emberAfPluginMeterSnapshotServerScheduleSnapshotCallback ( uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, EmberNodeId *dest*, uint8\_t \* *snapshotPayload*, uint8\_t \* *responsePayload* )

Schedule Snapshot.

This function is called by the Meter Snapshot server plugin whenever a ScheduleSnapshot command is received. A plugin implementing backhaul functionality for the snapshot mechanism should proceed to schedule the snapshot as required.

#### Parameters

<i>srcEndpoint</i>	Ver.: always
<i>dstEndpoint</i>	Ver.: always
<i>dest</i>	Ver.: always
<i>snapshot-Payload</i>	Ver.: always
<i>response-Payload</i>	Ver.: always

#### 6.4.2.1743 uint32\_t emberAfPluginMeterSnapshotServerTakeSnapshotCallback ( uint8\_t *endpoint*, uint32\_t *snapshotCause*, uint8\_t \* *snapshotConfirmation* )

Take Snapshot.

This function is called by the Meter Snapshot server plugin whenever a TakeSnapshot command is received. A plugin implementing backhaul functionality for the snapshot mechanism should proceed to manually take a snapshot as required. If for some reason the snapshot could not be taken, this should be reflected in the *snapshotConfirmation* argument.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>snapshotCause</i>	Ver.: always
<i>snapshotConfirmation</i>	Ver.: always

**6.4.2.1744 void emberAfPluginMeterSnapshotServerGetSnapshotCallback ( uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, EmberNodeId *dest*, uint8\_t \* *snapshotCriteria* )**

Get Snapshot.

This function is called by the Meter Snapshot server plugin whenever a GetSnapshot command is received. A plugin implementing backhaul functionality for the snapshot mechanism should proceed to retrieve the snapshot and send a PublishSnapshot command to the requesting client.

**Parameters**

<i>srcEndpoint</i>	Ver.: always
<i>dstEndpoint</i>	Ver.: always
<i>dest</i>	Ver.: always
<i>snapshotCriteria</i>	Ver.: always

**6.4.2.1745 void emberAfPluginNetworkCreatorCompleteCallback ( const EmberNetworkParameters \* *network*, bool *usedSecondaryChannels* )**

Complete.

This callback notifies the user that the network creation process has completed successfully.

**Parameters**

<i>network</i>	The network that the network creator plugin successfully formed. Ver.: always
<i>used-Secondary-Channels</i>	Whether or not the network creator wants to form a network on the secondary channels Ver.: always

**6.4.2.1746 EmberPanId emberAfPluginNetworkCreatorGetPanIdCallback ( void )**

Get Pan Id.

This callback is called when the Network Creator plugin needs the PAN ID for the network it is about to create. By default, the callback will return a random 16-bit value.

**6.4.2.1747 void emberAfPluginNetworkFindFinishedCallback ( EmberStatus *status* )**

Finished.

This callback is fired when the network-find plugin is finished with the forming or joining process. The result of the operation will be returned in the status parameter.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.1748 int8\_t emberAfPluginNetworkFindGetRadioPowerForChannelCallback ( uint8\_t channel )**

Get Radio Power For Channel.

This callback is called by the framework when it is setting the radio power during the discovery process. The framework will set the radio power depending on what is returned by this callback.

**Parameters**

<i>channel</i>	Ver.: always
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**6.4.2.1749 bool emberAfPluginNetworkFindJoinCallback ( EmberZigbeeNetwork \* networkFound, uint8\_t lqi, int8\_t rssi )**

Join.

This callback is called by the plugin when a joinable network has been found. If the application returns true, the plugin will attempt to join the network. Otherwise, the plugin will ignore the network and continue searching. Applications can use this callback to implement a network blacklist.

**Parameters**

<i>networkFound</i>	Ver.: always
<i>lqi</i>	Ver.: always
<i>rssi</i>	Ver.: always

**6.4.2.1750 void emberAfPluginNetworkSteeringCompleteCallback ( EmberStatus status, uint8\_t totalBeacons, uint8\_t joinAttempts, uint8\_t finalState )**

Complete.

This callback is fired when the Network Steering plugin is complete.

**Parameters**

<i>status</i>	On success this will be set to EMBER_SUCCESS to indicate a network was joined successfully. On failure this will be the status code of the last join or scan attempt. Ver.: always
<i>totalBeacons</i>	The total number of 802.15.4 beacons that were heard, including beacons from different devices with the same PAN ID. Ver.: always
<i>joinAttempts</i>	The number of join attempts that were made to get onto an open Zigbee network. Ver.: always
<i>finalState</i>	The finishing state of the network steering process. From this, one is able to tell on which channel mask and with which key the process was complete. Ver.: always

#### 6.4.2.1751 int8\_t emberAfPluginNetworkSteeringGetPowerForRadioChannelCallback ( uint8\_t channel )

Get Power For Radio Channel.

This callback is fired when the Network Steering plugin needs to set the power level. The application has the ability to change the max power level used for this particular channel.

##### Parameters

<i>channel</i>	The channel that the plugin is inquiring about the power level. Ver.: always
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#### 6.4.2.1752 EmberNodeType emberAfPluginNetworkSteeringGetNodeTypeCallback ( EmberAfPluginNetworkSteeringJoiningState state )

Get Node Type.

This callback allows the application to set the node type that the network steering process will use in joining a network.

##### Parameters

<i>state</i>	The current <a href="#">EmberAfPluginNetworkSteeringJoiningState</a> .
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##### Returns

An [EmberNodeType](#) value that the network steering process will try to join a network as.

#### 6.4.2.1753 void emberAfPluginOtaStorageSimpleEepromEraseCompleteCallback ( bool success )

Erase Complete.

This is called when an EEPROM erase operation has completed.

##### Parameters

<i>success</i>	The result of the erase operation. Ver.: always
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#### 6.4.2.1754 bool emberAfPluginPrepaymentServerConsumerTopUpCallback ( uint8\_t originatingDevice, uint8\_t \* topUpCode )

Consumer Top Up.

This function is called when a Consumer Top Up command is received. This callback must evaluate the command data and determine if it is a valid Top Up command.

##### Parameters

<i>originating-Device</i>	Ver.: always
<i>topUpCode</i>	Ver.: always

**6.4.2.1755 void emberAfPluginPriceClientPriceStartedCallback ( EmberAfPluginPriceClientPrice \* *price* )**

Price Started.

This function is called by the Price client plugin whenever a price starts.

**Parameters**

<i>price</i>	The price that has started. Ver.: always
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**6.4.2.1756 void emberAfPluginPriceClientPriceExpiredCallback ( EmberAfPluginPriceClientPrice \* *price* )**

Price Expired.

This function is called by the Price client plugin whenever a price expires.

**Parameters**

<i>price</i>	The price that has expired. Ver.: always
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**6.4.2.1757 uint8\_t emberAfPluginPriceClientPendingCppEventCallback ( uint8\_t *cppAuth* )**

Pending Cpp Event.

This function is called by the Price client plugin when a CPP event is received with pending status.

**Parameters**

<i>cppAuth</i>	The CPP Auth status. Ver.: always
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**6.4.2.1758 void emberAfPluginPriceServerNewActivePriceMatrixCallback ( const EmberAfPriceCommonInfo \* *priceCommonInfo*, const EmberAfScheduledPriceMatrix \* *priceMatrix* )**

New Active Price Matrix.

This callback is used to notify the application that a new PriceMatrix has become active. The application is responsible for updating proper ZCL attributes to reflect the necessary vendor specific behaviors. Argument, *priceCommonInfo*, would contain common informations such as startTime and etc. Argument, *priceMatrix*, would contain the PriceMatrix information itself.

**Parameters**

<i>priceCommon- Info</i>	Ver.: always
<i>priceMatrix</i>	Ver.: always

**6.4.2.1759 void emberAfPluginPriceServerNewActiveTariffInformationCallback ( const EmberAfPriceCommonInfo \* *priceCommonInfo*, const EmberAfScheduledTariff \* *priceTariffInfo* )**

New Active Tariff Information.

This callback is used to notify the application that a new Tariff Information has become active. The application is responsible for updating proper ZCL attributes to reflect the necessary vendor specific behaviors. Argument, *priceCommonInfo*, would contain common informations such as startTime and etc. Argument, *priceTariffInfo*, would contain the PriceMatrix information itself.

#### Parameters

<i>priceCommon- Info</i>	Ver.: always
<i>priceTariffInfo</i>	Ver.: always

**6.4.2.1760 void emberAfPluginPriceServerNewActiveBlockThresholdsInformationCallback ( const EmberAfPriceCommonInfo \* *priceCommonInfo*, const EmberAfScheduledBlockThresholds \* *priceBlockThresholds* )**

New Active Block Thresholds Information.

This callback is used to notify the application that a new Block Thresholds Information has become active. The application is responsible for updating proper ZCL attributes to reflect the necessary vendor specific behaviors. Argument, *priceCommonInfo*, would contain common informations such as startTime and etc. Argument, *priceTariffInfo*, would contain the BlockThresholds information itself.

#### Parameters

<i>priceCommon- Info</i>	Ver.: always
<i>priceBlock- Thresholds</i>	Ver.: always

**6.4.2.1761 void emberAfPluginPriceServerNewActiveBlockPeriodInformationCallback ( const EmberAfPriceCommonInfo \* *priceCommonInfo*, const EmberAfPriceBlockPeriod \* *priceBlockPeriods* )**

New Active Block Period Information.

This callback is used to notify the application that a new Block Period Information has become active. The application is responsible for updating proper ZCL attributes to reflect the necessary vendor specific behaviors. Argument, *priceCommonInfo*, would contain common informations such as startTime and etc. Argument, *priceBlockPeriod*, would contain the BlockPeriod information itself.

#### Parameters

<i>priceCommon- Info</i>	Ver.: always
<i>priceBlock- Periods</i>	Ver.: always

**6.4.2.1762 EmberAfStatus emberAfPluginReportingConfiguredCallback ( const EmberAfPluginReportingEntry \* entry )**

Configured.

This callback is called by the Reporting plugin whenever a reporting entry is configured, including when entries are deleted or updated. The application can use this callback for scheduling readings or measurements based on the minimum and maximum reporting interval for the entry. The application should return EMBER\_ZCL\_STATUS\_SUCCESS if it can support the configuration or an error status otherwise. Note: attribute reporting is required for many clusters and attributes, so rejecting a reporting configuration may violate ZigBee specifications.

**Parameters**

<i>entry</i>	Ver.: always
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**6.4.2.1763 bool emberAfPluginRf4ceGdpZrc20StartConfigurationCallback ( bool *isOriginator*, uint8\_t *pairingIndex* )**

Zrc 2 0 Start Configuration.

This function is called by the RF4CE GDP plugin when ZRC 2.0 configuration should begin.

**Parameters**

<i>isOriginator</i>	true if is originator, false if is recipient. Ver.: always
<i>pairingIndex</i>	The index of the pairing entry. Ver.: always

**6.4.2.1764 void emberAfPluginRf4ceGdpZrc20BindingCompleteCallback ( EmberAfRf4ceGdpBindingStatus *status*, uint8\_t *pairingIndex* )**

Zrc 2 0 Binding Complete.

This function is called by the RF4CE GDP plugin when a ZRC 2.0 binding procedure completed.

**Parameters**

<i>status</i>	An <a href="#">EmberAfRf4ceGdpBindingStatus</a> value indicating whether the the binding succeeded or the reason of failure. Ver.: always
<i>pairingIndex</i>	The index of the pairing entry. Ver.: always

**6.4.2.1765 void emberAfPluginRf4ceGdpStartValidationCallback ( uint8\_t *pairingIndex* )**

Start Validation.

This function is called by the RF4CE GDP plugin when the application should begin the validation procedure. The application must complete the validation within the validation wait time to avoid the validation automatically failing due to a timeout.

**Parameters**

<i>pairingIndex</i>	The index of the pairing entry. Ver.: always
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**6.4.2.1766 void emberAfPluginRf4ceGdpBindingCompleteCallback ( EmberAfRf4ceGdpBindingStatus *status*, uint8\_t *pairingIndex* )**

Binding Complete.

This function is called by the RF4CE GDP plugin when the binding operation completes. If status is [EMBER\\_SUCCESS](#), binding was successful and pairingIndex indicates the index in the pairing table for the remote node.

#### Parameters

<i>status</i>	The status of the binding operation. Ver.: always
<i>pairingIndex</i>	The index of the pairing entry. Ver.: always

**6.4.2.1767 bool emberAfPluginRf4ceGdpIncomingBindProxyCallback ( const EmberEUI64 *ieeeAddr* )**

Incoming Bind Proxy.

This function is called by the RF4CE GDP plugin when the binding recipient receives a pair request with the Binding Proxy Supported bit set. If this callback returns true, the recipient will respond to the pair request, otherwise it will ignore it.

#### Parameters

<i>ieeeAddr</i>	The IEEE address of the originator node sending the pair request. Ver.: always
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**6.4.2.1768 void emberAfPluginRf4ceGdpHeartbeatPollingEstablishedCallback ( uint8\_t *pairingIndex*, EmberAfRf4ceGdpPollingTrigger *triggers* )**

Heartbeat Polling Established.

This function is called by the RF4CE GDP plugin when heartbeat polling is established between a client and this server. The application should wait until the heartbeat callback is called to send messages to the client. A module can subscribe to incoming heartbeats by using the [emberAfRf4ceGdpSubscribeToHeartbeat\(\)](#) API.

#### Parameters

<i>pairingIndex</i>	The polling method. Ver.: always
<i>triggers</i>	The polling triggers. Ver.: always

**6.4.2.1769 void emberAfPluginRf4ceGdpIdentifyCallback ( EmberAfRf4ceGdpClientNotification-IdentifyFlags *flags*, uint16\_t *timeS* )**

Identify.

This function is called by the RF4CE GDP plugin when the client should take an action to identify itself.

#### Parameters

<i>flags</i>	The actions the client should take to identify itself. Ver.: always
<i>timeS</i>	The time in seconds that the client should perform the identify action or zero if the client should stop the action. Ver.: always

**6.4.2.1770 void emberAfPluginRf4ceGdpIdentifyClientFoundCallback ( EmberAfRf4ceGdpClient-NotificationIdentifyFlags *flags* )**

Identify Client Found.

This function is called by the RF4CE GDP plugin when the an identify server discovers an identify client.

**Parameters**

<i>flags</i>	The actions supported by the discovered identify client. Ver.: always
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**6.4.2.1771 void emberAfPluginRf4ceGdpKeyExchangeCompleteCallback ( EmberStatus *status* )**

Key Exchange Complete.

This function is called by the RF4CE GDP plugin when a Key Exchange procedure that was initiated by the application has completed.

**Parameters**

<i>status</i>	The status success/failed of the Key Exchange procedure. Ver.: always
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**6.4.2.1772 bool emberAfPluginRf4ceGdpVendorSpecificKeyExchangeCallback ( uint8\_t *initiatorVendorSpecificParam*, uint8\_t \* *responderVendorSpecificParam*, uint8\_t \* *sharedSecret* )**

Vendor Specific Key Exchange.

This function is called by the RF4CE GDP plugin when a Key Exchange Challenge with the vendor-specific bit set is received. If this callback returns true, the node will respond with a Key Exchange Challenge Response command with the vendor-specific bit set.

**Parameters**

<i>initiator-VendorSpecific-Param</i>	The additional parameter included in the Key Exchange Flags of the incoming Key Exchange Challenge command. Ver.: always
<i>responder-VendorSpecific-Param</i>	The additional parameter to be included in the Key Exchange Flags of the Key Exchange Challenge Response command the node will send out. Ver.: always
<i>sharedSecret</i>	A pointer to an 8-byte area memory to be filled with the vendor-specific shared secret. Ver.: always

**6.4.2.1773 void emberAfPluginRf4ceMsoStartValidationCallback ( uint8\_t *pairingIndex* )**

Start Validation.

This function is called by the RF4CE MSO plugin when a temporary pairing has been successfully created and the application should begin the validation procedure. The application must complete the validation within the validation wait time (if set) and also kick the watchdog within the initial watchdog timeout (if set) to avoid the validation automatically failing due to a timeout.

**Parameters**

<i>pairingIndex</i>	The index of the pairing entry. Ver.: always
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**6.4.2.1774 void emberAfPluginRf4ceMsoBindingCompleteCallback ( EmberAfRf4ceMsoBindingStatus *status*, uint8\_t *pairingIndex* )**

Binding Complete.

This function is called by the RF4CE MSO plugin when the binding operation completes. If status is [EMBER\\_SUCCESS](#), binding was successful and pairingIndex indicates the index in the pairing table for the remote node.

**Parameters**

<i>status</i>	The status of the binding operation. Ver.: always
<i>pairingIndex</i>	The index of the pairing entry. Ver.: always

**6.4.2.1775 void emberAfPluginRf4ceMsoUserControlCallback ( const EmberAfRf4ceMsoUserControlRecord \* *record* )**

User Control.

This function is called by the RF4CE MSO plugin when a user control starts or stops. If the type of the record is [EMBER\\_AF\\_RF4CE\\_MSO\\_COMMAND\\_USER\\_CONTROL\\_PRESSED](#), the application should execute the requested operation repeatedly at some application-specific rate. When the repetition should stop, the plugin will call the callback again with the type set to [EMBER\\_AF\\_RF4CE\\_MSO\\_COMMAND\\_USER\\_CONTROL\\_RELEASED](#). [EMBER\\_AF\\_RF4CE\\_MSO\\_COMMAND\\_USER\\_CONTROL\\_REPEAT](#) is a special case of [EMBER\\_AF\\_RF4CE\\_MSO\\_COMMAND\\_USER\\_CONTROL\\_PRESSED](#) and means that the pressed command from the originator was not received and that the originator is still triggering the action. The application should process a repeat type the same as a pressed type, but may wish to perform additional operations to compensate for missed commands.

**Parameters**

<i>record</i>	The user control record. Ver.: always
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**6.4.2.1776 EmberAfRf4ceStatus emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback ( uint8\_t *pairingIndex*, uint8\_t *entryIndex*, uint8\_t \* *valueLength*, uint8\_t \* *value* )**

Get Ir Rf Database Attribute.

This function is called by the RF4CE MSO plugin when a target is queried by a controller for one of the IR\_RF\_DATABASE attributes. The application is responsible for storing these attributes. If the application currently stores an entry for the corresponding passed pairing index and entry index, it should copy the content of such attribute at the passed 'value' pointer and return [EMBER\\_AF\\_RF4CE\\_STATUS\\_SUCCESS](#), otherwise it should return an [EmberAfRf4ceStatus](#) indicating the reason of failure. valueLength is a pointer to an integer that indicates the length of the buffer pointed to by value. The application must not write more than \*valueLength bytes to value. If the application returns [EMBER\\_AF\\_RF4CE\\_STATUS\\_SUCCESS](#), it must also update \*valueLength to indicate the number of bytes actually written to value.

**Parameters**

<i>pairingIndex</i>	The pairing index of the requested attribute. Ver.: always
<i>entryIndex</i>	The entry index of the requested attribute. Ver.: always
<i>valueLength</i>	A pointer to the size of the buffer pointed to by value that must be updated with the length written to value. Ver.: always
<i>value</i>	A pointer where the application should copy the content of the requested attribute. Ver.: always

**6.4.2.1777 bool emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback ( uint8\_t *pairingIndex*, uint8\_t *entryIndex* )**

Have Ir Rf Database Attribute.

This function is called by the RF4CE MSO plugin when a target is queried by a controller for one of the I-R\_RF\_DATABASE attributes. The application is responsible for storing these attributes. If the application currently stores an entry for the corresponding passed pairing index and entry index, it should return true, otherwise it should return false.

**Parameters**

<i>pairingIndex</i>	The pairing index of the requested attribute. Ver.: always
<i>entryIndex</i>	The entry index of the requested attribute. Ver.: always

**6.4.2.1778 void emberAfPluginRf4ceMsolIncomingIrRfDatabaseAttributeCallback ( uint8\_t *pairingIndex*, uint8\_t *entryIndex*, uint8\_t *valueLength*, const uint8\_t \* *value* )**

Incoming Ir Rf Database Attribute.

This function is called by the RF4CE MSO plugin when controller receives a get attribute response for one of the IR\_RF\_DATABASE attributes. The application is responsible for storing these attributes.

**Parameters**

<i>pairingIndex</i>	The pairing index of the requested attribute. Ver.: always
<i>entryIndex</i>	The entry index of the requested attribute. Ver.: always
<i>valueLength</i>	The length of the requested attribute. Ver.: always
<i>value</i>	A pointer to the content of the requested attribute. Ver.: always

**6.4.2.1779 EmberStatus emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback ( EmberAfRf4ceMsoKeyCode *keyCode*, EmberAfRf4ceMsoIrRfDatabaseEntry \* *entry* )**

Get Ir Rf Database Entry.

This function is called by the RF4CE MSO plugin to retrieve the IR-RF database entry for a key code when the controller is sending user control commands. The application should return EMBER\_SUCCESS and populate the entry if the IR-RF database entry is available for the RC command code. Otherwise, the application should return an error code.

**Parameters**

<i>keyCode</i>	The RC command code of the user control. Ver.: always
<i>entry</i>	A pointer to the <a href="#">EmberAfRf4ceMsoIrRfDatabaseEntry</a> to be populated. Ver.: always

**6.4.2.1780** `bool emberAfPluginRf4ceProfileGdpMessageSentCallback ( uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, uint8_t messageTag, const uint8_t * message, uint8_t messageLength, EmberStatus status )`

Gdp Message Sent.

This function is called by the RF4CE Profile plugin when a GDP message is sent. It is expected to return true if the sent message was processed by the GDP plugin, false otherwise.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table used to transmit the message. Ver.: always
<i>profileId</i>	The profile ID included in the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>messageTag</i>	The tag of the message. Ver.: always
<i>message</i>	A pointer to the payload of the message that was sent. Ver.: always
<i>messageLength</i>	The length in bytes of the message. Ver.: always
<i>status</i>	An <a href="#">EmberStatus</a> value. Ver.: always

**6.4.2.1781** `void emberAfPluginRf4ceProfileRemoteControl11MessageSentCallback ( uint8_t pairingIndex, uint16_t vendorId, uint8_t messageTag, const uint8_t * message, uint8_t messageLength, EmberStatus status )`

Remote Control 1 1 Message Sent.

This function is called by the RF4CE Profile plugin when a Remote Control 1.0 or 1.1 message is sent.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table used to transmit the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>messageTag</i>	The tag of the message. Ver.: always
<i>message</i>	A pointer to the payload of the message that was sent. Ver.: always
<i>messageLength</i>	The length in bytes of the message. Ver.: always
<i>status</i>	An <a href="#">EmberStatus</a> value. Ver.: always

**6.4.2.1782** `void emberAfPluginRf4ceProfileZrc20MessageSentCallback ( uint8_t pairingIndex, uint16_t vendorId, uint8_t messageTag, const uint8_t * message, uint8_t messageLength, EmberStatus status )`

Zrc 2 0 Message Sent.

This function is called by the RF4CE Profile plugin when a ZRC 2.0 message is sent.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table used to transmit the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>messageTag</i>	The tag of the message. Ver.: always
<i>message</i>	A pointer to the payload of the message that was sent. Ver.: always
<i>messageLength</i>	The length in bytes of the message. Ver.: always
<i>status</i>	An <a href="#">EmberStatus</a> value. Ver.: always

**6.4.2.1783 void emberAfPluginRf4ceProfileMsoMessageSentCallback ( uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \* message, uint8\_t messageLength, EmberStatus status )**

Mso Message Sent.

This function is called by the RF4CE Profile plugin when an MSO message is sent.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table used to transmit the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>messageTag</i>	The tag of the message. Ver.: always
<i>message</i>	A pointer to the payload of the message that was sent. Ver.: always
<i>messageLength</i>	The length in bytes of the message. Ver.: always
<i>status</i>	An <a href="#">EmberStatus</a> value. Ver.: always

**6.4.2.1784 void emberAfPluginRf4ceProfileMessageSentCallback ( uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \* message, uint8\_t messageLength, EmberStatus status )**

Message Sent.

This function is called by the RF4CE Profile plugin when a message is sent. It is called after any profile-specific callbacks.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table used to transmit the message. Ver.: always
<i>profileId</i>	The profile ID included in the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>messageTag</i>	The tag of the message. Ver.: always
<i>message</i>	A pointer to the payload of the message that was sent. Ver.: always
<i>messageLength</i>	The length in bytes of the message. Ver.: always
<i>status</i>	An <a href="#">EmberStatus</a> value. Ver.: always

**6.4.2.1785 bool emberAfPluginRf4ceProfileGdpIncomingMessageCallback ( uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption txOptions, const uint8\_t \* message, uint8\_t messageLength )**

Gdp Incoming Message.

This function is called by the RF4CE Profile plugin when any message is received. This callback is expected to return true if the passed message was processed by the GDP plugin, false otherwise.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table corresponding to the PAN on which the message was received. Ver.: always
<i>profileId</i>	The profile ID included in the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>txOptions</i>	The TX options used by the source node to transmit the received message. Ver.: always
<i>message</i>	A pointer to the payload of the received message. Ver.: always
<i>messageLength</i>	The length in bytes of the received message. Ver.: always

**6.4.2.1786 void emberAfPluginRf4ceProfileRemoteControl11IncomingMessageCallback ( uint8\_t pairingIndex, uint16\_t vendorId, EmberRf4ceTxOption txOptions, const uint8\_t \* message, uint8\_t messageLength )**

Remote Control 1 1 Incoming Message.

This function is called by the RF4CE Profile plugin when a Remote Control 1.0 or 1.1 message is received.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table corresponding to the PAN on which the message was received. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>txOptions</i>	The TX options used by the source node to transmit the received message. Ver.: always
<i>message</i>	A pointer to the payload of the received message. Ver.: always
<i>messageLength</i>	The length in bytes of the received message. Ver.: always

**6.4.2.1787 void emberAfPluginRf4ceProfileZrc20IncomingMessageCallback ( uint8\_t pairingIndex, uint16\_t vendorId, EmberRf4ceTxOption txOptions, const uint8\_t \* message, uint8\_t messageLength )**

Zrc 2 0 Incoming Message.

This function is called by the RF4CE Profile plugin when a ZRC 2.0 message is received.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table corresponding to the PAN on which the message was received. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>txOptions</i>	The TX options used by the source node to transmit the received message. Ver.: always
<i>message</i>	A pointer to the payload of the received message. Ver.: always
<i>messageLength</i>	The length in bytes of the received message. Ver.: always

**6.4.2.1788 void emberAfPluginRf4ceProfileMsolIncomingMessageCallback ( uint8\_t pairingIndex, uint16\_t vendorId, EmberRf4ceTxOption txOptions, const uint8\_t \* message, uint8\_t messageLength )**

Mso Incoming Message.

This function is called by the RF4CE Profile plugin when an MSO message is received.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table corresponding to the PAN on which the message was received. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>txOptions</i>	The TX options used by the source node to transmit the received message. Ver.: always
<i>message</i>	A pointer to the payload of the received message. Ver.: always
<i>messageLength</i>	The length in bytes of the received message. Ver.: always

**6.4.2.1789 void emberAfPluginRf4ceProfileIncomingMessageCallback ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, EmberRf4ceTxOption *txOptions*, const uint8\_t \* *message*, uint8\_t *messageLength* )**

Incoming Message.

This function is called by the RF4CE Profile plugin when a message is received. It is called after any profile-specific callbacks.

#### Parameters

<i>pairingIndex</i>	The index of the entry in the pairing table corresponding to the PAN on which the message was received. Ver.: always
<i>profileId</i>	The profile ID included in the message. Ver.: always
<i>vendorId</i>	The vendor ID included in the message. Ver.: always
<i>txOptions</i>	The TX options used by the source node to transmit the received message. Ver.: always
<i>message</i>	A pointer to the payload of the received message. Ver.: always
<i>messageLength</i>	The length in bytes of the received message. Ver.: always

**6.4.2.1790 bool emberAfPluginRf4ceProfileGdpDiscoveryRequestCallback ( const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *searchDevType*, uint8\_t *rxLinkQuality* )**

Gdp Discovery Request.

This function is called by the RF4CE Profile plugin when a discovery request for the GDP profile is received.

#### Parameters

<i>ieeeAddr</i>	The IEEE address of the requesting device. Ver.: always
<i>node- Capabilities</i>	The capabilities of the requesting device. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>searchDevType</i>	The device type requested. Ver.: always
<i>rxLinkQuality</i>	The LQI of the request. Ver.: always

**6.4.2.1791 bool emberAfPluginRf4ceProfileRemoteControl11DiscoveryRequestCallback ( const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *searchDevType*, uint8\_t *rxLinkQuality* )**

Remote Control 1 1 Discovery Request.

This function is called by the RF4CE Profile plugin when a discovery request for the Remote Control 1.0 or 1.1 profile is received.

#### Parameters

<i>ieeeAddr</i>	The IEEE address of the requesting device. Ver.: always
<i>node- Capabilities</i>	The capabilities of the requesting device. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always

<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>searchDevType</i>	The device type requested. Ver.: always
<i>rxLinkQuality</i>	The LQI of the request. Ver.: always

**6.4.2.1792 bool emberAfPluginRf4ceProfileZrc20DiscoveryRequestCallback ( const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *searchDevType*, uint8\_t *rxLinkQuality* )**

Zrc 2.0 Discovery Request.

This function is called by the RF4CE Profile plugin when a discovery request for the ZRC 2.0 profile is received.

#### Parameters

<i>ieeeAddr</i>	The IEEE address of the requesting device. Ver.: always
<i>nodeCapabilities</i>	The capabilities of the requesting device. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>searchDevType</i>	The device type requested. Ver.: always
<i>rxLinkQuality</i>	The LQI of the request. Ver.: always

**6.4.2.1793 bool emberAfPluginRf4ceProfileMsoDiscoveryRequestCallback ( const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *searchDevType*, uint8\_t *rxLinkQuality* )**

Mso Discovery Request.

This function is called by the RF4CE Profile plugin when a discovery request for the MSO profile is received.

#### Parameters

<i>ieeeAddr</i>	The IEEE address of the requesting device. Ver.: always
<i>nodeCapabilities</i>	The capabilities of the requesting device. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>searchDevType</i>	The device type requested. Ver.: always
<i>rxLinkQuality</i>	The LQI of the request. Ver.: always

**6.4.2.1794 bool emberAfPluginRf4ceProfileGdpDiscoveryResponseCallback ( bool *atCapacity*, uint8\_t *channel*, EmberPanId *panId*, const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *rxLinkQuality*, uint8\_t *discRequestLqi* )**

Gdp Discovery Response.

This function is called by the RF4CE Profile plugin when a discovery response for the GDP profile is received.

#### Parameters

<i>atCapacity</i>	true if the node sending the discovery response has no free entry in its pairing table, false otherwise. Ver.: always
<i>channel</i>	The channel on which the discovery response was received. Ver.: always
<i>panId</i>	The PAN identifier of the responding device. Ver.: always
<i>ieeeAddr</i>	The IEEE address of the responding device. Ver.: always
<i>node-Capabilities</i>	The capabilities of the responding device. Ver.: always
<i>vendorInfo</i>	The vendor information of the responding device. Ver.: always
<i>appInfo</i>	The application information of the responding device. Ver.: always
<i>rxLinkQuality</i>	The LQI of the discovery response. Ver.: always
<i>discRequestLqi</i>	The LQI of the discovery request command frame reported by the responding device. Ver.: always

**6.4.2.1795** `bool emberAfPluginRf4ceProfileRemoteControl11DiscoveryResponseCallback ( bool atCapacity, uint8_t channel, EmberPanId panId, const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t rxLinkQuality, uint8_t discRequestLqi )`

Remote Control 1 1 Discovery Response.

This function is called by the RF4CE Profile plugin when a discovery response for the Remote Control 1.0 or 1.1 profile is received.

#### Parameters

<i>atCapacity</i>	true if the node sending the discovery response has no free entry in its pairing table, false otherwise. Ver.: always
<i>channel</i>	The channel on which the discovery response was received. Ver.: always
<i>panId</i>	The PAN identifier of the responding device. Ver.: always
<i>ieeeAddr</i>	The IEEE address of the responding device. Ver.: always
<i>node-Capabilities</i>	The capabilities of the responding device. Ver.: always
<i>vendorInfo</i>	The vendor information of the responding device. Ver.: always
<i>appInfo</i>	The application information of the responding device. Ver.: always
<i>rxLinkQuality</i>	The LQI of the discovery response. Ver.: always
<i>discRequestLqi</i>	The LQI of the discovery request command frame reported by the responding device. Ver.: always

**6.4.2.1796** `bool emberAfPluginRf4ceProfileZrc20DiscoveryResponseCallback ( bool atCapacity, uint8_t channel, EmberPanId panId, const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t rxLinkQuality, uint8_t discRequestLqi )`

Zrc 2 0 Discovery Response.

This function is called by the RF4CE Profile plugin when a discovery response for the ZRC 2.0 profile is received.

**Parameters**

<i>atCapacity</i>	true if the node sending the discovery response has no free entry in its pairing table, false otherwise. Ver.: always
<i>channel</i>	The channel on which the discovery response was received. Ver.: always
<i>panId</i>	The PAN identifier of the responding device. Ver.: always
<i>ieeeAddr</i>	The IEEE address of the responding device. Ver.: always
<i>node-Capabilities</i>	The capabilities of the responding device. Ver.: always
<i>vendorInfo</i>	The vendor information of the responding device. Ver.: always
<i>appInfo</i>	The application information of the responding device. Ver.: always
<i>rxLinkQuality</i>	The LQI of the discovery response. Ver.: always
<i>discRequestLqi</i>	The LQI of the discovery request command frame reported by the responding device. Ver.: always

**6.4.2.1797** `bool emberAfPluginRf4ceProfileMsoDiscoveryResponseCallback ( bool atCapacity, uint8_t channel, EmberPanId panId, const EmberEUI64 ieeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t rxLinkQuality, uint8_t discRequestLqi )`

Mso Discovery Response.

This function is called by the RF4CE Profile plugin when a discovery response for the MSO profile is received.

**Parameters**

<i>atCapacity</i>	true if the node sending the discovery response has no free entry in its pairing table, false otherwise. Ver.: always
<i>channel</i>	The channel on which the discovery response was received. Ver.: always
<i>panId</i>	The PAN identifier of the responding device. Ver.: always
<i>ieeeAddr</i>	The IEEE address of the responding device. Ver.: always
<i>node-Capabilities</i>	The capabilities of the responding device. Ver.: always
<i>vendorInfo</i>	The vendor information of the responding device. Ver.: always
<i>appInfo</i>	The application information of the responding device. Ver.: always
<i>rxLinkQuality</i>	The LQI of the discovery response. Ver.: always
<i>discRequestLqi</i>	The LQI of the discovery request command frame reported by the responding device. Ver.: always

**6.4.2.1798** `void emberAfPluginRf4ceProfileGdpDiscoveryCompleteCallback ( EmberStatus status )`

Gdp Discovery Complete.

This function is called by the RF4CE Profile plugin when the discovery process for the GDP profile has completed.

**Parameters**

<i>status</i>	An <code>EmberStatus</code> value indicating whether the discovery succeeded or the failure reason. Ver.: always
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#### 6.4.2.1799 void emberAfPluginRf4ceProfileRemoteControl11DiscoveryCompleteCallback ( EmberStatus status )

Remote Control 1 1 Discovery Complete.

This function is called by the RF4CE Profile plugin when the discovery process for the Remote Control 1.0 or 1.1 profile has completed.

##### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
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#### 6.4.2.1800 void emberAfPluginRf4ceProfileZrc20DiscoveryCompleteCallback ( EmberStatus status )

Zrc 2 0 Discovery Complete.

This function is called by the RF4CE Profile plugin when the discovery process for the ZRC 2.0 profile has completed.

##### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
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#### 6.4.2.1801 void emberAfPluginRf4ceProfileMsoDiscoveryCompleteCallback ( EmberStatus status )

Mso Discovery Complete.

This function is called by the RF4CE Profile plugin when the discovery process for the MSO profile has completed.

##### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
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#### 6.4.2.1802 void emberAfPluginRf4ceProfileGdpAutoDiscoveryResponseCompleteCallback ( EmberStatus status, const EmberEUI64 \*srcIEEEAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*applInfo, uint8\_t searchDevType )

Gdp Auto Discovery Response Complete.

This function is called by the RF4CE Profile plugin when the auto discovery response process for the GDP profile has completed.

**Parameters**

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
<i>srcIEEEAddr</i>	The IEEE address of the node from which the discovery request command frame was received. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>nodeCapabilities</i>	The node capabilities of the node that issued the discovery request. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>vendorInfo</i>	A pointer to an ::EmberRf4ceVendorInfo struct containing the vendor information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>appInfo</i>	A pointer to an ::EmberRf4ceApplicationInfo struct containing the application information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>searchDevType</i>	The device type being discovered. If this is 0xFF, any type is being requested. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always

```
6.4.2.1803 void emberAfPluginRf4ceProfileRemoteControl11AutoDiscoveryResponseCompleteCallback (
    EmberStatus status, const EmberEUI64 srcIEEEAddr, uint8_t nodeCapabilities, const
    EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t
    searchDevType )
```

Remote Control 1 1 Auto Discovery Response Complete.

This function is called by the RF4CE Profile plugin when the auto discovery response process for the Remote Control 1.0 or 1.1 profile has completed.

**Parameters**

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
<i>srcIEEEAddr</i>	The IEEE address of the node from which the discovery request command frame was received. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>nodeCapabilities</i>	The node capabilities of the node that issued the discovery request. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>vendorInfo</i>	A pointer to an ::EmberRf4ceVendorInfo struct containing the vendor information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>appInfo</i>	A pointer to an ::EmberRf4ceApplicationInfo struct containing the application information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>searchDevType</i>	The device type being discovered. If this is 0xFF, any type is being requested. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always

```
6.4.2.1804 void emberAfPluginRf4ceProfileZrc20AutoDiscoveryResponseCompleteCallback (
    EmberStatus status, const EmberEUI64 srcIEEEAddr, uint8_t nodeCapabilities, const
    EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t
    searchDevType )
```

Zrc 2 0 Auto Discovery Response Complete.

This function is called by the RF4CE Profile plugin when the auto discovery response process for the ZRC 2.0 profile has completed.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
<i>srcIEEEAddr</i>	The IEEE address of the node from which the discovery request command frame was received. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>nodeCapabilities</i>	The node capabilities of the node that issued the discovery request. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>vendorInfo</i>	A pointer to an ::EmberRf4ceVendorInfo struct containing the vendor information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>appInfo</i>	A pointer to an ::EmberRf4ceApplicationInfo struct containing the application information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>searchDevType</i>	The device type being discovered. If this is 0xFF, any type is being requested. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always

```
6.4.2.1805 void emberAfPluginRf4ceProfileMsoAutoDiscoveryResponseCompleteCallback (
    EmberStatus status, const EmberEUI64 srcIEEEAddr, uint8_t nodeCapabilities, const
    EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t
    searchDevType )
```

Mso Auto Discovery Response Complete.

This function is called by the RF4CE Profile plugin when the auto discovery response process for the MSO profile has completed.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the discovery succeeded or the failure reason. Ver.: always
<i>srcIEEEAddr</i>	The IEEE address of the node from which the discovery request command frame was received. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>nodeCapabilities</i>	The node capabilities of the node that issued the discovery request. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>vendorInfo</i>	A pointer to an ::EmberRf4ceVendorInfo struct containing the vendor information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>appInfo</i>	A pointer to an ::EmberRf4ceApplicationInfo struct containing the application information of the node that issued the discovery request. This parameter is non-NULL only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always
<i>searchDevType</i>	The device type being discovered. If this is 0xFF, any type is being requested. This parameter is meaningful only if the status parameter is <a href="#">EMBER_SUCCESS</a> . Ver.: always

**6.4.2.1806** `bool emberAfPluginRf4ceProfileGdpPairRequestCallback ( EmberStatus status, uint8_t pairingIndex, const EmberEUI64 sourceeeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t keyExchangeTransferCount )`

Gdp Pair Request.

This function is called by the RF4CE Profile plugin when a pair request for the GDP profile is received.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing is a new pairing, a duplicate or if the pairing table is full. Ver.: always
<i>pairingIndex</i>	The index of the entry that will be used by the stack for the pairing link. Ver.: always
<i>sourceeeeAddr</i>	The source IEEE address of the incoming pair request. Ver.: always
<i>nodeCapabilities</i>	The node capabilities of the node that issued the pair request. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>keyExchangeTransferCount</i>	The number of transfers to be used to exchange the link key with the pairing originator. Ver.: always

**6.4.2.1807** `bool emberAfPluginRf4ceProfileRemoteControl11PairRequestCallback ( EmberStatus status, uint8_t pairingIndex, const EmberEUI64 sourceeeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t keyExchangeTransferCount )`

Remote Control 1 1 Pair Request.

This function is called by the RF4CE Profile plugin when a pair request for the Remote Control 1.0 or 1.1 profile is received.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing is a new pairing, a duplicate or if the pairing table is full. Ver.: always
<i>pairingIndex</i>	The index of the entry that will be used by the stack for the pairing link. Ver.: always
<i>sourceeeeAddr</i>	The source IEEE address of the incoming pair request. Ver.: always
<i>nodeCapabilities</i>	The node capabilities of the node that issued the pair request. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>keyExchangeTransferCount</i>	The number of transfers to be used to exchange the link key with the pairing originator. Ver.: always

**6.4.2.1808** `bool emberAfPluginRf4ceProfileZrc20PairRequestCallback ( EmberStatus status, uint8_t pairingIndex, const EmberEUI64 sourceeeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t keyExchangeTransferCount )`

Zrc 2 0 Pair Request.

This function is called by the RF4CE Profile plugin when a pair request for the ZRC 2.0 profile is received.

**Parameters**

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing is a new pairing, a duplicate or if the pairing table is full. Ver.: always
<i>pairingIndex</i>	The index of the entry that will be used by the stack for the pairing link. Ver.: always
<i>sourceIeeeAddr</i>	The source IEEE address of the incoming pair request. Ver.: always
<i>node-Capabilities</i>	The node capabilities of the node that issued the pair request. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>keyExchange-TransferCount</i>	The number of transfers to be used to exchange the link key with the pairing originator. Ver.: always

```
6.4.2.1809 bool emberAfPluginRf4ceProfileMsoPairRequestCallback ( EmberStatus status, uint8_t
                                                               pairingIndex, const EmberEUI64 sourceIeeeAddr, uint8_t nodeCapabilities, const
                                                               EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t
                                                               keyExchangeTransferCount )
```

Mso Pair Request.

This function is called by the RF4CE Profile plugin when a pair request for the MSO profile is received.

**Parameters**

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing is a new pairing, a duplicate or if the pairing table is full. Ver.: always
<i>pairingIndex</i>	The index of the entry that will be used by the stack for the pairing link. Ver.: always
<i>sourceIeeeAddr</i>	The source IEEE address of the incoming pair request. Ver.: always
<i>node-Capabilities</i>	The node capabilities of the node that issued the pair request. Ver.: always
<i>vendorInfo</i>	The vendor information of the requesting device. Ver.: always
<i>appInfo</i>	The application information of the requesting device. Ver.: always
<i>keyExchange-TransferCount</i>	The number of transfers to be used to exchange the link key with the pairing originator. Ver.: always

```
6.4.2.1810 void emberAfPluginRf4ceProfileGdpPairCompleteCallback ( EmberStatus status, uint8_t
                                                               pairingIndex, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo *
                                                               appInfo )
```

Gdp Pair Complete.

This function is called by the RF4CE Profile plugin when the pairing process for the GDP profile has completed.

**Parameters**

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing succeeded or the failure reason. Ver.: always
<i>pairingIndex</i>	The index of the pairing table entry corresponding to the pairing link that was established during the pairing process. Ver.: always
<i>vendorInfo</i>	The vendor information of the peer device. Ver.: always
<i>appInfo</i>	The application information of the peer device. Ver.: always

**6.4.2.1811 void emberAfPluginRf4ceProfileRemoteControl11PairCompleteCallback ( EmberStatus status, uint8\_t pairingIndex, const EmberRf4ceVendorInfo \* vendorInfo, const EmberRf4ceApplicationInfo \* appInfo )**

Remote Control 1 1 Pair Complete.

This function is called by the RF4CE Profile plugin when the pairing process for the Remote Control 1.0 or 1.1 profile has completed.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing succeeded or the failure reason. Ver.: always
<i>pairingIndex</i>	The index of the pairing table entry corresponding to the pairing link that was established during the pairing process. Ver.: always
<i>vendorInfo</i>	The vendor information of the peer device. Ver.: always
<i>appInfo</i>	The application information of the peer device. Ver.: always

**6.4.2.1812 void emberAfPluginRf4ceProfileZrc20PairCompleteCallback ( EmberStatus status, uint8\_t pairingIndex, const EmberRf4ceVendorInfo \* vendorInfo, const EmberRf4ceApplicationInfo \* appInfo )**

Zrc 2 0 Pair Complete.

This function is called by the RF4CE Profile plugin when the pairing process for the ZRC 2.0 profile has completed.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing succeeded or the failure reason. Ver.: always
<i>pairingIndex</i>	The index of the pairing table entry corresponding to the pairing link that was established during the pairing process. Ver.: always
<i>vendorInfo</i>	The vendor information of the peer device. Ver.: always
<i>appInfo</i>	The application information of the peer device. Ver.: always

**6.4.2.1813 void emberAfPluginRf4ceProfileMsoPairCompleteCallback ( EmberStatus status, uint8\_t pairingIndex, const EmberRf4ceVendorInfo \* vendorInfo, const EmberRf4ceApplicationInfo \* appInfo )**

Mso Pair Complete.

This function is called by the RF4CE Profile plugin when the pairing process for the MSO profile has completed.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating whether the pairing succeeded or the failure reason. Ver.: always
<i>pairingIndex</i>	The index of the pairing table entry corresponding to the pairing link that was established during the pairing process. Ver.: always
<i>vendorInfo</i>	The vendor information of the peer device. Ver.: always
<i>appInfo</i>	The application information of the peer device. Ver.: always

**6.4.2.1814 void emberAfPluginRf4ceZrc11PairingCompleteCallback ( EmberStatus *status*, uint8\_t *pairingIndex*, const EmberEUI64 *eui64*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *applicationInfo* )**

Pairing Complete.

This function is called by the RF4CE ZRC plugin when the push-button pairing operation completes. If status is [EMBER\\_SUCCESS](#), pairing was successful and pairingIndex indicates the index in the pairing table for the remote node while eui64, vendorInfo, and applicationInfo contain information about the remote node itself. Otherwise, status indicates the reason for failure and the other arguments are meaningless.

#### Parameters

<i>status</i>	The status of the push-button pairing operation. Ver.: always
<i>pairingIndex</i>	The index of the pairing entry. Ver.: always
<i>eui64</i>	The <a href="#">EmberEUI64</a> of the remote node. Ver.: always
<i>vendorInfo</i>	The vendor information of the remote node. Ver.: always
<i>applicationInfo</i>	The application information of the remote node. Ver.: always

**6.4.2.1815 void emberAfPluginRf4ceZrc11UserControlCallback ( const EmberAfRf4ceZrcUserControlRecord \* *record* )**

User Control.

This function is called by the RF4CE ZRC plugin when a user control starts or stops. If the type of the record is [EMBER\\_AF\\_RF4CE\\_ZRC\\_COMMAND\\_USER\\_CONTROL\\_PRESSED](#), the application should execute the requested operation repeatedly at some application-specific rate. When the repetition should stop, the plugin will call the callback again with the type set to [EMBER\\_AF\\_RF4CE\\_ZRC\\_COMMAND\\_USER\\_CONTROL\\_RELEASED](#). [EMBER\\_AF\\_RF4CE\\_ZRC\\_COMMAND\\_USER\\_CONTROL\\_REPEAT](#) is a special case of [EMBER\\_AF\\_RF4CE\\_ZRC\\_COMMAND\\_USER\\_CONTROL\\_PRESSED](#) and means that the pressed command from the originator was not received and that the originator is still triggering the action. The application should process a repeat type the same as a pressed type, but may wish to perform additional operations to compensate for missed commands.

#### Parameters

<i>record</i>	The user control record. Ver.: always
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**6.4.2.1816 void emberAfPluginRf4ceZrc11CommandDiscoveryResponseCallback ( EmberStatus *status*, const EmberAfRf4ceZrcCommandsSupported \* *commandsSupported* )**

Command Discovery Response.

This function is called by the RF4CE ZRC plugin when a Command Discovery Response message is received by the device.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating that the command discovery process succeeded or the failure reason. Ver.: always
<i>commands-Supported</i>	The 256-bit field indicating which user control commands are supported. Ver.: always

**6.4.2.1817 void emberAfPluginRf4ceZrc20ActionCallback ( const EmberAfRf4ceZrcActionRecord \* record )**

Action.

This function is called by the RF4CE ZRC 2.0 plugin when an action starts or stops. If the action type of the action record is **EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_START**, the application should execute the requested operation repeatedly at some application-specific rate. When the repetition should stop, the plugin will call the callback again with the action type set to **EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_STOP**. **EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_REPEAT** is a special case of **EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_START** and means that the start action from the originator was not received and that the originator is still triggering the action. The application should process a repeat type the same as a start type, but may wish to perform additional operations to compensate for missed actions. If the action type is **EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_ATOMIC**, the application should execute the operation once. The plugin will not call the callback again for an atomic action.

#### Parameters

<i>record</i>	The action record. Ver.: always
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**6.4.2.1818 void emberAfPluginRf4ceZrc20HaActionCallback ( const EmberAfRf4ceZrcActionRecord \* record )**

Ha Action.

This function is called by the RF4CE ZRC 2.0 plugin when an HA action starts or stops. TODO

#### Parameters

<i>record</i>	The action record. Ver.: always
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**6.4.2.1819 void emberAfPluginRf4ceZrc20LegacyCommandDiscoveryCompleteCallback ( EmberStatus status, const EmberAfRf4ceZrcCommandsSupported \* commandsSupported )**

Legacy Command Discovery Complete.

This function is called by the RF4CE ZRC plugin upon completion of the legacy ZRC 1.1 command discovery process.

#### Parameters

<i>status</i>	An <b>EmberStatus</b> value indicating that the command discovery process succeeded or the failure reason. Ver.: always
<i>commands-Supported</i>	The 256-bit field indicating which user control commands are supported. Ver.: always

**6.4.2.1820 void emberAfPluginRf4ceZrc20ActionMappingsNegotiationCompleteCallback ( EmberStatus status )**

Action Mappings Negotiation Complete.

This function is called by the RF4CE ZRC plugin upon completion of the action mapping negotiation procedure.

#### Parameters

<i>status</i>	An <a href="#">EmberStatus</a> value indicating that the action mappings negotiation succeeded or the failure reason. Ver.: always
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**6.4.2.1821 void emberAfPluginRf4ceZrc20IncomingMappableActionCallback ( uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcMappableAction \* mappableAction )**

Incoming Mappable Action.

This function is called by an RF4CE ZRC action mapping server upon receiving a mappable action from an already bound action mapping client.

#### Parameters

<i>pairingIndex</i>	The index of the pairing the mappable action was received from. Ver.: always
<i>entryIndex</i>	The index of the mappable action entry. Ver.: always
<i>mappableAction</i>	A pointer to the mappable action struct that was received. Ver.: always

**6.4.2.1822 EmberStatus emberAfPluginRf4ceZrc20GetMappableActionCallback ( uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcMappableAction \* mappableAction )**

Get Mappable Action.

This function is called by an RF4CE ZRC action mapping client or server to retrieve the mappable action corresponding to the passed entry index.

#### Parameters

<i>pairingIndex</i>	The index of the pairing the mappable action was received from. Ver.: always
<i>entryIndex</i>	The index of the mappable action entry. Ver.: always
<i>mappableAction</i>	A pointer to the mappable action struct to be populated. Ver.: always

**6.4.2.1823 uint16\_t emberAfPluginRf4ceZrc20GetMappableActionCountCallback ( uint8\_t pairingIndex )**

Get Mappable Action Count.

This function is called by an RF4CE ZRC action mapping server or client to retrieve the number of entries currently stored in the mappable action table for a certain pairing.

#### Parameters

<i>pairingIndex</i>	The index of the pairing entry. Ver.: always
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**6.4.2.1824 void emberAfPluginRf4ceZrc20IncomingActionMappingCallback ( uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcActionMapping \* actionMapping )**

Incoming Action Mapping.

This function is called by an RF4CE ZRC action mapping client upon receiving an action mapping pulled from an already bound action mapping server.

#### Parameters

<i>pairingIndex</i>	The index of the pairing the action mapping was received from. Ver.: always
<i>entryIndex</i>	The index of the action mapping entry. Ver.: always
<i>actionMapping</i>	A pointer to the action mapping struct that was received. Ver.: always

**6.4.2.1825 EmberStatus emberAfPluginRf4ceZrc20GetActionMappingCallback ( uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcActionMapping \* actionMapping )**

Get Action Mapping.

This function is called by an RF4CE ZRC action mapping server to retrieve the action mapping corresponding to the mappable action indicated by the passed entry index.

#### Parameters

<i>pairingIndex</i>	The index of the pairing the mappable action was received from. Ver.: always
<i>entryIndex</i>	The index of the mappable action entry. Ver.: always
<i>actionMapping</i>	A pointer to the action mapping struct to be populated. Ver.: always

**6.4.2.1826 EmberStatus emberAfPluginRf4ceZrc20SetActionMappingCallback ( uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcActionMapping \* actionMapping )**

Set Action Mapping.

This function is called by an RF4CE ZRC action mapping server to retrieve the action mapping corresponding to the mappable action indicated by the passed entry index.

#### Parameters

<i>pairingIndex</i>	The index of the pairing the mappable action was received from. Ver.: always
<i>entryIndex</i>	The index of the mappable action entry. Ver.: always
<i>actionMapping</i>	A pointer to the action mapping struct to be populated. Ver.: always

**6.4.2.1827 void emberAfPluginRf4ceZrc20HomeAutomationSupportedAnnouncementCompleteCallback ( EmberStatus status )**

Home Automation Supported Announcement Complete.

This function is called by the RF4CE ZRC plugin upon completion of the Home Automation supported announcement procedure.

**Parameters**

<i>status</i>	An <a href="#">EmberStatus</a> value indicating that the Home Automation supported announcement procedure succeeded or the failure reason. Ver.: always
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**6.4.2.1828** void **emberAfPluginRf4ceZrc20IncomingHomeAutomationSupportedCallback** ( uint8\_t *pairingIndex*, uint8\_t *haInstanceId*, EmberAfRf4ceZrcHomeAutomationSupported \* *haSupported* )

Incoming Home Automation Supported.

This function is called by an RF4CE ZRC Home Automation actions recipient upon receiving a Home Automation supported attribute from an already bound Home Automation originator.

**Parameters**

<i>pairingIndex</i>	The index of the pairing the Home Automation supported attribute was received from. Ver.: always
<i>haInstanceId</i>	The instance ID the Home Automation supported attribute refers to. Ver.: always
<i>haSupported</i>	A pointer to the Home Automation supported struct that was received. Ver.: always

**6.4.2.1829** EmberStatus **emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCallback** ( uint8\_t *pairingIndex*, uint8\_t *haInstanceId*, EmberAfRf4ceZrcHomeAutomationSupported \* *haSupported* )

Get Home Automation Supported.

This function is called by an RF4CE ZRC Home Automation actions originator to retrieve the Home Automation supported attribute corresponding to the passed entry index.

**Parameters**

<i>pairingIndex</i>	The index of the pairing the Home Automation supported attribute was received from. Ver.: always
<i>haInstanceId</i>	The instance ID the Home Automation supported attribute refers to. Ver.: always
<i>haSupported</i>	A pointer to the Home Automation supported struct to be populated. Ver.: always

**6.4.2.1830** EmberAfRf4ceGdpAttributeStatus **emberAfPluginRf4ceZrc20GetHomeAutomationAttributeCallback** ( uint8\_t *pairingIndex*, uint8\_t *haInstanceId*, uint8\_t *haAttributelId*, EmberAfRf4ceZrcHomeAutomationAttribute \* *haAttribute* )

Get Home Automation Attribute.

This function is called by an RF4CE ZRC Home Automation actions recipient upon receiving a Pull attribute command from a Home Automation actions originator to retrieve the contents of a Home Automation attribute. The contents in the haAttribute struct will be included in the response only if this callback returned an [EmberAfRf4ceGdpAttributeStatus](#) value of [EMBER\\_AF\\_RF4CE\\_GDP\\_ATTRIBUTE\\_STATUS\\_SUCCESS](#).

**Parameters**

<i>pairingIndex</i>	The index of the pairing entry corresponding to the Home Automation actions originator. Ver.: always
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<i>haInstanceId</i>	The Home Automation instance ID. Ver.: always
<i>haAttributeId</i>	The Home Automation attribute ID. Ver.: always
<i>haAttribute</i>	A pointer to an <a href="#">EmberAfRf4ceZrcHomeAutomationAttribute</a> struct to be populated. Ver.: always

**6.4.2.1831 void emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback ( EmberAfRf4ceGdpAttributeStatus *responseStatus*, EmberAfRf4ceZrcHomeAutomationAttribute \* *haAttribute* )**

Pull Home Automation Attribute Complete.

This function is called by an RF4CE ZRC Home Automation actions originator as asynchronous response to a successful call to the [emberAfRf4ceZrc20PullHomeAutomationAttribute\(\)](#) API. This callback is also invoked upon receiving pull attributes responses as result of an initial client notification request for Home Automation attribute pull from the Home Automation actions server.

#### Parameters

<i>responseStatus</i>	An <a href="#">EmberAfRf4ceGdpAttributeStatus</a> value indication whether the attribute was successfully retrieved or the reason of failure. Ver.: always
<i>haAttribute</i>	A pointer to an <a href="#">EmberAfRf4ceZrcHomeAutomationAttribute</a> struct carrying the contents of the retrieved attribute. This parameter is meaningful only if <i>responseStatus</i> is <a href="#">EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_SUCCESS</a> . Ver.: always

**6.4.2.1832 void emberAfPluginRf4ceZrc20HaServerHaActionSentCallback ( EmberOutgoingMessage-Type *type*, uint16\_t *indexOrDestination*, EmberApsFrame \* *apsFrame*, uint16\_t *msgLen*, uint8\_t \* *message*, EmberStatus *status* )**

Ha Action Sent.

This function is called by the HA server plugin once the HA action is sent to the ZCL network.

#### Parameters

<i>type</i>	Outgoing message type. Ver.: always
<i>indexOrDestination</i>	Binding index. Ver.: always
<i>apsFrame</i>	APS frame pointer. Ver.: always
<i>msgLen</i>	Message length. Ver.: always
<i>message</i>	Message pointer. Ver.: always
<i>status</i>	Status. Ver.: always

**6.4.2.1833 uint16\_t emberAfPluginSimpleMeteringClientRequestMirrorCallback ( EmberEUI64 *requestingDeviceeeeAddress* )**

Request Mirror.

This function is called by the Simple Metering client plugin whenever a Request Mirror command is received. The application should return the endpoint to which the mirror has been assigned. If no mirror could be assigned, the application should return 0xFFFF.

**Parameters**

<i>requesting-DeviceIeee-Address</i>	Ver.: always
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**6.4.2.1834 uint16\_t emberAfPluginSimpleMeteringClientRemoveMirrorCallback ( EmberEUI64 requestingDeviceIeeeAddress )**

Remove Mirror.

This function is called by the Simple Metering client plugin whenever a Remove Mirror command is received. The application should return the endpoint on which the mirror has been removed. If the mirror could not be removed, the application should return 0xFFFF.

**Parameters**

<i>requesting-DeviceIeee-Address</i>	Ver.: always
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**6.4.2.1835 void emberAfPluginSimpleMeteringServerProcessNotificationFlagsCallback ( uint16\_t attributeId, uint32\_t attributeValue )**

Process Notification Flags.

This function is called by the metering server plugin when any of the Notification Attribute Set attributes are read or reported by the metering client.

**Parameters**

<i>attributeId</i>	Ver.: always
<i>attributeValue</i>	Ver.: always

**6.4.2.1836 void emberAfPluginSleepyMessageQueueMessageTimedOutCallback ( uint8\_t sleepyMsgId )**

Message Timed Out.

This function is called by the sleepy message queue when a message times out. The plugin will invalidate the entry in the queue after giving the application a chance to perform any actions on the timed-out message.

**Parameters**

<i>sleepyMsgId</i>	Ver.: always
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**6.4.2.1837 bool emberAfPluginStandaloneBootloaderClientAllowIncomingMessageCallback ( EmberEUI64 sourceEui64, uint8\_t command )**

Allow Incoming Message.

Allows the application to control whether the plugin can respond to incoming bootload messages.

**Parameters**

<i>sourceEui64</i>	The EUI64 of the sending node. Ver.: always
<i>command</i>	The incoming command ID Ver.: always

**6.4.2.1838 bool emberAfPluginStandaloneBootloaderClientAllowBootloadLaunchCallback ( EmberEUI64 *sourceEui64* )**

Allow Bootload Launch.

This function is a callback when the client is being told to launch the standalone bootloader. This is done after authentication has completed successfully.

**Parameters**

<i>sourceEui64</i>	The EUI64 of the node requesting the bootload. Ver.: always
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**6.4.2.1839 bool emberAfPluginStandaloneBootloaderCommonIncomingMessageCallback ( EmberEUI64 *longId*, uint8\_t *length*, uint8\_t \* *message* )**

Incoming Message.

Indicates an Ember Bootload message has been received by the Standalone Bootloader Common plugin.

**Parameters**

<i>longId</i>	The sender's EUI64 address Ver.: always
<i>length</i>	The length of the incoming message. Ver.: always
<i>message</i>	The array of bytes for the message. Ver.: always

**6.4.2.1840 void emberAfPluginStandaloneBootloaderServerQueryResponseCallback ( bool *queryWasBroadcast*, const EmberAfStandaloneBootloaderQueryresponseData \* *queryData* )**

Query Response.

Allows the application to control whether the plugin can respond to incoming bootload messages.

**Parameters**

<i>queryWasBroadcast</i>	Boolean indicating whether the query was broadcast or unicast Ver.: always
<i>queryData</i>	A data structure providing the details about the local device's bootloader. Ver.: always

**6.4.2.1841 void emberAfPluginStandaloneBootloaderServerFinishedCallback ( bool *success* )**

Finished.

Notifies the application when the standalone bootload has completed, successfully or otherwise.

**Parameters**

<i>success</i>	Boolean indicating the success or failure of the bootload. Ver.: always
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**6.4.2.1842 void emberAfPluginTunnelingClientTunnelOpenedCallback ( uint8\_t *tunnelIndex*, EmberAfPluginTunnelingClientStatus *tunnelStatus*, uint16\_t *maximumIncomingTransferSize* )**

Tunnel Opened.

This function is called by the Tunneling client plugin whenever a tunnel is opened. Clients may open tunnels by sending a Request Tunnel command.

**Parameters**

<i>tunnelIndex</i>	The index of the tunnel that has been opened. Ver.: always
<i>tunnelStatus</i>	The status of the request. Ver.: always
<i>maximum-Incoming-TransferSize</i>	The maximum incoming transfer size of the server. Ver.: always

**6.4.2.1843 void emberAfPluginTunnelingClientDataReceivedCallback ( uint8\_t *tunnelIndex*, uint8\_t \* *data*, uint16\_t *dataLen* )**

Data Received.

This function is called by the Tunneling client plugin whenever data is received from a server through a tunnel.

**Parameters**

<i>tunnelIndex</i>	The index of the tunnel through which the data was received. Ver.: always
<i>data</i>	Buffer containing the raw octets of the data. Ver.: always
<i>dataLen</i>	The length in octets of the data. Ver.: always

**6.4.2.1844 void emberAfPluginTunnelingClientDataErrorCallback ( uint8\_t *tunnelIndex*, EmberAfTunnelingTransferDataStatus *transferDataStatus* )**

Data Error.

This function is called by the Tunneling client plugin whenever a data error occurs on a tunnel. Errors occur if a device attempts to send data on tunnel that is no longer active or if the tunneling does not belong to the device.

**Parameters**

<i>tunnelIndex</i>	The index of the tunnel on which this data error occurred. Ver.: always
<i>transferData-Status</i>	The error that occurred. Ver.: always

#### 6.4.2.1845 void emberAfPluginTunnelingClientTunnelClosedCallback ( uint8\_t tunnelIndex )

Tunnel Closed.

This function is called by the Tunneling client plugin whenever a server sends a notification that it preemptively closed an inactive tunnel. Servers are not required to notify clients of tunnel closures, so applications cannot rely on this callback being called for all tunnels.

##### Parameters

<i>tunnelIndex</i>	The index of the tunnel that has been closed. Ver.: always
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#### 6.4.2.1846 void emberAfPluginTunnelingClientTransferDataFailureCallback ( uint16\_t indexOfDestination, EmberApsFrame \* apsFrame, uint16\_t msgLen, uint8\_t \* message, EmberStatus status )

Transfer Data Failure.

This function is called when a TransferData command fails to be sent to the intended destination.

##### Parameters

<i>indexOf-Destination</i>	The index or destination address of the TransferData command. Ver.: always
<i>apsFrame</i>	The <a href="#">EmberApsFrame</a> of the command. Ver.: always
<i>msgLen</i>	The length of the payload sent in the command. Ver.: always
<i>message</i>	The payload that was sent in the command. Ver.: always
<i>status</i>	The non-success status code from the transmission of the command. Ver.: always

#### 6.4.2.1847 bool emberAfPluginTunnelingServerIsProtocolSupportedCallback ( uint8\_t protocolId, uint16\_t manufacturerCode )

Is Protocol Supported.

This function is called by the Tunneling server plugin whenever a Request Tunnel command is received. The application should return true if the protocol is supported and false otherwise.

##### Parameters

<i>protocolId</i>	The identifier of the metering communication protocol for which the tunnel is requested. Ver.: always
<i>manufacturer-Code</i>	The manufacturer code for manufacturer-defined protocols or 0xFFFF in unused. Ver.: always

#### 6.4.2.1848 void emberAfPluginTunnelingServerTunnelOpenedCallback ( uint16\_t tunnelIndex, uint8\_t protocolId, uint16\_t manufacturerCode, bool flowControlSupport, uint16\_t maximumIncomingTransferSize )

Tunnel Opened.

This function is called by the Tunneling server plugin whenever a tunnel is opened. Clients may open tunnels by sending a Request Tunnel command.

**Parameters**

<i>tunnelIndex</i>	The index to the tunnel table entry that has been opened. Ver.: always
<i>protocolId</i>	The identifier of the metering communication protocol for the tunnel. Ver.: always
<i>manufacturer-Code</i>	The manufacturer code for manufacturer-defined protocols or 0xFFFF in unused. Ver.: always
<i>flowControl-Support</i>	true if flow control support is requested or false if it is not. Ver.: always
<i>maximum-Incoming-TransferSize</i>	The maximum incoming transfer size of the client. Ver.: always

**6.4.2.1849 void emberAfPluginTunnelingServerDataReceivedCallback ( uint16\_t *tunnelIndex*, uint8\_t \* *data*, uint16\_t *dataLen* )**

Data Received.

This function is called by the Tunneling server plugin whenever data is received from a client through a tunnel.

**Parameters**

<i>tunnelIndex</i>	The identifier of the tunnel through which the data was received. Ver.: always
<i>data</i>	Buffer containing the raw octets of the data. Ver.: always
<i>dataLen</i>	The length in octets of the data. Ver.: always

**6.4.2.1850 void emberAfPluginTunnelingServerErrorCallback ( uint16\_t *tunnelIndex*, EmberAfTunnelingTransferDataStatus *transferDataStatus* )**

Data Error.

This function is called by the Tunneling server plugin whenever a data error occurs on a tunnel. Errors occur if a device attempts to send data on tunnel that is no longer active or if the tunneling does not belong to the device.

**Parameters**

<i>tunnelIndex</i>	The identifier of the tunnel on which this data error occurred. Ver.: always
<i>transferData-Status</i>	The error that occurred. Ver.: always

**6.4.2.1851 void emberAfPluginTunnelingServerTunnelClosedCallback ( uint16\_t *tunnelIndex*, bool *clientInitiated* )**

Tunnel Closed.

This function is called by the Tunneling server plugin whenever a tunnel is closed. Clients may close tunnels by sending a Close Tunnel command. The server can preemptively close inactive tunnels after a timeout.

**Parameters**

<i>tunnelIndex</i>	The identifier of the tunnel that has been closed. Ver.: always
<i>clientInitiated</i>	true if the client initiated the closing of the tunnel or false if the server closed the tunnel due to inactivity. Ver.: always

**6.4.2.1852 bool emberAfPluginUpdateTcLinkKeyStatusCallback ( EmberKeyStatus *keyStatus* )**

Status.

This callback is fired when the Update Link Key exchange process is updated with a status from the stack. Implementations should return true if they are done receiving updates from the stack.

**Parameters**

<i>keyStatus</i>	An <a href="#">EmberKeyStatus</a> value describing the success or failure of the key exchange process. Ver.: always
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**6.4.2.1853 void emberAfPluginZllCommissioningInitialSecurityStateCallback ( EmberZllInitialSecurityState \* *securityState* )**

Initial Security State.

This function is called by the ZLL Commissioning plugin to determine the initial security state to be used by the device. The application must populate the ::EmberZllInitialSecurityState structure with a configuration appropriate for the network being formed, joined, or started. Once the device forms, joins, or starts a network, the same security configuration will remain in place until the device leaves the network.

**Parameters**

<i>securityState</i>	The security configuration to be populated by the application and ultimately set in the stack. Ver.: always
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**6.4.2.1854 void emberAfPluginZllCommissioningTouchLinkCompleteCallback ( const EmberZllNetwork \* *networkInfo*, uint8\_t *deviceInformationRecordCount*, const EmberZllDeviceInfoRecord \* *deviceInformationRecordList* )**

Touch Link Complete.

This function is called by the ZLL Commissioning plugin when touch linking completes.

**Parameters**

<i>networkInfo</i>	The ZigBee and ZLL-specific information about the network and target. Ver.: always
<i>deviceInformationRecordCount</i>	The number of sub-device information records for the target. Ver.: always
<i>deviceInformationRecordList</i>	The list of sub-device information records for the target. Ver.: always

**6.4.2.1855 void emberAfPluginZllCommissioningTouchLinkFailedCallback ( EmberAfZllCommissioningStatus *status* )**

Touch Link Failed.

This function is called by the ZLL Commissioning plugin if touch linking fails.

#### Parameters

<i>status</i>	The reason the touch link failed. Ver.: always
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**6.4.2.1856 uint8\_t emberAfPluginZllCommissioningGroupIdentifierCountCallback ( uint8\_t *endpoint* )**

Group Identifier Count.

This function is called by the ZLL Commissioning plugin to determine the number of group identifiers in use by a specific endpoint on the device. The total number of group identifiers on the device, which are shared by all endpoints, is defined by ::EMBER\_ZLL\_GROUP\_ADDRESSES.

#### Parameters

<i>endpoint</i>	The endpoint for which the group identifier count is requested. Ver.: always
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**6.4.2.1857 bool emberAfPluginZllCommissioningGroupIdentifierCallback ( uint8\_t *endpoint*, uint8\_t *index*, EmberAfPluginZllCommissioningGroupInformationRecord \* *record* )**

Group Identifier.

This function is called by the ZLL Commissioning plugin to obtain information about the group identifiers in use by a specific endpoint on the device. The application should populate the record with information about the group identifier and return true. If no information is available for the given endpoint and index, the application should return false.

#### Parameters

<i>endpoint</i>	The endpoint for which the group identifier is requested. Ver.: always
<i>index</i>	The index of the group on the endpoint. Ver.: always
<i>record</i>	The group information record. Ver.: always

**6.4.2.1858 uint8\_t emberAfPluginZllCommissioningEndpointInformationCountCallback ( uint8\_t *endpoint* )**

Endpoint Information Count.

This function is called by the ZLL Commissioning plugin to determine the number of remote endpoints controlled by a specific endpoint on the local device.

#### Parameters

<i>endpoint</i>	The local endpoint for which the remote endpoint information count is requested. Ver.: always
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**6.4.2.1859 bool emberAfPluginZllCommissioningEndpointInformationCallback ( uint8\_t *endpoint*, uint8\_t *index*, EmberAfPluginZllCommissioningEndpointInformationRecord \* *record* )**

Endpoint Information.

This function is called by the ZLL Commissioning plugin to obtain information about the remote endpoints controlled by a specific endpoint on the local device. The application should populate the record with information about the remote endpoint and return true. If no information is available for the given endpoint and index, the application should return false.

**Parameters**

<i>endpoint</i>	The local endpoint for which the remote endpoint information is requested. Ver.: always
<i>index</i>	The index of the remote endpoint information on the local endpoint. Ver.: always
<i>record</i>	The endpoint information record. Ver.: always

**6.4.2.1860 void emberAfPluginZllCommissioningIdentifyCallback ( uint16\_t *durationS* )**

Identify.

This function is called by the ZLL Commissioning plugin to notify the application that it should take an action to identify itself. This typically occurs when an Identify Request is received via inter-PAN messaging.

**Parameters**

<i>durationS</i>	If the duration is zero, the device should exit identify mode. If the duration is 0xFFFF, the device should remain in identify mode for the default time. Otherwise, the duration specifies the length of time in seconds that the device should remain in identify mode. Ver.: always
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**6.4.2.1861 void emberAfPluginZllCommissioningResetToFactoryNewCallback ( void )**

Reset To Factory New.

This function is called by the ZLL Commissioning plugin when a request to reset to factory new is received. The plugin will leave the network, reset attributes managed by the framework to their default values, and clear the group and scene tables. The application should perform any other necessary reset-related operations in this callback, including resetting any externally-stored attributes.

**6.4.2.1862 bool emberAfPluginZllCommissioningJoinCallback ( EmberZigbeeNetwork \* *networkFound*, uint8\_t *lqi*, int8\_t *rssi* )**

Join.

This callback is called by the ZLL Commissioning plugin when a joinable network has been found. If the application returns true, the plugin will attempt to join the network. Otherwise, the plugin will ignore the network and continue searching. Applications can use this callback to implement a network blacklist. Note that this callback is not called during touch linking.

**Parameters**

<i>networkFound</i>	Ver.: always
<i>lqi</i>	Ver.: always
<i>rssi</i>	Ver.: always

**6.4.2.1863 EmberAfStatus emberAfPluginZllOnOffServerOffWithEffectCallback ( uint8\_t *endpoint*, uint8\_t *effectId*, uint8\_t *effectVariant* )**

Off With Effect.

This callback is called by the ZLL On/Off Server plugin whenever an OffWithEffect command is received. The application should implement the effect and variant requested in the command and return [EMBER\\_Z-CL\\_STATUS\\_SUCCESS](#) if successful or an appropriate error status otherwise.

**Parameters**

<i>endpoint</i>	Ver.: always
<i>effectId</i>	Ver.: always
<i>effectVariant</i>	Ver.: always

**6.4.2.1864 void emberAfPluginConnectionManagerFinishedCallback ( EmberStatus *status* )**

Network join finished.

This callback is fired when the Connection Manager plugin is finished with the forming or joining process. The result of the operation will be returned in the status parameter.

**Parameters**

<i>status</i>	Ver.: always
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**6.4.2.1865 void emberAfPluginConnectionManagerStartNetworkSearchCallback ( void )**

Begin searching for network to join.

This function is called by the Connection Manager Plugin when it starts to search a new network. It is normally used to trigger a UI event to notify the user that the device is currently searching for a network.

**6.4.2.1866 void emberAfPluginConnectionManagerLeaveNetworkCallback ( void )**

Leave the currently joined network.

This function is called by the Connection Manager Plugin when the device is about to leave the network. It is normally used to trigger a UI event to notify the user of a network leave.

**6.4.2.1867 bool emberAfPluginIdleSleepOkToSleepCallback ( uint32\_t *durationMs* )**

Ok To Sleep.

This function is called by the Idle/Sleep plugin before sleeping. It is called with interrupts disabled. The application should return true if the device may sleep or false otherwise.

**Parameters**

<i>durationMs</i>	The maximum duration in milliseconds that the device will sleep. Ver.: always
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**6.4.2.1868 void emberAfPluginIdleSleepWakeUpCallback ( uint32\_t *durationMs* )**

Wake Up.

This function is called by the Idle/Sleep plugin after sleeping.

**Parameters**

<i>durationMs</i>	The duration in milliseconds that the device slept. Ver.: always
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**6.4.2.1869 bool emberAfPluginIdleSleepOkToIdleCallback ( void )**

Ok To Idle.

This function is called by the Idle/Sleep plugin before idling. It is called with interrupts disabled. The application should return true if the device may idle or false otherwise.

**6.4.2.1870 void emberAfPluginIdleSleepActiveCallback ( void )**

Active.

This function is called by the Idle/Sleep plugin after idling.

**6.4.2.1871 bool emberAfPluginLowVoltageShutdownOkToShutdownCallback ( uint16\_t *shutdownVoltage* )**

Ok To Shutdown.

This function is called by the Low Voltage Shutdown plugin after the low voltage threshold has been detected but before shutting down the chip (until a full power-on reset is triggered). The application should return true if the device may shutdown or false otherwise. Note that this callback is not the proper place to put logic to be performed just prior to shutdown; that would be the Pre Shutdown Callback. If callback returns false, shutdown check will be performed again in EMBER\_AF\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_POSTPONE\_DURATION\_MS milliseconds.

**Parameters**

<i>shutdown-Voltage</i>	The voltage (in mV) read from VDD at shutdown time, which can be used to determine the risk in doing any further activities prior to shutdown. Ver.: always
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**6.4.2.1872 void emberAfPluginLowVoltageShutdownPreShutdownCallback ( uint16\_t *shutdownVoltage* )**

Pre Shutdown.

This function is called by the Low Voltage Shutdown plugin just prior to shutting down, allowing the application to do any last-minute clean-up before the chip goes offline until next reset. (Can't prevent shutdown from this context; use Ok To Shutdown callback for that instead.)

**Parameters**

<i>shutdown-Voltage</i>	The voltage (in mV) read from VDD at shutdown time, which can be used to determine the risk in doing any further activities prior to shutdown. Ver.: always
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**6.4.2.1873 void emberAfPluginBatteryMonitorDataReadyCallback ( uint16\_t batteryVoltageMilliV )**

Data Ready.

This function is called whenever the battery monitor has generated a new valid battery level

**Parameters**

<i>batteryVoltage-MilliV</i>	The battery voltage, in milli Volts Ver.: always
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**6.4.2.1874 void emberAfPluginButtonInterfaceButton0PressedShortCallback ( uint16\_t timePressedMs )**

Button0 Pressed Short.

This function returns the number of times a button was short pressed.

**Parameters**

<i>timePressedMs</i>	Time (in ms) button 0 was pressed Ver.: always
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**6.4.2.1875 void emberAfPluginButtonInterfaceButton1PressedShortCallback ( uint16\_t timePressedMs )**

Button1 Pressed Short.

This function returns the number of times a button was short pressed.

**Parameters**

<i>timePressedMs</i>	Time (in ms) button 1 was pressed Ver.: always
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**6.4.2.1876 void emberAfPluginButtonInterfaceButton0PressedLongCallback ( uint16\_t timePressedMs, bool pressedAtReset )**

Button0 Pressed Long.

This function returns the number of times a button was short pressed.

**Parameters**

<i>timePressedMs</i>	Amount of time button 0 was pressed. Ver.: always
<i>pressedAtReset</i>	Was the button pressed at startup. Ver.: always

**6.4.2.1877 void emberAfPluginButtonInterfaceButton1PressedLongCallback ( uint16\_t *timePressedMs*, bool *pressedAtReset* )**

Button1 Pressed Long.

This function returns the number of times a button was short pressed.

#### Parameters

<i>timePressedMs</i>	Amount of time button 1 was pressed. Ver.: always
<i>pressedAtReset</i>	Was the button pressed at startup. Ver.: always

**6.4.2.1878 void emberAfPluginButtonInterfaceButton0PressingCallback ( void )**

Button0 Pressing.

This function is periodically called when button 0 is being pressed.

**6.4.2.1879 void emberAfPluginButtonInterfaceButton1PressingCallback ( void )**

Button1 Pressing.

This function is periodically called when button 1 is being pressed.

**6.4.2.1880 void emberAfPluginButtonInterfaceButton0LowCallback ( void )**

Button0 Low.

This function is called when the GPIO tied to button zero goes low

**6.4.2.1881 void emberAfPluginButtonInterfaceButton0HighCallback ( void )**

Button0 High.

This function is called when the GPIO tied to button zero goes high

**6.4.2.1882 void emberAfPluginButtonInterfaceButton1LowCallback ( void )**

Button1 Low.

This function is called when the GPIO tied to button one goes low

**6.4.2.1883 void emberAfPluginButtonInterfaceButton1HighCallback ( void )**

Button1 High.

This function is called when the GPIO tied to button one goes high

**6.4.2.1884 void emberAfPluginGpioSensorStateChangedCallback ( uint8\_t *newSensorState* )**

State Changed.

This function is called whenever the gpio sensor detects a change in state

**Parameters**

<i>newSensorState</i>	The new state of the sensor based alarm (EMBER_AF_PLUGIN_GPIO_SENSOR_ACTIVE or EMBER_AF_PLUGIN_GPIO_SENSOR_NOT_ACTIVE) Ver.: always
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**6.4.2.1885 void emberAfPluginSb1GestureSensorGestureReceivedCallback ( uint8\_t *gestureReceived*, uint8\_t *switchNumber* )**

Gesture Received.

This function is called whenever the sb1 receives a gesture

**Parameters**

<i>gesture-Received</i>	The (enumerated) gesture received Ver.: always
<i>switchNumber</i>	The switch that received the gesture Ver.: always

**6.4.2.1886 void emberAfPluginTamperSwitchTamperActiveCallback ( void )**

Tamper Active.

This function is called whenever the tamper switch detects that it has entered the enclosure, thus activating tamper monitoring.

**6.4.2.1887 void emberAfPluginTamperSwitchTamperAlarmCallback ( void )**

Tamper Alarm.

This function is called when the plugin detects that the enclosure has been opened.

## 6.5 Application Framework Command Buffer Loading Interface

### Global Commands

- #define `emberAfFillCommandGlobalServerToClientReadAttributes(attributeIds, attributeIdsLen)`
- #define `emberAfFillCommandGlobalClientToServerReadAttributes(attributeIds, attributeIdsLen)`
- #define `emberAfFillCommandGlobalServerToClientReadAttributesResponse(readAttributeStatusRecords, readAttributeStatusRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerReadAttributesResponse(readAttributeStatusRecords, readAttributeStatusRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientWriteAttributes(writeAttributeRecords, writeAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerWriteAttributes(writeAttributeRecords, writeAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesUndivided(writeAttributeRecords, writeAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesUndivided(writeAttributeRecords, writeAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesResponse(writeAttributeStatusRecords, writeAttributeStatusRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesResponse(writeAttributeStatusRecords, writeAttributeStatusRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesNoResponse(writeAttributeRecords, writeAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesNoResponse(writeAttributeRecords, writeAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientConfigureReporting(configureReportingRecords, configureReportingRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerConfigureReporting(configureReportingRecords, configureReportingRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientConfigureReportingResponse(configureReportingStatusRecords, configureReportingStatusRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerConfigureReportingResponse(configureReportingStatusRecords, configureReportingStatusRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientReadReportingConfiguration(readReportingConfigurationAttributeRecords, readReportingConfigurationAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerReadReportingConfiguration(readReportingConfigurationAttributeRecords, readReportingConfigurationAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientReadReportingConfigurationResponse(readReportingConfigurationRecords, readReportingConfigurationRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerReadReportingConfigurationResponse(readReportingConfigurationRecords, readReportingConfigurationRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientReportAttributes(reportAttributeRecords, reportAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalClientToServerReportAttributes(reportAttributeRecords, reportAttributeRecordsLen)`
- #define `emberAfFillCommandGlobalServerToClientDefaultResponse(commandId, status)`
- #define `emberAfFillCommandGlobalClientToServerDefaultResponse(commandId, status)`
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributes(startId, maxAttributeIds)`
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributes(startId, maxAttributeIds)`
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributesResponse(discoveryComplete, discoverAttributesInfoRecords, discoverAttributesInfoRecordsLen)`

- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributesResponse`(discoveryComplete, discoverAttributesInfoRecords, discoverAttributesInfoRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientReadAttributesStructured`(readStructuredAttributeRecords, readStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerReadAttributesStructured`(readStructuredAttributeRecords, readStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesStructured`(writeStructuredAttributeRecords, writeStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesStructured`(writeStructuredAttributeRecords, writeStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesStructuredResponse`(writeStructuredAttributeStatusRecords, writeStructuredAttributeStatusRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesStructuredResponse`(writeStructuredAttributeStatusRecords, writeStructuredAttributeStatusRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsReceived`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsReceived`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsReceivedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsReceivedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsGenerated`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsGenerated`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsGeneratedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsGeneratedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributesExtended`(startId, maxAttributeIds)
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributesExtended`(startId, maxAttributeIds)
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributesExtendedResponse`(discoveryComplete, extendedDiscoverAttributesInfoRecords, extendedDiscoverAttributesInfoRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributesExtendedResponse`(discoveryComplete, extendedDiscoverAttributesInfoRecords, extendedDiscoverAttributesInfoRecordsLen)

## Basic Commands

- #define `emberAfFillCommandBasicClusterResetToFactoryDefaults()`

## Identify Commands

- #define `emberAfFillCommandIdentifyClusterIdentify`(identifyTime)
- #define `emberAfFillCommandIdentifyClusterIdentifyQuery()`
- #define `emberAfFillCommandIdentifyClusterEZModeInvoke`(action)
- #define `emberAfFillCommandIdentifyClusterUpdateCommissionState`(action, commissionStateMask)
- #define `emberAfFillCommandIdentifyClusterIdentifyQueryResponse`(timeout)
- #define `emberAfFillCommandIdentifyClusterTriggerEffect`(effectId, effectVariant)

## Groups Commands

- #define `emberAfFillCommandGroupsClusterAddGroup(groupId, groupName)`
- #define `emberAfFillCommandGroupsClusterViewGroup(groupId)`
- #define `emberAfFillCommandGroupsClusterGetGroupMembership(groupCount, groupList, groupListLen)`
- #define `emberAfFillCommandGroupsClusterRemoveGroup(groupId)`
- #define `emberAfFillCommandGroupsClusterRemoveAllGroups()`
- #define `emberAfFillCommandGroupsClusterAddGroupIfIdentifying(groupId, groupName)`
- #define `emberAfFillCommandGroupsClusterAddGroupResponse(status, groupId)`
- #define `emberAfFillCommandGroupsClusterViewGroupResponse(status, groupId, groupName)`
- #define `emberAfFillCommandGroupsClusterGetGroupMembershipResponse(capacity, groupCount, groupList, groupListLen)`
- #define `emberAfFillCommandGroupsClusterRemoveGroupResponse(status, groupId)`

## Scenes Commands

- #define `emberAfFillCommandScenesClusterAddScene(groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)`
- #define `emberAfFillCommandScenesClusterViewScene(groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterRemoveScene(groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterRemoveAllScenes(groupId)`
- #define `emberAfFillCommandScenesClusterStoreScene(groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterRecallScene(groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterGetSceneMembership(groupId)`
- #define `emberAfFillCommandScenesClusterAddSceneResponse(status, groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterViewSceneResponse(status, groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)`
- #define `emberAfFillCommandScenesClusterRemoveSceneResponse(status, groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterRemoveAllScenesResponse(status, groupId)`
- #define `emberAfFillCommandScenesClusterStoreSceneResponse(status, groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterGetSceneMembershipResponse(status, capacity, groupId, sceneCount, sceneList, sceneListLen)`
- #define `emberAfFillCommandScenesClusterEnhancedAddScene(groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)`
- #define `emberAfFillCommandScenesClusterEnhancedViewScene(groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterCopyScene(mode, groupIdFrom, sceneIdFrom, groupIdTo, sceneIdTo)`
- #define `emberAfFillCommandScenesClusterEnhancedAddSceneResponse(status, groupId, sceneId)`
- #define `emberAfFillCommandScenesClusterEnhancedViewSceneResponse(status, groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)`
- #define `emberAfFillCommandScenesClusterCopySceneResponse(status, groupIdFrom, sceneIdFrom)`

## On/off Commands

- #define `emberAfFillCommandOnOffClusterOff()`
- #define `emberAfFillCommandOnOffClusterOn()`
- #define `emberAfFillCommandOnOffClusterToggle()`
- #define `emberAfFillCommandOnOffClusterOffWithEffect(effectId, effectVariant)`
- #define `emberAfFillCommandOnOffClusterOnWithRecallGlobalScene()`

- #define `emberAfFillCommandOnOffClusterOnWithTimedOff`(onOffControl, onTime, offWaitTime)
- #define `emberAfFillCommandOnOffClusterSampleMfgSpecificOffWithTransition()`
- #define `emberAfFillCommandOnOffClusterSampleMfgSpecificOnWithTransition()`
- #define `emberAfFillCommandOnOffClusterSampleMfgSpecificToggleWithTransition()`

## Level Control Commands

- #define `emberAfFillCommandLevelControlClusterMoveToLevel`(level, transitionTime)
- #define `emberAfFillCommandLevelControlClusterMove`(moveMode, rate)
- #define `emberAfFillCommandLevelControlClusterStep`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandLevelControlClusterStop()`
- #define `emberAfFillCommandLevelControlClusterMoveToLevelWithOnOff`(level, transitionTime)
- #define `emberAfFillCommandLevelControlClusterMoveWithOnOff`(moveMode, rate)
- #define `emberAfFillCommandLevelControlClusterStepWithOnOff`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandLevelControlClusterStopWithOnOff()`

## Alarms Commands

- #define `emberAfFillCommandAlarmClusterResetAlarm`(alarmCode, clusterId)
- #define `emberAfFillCommandAlarmClusterResetAllAlarms()`
- #define `emberAfFillCommandAlarmClusterGetAlarm()`
- #define `emberAfFillCommandAlarmClusterResetAlarmLog()`
- #define `emberAfFillCommandAlarmClusterAlarm`(alarmCode, clusterId)
- #define `emberAfFillCommandAlarmClusterGetAlarmResponse`(status, alarmCode, clusterId, time-Stamp)

## RSSI Location Commands

- #define `emberAfFillCommandRssiLocationClusterSetAbsoluteLocation`(coordinate1, coordinate2, coordinate3, power, pathLossExponent)
- #define `emberAfFillCommandRssiLocationClusterSetDeviceConfiguration`(power, pathLossExponent, calculationPeriod, numberRssiMeasurements, reportingPeriod)
- #define `emberAfFillCommandRssiLocationClusterGetDeviceConfiguration`(targetAddress)
- #define `emberAfFillCommandRssiLocationClusterGetLocationData`(flags, numberResponses, targetAddress)
- #define `emberAfFillCommandRssiLocationClusterRssiResponse`(replyingDevice, coordinate1, coordinate2, coordinate3, rssi, numberRssiMeasurements)
- #define `emberAfFillCommandRssiLocationClusterSendPings`(targetAddress, numberRssiMeasurements, calculationPeriod)
- #define `emberAfFillCommandRssiLocationClusterAnchorNodeAnnounce`(anchorNodeIeeeAddress, coordinate1, coordinate2, coordinate3)
- #define `emberAfFillCommandRssiLocationClusterDeviceConfigurationResponse`(status, power, pathLossExponent, calculationPeriod, numberRssiMeasurements, reportingPeriod)
- #define `emberAfFillCommandRssiLocationClusterLocationDataResponse`(status, locationType, coordinate1, coordinate2, coordinate3, power, pathLossExponent, locationMethod, qualityMeasure, locationAge)
- #define `emberAfFillCommandRssiLocationClusterLocationDataNotification`(locationType, coordinate1, coordinate2, coordinate3, power, pathLossExponent, locationMethod, qualityMeasure, locationAge)

- #define `emberAfFillCommandRssiLocationClusterCompactLocationDataNotification`(locationType, coordinate1, coordinate2, coordinate3, qualityMeasure, locationAge)
- #define `emberAfFillCommandRssiLocationClusterRssiPing`(locationType)
- #define `emberAfFillCommandRssiLocationClusterRssiRequest`()
- #define `emberAfFillCommandRssiLocationClusterReportRssiMeasurements`(measuringDevice, neighbors, neighborsInfo, neighborsInfoLen)
- #define `emberAfFillCommandRssiLocationClusterRequestOwnLocation`(blindNode)

## Commissioning Commands

- #define `emberAfFillCommandCommissioningClusterRestartDevice`(options, delay, jitter)
- #define `emberAfFillCommandCommissioningClusterSaveStartupParameters`(options, index)
- #define `emberAfFillCommandCommissioningClusterRestoreStartupParameters`(options, index)
- #define `emberAfFillCommandCommissioningClusterResetStartupParameters`(options, index)
- #define `emberAfFillCommandCommissioningClusterRestartDeviceResponse`(status)
- #define `emberAfFillCommandCommissioningClusterSaveStartupParametersResponse`(status)
- #define `emberAfFillCommandCommissioningClusterRestoreStartupParametersResponse`(status)
- #define `emberAfFillCommandCommissioningClusterResetStartupParametersResponse`(status)

## Partition Commands

- #define `emberAfFillCommandPartitionClusterTransferPartitionedFrame`(fragmentationOptions, partitionedIndicatorAndFrame, partitionedIndicatorAndFrameLen)
- #define `emberAfFillCommandPartitionClusterReadHandshakeParam`(partitionedClusterId, attributeList, attributeListLen)
- #define `emberAfFillCommandPartitionClusterWriteHandshakeParam`(partitionedClusterId, writeAttributeRecords, writeAttributeRecordsLen)
- #define `emberAfFillCommandPartitionClusterMultipleAck`(ackOptions, firstFrameIdAndNackList, firstFrameIdAndNackListLen)
- #define `emberAfFillCommandPartitionClusterReadHandshakeParamResponse`(partitionedClusterId, readAttributeStatusRecords, readAttributeStatusRecordsLen)

## Over the Air Bootloading Commands

- #define `emberAfFillCommandOtaBootloadClusterImageNotify`(payloadType, queryJitter, manufacturerId, imageType, newFileVersion)
- #define `emberAfFillCommandOtaBootloadClusterQueryNextImageRequest`(fieldControl, manufacturerId, imageType, currentFileVersion, hardwareVersion)
- #define `emberAfFillCommandOtaBootloadClusterQueryNextImageResponse`(status, manufacturerId, imageType, fileVersion, imageSize)
- #define `emberAfFillCommandOtaBootloadClusterImageBlockRequest`(fieldControl, manufacturerId, imageType, fileVersion, fileOffset, maxDataSize, requestNodeAddress)
- #define `emberAfFillCommandOtaBootloadClusterImagePageRequest`(fieldControl, manufacturerId, imageType, fileVersion, fileOffset, maxDataSize, pageSize, responseSpacing, requestNodeAddress)
- #define `emberAfFillCommandOtaBootloadClusterImageBlockResponse`(status, manufacturerId, imageType, fileVersion, fileOffset, dataSize, imageData, imageDataLen)
- #define `emberAfFillCommandOtaBootloadClusterUpgradeEndRequest`(status, manufacturerId, imageType, fileVersion)
- #define `emberAfFillCommandOtaBootloadClusterUpgradeEndResponse`(manufacturerId, imageType, fileVersion, currentTime, upgradeTime)

- #define `emberAfFillCommandOtaBootloadClusterQuerySpecificFileRequest`(requestNodeAddress, manufacturerId, imageType, fileVersion, currentZigbeeStackVersion)
- #define `emberAfFillCommandOtaBootloadClusterQuerySpecificFileResponse`(status, manufacturerId, imageType, fileVersion, imageSize)

## Power Profile Commands

- #define `emberAfFillCommandPowerProfileClusterPowerProfileRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileStateRequest()`
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePriceResponse`(powerProfileId, currency, price, priceTrailingDigit)
- #define `emberAfFillCommandPowerProfileClusterGetOverallSchedulePriceResponse`(currency, price, priceTrailingDigit)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleNotification`(powerProfileId, numScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleResponse`(powerProfileId, numScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePriceExtendedResponse`(powerProfileId, currency, price, priceTrailingDigit)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileNotification`(totalProfileNum, powerProfileId, numTransferredPhases, transferredPhases, transferredPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileResponse`(totalProfileNum, powerProfileId, numTransferredPhases, transferredPhases, transferredPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileStateResponse`(powerProfileCount, powerProfileRecords, powerProfileRecordsLen)
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePrice`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterPowerProfilesStateNotification`(powerProfileCount, powerProfileRecords, powerProfileRecordsLen)
- #define `emberAfFillCommandPowerProfileClusterGetOverallSchedulePrice()`
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateResponse`(powerProfileId, numScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateNotification`(powerProfileId, numScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsNotification`(powerProfileId, startAfter, stopBefore)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsResponse`(powerProfileId, startAfter, stopBefore)
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePriceExtended`(options, powerProfileId, powerProfileStartTime)

## Appliance Control Commands

- #define `emberAfFillCommandApplianceControlClusterExecutionOfACommand`(commandId)
- #define `emberAfFillCommandApplianceControlClusterSignalState()`
- #define `emberAfFillCommandApplianceControlClusterWriteFunctions`(functionId, functionDataType, functionData, functionDataLen)

- #define `emberAfFillCommandApplianceControlClusterOverloadPauseResume()`
- #define `emberAfFillCommandApplianceControlClusterOverloadPause()`
- #define `emberAfFillCommandApplianceControlClusterOverloadWarning(warningEvent)`
- #define `emberAfFillCommandApplianceControlClusterSignalStateResponse(applianceStatus, remoteEnableFlagsAndDeviceStatus2, applianceStatus2)`
- #define `emberAfFillCommandApplianceControlClusterSignalStateNotification(applianceStatus, remoteEnableFlagsAndDeviceStatus2, applianceStatus2)`

## Poll Control Commands

- #define `emberAfFillCommandPollControlClusterCheckIn()`
- #define `emberAfFillCommandPollControlClusterCheckInResponse(startFastPolling, fastPollTimeout)`
- #define `emberAfFillCommandPollControlClusterFastPollStop()`
- #define `emberAfFillCommandPollControlClusterSetLongPollInterval(newLongPollInterval)`
- #define `emberAfFillCommandPollControlClusterSetShortPollInterval(newShortPollInterval)`

## Green Power Commands

- #define `emberAfFillCommandGreenPowerClusterGpNotification(options, gpdSrcId, gpdIeee, gpdEndpoint, gpdSecurityFrameCounter, gpdCommandId, gpdCommandPayload, gppShortAddress, gppDistance)`
- #define `emberAfFillCommandGreenPowerClusterGpPairingSearch(options, gpdSrcId, gpdIeee, endpoint)`
- #define `emberAfFillCommandGreenPowerClusterGpTunnelingStop(options, gpdSrcId, gpdIeee, endpoint, gpdSecurityFrameCounter, gppShortAddress, gppDistance)`
- #define `emberAfFillCommandGreenPowerClusterGpCommissioningNotification(options, gpdSrcId, gpdIeee, endpoint, gpdSecurityFrameCounter, gpdCommandId, gpdCommandPayload, gppShortAddress, gppLink, mic)`
- #define `emberAfFillCommandGreenPowerClusterGpSinkCommissioningMode(options, gpmAddrForSecurity, gpmAddrForPairing, sinkEndpoint)`
- #define `emberAfFillCommandGreenPowerClusterGpTranslationTableUpdate(options, gpdSrcId, gpdIeee, endpoint, translations, translationsLen)`
- #define `emberAfFillCommandGreenPowerClusterGpTranslationTableRequest(startIndex)`
- #define `emberAfFillCommandGreenPowerClusterGpPairingConfiguration(actions, options, gpdSrcId, gpdIeee, endpoint, deviceId, groupListCount, groupList, groupListLen, gpdAssignedAlias, forwardingRadius, securityOptions, gpdSecurityFrameCounter, gpdSecurityKey, numberOfPairedEndpoints, pairedEndpoints, pairedEndpointsLen, applicationInformation, manufacturerId, modeId, numberOfGpdCommands, gpdCommandIdList, gpdCommandIdListLen, clusterIdListCount, clusterListServer, clusterListServerLen, clusterListClient, clusterListClientLen)`
- #define `emberAfFillCommandGreenPowerClusterGpSinkTableRequest(options, gpdSrcId, gpdIeee, endpoint, index)`
- #define `emberAfFillCommandGreenPowerClusterGpProxyTableResponse(status, totalNumberOfNonEmptyProxyTableEntries, startIndex, entriesCount, proxyTableEntries, proxyTableEntriesLen)`
- #define `emberAfFillCommandGreenPowerClusterGpNotificationResponse(options, gpdSrcId, gpdIeee, gpdSecurityFrameCounter)`
- #define `emberAfFillCommandGreenPowerClusterGpPairing(options, gpdSrcId, gpdIeee, endpoint, sinkIeeeAddress, sinkNwkAddress, sinkGroupId, deviceId, gpdSecurityFrameCounter, gpdKey, assignedAlias, forwardingRadius)`
- #define `emberAfFillCommandGreenPowerClusterGpProxyCommissioningMode(options, commissioningWindow, channel)`

- #define `emberAfFillCommandGreenPowerClusterGpResponse`(options, tempMasterShortAddress, tempMasterTxChannel, gpdSrcId, gpdIeee, endpoint, gpdCommandId, gpdCommandPayload, gpdCommandPayloadLen)
- #define `emberAfFillCommandGreenPowerClusterGpSinkTableResponse`(status, totalNumberOfNonEmptySinkTableEntries, startIndex, sinkTableEntriesCount, sinkTableEntries, sinkTableEntriesLen)
- #define `emberAfFillCommandGreenPowerClusterGpProxyTableRequest`(options, gpdSrcId, gpdIeee, endpoint, index)

## Door Lock Commands

- #define `emberAfFillCommandDoorLockClusterLockDoor`(PIN)
- #define `emberAfFillCommandDoorLockClusterUnlockDoor`(PIN)
- #define `emberAfFillCommandDoorLockClusterToggle`(pin)
- #define `emberAfFillCommandDoorLockClusterUnlockWithTimeout`(timeoutInSeconds, pin)
- #define `emberAfFillCommandDoorLockClusterGetLogRecord`(logIndex)
- #define `emberAfFillCommandDoorLockClusterSetPin`(userId, userStatus, userType, pin)
- #define `emberAfFillCommandDoorLockClusterGetPin`(userId)
- #define `emberAfFillCommandDoorLockClusterClearPin`(userId)
- #define `emberAfFillCommandDoorLockClusterClearAllPins`()
- #define `emberAfFillCommandDoorLockClusterSetUserStatus`(userId, userStatus)
- #define `emberAfFillCommandDoorLockCluster GetUserStatus`(userId)
- #define `emberAfFillCommandDoorLockClusterSetWeekdaySchedule`(scheduleId, userId, daysMask, startHour, startMinute, endHour, endMinute)
- #define `emberAfFillCommandDoorLockClusterGetWeekdaySchedule`(scheduleId, userId)
- #define `emberAfFillCommandDoorLockClusterClearWeekdaySchedule`(scheduleId, userId)
- #define `emberAfFillCommandDoorLockClusterSetYearDaySchedule`(scheduleId, userId, localStartTime, localEndTime)
- #define `emberAfFillCommandDoorLockClusterGetYearDaySchedule`(scheduleId, userId)
- #define `emberAfFillCommandDoorLockClusterClearYearDaySchedule`(scheduleId, userId)
- #define `emberAfFillCommandDoorLockClusterSetHolidaySchedule`(scheduleId, localStartTime, localEndTime, operatingModeDuringHoliday)
- #define `emberAfFillCommandDoorLockClusterGetHolidaySchedule`(scheduleId)
- #define `emberAfFillCommandDoorLockClusterClearHolidaySchedule`(scheduleId)
- #define `emberAfFillCommandDoorLockClusterSetUserType`(userId, userType)
- #define `emberAfFillCommandDoorLockCluster GetUserType`(userId)
- #define `emberAfFillCommandDoorLockClusterSetRfid`(userId, userStatus, userType, id)
- #define `emberAfFillCommandDoorLockClusterGetRfid`(userId)
- #define `emberAfFillCommandDoorLockClusterClearRfid`(userId)
- #define `emberAfFillCommandDoorLockClusterClearAllRfids`()
- #define `emberAfFillCommandDoorLockClusterLockDoorResponse`(status)
- #define `emberAfFillCommandDoorLockClusterUnlockDoorResponse`(status)
- #define `emberAfFillCommandDoorLockClusterToggleResponse`(status)
- #define `emberAfFillCommandDoorLockClusterUnlockWithTimeoutResponse`(status)
- #define `emberAfFillCommandDoorLockClusterGetLogRecordResponse`(logEntryId, timestamp, event-Type, source, eventIdOrAlarmCode, userId, pin)
- #define `emberAfFillCommandDoorLockClusterSetPinResponse`(status)
- #define `emberAfFillCommandDoorLockClusterGetPinResponse`(userId, userStatus, userType, pin)
- #define `emberAfFillCommandDoorLockClusterClearPinResponse`(status)
- #define `emberAfFillCommandDoorLockClusterClearAllPinsResponse`(status)
- #define `emberAfFillCommandDoorLockClusterSetUserStatusResponse`(status)

- #define `emberAfFillCommandDoorLockCluster GetUserStatusResponse`(userId, status)
- #define `emberAfFillCommandDoorLockCluster SetWeekdayScheduleResponse`(status)
- #define `emberAfFillCommandDoorLockCluster GetWeekdayScheduleResponse`(scheduleId, userId, status, daysMask, startHour, startMinute, endHour, endMinute)
- #define `emberAfFillCommandDoorLockCluster ClearWeekdayScheduleResponse`(status)
- #define `emberAfFillCommandDoorLockCluster SetYeardayScheduleResponse`(status)
- #define `emberAfFillCommandDoorLockCluster GetYeardayScheduleResponse`(scheduleId, userId, status, localStartTime, localEndTime)
- #define `emberAfFillCommandDoorLockCluster ClearYeardayScheduleResponse`(status)
- #define `emberAfFillCommandDoorLockCluster SetHolidayScheduleResponse`(status)
- #define `emberAfFillCommandDoorLockCluster GetHolidayScheduleResponse`(scheduleId, status, localStartTime, localEndTime, operatingModeDuringHoliday)
- #define `emberAfFillCommandDoorLockCluster ClearHolidayScheduleResponse`(status)
- #define `emberAfFillCommandDoorLockCluster SetUserTypeResponse`(status)
- #define `emberAfFillCommandDoorLockCluster GetUserTypeResponse`(userId, userType)
- #define `emberAfFillCommandDoorLockCluster SetRfidResponse`(status)
- #define `emberAfFillCommandDoorLockCluster GetRfidResponse`(userId, userStatus, userType, rfid)
- #define `emberAfFillCommandDoorLockCluster ClearRfidResponse`(status)
- #define `emberAfFillCommandDoorLockCluster ClearAllRfidsResponse`(status)
- #define `emberAfFillCommandDoorLockCluster OperationEventNotification`(source, eventCode, userId, pin, timeStamp, data)
- #define `emberAfFillCommandDoorLockCluster ProgrammingEventNotification`(source, eventCode, userId, pin, userType, userStatus, timeStamp, data)

## Window Covering Commands

- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringUpOpen()`
- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringDownClose()`
- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringStop()`
- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringGoToLiftValue`(liftValue)
- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringGoToLiftPercentage`(percentageLiftValue)
- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringGoToTiltValue`(tiltValue)
- #define `emberAfFillCommandWindowCoveringCluster WindowCoveringGoToTiltPercentage`(percentageTiltValue)

## Thermostat Commands

- #define `emberAfFillCommandThermostatCluster SetpointRaiseLower`(mode, amount)
- #define `emberAfFillCommandThermostatCluster SetWeeklySchedule`(numberOfTransitionsForSequence, dayOfWeekForSequence, modeForSequence, payload, payloadLen)
- #define `emberAfFillCommandThermostatCluster GetWeeklySchedule`(daysToReturn, modeToReturn)
- #define `emberAfFillCommandThermostatCluster ClearWeeklySchedule()`
- #define `emberAfFillCommandThermostatCluster GetRelayStatusLog()`
- #define `emberAfFillCommandThermostatCluster CurrentWeeklySchedule`(numberOfTransitionsForSequence, dayOfWeekForSequence, modeForSequence, payload, payloadLen)
- #define `emberAfFillCommandThermostatCluster RelayStatusLog`(timeOfDay, relayStatus, localTemperature, humidityInPercentage, setpoint, unreadEntries)

## Color Control Commands

- #define `emberAfFillCommandColorControlClusterMoveToHue`(hue, direction, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveHue`(moveMode, rate)
- #define `emberAfFillCommandColorControlClusterStepHue`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveToSaturation`(saturation, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveSaturation`(moveMode, rate)
- #define `emberAfFillCommandColorControlClusterStepSaturation`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveToHueAndSaturation`(hue, saturation, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveToColor`(colorX, colorY, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveColor`(rateX, rateY)
- #define `emberAfFillCommandColorControlClusterStepColor`(stepX, stepY, transitionTime)
- #define `emberAfFillCommandColorControlClusterMoveToColorTemperature`(colorTemperature, transitionTime)
- #define `emberAfFillCommandColorControlClusterEnhancedMoveToHue`(enhancedHue, direction, transitionTime)
- #define `emberAfFillCommandColorControlClusterEnhancedMoveHue`(moveMode, rate)
- #define `emberAfFillCommandColorControlClusterEnhancedStepHue`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandColorControlClusterEnhancedMoveToHueAndSaturation`(enhancedHue, saturation, transitionTime)
- #define `emberAfFillCommandColorControlClusterColorLoopSet`(updateFlags, action, direction, time, startHue)
- #define `emberAfFillCommandColorControlClusterStopMoveStep`()
- #define `emberAfFillCommandColorControlClusterMoveColorTemperature`(moveMode, rate, colorTemperatureMinimum, colorTemperatureMaximum)
- #define `emberAfFillCommandColorControlClusterStepColorTemperature`(stepMode, stepSize, transitionTime, colorTemperatureMinimum, colorTemperatureMaximum)

## IAS Zone Commands

- #define `emberAfFillCommandIasZoneClusterZoneEnrollResponse`(enrollResponseCode, zoneId)
- #define `emberAfFillCommandIasZoneClusterInitiateNormalOperationMode`()
- #define `emberAfFillCommandIasZoneClusterInitiateTestMode`(testModeDuration, currentZoneSensitivityLevel)
- #define `emberAfFillCommandIasZoneClusterZoneStatusChangeNotification`(zoneStatus, extendedStatus, zoneId, delay)
- #define `emberAfFillCommandIasZoneClusterZoneEnrollRequest`(zoneType, manufacturerCode)
- #define `emberAfFillCommandIasZoneClusterInitiateNormalOperationModeResponse`()
- #define `emberAfFillCommandIasZoneClusterInitiateTestModeResponse`()

## IAS ACE Commands

- #define `emberAfFillCommandIasAceClusterArm`(armMode, armDisarmCode, zoneId)
- #define `emberAfFillCommandIasAceClusterBypass`(numberOfZones, zoneIds, zoneIdsLen, armDisarmCode)
- #define `emberAfFillCommandIasAceClusterEmergency`()
- #define `emberAfFillCommandIasAceClusterFire`()
- #define `emberAfFillCommandIasAceClusterPanic`()

- #define `emberAfFillCommandIasAceClusterGetZoneIdMap()`
- #define `emberAfFillCommandIasAceClusterGetZoneInformation(zoneId)`
- #define `emberAfFillCommandIasAceClusterGetPanelStatus()`
- #define `emberAfFillCommandIasAceClusterGetBypassedZoneList()`
- #define `emberAfFillCommandIasAceClusterGetZoneStatus(startingZoneId, maxNumberOfZoneIds, zoneStatusMaskFlag, zoneStatusMask)`
- #define `emberAfFillCommandIasAceClusterArmResponse(armNotification)`
- #define `emberAfFillCommandIasAceClusterGetZoneIdMapResponse(section0, section1, section2, section3, section4, section5, section6, section7, section8, section9, section10, section11, section12, section13, section14, section15)`
- #define `emberAfFillCommandIasAceClusterGetZoneInformationResponse(zoneId, zoneType, ieeeAddress, zoneLabel)`
- #define `emberAfFillCommandIasAceClusterZoneStatusChanged(zoneId, zoneStatus, audibleNotification, zoneLabel)`
- #define `emberAfFillCommandIasAceClusterPanelStatusChanged(panelStatus, secondsRemaining, audibleNotification, alarmStatus)`
- #define `emberAfFillCommandIasAceClusterGetPanelStatusResponse(panelStatus, secondsRemaining, audibleNotification, alarmStatus)`
- #define `emberAfFillCommandIasAceClusterSetBypassedZoneList(numberOfZones, zoneIds, zoneIdsLen)`
- #define `emberAfFillCommandIasAceClusterBypassResponse(numberOfZones, bypassResult, bypassResultLen)`
- #define `emberAfFillCommandIasAceClusterGetZoneStatusResponse(zoneStatusComplete, numberOfZones, zoneStatusResult, zoneStatusResultLen)`

## IAS WD Commands

- #define `emberAfFillCommandIasWdClusterStartWarning(warningInfo, warningDuration, strobeDutyCycle, strobeLevel)`
- #define `emberAfFillCommandIasWdClusterSquawk(squawkInfo)`

## Generic Tunnel Commands

- #define `emberAfFillCommandGenericTunnelClusterMatchProtocolAddress(protocolAddress)`
- #define `emberAfFillCommandGenericTunnelClusterMatchProtocolAddressResponse(deviceIeeeAddress, protocolAddress)`
- #define `emberAfFillCommandGenericTunnelClusterAdvertiseProtocolAddress(protocolAddress)`

## BACnet Protocol Tunnel Commands

- #define `emberAfFillCommandBacnetProtocolTunnelClusterTransferNpdu(npdu, npduLen)`

## 11073 Protocol Tunnel Commands

- #define `emberAfFillCommand11073ProtocolTunnelClusterTransferAPDU(apdu)`
- #define `emberAfFillCommand11073ProtocolTunnelClusterConnectRequest(connectControl, idleTimeout, managerTarget, managerEndpoint)`
- #define `emberAfFillCommand11073ProtocolTunnelClusterDisconnectRequest(managerIEEEAddress)`
- #define `emberAfFillCommand11073ProtocolTunnelClusterConnectStatusNotification(connectStatus)`

## ISO 7816 Protocol Tunnel Commands

- #define `emberAfFillCommandIso7816ProtocolTunnelClusterServerToClientTransferApdu`(apdu)
- #define `emberAfFillCommandIso7816ProtocolTunnelClusterClientToServerTransferApdu`(apdu)
- #define `emberAfFillCommandIso7816ProtocolTunnelClusterInsertSmartCard()`
- #define `emberAfFillCommandIso7816ProtocolTunnelClusterExtractSmartCard()`

## Price Commands

- #define `emberAfFillCommandPriceClusterPublishPrice`(providerId, rateLabel, issuerEventId, currentTime, unitOfMeasure, currency, priceTrailingDigitAndPriceTier, numberOfPriceTiersAndRegisterTier, startTime, durationInMinutes, price, priceRatio, generationPrice, generationPriceRatio, alternateCostDelivered, alternateCostUnit, alternateCostTrailingDigit, numberOfBlockThresholds, priceControl, numberOfGenerationTiers, generationTier, extendedNumberOfPriceTiers, extendedPriceTier, extendedRegisterTier)
- #define `emberAfFillCommandPriceClusterPublishBlockPeriod`(providerId, issuerEventId, blockPeriodStartTime, blockPeriodDuration, blockPeriodControl, blockPeriodDurationType, tariffType, tariffResolutionPeriod)
- #define `emberAfFillCommandPriceClusterPublishConversionFactor`(issuerEventId, startTime, conversionFactor, conversionFactorTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishCalorificValue`(issuerEventId, startTime, calorificValue, calorificValueUnit, calorificValueTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishTariffInformation`(providerId, issuerEventId, issuerTariffId, startTime, tariffTypeChargingScheme, tariffLabel, numberOfPriceTiersInUse, numberOfBlockThresholdsInUse, unitOfMeasure, currency, priceTrailingDigit, standingCharge, tierBlockMode, blockThresholdMultiplier, blockThresholdDivisor)
- #define `emberAfFillCommandPriceClusterPublishPriceMatrix`(providerId, issuerEventId, startTime, issuerTariffId, commandIndex, numberOfCommands, subPayloadControl, payload, payloadLen)
- #define `emberAfFillCommandPriceClusterPublishBlockThresholds`(providerId, issuerEventId, startTime, issuerTariffId, commandIndex, numberOfCommands, subPayloadControl, payload, payloadLen)
- #define `emberAfFillCommandPriceClusterPublishCO2Value`(providerId, issuerEventId, startTime, tariffType, cO2Value, cO2ValueUnit, cO2ValueTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishTierLabels`(providerId, issuerEventId, issuerTariffId, commandIndex, numberOfCommands, numberOfLabels, tierLabelsPayload, tierLabelsPayloadLen)
- #define `emberAfFillCommandPriceClusterPublishBillingPeriod`(providerId, issuerEventId, billingPeriodStartTime, billingPeriodDuration, billingPeriodDurationType, tariffType)
- #define `emberAfFillCommandPriceClusterPublishConsolidatedBill`(providerId, issuerEventId, billingPeriodStartTime, billingPeriodDuration, billingPeriodDurationType, tariffType, consolidatedBill, currency, billTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishCppEvent`(providerId, issuerEventId, startTime, durationInMinutes, tariffType, cppPriceTier, cppAuth)
- #define `emberAfFillCommandPriceClusterPublishCreditPayment`(providerId, issuerEventId, creditPaymentDueDate, creditPaymentOverDueAmount, creditPaymentStatus, creditPayment, creditPaymentDate, creditPaymentRef)
- #define `emberAfFillCommandPriceClusterPublishCurrencyConversion`(providerId, issuerEventId, startTime, oldCurrency, newCurrency, conversionFactor, conversionFactorTrailingDigit, currencyChangeControlFlags)
- #define `emberAfFillCommandPriceClusterCancelTariff`(providerId, issuerTariffId, tariffType)
- #define `emberAfFillCommandPriceClusterGetCurrentPrice`(commandOptions)
- #define `emberAfFillCommandPriceClusterGetScheduledPrices`(startTime, numberOfEvents)

- #define `emberAfFillCommandPriceClusterPriceAcknowledgement`(providerId, issuerEventId, priceAckTime, control)
- #define `emberAfFillCommandPriceClusterGetBlockPeriods`(startTime, numberOfEvents, tariffType)
- #define `emberAfFillCommandPriceClusterGetConversionFactor`(earliestStartTime, minIssuerEventId, numberOfCommands)
- #define `emberAfFillCommandPriceClusterGetCalorificValue`(earliestStartTime, minIssuerEventId, numberOfCommands)
- #define `emberAfFillCommandPriceClusterGetTariffInformation`(earliestStartTime, minIssuerEventId, numberOfCommands, tariffType)
- #define `emberAfFillCommandPriceClusterGetPriceMatrix`(issuerTariffId)
- #define `emberAfFillCommandPriceClusterGetBlockThresholds`(issuerTariffId)
- #define `emberAfFillCommandPriceClusterGetCO2Value`(earliestStartTime, minIssuerEventId, numberOfCommands, tariffType)
- #define `emberAfFillCommandPriceClusterGetTierLabels`(issuerTariffId)
- #define `emberAfFillCommandPriceClusterGetBillingPeriod`(earliestStartTime, minIssuerEventId, numberOfCommands, tariffType)
- #define `emberAfFillCommandPriceClusterGetConsolidatedBill`(earliestStartTime, minIssuerEventId, numberOfCommands, tariffType)
- #define `emberAfFillCommandPriceClusterCppEventResponse`(issuerEventId, cppAuth)
- #define `emberAfFillCommandPriceClusterGetCreditPayment`(latestEndTime, numberOfRecords)
- #define `emberAfFillCommandPriceClusterGetCurrencyConversionCommand`()
- #define `emberAfFillCommandPriceClusterGetTariffCancellation`()

## Demand Response and Load Control Commands

- #define `emberAfFillCommandDemandResponseLoadControlClusterLoadControlEvent`(issuerEventId, deviceClass, utilityEnrollmentGroup, startTime, durationInMinutes, criticalityLevel, coolingTemperatureOffset, heatingTemperatureOffset, coolingTemperatureSetPoint, heatingTemperatureSetPoint, averageLoadAdjustmentPercentage, dutyCycle, eventControl)
- #define `emberAfFillCommandDemandResponseLoadControlClusterCancelLoadControlEvent`(issuerEventId, deviceClass, utilityEnrollmentGroup, cancelControl, effectiveTime)
- #define `emberAfFillCommandDemandResponseLoadControlClusterCancelAllLoadControlEvents`(cancelControl)
- #define `emberAfFillCommandDemandResponseLoadControlClusterReportEventStatus`(issuerEventId, eventStatus, eventStatusTime, criticalityLevelApplied, coolingTemperatureSetPointApplied, heatingTemperatureSetPointApplied, averageLoadAdjustmentPercentageApplied, dutyCycleApplied, eventControl, signatureType, signature)
- #define `emberAfFillCommandDemandResponseLoadControlClusterGetScheduledEvents`(startTime, numberOfEvents, issuerEventId)

## Simple Metering Commands

- #define `emberAfFillCommandSimpleMeteringClusterGetProfileResponse`(endTime, status, profileIntervalPeriod, numberOfPeriodsDelivered, intervals, intervalsLen)
- #define `emberAfFillCommandSimpleMeteringClusterRequestMirror`()
- #define `emberAfFillCommandSimpleMeteringClusterRemoveMirror`()
- #define `emberAfFillCommandSimpleMeteringClusterRequestFastPollModeResponse`(appliedUpdatePeriod, fastPollModeEndtime)
- #define `emberAfFillCommandSimpleMeteringClusterScheduleSnapshotResponse`(issuerEventId, snapshotResponsePayload, snapshotResponsePayloadLen)

- #define `emberAfFillCommandSimpleMeteringClusterTakeSnapshotResponse(snapshotId, snapshotConfirmation)`
- #define `emberAfFillCommandSimpleMeteringClusterPublishSnapshot(snapshotId, snapshotTime, totalSnapshotsFound, commandIndex, totalCommands, snapshotCause, snapshotPayloadType, snapshotPayload, snapshotPayloadLen)`
- #define `emberAfFillCommandSimpleMeteringClusterGetSampledDataResponse(sampleId, sampleStartTime, sampleType, sampleRequestInterval, numberOfSamples, samples, samplesLen)`
- #define `emberAfFillCommandSimpleMeteringClusterConfigureMirror(issuerEventId, reportingInterval, mirrorNotificationReporting, notificationScheme)`
- #define `emberAfFillCommandSimpleMeteringClusterConfigureNotificationScheme(issuerEventId, notificationScheme, notificationFlagOrder)`
- #define `emberAfFillCommandSimpleMeteringClusterConfigureNotificationFlags(issuerEventId, notificationScheme, notificationFlagAttributeId, clusterId, manufacturerCode, numberOfCommands, commandIds, commandIdsLen)`
- #define `emberAfFillCommandSimpleMeteringClusterGetNotifiedMessage(notificationScheme, notificationFlagAttributeId, notificationFlagsN)`
- #define `emberAfFillCommandSimpleMeteringClusterSupplyStatusResponse(providerId, issuerEventId, implementationDateTime, supplyStatus)`
- #define `emberAfFillCommandSimpleMeteringClusterStartSamplingResponse(sampleId)`
- #define `emberAfFillCommandSimpleMeteringClusterGetProfile(intervalChannel, endTime, numberOfPeriods)`
- #define `emberAfFillCommandSimpleMeteringClusterRequestMirrorResponse(endpointId)`
- #define `emberAfFillCommandSimpleMeteringClusterMirrorRemoved(endpointId)`
- #define `emberAfFillCommandSimpleMeteringClusterRequestFastPollMode(fastPollUpdatePeriod, duration)`
- #define `emberAfFillCommandSimpleMeteringClusterScheduleSnapshot(issuerEventId, commandIndex, commandCount, snapshotSchedulePayload, snapshotSchedulePayloadLen)`
- #define `emberAfFillCommandSimpleMeteringClusterTakeSnapshot(snapshotCause)`
- #define `emberAfFillCommandSimpleMeteringClusterGetSnapshot(earliestStartTime, latestEndTime, snapshotOffset, snapshotCause)`
- #define `emberAfFillCommandSimpleMeteringClusterStartSampling(issuerEventId, startSamplingTime, sampleType, sampleRequestInterval, maxNumberOfSamples)`
- #define `emberAfFillCommandSimpleMeteringClusterGetSampledData(sampleId, earliestSampleTime, sampleType, numberOfSamples)`
- #define `emberAfFillCommandSimpleMeteringClusterMirrorReportAttributeResponse(notificationScheme, notificationFlags, notificationFlagsLen)`
- #define `emberAfFillCommandSimpleMeteringClusterResetLoadLimitCounter(providerId, issuerEventId)`
- #define `emberAfFillCommandSimpleMeteringClusterChangeSupply(providerId, issuerEventId, requestDateTime, implementationDateTime, proposedSupplyStatus, supplyControlBits)`
- #define `emberAfFillCommandSimpleMeteringClusterLocalChangeSupply(proposedSupplyStatus)`
- #define `emberAfFillCommandSimpleMeteringClusterSetSupplyStatus(issuerEventId, supplyTamperState, supplyDepletionState, supplyUncontrolledFlowState, loadLimitSupplyState)`
- #define `emberAfFillCommandSimpleMeteringClusterSetUncontrolledFlowThreshold(providerId, issuerEventId, uncontrolledFlowThreshold, unitOfMeasure, multiplier, divisor, stabilisationPeriod, measurementPeriod)`

## Messaging Commands

- #define `emberAfFillCommandMessagingClusterDisplayMessage(messageId, messageControl, startTime, durationInMinutes, message, optionalExtendedMessageControl)`

- #define `emberAfFillCommandMessagingClusterCancelMessage`(messageId, messageControl)
- #define `emberAfFillCommandMessagingClusterDisplayProtectedMessage`(messageId, messageControl, startTime, durationInMinutes, message, optionalExtendedMessageControl)
- #define `emberAfFillCommandMessagingClusterCancelAllMessages`(implementationDateTime)
- #define `emberAfFillCommandMessagingClusterGetLastMessage`()
- #define `emberAfFillCommandMessagingClusterMessageConfirmation`(messageId, confirmationTime, messageConfirmationControl, messageResponse)
- #define `emberAfFillCommandMessagingClusterGetMessageCancellation`(earliestImplementationTime)

## Tunneling Commands

- #define `emberAfFillCommandTunnelingClusterRequestTunnel`(protocolId, manufacturerCode, flowControlSupport, maximumIncomingTransferSize)
- #define `emberAfFillCommandTunnelingClusterCloseTunnel`(tunnelId)
- #define `emberAfFillCommandTunnelingClusterTransferDataClientToServer`(tunnelId, data, dataLen)
- #define `emberAfFillCommandTunnelingClusterTransferDataErrorClientToServer`(tunnelId, transferDataStatus)
- #define `emberAfFillCommandTunnelingClusterAckTransferDataClientToServer`(tunnelId, number\_ofBytesLeft)
- #define `emberAfFillCommandTunnelingClusterReadyDataClientToServer`(tunnelId, number\_ofOctetsLeft)
- #define `emberAfFillCommandTunnelingClusterGetSupportedTunnelProtocols`(protocolOffset)
- #define `emberAfFillCommandTunnelingClusterRequestTunnelResponse`(tunnelId, tunnelStatus, maximumIncomingTransferSize)
- #define `emberAfFillCommandTunnelingClusterTransferDataServerToClient`(tunnelId, data, dataLen)
- #define `emberAfFillCommandTunnelingClusterTransferDataErrorServerToClient`(tunnelId, transferDataStatus)
- #define `emberAfFillCommandTunnelingClusterAckTransferDataServerToClient`(tunnelId, number\_ofBytesLeft)
- #define `emberAfFillCommandTunnelingClusterReadyDataServerToClient`(tunnelId, number\_ofOctetsLeft)
- #define `emberAfFillCommandTunnelingClusterSupportedTunnelProtocolsResponse`(protocolListComplete, protocolCount, protocolList, protocolListLen)
- #define `emberAfFillCommandTunnelingClusterTunnelClosureNotification`(tunnelId)

## Prepayment Commands

- #define `emberAfFillCommandPrepaymentClusterSelectAvailableEmergencyCredit`(commandIssueDate, originatingDevice)
- #define `emberAfFillCommandPrepaymentClusterChangeDebt`(issuerEventId, debtLabel, debtAmount, debtRecoveryMethod, debtAmountType, debtRecoveryStartTime, debtRecoveryCollectionTime, debtRecoveryFrequency, debtRecoveryAmount, debtRecoveryBalancePercentage)
- #define `emberAfFillCommandPrepaymentClusterEmergencyCreditSetup`(issuerEventId, startTime, emergencyCreditLimit, emergencyCreditThreshold)
- #define `emberAfFillCommandPrepaymentClusterConsumerTopUp`(originatingDevice, topUpCode)
- #define `emberAfFillCommandPrepaymentClusterCreditAdjustment`(issuerEventId, startTime, creditAdjustmentType, creditAdjustmentValue)
- #define `emberAfFillCommandPrepaymentClusterChangePaymentMode`(providerId, issuerEventId, implementationDateTime, proposedPaymentControlConfiguration, cutOffValue)
- #define `emberAfFillCommandPrepaymentClusterGetPrepaySnapshot`(earliestStartTime, latestEndTime, snapshotOffset, snapshotCause)

- #define `emberAfFillCommandPrepaymentClusterGetTopUpLog`(latestEndTime, numberOfRecords)
- #define `emberAfFillCommandPrepaymentClusterSetLowCreditWarningLevel`(lowCreditWarningLevel)
- #define `emberAfFillCommandPrepaymentClusterGetDebtRepaymentLog`(latestEndTime, number-OfDebts, debtType)
- #define `emberAfFillCommandPrepaymentClusterSetMaximumCreditLimit`(providerId, issuerEvent-Id, implementationDateTime, maximumCreditLevel, maximumCreditPerTopUp)
- #define `emberAfFillCommandPrepaymentClusterSetOverallDebtCap`(providerId, issuerEventId, implementation-DateTime, overallDebtCap)
- #define `emberAfFillCommandPrepaymentClusterPublishPrepaySnapshot`(snapshotId, snapshotTime, totalSnapshotsFound, commandIndex, totalNumberOfCommands, snapshotCause, snapshotPayload-Type, snapshotPayload, snapshotPayloadLen)
- #define `emberAfFillCommandPrepaymentClusterChangePaymentModeResponse`(friendlyCredit, friendly-CreditCalendarId, emergencyCreditLimit, emergencyCreditThreshold)
- #define `emberAfFillCommandPrepaymentClusterConsumerTopUpResponse`(resultType, topUpValue, sourceOfTopUp, creditRemaining)
- #define `emberAfFillCommandPrepaymentClusterPublishTopUpLog`(commandIndex, totalNumber-OfCommands, topUpPayload, topUpPayloadLen)
- #define `emberAfFillCommandPrepaymentClusterPublishDebtLog`(commandIndex, totalNumberOf-Commands, debtPayload, debtPayloadLen)

## Energy Management Commands

- #define `emberAfFillCommandEnergyManagementClusterReportEventStatus`(issuerEventId, event-Status, eventStatusTime, criticalityLevelApplied, coolingTemperatureSetPointApplied, heatingTemperature-SetPointApplied, averageLoadAdjustmentPercentageApplied, dutyCycleApplied, eventControl)
- #define `emberAfFillCommandEnergyManagementClusterManageEvent`(issuerEventId, deviceClass, utilityEnrollmentGroup, actionRequired)

## Calendar Commands

- #define `emberAfFillCommandCalendarClusterPublishCalendar`(providerId, issuerEventId, issuerCalendar-Id, startTime, calendarType, calendarTimeReference, calendarName, numberOfSeasons, numberOf-WeekProfiles, numberOfDayProfiles)
- #define `emberAfFillCommandCalendarClusterPublishDayProfile`(providerId, issuerEventId, issuer-CalendarId, dayId, totalNumberOfScheduleEntries, commandIndex, totalNumberOfCommands, calendar-Type, dayScheduleEntries, dayScheduleEntriesLen)
- #define `emberAfFillCommandCalendarClusterPublishWeekProfile`(providerId, issuerEventId, issuer-CalendarId, weekId, dayIdRefMonday, dayIdRefTuesday, dayIdRefWednesday, dayIdRefThursday, dayIdRefFriday, dayIdRefSaturday, dayIdRefSunday)
- #define `emberAfFillCommandCalendarClusterPublishSeasons`(providerId, issuerEventId, issuerCalendar-Id, commandIndex, totalNumberOfCommands, seasonEntries, seasonEntriesLen)
- #define `emberAfFillCommandCalendarClusterPublishSpecialDays`(providerId, issuerEventId, issuer-CalendarId, startTime, calendarType, totalNumberOfSpecialDays, commandIndex, totalNumberOf-Commands, specialDayEntries, specialDayEntriesLen)
- #define `emberAfFillCommandCalendarClusterCancelCalendar`(providerId, issuerCalendarId, calendar-Type)
- #define `emberAfFillCommandCalendarClusterGetCalendar`(earliestStartTime, minIssuerEventId, number-OfCalendars, calendarType, providerId)
- #define `emberAfFillCommandCalendarClusterGetDayProfiles`(providerId, issuerCalendarId, start-DayId, numberOfDay)

- #define `emberAfFillCommandCalendarClusterGetWeekProfiles`(providerId, issuerCalendarId, start-WeekId, numberOfWeeks)
- #define `emberAfFillCommandCalendarClusterGetSeasons`(providerId, issuerCalendarId)
- #define `emberAfFillCommandCalendarClusterGetSpecialDays`(startTime, numberOfEvents, calendar-Type, providerId, issuerCalendarId)
- #define `emberAfFillCommandCalendarClusterGetCalendarCancellation`()

## Device Management Commands

- #define `emberAfFillCommandDeviceManagementClusterGetChangeOfTenancy`()
- #define `emberAfFillCommandDeviceManagementClusterGetChangeOfSupplier`()
- #define `emberAfFillCommandDeviceManagementClusterRequestNewPassword`(passwordType)
- #define `emberAfFillCommandDeviceManagementClusterGetSiteId`()
- #define `emberAfFillCommandDeviceManagementClusterReportEventConfiguration`(commandIndex, totalCommands, eventConfigurationPayload, eventConfigurationPayloadLen)
- #define `emberAfFillCommandDeviceManagementClusterGetCIN`()
- #define `emberAfFillCommandDeviceManagementClusterPublishChangeOfTenancy`(providerId, issuer-EventId, tariffType, implementationDateTime, proposedTenancyChangeControl)
- #define `emberAfFillCommandDeviceManagementClusterPublishChangeOfSupplier`(currentProvider-Id, issuerEventId, tariffType, proposedProviderId, providerChangeImplementationTime, provider-ChangeControl, proposedProviderName, proposedProviderContactDetails)
- #define `emberAfFillCommandDeviceManagementClusterRequestNewPasswordResponse`(issuerEvent-Id, implementationDateTime, durationInMinutes, passwordType, password)
- #define `emberAfFillCommandDeviceManagementClusterUpdateSiteId`(issuerEventId, siteIdTime, provider-Id, siteId)
- #define `emberAfFillCommandDeviceManagementClusterSetEventConfiguration`(issuerEventId, start-DateTime, eventConfiguration, configurationControl, eventConfigurationPayload, eventConfiguration-PayloadLen)
- #define `emberAfFillCommandDeviceManagementClusterGetEventConfiguration`(eventId)
- #define `emberAfFillCommandDeviceManagementClusterUpdateCIN`(issuerEventId, implementation-Time, providerId, customerIdNumber)

## Events Commands

- #define `emberAfFillCommandEventsClusterGetEventLog`(eventControlLogId, eventId, startTime, end-Time, numberOfEvents, eventOffset)
- #define `emberAfFillCommandEventsClusterClearEventLogRequest`(logId)
- #define `emberAfFillCommandEventsClusterPublishEvent`(logId, eventId, eventTime, eventControl, eventData)
- #define `emberAfFillCommandEventsClusterPublishEventLog`(totalNumberOfEvents, commandIndex, totalCommands, logPayloadControl, logPayload, logPayloadLen)
- #define `emberAfFillCommandEventsClusterClearEventLogResponse`(clearedEventsLogs)

## MDU Pairing Commands

- #define `emberAfFillCommandMduPairingClusterPairingResponse`(pairingInformationVersion, total-NumberOfDevices, commandIndex, totalNumberOfCommands, eui64s, eui64sLen)
- #define `emberAfFillCommandMduPairingClusterPairingRequest`(localPairingInformationVersion, eui64-OfRequestingDevice)

## Key Establishment Commands

- #define `emberAfFillCommandKeyEstablishmentClusterInitiateKeyEstablishmentRequest`(keyEstablishmentSuite, ephemeralDataGenerateTime, confirmKeyGenerateTime, identity)
- #define `emberAfFillCommandKeyEstablishmentClusterEphemeralDataRequest`(ephemeralData)
- #define `emberAfFillCommandKeyEstablishmentClusterConfirmKeyDataRequest`(secureMessageAuthenticationCode)
- #define `emberAfFillCommandKeyEstablishmentClusterServerToClientTerminateKeyEstablishment`(statusCode, waitTime, keyEstablishmentSuite)
- #define `emberAfFillCommandKeyEstablishmentClusterClientToServerTerminateKeyEstablishment`(statusCode, waitTime, keyEstablishmentSuite)
- #define `emberAfFillCommandKeyEstablishmentClusterInitiateKeyEstablishmentResponse`(requestedKeyEstablishmentSuite, ephemeralDataGenerateTime, confirmKeyGenerateTime, identity)
- #define `emberAfFillCommandKeyEstablishmentClusterEphemeralDataResponse`(ephemeralData)
- #define `emberAfFillCommandKeyEstablishmentClusterConfirmKeyDataResponse`(secureMessageAuthenticationCode)

## Information Commands

- #define `emberAfFillCommandInformationClusterRequestInformation`(inquiryId, dataTypeId, requestInformationPayload, requestInformationPayloadLen)
- #define `emberAfFillCommandInformationClusterPushInformationResponse`(notificationList, notificationListLen)
- #define `emberAfFillCommandInformationClusterSendPreference`(preferenceType, preferencePayload, preferencePayloadLen)
- #define `emberAfFillCommandInformationClusterRequestPreferenceResponse`(statusFeedback, preferenceType, preferencePayload, preferencePayloadLen)
- #define `emberAfFillCommandInformationClusterUpdate`(accessControl, option, contents, contentsLen)
- #define `emberAfFillCommandInformationClusterDelete`(deletionOptions, contentIds, contentIdsLen)
- #define `emberAfFillCommandInformationClusterConfigureNodeDescription`(description)
- #define `emberAfFillCommandInformationClusterConfigureDeliveryEnable`(enable)
- #define `emberAfFillCommandInformationClusterConfigurePushInformationTimer`(timer)
- #define `emberAfFillCommandInformationClusterConfigureSetRootId`(rootId)
- #define `emberAfFillCommandInformationClusterRequestInformationResponse`(number, buffer, bufferLen)
- #define `emberAfFillCommandInformationClusterPushInformation`(contents, contentsLen)
- #define `emberAfFillCommandInformationClusterSendPreferenceResponse`(statusFeedbackList, statusFeedbackListLen)
- #define `emberAfFillCommandInformationClusterServerRequestPreference`()
- #define `emberAfFillCommandInformationClusterRequestPreferenceConfirmation`(statusFeedbackList, statusFeedbackListLen)
- #define `emberAfFillCommandInformationClusterUpdateResponse`(notificationList, notificationListLen)
- #define `emberAfFillCommandInformationClusterDeleteResponse`(notificationList, notificationListLen)

## Data Sharing Commands

- #define `emberAfFillCommandDataSharingClusterReadFileRequest`(fileIndex, fileStartPositionAndRequestedOctetCount, fileStartPositionAndRequestedOctetCountLen)
- #define `emberAfFillCommandDataSharingClusterReadRecordRequest`(fileIndex, fileStartPositionAndRequestedRecordCount, fileStartPositionAndRequestedRecordCountLen)
- #define `emberAfFillCommandDataSharingClusterWriteFileResponse`(status, fileIndex, fileIndexLen)
- #define `emberAfFillCommandDataSharingClusterWriteFileRequest`(writeOptions, fileSize, fileSizeLen)
- #define `emberAfFillCommandDataSharingClusterModifyFileRequest`(fileIndex, fileStartPosition, octetCount)
- #define `emberAfFillCommandDataSharingClusterModifyRecordRequest`(fileIndex, fileStartPosition, recordCount)
- #define `emberAfFillCommandDataSharingClusterFileTransmission`(transmitOptions, buffer, bufferLen)
- #define `emberAfFillCommandDataSharingClusterRecordTransmission`(transmitOptions, buffer, bufferLen)

## Gaming Commands

- #define `emberAfFillCommandGamingClusterSearchGame`(specificGame, gameId)
- #define `emberAfFillCommandGamingClusterJoinGame`(gameId, joinAsMaster, nameOfGame)
- #define `emberAfFillCommandGamingClusterStartGame`()
- #define `emberAfFillCommandGamingClusterPauseGame`()
- #define `emberAfFillCommandGamingClusterResumeGame`()
- #define `emberAfFillCommandGamingClusterQuitGame`()
- #define `emberAfFillCommandGamingClusterEndGame`()
- #define `emberAfFillCommandGamingClusterStartOver`()
- #define `emberAfFillCommandGamingClusterActionControl`(actions)
- #define `emberAfFillCommandGamingClusterDownloadGame`()
- #define `emberAfFillCommandGamingClusterGameAnnouncement`(gameId, gameMaster, listOfGame)
- #define `emberAfFillCommandGamingClusterGeneralResponse`(commandId, status, message)

## Data Rate Control Commands

- #define `emberAfFillCommandDataRateControlClusterPathCreation`(originatorAddress, destinationAddress, dataRate)
- #define `emberAfFillCommandDataRateControlClusterDataRateNotification`(originatorAddress, destinationAddress, dataRate)
- #define `emberAfFillCommandDataRateControlClusterPathDeletion`(originatorAddress, destinationAddress)
- #define `emberAfFillCommandDataRateControlClusterDataRateControl`(originatorAddress, destinationAddress, dataRate)

## Voice over ZigBee Commands

- #define `emberAfFillCommandVoiceOverZigbeeClusterEstablishmentRequest`(flag, codecType, sampleFreq, codecRate, serviceType, buffer, bufferLen)
- #define `emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmission`(voiceData, voiceDataLen)
- #define `emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmissionCompletion`()

- #define `emberAfFillCommandVoiceOverZigbeeClusterControlResponse(ackNack)`
- #define `emberAfFillCommandVoiceOverZigbeeClusterEstablishmentResponse(ackNack, codecType)`
- #define `emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmissionResponse(sequenceNumber, errorFlag)`
- #define `emberAfFillCommandVoiceOverZigbeeClusterControl(controlType)`

## Chatting Commands

- #define `emberAfFillCommandChattingClusterJoinChatRequest(uid, nickname, cid)`
- #define `emberAfFillCommandChattingClusterLeaveChatRequest(cid, uid)`
- #define `emberAfFillCommandChattingClusterSearchChatRequest()`
- #define `emberAfFillCommandChattingClusterSwitchChairmanResponse(cid, uid)`
- #define `emberAfFillCommandChattingClusterStartChatRequest(name, uid, nickname)`
- #define `emberAfFillCommandChattingClusterChatMessage(destinationUid, sourceUid, cid, nickname, message)`
- #define `emberAfFillCommandChattingClusterGetNodeInformationRequest(cid, uid)`
- #define `emberAfFillCommandChattingClusterStartChatResponse(status, cid)`
- #define `emberAfFillCommandChattingClusterJoinChatResponse(status, cid, chatParticipantList, chatParticipantListLen)`
- #define `emberAfFillCommandChattingClusterUserLeft(cid, uid, nickname)`
- #define `emberAfFillCommandChattingClusterUserJoined(cid, uid, nickname)`
- #define `emberAfFillCommandChattingClusterSearchChatResponse(options, chatRoomList, chatRoomListLen)`
- #define `emberAfFillCommandChattingClusterSwitchChairmanRequest(cid)`
- #define `emberAfFillCommandChattingClusterSwitchChairmanConfirm(cid, nodeInformationList, nodeInformationListLen)`
- #define `emberAfFillCommandChattingClusterSwitchChairmanNotification(cid, uid, address, endpoint)`
- #define `emberAfFillCommandChattingClusterGetNodeInformationResponse(status, cid, uid, addressEndpointAndNickname, addressEndpointAndNicknameLen)`

## Payment Commands

- #define `emberAfFillCommandPaymentClusterBuyRequest(userId, userType, serviceId, goodId)`
- #define `emberAfFillCommandPaymentClusterAcceptPayment(userId, userType, serviceId, goodId)`
- #define `emberAfFillCommandPaymentClusterPaymentConfirm(serialNumber, transId, transStatus)`
- #define `emberAfFillCommandPaymentClusterBuyConfirm(serialNumber, currency, priceTrailingDigit, price, timestamp, transId, transStatus)`
- #define `emberAfFillCommandPaymentClusterReceiptDelivery(serialNumber, currency, priceTrailingDigit, price, timestamp)`
- #define `emberAfFillCommandPaymentClusterTransactionEnd(serialNumber, status)`

## Billing Commands

- #define `emberAfFillCommandBillingClusterSubscribe(userId, serviceId, serviceProviderId)`
- #define `emberAfFillCommandBillingClusterUnsubscribe(userId, serviceId, serviceProviderId)`
- #define `emberAfFillCommandBillingClusterStartBillingSession(userId, serviceId, serviceProviderId)`
- #define `emberAfFillCommandBillingClusterStopBillingSession(userId, serviceId, serviceProviderId)`

- #define `emberAfFillCommandBillingClusterBillStatusNotification`(userId, status)
- #define `emberAfFillCommandBillingClusterSessionKeepAlive`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterCheckBillStatus`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterSendBillRecord`(userId, serviceId, serviceProviderId, timestamp, duration)

## Appliance Events and Alert Commands

- #define `emberAfFillCommandApplianceEventsAndAlertClusterGetAlerts()`
- #define `emberAfFillCommandApplianceEventsAndAlertClusterGetAlertsResponse`(alertsCount, alertStructures, alertStructuresLen)
- #define `emberAfFillCommandApplianceEventsAndAlertClusterAlertsNotification`(alertsCount, alertStructures, alertStructuresLen)
- #define `emberAfFillCommandApplianceEventsAndAlertClusterEventsNotification`(eventHeader, eventId)

## Appliance Statistics Commands

- #define `emberAfFillCommandApplianceStatisticsClusterLogNotification`(timeStamp, logId, logLength, logPayload, logPayloadLen)
- #define `emberAfFillCommandApplianceStatisticsClusterLogResponse`(timeStamp, logId, logLength, logPayload, logPayloadLen)
- #define `emberAfFillCommandApplianceStatisticsClusterLogQueueResponse`(logQueueSize, logIds, logIdsLen)
- #define `emberAfFillCommandApplianceStatisticsClusterStatisticsAvailable`(logQueueSize, logIds, logIdsLen)
- #define `emberAfFillCommandApplianceStatisticsClusterLogRequest`(logId)
- #define `emberAfFillCommandApplianceStatisticsClusterLogQueueRequest()`

## Electrical Measurement Commands

- #define `emberAfFillCommandElectricalMeasurementClusterGetProfileInfoResponseCommand`(profileCount, profileIntervalPeriod, maxNumberOfIntervals, listOfAttributes, listOfAttributesLen)
- #define `emberAfFillCommandElectricalMeasurementClusterGetMeasurementProfileResponseCommand`(startTime, status, profileIntervalPeriod, numberOfIntervalsDelivered, attributeId, intervals, intervalsLen)
- #define `emberAfFillCommandElectricalMeasurementClusterGetProfileInfoCommand()`
- #define `emberAfFillCommandElectricalMeasurementClusterGetMeasurementProfileCommand`(attributeId, startTime, numberOfIntervals)

## ZLL Commissioning Commands

- #define `emberAfFillCommandZllCommissioningClusterScanRequest`(transaction, zigbeeInformation, zllInformation)
- #define `emberAfFillCommandZllCommissioningClusterDeviceInformationRequest`(transaction, startIndex)
- #define `emberAfFillCommandZllCommissioningClusterIdentifyRequest`(transaction, identifyDuration)
- #define `emberAfFillCommandZllCommissioningClusterResetToFactoryNewRequest`(transaction)

- #define `emberAfFillCommandZllCommissioningClusterNetworkStartRequest`(transaction, extendedPanId, keyIndex, encryptedNetworkKey, logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd, initiatorIeeeAddress, initiatorNetworkAddress)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinRouterRequest`(transaction, extendedPanId, keyIndex, encryptedNetworkKey, networkUpdateId, logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinEndDeviceRequest`(transaction, extendedPanId, keyIndex, encryptedNetworkKey, networkUpdateId, logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd)
- #define `emberAfFillCommandZllCommissioningClusterNetworkUpdateRequest`(transaction, extendedPanId, networkUpdateId, logicalChannel, panId, networkAddress)
- #define `emberAfFillCommandZllCommissioningClusterGetGroupIdentifiersRequest`(startIndex)
- #define `emberAfFillCommandZllCommissioningClusterGetEndpointListRequest`(startIndex)
- #define `emberAfFillCommandZllCommissioningClusterScanResponse`(transaction, rssiCorrection, zigbeeInformation, zllInformation, keyBitmask, responseId, extendedPanId, networkUpdateId, logicalChannel, panId, networkAddress, numberOfSubDevices, totalGroupIds, endpointId, profileId, deviceId, version, groupIdCount)
- #define `emberAfFillCommandZllCommissioningClusterDeviceInformationResponse`(transaction, number\_of\_subDevices, startIndex, deviceInformationRecordCount, deviceInformationRecordList, deviceInformationRecordListLen)
- #define `emberAfFillCommandZllCommissioningClusterNetworkStartResponse`(transaction, status, extendedPanId, networkUpdateId, logicalChannel, panId)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinRouterResponse`(transaction, status)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinEndDeviceResponse`(transaction, status)
- #define `emberAfFillCommandZllCommissioningClusterEndpointInformation`(ieeeAddress, networkAddress, endpointId, profileId, deviceId, version)
- #define `emberAfFillCommandZllCommissioningClusterGetGroupIdentifiersResponse`(total, startIndex, count, groupInformationRecordList, groupInformationRecordListLen)
- #define `emberAfFillCommandZllCommissioningClusterGetEndpointListResponse`(total, startIndex, count, endpointInformationRecordList, endpointInformationRecordListLen)

## Sample Mfg Specific Cluster Commands

- #define `emberAfFillCommandSampleMfgSpecificClusterCommandOne`(argOne)

### 6.5.1 Detailed Description

This document describes the ZCL command interface used by the Ember Application Framework for filling ZCL command buffers.

### 6.5.2 Macro Definition Documentation

#### 6.5.2.1 #define `emberAfFillCommandGlobalServerToClientReadAttributes( attributelds, attributeldsLen )`

Command description for ReadAttributes.

Command: ReadAttributes

**Parameters**

<i>attributeIds</i>	uint8_t*
<i>attributeIdsLen</i>	uint8_t

Definition at line 28 of file [client-command-macro.doc](#).

**6.5.2.2 #define emberAfFillCommandGlobalClientToServerReadAttributes( *attributeIds*, *attributeIdsLen* )**

Command description for ReadAttributes.

Command: ReadAttributes

**Parameters**

<i>attributeIds</i>	uint8_t*
<i>attributeIdsLen</i>	uint8_t

Definition at line 45 of file [client-command-macro.doc](#).

**6.5.2.3 #define emberAfFillCommandGlobalServerToClientReadAttributesResponse( *readAttributeStatusRecords*, *readAttributeStatusRecordsLen* )**

Command description for ReadAttributesResponse.

Command: ReadAttributesResponse

**Parameters**

<i>readAttribute-StatusRecords</i>	uint8_t*
<i>readAttribute-StatusRecords- Len</i>	uint8_t

Definition at line 62 of file [client-command-macro.doc](#).

**6.5.2.4 #define emberAfFillCommandGlobalClientToServerReadAttributesResponse( *readAttributeStatusRecords*, *readAttributeStatusRecordsLen* )**

Command description for ReadAttributesResponse.

Command: ReadAttributesResponse

**Parameters**

<i>readAttribute-StatusRecords</i>	uint8_t*
<i>readAttribute-StatusRecords- Len</i>	uint8_t

Definition at line 79 of file [client-command-macro.doc](#).

**6.5.2.5 #define emberAfFillCommandGlobalServerToClientWriteAttributes( writeAttributeRecords, writeAttributeRecordsLen )**

Command description for WriteAttributes.

Command: WriteAttributes

#### Parameters

<i>writeAttribute-Records</i>	uint8_t*
<i>writeAttribute-RecordsLen</i>	uint8_t

Definition at line 96 of file [client-command-macro.doc](#).

**6.5.2.6 #define emberAfFillCommandGlobalClientToServerWriteAttributes( writeAttributeRecords, writeAttributeRecordsLen )**

Command description for WriteAttributes.

Command: WriteAttributes

#### Parameters

<i>writeAttribute-Records</i>	uint8_t*
<i>writeAttribute-RecordsLen</i>	uint8_t

Definition at line 113 of file [client-command-macro.doc](#).

**6.5.2.7 #define emberAfFillCommandGlobalServerToClientWriteAttributesUndivided( writeAttributeRecords, writeAttributeRecordsLen )**

Command description for WriteAttributesUndivided.

Command: WriteAttributesUndivided

#### Parameters

<i>writeAttribute-Records</i>	uint8_t*
<i>writeAttribute-RecordsLen</i>	uint8_t

Definition at line 130 of file [client-command-macro.doc](#).

**6.5.2.8 #define emberAfFillCommandGlobalClientToServerWriteAttributesUndivided( writeAttributeRecords, writeAttributeRecordsLen )**

Command description for WriteAttributesUndivided.

Command: WriteAttributesUndivided

**Parameters**

<i>writeAttribute- Records</i>	uint8_t*
<i>writeAttribute- RecordsLen</i>	uint8_t

Definition at line 147 of file [client-command-macro.doc](#).

**6.5.2.9 #define emberAfFillCommandGlobalServerToClientWriteAttributesResponse( writeAttributeStatusRecords, writeAttributeStatusRecordsLen )**

Command description for WriteAttributesResponse.

Command: WriteAttributesResponse

**Parameters**

<i>writeAttribute- StatusRecords</i>	uint8_t*
<i>writeAttribute- StatusRecords- Len</i>	uint8_t

Definition at line 164 of file [client-command-macro.doc](#).

**6.5.2.10 #define emberAfFillCommandGlobalClientToServerWriteAttributesResponse( writeAttributeStatusRecords, writeAttributeStatusRecordsLen )**

Command description for WriteAttributesResponse.

Command: WriteAttributesResponse

**Parameters**

<i>writeAttribute- StatusRecords</i>	uint8_t*
<i>writeAttribute- StatusRecords- Len</i>	uint8_t

Definition at line 181 of file [client-command-macro.doc](#).

**6.5.2.11 #define emberAfFillCommandGlobalServerToClientWriteAttributesNoResponse( writeAttributeRecords, writeAttributeRecordsLen )**

Command description for WriteAttributesNoResponse.

Command: WriteAttributesNoResponse

**Parameters**

<i>writeAttribute-Records</i>	uint8_t*
<i>writeAttribute-RecordsLen</i>	uint8_t

Definition at line 198 of file [client-command-macro.doc](#).

**6.5.2.12 #define emberAfFillCommandGlobalClientToServerWriteAttributesNoResponse(  
*writeAttributeRecords, writeAttributeRecordsLen* )**

Command description for WriteAttributesNoResponse.

Command: WriteAttributesNoResponse

**Parameters**

<i>writeAttribute-Records</i>	uint8_t*
<i>writeAttribute-RecordsLen</i>	uint8_t

Definition at line 215 of file [client-command-macro.doc](#).

**6.5.2.13 #define emberAfFillCommandGlobalServerToClientConfigureReporting(  
*configureReportingRecords, configureReportingRecordsLen* )**

Command description for ConfigureReporting.

Command: ConfigureReporting

**Parameters**

<i>configure-Reporting-Records</i>	uint8_t*
<i>configure-Reporting-RecordsLen</i>	uint8_t

Definition at line 232 of file [client-command-macro.doc](#).

**6.5.2.14 #define emberAfFillCommandGlobalClientToServerConfigureReporting(  
*configureReportingRecords, configureReportingRecordsLen* )**

Command description for ConfigureReporting.

Command: ConfigureReporting

**Parameters**

<i>configure-Reporting-Records</i>	uint8_t*
<i>configure-Reporting-RecordsLen</i>	uint8_t

Definition at line 249 of file [client-command-macro.doc](#).

**6.5.2.15 #define emberAfFillCommandGlobalServerToClientConfigureReportingResponse(  
  *configureReportingStatusRecords*, *configureReportingStatusRecordsLen* )**

Command description for ConfigureReportingResponse.

Command: ConfigureReportingResponse

**Parameters**

<i>configure-Reporting-StatusRecords</i>	uint8_t*
<i>configure-Reporting-StatusRecordsLen</i>	uint8_t

Definition at line 266 of file [client-command-macro.doc](#).

**6.5.2.16 #define emberAfFillCommandGlobalClientToServerConfigureReportingResponse(  
  *configureReportingStatusRecords*, *configureReportingStatusRecordsLen* )**

Command description for ConfigureReportingResponse.

Command: ConfigureReportingResponse

**Parameters**

<i>configure-Reporting-StatusRecords</i>	uint8_t*
<i>configure-Reporting-StatusRecordsLen</i>	uint8_t

Definition at line 283 of file [client-command-macro.doc](#).

**6.5.2.17 #define emberAfFillCommandGlobalServerToClientReadReportingConfiguration(  
  *readReportingConfigurationAttributeRecords*, *readReportingConfigurationAttributeRecordsLen* )**

Command description for ReadReportingConfiguration.

Command: ReadReportingConfiguration

**Parameters**

<i>readReporting-Configuration-Attribute-Records</i>	uint8_t*
<i>readReporting-Configuration-Attribute-RecordsLen</i>	uint8_t

Definition at line 300 of file [client-command-macro.doc](#).

**6.5.2.18 #define emberAfFillCommandGlobalClientToServerReadReportingConfiguration(  
*readReportingConfigurationAttributeRecords, readReportingConfigurationAttributeRecordsLen* )**

Command description for ReadReportingConfiguration.

Command: ReadReportingConfiguration

**Parameters**

<i>readReporting-Configuration-Attribute-Records</i>	uint8_t*
<i>readReporting-Configuration-Attribute-RecordsLen</i>	uint8_t

Definition at line 317 of file [client-command-macro.doc](#).

**6.5.2.19 #define emberAfFillCommandGlobalServerToClientReadReportingConfigurationResponse(  
*readReportingConfigurationRecords, readReportingConfigurationRecordsLen* )**

Command description for ReadReportingConfigurationResponse.

Command: ReadReportingConfigurationResponse

**Parameters**

<i>readReporting-Configuration-Records</i>	uint8_t*
<i>readReporting-Configuration-RecordsLen</i>	uint8_t

Definition at line 334 of file [client-command-macro.doc](#).

**6.5.2.20 #define emberAfFillCommandGlobalClientToServerReadReportingConfigurationResponse( *readReportingConfigurationRecords*, *readReportingConfigurationRecordsLen* )**

Command description for ReadReportingConfigurationResponse.

Command: ReadReportingConfigurationResponse

**Parameters**

<i>readReporting- Configuration- Records</i>	uint8_t*
<i>readReporting- Configuration- RecordsLen</i>	uint8_t

Definition at line 351 of file [client-command-macro.doc](#).

**6.5.2.21 #define emberAfFillCommandGlobalServerToClientReportAttributes( *reportAttributeRecords*, *reportAttributeRecordsLen* )**

Command description for ReportAttributes.

Command: ReportAttributes

**Parameters**

<i>reportAttribute- Records</i>	uint8_t*
<i>reportAttribute- RecordsLen</i>	uint8_t

Definition at line 368 of file [client-command-macro.doc](#).

**6.5.2.22 #define emberAfFillCommandGlobalClientToServerReportAttributes( *reportAttributeRecords*, *reportAttributeRecordsLen* )**

Command description for ReportAttributes.

Command: ReportAttributes

**Parameters**

<i>reportAttribute- Records</i>	uint8_t*
<i>reportAttribute- RecordsLen</i>	uint8_t

Definition at line 385 of file [client-command-macro.doc](#).

**6.5.2.23 #define emberAfFillCommandGlobalServerToClientDefaultResponse( *commandId*, *status* )**

Command description for DefaultResponse.

Command: DefaultResponse

**Parameters**

<i>commandId</i>	uint8_t
<i>status</i>	uint8_t

Definition at line 402 of file [client-command-macro.doc](#).

**6.5.2.24 #define emberAfFillCommandGlobalClientToServerDefaultResponse( commandId, status )**

Command description for DefaultResponse.

Command: DefaultResponse

**Parameters**

<i>commandId</i>	uint8_t
<i>status</i>	uint8_t

Definition at line 419 of file [client-command-macro.doc](#).

**6.5.2.25 #define emberAfFillCommandGlobalServerToClientDiscoverAttributes( startId, maxAttributeIds )**

Command description for DiscoverAttributes.

Command: DiscoverAttributes

**Parameters**

<i>startId</i>	uint16_t
<i>maxAttribute- Ids</i>	uint8_t

Definition at line 436 of file [client-command-macro.doc](#).

**6.5.2.26 #define emberAfFillCommandGlobalClientToServerDiscoverAttributes( startId, maxAttributeIds )**

Command description for DiscoverAttributes.

Command: DiscoverAttributes

**Parameters**

<i>startId</i>	uint16_t
<i>maxAttribute- Ids</i>	uint8_t

Definition at line 453 of file [client-command-macro.doc](#).

**6.5.2.27 #define emberAfFillCommandGlobalServerToClientDiscoverAttributesResponse(  
*discoveryComplete*, *discoverAttributesInfoRecords*, *discoverAttributesInfoRecordsLen* )**

Command description for DiscoverAttributesResponse.

Command: DiscoverAttributesResponse

#### Parameters

<i>discovery- Complete</i>	uint8_t
<i>discover- AttributesInfo- Records</i>	uint8_t*
<i>discover- AttributesInfo- RecordsLen</i>	uint8_t

Definition at line 471 of file [client-command-macro.doc](#).

**6.5.2.28 #define emberAfFillCommandGlobalClientToServerDiscoverAttributesResponse(  
*discoveryComplete*, *discoverAttributesInfoRecords*, *discoverAttributesInfoRecordsLen* )**

Command description for DiscoverAttributesResponse.

Command: DiscoverAttributesResponse

#### Parameters

<i>discovery- Complete</i>	uint8_t
<i>discover- AttributesInfo- Records</i>	uint8_t*
<i>discover- AttributesInfo- RecordsLen</i>	uint8_t

Definition at line 491 of file [client-command-macro.doc](#).

**6.5.2.29 #define emberAfFillCommandGlobalServerToClientReadAttributesStructured(  
*readStructuredAttributeRecords*, *readStructuredAttributeRecordsLen* )**

Command description for ReadAttributesStructured.

Command: ReadAttributesStructured

#### Parameters

<i>readStructured- Attribute- Records</i>	uint8_t*
<i>readStructured- Attribute- RecordsLen</i>	uint8_t

Definition at line 510 of file [client-command-macro.doc](#).

**6.5.2.30 #define emberAfFillCommandGlobalClientToServerReadAttributesStructured(**  
*readStructuredAttributeRecords, readStructuredAttributeRecordsLen )*

Command description for ReadAttributesStructured.

Command: ReadAttributesStructured

#### Parameters

<i>readStructured-Attribute-Records</i>	uint8_t*
<i>readStructured-Attribute-RecordsLen</i>	uint8_t

Definition at line 527 of file [client-command-macro.doc](#).

**6.5.2.31 #define emberAfFillCommandGlobalServerToClientWriteAttributesStructured(**  
*writeStructuredAttributeRecords, writeStructuredAttributeRecordsLen )*

Command description for WriteAttributesStructured.

Command: WriteAttributesStructured

#### Parameters

<i>write-Structured-Attribute-Records</i>	uint8_t*
<i>write-Structured-Attribute-RecordsLen</i>	uint8_t

Definition at line 544 of file [client-command-macro.doc](#).

**6.5.2.32 #define emberAfFillCommandGlobalClientToServerWriteAttributesStructured(**  
*writeStructuredAttributeRecords, writeStructuredAttributeRecordsLen )*

Command description for WriteAttributesStructured.

Command: WriteAttributesStructured

#### Parameters

<i>write-Structured-Attribute-Records</i>	uint8_t*
---	----------

<i>write- Structured- Attribute- RecordsLen</i>	uint8_t
---	---------

Definition at line 561 of file [client-command-macro.doc](#).

**6.5.2.33 #define emberAfFillCommandGlobalServerToClientWriteAttributesStructuredResponse(  
writeStructuredAttributeStatusRecords, writeStructuredAttributeStatusRecordsLen )**

Command description for WriteAttributesStructuredResponse.

Command: WriteAttributesStructuredResponse

#### Parameters

<i>write- Structured- AttributeStatus- Records</i>	uint8_t*
<i>write- Structured- AttributeStatus- RecordsLen</i>	uint8_t

Definition at line 578 of file [client-command-macro.doc](#).

**6.5.2.34 #define emberAfFillCommandGlobalClientToServerWriteAttributesStructuredResponse(  
writeStructuredAttributeStatusRecords, writeStructuredAttributeStatusRecordsLen )**

Command description for WriteAttributesStructuredResponse.

Command: WriteAttributesStructuredResponse

#### Parameters

<i>write- Structured- AttributeStatus- Records</i>	uint8_t*
<i>write- Structured- AttributeStatus- RecordsLen</i>	uint8_t

Definition at line 595 of file [client-command-macro.doc](#).

**6.5.2.35 #define emberAfFillCommandGlobalServerToClientDiscoverCommandsReceived(  
startCommandId, maxCommandIds )**

This command may be used to discover all commands processed (received) by this cluster, including optional or manufacturer specific commands.

Command: DiscoverCommandsReceived

**Parameters**

<i>startCommand- Id</i>	uint8_t
<i>maxCommand- Ids</i>	uint8_t

Definition at line 612 of file [client-command-macro.doc](#).

**6.5.2.36 #define emberAfFillCommandGlobalClientToServerDiscoverCommandsReceived(  
                  *startCommandId, maxCommandIds* )**

This command may be used to discover all commands processed (received) by this cluster, including optional or manufacturer specific commands.

Command: DiscoverCommandsReceived

**Parameters**

<i>startCommand- Id</i>	uint8_t
<i>maxCommand- Ids</i>	uint8_t

Definition at line 629 of file [client-command-macro.doc](#).

**6.5.2.37 #define emberAfFillCommandGlobalServerToClientDiscoverCommandsReceivedResponse(  
                  *discoveryComplete, commandIds, commandIdsLen* )**

The discover commands received response command is sent in response to a discover commands received command, and is used to discover which commands a particular cluster can process.

Command: DiscoverCommandsReceivedResponse

**Parameters**

<i>discovery- Complete</i>	uint8_t
<i>commandIds</i>	uint8_t*
<i>commandIds- Len</i>	uint8_t

Definition at line 647 of file [client-command-macro.doc](#).

**6.5.2.38 #define emberAfFillCommandGlobalClientToServerDiscoverCommandsReceivedResponse(  
                  *discoveryComplete, commandIds, commandIdsLen* )**

The discover commands received response command is sent in response to a discover commands received command, and is used to discover which commands a particular cluster can process.

Command: DiscoverCommandsReceivedResponse

**Parameters**

<i>discovery-Complete</i>	uint8_t
<i>commandIds</i>	uint8_t*
<i>commandIdsLen</i>	uint8_t

Definition at line 667 of file [client-command-macro.doc](#).

**6.5.2.39 #define emberAfFillCommandGlobalServerToClientDiscoverCommandsGenerated(  
startCommandId, maxCommandIds )**

This command may be used to discover all commands which may be generated (sent) by the cluster, including optional or manufacturer specific commands.

Command: DiscoverCommandsGenerated

**Parameters**

<i>startCommand-Id</i>	uint8_t
<i>maxCommand-Ids</i>	uint8_t

Definition at line 686 of file [client-command-macro.doc](#).

**6.5.2.40 #define emberAfFillCommandGlobalClientToServerDiscoverCommandsGenerated(  
startCommandId, maxCommandIds )**

This command may be used to discover all commands which may be generated (sent) by the cluster, including optional or manufacturer specific commands.

Command: DiscoverCommandsGenerated

**Parameters**

<i>startCommand-Id</i>	uint8_t
<i>maxCommand-Ids</i>	uint8_t

Definition at line 703 of file [client-command-macro.doc](#).

**6.5.2.41 #define emberAfFillCommandGlobalServerToClientDiscoverCommandsGeneratedResponse(  
discoveryComplete, commandIds, commandIdsLen )**

The discover client commands response command is sent in response to a discover client commands command, and is used to discover which commands a particular cluster supports.

Command: DiscoverCommandsGeneratedResponse

**Parameters**

<i>discovery-Complete</i>	uint8_t
<i>commandIds</i>	uint8_t*
<i>commandIdsLen</i>	uint8_t

Definition at line 721 of file [client-command-macro.doc](#).

**6.5.2.42 #define emberAfFillCommandGlobalClientToServerDiscoverCommandsGeneratedResponse( discoveryComplete, commandIds, commandIdsLen )**

The discover client commands response command is sent in response to a discover client commands command, and is used to discover which commands a particular cluster supports.

Command: DiscoverCommandsGeneratedResponse

**Parameters**

<i>discovery-Complete</i>	uint8_t
<i>commandIds</i>	uint8_t*
<i>commandIdsLen</i>	uint8_t

Definition at line 741 of file [client-command-macro.doc](#).

**6.5.2.43 #define emberAfFillCommandGlobalServerToClientDiscoverAttributesExtended( startId, maxAttributeIds )**

This command is similar to the discover attributes command, but also includes a field to indicate whether the attribute is readable, writeable or reportable.

Command: DiscoverAttributesExtended

**Parameters**

<i>startId</i>	uint16_t
<i>maxAttribute-Ids</i>	uint8_t

Definition at line 760 of file [client-command-macro.doc](#).

**6.5.2.44 #define emberAfFillCommandGlobalClientToServerDiscoverAttributesExtended( startId, maxAttributeIds )**

This command is similar to the discover attributes command, but also includes a field to indicate whether the attribute is readable, writeable or reportable.

Command: DiscoverAttributesExtended

**Parameters**

<i>startId</i>	uint16_t
<i>maxAttribute- Ids</i>	uint8_t

Definition at line 777 of file [client-command-macro.doc](#).

```
6.5.2.45 #define emberAfFillCommandGlobalServerToClientDiscoverAttributesExtended-
           Response( discoveryComplete, extendedDiscoverAttributesInfoRecords,
           extendedDiscoverAttributesInfoRecordsLen )
```

This command is sent in response to a discover attribute extended command and is used to determine if attributes are readable, writable or reportable.

Command: DiscoverAttributesExtendedResponse

**Parameters**

<i>discovery- Complete</i>	uint8_t
<i>extended- Discover- AttributesInfo- Records</i>	uint8_t*
<i>extended- Discover- AttributesInfo- RecordsLen</i>	uint8_t

Definition at line 795 of file [client-command-macro.doc](#).

```
6.5.2.46 #define emberAfFillCommandGlobalClientToServerDiscoverAttributesExtended-
           Response( discoveryComplete, extendedDiscoverAttributesInfoRecords,
           extendedDiscoverAttributesInfoRecordsLen )
```

This command is sent in response to a discover attribute extended command and is used to determine if attributes are readable, writable or reportable.

Command: DiscoverAttributesExtendedResponse

**Parameters**

<i>discovery- Complete</i>	uint8_t
<i>extended- Discover- AttributesInfo- Records</i>	uint8_t*
<i>extended- Discover- AttributesInfo- RecordsLen</i>	uint8_t

Definition at line 815 of file [client-command-macro.doc](#).

#### **6.5.2.47 #define emberAfFillCommandBasicClusterResetToFactoryDefaults( )**

Command that resets all attribute values to factory default.

Cluster: Basic, Attributes for determining basic information about a device, setting user device information such as location, and enabling a device. Command: ResetToFactoryDefaults

Definition at line 839 of file [client-command-macro.doc](#).

#### **6.5.2.48 #define emberAfFillCommandIdentifyClusterIdentify( *identifyTime* )**

Command description for Identify.

Cluster: Identify, Attributes and commands for putting a device into Identification mode (e.g. flashing a light). Command: Identify

##### **Parameters**

<i>identifyTime</i>	uint16_t
---------------------	----------

Definition at line 868 of file [client-command-macro.doc](#).

#### **6.5.2.49 #define emberAfFillCommandIdentifyClusterIdentifyQuery( )**

Command description for IdentifyQuery.

Cluster: Identify, Attributes and commands for putting a device into Identification mode (e.g. flashing a light). Command: IdentifyQuery

Definition at line 882 of file [client-command-macro.doc](#).

#### **6.5.2.50 #define emberAfFillCommandIdentifyClusterEZModeInvoke( *action* )**

Invoke EZMode on an Identify Server.

Cluster: Identify, Attributes and commands for putting a device into Identification mode (e.g. flashing a light). Command: EZModeInvoke

##### **Parameters**

<i>action</i>	uint8_t
---------------	---------

Definition at line 896 of file [client-command-macro.doc](#).

#### **6.5.2.51 #define emberAfFillCommandIdentifyClusterUpdateCommissionState( *action*, *commissionStateMask* )**

Update Commission State on the server device.

Cluster: Identify, Attributes and commands for putting a device into Identification mode (e.g. flashing a light). Command: UpdateCommissionState

**Parameters**

<i>action</i>	uint8_t
<i>commission-StateMask</i>	uint8_t

Definition at line 912 of file [client-command-macro.doc](#).

**6.5.2.52 #define emberAfFillCommandIdentifyClusterIdentifyQueryResponse( *timeout* )**

Command description for IdentifyQueryResponse.

Cluster: Identify, Attributes and commands for putting a device into Identification mode (e.g. flashing a light). Command: IdentifyQueryResponse

**Parameters**

<i>timeout</i>	uint16_t
----------------	----------

Definition at line 929 of file [client-command-macro.doc](#).

**6.5.2.53 #define emberAfFillCommandIdentifyClusterTriggerEffect( *effectId*, *effectVariant* )**

Command description for TriggerEffect.

Cluster: Identify, Attributes and commands for putting a device into Identification mode (e.g. flashing a light). Command: TriggerEffect

**Parameters**

<i>effectId</i>	uint8_t
<i>effectVariant</i>	uint8_t

Definition at line 945 of file [client-command-macro.doc](#).

**6.5.2.54 #define emberAfFillCommandGroupsClusterAddGroup( *groupId*, *groupName* )**

Command description for AddGroup.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: AddGroup

**Parameters**

<i>groupId</i>	uint16_t
<i>groupName</i>	uint8_t*

Definition at line 968 of file [client-command-macro.doc](#).

**6.5.2.55 #define emberAfFillCommandGroupsClusterViewGroup( *groupId* )**

Command description for ViewGroup.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: View-Group

#### Parameters

<i>groupId</i>	uint16_t
----------------	----------

Definition at line 985 of file [client-command-macro.doc](#).

**6.5.2.56 #define emberAfFillCommandGroupsClusterGetGroupMembership( *groupCount*, *groupList*, *groupListLen* )**

Command description for GetGroupMembership.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: Get-GroupMembership

#### Parameters

<i>groupCount</i>	uint8_t
<i>groupList</i>	uint8_t*
<i>groupListLen</i>	uint8_t

Definition at line 1002 of file [client-command-macro.doc](#).

**6.5.2.57 #define emberAfFillCommandGroupsClusterRemoveGroup( *groupId* )**

Command description for RemoveGroup.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: Remove-Group

#### Parameters

<i>groupId</i>	uint16_t
----------------	----------

Definition at line 1021 of file [client-command-macro.doc](#).

**6.5.2.58 #define emberAfFillCommandGroupsClusterRemoveAllGroups( )**

Command description for RemoveAllGroups.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: Remove-AllGroups

Definition at line 1035 of file [client-command-macro.doc](#).

**6.5.2.59 #define emberAfFillCommandGroupsClusterAddGroupIfIdentifying( *groupId*, *groupName* )**

Command description for AddGroupIfIdentifying.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: Add-GroupIfIdentifying

**Parameters**

<i>groupId</i>	uint16_t
<i>groupName</i>	uint8_t*

Definition at line 1050 of file [client-command-macro.doc](#).

**6.5.2.60 #define emberAfFillCommandGroupsClusterAddGroupResponse( *status, groupId* )**

Command description for AddGroupResponse.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: AddGroupResponse

**Parameters**

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t

Definition at line 1068 of file [client-command-macro.doc](#).

**6.5.2.61 #define emberAfFillCommandGroupsClusterViewGroupResponse( *status, groupId, groupName* )**

Command description for ViewGroupResponse.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: ViewGroupResponse

**Parameters**

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>groupName</i>	uint8_t*

Definition at line 1087 of file [client-command-macro.doc](#).

**6.5.2.62 #define emberAfFillCommandGroupsClusterGetGroupMembershipResponse( *capacity, groupCount, groupList, groupListLen* )**

Command description for GetGroupMembershipResponse.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: GetGroupMembershipResponse

**Parameters**

<i>capacity</i>	uint8_t
<i>groupCount</i>	uint8_t
<i>groupList</i>	uint8_t*
<i>groupListLen</i>	uint8_t

Definition at line 1109 of file [client-command-macro.doc](#).

### **6.5.2.63 #define emberAfFillCommandGroupsClusterRemoveGroupResponse( status, groupId )**

Command description for RemoveGroupResponse.

Cluster: Groups, Attributes and commands for group configuration and manipulation. Command: RemoveGroupResponse

#### **Parameters**

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t

Definition at line 1131 of file [client-command-macro.doc](#).

### **6.5.2.64 #define emberAfFillCommandScenesClusterAddScene( groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen )**

Add a scene to the scene table. Extension field sets are supported, and are inputed as arrays of the form [[cluster ID] [length] [value0...n] ...].

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: AddScene

#### **Parameters**

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t
<i>transitionTime</i>	uint16_t
<i>sceneName</i>	uint8_t*
<i>extensionField-</i> <i>Sets</i>	uint8_t*
<i>extensionField-</i> <i>SetsLen</i>	uint8_t

Definition at line 1158 of file [client-command-macro.doc](#).

### **6.5.2.65 #define emberAfFillCommandScenesClusterViewScene( groupId, sceneId )**

Command description for ViewScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: ViewScene

#### **Parameters**

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1184 of file [client-command-macro.doc](#).

### **6.5.2.66 #define emberAfFillCommandScenesClusterRemoveScene( groupId, sceneId )**

Command description for RemoveScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Remove-Scene

#### Parameters

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1202 of file [client-command-macro.doc](#).

#### 6.5.2.67 #define emberAfFillCommandScenesClusterRemoveAllScenes( *groupId* )

Command description for RemoveAllScenes.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Remove-AllScenes

#### Parameters

<i>groupId</i>	uint16_t
----------------	----------

Definition at line 1219 of file [client-command-macro.doc](#).

#### 6.5.2.68 #define emberAfFillCommandScenesClusterStoreScene( *groupId*, *sceneId* )

Command description for StoreScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Store-Scene

#### Parameters

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1235 of file [client-command-macro.doc](#).

#### 6.5.2.69 #define emberAfFillCommandScenesClusterRecallScene( *groupId*, *sceneId* )

Command description for RecallScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Recall-Scene

#### Parameters

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1253 of file [client-command-macro.doc](#).

### 6.5.2.70 #define emberAfFillCommandScenesClusterGetSceneMembership( groupId )

Command description for GetSceneMembership.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: GetSceneMembership

#### Parameters

<i>groupId</i>	uint16_t
----------------	----------

Definition at line 1270 of file [client-command-macro.doc](#).

### 6.5.2.71 #define emberAfFillCommandScenesClusterAddSceneResponse( status, groupId, sceneId )

Command description for AddSceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: AddSceneResponse

#### Parameters

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1287 of file [client-command-macro.doc](#).

### 6.5.2.72 #define emberAfFillCommandScenesClusterViewSceneResponse( status, groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen )

Command description for ViewSceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: ViewSceneResponse

#### Parameters

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t
<i>transitionTime</i>	uint16_t
<i>sceneName</i>	uint8_t*
<i>extensionFieldSets</i>	uint8_t*
<i>extensionFieldSetsLen</i>	uint8_t

Definition at line 1312 of file [client-command-macro.doc](#).

```
6.5.2.73 #define emberAfFillCommandScenesClusterRemoveSceneResponse( status, groupId, sceneId
    )
```

Command description for RemoveSceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: RemoveSceneResponse

#### Parameters

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1341 of file [client-command-macro.doc](#).

```
6.5.2.74 #define emberAfFillCommandScenesClusterRemoveAllScenesResponse( status, groupId )
```

Command description for RemoveAllScenesResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: RemoveAllScenesResponse

#### Parameters

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t

Definition at line 1361 of file [client-command-macro.doc](#).

```
6.5.2.75 #define emberAfFillCommandScenesClusterStoreSceneResponse( status, groupId, sceneId )
```

Command description for StoreSceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: StoreSceneResponse

#### Parameters

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1380 of file [client-command-macro.doc](#).

```
6.5.2.76 #define emberAfFillCommandScenesClusterGetSceneMembershipResponse( status, capacity,
    groupId, sceneCount, sceneList, sceneListLen )
```

Command description for GetSceneMembershipResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: GetSceneMembershipResponse

**Parameters**

<i>status</i>	uint8_t
<i>capacity</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneCount</i>	uint8_t
<i>sceneList</i>	uint8_t*
<i>sceneListLen</i>	uint8_t

Definition at line 1404 of file [client-command-macro.doc](#).

**6.5.2.77 #define emberAfFillCommandScenesClusterEnhancedAddScene( groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen )**

Command description for EnhancedAddScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Enhanced-AddScene

**Parameters**

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t
<i>transitionTime</i>	uint16_t
<i>sceneName</i>	uint8_t*
<i>extensionField- Sets</i>	uint8_t*
<i>extensionField- SetsLen</i>	uint8_t

Definition at line 1434 of file [client-command-macro.doc](#).

**6.5.2.78 #define emberAfFillCommandScenesClusterEnhancedViewScene( groupId, sceneId )**

Command description for EnhancedViewScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Enhanced-ViewScene

**Parameters**

<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1460 of file [client-command-macro.doc](#).

**6.5.2.79 #define emberAfFillCommandScenesClusterCopyScene( mode, groupIdFrom, sceneIdFrom, groupIdTo, sceneIdTo )**

Command description for CopyScene.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Copy-Scene

**Parameters**

<i>mode</i>	uint8_t
<i>groupIdFrom</i>	uint16_t
<i>sceneIdFrom</i>	uint8_t
<i>groupIdTo</i>	uint16_t
<i>sceneIdTo</i>	uint8_t

Definition at line 1481 of file [client-command-macro.doc](#).

**6.5.2.80 #define emberAfFillCommandScenesClusterEnhancedAddSceneResponse( status, groupId, sceneId )**

Command description for EnhancedAddSceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Enhanced-AddSceneResponse

**Parameters**

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t

Definition at line 1506 of file [client-command-macro.doc](#).

**6.5.2.81 #define emberAfFillCommandScenesClusterEnhancedViewSceneResponse( status, groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen )**

Command description for EnhancedViewSceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Enhanced-ViewSceneResponse

**Parameters**

<i>status</i>	uint8_t
<i>groupId</i>	uint16_t
<i>sceneId</i>	uint8_t
<i>transitionTime</i>	uint16_t
<i>sceneName</i>	uint8_t*
<i>extensionField- Sets</i>	uint8_t*
<i>extensionField- SetsLen</i>	uint8_t

Definition at line 1531 of file [client-command-macro.doc](#).

**6.5.2.82 #define emberAfFillCommandScenesClusterCopySceneResponse( status, groupIdFrom, sceneIdFrom )**

Command description for CopySceneResponse.

Cluster: Scenes, Attributes and commands for scene configuration and manipulation. Command: Copy-SceneResponse

#### Parameters

<i>status</i>	uint8_t
<i>groupIdFrom</i>	uint16_t
<i>sceneIdFrom</i>	uint8_t

Definition at line 1560 of file [client-command-macro.doc](#).

#### 6.5.2.83 #define emberAfFillCommandOnOffClusterOff( )

Command description for Off.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: Off

Definition at line 1583 of file [client-command-macro.doc](#).

#### 6.5.2.84 #define emberAfFillCommandOnOffClusterOn( )

Command description for On.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: On

Definition at line 1596 of file [client-command-macro.doc](#).

#### 6.5.2.85 #define emberAfFillCommandOnOffClusterToggle( )

Command description for Toggle.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: Toggle

Definition at line 1609 of file [client-command-macro.doc](#).

#### 6.5.2.86 #define emberAfFillCommandOnOffClusterOffWithEffect( effectId, effectVariant )

Command description for OffWithEffect.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: OffWithEffect

#### Parameters

<i>effectId</i>	uint8_t
<i>effectVariant</i>	uint8_t

Definition at line 1624 of file [client-command-macro.doc](#).

**6.5.2.87 #define emberAfFillCommandOnOffClusterOnWithRecallGlobalScene( )**

Command description for OnWithRecallGlobalScene.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: OnWithRecallGlobalScene

Definition at line 1640 of file [client-command-macro.doc](#).

**6.5.2.88 #define emberAfFillCommandOnOffClusterOnWithTimedOff( *onOffControl*, *onTime*, *offWaitTime* )**

Command description for OnWithTimedOff.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: OnWithTimedOff

**Parameters**

<i>onOffControl</i>	uint8_t
<i>onTime</i>	uint16_t
<i>offWaitTime</i>	uint16_t

Definition at line 1656 of file [client-command-macro.doc](#).

**6.5.2.89 #define emberAfFillCommandOnOffClusterSampleMfgSpecificOffWithTransition( )**

Client command that turns the device off with a transition given by the transition time in the Ember Sample transition time attribute.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: SampleMfgSpecificOffWithTransition

Definition at line 1675 of file [client-command-macro.doc](#).

**6.5.2.90 #define emberAfFillCommandOnOffClusterSampleMfgSpecificOnWithTransition( )**

Client command that turns the device on with a transition given by the transition time in the Ember Sample transition time attribute.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: SampleMfgSpecificOnWithTransition

Definition at line 1691 of file [client-command-macro.doc](#).

**6.5.2.91 #define emberAfFillCommandOnOffClusterSampleMfgSpecificToggleWithTransition( )**

Client command that toggles the device with a transition given by the transition time in the Ember Sample transition time attribute.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: SampleMfgSpecificToggleWithTransition

Definition at line 1707 of file [client-command-macro.doc](#).

**6.5.2.92 #define emberAfFillCommandLevelControlClusterMoveToLevel( *level*, *transitionTime* )**

Command description for MoveToLevel.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: MoveToLevel

**Parameters**

<i>level</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 1734 of file [client-command-macro.doc](#).

**6.5.2.93 #define emberAfFillCommandLevelControlClusterMove( *moveMode*, *rate* )**

Command description for Move.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Move

**Parameters**

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line 1752 of file [client-command-macro.doc](#).

**6.5.2.94 #define emberAfFillCommandLevelControlClusterStep( *stepMode*, *stepSize*, *transitionTime* )**

Command description for Step.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Step

**Parameters**

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 1771 of file [client-command-macro.doc](#).

**6.5.2.95 #define emberAfFillCommandLevelControlClusterStop( )**

Command description for Stop.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Stop

Definition at line 1789 of file [client-command-macro.doc](#).

```
6.5.2.96 #define emberAfFillCommandLevelControlClusterMoveToLevelWithOnOff( level, transitionTime )
```

Command description for MoveToLevelWithOnOff.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: MoveToLevelWithOnOff

#### Parameters

<i>level</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 1804 of file [client-command-macro.doc](#).

```
6.5.2.97 #define emberAfFillCommandLevelControlClusterMoveWithOnOff( moveMode, rate )
```

Command description for MoveWithOnOff.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: MoveWithOnOff

#### Parameters

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line 1822 of file [client-command-macro.doc](#).

```
6.5.2.98 #define emberAfFillCommandLevelControlClusterStepWithOnOff( stepMode, stepSize, transitionTime )
```

Command description for StepWithOnOff.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: StepWithOnOff

#### Parameters

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 1841 of file [client-command-macro.doc](#).

```
6.5.2.99 #define emberAfFillCommandLevelControlClusterStopWithOnOff( )
```

Command description for StopWithOnOff.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: StopWithOnOff

Definition at line 1859 of file [client-command-macro.doc](#).

**6.5.2.100 #define emberAfFillCommandAlarmClusterResetAlarm( *alarmCode*, *clusterId* )**

Command description for ResetAlarm.

Cluster: Alarms, Attributes and commands for sending notifications and configuring alarm functionality.

Command: ResetAlarm

**Parameters**

<i>alarmCode</i>	uint8_t
<i>clusterId</i>	uint16_t

Definition at line 1879 of file [client-command-macro.doc](#).

**6.5.2.101 #define emberAfFillCommandAlarmClusterResetAllAlarms( )**

Command description for ResetAllAlarms.

Cluster: Alarms, Attributes and commands for sending notifications and configuring alarm functionality.

Command: ResetAllAlarms

Definition at line 1895 of file [client-command-macro.doc](#).

**6.5.2.102 #define emberAfFillCommandAlarmClusterGetAlarm( )**

Command description for GetAlarm.

Cluster: Alarms, Attributes and commands for sending notifications and configuring alarm functionality.

Command: GetAlarm

Definition at line 1908 of file [client-command-macro.doc](#).

**6.5.2.103 #define emberAfFillCommandAlarmClusterResetAlarmLog( )**

Command description for ResetAlarmLog.

Cluster: Alarms, Attributes and commands for sending notifications and configuring alarm functionality.

Command: ResetAlarmLog

Definition at line 1921 of file [client-command-macro.doc](#).

**6.5.2.104 #define emberAfFillCommandAlarmClusterAlarm( *alarmCode*, *clusterId* )**

Command description for Alarm.

Cluster: Alarms, Attributes and commands for sending notifications and configuring alarm functionality.

Command: Alarm

**Parameters**

<i>alarmCode</i>	uint8_t
<i>clusterId</i>	uint16_t

Definition at line 1936 of file [client-command-macro.doc](#).

**6.5.2.105 #define emberAfFillCommandAlarmClusterGetAlarmResponse( *status*, *alarmCode*, *clusterId*, *timeStamp* )**

Command description for GetAlarmResponse.

Cluster: Alarms, Attributes and commands for sending notifications and configuring alarm functionality.  
Command: GetAlarmResponse

#### Parameters

<i>status</i>	uint8_t
<i>alarmCode</i>	uint8_t
<i>clusterId</i>	uint16_t
<i>timeStamp</i>	uint32_t

Definition at line 1956 of file [client-command-macro.doc](#).

**6.5.2.106 #define emberAfFillCommandRssiLocationClusterSetAbsoluteLocation( *coordinate1*, *coordinate2*, *coordinate3*, *power*, *pathLossExponent* )**

Command description for SetAbsoluteLocation.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: SetAbsoluteLocation

#### Parameters

<i>coordinate1</i>	int16_t
<i>coordinate2</i>	int16_t
<i>coordinate3</i>	int16_t
<i>power</i>	int16_t
<i>pathLoss-Exponent</i>	uint16_t

Definition at line 1991 of file [client-command-macro.doc](#).

**6.5.2.107 #define emberAfFillCommandRssiLocationClusterSetDeviceConfiguration( *power*, *pathLossExponent*, *calculationPeriod*, *numberRssiMeasurements*, *reportingPeriod* )**

Command description for SetDeviceConfiguration.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: SetDeviceConfiguration

#### Parameters

<i>power</i>	int16_t
<i>pathLoss-Exponent</i>	uint16_t
<i>calculation-Period</i>	uint16_t
<i>numberRssi-Measurements</i>	uint8_t
<i>reporting-Period</i>	uint16_t

Definition at line 2018 of file [client-command-macro.doc](#).

#### **6.5.2.108 #define emberAfFillCommandRssiLocationClusterGetDeviceConfiguration( targetAddress )**

Command description for GetDeviceConfiguration.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: GetDeviceConfiguration

##### **Parameters**

<i>targetAddress</i>	uint8_t*
----------------------	----------

Definition at line 2041 of file [client-command-macro.doc](#).

#### **6.5.2.109 #define emberAfFillCommandRssiLocationClusterGetLocationData( flags, numberResponses, targetAddress )**

Command description for GetLocationData.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: GetLocationData

##### **Parameters**

<i>flags</i>	uint8_t
<i>number-</i> <i>Responses</i>	uint8_t
<i>targetAddress</i>	uint8_t*

Definition at line 2058 of file [client-command-macro.doc](#).

#### **6.5.2.110 #define emberAfFillCommandRssiLocationClusterRssiResponse( replyingDevice, coordinate1, coordinate2, coordinate3, rssi, numberRssiMeasurements )**

Command description for RssiResponse.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: RssiResponse

##### **Parameters**

<i>replyingDevice</i>	uint8_t*
<i>coordinate1</i>	int16_t
<i>coordinate2</i>	int16_t
<i>coordinate3</i>	int16_t
<i>rssi</i>	int8_t
<i>numberRssi-</i> <i>Measurements</i>	uint8_t

Definition at line 2082 of file [client-command-macro.doc](#).

**6.5.2.111 #define emberAfFillCommandRssiLocationClusterSendPings( targetAddress, numberRssiMeasurements, calculationPeriod )**

Command description for SendPings.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: SendPings

#### Parameters

<i>targetAddress</i>	uint8_t*
<i>numberRssiMeasurements</i>	uint8_t
<i>calculationPeriod</i>	uint16_t

Definition at line 2109 of file [client-command-macro.doc](#).

**6.5.2.112 #define emberAfFillCommandRssiLocationClusterAnchorNodeAnnounce( anchorNodeIeeeAddress, coordinate1, coordinate2, coordinate3 )**

Command description for AnchorNodeAnnounce.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: AnchorNodeAnnounce

#### Parameters

<i>anchorNodeIeeeAddress</i>	uint8_t*
<i>coordinate1</i>	int16_t
<i>coordinate2</i>	int16_t
<i>coordinate3</i>	int16_t

Definition at line 2131 of file [client-command-macro.doc](#).

**6.5.2.113 #define emberAfFillCommandRssiLocationClusterDeviceConfigurationResponse( status, power, pathLossExponent, calculationPeriod, numberRssiMeasurements, reportingPeriod )**

Command description for DeviceConfigurationResponse.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: DeviceConfigurationResponse

#### Parameters

<i>status</i>	uint8_t
<i>power</i>	int16_t
<i>pathLossExponent</i>	uint16_t
<i>calculationPeriod</i>	uint16_t
<i>numberRssiMeasurements</i>	uint8_t

<i>reporting-Period</i>	uint16_t
-------------------------	----------

Definition at line 2157 of file [client-command-macro.doc](#).

```
6.5.2.114 #define emberAfFillCommandRssiLocationClusterLocationDataResponse( status,  

locationType, coordinate1, coordinate2, coordinate3, power, pathLossExponent,  

locationMethod, qualityMeasure, locationAge )
```

Command description for LocationDataResponse.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: LocationDataResponse

#### Parameters

<i>status</i>	uint8_t
<i>locationType</i>	uint8_t
<i>coordinate1</i>	int16_t
<i>coordinate2</i>	int16_t
<i>coordinate3</i>	int16_t
<i>power</i>	int16_t
<i>pathLoss-Exponent</i>	uint16_t
<i>locationMethod</i>	uint8_t
<i>qualityMeasure</i>	uint8_t
<i>locationAge</i>	uint16_t

Definition at line 2191 of file [client-command-macro.doc](#).

```
6.5.2.115 #define emberAfFillCommandRssiLocationClusterLocationDataNotification( locationType,  

coordinate1, coordinate2, coordinate3, power, pathLossExponent, locationMethod,  

qualityMeasure, locationAge )
```

Command description for LocationDataNotification.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: LocationDataNotification

#### Parameters

<i>locationType</i>	uint8_t
<i>coordinate1</i>	int16_t
<i>coordinate2</i>	int16_t
<i>coordinate3</i>	int16_t
<i>power</i>	int16_t
<i>pathLoss-Exponent</i>	uint16_t
<i>locationMethod</i>	uint8_t
<i>qualityMeasure</i>	uint8_t
<i>locationAge</i>	uint16_t

Definition at line 2232 of file [client-command-macro.doc](#).

**6.5.2.116 #define emberAfFillCommandRssiLocationClusterCompactLocationDataNotification(  
locationType, coordinate1, coordinate2, coordinate3, qualityMeasure, locationAge )**

Command description for CompactLocationDataNotification.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: CompactLocationDataNotification

#### Parameters

<i>locationType</i>	uint8_t
<i>coordinate1</i>	int16_t
<i>coordinate2</i>	int16_t
<i>coordinate3</i>	int16_t
<i>qualityMeasure</i>	uint8_t
<i>locationAge</i>	uint16_t

Definition at line 2268 of file [client-command-macro.doc](#).

**6.5.2.117 #define emberAfFillCommandRssiLocationClusterRssiPing( *locationType* )**

Command description for RssiPing.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: RssiPing

#### Parameters

<i>locationType</i>	uint8_t
---------------------	---------

Definition at line 2293 of file [client-command-macro.doc](#).

**6.5.2.118 #define emberAfFillCommandRssiLocationClusterRssiRequest( )**

Command description for RssiRequest.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: RssiRequest

Definition at line 2307 of file [client-command-macro.doc](#).

**6.5.2.119 #define emberAfFillCommandRssiLocationClusterReportRssiMeasurements( *measuringDevice*,  
*neighbors*, *neighborsInfo*, *neighborsInfoLen* )**

Command description for ReportRssiMeasurements.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: ReportRssiMeasurements

**Parameters**

<i>measuring-Device</i>	uint8_t*
<i>neighbors</i>	uint8_t
<i>neighborsInfo</i>	uint8_t*
<i>neighborsInfo-Len</i>	uint8_t

Definition at line 2324 of file [client-command-macro.doc](#).

**6.5.2.120 #define emberAfFillCommandRssiLocationClusterRequestOwnLocation( *blindNode* )**

Command description for RequestOwnLocation.

Cluster: RSSI Location, Attributes and commands that provide a means for exchanging location information and channel parameters among devices. Command: RequestOwnLocation

**Parameters**

<i>blindNode</i>	uint8_t*
------------------	----------

Definition at line 2345 of file [client-command-macro.doc](#).

**6.5.2.121 #define emberAfFillCommandCommissioningClusterRestartDevice( *options*, *delay*, *jitter* )**

Command description for RestartDevice.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device. Command: RestartDevice

**Parameters**

<i>options</i>	uint8_t
<i>delay</i>	uint8_t
<i>jitter</i>	uint8_t

Definition at line 2372 of file [client-command-macro.doc](#).

**6.5.2.122 #define emberAfFillCommandCommissioningClusterSaveStartupParameters( *options*, *index* )**

Command description for SaveStartupParameters.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device. Command: SaveStartupParameters

**Parameters**

<i>options</i>	uint8_t
<i>index</i>	uint8_t

Definition at line 2392 of file [client-command-macro.doc](#).

**6.5.2.123 #define emberAfFillCommandCommissioningClusterRestoreStartupParameters( *options*, *index* )**

Command description for RestoreStartupParameters.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device.  
Command: RestoreStartupParameters

**Parameters**

<i>options</i>	uint8_t
<i>index</i>	uint8_t

Definition at line 2410 of file [client-command-macro.doc](#).

**6.5.2.124 #define emberAfFillCommandCommissioningClusterResetStartupParameters( *options*, *index* )**

Command description for ResetStartupParameters.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device.  
Command: ResetStartupParameters

**Parameters**

<i>options</i>	uint8_t
<i>index</i>	uint8_t

Definition at line 2428 of file [client-command-macro.doc](#).

**6.5.2.125 #define emberAfFillCommandCommissioningClusterRestartDeviceResponse( *status* )**

Command description for RestartDeviceResponse.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device.  
Command: RestartDeviceResponse

**Parameters**

<i>status</i>	uint8_t
---------------	---------

Definition at line 2445 of file [client-command-macro.doc](#).

**6.5.2.126 #define emberAfFillCommandCommissioningClusterSaveStartupParametersResponse( *status* )**

Command description for SaveStartupParametersResponse.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device.  
Command: SaveStartupParametersResponse

**Parameters**

<i>status</i>	uint8_t
---------------	---------

Definition at line 2460 of file [client-command-macro.doc](#).

**6.5.2.127 #define emberAfFillCommandCommissioningClusterRestoreStartupParametersResponse(  
status )**

Command description for RestoreStartupParametersResponse.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device.  
Command: RestoreStartupParametersResponse

**Parameters**

<i>status</i>	uint8_t
---------------	---------

Definition at line [2475](#) of file [client-command-macro.doc](#).

**6.5.2.128 #define emberAfFillCommandCommissioningClusterResetStartupParametersResponse( *status*  
)**

Command description for ResetStartupParametersResponse.

Cluster: Commissioning, Attributes and commands for commissioning and managing a ZigBee device.  
Command: ResetStartupParametersResponse

**Parameters**

<i>status</i>	uint8_t
---------------	---------

Definition at line [2490](#) of file [client-command-macro.doc](#).

**6.5.2.129 #define emberAfFillCommandPartitionClusterTransferPartitionedFrame( *fragmentationOptions*,  
*partitionedIndicatorAndFrame*, *partitionedIndicatorAndFrameLen* )**

The TransferPartitionedFrame command is used to send a partitioned frame to another Partition cluster.

Cluster: Partition, Commands and attributes for enabling partitioning of large frame to be carried from other clusters of ZigBee devices. Command: TransferPartitionedFrame

**Parameters**

<i>fragmentation- Options</i>	uint8_t
<i>partitioned- IndicatorAnd- Frame</i>	uint8_t*
<i>partitioned- IndicatorAnd- FrameLen</i>	uint8_t

Definition at line [2512](#) of file [client-command-macro.doc](#).

**6.5.2.130 #define emberAfFillCommandPartitionClusterReadHandshakeParam( *partitionedClusterId*, *attributeList*, *attributeListLen* )**

The ReadHandshakeParam command is used in order to read the appropriate set of parameters for each transaction to be performed by the Partition Cluster.

Cluster: Partition, Commands and attributes for enabling partitioning of large frame to be carried from other clusters of ZigBee devices. Command: ReadHandshakeParam

#### Parameters

<i>partitioned-ClusterId</i>	uint16_t
<i>attributeList</i>	uint8_t*
<i>attributeListLen</i>	uint8_t

Definition at line 2533 of file [client-command-macro.doc](#).

**6.5.2.131 #define emberAfFillCommandPartitionClusterWriteHandshakeParam( *partitionedClusterId*, *writeAttributeRecords*, *writeAttributeRecordsLen* )**

The WriteHandshakeParam command is used during the handshake phase in order to write the appropriate parameters for each transaction to be performed by the Partition Cluster.

Cluster: Partition, Commands and attributes for enabling partitioning of large frame to be carried from other clusters of ZigBee devices. Command: WriteHandshakeParam

#### Parameters

<i>partitioned-ClusterId</i>	uint16_t
<i>writeAttribute-Records</i>	uint8_t*
<i>writeAttribute-RecordsLen</i>	uint8_t

Definition at line 2554 of file [client-command-macro.doc](#).

**6.5.2.132 #define emberAfFillCommandPartitionClusterMultipleAck( *ackOptions*, *firstFrameIdAndNackList*, *firstFrameIdAndNackListLen* )**

MultipleACK command.

Cluster: Partition, Commands and attributes for enabling partitioning of large frame to be carried from other clusters of ZigBee devices. Command: MultipleAck

#### Parameters

<i>ackOptions</i>	uint8_t
<i>firstFrameId-AndNackList</i>	uint8_t*
<i>firstFrameId-AndNackListLen</i>	uint8_t

Definition at line [2575](#) of file [client-command-macro.doc](#).

**6.5.2.133 #define emberAfFillCommandPartitionClusterReadHandshakeParamResponse( partitionedClusterId, readAttributeStatusRecords, readAttributeStatusRecordsLen )**

The ReadHandshakeParamResponse command is used in order to response to the corresponding ReadHandshakeParam command in order to communicate the appropriate set of parameters configured for each transaction to be performed by the Partition Cluster.

Cluster: Partition, Commands and attributes for enabling partitioning of large frame to be carried from other clusters of ZigBee devices. Command: ReadHandshakeParamResponse

#### Parameters

<i>partitioned-ClusterId</i>	uint16_t
<i>readAttribute-StatusRecords</i>	uint8_t*
<i>readAttribute-StatusRecords-Len</i>	uint8_t

Definition at line [2596](#) of file [client-command-macro.doc](#).

**6.5.2.134 #define emberAfFillCommandOtaBootloadClusterImageNotify( payloadType, queryJitter, manufacturerId, imageType, newFileVersion )**

This command is generated when the upgrade server wishes to notify the clients of the available OTA upgrade image. The command can be sent as unicast which provides a way for the server to force the upgrade on the client. The command can also be sent as broadcast or multicast to certain class of clients (for example, the ones that have matching manufacturing and device ids).

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: ImageNotify

#### Parameters

<i>payloadType</i>	uint8_t
<i>queryJitter</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>newFileVersion</i>	uint32_t

Definition at line [2624](#) of file [client-command-macro.doc](#).

**6.5.2.135 #define emberAfFillCommandOtaBootloadClusterQueryNextImageRequest( fieldControl, manufacturerId, imageType, currentFileVersion, hardwareVersion )**

This command is generated upon receipt of an Image Notify command to indicate that the client is looking for the next firmware image to upgrade to. The client may also choose to send the command periodically to the server.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: QueryNextImageRequest

#### Parameters

<i>fieldControl</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>currentFile- Version</i>	uint32_t
<i>hardware- Version</i>	uint16_t

Definition at line [2651](#) of file [client-command-macro.doc](#).

**6.5.2.136 #define emberAfFillCommandOtaBootloadClusterQueryNextImageResponse( *status,*  
*manufacturerId, imageType, fileVersion, imageSize* )**

This command is generated upon receipt of an QueryNextImageRequest command to response whether the server has a valid OTA upgrade image for the client or not. If the server has the file, information regarding the file and OTA upgrade process will be included in the command.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: QueryNextImageResponse

#### Parameters

<i>status</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>imageSize</i>	uint32_t

Definition at line [2678](#) of file [client-command-macro.doc](#).

**6.5.2.137 #define emberAfFillCommandOtaBootloadClusterImageBlockRequest( *fieldControl,*  
*manufacturerId, imageType, fileVersion, fileOffset, maxDataSize, requestNodeAddress* )**

This command is generated by the client to request blocks of OTA upgrade file data.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: ImageBlockRequest

#### Parameters

<i>fieldControl</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>fileOffset</i>	uint32_t
<i>maxDataSize</i>	uint8_t
<i>requestNode- Address</i>	uint8_t*

Definition at line 2707 of file [client-command-macro.doc](#).

```
6.5.2.138 #define emberAfFillCommandOtaBootloadClusterImagePageRequest( fieldControl,
manufacturerId, imageType, fileVersion, fileOffset, maxDataSize, pageSize,
responseSpacing, requestNodeAddress )
```

This command is generated by the client to request pages of OTA upgrade file data. A page would contain multiple blocks of data.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: ImagePageRequest

#### Parameters

<i>fieldControl</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>fileOffset</i>	uint32_t
<i>maxDataSize</i>	uint8_t
<i>pageSize</i>	uint16_t
<i>response- Spacing</i>	uint16_t
<i>requestNode- Address</i>	uint8_t*

Definition at line 2742 of file [client-command-macro.doc](#).

```
6.5.2.139 #define emberAfFillCommandOtaBootloadClusterImageBlockResponse( status,
manufacturerId, imageType, fileVersion, fileOffset, dataSize, imageData, imageDataLen )
```

This command is generated by the server in response to the block or page request command. If the server has the data available, it will reply back with a SUCCESS status. For other error cases, it may reply with status WAIT\_FOR\_DATA (server does not have the data available yet) or ABORT (invalid requested parameters or other failure cases).

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: ImageBlockResponse

#### Parameters

<i>status</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>fileOffset</i>	uint32_t
<i>dataSize</i>	uint8_t
<i>imageData</i>	uint8_t*
<i>imageDataLen</i>	uint8_t

Definition at line 2780 of file [client-command-macro.doc](#).

**6.5.2.140 #define emberAfFillCommandOtaBootloadClusterUpgradeEndRequest( *status, manufacturerId, imageType, fileVersion* )**

This command is generated by the client to notify the server of the end of the upgrade process. The process may end with success or error status.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: UpgradeEndRequest

#### Parameters

<i>status</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t

Definition at line 2812 of file [client-command-macro.doc](#).

**6.5.2.141 #define emberAfFillCommandOtaBootloadClusterUpgradeEndResponse( *manufacturerId, imageType, fileVersion, currentTime, upgradeTime* )**

This command is generated by the server in response to the upgrade request in order to let the client know when to upgrade to running new firmware image.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: UpgradeEndResponse

#### Parameters

<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>currentTime</i>	uint32_t
<i>upgradeTime</i>	uint32_t

Definition at line 2837 of file [client-command-macro.doc](#).

**6.5.2.142 #define emberAfFillCommandOtaBootloadClusterQuerySpecificFileRequest( *requestNodeAddress, manufacturerId, imageType, fileVersion, currentZigbeeStackVersion* )**

This command is generated by the client to request a file that is specific to itself. The intention is to provide a way for the client to request non-OTA upgrade file.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: QuerySpecificFileRequest

#### Parameters

<i>requestNode-Address</i>	uint8_t*
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>currentZigbee-StackVersion</i>	uint16_t

Definition at line 2864 of file [client-command-macro.doc](#).

**6.5.2.143 #define emberAfFillCommandOtaBootloadClusterQuerySpecificFileResponse( *status*, *manufacturerId*, *imageType*, *fileVersion*, *imageSize* )**

This command is generated upon receipt of an QuerySpecificFileRequest command to response whether the server has a valid file for the client or not. If the server has the file, information regarding the file and OTA process will be included in the command.

Cluster: Over the Air Bootloading, This cluster contains commands and attributes that act as an interface for ZigBee Over-the-air bootloading. Command: QuerySpecificFileResponse

#### Parameters

<i>status</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>imageType</i>	uint16_t
<i>fileVersion</i>	uint32_t
<i>imageSize</i>	uint32_t

Definition at line 2891 of file [client-command-macro.doc](#).

**6.5.2.144 #define emberAfFillCommandPowerProfileClusterPowerProfileRequest( *powerProfileId* )**

The PowerProfileRequest Command is generated by a device supporting the client side of the Power Profile cluster in order to request the Power Profile of a server device.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: PowerProfileRequest

#### Parameters

<i>powerProfileId</i>	uint8_t
-----------------------	---------

Definition at line 2919 of file [client-command-macro.doc](#).

**6.5.2.145 #define emberAfFillCommandPowerProfileClusterPowerProfileStateRequest( )**

The PowerProfileStateRequest Command is generated in order to retrieve the identifiers of current Power Profiles.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: PowerProfileStateRequest

Definition at line 2933 of file [client-command-macro.doc](#).

**6.5.2.146 #define emberAfFillCommandPowerProfileClusterGetPowerProfilePriceResponse( powerProfileId, currency, price, priceTrailingDigit )**

The GetPowerProfilePriceResponse command allows a device (client) to communicate the cost associated to the selected Power Profile to another device (server) requesting it.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: GetPowerProfilePriceResponse

#### Parameters

<i>powerProfileId</i>	uint8_t
<i>currency</i>	uint16_t
<i>price</i>	uint32_t
<i>priceTrailing-Digit</i>	uint8_t

Definition at line [2950](#) of file [client-command-macro.doc](#).

**6.5.2.147 #define emberAfFillCommandPowerProfileClusterGetOverallSchedulePriceResponse( currency, price, priceTrailingDigit )**

The GetOverallSchedulePriceResponse command allows a device (client) to communicate the overall cost associated to all Power Profiles scheduled to another device (server) requesting it.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: GetOverallSchedulePriceResponse

#### Parameters

<i>currency</i>	uint16_t
<i>price</i>	uint32_t
<i>priceTrailing-Digit</i>	uint8_t

Definition at line [2973](#) of file [client-command-macro.doc](#).

**6.5.2.148 #define emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleNotification( powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen )**

The EnergyPhasesScheduleNotification Command is generated by a device supporting the client side of the Power Profile cluster in order to schedule the start of the selected Power Profile and its phases.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: EnergyPhasesScheduleNotification

**Parameters**

<i>powerProfileId</i>	uint8_t
<i>numOfScheduledPhases</i>	uint8_t
<i>scheduledPhases</i>	uint8_t*
<i>scheduledPhasesLen</i>	uint8_t

Definition at line 2995 of file [client-command-macro.doc](#).

**6.5.2.149 #define emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleResponse( powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen )**

This command is generated by the client side of Power Profile cluster as a reply to the EnergyPhasesScheduleRequest command.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: EnergyPhasesScheduleResponse

**Parameters**

<i>powerProfileId</i>	uint8_t
<i>numOfScheduledPhases</i>	uint8_t
<i>scheduledPhases</i>	uint8_t*
<i>scheduledPhasesLen</i>	uint8_t

Definition at line 3019 of file [client-command-macro.doc](#).

**6.5.2.150 #define emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsRequest( powerProfileId )**

The PowerProfileScheduleConstraintsRequest Command is generated by a device supporting the client side of the Power Profile cluster in order to request the constraints -if set- of Power Profile of a client device, in order to set the proper boundaries for the scheduling when calculating the schedules.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: PowerProfileScheduleConstraintsRequest

**Parameters**

<i>powerProfileId</i>	uint8_t
-----------------------	---------

Definition at line 3040 of file [client-command-macro.doc](#).

**6.5.2.151 #define emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateRequest(  
powerProfileId )**

The EnergyPhasesScheduleStateRequest Command is generated by a device supporting the client side of the Power Profile cluster to check the states of the scheduling of a power profile, which is supported in the device implementing the server side of Power Profile cluster.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: EnergyPhasesScheduleStateRequest

**Parameters**

<i>powerProfileId</i>	uint8_t
-----------------------	---------

Definition at line 3055 of file [client-command-macro.doc](#).

**6.5.2.152 #define emberAfFillCommandPowerProfileClusterGetPowerProfilePriceExtendedResponse(  
powerProfileId, currency, price, priceTrailingDigit )**

The Get Power Profile Price Extended Response command allows a device (client) to communicate the cost associated to all Power Profiles scheduled to another device (server) requesting it according to the specific options contained in the Get Power Profile Price Extended Response.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: GetPowerProfilePriceExtendedResponse

**Parameters**

<i>powerProfileId</i>	uint8_t
<i>currency</i>	uint16_t
<i>price</i>	uint32_t
<i>priceTrailing-Digit</i>	uint8_t

Definition at line 3073 of file [client-command-macro.doc](#).

**6.5.2.153 #define emberAfFillCommandPowerProfileClusterPowerProfileNotification( totalProfileNum,  
powerProfileId, numOfTransferredPhases, transferredPhases, transferredPhasesLen )**

The PowerProfileNotification Command is generated by a device supporting the server side of the Power Profile cluster in order to send the information of the specific parameters (such as Peak power and others) belonging to each phase.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: PowerProfileNotification

**Parameters**

<i>totalProfile-Num</i>	uint8_t
<i>powerProfileId</i>	uint8_t
<i>numOf-Transferred-Phases</i>	uint8_t
<i>transferred-Phases</i>	uint8_t*
<i>transferred-PhasesLen</i>	uint8_t

Definition at line 3098 of file [client-command-macro.doc](#).

**6.5.2.154 #define emberAfFillCommandPowerProfileClusterPowerProfileResponse( *totalProfileNum,*  
*powerProfileId, numOfTransferredPhases, transferredPhases, transferredPhasesLen*  )**

This command is generated by the server side of Power Profile cluster as a reply to the PowerProfileRequest command.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: PowerProfileResponse

**Parameters**

<i>totalProfile-Num</i>	uint8_t
<i>powerProfileId</i>	uint8_t
<i>numOf-Transferred-Phases</i>	uint8_t
<i>transferred-Phases</i>	uint8_t*
<i>transferred-PhasesLen</i>	uint8_t

Definition at line 3125 of file [client-command-macro.doc](#).

**6.5.2.155 #define emberAfFillCommandPowerProfileClusterPowerProfileStateResponse( *powerProfileCount, powerProfileRecords, powerProfileRecordsLen*  )**

The PowerProfileStateResponse command allows a device (server) to communicate its current Power Profile(s) to another device (client) that previously requested them.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: PowerProfileStateResponse

**Parameters**

<i>powerProfile-Count</i>	uint8_t
<i>powerProfile-Records</i>	uint8_t*
<i>powerProfile-RecordsLen</i>	uint8_t

Definition at line 3150 of file [client-command-macro.doc](#).

**6.5.2.156 #define emberAfFillCommandPowerProfileClusterGetPowerProfilePrice( *powerProfileId* )**

The GetPowerProfilePrice Command is generated by the server (e.g. White goods) in order to retrieve the cost associated to a specific Power profile.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: GetPowerProfilePrice

**Parameters**

<i>powerProfileId</i>	uint8_t
-----------------------	---------

Definition at line 3169 of file [client-command-macro.doc](#).

**6.5.2.157 #define emberAfFillCommandPowerProfileClusterPowerProfilesStateNotification( *powerProfileCount*, *powerProfileRecords*, *powerProfileRecordsLen* )**

The PowerProfileStateNotification Command is generated by the server (e.g. White goods) in order to update the state of the power profile and the current energy phase.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: PowerProfilesStateNotification

**Parameters**

<i>powerProfile-Count</i>	uint8_t
<i>powerProfile-Records</i>	uint8_t*
<i>powerProfile-RecordsLen</i>	uint8_t

Definition at line 3186 of file [client-command-macro.doc](#).

**6.5.2.158 #define emberAfFillCommandPowerProfileClusterGetOverallSchedulePrice( )**

The GetOverallSchedulePrice Command is generated by the server (e.g. White goods) in order to retrieve the overall cost associated to all the Power Profiles scheduled by the scheduler (the device supporting the Power Profile cluster client side) for the next 24 hours.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
 Command: GetOverallSchedulePrice

Definition at line 3204 of file [client-command-macro.doc](#).

**6.5.2.159 #define emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleRequest( powerProfileId )**

The EnergyPhasesScheduleRequest Command is generated by the server (e.g. White goods) in order to retrieve from the scheduler (e.g. Home Gateway) the schedule (if available) associated to the specific Power Profile carried in the payload.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
 Command: EnergyPhasesScheduleRequest

#### Parameters

<i>powerProfileId</i>	uint8_t
-----------------------	---------

Definition at line 3218 of file [client-command-macro.doc](#).

**6.5.2.160 #define emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateResponse( powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen )**

The EnergyPhasesScheduleStateResponse Command is generated by the server (e.g. White goods) in order to reply to a EnergyPhasesScheduleStateRequest command about the scheduling states that are set in the server side.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
 Command: EnergyPhasesScheduleStateResponse

#### Parameters

<i>powerProfileId</i>	uint8_t
<i>numOfScheduled- Phases</i>	uint8_t
<i>scheduled- Phases</i>	uint8_t*
<i>scheduled- PhasesLen</i>	uint8_t

Definition at line 3236 of file [client-command-macro.doc](#).

**6.5.2.161 #define emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateNotification( powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen )**

The EnergyPhasesScheduleStateNotification Command is generated by the server (e.g. White goods) in order to notify (un-solicited command) a client side about the scheduling states that are set in the server side.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: EnergyPhasesScheduleStateNotification

#### Parameters

<i>powerProfileId</i>	uint8_t
<i>numOfScheduledPhases</i>	uint8_t
<i>scheduledPhases</i>	uint8_t*
<i>scheduledPhasesLen</i>	uint8_t

Definition at line 3260 of file [client-command-macro.doc](#).

**6.5.2.162 #define emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsNotification( powerProfileId, startAfter, stopBefore )**

The PowerProfileScheduleConstraintsNotification Command is generated by a device supporting the server side of the Power Profile cluster to notify the client side of this cluster about the imposed constraints and let the scheduler (i.e. the entity supporting the Power Profile cluster client side) to set the proper boundaries for the scheduling.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).  
Command: PowerProfileScheduleConstraintsNotification

#### Parameters

<i>powerProfileId</i>	uint8_t
<i>startAfter</i>	uint16_t
<i>stopBefore</i>	uint16_t

Definition at line 3283 of file [client-command-macro.doc](#).

**6.5.2.163 #define emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsResponse( powerProfileId, startAfter, stopBefore )**

The PowerProfileScheduleConstraintsResponse Command is generated by a device supporting the server side of the Power Profile cluster to reply to a client side of this cluster which sent a PowerProfileScheduleConstraintsRequest.

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: PowerProfileScheduleConstraintsResponse

#### Parameters

<i>powerProfileId</i>	uint8_t
<i>startAfter</i>	uint16_t
<i>stopBefore</i>	uint16_t

Definition at line 3304 of file [client-command-macro.doc](#).

**6.5.2.164 #define emberAfFillCommandPowerProfileClusterGetPowerProfilePriceExtended( *options*, *powerProfileId*, *powerProfileStartTime* )**

The Get Power Profile Price Extended command is generated by the server (e.g., White Goods) in order to retrieve the cost associated to a specific Power profile considering specific conditions described in the option field (e.g., a specific time).

Cluster: Power Profile, This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side). Command: GetPowerProfilePriceExtended

#### Parameters

<i>options</i>	uint8_t
<i>powerProfileId</i>	uint8_t
<i>powerProfile-StartTime</i>	uint16_t

Definition at line 3325 of file [client-command-macro.doc](#).

**6.5.2.165 #define emberAfFillCommandApplianceControlClusterExecutionOfACommand( *commandId* )**

This basic message is used to remotely control and to program household appliances.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: ExecutionOfACommand

#### Parameters

<i>commandId</i>	uint8_t
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Definition at line 3349 of file [client-command-macro.doc](#).

**6.5.2.166 #define emberAfFillCommandApplianceControlClusterSignalState( )**

This basic message is used to retrieve Household Appliances status.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: SignalState

Definition at line 3363 of file [client-command-macro.doc](#).

**6.5.2.167 #define emberAfFillCommandApplianceControlClusterWriteFunctions( *functionId*, *functionDataType*, *functionData*, *functionDataLen* )**

This basic message is used to set appliance functions, i.e. information regarding the execution of an appliance cycle. Condition parameters such as start time or finish time information could be provided through this command.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: WriteFunctions

#### Parameters

<i>functionId</i>	uint16_t
<i>functionData-</i> <i>Type</i>	uint8_t
<i>functionData</i>	uint8_t*
<i>functionData-</i> <i>Len</i>	uint8_t

Definition at line 3380 of file [client-command-macro.doc](#).

**6.5.2.168 #define emberAfFillCommandApplianceControlClusterOverloadPauseResume( )**

This command shall be used to resume the normal behavior of a household appliance being in pause mode after receiving a Overload Pause command.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: OverloadPauseResume

Definition at line 3400 of file [client-command-macro.doc](#).

**6.5.2.169 #define emberAfFillCommandApplianceControlClusterOverloadPause( )**

This command shall be used to pause the household appliance as a consequence of an imminent overload event.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: OverloadPause

Definition at line 3413 of file [client-command-macro.doc](#).

**6.5.2.170 #define emberAfFillCommandApplianceControlClusterOverloadWarning( *warningEvent* )**

This basic message is used to send warnings the household appliance as a consequence of a possible overload event, or the notification of the end of the warning state.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: OverloadWarning

#### Parameters

<i>warningEvent</i>	uint8_t
---------------------	---------

Definition at line [3427](#) of file [client-command-macro.doc](#).

**6.5.2.171 #define emberAfFillCommandApplianceControlClusterSignalStateResponse( *applianceStatus*, *remoteEnableFlagsAndDeviceStatus2*, *applianceStatus2* )**

This command shall be used to return household appliance status, according to Appliance Status Values and Remote Enable Flags Values.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: SignalStateResponse

#### Parameters

<i>appliance-Status</i>	uint8_t
<i>remoteEnable-FlagsAnd-DeviceStatus2</i>	uint8_t
<i>appliance-Status2</i>	uint32_t

Definition at line [3444](#) of file [client-command-macro.doc](#).

**6.5.2.172 #define emberAfFillCommandApplianceControlClusterSignalStateNotification( *applianceStatus*, *remoteEnableFlagsAndDeviceStatus2*, *applianceStatus2* )**

This command shall be used to return household appliance status, automatically when appliance status changes.

Cluster: Appliance Control, This cluster provides an interface to remotely control and to program household appliances. Command: SignalStateNotification

#### Parameters

<i>appliance-Status</i>	uint8_t
<i>remoteEnable-FlagsAnd-DeviceStatus2</i>	uint8_t
<i>appliance-Status2</i>	uint32_t

Definition at line [3465](#) of file [client-command-macro.doc](#).

**6.5.2.173 #define emberAfFillCommandPollControlClusterCheckIn( )**

The Poll Control Cluster server sends out a Check-in command to the devices to which it is paired based on the server's Check-in Interval attribute.

Cluster: Poll Control, This cluster provides a mechanism for the management of an end device's MAC Data Poll rate. For the purposes of this cluster, the term "poll" always refers to the sending of a MAC Data Poll from the end device to the end device's parent. Command: CheckIn

Definition at line [3488](#) of file [client-command-macro.doc](#).

**6.5.2.174 #define emberAfFillCommandPollControlClusterCheckInResponse( *startFastPolling*, *fastPollTimeout* )**

The Check-in Response is sent in response to the receipt of a Check-in command.

Cluster: Poll Control, This cluster provides a mechanism for the management of an end device's MAC Data Poll rate. For the purposes of this cluster, the term "poll" always refers to the sending of a MAC Data Poll from the end device to the end device's parent. Command: CheckInResponse

#### Parameters

<i>startFast-Polling</i>	uint8_t
<i>fastPollTimeout</i>	uint16_t

Definition at line 3503 of file [client-command-macro.doc](#).

**6.5.2.175 #define emberAfFillCommandPollControlClusterFastPollStop( )**

The Fast Poll Stop command is used to stop the fast poll mode initiated by the Check-in response.

Cluster: Poll Control, This cluster provides a mechanism for the management of an end device's MAC Data Poll rate. For the purposes of this cluster, the term "poll" always refers to the sending of a MAC Data Poll from the end device to the end device's parent. Command: FastPollStop

Definition at line 3519 of file [client-command-macro.doc](#).

**6.5.2.176 #define emberAfFillCommandPollControlClusterSetLongPollInterval( *newLongPollInterval* )**

The Set Long Poll Interval command is used to set the read only Long Poll Interval Attribute.

Cluster: Poll Control, This cluster provides a mechanism for the management of an end device's MAC Data Poll rate. For the purposes of this cluster, the term "poll" always refers to the sending of a MAC Data Poll from the end device to the end device's parent. Command: SetLongPollInterval

#### Parameters

<i>newLongPoll-Interval</i>	uint32_t
-----------------------------	----------

Definition at line 3533 of file [client-command-macro.doc](#).

**6.5.2.177 #define emberAfFillCommandPollControlClusterSetShortPollInterval( *newShortPollInterval* )**

The Set Short Poll Interval command is used to set the read only Short Poll Interval Attribute.

Cluster: Poll Control, This cluster provides a mechanism for the management of an end device's MAC Data Poll rate. For the purposes of this cluster, the term "poll" always refers to the sending of a MAC Data Poll from the end device to the end device's parent. Command: SetShortPollInterval

#### Parameters

<i>newShortPoll-Interval</i>	uint16_t
------------------------------	----------

Definition at line 3548 of file [client-command-macro.doc](#).

**6.5.2.178 #define emberAfFillCommandGreenPowerClusterGpNotification( options, gpdSrcId, gpdIeee, gpdEndpoint, gpdSecurityFrameCounter, gpdCommandId, gpdCommandPayload, gppShortAddress, gppDistance )**

From GPP to GPS to tunnel GP frame.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpNotification

#### Parameters

<i>options</i>	uint16_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>gpdEndpoint</i>	uint8_t
<i>gpdSecurityFrameCounter</i>	uint32_t
<i>gpdCommandId</i>	uint8_t
<i>gpdCommandPayload</i>	uint8_t*
<i>gppShortAddress</i>	uint16_t
<i>gppDistance</i>	uint8_t

Definition at line 3576 of file [client-command-macro.doc](#).

**6.5.2.179 #define emberAfFillCommandGreenPowerClusterGpPairingSearch( options, gpdSrcId, gpdIeee, endpoint )**

From GPP to GPSs in entire network to get pairing indication related to GPD for Proxy Table update.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpPairingSearch

#### Parameters

<i>options</i>	uint16_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t

Definition at line 3610 of file [client-command-macro.doc](#).

**6.5.2.180 #define emberAfFillCommandGreenPowerClusterGpTunnelingStop( options, gpdSrcId, gpdIeee, endpoint, gpdSecurityFrameCounter, gppShortAddress, gppDistance )**

From GPP to neighbor GPPs to indicate GP Notification sent in unicast mode.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpTunnelingStop

**Parameters**

<i>options</i>	uint8_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>gpdSecurityFrameCounter</i>	uint32_t
<i>gppShortAddress</i>	uint16_t
<i>gppDistance</i>	int8_t

Definition at line 3637 of file [client-command-macro.doc](#).

**6.5.2.181 #define emberAfFillCommandGreenPowerClusterGpCommissioningNotification( *options*,  
*gpdSrcId*, *gpdIeee*, *endpoint*, *gpdSecurityFrameCounter*, *gpdCommandId*,  
*gpdCommandPayload*, *gppShortAddress*, *gppLink*, *mic* )**

From GPP to GPS to tunnel GPD commissioning data.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpCommissioningNotification

**Parameters**

<i>options</i>	uint16_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>gpdSecurityFrameCounter</i>	uint32_t
<i>gpdCommandId</i>	uint8_t
<i>gpdCommandPayload</i>	uint8_t*
<i>gppShortAddress</i>	uint16_t
<i>gppLink</i>	uint8_t
<i>mic</i>	uint32_t

Definition at line 3673 of file [client-command-macro.doc](#).

**6.5.2.182 #define emberAfFillCommandGreenPowerClusterGpSinkCommissioningMode( *options*,  
*gpmAddrForSecurity*, *gpmAddrForPairing*, *sinkEndpoint* )**

To enable commissioning mode of the sink, over the air.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpSinkCommissioningMode

**Parameters**

<i>options</i>	uint8_t
<i>gpmAddrFor-Security</i>	uint16_t
<i>gpmAddrFor-Pairing</i>	uint16_t
<i>sinkEndpoint</i>	uint8_t

Definition at line 3709 of file [client-command-macro.doc](#).

**6.5.2.183 #define emberAfFillCommandGreenPowerClusterGpTranslationTableUpdate( *options*, *gpdSrcId*, *gpdIeee*, *endpoint*, *translations*, *translationsLen* )**

To configure GPD Command Translation Table.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpTranslationTableUpdate

**Parameters**

<i>options</i>	uint16_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>translations</i>	uint8_t*
<i>translationsLen</i>	uint8_t

Definition at line 3735 of file [client-command-macro.doc](#).

**6.5.2.184 #define emberAfFillCommandGreenPowerClusterGpTranslationTableRequest( *startIndex* )**

To provide GPD Command Translation Table content.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpTranslationTableRequest

**Parameters**

<i>startIndex</i>	uint8_t
-------------------	---------

Definition at line 3760 of file [client-command-macro.doc](#).

**6.5.2.185 #define emberAfFillCommandGreenPowerClusterGpPairingConfiguration( *actions*, *options*, *gpdSrcId*, *gpdIeee*, *endpoint*, *deviceId*, *groupListCount*, *groupList*, *groupListLen*, *gpdAssignedAlias*, *forwardingRadius*, *securityOptions*, *gpdSecurityFrameCounter*, *gpdSecurityKey*, *numberOfPairedEndpoints*, *pairedEndpoints*, *pairedEndpointsLen*, *applicationInformation*, *manufacturerId*, *modelId*, *numberOfGpdCommands*, *gpdCommandIdList*, *gpdCommandIdListLen*, *clusterIdListCount*, *clusterListServer*, *clusterListServerLen*, *clusterListClient*, *clusterListClientLen* )**

To configure Sink Table.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpPairingConfiguration

#### Parameters

<i>actions</i>	uint8_t
<i>options</i>	uint16_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>deviceId</i>	uint8_t
<i>groupListCount</i>	uint8_t
<i>groupList</i>	uint8_t*
<i>groupListLen</i>	uint8_t
<i>gpdAssigned-</i> <i>Alias</i>	uint16_t
<i>forwarding-</i> <i>Radius</i>	uint8_t
<i>securityOptions</i>	uint8_t
<i>gpdSecurity-</i> <i>FrameCounter</i>	uint32_t
<i>gpdSecurityKey</i>	uint8_t*
<i>numberOf-</i> <i>Paired-</i> <i>Endpoints</i>	uint8_t
<i>paired-</i> <i>Endpoints</i>	uint8_t*
<i>paired-</i> <i>EndpointsLen</i>	uint8_t
<i>application-</i> <i>Information</i>	uint8_t
<i>manufacturerId</i>	uint16_t
<i>modeId</i>	uint16_t
<i>numberOfGpd-</i> <i>Commands</i>	uint8_t
<i>gpdCommand-</i> <i>IdList</i>	uint8_t*
<i>gpdCommand-</i> <i>IdListLen</i>	uint8_t
<i>clusterIdList-</i> <i>Count</i>	uint8_t
<i>clusterList-</i> <i>Server</i>	uint8_t*
<i>clusterList-</i> <i>ServerLen</i>	uint8_t
<i>clusterList-</i> <i>Client</i>	uint8_t*
<i>clusterList-</i> <i>ClientLen</i>	uint8_t

Definition at line 3802 of file [client-command-macro.doc](#).

**6.5.2.186 #define emberAfFillCommandGreenPowerClusterGpSinkTableRequest( *options*, *gpdSrcId*, *gpdIeee*, *endpoint*, *index* )**

To read out selected Sink Table Entries, by index or by GPD ID.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpSinkTableRequest

#### Parameters

<i>options</i>	uint8_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>index</i>	uint8_t

Definition at line 3875 of file [client-command-macro.doc](#).

**6.5.2.187 #define emberAfFillCommandGreenPowerClusterGpProxyTableResponse( *status*, *totalNumberOfNonEmptyProxyTableEntries*, *startIndex*, *entriesCount*, *proxyTableEntries*, *proxyTableEntriesLen* )**

To reply with read-out Proxy Table entries, by index or by GPD ID.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpProxyTableResponse

#### Parameters

<i>status</i>	uint8_t
<i>totalNumberOfNonEmptyProxyTableEntries</i>	uint8_t
<i>startIndex</i>	uint8_t
<i>entriesCount</i>	uint8_t
<i>proxyTableEntries</i>	uint8_t*
<i>proxyTableEntriesLen</i>	uint8_t

Definition at line 3903 of file [client-command-macro.doc](#).

**6.5.2.188 #define emberAfFillCommandGreenPowerClusterGpNotificationResponse( *options*, *gpdSrcId*, *gpdIeee*, *gpdSecurityFrameCounter* )**

From GPS to GPP to acknowledge GP Notification received in unicast mode.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpNotificationResponse

**Parameters**

<i>options</i>	uint8_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>gpdSecurityFrameCounter</i>	uint32_t

Definition at line 3931 of file [client-command-macro.doc](#).

**6.5.2.189 #define emberAfFillCommandGreenPowerClusterGpPairing( *options*, *gpdSrcId*,  
*gpdIeee*, *endpoint*, *sinkIeeeAddress*, *sinkNwkAddress*, *sinkGroupId*, *deviceId*,  
*gpdSecurityFrameCounter*, *gpdKey*, *assignedAlias*, *forwardingRadius* )**

From GPS to the entire network to (de)register for tunneling service, or for removing GPD from the network.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpPairing

**Parameters**

<i>options</i>	uint32_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>sinkIeeeAddress</i>	uint8_t*
<i>sinkNwkAddress</i>	uint16_t
<i>sinkGroupId</i>	uint16_t
<i>deviceId</i>	uint8_t
<i>gpdSecurityFrameCounter</i>	uint32_t
<i>gpdKey</i>	uint8_t*
<i>assignedAlias</i>	uint16_t
<i>forwardingRadius</i>	uint8_t

Definition at line 3963 of file [client-command-macro.doc](#).

**6.5.2.190 #define emberAfFillCommandGreenPowerClusterGpProxyCommissioningMode( *options*,  
*commissioningWindow*, *channel* )**

From GPS to GPPs in the whole network to indicate commissioning mode.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpProxyCommissioningMode

**Parameters**

<i>options</i>	uint8_t
<i>commissioningWindow</i>	uint16_t
<i>channel</i>	uint8_t

Definition at line 4002 of file [client-command-macro.doc](#).

```
6.5.2.191 #define emberAfFillCommandGreenPowerClusterGpResponse( options,
tempMasterShortAddress, tempMasterTxChannel, gpdSrcId, gpdIeee, endpoint,
gpdCommandId, gpdCommandPayload, gpdCommandPayloadLen )
```

From GPS to selected GPP, to provide data to be transmitted to Rx-capable GPD.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpResponse

#### Parameters

<i>options</i>	uint8_t
<i>tempMaster-ShortAddress</i>	uint16_t
<i>tempMasterTx-Channel</i>	uint8_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>gpdCommand-Id</i>	uint8_t
<i>gpdCommand-Payload</i>	uint8_t*
<i>gpdCommand-PayloadLen</i>	uint8_t

Definition at line 4029 of file [client-command-macro.doc](#).

```
6.5.2.192 #define emberAfFillCommandGreenPowerClusterGpSinkTableResponse( status,
totalNumberOfNonEmptySinkTableEntries, startIndex, sinkTableEntriesCount,
sinkTableEntries, sinkTableEntriesLen )
```

To selected Proxy Table entries, by index or by GPD ID.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpSinkTableResponse

#### Parameters

<i>status</i>	uint8_t
<i>totalNumberOfNonEmptySink-TableEntries</i>	uint8_t
<i>startIndex</i>	uint8_t
<i>sinkTable-EntriesCount</i>	uint8_t
<i>sinkTable-Entries</i>	uint8_t*
<i>sinkTable-EntriesLen</i>	uint8_t

Definition at line 4065 of file [client-command-macro.doc](#).

**6.5.2.193 #define emberAfFillCommandGreenPowerClusterGpProxyTableRequest( *options*, *gpdSrcId*, *gpdIeee*, *endpoint*, *index* )**

To request selected Proxy Table entries, by index or by GPD ID.

Cluster: Green Power, The Green Power cluster defines the format of the commands exchanged when handling GPDs. Command: GpProxyTableRequest

#### Parameters

<i>options</i>	uint8_t
<i>gpdSrcId</i>	uint32_t
<i>gpdIeee</i>	uint8_t*
<i>endpoint</i>	uint8_t
<i>index</i>	uint8_t

Definition at line 4094 of file [client-command-macro.doc](#).

**6.5.2.194 #define emberAfFillCommandDoorLockClusterLockDoor( *PIN* )**

Locks the door.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: LockDoor

#### Parameters

<i>PIN</i>	uint8_t*
------------	----------

Definition at line 4132 of file [client-command-macro.doc](#).

**6.5.2.195 #define emberAfFillCommandDoorLockClusterUnlockDoor( *PIN* )**

Unlocks the door.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: UnlockDoor

#### Parameters

<i>PIN</i>	uint8_t*
------------	----------

Definition at line 4147 of file [client-command-macro.doc](#).

**6.5.2.196 #define emberAfFillCommandDoorLockClusterToggle( *pin* )**

Toggles the door lock from its current state to the opposite state locked or unlocked.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: Toggle

#### Parameters

<i>pin</i>	uint8_t*
------------	----------

Definition at line 4162 of file [client-command-macro.doc](#).

#### **6.5.2.197 #define emberAfFillCommandDoorLockClusterUnlockWithTimeout( timeoutInSeconds, pin )**

Unlock the door with a timeout. When the timeout expires, the door will automatically re-lock.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: UnlockWithTimeout

##### **Parameters**

<i>timeoutIn-Seconds</i>	uint16_t
<i>pin</i>	uint8_t*

Definition at line 4178 of file [client-command-macro.doc](#).

#### **6.5.2.198 #define emberAfFillCommandDoorLockClusterGetLogRecord( logIndex )**

Retrieve a log record at a specified index.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetLogRecord

##### **Parameters**

<i>logIndex</i>	uint16_t
-----------------	----------

Definition at line 4195 of file [client-command-macro.doc](#).

#### **6.5.2.199 #define emberAfFillCommandDoorLockClusterSetPin( userId, userStatus, userType, pin )**

Set the PIN for a specified user id.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetPin

##### **Parameters**

<i>userId</i>	uint16_t
<i>userStatus</i>	uint8_t
<i>userType</i>	uint8_t
<i>pin</i>	uint8_t*

Definition at line 4213 of file [client-command-macro.doc](#).

#### **6.5.2.200 #define emberAfFillCommandDoorLockClusterGetPin( userId )**

Retrieve PIN information for a user with a specific user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetPin

##### **Parameters**

<i>userId</i>	uint16_t
---------------	----------

Definition at line [4234](#) of file [client-command-macro.doc](#).

#### **6.5.2.201 #define emberAfFillCommandDoorLockClusterClearPin( userId )**

Clear the PIN for a user with a specific user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearPin

##### **Parameters**

<i>userId</i>	uint16_t
---------------	----------

Definition at line [4249](#) of file [client-command-macro.doc](#).

#### **6.5.2.202 #define emberAfFillCommandDoorLockClusterClearAllPins( )**

Clear all PIN codes on the lock for all users.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearAllPins

Definition at line [4263](#) of file [client-command-macro.doc](#).

#### **6.5.2.203 #define emberAfFillCommandDoorLockClusterSetUserStatus( userId, userStatus )**

Set the status value for a specified user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetUserStatus

##### **Parameters**

<i>userId</i>	uint16_t
<i>userStatus</i>	uint8_t

Definition at line [4278](#) of file [client-command-macro.doc](#).

#### **6.5.2.204 #define emberAfFillCommandDoorLockCluster GetUserStatus( userId )**

Retrieve the status byte for a specific user.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetUserStatus

##### **Parameters**

<i>userId</i>	uint16_t
---------------	----------

Definition at line [4295](#) of file [client-command-macro.doc](#).

#### **6.5.2.205 #define emberAfFillCommandDoorLockClusterSetWeekdaySchedule( scheduleId, userId, daysMask, startHour, startMinute, endHour, endMinute )**

Set the schedule of days during the week that the associated user based on the user ID will have access to the lock and will be able to operate it.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetWeekday-Schedule

#### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t
<i>daysMask</i>	uint8_t
<i>startHour</i>	uint8_t
<i>startMinute</i>	uint8_t
<i>endHour</i>	uint8_t
<i>endMinute</i>	uint8_t

Definition at line 4316 of file [client-command-macro.doc](#).

#### 6.5.2.206 #define emberAfFillCommandDoorLockClusterGetWeekdaySchedule( *scheduleId*, *userId* )

Retrieve a weekday schedule for doorlock user activation for a specific schedule id and user id.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetWeekday-Schedule

#### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t

Definition at line 4344 of file [client-command-macro.doc](#).

#### 6.5.2.207 #define emberAfFillCommandDoorLockClusterClearWeekdaySchedule( *scheduleId*, *userId* )

Clear a weekday schedule for doorlock user activation for a specific schedule id and user id.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearWeekday-Schedule

#### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t

Definition at line 4362 of file [client-command-macro.doc](#).

#### 6.5.2.208 #define emberAfFillCommandDoorLockClusterSetYeadaySchedule( *scheduleId*, *userId*, *localStartTime*, *localEndTime* )

Set a door lock user id activation schedule according to a specific absolute local start and end time.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetYeaday-Schedule

#### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t
<i>localStartTime</i>	uint32_t
<i>localEndTime</i>	uint32_t

Definition at line 4382 of file [client-command-macro.doc](#).

#### 6.5.2.209 #define emberAfFillCommandDoorLockClusterGetYeardaySchedule( *scheduleId*, *userId* )

Retrieve a yearday schedule for a specific scheduleId and userId.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetYearday-Schedule

##### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t

Definition at line 4404 of file [client-command-macro.doc](#).

#### 6.5.2.210 #define emberAfFillCommandDoorLockClusterClearYeardaySchedule( *scheduleId*, *userId* )

Clear a yearday schedule for a specific scheduleId and userId.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearYearday-Schedule

##### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t

Definition at line 4422 of file [client-command-macro.doc](#).

#### 6.5.2.211 #define emberAfFillCommandDoorLockClusterSetHolidaySchedule( *scheduleId*, *localStartTime*, *localEndTime*, *operatingModeDuringHoliday* )

Set the holiday schedule for a specific user.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetHoliday-Schedule

##### Parameters

<i>scheduleId</i>	uint8_t
<i>localStartTime</i>	uint32_t
<i>localEndTime</i>	uint32_t
<i>operating- ModeDuring- Holiday</i>	uint8_t

Definition at line 4442 of file [client-command-macro.doc](#).

**6.5.2.212 #define emberAfFillCommandDoorLockClusterGetHolidaySchedule( scheduleId )**

Retrieve a holiday schedule for a specific scheduleId.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetHoliday-Schedule

**Parameters**

<i>scheduleId</i>	uint8_t
-------------------	---------

Definition at line 4463 of file [client-command-macro.doc](#).

**6.5.2.213 #define emberAfFillCommandDoorLockClusterClearHolidaySchedule( scheduleId )**

Clear a holiday schedule for a specific scheduleId.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearHoliday-Schedule

**Parameters**

<i>scheduleId</i>	uint8_t
-------------------	---------

Definition at line 4478 of file [client-command-macro.doc](#).

**6.5.2.214 #define emberAfFillCommandDoorLockClusterSetUserType( userId, userType )**

Set the type value for a user based on user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetUserType

**Parameters**

<i>userId</i>	uint16_t
<i>userType</i>	uint8_t

Definition at line 4494 of file [client-command-macro.doc](#).

**6.5.2.215 #define emberAfFillCommandDoorLockCluster GetUserType( userId )**

Retrieve the type for a specific user based on the user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetUserType

**Parameters**

<i>userId</i>	uint16_t
---------------	----------

Definition at line 4511 of file [client-command-macro.doc](#).

**6.5.2.216 #define emberAfFillCommandDoorLockClusterSetRfid( userId, userStatus, userType, id )**

Set the PIN for a specified user id.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetRfid

#### Parameters

<i>userId</i>	uint16_t
<i>userStatus</i>	uint8_t
<i>userType</i>	uint8_t
<i>id</i>	uint8_t*

Definition at line [4529](#) of file [client-command-macro.doc](#).

#### 6.5.2.217 #define emberAfFillCommandDoorLockClusterGetRfid( *userId* )

Retrieve RFID ID information for a user with a specific user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetRfid

#### Parameters

<i>userId</i>	uint16_t
---------------	----------

Definition at line [4550](#) of file [client-command-macro.doc](#).

#### 6.5.2.218 #define emberAfFillCommandDoorLockClusterClearRfid( *userId* )

Clear the RFID ID for a user with a specific user ID.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearRfid

#### Parameters

<i>userId</i>	uint16_t
---------------	----------

Definition at line [4565](#) of file [client-command-macro.doc](#).

#### 6.5.2.219 #define emberAfFillCommandDoorLockClusterClearAllRfids( )

Clear all RFID ID codes on the lock for all users.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearAllRfids

Definition at line [4579](#) of file [client-command-macro.doc](#).

#### 6.5.2.220 #define emberAfFillCommandDoorLockClusterLockDoorResponse( *status* )

Indicates lock success or failure.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: LockDoorResponse

#### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4593 of file [client-command-macro.doc](#).

#### **6.5.2.221 #define emberAfFillCommandDoorLockClusterUnlockDoorResponse( status )**

Indicates unlock success or failure.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: UnlockDoor-Response

##### **Parameters**

<i>status</i>	uint8_t
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Definition at line 4608 of file [client-command-macro.doc](#).

#### **6.5.2.222 #define emberAfFillCommandDoorLockClusterToggleResponse( status )**

Response provided to the toggle command, indicates whether the toggle was successful or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ToggleResponse

##### **Parameters**

<i>status</i>	uint8_t
---------------	---------

Definition at line 4623 of file [client-command-macro.doc](#).

#### **6.5.2.223 #define emberAfFillCommandDoorLockClusterUnlockWithTimeoutResponse( status )**

Response provided to unlock with specific timeout. This command indicates whether the unlock command was successful or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: UnlockWith-TimeoutResponse

##### **Parameters**

<i>status</i>	uint8_t
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Definition at line 4638 of file [client-command-macro.doc](#).

#### **6.5.2.224 #define emberAfFillCommandDoorLockClusterGetLogRecordResponse( logEntryId, timestamp, eventType, source, eventIdOrAlarmCode, userId, pin )**

Returns the specific log record requested.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetLogRecord-Response

##### **Parameters**

<i>logEntryId</i>	uint16_t
<i>timestamp</i>	uint32_t
<i>eventType</i>	uint8_t

<i>source</i>	uint8_t
<i>eventIdOr-AlarmCode</i>	uint8_t
<i>userId</i>	uint16_t
<i>pin</i>	uint8_t*

Definition at line 4659 of file [client-command-macro.doc](#).

#### 6.5.2.225 #define emberAfFillCommandDoorLockClusterSetPinResponse( *status* )

Indicates whether the setting of the PIN was successful or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetPinResponse

##### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4686 of file [client-command-macro.doc](#).

#### 6.5.2.226 #define emberAfFillCommandDoorLockClusterGetPinResponse( *userId*, *userStatus*, *userType*, *pin* )

Returns the PIN requested according to the user ID passed.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetPinResponse

##### Parameters

<i>userId</i>	uint16_t
<i>userStatus</i>	uint8_t
<i>userType</i>	uint8_t
<i>pin</i>	uint8_t*

Definition at line 4704 of file [client-command-macro.doc](#).

#### 6.5.2.227 #define emberAfFillCommandDoorLockClusterClearPinResponse( *status* )

Returns success or failure depending on whether the PIN was cleared or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearPinResponse

##### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4725 of file [client-command-macro.doc](#).

### 6.5.2.228 #define emberAfFillCommandDoorLockClusterClearAllPinsResponse( *status* )

Returns success or failure depending on whether the PINs were cleared or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearAllPins-Response

#### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4740 of file [client-command-macro.doc](#).

### 6.5.2.229 #define emberAfFillCommandDoorLockClusterSetUserStatusResponse( *status* )

Returns success or failure depending on whether the user status was set or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetUserStatus-Response

#### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4755 of file [client-command-macro.doc](#).

### 6.5.2.230 #define emberAfFillCommandDoorLockCluster GetUserStatusResponse( *userId*, *status* )

Returns the user status.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetUserStatus-Response

#### Parameters

<i>userId</i>	uint16_t
<i>status</i>	uint8_t

Definition at line 4771 of file [client-command-macro.doc](#).

### 6.5.2.231 #define emberAfFillCommandDoorLockClusterSetWeekdayScheduleResponse( *status* )

Returns the status of setting the weekday schedule.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetWeekday-ScheduleResponse

#### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4788 of file [client-command-macro.doc](#).

**6.5.2.232 #define emberAfFillCommandDoorLockClusterGetWeekdayScheduleResponse( scheduleId, userId, status, daysMask, startHour, startMinute, endHour, endMinute )**

Returns the weekday schedule requested.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetWeekday-ScheduleResponse

#### Parameters

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t
<i>status</i>	uint8_t
<i>daysMask</i>	uint8_t
<i>startHour</i>	uint8_t
<i>startMinute</i>	uint8_t
<i>endHour</i>	uint8_t
<i>endMinute</i>	uint8_t

Definition at line 4810 of file [client-command-macro.doc](#).

**6.5.2.233 #define emberAfFillCommandDoorLockClusterClearWeekdayScheduleResponse( status )**

Returns the status of clearing the weekday schedule.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearWeekday-ScheduleResponse

#### Parameters

<i>status</i>	uint8_t
---------------	---------

Definition at line 4839 of file [client-command-macro.doc](#).

**6.5.2.234 #define emberAfFillCommandDoorLockClusterSetYearDayScheduleResponse( status )**

Returns success or failure depending on whether the yearday schedule was set or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetYearday-ScheduleResponse

#### Parameters

<i>status</i>	uint8_t
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Definition at line 4854 of file [client-command-macro.doc](#).

**6.5.2.235 #define emberAfFillCommandDoorLockClusterGetYearDayScheduleResponse( scheduleId, userId, status, localStartTime, localEndTime )**

Returns the yearday schedule requested.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetYearday-ScheduleResponse

**Parameters**

<i>scheduleId</i>	uint8_t
<i>userId</i>	uint16_t
<i>status</i>	uint8_t
<i>localStartTime</i>	uint32_t
<i>localEndTime</i>	uint32_t

Definition at line 4873 of file [client-command-macro.doc](#).

**6.5.2.236 #define emberAfFillCommandDoorLockClusterClearYeardayScheduleResponse( *status* )**

Returns success or failure depending on whether the yearday schedule was removed or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearYearday-ScheduleResponse

**Parameters**

<i>status</i>	uint8_t
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Definition at line 4896 of file [client-command-macro.doc](#).

**6.5.2.237 #define emberAfFillCommandDoorLockClusterSetHolidayScheduleResponse( *status* )**

Returns success or failure depending on whether the holiday schedule was set or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetHoliday-ScheduleResponse

**Parameters**

<i>status</i>	uint8_t
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Definition at line 4911 of file [client-command-macro.doc](#).

**6.5.2.238 #define emberAfFillCommandDoorLockClusterGetHolidayScheduleResponse( *scheduleId*, *status*, *localStartTime*, *localEndTime*, *operatingModeDuringHoliday* )**

Returns the holiday schedule requested.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetHoliday-ScheduleResponse

**Parameters**

<i>scheduleId</i>	uint8_t
<i>status</i>	uint8_t
<i>localStartTime</i>	uint32_t
<i>localEndTime</i>	uint32_t
<i>operating- ModeDuring- Holiday</i>	uint8_t

Definition at line 4930 of file [client-command-macro.doc](#).

#### **6.5.2.239 #define emberAfFillCommandDoorLockClusterClearHolidayScheduleResponse( status )**

Returns success or failure depending on whether the holiday schedule was removed or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearHoliday-ScheduleResponse

##### **Parameters**

<i>status</i>	uint8_t
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Definition at line 4953 of file [client-command-macro.doc](#).

#### **6.5.2.240 #define emberAfFillCommandDoorLockClusterSetUserTypeResponse( status )**

returns success or failure depending on whether the user type was set or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetUserType-Response

##### **Parameters**

<i>status</i>	uint8_t
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Definition at line 4968 of file [client-command-macro.doc](#).

#### **6.5.2.241 #define emberAfFillCommandDoorLockClusterGetUserTypeResponse( userId, userType )**

Returns the user type for the user ID requested.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetUserType-Response

##### **Parameters**

<i>userId</i>	uint16_t
<i>userType</i>	uint8_t

Definition at line 4984 of file [client-command-macro.doc](#).

#### **6.5.2.242 #define emberAfFillCommandDoorLockClusterSetRfidResponse( status )**

Indicates whether the setting of the RFID ID was successful or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: SetRfidResponse

##### **Parameters**

<i>status</i>	uint8_t
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Definition at line 5001 of file [client-command-macro.doc](#).

**6.5.2.243 #define emberAfFillCommandDoorLockClusterGetRfidResponse( *userId*, *userStatus*, *userType*, *rfid* )**

Returns the RFID ID requested according to the user ID passed.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: GetRfidResponse

#### Parameters

<i>userId</i>	uint16_t
<i>userStatus</i>	uint8_t
<i>userType</i>	uint8_t
<i>rfid</i>	uint8_t*

Definition at line 5019 of file [client-command-macro.doc](#).

**6.5.2.244 #define emberAfFillCommandDoorLockClusterClearRfidResponse( *status* )**

Returns success or failure depending on whether the RFID ID was cleared or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearRfidResponse

#### Parameters

<i>status</i>	uint8_t
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Definition at line 5040 of file [client-command-macro.doc](#).

**6.5.2.245 #define emberAfFillCommandDoorLockClusterClearAllRfidsResponse( *status* )**

Returns success or failure depending on whether the RFID IDs were cleared or not.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: ClearAllRfidsResponse

#### Parameters

<i>status</i>	uint8_t
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Definition at line 5055 of file [client-command-macro.doc](#).

**6.5.2.246 #define emberAfFillCommandDoorLockClusterOperationEventNotification( *source*, *eventCode*, *userId*, *pin*, *timeStamp*, *data* )**

Indicates that an operation event has taken place. Includes the associated event information.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: OperationEventNotification

#### Parameters

<i>source</i>	uint8_t
<i>eventCode</i>	uint8_t

<i>userId</i>	uint16_t
<i>pin</i>	uint8_t*
<i>timeStamp</i>	uint32_t
<i>data</i>	uint8_t*

Definition at line 5075 of file [client-command-macro.doc](#).

**6.5.2.247 #define emberAfFillCommandDoorLockClusterProgrammingEventNotification( source, eventCode, userId, pin, userType, userStatus, timeStamp, data )**

Indicates that a programming event has taken place. Includes the associated programming event information.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: Programming-EventNotification

#### Parameters

<i>source</i>	uint8_t
<i>eventCode</i>	uint8_t
<i>userId</i>	uint16_t
<i>pin</i>	uint8_t*
<i>userType</i>	uint8_t
<i>userStatus</i>	uint8_t
<i>timeStamp</i>	uint32_t
<i>data</i>	uint8_t*

Definition at line 5107 of file [client-command-macro.doc](#).

**6.5.2.248 #define emberAfFillCommandWindowCoveringClusterWindowCoveringUpOpen( )**

Moves window covering to InstalledOpenLimit - Lift and InstalledOpenLimit - Tilt.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringUpOpen

Definition at line 5140 of file [client-command-macro.doc](#).

**6.5.2.249 #define emberAfFillCommandWindowCoveringClusterWindowCoveringDownClose( )**

Moves window covering to InstalledClosedLimit - Lift and InstalledCloseLimit - Tilt.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringDownClose

Definition at line 5153 of file [client-command-macro.doc](#).

**6.5.2.250 #define emberAfFillCommandWindowCoveringClusterWindowCoveringStop( )**

Stop any adjusting of window covering.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringStop

Definition at line 5166 of file [client-command-macro.doc](#).

#### **6.5.2.251 #define emberAfFillCommandWindowCoveringClusterWindowCoveringGoToLiftValue( liftValue )**

Goto lift value specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToLiftValue

##### **Parameters**

<i>liftValue</i>	uint16_t
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Definition at line 5180 of file [client-command-macro.doc](#).

#### **6.5.2.252 #define emberAfFillCommandWindowCoveringClusterWindowCoveringGoToLiftPercentage( percentageLiftValue )**

Goto lift percentage specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToLiftPercentage

##### **Parameters**

<i>percentageLiftValue</i>	uint8_t
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Definition at line 5195 of file [client-command-macro.doc](#).

#### **6.5.2.253 #define emberAfFillCommandWindowCoveringClusterWindowCoveringGoToTiltValue( tiltValue )**

Goto tilt value specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToTiltValue

##### **Parameters**

<i>tiltValue</i>	uint16_t
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Definition at line 5210 of file [client-command-macro.doc](#).

#### **6.5.2.254 #define emberAfFillCommandWindowCoveringClusterWindowCoveringGoToTiltPercentage( percentageTiltValue )**

Goto tilt percentage specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToTiltPercentage

**Parameters**

<i>percentageTilt-Value</i>	uint8_t
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Definition at line 5225 of file [client-command-macro.doc](#).

**6.5.2.255 #define emberAfFillCommandThermostatClusterSetpointRaiseLower( mode, amount )**

Command description for SetpointRaiseLower.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: SetpointRaiseLower

**Parameters**

<i>mode</i>	uint8_t
<i>amount</i>	int8_t

Definition at line 5251 of file [client-command-macro.doc](#).

**6.5.2.256 #define emberAfFillCommandThermostatClusterSetWeeklySchedule( numberOfTransitionsForSequence, dayOfWeekForSequence, modeForSequence, payload, payloadLen )**

Command description for SetWeeklySchedule.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: SetWeeklySchedule

**Parameters**

<i>numberOfTransitionsForSequence</i>	uint8_t
<i>dayOfWeekForSequence</i>	uint8_t
<i>modeForSequence</i>	uint8_t
<i>payload</i>	uint8_t*
<i>payloadLen</i>	uint8_t

Definition at line 5272 of file [client-command-macro.doc](#).

**6.5.2.257 #define emberAfFillCommandThermostatClusterGetWeeklySchedule( daysToReturn, modeToReturn )**

Command description for GetWeeklySchedule.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: GetWeeklySchedule

**Parameters**

<i>daysToReturn</i>	uint8_t
<i>modeToReturn</i>	uint8_t

Definition at line 5296 of file [client-command-macro.doc](#).

**6.5.2.258 #define emberAfFillCommandThermostatClusterClearWeeklySchedule( )**

The Clear Weekly Schedule command is used to clear the weekly schedule.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: ClearWeeklySchedule

Definition at line 5312 of file [client-command-macro.doc](#).

**6.5.2.259 #define emberAfFillCommandThermostatClusterGetRelayStatusLog( )**

The Get Relay Status Log command is used to query the thermostat internal relay status log.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: GetRelayStatusLog

Definition at line 5325 of file [client-command-macro.doc](#).

**6.5.2.260 #define emberAfFillCommandThermostatClusterCurrentWeeklySchedule(  
    *numberOfTransitionsForSequence*, *dayOfWeekForSequence*, *modeForSequence*, *payload*,  
    *payloadLen* )**

The Current Weekly Schedule Command is sent from the server in response to the Get Weekly Schedule Command.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: CurrentWeeklySchedule

**Parameters**

<i>numberOfTransitionsForSequence</i>	uint8_t
<i>dayOfWeekForSequence</i>	uint8_t
<i>modeForSequence</i>	uint8_t
<i>payload</i>	uint8_t*
<i>payloadLen</i>	uint8_t

Definition at line 5343 of file [client-command-macro.doc](#).

**6.5.2.261 #define emberAfFillCommandThermostatClusterRelayStatusLog( *timeOfDay*, *relayStatus*,  
    *localTemperature*, *humidityInPercentage*, *setpoint*, *unreadEntries* )**

This command is sent from the thermostat cluster server in response to the Get Relay Status Log.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: RelayStatusLog

#### Parameters

<i>timeOfDay</i>	uint16_t
<i>relayStatus</i>	uint16_t
<i>localTemperature</i>	int16_t
<i>humidityInPercentage</i>	uint8_t
<i>setpoint</i>	int16_t
<i>unreadEntries</i>	uint16_t

Definition at line 5371 of file [client-command-macro.doc](#).

#### 6.5.2.262 #define emberAfFillCommandColorControlClusterMoveToHue( *hue*, *direction*, *transitionTime* )

Move to specified hue.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToHue

#### Parameters

<i>hue</i>	uint8_t
<i>direction</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 5418 of file [client-command-macro.doc](#).

#### 6.5.2.263 #define emberAfFillCommandColorControlClusterMoveHue( *moveMode*, *rate* )

Move hue up or down at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveHue

#### Parameters

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line 5438 of file [client-command-macro.doc](#).

#### 6.5.2.264 #define emberAfFillCommandColorControlClusterStepHue( *stepMode*, *stepSize*, *transitionTime* )

Step hue up or down by specified size at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepHue

**Parameters**

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint8_t

Definition at line [5457](#) of file [client-command-macro.doc](#).

**6.5.2.265 #define emberAfFillCommandColorControlClusterMoveToSaturation( *saturation*, *transitionTime* )**

Move to specified saturation.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToSaturation

**Parameters**

<i>saturation</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line [5477](#) of file [client-command-macro.doc](#).

**6.5.2.266 #define emberAfFillCommandColorControlClusterMoveSaturation( *moveMode*, *rate* )**

Move saturation up or down at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveSaturation

**Parameters**

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line [5495](#) of file [client-command-macro.doc](#).

**6.5.2.267 #define emberAfFillCommandColorControlClusterStepSaturation( *stepMode*, *stepSize*, *transitionTime* )**

Step saturation up or down by specified size at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepSaturation

**Parameters**

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint8_t

Definition at line [5514](#) of file [client-command-macro.doc](#).

**6.5.2.268 #define emberAfFillCommandColorControlClusterMoveToHueAndSaturation( *hue*, *saturation*, *transitionTime* )**

Move to hue and saturation.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToHueAndSaturation

#### Parameters

<i>hue</i>	uint8_t
<i>saturation</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 5535 of file [client-command-macro.doc](#).

**6.5.2.269 #define emberAfFillCommandColorControlClusterMoveToColor( *colorX*, *colorY*, *transitionTime* )**

Move to specified color.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToColor

#### Parameters

<i>colorX</i>	uint16_t
<i>colorY</i>	uint16_t
<i>transitionTime</i>	uint16_t

Definition at line 5556 of file [client-command-macro.doc](#).

**6.5.2.270 #define emberAfFillCommandColorControlClusterMoveColor( *rateX*, *rateY* )**

Moves the color.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveColor

#### Parameters

<i>rateX</i>	int16_t
<i>rateY</i>	int16_t

Definition at line 5576 of file [client-command-macro.doc](#).

**6.5.2.271 #define emberAfFillCommandColorControlClusterStepColor( *stepX*, *stepY*, *transitionTime* )**

Steps the lighting to a specific color.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepColor

**Parameters**

<i>stepX</i>	int16_t
<i>stepY</i>	int16_t
<i>transitionTime</i>	uint16_t

Definition at line 5595 of file [client-command-macro.doc](#).

**6.5.2.272 #define emberAfFillCommandColorControlClusterMoveToColorTemperature( colorTemperature, transitionTime )**

Moves the lighting to a specific color temperature.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToColorTemperature

**Parameters**

<i>color-Temperature</i>	uint16_t
<i>transitionTime</i>	uint16_t

Definition at line 5615 of file [client-command-macro.doc](#).

**6.5.2.273 #define emberAfFillCommandColorControlClusterEnhancedMoveToHue( enhancedHue, direction, transitionTime )**

Command description for EnhancedMoveToHue.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: EnhancedMoveToHue

**Parameters**

<i>enhancedHue</i>	uint16_t
<i>direction</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 5634 of file [client-command-macro.doc](#).

**6.5.2.274 #define emberAfFillCommandColorControlClusterEnhancedMoveHue( moveMode, rate )**

Command description for EnhancedMoveHue.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: EnhancedMoveHue

**Parameters**

<i>moveMode</i>	uint8_t
<i>rate</i>	uint16_t

Definition at line 5654 of file [client-command-macro.doc](#).

**6.5.2.275 #define emberAfFillCommandColorControlClusterEnhancedStepHue( *stepMode*, *stepSize*, *transitionTime* )**

Command description for EnhancedStepHue.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: EnhancedStepHue

#### Parameters

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint16_t
<i>transitionTime</i>	uint16_t

Definition at line 5673 of file [client-command-macro.doc](#).

**6.5.2.276 #define emberAfFillCommandColorControlClusterEnhancedMoveToHueAndSaturation( *enhancedHue*, *saturation*, *transitionTime* )**

Command description for EnhancedMoveToHueAndSaturation.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: EnhancedMoveToHueAndSaturation

#### Parameters

<i>enhancedHue</i>	uint16_t
<i>saturation</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 5694 of file [client-command-macro.doc](#).

**6.5.2.277 #define emberAfFillCommandColorControlClusterColorLoopSet( *updateFlags*, *action*, *direction*, *time*, *startHue* )**

Command description for ColorLoopSet.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: ColorLoopSet

#### Parameters

<i>updateFlags</i>	uint8_t
<i>action</i>	uint8_t
<i>direction</i>	uint8_t
<i>time</i>	uint16_t
<i>startHue</i>	uint16_t

Definition at line 5717 of file [client-command-macro.doc](#).

**6.5.2.278 #define emberAfFillCommandColorControlClusterStopMoveStep( )**

Command description for StopMoveStep.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StopMoveStep

Definition at line [5739](#) of file [client-command-macro.doc](#).

**6.5.2.279 #define emberAfFillCommandColorControlClusterMoveColorTemperature( moveMode, rate, colorTemperatureMinimum, colorTemperatureMaximum )**

Command description for MoveColorTemperature.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveColorTemperature

#### Parameters

<i>moveMode</i>	uint8_t
<i>rate</i>	uint16_t
<i>color-Temperature-Minimum</i>	uint16_t
<i>color-Temperature-Maximum</i>	uint16_t

Definition at line [5756](#) of file [client-command-macro.doc](#).

**6.5.2.280 #define emberAfFillCommandColorControlClusterStepColorTemperature( stepMode, stepSize, transitionTime, colorTemperatureMinimum, colorTemperatureMaximum )**

Command description for StepColorTemperature.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepColorTemperature

#### Parameters

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint16_t
<i>transitionTime</i>	uint16_t
<i>color-Temperature-Minimum</i>	uint16_t
<i>color-Temperature-Maximum</i>	uint16_t

Definition at line [5781](#) of file [client-command-macro.doc](#).

**6.5.2.281 #define emberAfFillCommandlasZoneClusterZoneEnrollResponse( enrollResponseCode, zoneId )**

Command description for zoneEnrollResponse.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: ZoneEnroll-Response

#### Parameters

<i>enroll-ResponseCode</i>	uint8_t
<i>zoneId</i>	uint8_t

Definition at line 5850 of file [client-command-macro.doc](#).

#### 6.5.2.282 #define emberAfFillCommandAsZoneClusterInitiateNormalOperationMode( )

Used to tell the IAS Zone server to commence normal operation mode.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: InitiateNormal-OperationMode

Definition at line 5866 of file [client-command-macro.doc](#).

#### 6.5.2.283 #define emberAfFillCommandAsZoneClusterInitiateTestMode( *testModeDuration*, *currentZoneSensitivityLevel* )

Certain IAS Zone servers may have operational configurations that could be configured OTA or locally on the device. This command enables them to be remotely placed into a test mode so that the user or installer may configure their field of view, sensitivity, and other operational parameters.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: InitiateTestMode

#### Parameters

<i>testMode-Duration</i>	uint8_t
<i>currentZone-SensitivityLevel</i>	uint8_t

Definition at line 5881 of file [client-command-macro.doc](#).

#### 6.5.2.284 #define emberAfFillCommandAsZoneClusterZoneStatusChangeNotification( *zoneStatus*, *extendedStatus*, *zoneId*, *delay* )

Command description for zoneStatusChangeNotification.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: ZoneStatus-ChangeNotification

#### Parameters

<i>zoneStatus</i>	uint16_t
<i>extendedStatus</i>	uint8_t
<i>zoneId</i>	uint8_t
<i>delay</i>	uint16_t

Definition at line 5901 of file [client-command-macro.doc](#).

```
6.5.2.285 #define emberAfFillCommandAsZoneClusterZoneEnrollRequest( zoneType, manufacturerCode
)
```

Command description for zoneEnrollRequest.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: ZoneEnrollRequest

#### Parameters

<i>zoneType</i>	uint16_t
<i>manufacturerCode</i>	uint16_t

Definition at line 5923 of file [client-command-macro.doc](#).

```
6.5.2.286 #define emberAfFillCommandAsZoneClusterInitiateNormalOperationModeResponse( )
```

Confirms that the IAS Zone server has commenced normal operation mode.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: InitiateNormalOperationModeResponse

Definition at line 5939 of file [client-command-macro.doc](#).

```
6.5.2.287 #define emberAfFillCommandAsZoneClusterInitiateTestModeResponse( )
```

Confirms that the IAS Zone server has commenced test mode and that the IAS Zone client should treat any Zone Status Change Notification commands received from the sending IAS Zone server as being in response to test events.

Cluster: IAS Zone, Attributes and commands for IAS security zone devices. Command: InitiateTestModeResponse

Definition at line 5952 of file [client-command-macro.doc](#).

```
6.5.2.288 #define emberAfFillCommandAsAceClusterArm( armMode, armDisarmCode, zoneId )
```

Command description for Arm.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Arm

#### Parameters

<i>armMode</i>	uint8_t
<i>armDisarmCode</i>	uint8_t*
<i>zoneId</i>	uint8_t

Definition at line 5973 of file [client-command-macro.doc](#).

**6.5.2.289 #define emberAfFillCommandAsAceClusterBypass( *numberOfZones*, *zoneIds*, *zoneIdsLen*, *armDisarmCode* )**

Command description for Bypass.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Bypass

#### Parameters

<i>numberOfZones</i>	uint8_t
<i>zoneIds</i>	uint8_t*
<i>zoneIdsLen</i>	uint8_t
<i>armDisarmCode</i>	uint8_t*

Definition at line [5995](#) of file [client-command-macro.doc](#).

**6.5.2.290 #define emberAfFillCommandAsAceClusterEmergency( )**

Command description for Emergency.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Emergency

Definition at line [6015](#) of file [client-command-macro.doc](#).

**6.5.2.291 #define emberAfFillCommandAsAceClusterFire( )**

Command description for Fire.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Fire

Definition at line [6028](#) of file [client-command-macro.doc](#).

**6.5.2.292 #define emberAfFillCommandAsAceClusterPanic( )**

Command description for Panic.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Panic

Definition at line [6041](#) of file [client-command-macro.doc](#).

**6.5.2.293 #define emberAfFillCommandAsAceClusterGetZoneIdMap( )**

Command description for GetZoneIdMap.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetZoneIdMap

Definition at line [6054](#) of file [client-command-macro.doc](#).

**6.5.2.294 #define emberAfFillCommandAsAceClusterGetZoneInformation( *zoneId* )**

Command description for GetZoneInformation.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetZoneInformation

**Parameters**

<i>zoneId</i>	uint8_t
---------------	---------

Definition at line 6068 of file [client-command-macro.doc](#).

**6.5.2.295 #define emberAfFillCommandAsAceClusterGetPanelStatus( )**

Used by the ACE client to request an update to the status of the ACE server.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetPanelStatus

Definition at line 6082 of file [client-command-macro.doc](#).

**6.5.2.296 #define emberAfFillCommandAsAceClusterGetBypassedZoneList( )**

Used by the ACE client to retrieve the bypassed zones.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetBypassedZoneList

Definition at line 6095 of file [client-command-macro.doc](#).

**6.5.2.297 #define emberAfFillCommandAsAceClusterGetZoneStatus( *startingZoneId*,  
                          *maxNumberOfZoneIds*, *zoneStatusMaskFlag*, *zoneStatusMask* )**

Used by the ACE client to request an update to the zone status of the ACE server.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetZoneStatus

**Parameters**

<i>startingZoneId</i>	uint8_t
<i>maxNumberOfZoneIds</i>	uint8_t
<i>zoneStatusMaskFlag</i>	uint8_t
<i>zoneStatusMask</i>	uint16_t

Definition at line 6112 of file [client-command-macro.doc](#).

**6.5.2.298 #define emberAfFillCommandAsAceClusterArmResponse( *armNotification* )**

Command description for ArmResponse.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: ArmResponse

**Parameters**

<i>armNotification</i>	uint8_t
------------------------	---------

Definition at line 6133 of file [client-command-macro.doc](#).

**6.5.2.299 #define emberAfFillCommandAsAceClusterGetZoneIdMapResponse( section0, section1, section2, section3, section4, section5, section6, section7, section8, section9, section10, section11, section12, section13, section14, section15 )**

Command description for GetZoneIdMapResponse.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetZone-IdMapResponse

**Parameters**

<i>section0</i>	uint16_t
<i>section1</i>	uint16_t
<i>section2</i>	uint16_t
<i>section3</i>	uint16_t
<i>section4</i>	uint16_t
<i>section5</i>	uint16_t
<i>section6</i>	uint16_t
<i>section7</i>	uint16_t
<i>section8</i>	uint16_t
<i>section9</i>	uint16_t
<i>section10</i>	uint16_t
<i>section11</i>	uint16_t
<i>section12</i>	uint16_t
<i>section13</i>	uint16_t
<i>section14</i>	uint16_t
<i>section15</i>	uint16_t

Definition at line 6163 of file [client-command-macro.doc](#).

**6.5.2.300 #define emberAfFillCommandAsAceClusterGetZoneInformationResponse( zoneId, zoneType, ieeeAddress, zoneLabel )**

Command description for GetZoneInformationResponse.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetZone-InformationResponse

**Parameters**

<i>zoneId</i>	uint8_t
<i>zoneType</i>	uint16_t
<i>ieeeAddress</i>	uint8_t*
<i>zoneLabel</i>	uint8_t*

Definition at line 6211 of file [client-command-macro.doc](#).

**6.5.2.301 #define emberAfFillCommandAsAceClusterZoneStatusChanged( zoneId, zoneStatus, audibleNotification, zoneLabel )**

This command updates ACE clients in the system of changes to zone status recorded by the ACE server (e.g., IAS CIE device).

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Zone-StatusChanged

#### Parameters

<i>zoneId</i>	uint8_t
<i>zoneStatus</i>	uint16_t
<i>audible-Notification</i>	uint8_t
<i>zoneLabel</i>	uint8_t*

Definition at line [6235](#) of file [client-command-macro.doc](#).

**6.5.2.302 #define emberAfFillCommandAsAceClusterPanelStatusChanged( panelStatus, secondsRemaining, audibleNotification, alarmStatus )**

This command updates ACE clients in the system of changes to panel status recorded by the ACE server (e.g., IAS CIE device).

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Panel-StatusChanged

#### Parameters

<i>panelStatus</i>	uint8_t
<i>seconds-Remaining</i>	uint8_t
<i>audible-Notification</i>	uint8_t
<i>alarmStatus</i>	uint8_t

Definition at line [6259](#) of file [client-command-macro.doc](#).

**6.5.2.303 #define emberAfFillCommandAsAceClusterGetPanelStatusResponse( panelStatus, secondsRemaining, audibleNotification, alarmStatus )**

Command updates requesting IAS ACE clients in the system of changes to the security panel status recorded by the ACE server.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetPanel-StatusResponse

#### Parameters

<i>panelStatus</i>	uint8_t
<i>seconds-Remaining</i>	uint8_t
<i>audible-Notification</i>	uint8_t

<i>alarmStatus</i>	uint8_t
--------------------	---------

Definition at line 6283 of file [client-command-macro.doc](#).

**6.5.2.304 #define emberAfFillCommandAsAceClusterSetBypassedZoneList( *numberOfZones*, *zoneIds*, *zoneIdsLen* )**

Sets the list of bypassed zones on the IAS ACE client.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Set-BypassedZoneList

#### Parameters

<i>numberOfZones</i>	uint8_t
<i>zoneIds</i>	uint8_t*
<i>zoneIdsLen</i>	uint8_t

Definition at line 6306 of file [client-command-macro.doc](#).

**6.5.2.305 #define emberAfFillCommandAsAceClusterBypassResponse( *numberOfZones*, *bypassResult*, *bypassResultLen* )**

Provides the response of the security panel to the request from the IAS ACE client to bypass zones via a Bypass command.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Bypass-Response

#### Parameters

<i>numberOfZones</i>	uint8_t
<i>bypassResult</i>	uint8_t*
<i>bypassResultLen</i>	uint8_t

Definition at line 6327 of file [client-command-macro.doc](#).

**6.5.2.306 #define emberAfFillCommandAsAceClusterGetZoneStatusResponse( *zoneStatusComplete*, *numberOfZones*, *zoneStatusResult*, *zoneStatusResultLen* )**

This command updates requesting IAS ACE clients in the system of changes to the IAS Zone server statuses recorded by the ACE server (e.g., IAS CIE device).

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: GetZone-StatusResponse

#### Parameters

<i>zoneStatus-Complete</i>	uint8_t
<i>numberOfZones</i>	uint8_t
<i>zoneStatus-Result</i>	uint8_t*
<i>zoneStatus-ResultLen</i>	uint8_t

Definition at line [6349](#) of file [client-command-macro.doc](#).

**6.5.2.307 #define emberAfFillCommandAsWdClusterStartWarning( warningInfo, warningDuration, strobeDutyCycle, strobeLevel )**

Command description for StartWarning.

Cluster: IAS WD, Attributes and commands for IAS Warning Devices. Command: StartWarning

#### Parameters

<i>warningInfo</i>	uint8_t
<i>warningDuration</i>	uint16_t
<i>strobeDutyCycle</i>	uint8_t
<i>strobeLevel</i>	uint8_t

Definition at line [6378](#) of file [client-command-macro.doc](#).

**6.5.2.308 #define emberAfFillCommandAsWdClusterSquawk( squawkInfo )**

Command description for Squawk.

Cluster: IAS WD, Attributes and commands for IAS Warning Devices. Command: Squawk

#### Parameters

<i>squawkInfo</i>	uint8_t
-------------------	---------

Definition at line [6399](#) of file [client-command-macro.doc](#).

**6.5.2.309 #define emberAfFillCommandGenericTunnelClusterMatchProtocolAddress( protocolAddress )**

This command is generated when an application wishes to find the ZigBee address (node, endpoint) of the Generic Tunnel server cluster with a given ProtocolAddress attribute. The command is typically multicast to a group of inter-communicating Generic Tunnel clusters.

Cluster: Generic Tunnel, The minimum common commands and attributes required to tunnel any protocol.  
Command: MatchProtocolAddress

#### Parameters

<i>protocolAddress</i>	uint8_t*
------------------------	----------

Definition at line [6419](#) of file [client-command-macro.doc](#).

**6.5.2.310 #define emberAfFillCommandGenericTunnelClusterMatchProtocolAddressResponse( deviceIeeeAddress, protocolAddress )**

This command is generated upon receipt of a Match Protocol Address command to indicate that the Protocol Address was successfully matched.

Cluster: Generic Tunnel, The minimum common commands and attributes required to tunnel any protocol.  
Command: MatchProtocolAddressResponse

#### Parameters

<i>deviceIeee-Address</i>	uint8_t*
<i>protocol-Address</i>	uint8_t*

Definition at line [6435](#) of file [client-command-macro.doc](#).

**6.5.2.311 #define emberAfFillCommandGenericTunnelClusterAdvertiseProtocolAddress( protocolAddress )**

This command is typically sent upon startup, and whenever the ProtocolAddress attribute changes. It is typically multicast to a group of inter-communicating Generic Tunnel clusters.

Cluster: Generic Tunnel, The minimum common commands and attributes required to tunnel any protocol.  
Command: AdvertiseProtocolAddress

#### Parameters

<i>protocol-Address</i>	uint8_t*
-------------------------	----------

Definition at line [6452](#) of file [client-command-macro.doc](#).

**6.5.2.312 #define emberAfFillCommandBacnetProtocolTunnelClusterTransferNpdu( npdu, npduLen )**

This command is generated when a BACnet network layer wishes to transfer a BACnet NPDU across a ZigBee tunnel to another BACnet network layer.

Cluster: BACnet Protocol Tunnel, Commands and attributes required to tunnel the BACnet protocol.  
Command: TransferNpdu

#### Parameters

<i>npdu</i>	uint8_t*
<i>npduLen</i>	uint8_t

Definition at line [6473](#) of file [client-command-macro.doc](#).

### 6.5.2.313 #define emberAfFillCommand11073ProtocolTunnelClusterTransferAPDU( *apdu* )

This command is generated when an 11073 network layer wishes to transfer an 11073 APDU across a ZigBee tunnel to another 11073 network layer.

Cluster: 11073 Protocol Tunnel, Attributes and commands for the 11073 protocol tunnel used for ZigBee Health Care. Command: TransferAPDU

#### Parameters

<i>apdu</i>	uint8_t*
-------------	----------

Definition at line [6495](#) of file [client-command-macro.doc](#).

### 6.5.2.314 #define emberAfFillCommand11073ProtocolTunnelClusterConnectRequest( *connectControl*, *idleTimeout*, *managerTarget*, *managerEndpoint* )

This command is generated when an Health Care client wishes to connect to a Health Care server for the purposes of transmitting 11073 APDUs across the 11073 tunnel.

Cluster: 11073 Protocol Tunnel, Attributes and commands for the 11073 protocol tunnel used for ZigBee Health Care. Command: ConnectRequest

#### Parameters

<i>connectControl</i>	uint8_t
<i>idleTimeout</i>	uint16_t
<i>managerTarget</i>	uint8_t*
<i>managerEndpoint</i>	uint8_t

Definition at line [6513](#) of file [client-command-macro.doc](#).

### 6.5.2.315 #define emberAfFillCommand11073ProtocolTunnelClusterDisconnectRequest( *managerIEEEAddress* )

This command is generated when an Health Care client wishes to disconnect from a Health Care server.

Cluster: 11073 Protocol Tunnel, Attributes and commands for the 11073 protocol tunnel used for ZigBee Health Care. Command: DisconnectRequest

#### Parameters

<i>managerIEEEAddress</i>	uint8_t*
---------------------------	----------

Definition at line [6534](#) of file [client-command-macro.doc](#).

### 6.5.2.316 #define emberAfFillCommand11073ProtocolTunnelClusterConnectStatusNotification( *connectStatus* )

Generated in response to requests related to connection or any event that causes the tunnel to become disconnected.

Cluster: 11073 Protocol Tunnel, Attributes and commands for the 11073 protocol tunnel used for ZigBee Health Care. Command: ConnectStatusNotification

**Parameters**

<i>connectStatus</i>	uint8_t
----------------------	---------

Definition at line [6549](#) of file [client-command-macro.doc](#).

**6.5.2.317 #define emberAfFillCommandIso7816ProtocolTunnelClusterServerToClientTransferApdu( apdu )**

Command description for TransferApdu.

Cluster: ISO 7816 Protocol Tunnel, Commands and attributes for mobile office solutions including ZigBee devices. Command: TransferApdu

**Parameters**

<i>apdu</i>	uint8_t*
-------------	----------

Definition at line [6569](#) of file [client-command-macro.doc](#).

**6.5.2.318 #define emberAfFillCommandIso7816ProtocolTunnelClusterClientToServerTransferApdu( apdu )**

Command description for TransferApdu.

Cluster: ISO 7816 Protocol Tunnel, Commands and attributes for mobile office solutions including ZigBee devices. Command: TransferApdu

**Parameters**

<i>apdu</i>	uint8_t*
-------------	----------

Definition at line [6584](#) of file [client-command-macro.doc](#).

**6.5.2.319 #define emberAfFillCommandIso7816ProtocolTunnelClusterInsertSmartCard( )**

Command description for InsertSmartCard.

Cluster: ISO 7816 Protocol Tunnel, Commands and attributes for mobile office solutions including ZigBee devices. Command: InsertSmartCard

Definition at line [6598](#) of file [client-command-macro.doc](#).

**6.5.2.320 #define emberAfFillCommandIso7816ProtocolTunnelClusterExtractSmartCard( )**

Command description for ExtractSmartCard.

Cluster: ISO 7816 Protocol Tunnel, Commands and attributes for mobile office solutions including ZigBee devices. Command: ExtractSmartCard

Definition at line [6611](#) of file [client-command-macro.doc](#).

```
6.5.2.321 #define emberAfFillCommandPriceClusterPublishPrice( providerId, rateLabel,
    issuerEventId, currentTime, unitOfMeasure, currency, priceTrailingDigitAndPriceTier,
    numberOfTypeTiersAndRegisterTier, startTime, durationInMinutes, price,
    priceRatio, generationPrice, generationPriceRatio, alternateCostDelivered,
    alternateCostUnit, alternateCostTrailingDigit, numberOfTypeBlockThresholds, priceControl,
    numberOfTypeGenerationTiers, generationTier, extendedNumberOfPriceTiers, extendedPriceTier,
    extendedRegisterTier )
```

The PublishPrice command is generated in response to receiving a Get Current Price command, in response to a Get Scheduled Prices command, and when an update to the pricing information is available from the commodity provider, either before or when a TOU price becomes active.

**Cluster:** Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. **Command:** PublishPrice

#### Parameters

<i>providerId</i>	uint32_t
<i>rateLabel</i>	uint8_t*
<i>issuerEventId</i>	uint32_t
<i>currentTime</i>	uint32_t
<i>unitOfMeasure</i>	uint8_t
<i>currency</i>	uint16_t
<i>priceTrailing-DigitAndPrice-Tier</i>	uint8_t
<i>numberOfTypeTiersAndRegisterTier</i>	uint8_t
<i>startTime</i>	uint32_t
<i>durationIn-Minutes</i>	uint16_t
<i>price</i>	uint32_t
<i>priceRatio</i>	uint8_t
<i>generation-Price</i>	uint32_t
<i>generation-PriceRatio</i>	uint8_t
<i>alternateCost-Delivered</i>	uint32_t
<i>alternateCost-Unit</i>	uint8_t
<i>alternateCost-TrailingDigit</i>	uint8_t
<i>numberOfTypeBlockThresholds</i>	uint8_t
<i>priceControl</i>	uint8_t
<i>numberOfTypeGenerationTiers</i>	uint8_t
<i>generationTier</i>	uint8_t

<i>extended-NumberOf-PriceTiers</i>	uint8_t
<i>extendedPrice-Tier</i>	uint8_t
<i>extended-RegisterTier</i>	uint8_t

Definition at line 6653 of file [client-command-macro.doc](#).

**6.5.2.322 #define emberAfFillCommandPriceClusterPublishBlockPeriod( providerId, issuerEventId, blockPeriodStartTime, blockPeriodDuration, blockPeriodControl, blockPeriodDurationType, tariffType, tariffResolutionPeriod )**

The PublishBlockPeriod command is generated in response to receiving a GetBlockPeriod(s) command or when an update to the block tariff schedule is available from the commodity provider.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishBlockPeriod

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>blockPeriod-StartTime</i>	uint32_t
<i>blockPeriod-Duration</i>	uint32_t
<i>blockPeriod-Control</i>	uint8_t
<i>blockPeriod-DurationType</i>	uint8_t
<i>tariffType</i>	uint8_t
<i>tariff-Resolution-Period</i>	uint8_t

Definition at line 6721 of file [client-command-macro.doc](#).

**6.5.2.323 #define emberAfFillCommandPriceClusterPublishConversionFactor( issuerEventId, startTime, conversionFactor, conversionFactorTrailingDigit )**

The PublishConversionFactor command is sent in response to a GetConversionFactor command or if a new Conversion factor is available.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishConversionFactor

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t

<i>conversionFactor</i>	uint32_t
<i>conversionFactorTrailingDigit</i>	uint8_t

Definition at line 6753 of file [client-command-macro.doc](#).

```
6.5.2.324 #define emberAfFillCommandPriceClusterPublishCalorificValue( issuerEventId, startTime,  
                                calorificValue, calorificValueUnit, calorificValueTrailingDigit )
```

The PublishCalorificValue command is sent in response to a GetCalorificValue command or if a new calorific value is available.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishCalorificValue

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>calorificValue</i>	uint32_t
<i>calorificValueUnit</i>	uint8_t
<i>calorificValueTrailingDigit</i>	uint8_t

Definition at line 6778 of file [client-command-macro.doc](#).

```
6.5.2.325 #define emberAfFillCommandPriceClusterPublishTariffInformation( providerId, issuerEventId,  
                                issuerTariffId, startTime, tariffTypeChargingScheme, tariffLabel, numberOfPriceTiersInUse,  
                                numberOfBlockThresholdsInUse, unitOfMeasure, currency, priceTrailingDigit,  
                                standingCharge, tierBlockMode, blockThresholdMultiplier, blockThresholdDivisor )
```

The PublishTariffInformation command is sent in response to a GetTariffInformation command or if new tariff information is available (including price matrix and block thresholds).

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishTariffInformation

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuerTariffId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>tariffTypeChargingScheme</i>	uint8_t
<i>tariffLabel</i>	uint8_t*
<i>numberOfPriceTiersInUse</i>	uint8_t

<i>numberOfBlockThresholdsInUse</i>	uint8_t
<i>unitOfMeasure</i>	uint8_t
<i>currency</i>	uint16_t
<i>priceTrailingDigit</i>	uint8_t
<i>standingCharge</i>	uint32_t
<i>tierBlockMode</i>	uint8_t
<i>blockThresholdMultiplier</i>	uint32_t
<i>blockThresholdDivisor</i>	uint32_t

Definition at line 6815 of file [client-command-macro.doc](#).

```
6.5.2.326 #define emberAfFillCommandPriceClusterPublishPriceMatrix( providerId, issuerEventId,
                                                               startTime, issuerTariffId, commandIndex, numberOfCommands, subPayloadControl,
                                                               payload, payloadLen )
```

PublishPriceMatrix command is used to publish the Block Price Information Set (up to 15 tiers x 15 blocks) and the Extended Price Information Set (up to 48 tiers). The PublishPriceMatrix command is sent in response to a GetPriceMatrix command.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishPriceMatrix

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>issuerTariffId</i>	uint32_t
<i>commandIndex</i>	uint8_t
<i>numberOfCommands</i>	uint8_t
<i>subPayloadControl</i>	uint8_t
<i>payload</i>	uint8_t*
<i>payloadLen</i>	uint8_t

Definition at line 6866 of file [client-command-macro.doc](#).

**6.5.2.327 #define emberAfFillCommandPriceClusterPublishBlockThresholds( providerId, issuerEventId, startTime, issuerTariffId, commandIndex, numberOfCommands, subPayloadControl, payload, payloadLen )**

The PublishBlockThreshold command is sent in response to a GetBlockThreshold command.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishBlockThresholds

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>issuerTariffId</i>	uint32_t
<i>commandIndex</i>	uint8_t
<i>numberOfCommands</i>	uint8_t
<i>subPayloadControl</i>	uint8_t
<i>payload</i>	uint8_t*
<i>payloadLen</i>	uint8_t

Definition at line 6905 of file [client-command-macro.doc](#).

**6.5.2.328 #define emberAfFillCommandPriceClusterPublishCO2Value( providerId, issuerEventId, startTime, tariffType, cO2Value, cO2ValueUnit, cO2ValueTrailingDigit )**

The PublishCO2Value command is sent in response to a GetCO2Value command or if a new CO2 conversion factor is available.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishCO2Value

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>tariffType</i>	uint8_t
<i>cO2Value</i>	uint32_t
<i>cO2ValueUnit</i>	uint8_t
<i>cO2ValueTrailingDigit</i>	uint8_t

Definition at line 6942 of file [client-command-macro.doc](#).

**6.5.2.329 #define emberAfFillCommandPriceClusterPublishTierLabels( providerId, issuerEventId, issuerTariffId, commandIndex, numberOfCommands, numberOfLabels, tierLabelsPayload, tierLabelsPayloadLen )**

The PublishTierLabels command is generated in response to receiving a GetTierLabels command or when there is a tier label change.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishTierLabels

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuerTariffId</i>	uint32_t
<i>commandIndex</i>	uint8_t
<i>numberOfCommands</i>	uint8_t
<i>numberOfLabels</i>	uint8_t
<i>tierLabels-Payload</i>	uint8_t*
<i>tierLabels-PayloadLen</i>	uint8_t

Definition at line 6976 of file [client-command-macro.doc](#).

**6.5.2.330 #define emberAfFillCommandPriceClusterPublishBillingPeriod( providerId, issuerEventId, billingPeriodStartTime, billingPeriodDuration, billingPeriodDurationType, tariffType )**

The PublishBillingPeriod command is generated in response to receiving a GetBillingPeriod(s) command or when an update to the Billing schedule is available from the commodity Supplier.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishBillingPeriod

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>billingPeriod-StartTime</i>	uint32_t
<i>billingPeriod-Duration</i>	uint32_t
<i>billingPeriod-DurationType</i>	uint8_t
<i>tariffType</i>	uint8_t

Definition at line 7010 of file [client-command-macro.doc](#).

**6.5.2.331 #define emberAfFillCommandPriceClusterPublishConsolidatedBill( providerId, issuerEventId, billingPeriodStartTime, billingPeriodDuration, billingPeriodDurationType, tariffType, consolidatedBill, currency, billTrailingDigit )**

The PublishConsolidatedBill command is used to make consolidated billing information of previous billing periods available to other end devices. This command is issued in response to a GetConsolidatedBill command or if new billing information is available.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishConsolidatedBill

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>billingPeriod-StartTime</i>	uint32_t
<i>billingPeriod-Duration</i>	uint32_t
<i>billingPeriod-DurationType</i>	uint8_t
<i>tariffType</i>	uint8_t
<i>consolidated-Bill</i>	uint32_t
<i>currency</i>	uint16_t
<i>billTrailing-Digit</i>	uint8_t

Definition at line 7043 of file [client-command-macro.doc](#).

**6.5.2.332 #define emberAfFillCommandPriceClusterPublishCppEvent( providerId, issuerEventId, startTime, durationInMinutes, tariffType, cppPriceTier, cppAuth )**

The PublishCPPEvent command is sent from an ESI to its price clients to notify them of a Critical Peak Pricing event.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishCppEvent

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>durationIn-Minutes</i>	uint16_t
<i>tariffType</i>	uint8_t
<i>cppPriceTier</i>	uint8_t
<i>cppAuth</i>	uint8_t

Definition at line 7080 of file [client-command-macro.doc](#).

**6.5.2.333 #define emberAfFillCommandPriceClusterPublishCreditPayment( providerId, issuerEventId, creditPaymentDueDate, creditPaymentOverDueAmount, creditPaymentStatus, creditPayment, creditPaymentDate, creditPaymentRef )**

The PublishCreditPayment command is used to update the credit payment information is available.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishCreditPayment

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t

<i>creditPayment-DueDate</i>	uint32_t
<i>creditPayment-OverDue-Amount</i>	uint32_t
<i>creditPayment-Status</i>	uint8_t
<i>creditPayment</i>	uint32_t
<i>creditPayment-Date</i>	uint32_t
<i>creditPayment-Ref</i>	uint8_t*

Definition at line 7114 of file [client-command-macro.doc](#).

**6.5.2.334 #define emberAfFillCommandPriceClusterPublishCurrencyConversion( providerId, issuerEventId, startTime, oldCurrency, newCurrency, conversionFactor, conversionFactorTrailingDigit, currencyChangeControlFlags )**

The PublishCurrencyConversion command is sent in response to a GetCurrencyConversion command or when a new currency becomes available.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PublishCurrencyConversion

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>oldCurrency</i>	uint16_t
<i>newCurrency</i>	uint16_t
<i>conversion-Factor</i>	uint32_t
<i>conversion-FactorTrailing-Digit</i>	uint8_t
<i>currency-Change-ControlFlags</i>	uint32_t

Definition at line 7150 of file [client-command-macro.doc](#).

**6.5.2.335 #define emberAfFillCommandPriceClusterCancelTariff( providerId, issuerTariffId, tariffType )**

The CancelTariff command indicates that all data associated with a particular tariff instance should be discarded.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: CancelTariff

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerTariffId</i>	uint32_t
<i>tariffType</i>	uint8_t

Definition at line 7181 of file [client-command-macro.doc](#).

**6.5.2.336 #define emberAfFillCommandPriceClusterGetCurrentPrice( commandOptions )**

The GetCurrentPrice command initiates a PublishPrice command for the current time.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetCurrentPrice

**Parameters**

<i>command-</i> <i>Options</i>	uint8_t
-----------------------------------	---------

Definition at line 7200 of file [client-command-macro.doc](#).

**6.5.2.337 #define emberAfFillCommandPriceClusterGetScheduledPrices( startTime, numberOfEvents )**

The GetScheduledPrices command initiates a PublishPrice command for available price events.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetScheduledPrices

**Parameters**

<i>startTime</i>	uint32_t
<i>numberOf-</i> <i>Events</i>	uint8_t

Definition at line 7216 of file [client-command-macro.doc](#).

**6.5.2.338 #define emberAfFillCommandPriceClusterPriceAcknowledgement( providerId, issuerEventId, priceAckTime, control )**

The PriceAcknowledgement command described provides the ability to acknowledge a previously sent PublishPrice command.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: PriceAcknowledgement

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>priceAckTime</i>	uint32_t
<i>control</i>	uint8_t

Definition at line 7236 of file [client-command-macro.doc](#).

**6.5.2.339 #define emberAfFillCommandPriceClusterGetBlockPeriods( startTime, numberEvents, tariffType )**

The GetBlockPeriods command initiates a PublishBlockPeriod command for the currently scheduled block periods.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetBlockPeriods

#### Parameters

<i>startTime</i>	uint32_t
<i>numberEvents</i>	uint8_t
<i>tariffType</i>	uint8_t

Definition at line [7259](#) of file [client-command-macro.doc](#).

**6.5.2.340 #define emberAfFillCommandPriceClusterGetConversionFactor( earliestStartTime, minIssuerEventId, numberOfCommands )**

The GetConversionFactor command initiates a PublishConversionFactor command for the scheduled conversion factor updates.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetConversionFactor

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCommands</i>	uint8_t

Definition at line [7280](#) of file [client-command-macro.doc](#).

**6.5.2.341 #define emberAfFillCommandPriceClusterGetCalorificValue( earliestStartTime, minIssuerEventId, numberOfCommands )**

The GetCalorificValue command initiates a PublishCalorificValue command for the scheduled conversion factor updates.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetCalorificValue

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCommands</i>	uint8_t

Definition at line 7301 of file [client-command-macro.doc](#).

**6.5.2.342 #define emberAfFillCommandPriceClusterGetTariffInformation( earliestStartTime, minIssuerEventId, numberOfCommands, tariffType )**

The GetTariffInformation command initiates a PublishTariffInformation command for the scheduled tariff updates.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetTariffInformation

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCommands</i>	uint8_t
<i>tariffType</i>	uint8_t

Definition at line 7323 of file [client-command-macro.doc](#).

**6.5.2.343 #define emberAfFillCommandPriceClusterGetPriceMatrix( issuerTariffId )**

The GetPriceMatrix command initiates a PublishPriceMatrix command for the scheduled Price Matrix updates.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetPriceMatrix

#### Parameters

<i>issuerTariffId</i>	uint32_t
-----------------------	----------

Definition at line 7344 of file [client-command-macro.doc](#).

**6.5.2.344 #define emberAfFillCommandPriceClusterGetBlockThresholds( issuerTariffId )**

The GetBlockThresholds command initiates a PublishBlockThreshold command for the scheduled Block Threshold updates.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetBlockThresholds

#### Parameters

<i>issuerTariffId</i>	uint32_t
-----------------------	----------

Definition at line 7359 of file [client-command-macro.doc](#).

**6.5.2.345 #define emberAfFillCommandPriceClusterGetCO2Value( earliestStartTime, minIssuerEventId, numberOfCommands, tariffType )**

The GetCO2Value command initiates a PublishCO2Value command for the scheduled CO2 conversion factor updates.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetCO2Value

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCommands</i>	uint8_t
<i>tariffType</i>	uint8_t

Definition at line [7377](#) of file [client-command-macro.doc](#).

**6.5.2.346 #define emberAfFillCommandPriceClusterGetTierLabels( issuerTariffId )**

The GetTierLabels command allows a client to retrieve the tier labels associated with a given tariff; this command initiates a PublishTierLabels command from the server.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetTierLabels

#### Parameters

<i>issuerTariffId</i>	uint32_t
-----------------------	----------

Definition at line [7398](#) of file [client-command-macro.doc](#).

**6.5.2.347 #define emberAfFillCommandPriceClusterGetBillingPeriod( earliestStartTime, minIssuerEventId, numberOfCommands, tariffType )**

The GetBillingPeriod command initiates one or more PublishBillingPeriod commands for the currently scheduled billing periods.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetBillingPeriod

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCommands</i>	uint8_t
<i>tariffType</i>	uint8_t

Definition at line 7416 of file [client-command-macro.doc](#).

**6.5.2.348 #define emberAfFillCommandPriceClusterGetConsolidatedBill( earliestStartTime, minIssuerEventId, numberOfCommands, tariffType )**

The GetConsolidatedBill command initiates one or more PublishConsolidatedBill commands with the requested billing information.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetConsolidatedBill

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCommands</i>	uint8_t
<i>tariffType</i>	uint8_t

Definition at line 7440 of file [client-command-macro.doc](#).

**6.5.2.349 #define emberAfFillCommandPriceClusterCppEventResponse( issuerEventId, cppAuth )**

The CPPEventResponse command is sent from a Client (IHD) to the ESI to notify it of a Critical Peak Pricing event authorization.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: CppEventResponse

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>cppAuth</i>	uint8_t

Definition at line 7462 of file [client-command-macro.doc](#).

**6.5.2.350 #define emberAfFillCommandPriceClusterGetCreditPayment( latestEndTime, numberOfRecords )**

The GetCreditPayment command initiates PublishCreditPayment commands for the requested credit payment information.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetCreditPayment

#### Parameters

<i>latestEndTime</i>	uint32_t
<i>numberOfRecords</i>	uint8_t

Definition at line 7480 of file [client-command-macro.doc](#).

#### 6.5.2.351 #define emberAfFillCommandPriceClusterGetCurrencyConversionCommand( )

The GetCurrencyConversionCommand command initiates a PublishCurrencyConversion command for the currency conversion factor updates. A server shall be capable of storing both the old and the new currencies.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetCurrencyConversionCommand

Definition at line 7496 of file [client-command-macro.doc](#).

#### 6.5.2.352 #define emberAfFillCommandPriceClusterGetTariffCancellation( )

The GetTariffCancellation command initiates the return of the last CancelTariff command held on the associated server.

Cluster: Price, The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises. Command: GetTariffCancellation

Definition at line 7509 of file [client-command-macro.doc](#).

#### 6.5.2.353 #define emberAfFillCommandDemandResponseLoadControlClusterLoadControlEvent( issuerEventId, deviceClass, utilityEnrollmentGroup, startTime, durationInMinutes, criticalityLevel, coolingTemperatureOffset, heatingTemperatureOffset, coolingTemperatureSetPoint, heatingTemperatureSetPoint, averageLoadAdjustmentPercentage, dutyCycle, eventControl )

Command description for LoadControlEvent.

Cluster: Demand Response and Load Control, This cluster provides an interface to the functionality of Smart Energy Demand Response and Load Control. Devices targeted by this cluster include thermostats and devices that support load control. Command: LoadControlEvent

##### Parameters

<i>issuerEventId</i>	uint32_t
<i>deviceClass</i>	uint16_t
<i>utility-Enrollment-Group</i>	uint8_t
<i>startTime</i>	uint32_t
<i>durationIn-Minutes</i>	uint16_t
<i>criticalityLevel</i>	uint8_t
<i>cooling-Temperature-Offset</i>	uint8_t
<i>heating-Temperature-Offset</i>	uint8_t
<i>cooling-Temperature-SetPoint</i>	int16_t

<i>heating-Temperature-SetPoint</i>	int16_t
<i>averageLoad-Adjustment-Percentage</i>	int8_t
<i>dutyCycle</i>	uint8_t
<i>eventControl</i>	uint8_t

Definition at line 7540 of file [client-command-macro.doc](#).

**6.5.2.354 #define emberAfFillCommandDemandResponseLoadControlClusterCancelLoadControlEvent( issuerEventId, deviceClass, utilityEnrollmentGroup, cancelControl, effectiveTime )**

Command description for CancelLoadControlEvent.

Cluster: Demand Response and Load Control, This cluster provides an interface to the functionality of Smart Energy Demand Response and Load Control. Devices targeted by this cluster include thermostats and devices that support load control. Command: CancelLoadControlEvent

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>deviceClass</i>	uint16_t
<i>utility-Enrollment-Group</i>	uint8_t
<i>cancelControl</i>	uint8_t
<i>effectiveTime</i>	uint32_t

Definition at line 7583 of file [client-command-macro.doc](#).

**6.5.2.355 #define emberAfFillCommandDemandResponseLoadControlClusterCancelAllLoadControlEvents( cancelControl )**

Command description for CancelAllLoadControlEvents.

Cluster: Demand Response and Load Control, This cluster provides an interface to the functionality of Smart Energy Demand Response and Load Control. Devices targeted by this cluster include thermostats and devices that support load control. Command: CancelAllLoadControlEvents

#### Parameters

<i>cancelControl</i>	uint8_t
----------------------	---------

Definition at line 7606 of file [client-command-macro.doc](#).

```
6.5.2.356 #define emberAfFillCommandDemandResponseLoadControlClusterReportEventStatus(
    issuerEventId, eventStatus, eventStatusTime, criticalityLevelApplied,
    coolingTemperatureSetPointApplied, heatingTemperatureSetPointApplied,
    averageLoadAdjustmentPercentageApplied, dutyCycleApplied, eventControl, signatureType,
    signature )
```

Command description for ReportEventStatus.

Cluster: Demand Response and Load Control, This cluster provides an interface to the functionality of Smart Energy Demand Response and Load Control. Devices targeted by this cluster include thermostats and devices that support load control. Command: ReportEventStatus

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>eventStatus</i>	uint8_t
<i>eventStatus-</i> <i>Time</i>	uint32_t
<i>criticality-</i> <i>LevelApplied</i>	uint8_t
<i>cooling-</i> <i>Temperature-</i> <i>SetPoint-</i> <i>Applied</i>	uint16_t
<i>heating-</i> <i>Temperature-</i> <i>SetPoint-</i> <i>Applied</i>	uint16_t
<i>averageLoad-</i> <i>Adjustment-</i> <i>Percentage-</i> <i>Applied</i>	int8_t
<i>dutyCycle-</i> <i>Applied</i>	uint8_t
<i>eventControl</i>	uint8_t
<i>signatureType</i>	uint8_t
<i>signature</i>	uint8_t*

Definition at line 7631 of file [client-command-macro.doc](#).

```
6.5.2.357 #define emberAfFillCommandDemandResponseLoadControlClusterGetScheduledEvents(
    startTime, numberOfEvents, issuerEventId )
```

Command description for GetScheduledEvents.

Cluster: Demand Response and Load Control, This cluster provides an interface to the functionality of Smart Energy Demand Response and Load Control. Devices targeted by this cluster include thermostats and devices that support load control. Command: GetScheduledEvents

#### Parameters

<i>startTime</i>	uint32_t
<i>numberOf-</i> <i>Events</i>	uint8_t
<i>issuerEventId</i>	uint32_t

Definition at line [7669](#) of file [client-command-macro.doc](#).

**6.5.2.358 #define emberAfFillCommandSimpleMeteringClusterGetProfileResponse( endTime, status, profileIntervalPeriod, numberOfPeriodsDelivered, intervals, intervalsLen )**

This command is generated when the Client command GetProfile is received.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: GetProfileResponse

#### Parameters

<i>endTime</i>	uint32_t
<i>status</i>	uint8_t
<i>profileInterval- Period</i>	uint8_t
<i>numberO- Periods- Delivered</i>	uint8_t
<i>intervals</i>	uint8_t*
<i>intervalsLen</i>	uint8_t

Definition at line [7698](#) of file [client-command-macro.doc](#).

**6.5.2.359 #define emberAfFillCommandSimpleMeteringClusterRequestMirror( )**

This command is used to request the ESI to mirror Metering Device data.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: RequestMirror

Definition at line [7722](#) of file [client-command-macro.doc](#).

**6.5.2.360 #define emberAfFillCommandSimpleMeteringClusterRemoveMirror( )**

This command is used to request the ESI to remove its mirror of Metering Device data.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: RemoveMirror

Definition at line [7735](#) of file [client-command-macro.doc](#).

**6.5.2.361 #define emberAfFillCommandSimpleMeteringClusterRequestFastPollModeResponse( appliedUpdatePeriod, fastPollModeEndtime )**

This command is generated when the client command Request Fast Poll Mode is received.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: RequestFastPollMode-Response

**Parameters**

<i>appliedUpdate-Period</i>	uint8_t
<i>fastPollMode-Endtime</i>	uint32_t

Definition at line 7750 of file [client-command-macro.doc](#).

**6.5.2.362 #define emberAfFillCommandSimpleMeteringClusterScheduleSnapshotResponse( issuerEventId, snapshotResponsePayload, snapshotResponsePayloadLen )**

This command is generated in response to a ScheduleSnapshot command, and is sent to confirm whether the requested snapshot schedule has been set up.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ScheduleSnapshotResponse

**Parameters**

<i>issuerEventId</i>	uint32_t
<i>snapshot-Response-Payload</i>	uint8_t*
<i>snapshot-Response-PayloadLen</i>	uint8_t

Definition at line 7769 of file [client-command-macro.doc](#).

**6.5.2.363 #define emberAfFillCommandSimpleMeteringClusterTakeSnapshotResponse( snapshotId, snapshotConfirmation )**

This command is generated in response to a TakeSnapshot command, and is sent to confirm whether the requested snapshot has been accepted and successfully taken.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: TakeSnapshotResponse

**Parameters**

<i>snapshotId</i>	uint32_t
<i>snapshot-Confirmation</i>	uint8_t

Definition at line 7789 of file [client-command-macro.doc](#).

**6.5.2.364 #define emberAfFillCommandSimpleMeteringClusterPublishSnapshot( snapshotId, snapshotTime, totalSnapshotsFound, commandIndex, totalCommands, snapshotCause, snapshotPayloadType, snapshotPayload, snapshotPayloadLen )**

This command is generated in response to a GetSnapshot command. It is used to return a single snapshot to the client.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: PublishSnapshot

#### Parameters

<i>snapshotId</i>	uint32_t
<i>snapshotTime</i>	uint32_t
<i>totalSnapshots-Found</i>	uint8_t
<i>commandIndex</i>	uint8_t
<i>totalCommands</i>	uint8_t
<i>snapshotCause</i>	uint32_t
<i>snapshot-PayloadType</i>	uint8_t
<i>snapshot-Payload</i>	uint8_t*
<i>snapshot-PayloadLen</i>	uint8_t

Definition at line 7814 of file [client-command-macro.doc](#).

```
6.5.2.365 #define emberAfFillCommandSimpleMeteringClusterGetSampledDataResponse( sampleId,  
                                sampleStartTime, sampleType, sampleRequestInterval, numberOfSamples, samples,  
                                samplesLen )
```

This command is used to send the requested sample data to the client. It is generated in response to a GetSampledData command.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: GetSampledDataResponse

#### Parameters

<i>sampleId</i>	uint16_t
<i>sampleStart-Time</i>	uint32_t
<i>sampleType</i>	uint8_t
<i>sampleRequest-Interval</i>	uint16_t
<i>numberOf-Samples</i>	uint16_t
<i>samples</i>	uint8_t*
<i>samplesLen</i>	uint8_t

Definition at line 7851 of file [client-command-macro.doc](#).

```
6.5.2.366 #define emberAfFillCommandSimpleMeteringClusterConfigureMirror( issuerEventId,  
                                reportingInterval, mirrorNotificationReporting, notificationScheme )
```

ConfigureMirror is sent to the mirror once the mirror has been created. The command deals with the operational configuration of the Mirror.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ConfigureMirror

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>reporting-Interval</i>	uint32_t
<i>mirror-Notification-Reporting</i>	uint8_t
<i>notification-Scheme</i>	uint8_t

Definition at line 7881 of file [client-command-macro.doc](#).

**6.5.2.367 #define emberAfFillCommandSimpleMeteringClusterConfigureNotificationScheme( issuerEventId, notificationScheme, notificationFlagOrder )**

The ConfigureNotificationScheme is sent to the mirror once the mirror has been created. The command deals with the operational configuration of the Mirror and the device that reports to the mirror. No default schemes are allowed to be overwritten.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ConfigureNotificationScheme

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>notification-Scheme</i>	uint8_t
<i>notification-FlagOrder</i>	uint32_t

Definition at line 7904 of file [client-command-macro.doc](#).

**6.5.2.368 #define emberAfFillCommandSimpleMeteringClusterConfigureNotificationFlags( issuerEventId, notificationScheme, notificationFlagAttributedId, clusterId, manufacturerCode, numberOfCommands, commandIds, commandIdsLen )**

The ConfigureNotificationFlags command is used to set the commands relating to the bit value for each NotificationFlags attribute that the scheme is proposing to use.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ConfigureNotificationFlags

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>notification-Scheme</i>	uint8_t
<i>notification-FlagAttributeId</i>	uint16_t
<i>clusterId</i>	uint16_t

<i>manufacturer-Code</i>	uint16_t
<i>numberOfCommands</i>	uint8_t
<i>commandIds</i>	uint8_t*
<i>commandIdsLen</i>	uint8_t

Definition at line 7930 of file [client-command-macro.doc](#).

**6.5.2.369 #define emberAfFillCommandSimpleMeteringClusterGetNotifiedMessage( notificationScheme, notificationFlagAttributeId, notificationFlagsN )**

The GetNotifiedMessage command is used only when a BOMD is being mirrored. This command provides a method for the BOMD to notify the Mirror message queue that it wants to receive commands that the Mirror has queued. The Notification flags set within the command shall inform the mirror of the commands that the BOMD is requesting.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: GetNotifiedMessage

#### Parameters

<i>notification-Scheme</i>	uint8_t
<i>notification-FlagAttributeId</i>	uint16_t
<i>notification-FlagsN</i>	uint32_t

Definition at line 7961 of file [client-command-macro.doc](#).

**6.5.2.370 #define emberAfFillCommandSimpleMeteringClusterSupplyStatusResponse( providerId, issuerEventId, implementationDateTime, supplyStatus )**

This command is transmitted by a Metering Device in response to a ChangeSupply command.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: SupplyStatusResponse

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>implementation-DateTime</i>	uint32_t
<i>supplyStatus</i>	uint8_t

Definition at line 7983 of file [client-command-macro.doc](#).

### 6.5.2.371 #define emberAfFillCommandSimpleMeteringClusterStartSamplingResponse( *sampleId* )

This command is transmitted by a Metering Device in response to a StartSampling command.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: StartSamplingResponse

#### Parameters

<i>sampleId</i>	uint16_t
-----------------	----------

Definition at line 8004 of file [client-command-macro.doc](#).

### 6.5.2.372 #define emberAfFillCommandSimpleMeteringClusterGetProfile( *intervalChannel*, *endTime*, *numberOfPeriods* )

The GetProfile command is generated when a client device wishes to retrieve a list of captured Energy, Gas or water consumption for profiling purposes.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: GetProfile

#### Parameters

<i>interval-Channel</i>	uint8_t
<i>endTime</i>	uint32_t
<i>numberOfPeriods</i>	uint8_t

Definition at line 8021 of file [client-command-macro.doc](#).

### 6.5.2.373 #define emberAfFillCommandSimpleMeteringClusterRequestMirrorResponse( *endpointId* )

The Request Mirror Response Command allows the ESI to inform a sleepy Metering Device it has the ability to store and mirror its data.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: RequestMirrorResponse

#### Parameters

<i>endpointId</i>	uint16_t
-------------------	----------

Definition at line 8040 of file [client-command-macro.doc](#).

### 6.5.2.374 #define emberAfFillCommandSimpleMeteringClusterMirrorRemoved( *endpointId* )

The Mirror Removed Command allows the ESI to inform a sleepy Metering Device mirroring support has been removed or halted.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: MirrorRemoved

**Parameters**

<i>endpointId</i>	uint16_t
-------------------	----------

Definition at line 8055 of file [client-command-macro.doc](#).

**6.5.2.375 #define emberAfFillCommandSimpleMeteringClusterRequestFastPollMode( fastPollUpdatePeriod, duration )**

The Request Fast Poll Mode command is generated when the metering client wishes to receive near real-time updates of InstantaneousDemand.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: RequestFastPollMode

**Parameters**

<i>fastPollUpdate-Period</i>	uint8_t
<i>duration</i>	uint8_t

Definition at line 8071 of file [client-command-macro.doc](#).

**6.5.2.376 #define emberAfFillCommandSimpleMeteringClusterScheduleSnapshot( issuerEventId, commandIndex, commandCount, snapshotSchedulePayload, snapshotSchedulePayloadLen )**

This command is used to set up a schedule of when the device shall create snapshot data.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ScheduleSnapshot

**Parameters**

<i>issuerEventId</i>	uint32_t
<i>commandIndex</i>	uint8_t
<i>commandCount</i>	uint8_t
<i>snapshot-Schedule-Payload</i>	uint8_t*
<i>snapshot-Schedule-PayloadLen</i>	uint8_t

Definition at line 8092 of file [client-command-macro.doc](#).

**6.5.2.377 #define emberAfFillCommandSimpleMeteringClusterTakeSnapshot( snapshotCause )**

This command is used to instruct the cluster server to take a single snapshot.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: TakeSnapshot

**Parameters**

<i>snapshotCause</i>	uint32_t
----------------------	----------

Definition at line 8115 of file [client-command-macro.doc](#).

**6.5.2.378 #define emberAfFillCommandSimpleMeteringClusterGetSnapshot( earliestStartTime,  
latestEndTime, snapshotOffset, snapshotCause )**

This command is used to request snapshot data from the cluster server.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: GetSnapshot

**Parameters**

<i>earliestStartTime</i>	uint32_t
<i>latestEndTime</i>	uint32_t
<i>snapshotOffset</i>	uint8_t
<i>snapshotCause</i>	uint32_t

Definition at line 8133 of file [client-command-macro.doc](#).

**6.5.2.379 #define emberAfFillCommandSimpleMeteringClusterStartSampling( issuerEventId,  
startSamplingTime, sampleType, sampleRequestInterval, maxNumberOfSamples )**

The sampling mechanism allows a set of samples of the specified type of data to be taken, commencing at the stipulated start time. This mechanism may run concurrently with the capturing of profile data, and may refer the same parameters, albeit possibly at a different sampling rate.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: StartSampling

**Parameters**

<i>issuerEventId</i>	uint32_t
<i>startSamplingTime</i>	uint32_t
<i>sampleType</i>	uint8_t
<i>sampleRequestInterval</i>	uint16_t
<i>maxNumberOfSamples</i>	uint16_t

Definition at line 8158 of file [client-command-macro.doc](#).

**6.5.2.380 #define emberAfFillCommandSimpleMeteringClusterGetSampledData( sampleId,  
earliestSampleTime, sampleType, numberOfSamples )**

This command is used to request sampled data from the server. Note that it is the responsibility of the client to ensure that it does not request more samples than can be held in a single command payload.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: GetSampledData

#### Parameters

<i>sampleId</i>	uint16_t
<i>earliestSampleTime</i>	uint32_t
<i>sampleType</i>	uint8_t
<i>numberOfSamples</i>	uint16_t

Definition at line 8184 of file [client-command-macro.doc](#).

**6.5.2.381 #define emberAfFillCommandSimpleMeteringClusterMirrorReportAttributeResponse( notificationScheme, notificationFlags, notificationFlagsLen )**

This command is sent in response to the ReportAttribute command when the MirrorReporting attribute is set.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: MirrorReportAttribute-Response

#### Parameters

<i>notification-Scheme</i>	uint8_t
<i>notification-Flags</i>	uint8_t*
<i>notification-FlagsLen</i>	uint8_t

Definition at line 8207 of file [client-command-macro.doc](#).

**6.5.2.382 #define emberAfFillCommandSimpleMeteringClusterResetLoadLimitCounter( providerId, issuerEventId )**

The ResetLoadLimitCounter command shall cause the LoadLimitCounter attribute to be reset.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ResetLoadLimitCounter

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t

Definition at line 8227 of file [client-command-macro.doc](#).

**6.5.2.383 #define emberAfFillCommandSimpleMeteringClusterChangeSupply( *providerId*, *issuerEventId*, *requestDateTime*, *implementationDateTime*, *proposedSupplyStatus*, *supplyControlBits* )**

This command is sent from the Head-end or ESI to the Metering Device to instruct it to change the status of the valve or load switch, i.e. the supply.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: ChangeSupply

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>requestDate-Time</i>	uint32_t
<i>implementation-DateTime</i>	uint32_t
<i>proposed-SupplyStatus</i>	uint8_t
<i>supplyControl-Bits</i>	uint8_t

Definition at line [8249](#) of file [client-command-macro.doc](#).

**6.5.2.384 #define emberAfFillCommandSimpleMeteringClusterLocalChangeSupply( *proposedSupplyStatus* )**

This command is a simplified version of the ChangeSupply command, intended to be sent from an IHD to a meter as the consequence of a user action on the IHD. Its purpose is to provide a local disconnection/re-connection button on the IHD in addition to the one on the meter.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: LocalChangeSupply

#### Parameters

<i>proposed-SupplyStatus</i>	uint8_t
------------------------------	---------

Definition at line [8274](#) of file [client-command-macro.doc](#).

**6.5.2.385 #define emberAfFillCommandSimpleMeteringClusterSetSupplyStatus( *issuerEventId*, *supplyTamperState*, *supplyDepletionState*, *supplyUncontrolledFlowState*, *loadLimitSupplyState* )**

This command is used to specify the required status of the supply following the occurrence of certain events on the meter.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: SetSupplyStatus

**Parameters**

<i>issuerEventId</i>	uint32_t
<i>supplyTamper-State</i>	uint8_t
<i>supply-DepletionState</i>	uint8_t
<i>supply-Uncontrolled-FlowState</i>	uint8_t
<i>loadLimit-SupplyState</i>	uint8_t

Definition at line 8293 of file [client-command-macro.doc](#).

```
6.5.2.386 #define emberAfFillCommandSimpleMeteringClusterSetUncontrolledFlowThreshold(  
    providerId, issuerEventId, uncontrolledFlowThreshold, unitOfMeasure, multiplier, divisor,  
    stabilisationPeriod, measurementPeriod )
```

This command is used to update the 'Uncontrolled Flow Rate' configuration data used by flow meters.

Cluster: Simple Metering, The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices. Command: SetUncontrolledFlowThreshold

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>uncontrolled-FlowThreshold</i>	uint16_t
<i>unitOfMeasure</i>	uint8_t
<i>multiplier</i>	uint16_t
<i>divisor</i>	uint16_t
<i>stabilisation-Period</i>	uint8_t
<i>measurement-Period</i>	uint16_t

Definition at line 8323 of file [client-command-macro.doc](#).

```
6.5.2.387 #define emberAfFillCommandMessagingClusterDisplayMessage( messageId, messageControl,  
    startTime, durationInMinutes, message, optionalExtendedMessageControl )
```

Command description for DisplayMessage.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices. Command: DisplayMessage

**Parameters**

<i>messageId</i>	uint32_t
<i>message-Control</i>	uint8_t

<i>startTime</i>	uint32_t
<i>durationInMinutes</i>	uint16_t
<i>message</i>	uint8_t*
<i>optionalExtendedMessageControl</i>	uint8_t

Definition at line 8362 of file [client-command-macro.doc](#).

#### 6.5.2.388 #define emberAfFillCommandMessagingClusterCancelMessage( messageId, messageControl )

The CancelMessage command provides the ability to cancel the sending or acceptance of previously sent messages.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices.  
Command: CancelMessage

##### Parameters

<i>messageId</i>	uint32_t
<i>messageControl</i>	uint8_t

Definition at line 8388 of file [client-command-macro.doc](#).

#### 6.5.2.389 #define emberAfFillCommandMessagingClusterDisplayProtectedMessage( messageId, messageControl, startTime, durationInMinutes, message, optionalExtendedMessageControl )

The DisplayProtected Message command is for use with messages that are protected by a password or PIN.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices.  
Command: DisplayProtectedMessage

##### Parameters

<i>messageId</i>	uint32_t
<i>messageControl</i>	uint8_t
<i>startTime</i>	uint32_t
<i>durationInMinutes</i>	uint16_t
<i>message</i>	uint8_t*
<i>optionalExtendedMessageControl</i>	uint8_t

Definition at line 8410 of file [client-command-macro.doc](#).

### 6.5.2.390 #define emberAfFillCommandMessagingClusterCancelAllMessages( *implementationDateTime* )

The CancelAllMessages command indicates to a client device that it should cancel all display messages currently held by it.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices.  
Command: CancelAllMessages

#### Parameters

<i>implementation- DateTime</i>	uint32_t
-------------------------------------	----------

Definition at line 8435 of file [client-command-macro.doc](#).

### 6.5.2.391 #define emberAfFillCommandMessagingClusterGetLastMessage( )

Command description for GetLastMessage.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices.  
Command: GetLastMessage

Definition at line 8449 of file [client-command-macro.doc](#).

### 6.5.2.392 #define emberAfFillCommandMessagingClusterMessageConfirmation( *messageId*, *confirmationTime*, *messageConfirmationControl*, *messageResponse* )

The Message Confirmation command provides an indication that a Utility Customer has acknowledged and/or accepted the contents of a previously sent message. Enhanced Message Confirmation commands shall contain an answer of 'NO', 'YES' and/or a message confirmation string.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices.  
Command: MessageConfirmation

#### Parameters

<i>messageId</i>	uint32_t
<i>confirmation- Time</i>	uint32_t
<i>message- Confirmation- Control</i>	uint8_t
<i>message- Response</i>	uint8_t*

Definition at line 8466 of file [client-command-macro.doc](#).

### 6.5.2.393 #define emberAfFillCommandMessagingClusterGetMessageCancellation( *earliestImplementationTime* )

This command initiates the return of the first (and maybe only) Cancel All Messages command held on the associated server, and which has an implementation time equal to or later than the value indicated in the payload.

Cluster: Messaging, This cluster provides an interface for passing text messages between SE devices.  
 Command: GetMessageCancellation

#### Parameters

<i>earliest- Implementation- Time</i>	uint32_t
---	----------

Definition at line 8487 of file [client-command-macro.doc](#).

**6.5.2.394 #define emberAfFillCommandTunnelingClusterRequestTunnel( protocolId, manufacturerCode, flowControlSupport, maximumIncomingTransferSize )**

RequestTunnel is the client command used to setup a tunnel association with the server. The request payload specifies the protocol identifier for the requested tunnel, a manufacturer code in case of proprietary protocols and the use of flow control for streaming protocols.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: RequestTunnel

#### Parameters

<i>protocolId</i>	uint8_t
<i>manufacturer- Code</i>	uint16_t
<i>flowControl- Support</i>	uint8_t
<i>maximum- Incoming- TransferSize</i>	uint16_t

Definition at line 8510 of file [client-command-macro.doc](#).

**6.5.2.395 #define emberAfFillCommandTunnelingClusterCloseTunnel( tunnelId )**

Client command used to close the tunnel with the server. The parameter in the payload specifies the tunnel identifier of the tunnel that has to be closed. The server leaves the tunnel open and the assigned resources allocated until the client sends the CloseTunnel command or the CloseTunnelTimeout fires.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: CloseTunnel

#### Parameters

<i>tunnelId</i>	uint16_t
-----------------	----------

Definition at line 8531 of file [client-command-macro.doc](#).

```
6.5.2.396 #define emberAfFillCommandTunnelingClusterTransferDataClientToServer( tunnelId, data,
dataLen )
```

Command that indicates (if received) that the client has sent data to the server. The data itself is contained within the payload.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: TransferDataClientToServer

#### Parameters

<i>tunnelId</i>	uint16_t
<i>data</i>	uint8_t*
<i>dataLen</i>	uint8_t

Definition at line 8548 of file [client-command-macro.doc](#).

```
6.5.2.397 #define emberAfFillCommandTunnelingClusterTransferDataErrorClientToServer( tunnelId,
transferDataStatus )
```

This command is generated by the receiver of a TransferData command if the tunnel status indicates that something is wrong. There are two three cases in which TransferDataError is sent: (1) The TransferData received contains a TunnelID that does not match to any of the active tunnels of the receiving device. This could happen if a (sleeping) device sends a TransferData command to a tunnel that has been closed by the server after the CloseTunnelTimeout. (2) The TransferData received contains a proper TunnelID of an active tunnel, but the device sending the data does not match to it. (3) The TransferData received contains more data than indicated by the MaximumIncomingTransferSize of the receiving device.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: TransferDataErrorClientToServer

#### Parameters

<i>tunnelId</i>	uint16_t
<i>transferData-Status</i>	uint8_t

Definition at line 8568 of file [client-command-macro.doc](#).

```
6.5.2.398 #define emberAfFillCommandTunnelingClusterAckTransferDataClientToServer( tunnelId,
numberOfBytesLeft )
```

Command sent in response to each TransferData command in case - and only in case - flow control has been requested by the client in the TunnelRequest command and is supported by both tunnel endpoints. The response payload indicates the number of octets that may still be received by the receiver.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: AckTransferDataClientToServer

#### Parameters

<i>tunnelId</i>	uint16_t
<i>numberOfBytesLeft</i>	uint16_t

Definition at line 8586 of file [client-command-macro.doc](#).

**6.5.2.399 #define emberAfFillCommandTunnelingClusterReadyDataClientToServer( tunnelId, numberOfOctetsLeft )**

The ReadyData command is generated - after a receiver had to stop the dataflow using the AckTransferData(0) command - to indicate that the device is now ready to continue receiving data. The parameter NumberOfOctetsLeft gives a hint on how much space is left for the next data transfer. The ReadyData command is only issued if flow control is enabled.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: ReadyDataClientToServer

#### Parameters

<i>tunnelId</i>	uint16_t
<i>numberOfOctetsLeft</i>	uint16_t

Definition at line 8604 of file [client-command-macro.doc](#).

**6.5.2.400 #define emberAfFillCommandTunnelingClusterGetSupportedTunnelProtocols( protocolOffset )**

Get Supported Tunnel Protocols is the client command used to determine the Tunnel protocols supported on another device.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: GetSupportedTunnelProtocols

#### Parameters

<i>protocolOffset</i>	uint8_t
-----------------------	---------

Definition at line 8621 of file [client-command-macro.doc](#).

**6.5.2.401 #define emberAfFillCommandTunnelingClusterRequestTunnelResponse( tunnelId, tunnelStatus, maximumIncomingTransferSize )**

RequestTunnelResponse is sent by the server in response to a RequestTunnel command previously received from the client. The response contains the status of the RequestTunnel command and a tunnel identifier corresponding to the tunnel that has been set-up in the server in case of success.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: RequestTunnelResponse

#### Parameters

<i>tunnelId</i>	uint16_t
<i>tunnelStatus</i>	uint8_t
<i>maximumIncomingTransferSize</i>	uint16_t

Definition at line 8638 of file [client-command-macro.doc](#).

**6.5.2.402 #define emberAfFillCommandTunnelingClusterTransferDataServerToClient( tunnelId, data, dataLen )**

Command that transfers data from server to the client. The data itself has to be placed within the payload.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: TransferDataServerToClient

#### Parameters

<i>tunnelId</i>	uint16_t
<i>data</i>	uint8_t*
<i>dataLen</i>	uint8_t

Definition at line 8659 of file [client-command-macro.doc](#).

**6.5.2.403 #define emberAfFillCommandTunnelingClusterTransferDataErrorServerToClient( tunnelId, transferDataStatus )**

This command is generated by the receiver of a TransferData command if the tunnel status indicates that something is wrong. There are two three cases in which TransferDataError is sent: (1) The TransferData received contains a TunnelID that does not match to any of the active tunnels of the receiving device. This could happen if a (sleeping) device sends a TransferData command to a tunnel that has been closed by the server after the CloseTunnelTimeout. (2) The TransferData received contains a proper TunnelID of an active tunnel, but the device sending the data does not match to it. (3) The TransferData received contains more data than indicated by the MaximumIncomingTransferSize of the receiving device.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: TransferDataErrorServerToClient

#### Parameters

<i>tunnelId</i>	uint16_t
<i>transferDataStatus</i>	uint8_t

Definition at line 8679 of file [client-command-macro.doc](#).

**6.5.2.404 #define emberAfFillCommandTunnelingClusterAckTransferDataServerToClient( tunnelId, numberOfBytesLeft )**

Command sent in response to each TransferData command in case - and only in case - flow control has been requested by the client in the TunnelRequest command and is supported by both tunnel endpoints. The response payload indicates the number of octets that may still be received by the receiver.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: AckTransferDataServerToClient

#### Parameters

<i>tunnelId</i>	uint16_t
<i>numberOfBytesLeft</i>	uint16_t

Definition at line 8697 of file [client-command-macro.doc](#).

**6.5.2.405 #define emberAfFillCommandTunnelingClusterReadyDataServerToClient( tunnelId, numberOfOctetsLeft )**

The ReadyData command is generated - after a receiver had to stop the dataflow using the AckTransferData(0) command - to indicate that the device is now ready to continue receiving data. The parameter NumberOfOctetsLeft gives a hint on how much space is left for the next data transfer. The ReadyData command is only issued if flow control is enabled.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: ReadyDataServerToClient

#### Parameters

<i>tunnelId</i>	uint16_t
<i>numberOfOctetsLeft</i>	uint16_t

Definition at line 8715 of file [client-command-macro.doc](#).

**6.5.2.406 #define emberAfFillCommandTunnelingClusterSupportedTunnelProtocolsResponse( protocolListComplete, protocolCount, protocolList, protocolListLen )**

Supported Tunnel Protocol Response is sent in response to a Get Supported Tunnel Protocols command previously received. The response contains a list of Tunnel protocols supported by the device; the payload of the response should be capable of holding up to 16 protocols.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: SupportedTunnelProtocolsResponse

#### Parameters

<i>protocolListComplete</i>	uint8_t
<i>protocolCount</i>	uint8_t
<i>protocolList</i>	uint8_t*
<i>protocolListLen</i>	uint8_t

Definition at line 8735 of file [client-command-macro.doc](#).

**6.5.2.407 #define emberAfFillCommandTunnelingClusterTunnelClosureNotification( tunnelId )**

TunnelClosureNotification is sent by the server to indicate that a tunnel has been closed due to expiration of a CloseTunnelTimeout.

Cluster: Tunneling, The tunneling cluster provides an interface for tunneling protocols. Command: TunnelClosureNotification

#### Parameters

<i>tunnelId</i>	uint16_t
-----------------	----------

Definition at line 8756 of file [client-command-macro.doc](#).

```
6.5.2.408 #define emberAfFillCommandPrepaymentClusterSelectAvailableEmergencyCredit(
    commandIssueDateTime, originatingDevice )
```

This command is sent to the Metering Device to activate the use of any Emergency Credit available on the Metering Device.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: SelectAvailableEmergencyCredit

#### Parameters

<i>commandIssue- DateTime</i>	uint32_t
<i>originating- Device</i>	uint8_t

Definition at line [8777](#) of file [client-command-macro.doc](#).

```
6.5.2.409 #define emberAfFillCommandPrepaymentClusterChangeDebt( issuerEventId, debtLabel,
    debtAmount, debtRecoveryMethod, debtAmountType, debtRecoveryStartTime,
    debtRecoveryCollectionTime, debtRecoveryFrequency, debtRecoveryAmount,
    debtRecoveryBalancePercentage )
```

The ChangeDebt command is send to the Metering Device to change the fuel or Non fuel debt values.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: ChangeDebt

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>debtLabel</i>	uint8_t*
<i>debtAmount</i>	uint32_t
<i>debtRecovery- Method</i>	uint8_t
<i>debtAmount- Type</i>	uint8_t
<i>debtRecovery- StartTime</i>	uint32_t
<i>debtRecovery- CollectionTime</i>	uint16_t
<i>debtRecovery- Frequency</i>	uint8_t
<i>debtRecovery- Amount</i>	uint32_t
<i>debtRecovery- Balance- Percentage</i>	uint16_t

Definition at line [8803](#) of file [client-command-macro.doc](#).

**6.5.2.410 #define emberAfFillCommandPrepaymentClusterEmergencyCreditSetup( *issuerEventId*, *startTime*, *emergencyCreditLimit*, *emergencyCreditThreshold* )**

This command is a method to set up the parameters for the emergency credit.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: EmergencyCreditSetup

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>emergency-CreditLimit</i>	uint32_t
<i>emergency-Credit-Threshold</i>	uint32_t

Definition at line 8839 of file [client-command-macro.doc](#).

**6.5.2.411 #define emberAfFillCommandPrepaymentClusterConsumerTopUp( *originatingDevice*, *topUpCode* )**

The ConsumerTopUp command is used by the IPD and the ESI as a method of applying credit top up values to the prepayment meter.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: ConsumerTopUp

#### Parameters

<i>originating-Device</i>	uint8_t
<i>topUpCode</i>	uint8_t*

Definition at line 8861 of file [client-command-macro.doc](#).

**6.5.2.412 #define emberAfFillCommandPrepaymentClusterCreditAdjustment( *issuerEventId*, *startTime*, *creditAdjustmentType*, *creditAdjustmentValue* )**

The CreditAdjustment command is sent to update the accounting base for the Prepayment meter.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: CreditAdjustment

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>credit-Adjustment-Type</i>	uint8_t
<i>credit-Adjustment-Value</i>	uint32_t

Definition at line 8881 of file [client-command-macro.doc](#).

```
6.5.2.413 #define emberAfFillCommandPrepaymentClusterChangePaymentMode( providerId,
    issuerEventId, implementationDateTime, proposedPaymentControlConfiguration, cutOffValue
)
```

This command is sent to a Metering Device to instruct it to change its mode of operation. i.e. from Credit to Prepayment.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: ChangePaymentMode

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>implementation- DateTime</i>	uint32_t
<i>proposed- Payment- Control- Configuration</i>	uint16_t
<i>cutOffValue</i>	uint32_t

Definition at line 8906 of file [client-command-macro.doc](#).

```
6.5.2.414 #define emberAfFillCommandPrepaymentClusterGetPrepaySnapshot( earliestStartTime,
    latestEndTime, snapshotOffset, snapshotCause )
```

This command is used to request the cluster server for snapshot data.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: GetPrepaySnapshot

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>latestEndTime</i>	uint32_t
<i>snapshotOffset</i>	uint8_t
<i>snapshotCause</i>	uint32_t

Definition at line 8932 of file [client-command-macro.doc](#).

```
6.5.2.415 #define emberAfFillCommandPrepaymentClusterGetTopUpLog( latestEndTime,
    numberOfRecords )
```

This command is sent to the Metering Device to retrieve the log of Top Up codes received by the meter.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: GetTopUpLog

**Parameters**

<i>latestEndTime</i>	uint32_t
<i>numberOfRecords</i>	uint8_t

Definition at line 8954 of file [client-command-macro.doc](#).

**6.5.2.416 #define emberAfFillCommandPrepaymentClusterSetLowCreditWarningLevel(  
lowCreditWarningLevel )**

This command is sent from client to a Prepayment server to set the warning level for low credit.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: SetLowCreditWarningLevel

**Parameters**

<i>lowCreditWarningLevel</i>	uint32_t
------------------------------	----------

Definition at line 8971 of file [client-command-macro.doc](#).

**6.5.2.417 #define emberAfFillCommandPrepaymentClusterGetDebtRepaymentLog( *latestEndTime*,  
*numberOfDebts*, *debtType* )**

This command is used to request the contents of the repayment log.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: GetDebtRepaymentLog

**Parameters**

<i>latestEndTime</i>	uint32_t
<i>numberOfDebts</i>	uint8_t
<i>debtType</i>	uint8_t

Definition at line 8988 of file [client-command-macro.doc](#).

**6.5.2.418 #define emberAfFillCommandPrepaymentClusterSetMaximumCreditLimit( *providerId*,  
*issuerEventId*, *implementationDateTime*, *maximumCreditLevel*, *maximumCreditPerTopUp* )**

This command is sent from a client to the Prepayment server to set the maximum credit level allowed in the meter.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: SetMaximumCreditLimit

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t

<i>implementation-DateTime</i>	uint32_t
<i>maximum-CreditLevel</i>	uint32_t
<i>maximum-CreditPerTop-Up</i>	uint32_t

Definition at line 9011 of file [client-command-macro.doc](#).

**6.5.2.419 #define emberAfFillCommandPrepaymentClusterSetOverallDebtCap( providerId, issuerEventId, implementationDateTime, overallDebtCap )**

This command is sent from a client to the Prepayment server to set the overall debt cap allowed in the meter.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: SetOverallDebtCap

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>implementation-DateTime</i>	uint32_t
<i>overallDebt-Cap</i>	uint32_t

Definition at line 9037 of file [client-command-macro.doc](#).

**6.5.2.420 #define emberAfFillCommandPrepaymentClusterPublishPrepaySnapshot( snapshotId, snapshotTime, totalSnapshotsFound, commandIndex, totalNumberOfCommands, snapshotCause, snapshotPayloadType, snapshotPayload, snapshotPayloadLen )**

This command is generated in response to a GetPrepaySnapshot command. It is used to return a single snapshot to the client.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: PublishPrepaySnapshot

#### Parameters

<i>snapshotId</i>	uint32_t
<i>snapshotTime</i>	uint32_t
<i>totalSnapshots-Found</i>	uint8_t
<i>commandIndex</i>	uint8_t
<i>totalNumber-OfCommands</i>	uint8_t
<i>snapshotCause</i>	uint32_t

<i>snapshot-PayloadType</i>	uint8_t
<i>snapshot-Payload</i>	uint8_t*
<i>snapshot-PayloadLen</i>	uint8_t

Definition at line 9066 of file [client-command-macro.doc](#).

**6.5.2.421 #define emberAfFillCommandPrepaymentClusterChangePaymentModeResponse( friendlyCredit, friendlyCreditCalendarId, emergencyCreditLimit, emergencyCreditThreshold )**

This command is send in response to the ChangePaymentMode Command.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: ChangePaymentModeResponse

#### Parameters

<i>friendlyCredit</i>	uint8_t
<i>friendlyCredit-CalendarId</i>	uint32_t
<i>emergency-CreditLimit</i>	uint32_t
<i>emergency-Credit-Threshold</i>	uint32_t

Definition at line 9100 of file [client-command-macro.doc](#).

**6.5.2.422 #define emberAfFillCommandPrepaymentClusterConsumerTopUpResponse( resultType, topUpValue, sourceOfTopUp, creditRemaining )**

This command is send in response to the ConsumerTopUp Command.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: ConsumerTopUpResponse

#### Parameters

<i>resultType</i>	uint8_t
<i>topUpValue</i>	uint32_t
<i>sourceOfTopUp</i>	uint8_t
<i>credit-Remaining</i>	uint32_t

Definition at line 9124 of file [client-command-macro.doc](#).

**6.5.2.423 #define emberAfFillCommandPrepaymentClusterPublishTopUpLog( commandIndex, totalNumberOfCommands, topUpPayload, topUpPayloadLen )**

This command is used to send the Top Up Code Log entries to the client.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: PublishTopUpLog

#### Parameters

<i>commandIndex</i>	uint8_t
<i>totalNumberOfCommands</i>	uint8_t
<i>topUpPayload</i>	uint8_t*
<i>topUpPayloadLen</i>	uint8_t

Definition at line [9148](#) of file [client-command-macro.doc](#).

**6.5.2.424 #define emberAfFillCommandPrepaymentClusterPublishDebtLog( commandIndex, totalNumberOfCommands, debtPayload, debtPayloadLen )**

This command is used to send the contents of the Repayment Log.

Cluster: Prepayment, The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN. Command: PublishDebtLog

#### Parameters

<i>commandIndex</i>	uint8_t
<i>totalNumberOfCommands</i>	uint8_t
<i>debtPayload</i>	uint8_t*
<i>debtPayloadLen</i>	uint8_t

Definition at line [9172](#) of file [client-command-macro.doc](#).

**6.5.2.425 #define emberAfFillCommandEnergyManagementClusterReportEventStatus( issuerEventId, eventStatus, eventStatusTime, criticalityLevelApplied, coolingTemperatureSetPointApplied, heatingTemperatureSetPointApplied, averageLoadAdjustmentPercentageApplied, dutyCycleApplied, eventControl )**

This command is reused from the DRLC cluster. This command is generated in response to the Manage Event command.

Cluster: Energy Management, This cluster provides attributes and commands to assist applications in creating resource monitoring protocols. Command: ReportEventStatus

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>eventStatus</i>	uint8_t
<i>eventStatusTime</i>	uint32_t

<i>criticality-LevelApplied</i>	uint8_t
<i>cooling-Temperature-SetPoint-Applied</i>	uint16_t
<i>heating-Temperature-SetPoint-Applied</i>	uint16_t
<i>averageLoad-Adjustment-Percentage-Applied</i>	int8_t
<i>dutyCycle-Applied</i>	uint8_t
<i>eventControl</i>	uint8_t

Definition at line 9206 of file [client-command-macro.doc](#).

**6.5.2.426 #define emberAfFillCommandEnergyManagementClusterManageEvent( *issuerEventId*, *deviceClass*, *utilityEnrollmentGroup*, *actionRequired* )**

The Manage Event command allows a remote device (such as an IHD or web portal) to change the behavior of a DRLC cluster client when responding to a DRLC Load Control Event.

Cluster: Energy Management, This cluster provides attributes and commands to assist applications in creating resource monitoring protocols. Command: ManageEvent

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>deviceClass</i>	uint16_t
<i>utility-Enrollment-Group</i>	uint8_t
<i>actionRequired</i>	uint8_t

Definition at line 9240 of file [client-command-macro.doc](#).

**6.5.2.427 #define emberAfFillCommandCalendarClusterPublishCalendar( *providerId*, *issuerEventId*, *issuerCalendarId*, *startTime*, *calendarType*, *calendarTimeReference*, *calendarName*, *numberOfSeasons*, *numberOfWeekProfiles*, *numberOfDayProfiles* )**

The PublishCalendar command is published in response to a GetCalendar command or if new calendar information is available.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: PublishCalendar

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuerCalendarId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>calendarType</i>	uint8_t
<i>calendarTimeReference</i>	uint8_t
<i>calendarName</i>	uint8_t*
<i>numberOfSeasons</i>	uint8_t
<i>numberOfWeekProfiles</i>	uint8_t
<i>numberOfDayProfiles</i>	uint8_t

Definition at line [9275](#) of file [client-command-macro.doc](#).

```
6.5.2.428 #define emberAfFillCommandCalendarClusterPublishDayProfile( providerId, issuerEventId,  

issuerCalendarId, dayId, totalNumberOfScheduleEntries, commandIndex,  

totalNumberOfCommands, calendarType, dayScheduleEntries, dayScheduleEntriesLen )
```

The PublishDayProfile command is published in response to a GetDayProfile command.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: PublishDayProfile

**Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuerCalendarId</i>	uint32_t
<i>dayId</i>	uint8_t
<i>totalNumberOfScheduleEntries</i>	uint8_t
<i>commandIndex</i>	uint8_t
<i>totalNumberOfCommands</i>	uint8_t
<i>calendarType</i>	uint8_t
<i>dayScheduleEntries</i>	uint8_t*
<i>dayScheduleEntriesLen</i>	uint8_t

Definition at line [9317](#) of file [client-command-macro.doc](#).

```
6.5.2.429 #define emberAfFillCommandCalendarClusterPublishWeekProfile( providerId, issuerEventId,  

issuerCalendarId, weekId, dayIdRefMonday, dayIdRefTuesday, dayIdRefWednesday,  

dayIdRefThursday, dayIdRefFriday, dayIdRefSaturday, dayIdRefSunday )
```

The PublishWeekProfile command is published in response to a GetWeekProfile command.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: PublishWeekProfile

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuer-</i> <i>CalendarId</i>	uint32_t
<i>weekId</i>	uint8_t
<i>dayIdRef-</i> <i>Monday</i>	uint8_t
<i>dayIdRef-</i> <i>Tuesday</i>	uint8_t
<i>dayIdRef-</i> <i>Wednesday</i>	uint8_t
<i>dayIdRef-</i> <i>Thursday</i>	uint8_t
<i>dayIdRefFriday</i>	uint8_t
<i>dayIdRef-</i> <i>Saturday</i>	uint8_t
<i>dayIdRef-</i> <i>Sunday</i>	uint8_t

Definition at line 9360 of file [client-command-macro.doc](#).

```
6.5.2.430 #define emberAfFillCommandCalendarClusterPublishSeasons( providerId, issuerEventId,  

issuerCalendarId, commandIndex, totalNumberOfCommands, seasonEntries,  

seasonEntriesLen )
```

The PublishSeasons command is published in response to a GetSeason command.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: PublishSeasons

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuer-</i> <i>CalendarId</i>	uint32_t
<i>commandIndex</i>	uint8_t
<i>totalNumber-</i> <i>OfCommands</i>	uint8_t
<i>seasonEntries</i>	uint8_t*
<i>seasonEntries-</i> <i>Len</i>	uint8_t

Definition at line 9401 of file [client-command-macro.doc](#).

```
6.5.2.431 #define emberAfFillCommandCalendarClusterPublishSpecialDays( providerId, issuerEventId,
issuerCalendarId, startTime, calendarType, totalNumberOfSpecialDays, commandIndex,
totalNumberOfCommands, specialDayEntries, specialDayEntriesLen )
```

The PublishSpecialDays command is published in response to a GetSpecialDays command or if a calendar update is available.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: PublishSpecialDays

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>issuer-</i> <i>CalendarId</i>	uint32_t
<i>startTime</i>	uint32_t
<i>calendarType</i>	uint8_t
<i>totalNumber-</i> <i>OfSpecialDays</i>	uint8_t
<i>commandIndex</i>	uint8_t
<i>totalNumber-</i> <i>OfCommands</i>	uint8_t
<i>specialDay-</i> <i>Entries</i>	uint8_t*
<i>specialDay-</i> <i>EntriesLen</i>	uint8_t

Definition at line 9437 of file [client-command-macro.doc](#).

```
6.5.2.432 #define emberAfFillCommandCalendarClusterCancelCalendar( providerId, issuerCalendarId,
calendarType )
```

The CancelCalendar command indicates that all data associated with a particular calendar instance should be discarded.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: CancelCalendar

#### Parameters

<i>providerId</i>	uint32_t
<i>issuer-</i> <i>CalendarId</i>	uint32_t
<i>calendarType</i>	uint8_t

Definition at line 9472 of file [client-command-macro.doc](#).

**6.5.2.433 #define emberAfFillCommandCalendarClusterGetCalendar( earliestStartTime, minIssuerEventId, numberOfCalendars, calendarType, providerId )**

This command initiates PublishCalendar command(s) for scheduled Calendar updates.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: GetCalendar

#### Parameters

<i>earliestStartTime</i>	uint32_t
<i>minIssuerEventId</i>	uint32_t
<i>numberOfCalendars</i>	uint8_t
<i>calendarType</i>	uint8_t
<i>providerId</i>	uint32_t

Definition at line 9495 of file [client-command-macro.doc](#).

**6.5.2.434 #define emberAfFillCommandCalendarClusterGetDayProfiles( providerId, issuerCalendarId, startDayId, numberOfDays )**

This command initiates one or more PublishDayProfile commands for the referenced Calendar.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: GetDayProfiles

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerCalendarId</i>	uint32_t
<i>startDayId</i>	uint8_t
<i>numberOfDays</i>	uint8_t

Definition at line 9521 of file [client-command-macro.doc](#).

**6.5.2.435 #define emberAfFillCommandCalendarClusterGetWeekProfiles( providerId, issuerCalendarId, startWeekId, numberOfWeeks )**

This command initiates one or more PublishWeekProfile commands for the referenced Calendar.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: GetWeekProfiles

#### Parameters

<i>providerId</i>	uint32_t
<i>issuerCalendarId</i>	uint32_t
<i>startWeekId</i>	uint8_t
<i>numberOfWeeks</i>	uint8_t

Definition at line 9545 of file [client-command-macro.doc](#).

#### **6.5.2.436 #define emberAfFillCommandCalendarClusterGetSeasons( providerId, issuerCalendarId )**

This command initiates one or more PublishSeasons commands for the referenced Calendar.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: GetSeasons

##### **Parameters**

<i>providerId</i>	uint32_t
<i>issuer- CalendarId</i>	uint32_t

Definition at line 9567 of file [client-command-macro.doc](#).

#### **6.5.2.437 #define emberAfFillCommandCalendarClusterGetSpecialDays( startTime, numberOfEvents, calendarType, providerId, issuerCalendarId )**

This command initiates one or more PublishSpecialDays commands for the scheduled Special Day Table updates.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: GetSpecialDays

##### **Parameters**

<i>startTime</i>	uint32_t
<i>numberOf- Events</i>	uint8_t
<i>calendarType</i>	uint8_t
<i>providerId</i>	uint32_t
<i>issuer- CalendarId</i>	uint32_t

Definition at line 9588 of file [client-command-macro.doc](#).

#### **6.5.2.438 #define emberAfFillCommandCalendarClusterGetCalendarCancellation( )**

This command initiates the return of the last CancelCalendar command held on the associated server.

Cluster: Calendar, This cluster provides attributes and commands to assist applications in developing time and date based protocol. Command: GetCalendarCancellation

Definition at line 9610 of file [client-command-macro.doc](#).

#### **6.5.2.439 #define emberAfFillCommandDeviceManagementClusterGetChangeOfTenancy( )**

This command is used to request the ESI to respond with information regarding any available change of tenancy.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: GetChangeOfTenancy

Definition at line 9628 of file [client-command-macro.doc](#).

#### **6.5.2.440 #define emberAfFillCommandDeviceManagementClusterGetChangeOfSupplier( )**

This command is used to request the ESI to respond with information regarding any available change of supplier.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: GetChangeOfSupplier

Definition at line 9641 of file [client-command-macro.doc](#).

#### **6.5.2.441 #define emberAfFillCommandDeviceManagementClusterRequestNewPassword( passwordType )**

This command is used to request the current password from the server.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: RequestNewPassword

##### **Parameters**

<i>passwordType</i>	uint8_t
---------------------	---------

Definition at line 9655 of file [client-command-macro.doc](#).

#### **6.5.2.442 #define emberAfFillCommandDeviceManagementClusterGetSiteId( )**

This command is used to request the ESI to respond with information regarding any pending change of Site ID.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: GetSiteId

Definition at line 9669 of file [client-command-macro.doc](#).

#### **6.5.2.443 #define emberAfFillCommandDeviceManagementClusterReportEventConfiguration( commandIndex, totalCommands, eventConfigurationPayload, eventConfigurationPayloadLen )**

This command is sent in response to a GetEventConfiguration command.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: ReportEventConfiguration

##### **Parameters**

<i>commandIndex</i>	uint8_t
<i>totalCommands</i>	uint8_t
<i>event-Configuration-Payload</i>	uint8_t*
<i>event-Configuration-PayloadLen</i>	uint8_t

Definition at line [9686](#) of file `client-command-macro.doc`.

#### **6.5.2.444 #define emberAfFillCommandDeviceManagementClusterGetCIN( )**

This command is used to request the ESI to respond with information regarding any pending change of Customer ID Number.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: GetCIN

Definition at line [9706](#) of file `client-command-macro.doc`.

#### **6.5.2.445 #define emberAfFillCommandDeviceManagementClusterPublishChangeOfTenancy( providerId, issuerEventId, tariffType, implementationDateTime, proposedTenancyChangeControl )**

This command is used to change the tenancy of a meter.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: PublishChangeOfTenancy

##### **Parameters**

<i>providerId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>tariffType</i>	uint8_t
<i>implementation- DateTime</i>	uint32_t
<i>proposed- Tenancy- ChangeControl</i>	uint32_t

Definition at line [9724](#) of file `client-command-macro.doc`.

#### **6.5.2.446 #define emberAfFillCommandDeviceManagementClusterPublishChangeOfSupplier( currentProviderId, issuerEventId, tariffType, proposedProviderId, providerChangeImplementationTime, providerChangeControl, proposedProviderName, proposedProviderContactDetails )**

This command is used to change the Supplier (energy supplier) that is supplying the meter (s).

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: PublishChangeOfSupplier

##### **Parameters**

<i>current- ProviderId</i>	uint32_t
<i>issuerEventId</i>	uint32_t
<i>tariffType</i>	uint8_t
<i>proposed- ProviderId</i>	uint32_t

<i>provider-Change-Implementation-Time</i>	uint32_t
<i>provider-ChangeControl</i>	uint32_t
<i>proposed-ProviderName</i>	uint8_t*
<i>proposed-Provider-ContactDetails</i>	uint8_t*

Definition at line 9754 of file [client-command-macro.doc](#).

**6.5.2.447 #define emberAfFillCommandDeviceManagementClusterRequestNewPasswordResponse( issuerEventId, implementationDateTime, durationInMinutes, passwordType, password )**

This command is used to send the current password to the client.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: RequestNewPasswordResponse

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>implementation-DateTime</i>	uint32_t
<i>durationIn-Minutes</i>	uint16_t
<i>passwordType</i>	uint8_t
<i>password</i>	uint8_t*

Definition at line 9787 of file [client-command-macro.doc](#).

**6.5.2.448 #define emberAfFillCommandDeviceManagementClusterUpdateSiteId( issuerEventId, siteIdTime, providerId, siteId )**

This command is used to set the siteID.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: UpdateSiteId

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>siteIdTime</i>	uint32_t
<i>providerId</i>	uint32_t
<i>siteId</i>	uint8_t*

Definition at line 9813 of file [client-command-macro.doc](#).

```
6.5.2.449 #define emberAfFillCommandDeviceManagementClusterSetEventConfiguration( issuerEventId,
startDateTime, eventConfiguration, configurationControl, eventConfigurationPayload,
eventConfigurationPayloadLen )
```

This command provides a method to set the event configuration attributes, held in a client device.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: SetEventConfiguration

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>startDateTime</i>	uint32_t
<i>event-Configuration</i>	uint8_t
<i>configuration-Control</i>	uint8_t
<i>event-Configuration-Payload</i>	uint8_t*
<i>event-Configuration-PayloadLen</i>	uint8_t

Definition at line 9839 of file [client-command-macro.doc](#).

```
6.5.2.450 #define emberAfFillCommandDeviceManagementClusterGetEventConfiguration( eventId )
```

This command allows the server to request details of event configurations.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: GetEventConfiguration

#### Parameters

<i>eventId</i>	uint16_t
----------------	----------

Definition at line 9864 of file [client-command-macro.doc](#).

```
6.5.2.451 #define emberAfFillCommandDeviceManagementClusterUpdateCIN( issuerEventId,
implementationTime, providerId, customerIdNumber )
```

This command is used to set the CustomerIDNumber attribute held in the Metering cluster.

Cluster: Device Management, This cluster provides attributes and commands to support device-cognisant application layer protocols. Command: UpdateCIN

#### Parameters

<i>issuerEventId</i>	uint32_t
<i>implementation-Time</i>	uint32_t
<i>providerId</i>	uint32_t

<i>customerId- Number</i>	uint8_t*
-------------------------------	----------

Definition at line 9882 of file [client-command-macro.doc](#).

**6.5.2.452 #define emberAfFillCommandEventsClusterGetEventLog( eventControlLogId, eventId,  
startTime, endTime, numberOfEvents, eventOffset )**

The GetEventLog command allows a client to request events from a server's event logs. One or more PublishEventLog commands are returned on receipt of this command.

Cluster: Events, This cluster provides an interface on which applications can use event-based protocols.  
Command: GetEventLog

#### Parameters

<i>eventControl- LogId</i>	uint8_t
<i>eventId</i>	uint16_t
<i>startTime</i>	uint32_t
<i>endTime</i>	uint32_t
<i>numberOf- Events</i>	uint8_t
<i>eventOffset</i>	uint16_t

Definition at line 9913 of file [client-command-macro.doc](#).

**6.5.2.453 #define emberAfFillCommandEventsClusterClearEventLogRequest( logId )**

The ClearEventLogRequest command requests that an Events server device clear the specified event log(s).

Cluster: Events, This cluster provides an interface on which applications can use event-based protocols.  
Command: ClearEventLogRequest

#### Parameters

<i>logId</i>	uint8_t
--------------	---------

Definition at line 9938 of file [client-command-macro.doc](#).

**6.5.2.454 #define emberAfFillCommandEventsClusterPublishEvent( logId, eventId, eventTime,  
eventControl, eventData )**

The PublishEvent command is generated upon an event trigger from within the reporting device and, if supported, the associated Event Configuration attribute in the Device Management cluster.

Cluster: Events, This cluster provides an interface on which applications can use event-based protocols.  
Command: PublishEvent

#### Parameters

<i>logId</i>	uint8_t
--------------	---------

<i>eventId</i>	uint16_t
<i>eventTime</i>	uint32_t
<i>eventControl</i>	uint8_t
<i>EventData</i>	uint8_t*

Definition at line 9957 of file [client-command-macro.doc](#).

**6.5.2.455 #define emberAfFillCommandEventsClusterPublishEventLog( *totalNumberOfEvents*, *commandIndex*, *totalCommands*, *logPayloadControl*, *logPayload*, *logPayloadLen* )**

This command is generated on receipt of a GetEventLog command. The command returns the most recent event first and up to the number of events requested.

Cluster: Events, This cluster provides an interface on which applications can use event-based protocols.  
Command: PublishEventLog

#### Parameters

<i>totalNumberOfEvents</i>	uint16_t
<i>commandIndex</i>	uint8_t
<i>totalCommands</i>	uint8_t
<i>logPayloadControl</i>	uint8_t
<i>logPayload</i>	uint8_t*
<i>logPayloadLen</i>	uint8_t

Definition at line 9985 of file [client-command-macro.doc](#).

**6.5.2.456 #define emberAfFillCommandEventsClusterClearEventLogResponse( *clearedEventsLogs* )**

This command is generated on receipt of a Clear Event Log Request command.

Cluster: Events, This cluster provides an interface on which applications can use event-based protocols.  
Command: ClearEventLogResponse

#### Parameters

<i>clearedEventsLogs</i>	uint8_t
--------------------------	---------

Definition at line 10010 of file [client-command-macro.doc](#).

**6.5.2.457 #define emberAfFillCommandMdusPairingClusterPairingResponse( *pairingInformationVersion*, *totalNumberOfDevices*, *commandIndex*, *totalNumberOfCommands*, *eui64s*, *eui64sLen* )**

The Pairing Response command provides a device joining a MDU network with a list of the devices that will constitute the 'virtual HAN' for the household in which the joining device is to operate.

Cluster: MDU Pairing, This cluster seeks to assist in the commissioning of networks that include multi-dwelling units (MDUs). Command: PairingResponse

**Parameters**

<i>pairing-Information-Version</i>	uint32_t
<i>totalNumberOfDevices</i>	uint8_t
<i>commandIndex</i>	uint8_t
<i>totalNumberOfCommands</i>	uint8_t
<i>eui64s</i>	uint8_t*
<i>eui64sLen</i>	uint8_t

Definition at line 10035 of file [client-command-macro.doc](#).

**6.5.2.458 #define emberAfFillCommandMduPairingClusterPairingRequest( localPairingInformationVersion, eui64OfRequestingDevice )**

The Pairing Request command allows a device joining a MDU network to determine the devices that will constitute the 'virtual HAN' for the household in which it is to operate.

Cluster: MDU Pairing, This cluster seeks to assist in the commissioning of networks that include multi-dwelling units (MDUs). Command: PairingRequest

**Parameters**

<i>localPairing-Information-Version</i>	uint32_t
<i>eui64Of-Requesting-Device</i>	uint8_t*

Definition at line 10061 of file [client-command-macro.doc](#).

**6.5.2.459 #define emberAfFillCommandKeyEstablishmentClusterInitiateKeyEstablishmentRequest( keyEstablishmentSuite, ephemeralDataGenerateTime, confirmKeyGenerateTime, identity )**

Command description for InitiateKeyEstablishmentRequest.

Cluster: Key Establishment, Key Establishment cluster Command: InitiateKeyEstablishmentRequest

**Parameters**

<i>key-Establishment-Suite</i>	uint16_t
<i>ephemeral-DataGenerate-Time</i>	uint8_t
<i>confirmKey-GenerateTime</i>	uint8_t
<i>identity</i>	uint8_t*

Definition at line 10086 of file [client-command-macro.doc](#).

```
6.5.2.460 #define emberAfFillCommandKeyEstablishmentClusterEphemeralDataRequest( ephemeralData
) 
```

Command description for EphemeralDataRequest.

Cluster: Key Establishment, Key Establishment cluster Command: EphemeralDataRequest

#### Parameters

<i>ephemeralData</i>	uint8_t*
----------------------	----------

Definition at line 10108 of file [client-command-macro.doc](#).

```
6.5.2.461 #define emberAfFillCommandKeyEstablishmentClusterConfirmKeyDataRequest(
secureMessageAuthenticationCode ) 
```

Command description for ConfirmKeyDataRequest.

Cluster: Key Establishment, Key Establishment cluster Command: ConfirmKeyDataRequest

#### Parameters

<i>secure-</i> <i>Message-</i> <i>Authenticatio-</i> <i>Code</i>	uint8_t*
---	----------

Definition at line 10124 of file [client-command-macro.doc](#).

```
6.5.2.462 #define emberAfFillCommandKeyEstablishmentClusterServerToClientTerminate-
KeyEstablishment( statusCode, waitTime, keyEstablishmentSuite
) 
```

Command description for TerminateKeyEstablishment.

Cluster: Key Establishment, Key Establishment cluster Command: TerminateKeyEstablishment

#### Parameters

<i>statusCode</i>	uint8_t
<i>waitTime</i>	uint8_t
<i>key-</i> <i>Establishment-</i> <i>Suite</i>	uint16_t

Definition at line 10141 of file [client-command-macro.doc](#).

```
6.5.2.463 #define emberAfFillCommandKeyEstablishmentClusterClientToServerTerminate-
KeyEstablishment( statusCode, waitTime, keyEstablishmentSuite
)
```

Command description for TerminateKeyEstablishment.

Cluster: Key Establishment, Key Establishment cluster Command: TerminateKeyEstablishment

#### Parameters

<i>statusCode</i>	uint8_t
<i>waitTime</i>	uint8_t
<i>key-Establishment-Suite</i>	uint16_t

Definition at line 10162 of file [client-command-macro.doc](#).

```
6.5.2.464 #define emberAfFillCommandKeyEstablishmentClusterInitiateKeyEstablishmentResponse(
requestedKeyEstablishmentSuite, ephemeralDataGenerateTime, confirmKeyGenerateTime,
identity )
```

Command description for InitiateKeyEstablishmentResponse.

Cluster: Key Establishment, Key Establishment cluster Command: InitiateKeyEstablishmentResponse

#### Parameters

<i>requestedKey-Establishment-Suite</i>	uint16_t
<i>ephemeral-DataGenerate-Time</i>	uint8_t
<i>confirmKey-GenerateTime</i>	uint8_t
<i>identity</i>	uint8_t*

Definition at line 10184 of file [client-command-macro.doc](#).

```
6.5.2.465 #define emberAfFillCommandKeyEstablishmentClusterEphemeralDataResponse(
ephemeralData )
```

Command description for EphemeralDataResponse.

Cluster: Key Establishment, Key Establishment cluster Command: EphemeralDataResponse

#### Parameters

<i>ephemeralData</i>	uint8_t*
----------------------	----------

Definition at line 10206 of file [client-command-macro.doc](#).

```
6.5.2.466 #define emberAfFillCommandKeyEstablishmentClusterConfirmKeyDataResponse(  
    secureMessageAuthenticationCode )
```

Command description for ConfirmKeyDataResponse.

Cluster: Key Establishment, Key Establishment cluster Command: ConfirmKeyDataResponse

#### Parameters

<i>secure- Message- Authentication- Code</i>	uint8_t*
--	----------

Definition at line [10222](#) of file [client-command-macro.doc](#).

```
6.5.2.467 #define emberAfFillCommandInformationClusterRequestInformation( inquiryId, dataTypeId,  
    requestInformationPayload, requestInformationPayloadLen )
```

Command description for RequestInformation.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: RequestInformation

#### Parameters

<i>inquiryId</i>	uint8_t
<i>dataTypeId</i>	uint8_t
<i>request- Information- Payload</i>	uint8_t*
<i>request- Information- PayloadLen</i>	uint8_t

Definition at line [10245](#) of file [client-command-macro.doc](#).

```
6.5.2.468 #define emberAfFillCommandInformationClusterPushInformationResponse( notificationList,  
    notificationListLen )
```

Command description for PushInformationResponse.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: PushInformationResponse

#### Parameters

<i>notificationList</i>	uint8_t*
<i>notification- ListLen</i>	uint8_t

Definition at line [10267](#) of file [client-command-macro.doc](#).

**6.5.2.469 #define emberAfFillCommandInformationClusterSendPreference( *preferenceType*, *preferencePayload*, *preferencePayloadLen* )**

Command description for SendPreference.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: SendPreference

#### Parameters

<i>preferenceType</i>	uint16_t
<i>preference- Payload</i>	uint8_t*
<i>preference- PayloadLen</i>	uint8_t

Definition at line 10286 of file [client-command-macro.doc](#).

**6.5.2.470 #define emberAfFillCommandInformationClusterRequestPreferenceResponse( *statusFeedback*, *preferenceType*, *preferencePayload*, *preferencePayloadLen* )**

Command description for RequestPreferenceResponse.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: RequestPreferenceResponse

#### Parameters

<i>statusFeedback</i>	uint8_t
<i>preferenceType</i>	uint16_t
<i>preference- Payload</i>	uint8_t*
<i>preference- PayloadLen</i>	uint8_t

Definition at line 10308 of file [client-command-macro.doc](#).

**6.5.2.471 #define emberAfFillCommandInformationClusterUpdate( *accessControl*, *option*, *contents*, *contentsLen* )**

Command description for Update.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: Update

#### Parameters

<i>accessControl</i>	uint8_t
<i>option</i>	uint8_t
<i>contents</i>	uint8_t*
<i>contentsLen</i>	uint8_t

Definition at line 10332 of file [client-command-macro.doc](#).

**6.5.2.472 #define emberAfFillCommandInformationClusterDelete( *deletionOptions*, *contentIds*, *contentIdsLen* )**

Command description for Delete.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: Delete

**Parameters**

<i>deletion- Options</i>	uint8_t
<i>contentIds</i>	uint8_t*
<i>contentIdsLen</i>	uint8_t

Definition at line 10355 of file [client-command-macro.doc](#).

**6.5.2.473 #define emberAfFillCommandInformationClusterConfigureNodeDescription( *description* )**

Command description for ConfigureNodeDescription.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: ConfigureNodeDescription

**Parameters**

<i>description</i>	uint8_t*
--------------------	----------

Definition at line 10374 of file [client-command-macro.doc](#).

**6.5.2.474 #define emberAfFillCommandInformationClusterConfigureDeliveryEnable( *enable* )**

Command description for ConfigureDeliveryEnable.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: ConfigureDeliveryEnable

**Parameters**

<i>enable</i>	uint8_t
---------------	---------

Definition at line 10389 of file [client-command-macro.doc](#).

**6.5.2.475 #define emberAfFillCommandInformationClusterConfigurePushInformationTimer( *timer* )**

Command description for ConfigurePushInformationTimer.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: ConfigurePushInformationTimer

**Parameters**

<i>timer</i>	uint32_t
--------------	----------

Definition at line 10404 of file [client-command-macro.doc](#).

#### **6.5.2.476 #define emberAfFillCommandInformationClusterConfigureSetRootId( rootId )**

Command description for ConfigureSetRootId.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: ConfigureSetRootId

##### **Parameters**

<i>rootId</i>	uint16_t
---------------	----------

Definition at line 10419 of file [client-command-macro.doc](#).

#### **6.5.2.477 #define emberAfFillCommandInformationClusterRequestInformationResponse( number, buffer, bufferLen )**

Command description for RequestInformationResponse.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: RequestInformationResponse

##### **Parameters**

<i>number</i>	uint8_t
<i>buffer</i>	uint8_t*
<i>bufferLen</i>	uint8_t

Definition at line 10436 of file [client-command-macro.doc](#).

#### **6.5.2.478 #define emberAfFillCommandInformationClusterPushInformation( contents, contentsLen )**

Command description for PushInformation.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: PushInformation

##### **Parameters**

<i>contents</i>	uint8_t*
<i>contentsLen</i>	uint8_t

Definition at line 10456 of file [client-command-macro.doc](#).

#### **6.5.2.479 #define emberAfFillCommandInformationClusterSendPreferenceResponse( statusFeedbackList, statusFeedbackListLen )**

Command description for SendPreferenceResponse.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: SendPreferenceResponse

**Parameters**

<i>status-FeedbackList</i>	uint8_t*
<i>status-FeedbackList-Len</i>	uint8_t

Definition at line 10474 of file [client-command-macro.doc](#).

**6.5.2.480 #define emberAfFillCommandInformationClusterServerRequestPreference( )**

Command description for ServerRequestPreference.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: ServerRequestPreference

Definition at line 10490 of file [client-command-macro.doc](#).

**6.5.2.481 #define emberAfFillCommandInformationClusterRequestPreferenceConfirmation( statusFeedbackList, statusFeedbackListLen )**

Command description for RequestPreferenceConfirmation.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: RequestPreferenceConfirmation

**Parameters**

<i>status-FeedbackList</i>	uint8_t*
<i>status-FeedbackList-Len</i>	uint8_t

Definition at line 10505 of file [client-command-macro.doc](#).

**6.5.2.482 #define emberAfFillCommandInformationClusterUpdateResponse( notificationList, notificationListLen )**

Command description for UpdateResponse.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: UpdateResponse

**Parameters**

<i>notificationList</i>	uint8_t*
<i>notification-ListLen</i>	uint8_t

Definition at line 10523 of file [client-command-macro.doc](#).

**6.5.2.483 #define emberAfFillCommandInformationClusterDeleteResponse( notificationList, notificationListLen )**

Command description for DeleteResponse.

Cluster: Information, Provides commands and attributes for information delivery service on ZigBee networks. Command: DeleteResponse

#### Parameters

<i>notificationList</i>	uint8_t*
<i>notificationListLen</i>	uint8_t

Definition at line 10541 of file [client-command-macro.doc](#).

**6.5.2.484 #define emberAfFillCommandDataSharingClusterReadFileRequest( fileIndex, fileStartPositionAndRequestedOctetCount, fileStartPositionAndRequestedOctetCountLen )**

Command description for ReadFileRequest.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: ReadFileRequest

#### Parameters

<i>fileIndex</i>	uint16_t
<i>fileStartPositionAndRequestedOctetCount</i>	uint8_t*
<i>fileStartPositionAndRequestedOctetCountLen</i>	uint8_t

Definition at line 10565 of file [client-command-macro.doc](#).

**6.5.2.485 #define emberAfFillCommandDataSharingClusterReadRecordRequest( fileIndex, fileStartRecordAndRequestedRecordCount, fileStartRecordAndRequestedRecordCountLen )**

Command description for ReadRecordRequest.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: ReadRecordRequest

#### Parameters

<i>fileIndex</i>	uint16_t
<i>fileStartRecordAndRequestedRecordCount</i>	uint8_t*

<i>fileStartRecord-AndRequested-RecordCount-Len</i>	uint8_t
---	---------

Definition at line 10586 of file [client-command-macro.doc](#).

**6.5.2.486 #define emberAfFillCommandDataSharingClusterWriteFileResponse( *status*, *fileIndex*, *fileIndexLen* )**

Command description for WriteFileResponse.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: WriteFileResponse

#### Parameters

<i>status</i>	uint8_t
<i>fileIndex</i>	uint8_t*
<i>fileIndexLen</i>	uint8_t

Definition at line 10607 of file [client-command-macro.doc](#).

**6.5.2.487 #define emberAfFillCommandDataSharingClusterWriteFileRequest( *writeOptions*, *fileSize*, *fileSizeLen* )**

Command description for WriteFileRequest.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: WriteFileRequest

#### Parameters

<i>writeOptions</i>	uint8_t
<i>fileSize</i>	uint8_t*
<i>fileSizeLen</i>	uint8_t

Definition at line 10628 of file [client-command-macro.doc](#).

**6.5.2.488 #define emberAfFillCommandDataSharingClusterModifyFileRequest( *fileIndex*, *fileStartPosition*, *octetCount* )**

Command description for ModifyFileRequest.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: ModifyFileRequest

#### Parameters

<i>fileIndex</i>	uint16_t
<i>fileStartPosition</i>	uint32_t
<i>octetCount</i>	uint32_t

Definition at line 10649 of file [client-command-macro.doc](#).

**6.5.2.489 #define emberAfFillCommandDataSharingClusterModifyRecordRequest( *fileIndex*,  
*fileStartRecord*, *recordCount* )**

Command description for ModifyRecordRequest.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: ModifyRecordRequest

#### Parameters

<i>fileIndex</i>	uint16_t
<i>fileStartRecord</i>	uint16_t
<i>recordCount</i>	uint16_t

Definition at line 10670 of file [client-command-macro.doc](#).

**6.5.2.490 #define emberAfFillCommandDataSharingClusterFileTransmission( *transmitOptions*, *buffer*,  
*bufferLen* )**

Command description for FileTransmission.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: FileTransmission

#### Parameters

<i>transmit- Options</i>	uint8_t
<i>buffer</i>	uint8_t*
<i>bufferLen</i>	uint8_t

Definition at line 10691 of file [client-command-macro.doc](#).

**6.5.2.491 #define emberAfFillCommandDataSharingClusterRecordTransmission( *transmitOptions*, *buffer*,  
*bufferLen* )**

Command description for RecordTransmission.

Cluster: Data Sharing, Commands and attributes for small data sharing among ZigBee devices. Command: RecordTransmission

#### Parameters

<i>transmit- Options</i>	uint8_t
<i>buffer</i>	uint8_t*
<i>bufferLen</i>	uint8_t

Definition at line 10712 of file [client-command-macro.doc](#).

**6.5.2.492 #define emberAfFillCommandGamingClusterSearchGame( *specificGame*, *gameId* )**

Command description for SearchGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: SearchGame

**Parameters**

<i>specificGame</i>	uint8_t
<i>gameId</i>	uint16_t

Definition at line 10737 of file [client-command-macro.doc](#).

**6.5.2.493 #define emberAfFillCommandGamingClusterJoinGame( *gameId*, *joinAsMaster*, *nameOfGame* )**

Command description for JoinGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: JoinGame

**Parameters**

<i>gameId</i>	uint16_t
<i>joinAsMaster</i>	uint8_t
<i>nameOfGame</i>	uint8_t*

Definition at line 10756 of file [client-command-macro.doc](#).

**6.5.2.494 #define emberAfFillCommandGamingClusterStartGame( )**

Command description for StartGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: StartGame

Definition at line 10774 of file [client-command-macro.doc](#).

**6.5.2.495 #define emberAfFillCommandGamingClusterPauseGame( )**

Command description for PauseGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: PauseGame

Definition at line 10787 of file [client-command-macro.doc](#).

**6.5.2.496 #define emberAfFillCommandGamingClusterResumeGame( )**

Command description for ResumeGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: ResumeGame

Definition at line 10800 of file [client-command-macro.doc](#).

**6.5.2.497 #define emberAfFillCommandGamingClusterQuitGame( )**

Command description for QuitGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: QuitGame

Definition at line 10813 of file [client-command-macro.doc](#).

**6.5.2.498 #define emberAfFillCommandGamingClusterEndGame( )**

Command description for EndGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: EndGame

Definition at line 10826 of file [client-command-macro.doc](#).

**6.5.2.499 #define emberAfFillCommandGamingClusterStartOver( )**

Command description for StartOver.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: StartOver

Definition at line 10839 of file [client-command-macro.doc](#).

**6.5.2.500 #define emberAfFillCommandGamingClusterActionControl( *actions* )**

Command description for ActionControl.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: ActionControl

**Parameters**

<i>actions</i>	uint32_t
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Definition at line 10853 of file [client-command-macro.doc](#).

**6.5.2.501 #define emberAfFillCommandGamingClusterDownloadGame( )**

Command description for DownloadGame.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: DownloadGame

Definition at line 10867 of file [client-command-macro.doc](#).

**6.5.2.502 #define emberAfFillCommandGamingClusterGameAnnouncement( *gameId*, *gameMaster*, *listOfGame* )**

Command description for GameAnnouncement.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: GameAnnouncement

**Parameters**

<i>gameId</i>	uint16_t
<i>gameMaster</i>	uint8_t
<i>listOfGame</i>	uint8_t*

Definition at line 10883 of file [client-command-macro.doc](#).

**6.5.2.503 #define emberAfFillCommandGamingClusterGeneralResponse( *commandId*, *status*, *message* )**

Command description for GeneralResponse.

Cluster: Gaming, Attributes and commands to support gaming functions of ZigBee-enabled mobile terminals. Command: GeneralResponse

**Parameters**

<i>commandId</i>	uint8_t
<i>status</i>	uint8_t
<i>message</i>	uint8_t*

Definition at line 10904 of file [client-command-macro.doc](#).

**6.5.2.504 #define emberAfFillCommandDataRateControlClusterPathCreation( *originatorAddress*, *destinationAddress*, *dataRate* )**

Command description for PathCreation.

Cluster: Data Rate Control, This cluster seeks to give applications a means to managing data rate. It provides commands and attributes which form this interface. Command: PathCreation

**Parameters**

<i>originator-Address</i>	uint16_t
<i>destination-Address</i>	uint16_t
<i>dataRate</i>	uint8_t

Definition at line 10930 of file [client-command-macro.doc](#).

**6.5.2.505 #define emberAfFillCommandDataRateControlClusterDataRateNotification( *originatorAddress*, *destinationAddress*, *dataRate* )**

Command description for DataRateNotification.

Cluster: Data Rate Control, This cluster seeks to give applications a means to managing data rate. It provides commands and attributes which form this interface. Command: DataRateNotification

**Parameters**

<i>originator-Address</i>	uint16_t
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<i>destination-Address</i>	uint16_t
<i>dataRate</i>	uint8_t

Definition at line 10951 of file [client-command-macro.doc](#).

**6.5.2.506 #define emberAfFillCommandDataRateControlClusterPathDeletion( *originatorAddress*, *destinationAddress* )**

Command description for PathDeletion.

Cluster: Data Rate Control, This cluster seeks to give applications a means to managing data rate. It provides commands and attributes which form this interface. Command: PathDeletion

#### Parameters

<i>originator-Address</i>	uint16_t
<i>destination-Address</i>	uint16_t

Definition at line 10971 of file [client-command-macro.doc](#).

**6.5.2.507 #define emberAfFillCommandDataRateControlClusterDataRateControl( *originatorAddress*, *destinationAddress*, *dataRate* )**

Command description for DataRateControl.

Cluster: Data Rate Control, This cluster seeks to give applications a means to managing data rate. It provides commands and attributes which form this interface. Command: DataRateControl

#### Parameters

<i>originator-Address</i>	uint16_t
<i>destination-Address</i>	uint16_t
<i>dataRate</i>	uint8_t

Definition at line 10990 of file [client-command-macro.doc](#).

**6.5.2.508 #define emberAfFillCommandVoiceOverZigbeeClusterEstablishmentRequest( *flag*, *codecType*, *sampFreq*, *codecRate*, *serviceType*, *buffer*, *bufferLen* )**

Command description for EstablishmentRequest.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol. Command: EstablishmentRequest

#### Parameters

<i>flag</i>	uint8_t
<i>codecType</i>	uint8_t
<i>sampFreq</i>	uint8_t
<i>codecRate</i>	uint8_t
<i>serviceType</i>	uint8_t
<i>buffer</i>	uint8_t*
<i>bufferLen</i>	uint8_t

Definition at line 11020 of file [client-command-macro.doc](#).

**6.5.2.509 #define emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmission( voiceData, voiceDataLen )**

Command description for VoiceTransmission.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol.  
Command: VoiceTransmission

#### Parameters

<i>voiceData</i>	uint8_t*
<i>voiceDataLen</i>	uint8_t

Definition at line 11048 of file [client-command-macro.doc](#).

**6.5.2.510 #define emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmissionCompletion( )**

Command description for VoiceTransmissionCompletion.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol.  
Command: VoiceTransmissionCompletion

Definition at line 11064 of file [client-command-macro.doc](#).

**6.5.2.511 #define emberAfFillCommandVoiceOverZigbeeClusterControlResponse( ackNack )**

Command description for ControlResponse.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol.  
Command: ControlResponse

#### Parameters

<i>ackNack</i>	uint8_t
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Definition at line 11078 of file [client-command-macro.doc](#).

**6.5.2.512 #define emberAfFillCommandVoiceOverZigbeeClusterEstablishmentResponse( ackNack, codecType )**

Command description for EstablishmentResponse.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol.  
Command: EstablishmentResponse

**Parameters**

<i>ackNack</i>	uint8_t
<i>codecType</i>	uint8_t

Definition at line 11094 of file [client-command-macro.doc](#).

**6.5.2.513 #define emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmissionResponse( sequenceNumber, errorFlag )**

Command description for VoiceTransmissionResponse.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol.  
Command: VoiceTransmissionResponse

**Parameters**

<i>sequence-Number</i>	uint8_t
<i>errorFlag</i>	uint8_t

Definition at line 11112 of file [client-command-macro.doc](#).

**6.5.2.514 #define emberAfFillCommandVoiceOverZigbeeClusterControl( controlType )**

Command description for Control.

Cluster: Voice over ZigBee, This cluster seeks to provide an interface to a voice over ZigBee protocol.  
Command: Control

**Parameters**

<i>controlType</i>	uint8_t
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Definition at line 11129 of file [client-command-macro.doc](#).

**6.5.2.515 #define emberAfFillCommandChattingClusterJoinChatRequest( uid, nickname, cid )**

Command description for JoinChatRequest.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: JoinChatRequest

**Parameters**

<i>uid</i>	uint16_t
<i>nickname</i>	uint8_t*
<i>cid</i>	uint16_t

Definition at line 11151 of file [client-command-macro.doc](#).

**6.5.2.516 #define emberAfFillCommandChattingClusterLeaveChatRequest( *cid*, *uid* )**

Command description for LeaveChatRequest.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: LeaveChatRequest

**Parameters**

<i>cid</i>	uint16_t
<i>uid</i>	uint16_t

Definition at line 11171 of file [client-command-macro.doc](#).

**6.5.2.517 #define emberAfFillCommandChattingClusterSearchChatRequest( )**

Command description for SearchChatRequest.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: SearchChatRequest

Definition at line 11187 of file [client-command-macro.doc](#).

**6.5.2.518 #define emberAfFillCommandChattingClusterSwitchChairmanResponse( *cid*, *uid* )**

Command description for SwitchChairmanResponse.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: SwitchChairmanResponse

**Parameters**

<i>cid</i>	uint16_t
<i>uid</i>	uint16_t

Definition at line 11202 of file [client-command-macro.doc](#).

**6.5.2.519 #define emberAfFillCommandChattingClusterStartChatRequest( *name*, *uid*, *nickname* )**

Command description for StartChatRequest.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: StartChatRequest

**Parameters**

<i>name</i>	uint8_t*
<i>uid</i>	uint16_t
<i>nickname</i>	uint8_t*

Definition at line 11221 of file [client-command-macro.doc](#).

**6.5.2.520 #define emberAfFillCommandChattingClusterChatMessage( destinationUid, sourceUid, cid, nickname, message )**

Command description for ChatMessage.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: ChatMessage

#### Parameters

<i>destinationUid</i>	uint16_t
<i>sourceUid</i>	uint16_t
<i>cid</i>	uint16_t
<i>nickname</i>	uint8_t*
<i>message</i>	uint8_t*

Definition at line 11244 of file [client-command-macro.doc](#).

**6.5.2.521 #define emberAfFillCommandChattingClusterGetNodeInformationRequest( cid, uid )**

Command description for GetNodeInformationRequest.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: GetNodeInformationRequest

#### Parameters

<i>cid</i>	uint16_t
<i>uid</i>	uint16_t

Definition at line 11268 of file [client-command-macro.doc](#).

**6.5.2.522 #define emberAfFillCommandChattingClusterStartChatResponse( status, cid )**

Command description for StartChatResponse.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: StartChatResponse

#### Parameters

<i>status</i>	uint8_t
<i>cid</i>	uint16_t

Definition at line 11286 of file [client-command-macro.doc](#).

**6.5.2.523 #define emberAfFillCommandChattingClusterJoinChatResponse( status, cid, chatParticipantList, chatParticipantListLen )**

Command description for JoinChatResponse.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: JoinChatResponse

**Parameters**

<i>status</i>	uint8_t
<i>cid</i>	uint16_t
<i>chat- ParticipantList</i>	uint8_t*
<i>chat- ParticipantList- Len</i>	uint8_t

Definition at line 11306 of file [client-command-macro.doc](#).

**6.5.2.524 #define emberAfFillCommandChattingClusterUserLeft( *cid, uid, nickname* )**

Command description for UserLeft.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: UserLeft

**Parameters**

<i>cid</i>	uint16_t
<i>uid</i>	uint16_t
<i>nickname</i>	uint8_t*

Definition at line 11329 of file [client-command-macro.doc](#).

**6.5.2.525 #define emberAfFillCommandChattingClusterUserJoined( *cid, uid, nickname* )**

Command description for UserJoined.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: UserJoined

**Parameters**

<i>cid</i>	uint16_t
<i>uid</i>	uint16_t
<i>nickname</i>	uint8_t*

Definition at line 11350 of file [client-command-macro.doc](#).

**6.5.2.526 #define emberAfFillCommandChattingClusterSearchChatResponse( *options, chatRoomList,  
chatRoomListLen* )**

Command description for SearchChatResponse.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: SearchChatResponse

**Parameters**

<i>options</i>	uint8_t
<i>chatRoomList</i>	uint8_t*

<i>chatRoomList-</i>	uint8_t
<i>Len</i>	

Definition at line 11371 of file [client-command-macro.doc](#).

#### 6.5.2.527 #define emberAfFillCommandChattingClusterSwitchChairmanRequest( *cid* )

Command description for SwitchChairmanRequest.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: SwitchChairmanRequest

##### Parameters

<i>cid</i>	uint16_t
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Definition at line 11390 of file [client-command-macro.doc](#).

#### 6.5.2.528 #define emberAfFillCommandChattingClusterSwitchChairmanConfirm( *cid*, *nodeInformationList*, *nodeInformationListLen* )

Command description for SwitchChairmanConfirm.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: SwitchChairmanConfirm

##### Parameters

<i>cid</i>	uint16_t
<i>node-InformationList</i>	uint8_t*
<i>node-Information-ListLen</i>	uint8_t

Definition at line 11407 of file [client-command-macro.doc](#).

#### 6.5.2.529 #define emberAfFillCommandChattingClusterSwitchChairmanNotification( *cid*, *uid*, *address*, *endpoint* )

Command description for SwitchChairmanNotification.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: SwitchChairmanNotification

##### Parameters

<i>cid</i>	uint16_t
<i>uid</i>	uint16_t
<i>address</i>	uint16_t
<i>endpoint</i>	uint8_t

Definition at line 11429 of file [client-command-macro.doc](#).

**6.5.2.530 #define emberAfFillCommandChattingClusterGetNodeInformationResponse( status, cid, uid, addressEndpointAndNickname, addressEndpointAndNicknameLen )**

Command description for GetNodeInformationResponse.

Cluster: Chatting, Commands and attributes for sending chat messages among ZigBee devices. Command: GetNodeInformationResponse

#### Parameters

<i>status</i>	uint8_t
<i>cid</i>	uint16_t
<i>uid</i>	uint16_t
<i>address-EndpointAnd-Nickname</i>	uint8_t*
<i>address-EndpointAnd-NicknameLen</i>	uint8_t

Definition at line 11454 of file [client-command-macro.doc](#).

**6.5.2.531 #define emberAfFillCommandPaymentClusterBuyRequest( userId, userType, serviceId, goodId )**

Command description for BuyRequest.

Cluster: Payment, Commands and attributes for payment scenarios including ZigBee devices. Command: BuyRequest

#### Parameters

<i>userId</i>	uint8_t*
<i>userType</i>	uint16_t
<i>serviceId</i>	uint16_t
<i>goodId</i>	uint8_t*

Definition at line 11485 of file [client-command-macro.doc](#).

**6.5.2.532 #define emberAfFillCommandPaymentClusterAcceptPayment( userId, userType, serviceId, goodId )**

Command description for AcceptPayment.

Cluster: Payment, Commands and attributes for payment scenarios including ZigBee devices. Command: AcceptPayment

#### Parameters

<i>userId</i>	uint8_t*
<i>userType</i>	uint16_t
<i>serviceId</i>	uint16_t

<i>goodId</i>	uint8_t*
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Definition at line 11509 of file [client-command-macro.doc](#).

**6.5.2.533 #define emberAfFillCommandPaymentClusterPaymentConfirm( *serialNumber*, *transId*, *transStatus* )**

Command description for PaymentConfirm.

Cluster: Payment, Commands and attributes for payment scenarios including ZigBee devices. Command: PaymentConfirm

#### Parameters

<i>serialNumber</i>	uint8_t*
<i>transId</i>	uint16_t
<i>transStatus</i>	uint8_t

Definition at line 11532 of file [client-command-macro.doc](#).

**6.5.2.534 #define emberAfFillCommandPaymentClusterBuyConfirm( *serialNumber*, *currency*, *priceTrailingDigit*, *price*, *timestamp*, *transId*, *transStatus* )**

Command description for BuyConfirm.

Cluster: Payment, Commands and attributes for payment scenarios including ZigBee devices. Command: BuyConfirm

#### Parameters

<i>serialNumber</i>	uint8_t*
<i>currency</i>	uint32_t
<i>priceTrailing-Digit</i>	uint8_t
<i>price</i>	uint32_t
<i>timestamp</i>	uint8_t*
<i>transId</i>	uint16_t
<i>transStatus</i>	uint8_t

Definition at line 11557 of file [client-command-macro.doc](#).

**6.5.2.535 #define emberAfFillCommandPaymentClusterReceiptDelivery( *serialNumber*, *currency*, *priceTrailingDigit*, *price*, *timestamp* )**

Command description for ReceiptDelivery.

Cluster: Payment, Commands and attributes for payment scenarios including ZigBee devices. Command: ReceiptDelivery

**Parameters**

<i>serialNumber</i>	uint8_t*
<i>currency</i>	uint32_t
<i>priceTrailing-Digit</i>	uint8_t
<i>price</i>	uint32_t
<i>timestamp</i>	uint8_t*

Definition at line 11588 of file [client-command-macro.doc](#).

**6.5.2.536 #define emberAfFillCommandPaymentClusterTransactionEnd( serialNumber, status )**

Command description for TransactionEnd.

Cluster: Payment, Commands and attributes for payment scenarios including ZigBee devices. Command: TransactionEnd

**Parameters**

<i>serialNumber</i>	uint8_t*
<i>status</i>	uint8_t

Definition at line 11612 of file [client-command-macro.doc](#).

**6.5.2.537 #define emberAfFillCommandBillingClusterSubscribe( userId, serviceId, serviceProviderId )**

Command description for Subscribe.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: Subscribe

**Parameters**

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service-ProviderId</i>	uint16_t

Definition at line 11636 of file [client-command-macro.doc](#).

**6.5.2.538 #define emberAfFillCommandBillingClusterUnsubscribe( userId, serviceId, serviceProviderId )**

Command description for Unsubscribe.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: Unsubscribe

**Parameters**

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service-ProviderId</i>	uint16_t

Definition at line 11657 of file [client-command-macro.doc](#).

**6.5.2.539 #define emberAfFillCommandBillingClusterStartBillingSession( *userId*, *serviceId*, *serviceProviderId* )**

Command description for StartBillingSession.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: StartBillingSession

#### Parameters

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service- ProviderId</i>	uint16_t

Definition at line 11678 of file [client-command-macro.doc](#).

**6.5.2.540 #define emberAfFillCommandBillingClusterStopBillingSession( *userId*, *serviceId*, *serviceProviderId* )**

Command description for StopBillingSession.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: StopBillingSession

#### Parameters

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service- ProviderId</i>	uint16_t

Definition at line 11699 of file [client-command-macro.doc](#).

**6.5.2.541 #define emberAfFillCommandBillingClusterBillStatusNotification( *userId*, *status* )**

Command description for BillStatusNotification.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: BillStatusNotification

#### Parameters

<i>userId</i>	uint8_t*
<i>status</i>	uint8_t

Definition at line 11719 of file [client-command-macro.doc](#).

**6.5.2.542 #define emberAfFillCommandBillingClusterSessionKeepAlive( *userId*, *serviceId*, *serviceProviderId* )**

Command description for SessionKeepAlive.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: SessionKeepAlive

#### Parameters

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service- ProviderId</i>	uint16_t

Definition at line 11738 of file [client-command-macro.doc](#).

**6.5.2.543 #define emberAfFillCommandBillingClusterCheckBillStatus( *userId*, *serviceId*, *serviceProviderId* )**

Command description for CheckBillStatus.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: CheckBillStatus

#### Parameters

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service- ProviderId</i>	uint16_t

Definition at line 11759 of file [client-command-macro.doc](#).

**6.5.2.544 #define emberAfFillCommandBillingClusterSendBillRecord( *userId*, *serviceId*, *serviceProviderId*, *timestamp*, *duration* )**

Command description for SendBillRecord.

Cluster: Billing, Attributes and commands to enable billing of users for provided services through the use of a billing platform. Command: SendBillRecord

#### Parameters

<i>userId</i>	uint8_t*
<i>serviceId</i>	uint16_t
<i>service- ProviderId</i>	uint16_t
<i>timestamp</i>	uint8_t*
<i>duration</i>	uint16_t

Definition at line 11782 of file [client-command-macro.doc](#).

### **6.5.2.545 #define emberAfFillCommandApplianceEventsAndAlertClusterGetAlerts( )**

This basic message is used to retrieve Household Appliance current alerts.

Cluster: Appliance Events and Alert, Attributes and commands for transmitting or notifying the occurrence of an event, such as "temperature reached" and of an alert such as alarm, fault or warning. Command: Get-Alerts

Definition at line 11819 of file [client-command-macro.doc](#).

### **6.5.2.546 #define emberAfFillCommandApplianceEventsAndAlertClusterGetAlertsResponse( alertsCount, alertStructures, alertStructuresLen )**

This message is used to return household appliance current alerts.

Cluster: Appliance Events and Alert, Attributes and commands for transmitting or notifying the occurrence of an event, such as "temperature reached" and of an alert such as alarm, fault or warning. Command: Get-AlertsResponse

#### **Parameters**

<i>alertsCount</i>	uint8_t
<i>alertStructures</i>	uint8_t*
<i>alertStructures-</i> <i>Len</i>	uint8_t

Definition at line 11835 of file [client-command-macro.doc](#).

### **6.5.2.547 #define emberAfFillCommandApplianceEventsAndAlertClusterAlertsNotification( alertsCount, alertStructures, alertStructuresLen )**

This message is used to notify the current modification of warning and/or fault conditions.

Cluster: Appliance Events and Alert, Attributes and commands for transmitting or notifying the occurrence of an event, such as "temperature reached" and of an alert such as alarm, fault or warning. Command: AlertsNotification

#### **Parameters**

<i>alertsCount</i>	uint8_t
<i>alertStructures</i>	uint8_t*
<i>alertStructures-</i> <i>Len</i>	uint8_t

Definition at line 11856 of file [client-command-macro.doc](#).

### **6.5.2.548 #define emberAfFillCommandApplianceEventsAndAlertClusterEventsNotification( eventHeader, eventId )**

This message is used to notify an event occurred during the normal working of the appliance.

Cluster: Appliance Events and Alert, Attributes and commands for transmitting or notifying the occurrence of an event, such as "temperature reached" and of an alert such as alarm, fault or warning. Command: EventsNotification

**Parameters**

<i>eventHeader</i>	uint8_t
<i>eventId</i>	uint8_t

Definition at line 11876 of file [client-command-macro.doc](#).

**6.5.2.549 #define emberAfFillCommandApplianceStatisticsClusterLogNotification( *timeStamp*, *logId*, *logLength*, *logPayload*, *logPayloadLen* )**

The Appliance Statistics Cluster server occasionally sends out a Log Notification command to the devices to which it needs to log information related to statistics (e.g., home gateways) which implement the client side of Appliance Statistics Cluster.

Cluster: Appliance Statistics, This cluster provides a mechanism for the transmitting appliance statistics to a collection unit (gateway). The statistics can be in format of data logs. In case of statistic information that will not fit the single ZigBee payload, the Partition cluster should be used. Command: LogNotification

**Parameters**

<i>timeStamp</i>	uint32_t
<i>logId</i>	uint32_t
<i>logLength</i>	uint32_t
<i>logPayload</i>	uint8_t*
<i>logPayloadLen</i>	uint8_t

Definition at line 11902 of file [client-command-macro.doc](#).

**6.5.2.550 #define emberAfFillCommandApplianceStatisticsClusterLogResponse( *timeStamp*, *logId*, *logLength*, *logPayload*, *logPayloadLen* )**

The Appliance Statistics Cluster server sends out a Log Response command to respond to a Log Request command generated by the client side of the Appliance Statistics cluster.

Cluster: Appliance Statistics, This cluster provides a mechanism for the transmitting appliance statistics to a collection unit (gateway). The statistics can be in format of data logs. In case of statistic information that will not fit the single ZigBee payload, the Partition cluster should be used. Command: LogResponse

**Parameters**

<i>timeStamp</i>	uint32_t
<i>logId</i>	uint32_t
<i>logLength</i>	uint32_t
<i>logPayload</i>	uint8_t*
<i>logPayloadLen</i>	uint8_t

Definition at line 11929 of file [client-command-macro.doc](#).

**6.5.2.551 #define emberAfFillCommandApplianceStatisticsClusterLogQueueResponse( *logQueueSize*,  
*logIds*, *logIdsLen* )**

The Log Queue Response command is generated as a response to a LogQueueRequest command in order to notify the client side of the Appliance statistics cluster about the logs stored in the server side (queue) that can be retrieved by the client side of this cluster through a LogRequest command.

Cluster: Appliance Statistics, This cluster provides a mechanism for the transmitting appliance statistics to a collection unit (gateway). The statistics can be in format of data logs. In case of statistic information that will not fit the single ZigBee payload, the Partition cluster should be used. Command: LogQueueResponse

#### Parameters

<i>logQueueSize</i>	uint8_t
<i>logIds</i>	uint8_t*
<i>logIdsLen</i>	uint8_t

Definition at line 11954 of file [client-command-macro.doc](#).

**6.5.2.552 #define emberAfFillCommandApplianceStatisticsClusterStatisticsAvailable( *logQueueSize*,  
*logIds*, *logIdsLen* )**

The Appliance Statistics Cluster server sends out a Statistic Available command to notify the client side of the Appliance Statistics cluster that there are statistics that can be retrieved by using the Log Request command.

Cluster: Appliance Statistics, This cluster provides a mechanism for the transmitting appliance statistics to a collection unit (gateway). The statistics can be in format of data logs. In case of statistic information that will not fit the single ZigBee payload, the Partition cluster should be used. Command: StatisticsAvailable

#### Parameters

<i>logQueueSize</i>	uint8_t
<i>logIds</i>	uint8_t*
<i>logIdsLen</i>	uint8_t

Definition at line 11975 of file [client-command-macro.doc](#).

**6.5.2.553 #define emberAfFillCommandApplianceStatisticsClusterLogRequest( *logId* )**

The Log request command is sent from a device supporting the client side of the Appliance Statistics cluster (e.g., Home Gateway) to retrieve the log from the device supporting the server side (e.g., appliance).

Cluster: Appliance Statistics, This cluster provides a mechanism for the transmitting appliance statistics to a collection unit (gateway). The statistics can be in format of data logs. In case of statistic information that will not fit the single ZigBee payload, the Partition cluster should be used. Command: LogRequest

#### Parameters

<i>logId</i>	uint32_t
--------------	----------

Definition at line 11994 of file [client-command-macro.doc](#).

### **6.5.2.554 #define emberAfFillCommandApplianceStatisticsClusterLogQueueRequest( )**

The Log Queue Request command is send from a device supporting the client side of the Appliance Statistics cluster (e.g. Home Gateway) to retrieve the information about the logs inserted in the queue, from the device supporting the server side (e.g. appliance).

Cluster: Appliance Statistics, This cluster provides a mechanism for the transmitting appliance statistics to a collection unit (gateway). The statistics can be in format of data logs. In case of statistic information that will not fit the single ZigBee payload, the Partition cluster should be used. Command: LogQueueRequest Definition at line [12008](#) of file [client-command-macro.doc](#).

### **6.5.2.555 #define emberAfFillCommandElectricalMeasurementClusterGetProfileInfoResponseCommand( profileCount, profileIntervalPeriod, maxNumberOfIntervals, listOfAttributes, listOfAttributesLen )**

A function which returns the power profiling information requested in the GetProfileInfo command. The power profiling information consists of a list of attributes which are profiled along with the period used to profile them.

Cluster: Electrical Measurement, Attributes related to the electrical properties of a device. This cluster is used by power outlets and other devices that need to provide instantaneous data as opposed to metrology data which should be retrieved from the metering cluster.. Command: GetProfileInfoResponseCommand

#### **Parameters**

<i>profileCount</i>	uint8_t
<i>profileInterval- Period</i>	uint8_t
<i>maxNumberOf- Intervals</i>	uint8_t
<i>listOfAttributes</i>	uint8_t*
<i>listOf- AttributesLen</i>	uint8_t

Definition at line [12031](#) of file [client-command-macro.doc](#).

### **6.5.2.556 #define emberAfFillCommandElectricalMeasurementClusterGetMeasurementProfileResponse- Command( startTime, status, profileIntervalPeriod, numberOfIntervalsDelivered, attributeld, intervals, intervalsLen )**

A function which returns the electricity measurement profile. The electricity measurement profile includes information regarding the amount of time used to capture data related to the flow of electricity as well as the intervals thes.

Cluster: Electrical Measurement, Attributes related to the electrical properties of a device. This cluster is used by power outlets and other devices that need to provide instantaneous data as opposed to metrology data which should be retrieved from the metering cluster.. Command: GetMeasurementProfileResponse-Command

#### **Parameters**

<i>startTime</i>	uint32_t
<i>status</i>	uint8_t

<i>profileInterval-Period</i>	uint8_t
<i>numberOfIntervals-Delivered</i>	uint8_t
<i>attributeId</i>	uint16_t
<i>intervals</i>	uint8_t*
<i>intervalsLen</i>	uint8_t

Definition at line 12060 of file [client-command-macro.doc](#).

#### 6.5.2.557 #define emberAfFillCommandElectricalMeasurementClusterGetProfileInfoCommand( )

A function which retrieves the power profiling information from the electrical measurement server.

Cluster: Electrical Measurement, Attributes related to the electrical properties of a device. This cluster is used by power outlets and other devices that need to provide instantaneous data as opposed to metrology data which should be retrieved from the metering cluster.. Command: GetProfileInfoCommand

Definition at line 12086 of file [client-command-macro.doc](#).

#### 6.5.2.558 #define emberAfFillCommandElectricalMeasurementClusterGetMeasurementProfileCommand(     *attributId, startTime, numberOfIntervals* )

A function which retrieves an electricity measurement profile from the electricity measurement server for a specific attribute Id requested.

Cluster: Electrical Measurement, Attributes related to the electrical properties of a device. This cluster is used by power outlets and other devices that need to provide instantaneous data as opposed to metrology data which should be retrieved from the metering cluster.. Command: GetMeasurementProfileCommand

##### Parameters

<i>attributId</i>	uint16_t
<i>startTime</i>	uint32_t
<i>numberOfIntervals</i>	uint8_t

Definition at line 12102 of file [client-command-macro.doc](#).

#### 6.5.2.559 #define emberAfFillCommandZLLCommissioningClusterScanRequest(     *transaction, zigbeeInformation, zllInformation* )

Command description for ScanRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: ScanRequest

##### Parameters

<i>transaction</i>	uint32_t
<i>zigbee-Information</i>	uint8_t

<i>zllInformation</i>	uint8_t
-----------------------	---------

Definition at line 12133 of file [client-command-macro.doc](#).

**6.5.2.560 #define emberAfFillCommandZllCommissioningClusterDeviceInformationRequest( *transaction*, *startIndex* )**

Command description for DeviceInformationRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: DeviceInformationRequest

#### Parameters

<i>transaction</i>	uint32_t
<i>startIndex</i>	uint8_t

Definition at line 12153 of file [client-command-macro.doc](#).

**6.5.2.561 #define emberAfFillCommandZllCommissioningClusterIdentifyRequest( *transaction*, *identifyDuration* )**

Command description for IdentifyRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: IdentifyRequest

#### Parameters

<i>transaction</i>	uint32_t
<i>identify-Duration</i>	uint16_t

Definition at line 12171 of file [client-command-macro.doc](#).

**6.5.2.562 #define emberAfFillCommandZllCommissioningClusterResetToFactoryNewRequest( *transaction* )**

Command description for ResetToFactoryNewRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: ResetToFactoryNewRequest

#### Parameters

<i>transaction</i>	uint32_t
--------------------	----------

Definition at line 12188 of file [client-command-macro.doc](#).

```
6.5.2.563 #define emberAfFillCommandZllCommissioningClusterNetworkStartRequest( transaction,
extendedPanId, keyIndex, encryptedNetworkKey, logicalChannel, panId, networkAddress,
groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin,
freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd,
initiatorIeeeAddress, initiatorNetworkAddress )
```

Command description for NetworkStartRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkStartRequest

#### Parameters

<i>transaction</i>	uint32_t
<i>extendedPanId</i>	uint8_t*
<i>keyIndex</i>	uint8_t
<i>encrypted-</i> <i>NetworkKey</i>	uint8_t*
<i>logicalChannel</i>	uint8_t
<i>panId</i>	uint16_t
<i>network-</i> <i>Address</i>	uint16_t
<i>group-</i> <i>IdentifiersBegin</i>	uint16_t
<i>group-</i> <i>IdentifiersEnd</i>	uint16_t
<i>freeNetwork-</i> <i>AddressRange-</i> <i>Begin</i>	uint16_t
<i>freeNetwork-</i> <i>AddressRange-</i> <i>End</i>	uint16_t
<i>freeGroup-</i> <i>Identifier-</i> <i>RangeBegin</i>	uint16_t
<i>freeGroup-</i> <i>Identifier-</i> <i>RangeEnd</i>	uint16_t
<i>initiatorIeee-</i> <i>Address</i>	uint8_t*
<i>initiator-</i> <i>Network-</i> <i>Address</i>	uint16_t

Definition at line 12217 of file [client-command-macro.doc](#).

```
6.5.2.564 #define emberAfFillCommandZllCommissioningClusterNetworkJoinRouterRequest( transaction,
extendedPanId, keyIndex, encryptedNetworkKey, networkUpdateId, logicalChannel,
panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetwork-
AddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin,
freeGroupIdentifierRangeEnd )
```

Command description for NetworkJoinRouterRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkJoinRouterRequest

#### Parameters

<i>transaction</i>	uint32_t
<i>extendedPanId</i>	uint8_t*
<i>keyIndex</i>	uint8_t
<i>encrypted- NetworkKey</i>	uint8_t*
<i>network- UpdateId</i>	uint8_t
<i>logicalChannel</i>	uint8_t
<i>panId</i>	uint16_t
<i>network- Address</i>	uint16_t
<i>group- IdentifiersBegin</i>	uint16_t
<i>group- IdentifiersEnd</i>	uint16_t
<i>freeNetwork- AddressRange- Begin</i>	uint16_t
<i>freeNetwork- AddressRange- End</i>	uint16_t
<i>freeGroup- Identifier- RangeBegin</i>	uint16_t
<i>freeGroup- Identifier- RangeEnd</i>	uint16_t

Definition at line 12273 of file [client-command-macro.doc](#).

```
6.5.2.565 #define emberAfFillCommandZllCommissioningClusterNetworkJoinEndDeviceRequest(  
    transaction, extendedPanId, keyIndex, encryptedNetworkKey, networkUpdateId,  
    logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, free-  
    NetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin,  
    freeGroupIdentifierRangeEnd )
```

Command description for NetworkJoinEndDeviceRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkJoinEndDeviceRequest

#### Parameters

<i>transaction</i>	uint32_t
<i>extendedPanId</i>	uint8_t*
<i>keyIndex</i>	uint8_t
<i>encrypted- NetworkKey</i>	uint8_t*

<i>network-UpdateId</i>	uint8_t
<i>logicalChannel</i>	uint8_t
<i>panId</i>	uint16_t
<i>network-Address</i>	uint16_t
<i>group-IdentifiersBegin</i>	uint16_t
<i>group-IdentifiersEnd</i>	uint16_t
<i>freeNetwork-AddressRange-Begin</i>	uint16_t
<i>freeNetwork-AddressRange-End</i>	uint16_t
<i>freeGroup-Identifier-RangeBegin</i>	uint16_t
<i>freeGroup-Identifier-RangeEnd</i>	uint16_t

Definition at line 12327 of file [client-command-macro.doc](#).

**6.5.2.566 #define emberAfFillCommandZllCommissioningClusterNetworkUpdateRequest( *transaction*, *extendedPanId*, *networkUpdateId*, *logicalChannel*, *panId*, *networkAddress* )**

Command description for NetworkUpdateRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkUpdateRequest

#### Parameters

<i>transaction</i>	uint32_t
<i>extendedPanId</i>	uint8_t*
<i>network-UpdateId</i>	uint8_t
<i>logicalChannel</i>	uint8_t
<i>panId</i>	uint16_t
<i>network-Address</i>	uint16_t

Definition at line 12373 of file [client-command-macro.doc](#).

**6.5.2.567 #define emberAfFillCommandZllCommissioningClusterGetGroupIdentifiersRequest( *startIndex* )**

Command description for GetGroupIdentifiersRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: GetGroupIdentifiersRequest

**Parameters**

<i>startIndex</i>	uint8_t
-------------------	---------

Definition at line 12398 of file [client-command-macro.doc](#).

**6.5.2.568 #define emberAfFillCommandZllCommissioningClusterGetEndpointListRequest( startIndex )**

Command description for GetEndpointListRequest.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: GetEndpointListRequest

**Parameters**

<i>startIndex</i>	uint8_t
-------------------	---------

Definition at line 12413 of file [client-command-macro.doc](#).

**6.5.2.569 #define emberAfFillCommandZllCommissioningClusterScanResponse( transaction,  
                  rssiCorrection, zigbeeInformation, zllInformation, keyBitmask, responseId, extendedPanId,  
                  networkUpdateId, logicalChannel, panId, networkAddress, numberofSubDevices,  
                  totalGroupIds, endpointId, profileId, deviceId, version, groupIdCount )**

Command description for ScanResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: ScanResponse

**Parameters**

<i>transaction</i>	uint32_t
<i>rssiCorrection</i>	uint8_t
<i>zigbee- Information</i>	uint8_t
<i>zllInformation</i>	uint8_t
<i>keyBitmask</i>	uint16_t
<i>responseId</i>	uint32_t
<i>extendedPanId</i>	uint8_t*
<i>network- UpdateId</i>	uint8_t
<i>logicalChannel</i>	uint8_t
<i>panId</i>	uint16_t
<i>network- Address</i>	uint16_t
<i>numberofSub- Devices</i>	uint8_t
<i>totalGroupIds</i>	uint8_t
<i>endpointId</i>	uint8_t
<i>profileId</i>	uint16_t
<i>deviceId</i>	uint16_t
<i>version</i>	uint8_t
<i>groupIdCount</i>	uint8_t

Definition at line 12445 of file [client-command-macro.doc](#).

**6.5.2.570 #define emberAfFillCommandZllCommissioningClusterDeviceInformationResponse( transaction, numberOfSubDevices, startIndex, deviceInformationRecordCount, deviceInformationRecordList, deviceInformationRecordListLen )**

Command description for DeviceInformationResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: DeviceInformationResponse

#### Parameters

<i>transaction</i>	uint32_t
<i>numberOfSubDevices</i>	uint8_t
<i>startIndex</i>	uint8_t
<i>deviceInformationRecordCount</i>	uint8_t
<i>deviceInformationRecordList</i>	uint8_t*
<i>deviceInformationRecordListLen</i>	uint8_t

Definition at line 12499 of file [client-command-macro.doc](#).

**6.5.2.571 #define emberAfFillCommandZllCommissioningClusterNetworkStartResponse( transaction, status, extendedPanId, networkUpdateId, logicalChannel, panId )**

Command description for NetworkStartResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkStartResponse

#### Parameters

<i>transaction</i>	uint32_t
<i>status</i>	uint8_t
<i>extendedPanId</i>	uint8_t*
<i>networkUpdateId</i>	uint8_t
<i>logicalChannel</i>	uint8_t
<i>panId</i>	uint16_t

Definition at line 12529 of file [client-command-macro.doc](#).

**6.5.2.572 #define emberAfFillCommandZllCommissioningClusterNetworkJoinRouterResponse( transaction, status )**

Command description for NetworkJoinRouterResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkJoinRouterResponse

#### Parameters

<i>transaction</i>	uint32_t
<i>status</i>	uint8_t

Definition at line 12555 of file [client-command-macro.doc](#).

**6.5.2.573 #define emberAfFillCommandZllCommissioningClusterNetworkJoinEndDeviceResponse( transaction, status )**

Command description for NetworkJoinEndDeviceResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: NetworkJoinEndDeviceResponse

#### Parameters

<i>transaction</i>	uint32_t
<i>status</i>	uint8_t

Definition at line 12573 of file [client-command-macro.doc](#).

**6.5.2.574 #define emberAfFillCommandZllCommissioningClusterEndpointInformation( ieeeAddress, networkAddress, endpointId, profileId, deviceId, version )**

Command description for EndpointInformation.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: EndpointInformation

#### Parameters

<i>ieeeAddress</i>	uint8_t*
<i>network-Address</i>	uint16_t
<i>endpointId</i>	uint8_t
<i>profileId</i>	uint16_t
<i>deviceId</i>	uint16_t
<i>version</i>	uint8_t

Definition at line 12595 of file [client-command-macro.doc](#).

**6.5.2.575 #define emberAfFillCommandZllCommissioningClusterGetGroupIdentifiersResponse( total, startIndex, count, groupInformationRecordList, groupInformationRecordListLen )**

Command description for GetGroupIdentifiersResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: GetGroupIdentifiersResponse

**Parameters**

<i>total</i>	uint8_t
<i>startIndex</i>	uint8_t
<i>count</i>	uint8_t
<i>group-Information-RecordList</i>	uint8_t*
<i>group-Information-RecordListLen</i>	uint8_t

Definition at line 12624 of file [client-command-macro.doc](#).

**6.5.2.576 #define emberAfFillCommandZllCommissioningClusterGetEndpointListResponse( *total*, *startIndex*, *count*, *endpointInformationRecordList*, *endpointInformationRecordListLen* )**

Command description for GetEndpointListResponse.

Cluster: ZLL Commissioning, The ZLL commissioning cluster provides commands to support touch link commissioning. Command: GetEndpointListResponse

**Parameters**

<i>total</i>	uint8_t
<i>startIndex</i>	uint8_t
<i>count</i>	uint8_t
<i>endpoint-Information-RecordList</i>	uint8_t*
<i>endpoint-Information-RecordListLen</i>	uint8_t

Definition at line 12651 of file [client-command-macro.doc](#).

**6.5.2.577 #define emberAfFillCommandSampleMfgSpecificClusterCommandOne( *argOne* )**

A sample manufacturer specific command within the sample manufacturer specific cluster.

Cluster: Sample Mfg Specific Cluster, This cluster provides an example of how the Application Framework can be extended to include manufacturer specific clusters. Command: CommandOne

**Parameters**

<i>argOne</i>	uint8_t
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Definition at line 12681 of file [client-command-macro.doc](#).

## 6.6 Application Framework V2 Enums Reference

### Enums

- enum EmberAf11073ConnectRequestConnectControl { EMBER\_ZCL\_11073\_CONNECT\_REQUEST\_CONNECT\_CONTROL\_PREEMPTIBLE }
- enum EmberAf11073TunnelConnectionStatus {
 EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_DISCONNECTED, EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_CONNECTED, EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_NOT\_AUTHORIZED, EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_RECONNECT\_REQUEST,
 EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_ALREADY\_CONNECTED
 }
- enum EmberAfAlertCountType { EMBER\_ZCL\_ALERT\_COUNT\_TYPE\_UNSTRUCTURED }
- enum EmberAfAlertStructureCategory { EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_WARNING, EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_DANGER, EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_FAILURE }
- enum EmberAfAlertStructurePresenceRecovery { EMBER\_ZCL\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_RECOVERY, EMBER\_ZCL\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_PRESENCE }
- enum EmberAfAlternateCostUnit { EMBER\_ZCL\_ALTERNATE\_COST\_UNIT\_KG\_OF\_CO2\_PER\_UNIT\_OF\_MEASURE }
- enum EmberAfAmiCriticalityLevel {
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_RESERVED, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_GREEN, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_1, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_2,
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_3, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_4, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_5, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_EMERGENCY,
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_PLANNED\_OUTAGE, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_SERVICE\_DISCONNECT, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED1, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED2,
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED3, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED4, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED5, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED6
 }
- enum EmberAfAmiEventStatus {
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_LOAD\_CONTROL\_EVENT\_COMMAND\_RX, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_STARTED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_COMPLETED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_USER\_HAS\_CHOOSE\_TO\_OPT\_OUT,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_USER\_HAS\_CHOOSE\_TO\_OPT\_IN, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_THE\_EVENT\_HAS\_BEEN\_CANCELED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_THE\_EVENT\_HAS\_BEEN\_SUPERSEDED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_PARTIALLY\_COMPLETED\_WITH\_USER\_OPT\_OUT,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_PARTIALLY\_COMPLETED\_DUE\_TO\_USER\_OPT\_IN, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_COMPLETED\_NO\_USER\_PARTICIPATION\_PREVIOUS\_OPT\_OUT, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_INVALID\_OPT\_OUT, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_NOT\_FOUND,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_INVALID\_CANCEL\_COMMAND, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_INVALID\_CANCEL\_COMMAND\_INVALID\_EFFECTIVE\_TIME, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_EVENT\_EXPIRED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_INVALID\_CANCEL\_UNDEFINED\_EVENT,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_LOAD\_CONTROL\_EVENT\_COMMAND\_REJECTED
 }

- enum `EmberAfAmiGetProfileStatus` {
   
`EMBER_ZCL_AMI_GET_PROFILE_STATUS_SUCCESS, EMBER_ZCL_AMI_GET_PROFILE_STATUS_UNDEFINED_INTERVAL_CHANNEL_REQUESTED, EMBER_ZCL_AMI_GET_PROFILE_STATUS_INTERVAL_CHANNEL_NOT_SUPPORTED, EMBER_ZCL_AMI_GET_PROFILE_STATUS_INVALID_END_TIME,`
  
`EMBER_ZCL_AMI_GET_PROFILE_STATUS_MORE_PERIODS_REQUESTED_THAN_CAN_BE_RETURNED, EMBER_ZCL_AMI_GET_PROFILE_STATUS_NO_INTERVALS_AVAILABLE_FOR_THE_REQUESTED_TIME }`
- enum `EmberAfAmiIntervalChannel` { `EMBER_ZCL_AMI_INTERVAL_CHANNEL_CONSUMPTION_DELIVERED, EMBER_ZCL_AMI_INTERVAL_CHANNEL_CONSUMPTION RECEIVED` }
- enum `EmberAfAmiIntervalPeriod` {
   
`EMBER_ZCL_AMI_INTERVAL_PERIOD_DAILY, EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES60, EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES30, EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES15,`
  
`EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES10, EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES7P5, EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES5, EMBER_ZCL_AMI_INTERVAL_PERIOD_MINUTES2P5 }`
- enum `EmberAfAmiKeyEstablishmentStatus` {
   
`EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_SUCCESS, EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_UNKNOWN_ISSUER, EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_BAD_KEY_CONFIRM, EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_BAD_MESSAGE,`
  
`EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_NO_RESOURCES, EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_UNSUPPORTED_SUITE, EMBER_ZCL_AMI_KEY_ESTABLISHMENT_STATUS_INVALID_KEY_USAGE }`
- enum `EmberAfAmiRegistrationState` {
   
`EMBER_ZCL_AMI_REGISTRATION_STATE_UNREGISTERED, EMBER_ZCL_AMI_REGISTRATION_STATE_JOINING_NETWORK, EMBER_ZCL_AMI_REGISTRATION_STATE_JOINED_NETWORK, EMBER_ZCL_AMI_REGISTRATION_STATE_SUBMITTED_REGISTRATION_REQUEST,`
  
`EMBER_ZCL_AMI_REGISTRATION_STATE_REGISTRATION_REJECTED, EMBER_ZCL_AMI_REGISTRATION_STATE_REGISTERED, EMBER_ZCL_AMI_REGISTRATION_STATE_REGISTRATION_NOT_POSSIBLE }`

- enum EmberAfAmiUnitOfMeasure {
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KILO\_WATT\_HOURS, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_METER\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_FEET\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CENTUM\_CUBIC\_FEET\_PER\_HOUR,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_US\_GALLONS\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_IMPERIAL\_GALLONS\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_BT\_US\_OR\_BTU\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_LITERS\_OR\_LITERS\_PER\_HOUR,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_GAUGE, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_ABSOLUTE, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MCF\_OR\_MCF\_PER\_SECOND, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_UNITLESS,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MJ\_OR\_MJ\_PER\_SECOND, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KILO\_WATT\_HOURS\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_METER\_PER\_HOUR\_BCD,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_FEET\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CENTUM\_CUBIC\_FEET\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_US\_GALLONS\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_IMPERIAL\_GALLONS\_PER\_HOUR\_BCD,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_BT\_US\_OR\_BTU\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_LITERS\_OR\_LITERS\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_GUAGE\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_ABSOLUTE\_BCD,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MCF\_OR\_MCF\_PER\_SECOND\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_UNITLESS\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MJ\_OR\_MJ\_PER\_SECOND\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_K\_VAR\_OR\_K\_VAR\_HOURS\_BCD
 }
- enum EmberAfAnonymousDataState { EMBER\_ZCL\_ANONYMOUS\_DATA\_STATE\_NO\_SOURCE\_FOUND, EMBER\_ZCL\_ANONYMOUS\_DATA\_STATE\_SOURCE\_FOUND }
- enum EmberAfApplianceStatus {
 EMBER\_ZCL\_APPLIANCE\_STATUS\_OFF, EMBER\_ZCL\_APPLIANCE\_STATUS\_STAND\_BY, EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMMED, EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMMED\_WAITING\_TO\_START,
 EMBER\_ZCL\_APPLIANCE\_STATUS\_RUNNING, EMBER\_ZCL\_APPLIANCE\_STATUS\_PAUSE, EMBER\_ZCL\_APPLIANCE\_STATUS\_END\_PROGRAMMED, EMBER\_ZCL\_APPLIANCE\_STATUS\_FAILURE,
 EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMME\_INTERRUPTED, EMBER\_ZCL\_APPLIANCE\_STATUS\_IDLE, EMBER\_ZCL\_APPLIANCE\_STATUS\_RINSE\_HOLD, EMBER\_ZCL\_APPLIANCE\_STATUS\_SERVICE,
 EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERFREEZING, EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERCOOLING, EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERHEATING }
- enum EmberAfAttributeReportingStatus { EMBER\_ZCL\_ATTRIBUTE\_REPORTING\_STATUS\_PENDING, EMBER\_ZCL\_ATTRIBUTE\_REPORTING\_STATUS\_ATTRIBUTE\_REPORTING\_COMPLETE }
- enum EmberAfAttributeWritePermission {
 EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_DENY\_WRITE, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_ALLOW\_WRITE\_NORMAL, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_ALLOW\_WRITE\_OF\_READ\_ONLY, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_UNSUPPORTED\_ATTRIBUTE,
 EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_INVALID\_VALUE, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_READ\_ONLY, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_INVALID\_DATA\_TYPE }

- enum EmberAfBatterySize {
 EMBER\_ZCL\_BATTERY\_SIZE\_NO\_BATTERY, EMBER\_ZCL\_BATTERY\_SIZE\_BUILT\_IN,
 EMBER\_ZCL\_BATTERY\_SIZE\_OTHER, EMBER\_ZCL\_BATTERY\_SIZE\_AA,
 EMBER\_ZCL\_BATTERY\_SIZE\_AAA, EMBER\_ZCL\_BATTERY\_SIZE\_C, EMBER\_ZCL\_BA-
 TTERY\_SIZE\_D, EMBER\_ZCL\_BATTERY\_SIZE\_UNKNOWN
 }
- enum EmberAfBillingPeriodDurationUnits { EMBER\_ZCL\_BILLING\_PERIOD\_DURATION\_U-
 NITS\_MINUTES, EMBER\_ZCL\_BILLING\_PERIOD\_DURATION\_UNITS\_DAYS, EMBER\_Z-
 CL\_BILLING\_PERIOD\_DURATION\_UNITS\_WEEKS, EMBER\_ZCL\_BILLING\_PERIOD\_DU-
 RATION\_UNITS\_MONTHS }
- enum EmberAfBlock {
 EMBER\_ZCL\_BLOCK\_NO\_BLOCKS\_IN\_USE, EMBER\_ZCL\_BLOCK\_BLOCK1, EMBER\_Z-
 CL\_BLOCK\_BLOCK2, EMBER\_ZCL\_BLOCK\_BLOCK3,
 EMBER\_ZCL\_BLOCK\_BLOCK4, EMBER\_ZCL\_BLOCK\_BLOCK5, EMBER\_ZCL\_BLOCK\_-\_
 BLOCK6, EMBER\_ZCL\_BLOCK\_BLOCK7,
 EMBER\_ZCL\_BLOCK\_BLOCK8, EMBER\_ZCL\_BLOCK\_BLOCK9, EMBER\_ZCL\_BLOCK\_-\_
 BLOCK10, EMBER\_ZCL\_BLOCK\_BLOCK11,
 EMBER\_ZCL\_BLOCK\_BLOCK12, EMBER\_ZCL\_BLOCK\_BLOCK13, EMBER\_ZCL\_BLOCK\_-\_
 BLOCK14, EMBER\_ZCL\_BLOCK\_BLOCK15,
 EMBER\_ZCL\_BLOCK\_BLOCK16
 }
- enum EmberAfBlockPeriodDurationTypeControl { EMBER\_ZCL\_BLOCK\_PERIOD\_DURATIO-
 N\_TYPE\_CONTROL\_START\_OF\_TIMEBASE, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_-
 TYPE\_CONTROL\_END\_OF\_TIMEBASE, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TY-
 PE\_CONTROL\_NOT\_SPECIFIED }
- enum EmberAfBlockPeriodDurationTypeTimebase { EMBER\_ZCL\_BLOCK\_PERIOD\_DURATI-
 ON\_TYPE\_TIMEBASE\_MINUTES, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIM-
 EBASE\_DAYS, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_WEEKS, E-
 MBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_MONTHS }
- enum EmberAfCO2Unit { EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_KILOWATT\_HOU-
 R, EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_GALLON\_OF\_GASOLINE, EMBER\_ZCL\_-\_
 C\_O2\_UNIT\_KILOGRAM\_PER\_THERM\_OF\_NATURAL\_GAS }
- enum EmberAfCalendarTimeReference { EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_UT-
 C\_TIME, EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_STANDARD\_TIME, EMBER\_ZC-
 L\_CALENDAR\_TIME\_REFERENCE\_LOCAL\_TIME }
- enum EmberAfCalendarType {
 EMBER\_ZCL\_CALENDAR\_TYPE\_DELIVERED\_CALENDAR, EMBER\_ZCL\_CALENDAR\_-\_
 TYPE\_RECEIVED\_CALENDAR, EMBER\_ZCL\_CALENDAR\_TYPE\_DELIVERED\_AND\_RE-
 CEIVED\_CALENDAR, EMBER\_ZCL\_CALENDAR\_TYPE\_FRIENDLY\_CREDIT\_CALEND-
 AR,
 EMBER\_ZCL\_CALENDAR\_TYPE\_AUXILLIARY\_LOAD\_SWITCH\_CALENDAR
 }
- enum EmberAfCalorificValueUnit { EMBER\_ZCL\_CALORIFIC\_VALUE\_UNIT\_MEGAJOULE\_-
 \_PER\_CUBIC\_METER, EMBER\_ZCL\_CALORIFIC\_VALUE\_UNIT\_MEGAJOULE\_PER\_KIL-
 OGRAM }
- enum EmberAfCecedSpecificationVersion { EMBER\_ZCL\_CECED\_SPECIFICATION\_VERSIO-
 N\_COMPLIANT\_WITH\_V10\_NOT\_CERTIFIED, EMBER\_ZCL\_CECED\_SPECIFICATION\_V-
 ERSION\_COMPLIANT\_WITH\_V10\_CERTIFIED }
- enum EmberAfColorLoopAction { EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_DEACTIVATE, E-
 MBER\_ZCL\_COLOR\_LOOP\_ACTION\_ACTIVATE\_FROM\_COLOR\_LOOP\_START\_ENHAN-
 CED\_HUE, EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_ACTIVATE\_FROM\_ENHANCED\_CUR-
 RENT\_HUE }
- enum EmberAfColorLoopDirection { EMBER\_ZCL\_COLOR\_LOOP\_DIRECTION\_DECREME-
 NT\_HUE, EMBER\_ZCL\_COLOR\_LOOP\_DIRECTION\_INCREMENT\_HUE }
- enum EmberAfColorMode { EMBER\_ZCL\_COLOR\_MODE\_CURRENT\_HUE\_AND\_CURRE-
 NT\_SATURATION, EMBER\_ZCL\_COLOR\_MODE\_CURRENT\_X\_AND\_CURRENT\_Y, EM-
 BER\_ZCL\_COLOR\_MODE\_COLOR\_TEMPERATURE }

- enum EmberAfCommandIdentification {
 EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_PAUSE, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START\_SUPERFREEZING,
 EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP\_SUPERFREEZING, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START\_SUPERCOOLING, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP\_SUPERCOOLING, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_DISABLE\_GAS,
 EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_ENABLE\_GAS, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_ENABLE\_ENERGY\_CONTROL, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_DISABLE\_ENERGY\_CONTROL
 }
- enum EmberAfCommissioningStartupControl { EMBER\_ZCL\_COMMISSIONING\_STARTUP\_NO\_ACTION, EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_FORM\_NETWORK, EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_REJOIN\_NETWORK, EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_START\_FROM\_SCRATCH }
- enum EmberAfCommodityType {
 EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_GAS\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_WATER\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_THERMAL\_METERING,
 EMBER\_ZCL\_COMMODITY\_TYPE\_PRESSURE\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_HEAT\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_COOLING\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_VEHICLE\_CHARGING\_METERING,
 EMBER\_ZCL\_COMMODITY\_TYPE\_PV\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_WIND\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_WATER\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_MICRO\_GENERATION\_METERING,
 EMBER\_ZCL\_COMMODITY\_TYPE\_SOLAR\_HOT\_WATER\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING\_ELEMENT1, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING\_ELEMENT2, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING\_ELEMENT3
 }
- enum EmberAfCppEventResponseCppTypeAuth { EMBER\_ZCL\_CPP\_EVENT\_RESPONSE\_CPP\_AUTH\_ACCEPTED, EMBER\_ZCL\_CPP\_EVENT\_RESPONSE\_CPP\_AUTH\_REJECTED }
- enum EmberAfCppPriceTier { EMBER\_ZCL\_CPP\_PRICE\_TIER\_CPP1, EMBER\_ZCL\_CPP\_PRICE\_TIER\_CPP2 }
- enum EmberAfCreditAdjustmentType { EMBER\_ZCL\_CREDIT\_ADJUSTMENT\_TYPE\_CREDIT\_INCREMENTAL, EMBER\_ZCL\_CREDIT\_ADJUSTMENT\_TYPE\_CREDIT\_ABSOLUTE }
- enum EmberAfCreditPaymentStatus {
 EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_PENDING, EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_RECEIVED\_PAID, EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_OVERDUE, EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_2\_PAYMENTS\_OVERDUE,
 EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_3\_PAYMENTS\_OVERDUE
 }
- enum EmberAfDataQualityId { EMBER\_ZCL\_DATA\_QUALITY\_ID\_ALL\_DATA\_CERTIFIED, EMBER\_ZCL\_DATA\_QUALITY\_ID\_ONLY\_INSTANTANEOUS\_POWER\_NOT\_CERTIFIED, EMBER\_ZCL\_DATA\_QUALITY\_ID\_ONLY\_CUMULATED\_CONSUMPTION\_NOT\_CERTIFIED, EMBER\_ZCL\_DATA\_QUALITY\_ID\_NOT\_CERTIFIED\_DATA }
- enum EmberAfDebtAmountType {
 EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE1\_ABSOLUTE, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE1\_INCREMENTAL, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE2\_ABSOLUTE, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE2\_INCREMENTAL,
 EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE3\_ABSOLUTE, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE3\_INCREMENTAL
 }

- enum EmberAfDebtRecoveryFrequency {
 EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_HOUR, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_DAY, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_WEEK, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_MONTH, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_QUARTER }
- enum EmberAfDebtRecoveryMethod { EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_TIME\_BASED, EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_PERCENTAGE\_BASED, EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_CATCH\_UP\_BASED }
- enum EmberAfDehumidificationLockout { EMBER\_ZCL\_DEHUMIDIFICATION\_LOCKOUT\_NOT\_ALLOWED, EMBER\_ZCL\_DEHUMIDIFICATION\_LOCKOUT\_ALLOWED }
- enum EmberAfDeviceInformationRecordSort { EMBER\_ZCL\_DEVICE\_INFORMATION\_RECORD\_SORT\_NOT\_SORTED, EMBER\_ZCL\_DEVICE\_INFORMATION\_RECORD\_SORT\_TOP\_OF\_THE\_LIST }
- enum EmberAfDeviceStatus2Structure { EMBER\_ZCL\_DEVICE\_STATUS2\_STRUCTURE\_IRIS\_SYMPTOM\_CODE }
- enum EmberAfDoorLockEventSource {
 EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_KEYPAD, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_RF, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_MANUAL, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_RFID, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_INDETERMINATE }
- enum EmberAfDoorLockEventType { EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_OPERATION, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_PROGRAMMING, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_ALARM }
- enum EmberAfDoorLockOperatingMode {
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_NORMAL\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_VACATION\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_PRIVACY\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_NO\_RF\_LOCK\_OR\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_LOCAL\_PROGRAMMING\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_PASSAGE\_MODE }
- enum EmberAfDoorLockOperationEventCode {
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNKNOWN\_OR\_MFG\_SPECIFIC, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK\_INVALID\_PIN\_OR\_ID, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK\_INVALID\_SCHEDULE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK\_INVALID\_PIN\_OR\_ID, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK\_INVALID\_SCHEDULE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_ONE\_TOUCH\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_KEY\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_KEY\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_AUTO\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_SCHEDULE\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_SCHEDULE\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_MANUAL\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_MANUAL\_UNLOCK }
- enum EmberAfDoorLockProgrammingEventCode {
 EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_UNKNOWN\_OR\_MFG\_SPECIFIC, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_MASTER\_CODE\_CHANGED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_ADDED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_DELETED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_CHANGED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_ID\_ADDED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_ID\_DELETED }

- enum EmberAfDoorLockSecurityLevel { EMBER\_ZCL\_DOOR\_LOCK\_SECURITY\_LEVEL\_NETWORK\_SECURITY, EMBER\_ZCL\_DOOR\_LOCK\_SECURITY\_LEVEL\_APS\_SECURITY }
- enum EmberAfDoorLockSetPinOrIdStatus { EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_SUCCESS, EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_GENERAL\_FAILURE, EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_MEMORY\_FULL, EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_DUPLICATE\_CODE\_ERROR }
- enum EmberAfDoorLockSoundVolume { EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_SILENT, EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_LOW, EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_HIGH }
- enum EmberAfDoorLockState { EMBER\_ZCL\_DOOR\_LOCK\_STATE\_NOT\_FULLY\_LOCKED, EMBER\_ZCL\_DOOR\_LOCK\_STATE\_LOCKED, EMBER\_ZCL\_DOOR\_LOCK\_STATE\_UNLOCKED }
- enum EmberAfDoorLockType {
 EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_DEAD\_BOLT, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_MAGNETIC, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_MORTISE, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_RIM,
 EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_LATCH\_BOLT, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_CYLINDRICAL, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_TUBULAR, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_INTERCONNECTED,
 EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_DEAD\_LATCH, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_OTHER }
- enum EmberAfDoorLockUserStatus { EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_AVAILABLE, EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_OCCUPIED\_ENABLED, EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_OCCUPIED\_DISABLED, EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_NOT\_SUPPORTED }
- enum EmberAfDoorLockUserType {
 EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_UNRESTRICTED, EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_ONE\_TIME\_USER, EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_USER\_WITH\_SCHEDULE, EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_MASTER\_USER,
 EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_NOT\_SUPPORTED }
- enum EmberAfDoorState {
 EMBER\_ZCL\_DOOR\_STATE\_OPEN, EMBER\_ZCL\_DOOR\_STATE\_CLOSED, EMBER\_ZCL\_DOOR\_STATE\_ERROR\_JAMMED, EMBER\_ZCL\_DOOR\_STATE\_ERROR\_FORCED\_OPEN,
 EMBER\_ZCL\_DOOR\_STATE\_ERROR\_UNSPECIFIED }

- enum EmberAfElectricityAlarmGroups {
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_LOW\_VOLTAGE\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_HIGH\_VOLTAGE\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_LOW\_VOLTAGE\_L2, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_HIGH\_VOLTAGE\_L2,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_LOW\_VOLTAGE\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_HIGH\_VOLTAGE\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_CURRENT\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_CURRENT\_L2,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_CURRENT\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_LOW\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_HIGH\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_LOW\_L2,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_HIGH\_L2, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_LOW\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_HIGH\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_GROUND\_FAULT,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_ELECTRIC\_TAMPER\_DETECT, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_INCORRECT\_POLARITY, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_CURRENT\_NO\_VOLTAGE, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_UNDER\_VOLTAGE,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_VOLTAGE, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_NORMAL\_VOLTAGE, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_P\_F\_BELOW\_THRESHOLD, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_P\_F\_ABOVE\_THRESHOLD,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_TERMINAL\_COVER\_REMOVED, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_TERMINAL\_COVER\_CLOSED }
- enum EmberAfEnhancedColorMode { EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION, EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_CURRENT\_X\_AND\_CURRENT\_Y, EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_COLOR\_TEMPERATURE, EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_ENHANCED\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION }
- enum EmberAfEventConfigurationControl { EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_LIST, EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_EVENT\_GROUP, EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_LOG\_TYPE, EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_CONFIGURATION\_MATCH }
- enum EmberAfEventConfigurationLogAction {
 EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_DO\_NOT\_LOG, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_TAMPER, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_ASFAULT, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_GENERAL\_EVENT,
 EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_SECURITY\_EVENT, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_NETWORK\_EVENT }
- enum EmberAfEventControl { EMBER\_ZCL\_EVENT\_CONTROL\_RETRIEVE\_MINIMAL\_INFORMATION, EMBER\_ZCL\_EVENT\_CONTROL\_RETRIEVE\_FULL\_INFORMATION }

- enum EmberAfEventId {
 EMBER\_ZCL\_EVENT\_ID\_METER\_COVER\_REMOVED, EMBER\_ZCL\_EVENT\_ID\_METER\_COVER\_CLOSED, EMBER\_ZCL\_EVENT\_ID\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_EVENT\_ID\_NO\_STRONG\_MAGNETIC\_FIELD,
 EMBER\_ZCL\_EVENT\_ID\_BATTERY\_FAILURE, EMBER\_ZCL\_EVENT\_ID\_LOW\_BATTERY, EMBER\_ZCL\_EVENT\_ID\_PROGRAM\_MEMORY\_ERROR, EMBER\_ZCL\_EVENT\_ID\_RAM\_ERROR,
 EMBER\_ZCL\_EVENT\_ID\_NV\_MEMORY\_ERROR, EMBER\_ZCL\_EVENT\_ID\_MEASUREMENT\_SYSTEM\_ERROR, EMBER\_ZCL\_EVENT\_ID\_WATCHDOG\_ERROR, EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_DISCONNECT\_FAILURE,
 EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_CONNECT\_FAILURE, EMBER\_ZCL\_EVENT\_ID\_MEASURMENT\_SOFTWARE\_CHANGED, EMBER\_ZCL\_EVENT\_ID\_DST\_ENABLED, EMBER\_ZCL\_EVENT\_ID\_DST\_DISABLED,
 EMBER\_ZCL\_EVENT\_ID\_CLOCK\_ADJ\_BACKWARD, EMBER\_ZCL\_EVENT\_ID\_CLOCK\_ADJ\_FORWARD, EMBER\_ZCL\_EVENT\_ID\_CLOCK\_INVALID, EMBER\_ZCL\_EVENT\_ID\_COMMS\_ERROR\_HAN,
 EMBER\_ZCL\_EVENT\_ID\_COMMS\_OK\_HAN, EMBER\_ZCL\_EVENT\_ID\_FRAUD\_ATTEMPT, EMBER\_ZCL\_EVENT\_ID\_POWER\_LOSS, EMBER\_ZCL\_EVENT\_ID\_INCORRECT\_PROTOCOL,
 EMBER\_ZCL\_EVENT\_ID\_UNUSUAL\_HAN\_TRAFFIC, EMBER\_ZCL\_EVENT\_ID\_UNEXPECTED\_CLOCK\_CHANGE, EMBER\_ZCL\_EVENT\_ID\_COMMs\_USING\_UNAUTHENTICATED\_COMPONENT, EMBER\_ZCL\_EVENT\_ID\_ERROR\_REG\_CLEAR,
 EMBER\_ZCL\_EVENT\_ID\_ALARM\_REG\_CLEAR, EMBER\_ZCL\_EVENT\_ID\_UNEXPECTED\_PROGRAM\_EXECUTION, EMBER\_ZCL\_EVENT\_ID\_EVENT\_LOG\_CLEARED,
 EMBER\_ZCL\_EVENT\_ID\_MANUAL\_DISCONNECT, EMBER\_ZCL\_EVENT\_ID\_MANUAL\_CONNECT, EMBER\_ZCL\_EVENT\_ID\_REMOTE\_DISCONNECT, EMBER\_ZCL\_EVENT\_ID\_LOCAL\_DISCONNECT,
 EMBER\_ZCL\_EVENT\_ID\_LIMIT\_THRESHOLD\_EXCEEDED, EMBER\_ZCL\_EVENT\_ID\_LIMIT\_THRESHOLD\_OK, EMBER\_ZCL\_EVENT\_ID\_LIMIT\_THRESHOLD\_CHANGED, EMBER\_ZCL\_EVENT\_ID\_MAXIMUM\_DEMAND\_EXCEEDED,
 EMBER\_ZCL\_EVENT\_ID\_PROFILE\_CLEARED, EMBER\_ZCL\_EVENT\_ID\_FIRMWARE\_READY\_FOR\_ACTIVATION, EMBER\_ZCL\_EVENT\_ID\_FIRMWARE\_ACTIVATED, EMBER\_ZCL\_EVENT\_ID\_PATCH\_FAILURE,
 EMBER\_ZCL\_EVENT\_ID\_TOU\_TARIFF\_ACTIVATION, EMBER\_ZCL\_EVENT\_ID\_8X8\_TARIFFACTIVATED, EMBER\_ZCL\_EVENT\_ID\_SINGLE\_TARIFF\_RATE\_ACTIVATED, EMBER\_ZCL\_EVENT\_ID\_ASYNCNCHRONOUS\_BILLING\_OCCURRED,
 EMBER\_ZCL\_EVENT\_ID\_SYNCHRONOUS\_BILLING\_OCCURRED, EMBER\_ZCL\_EVENT\_ID\_INCORRECT\_POLARITY, EMBER\_ZCL\_EVENT\_ID\_CURRENT\_NO\_VOLTAGE, EMBER\_ZCL\_EVENT\_ID\_UNDER\_VOLTAGE,
 EMBER\_ZCL\_EVENT\_ID\_OVER\_VOLTAGE, EMBER\_ZCL\_EVENT\_ID\_NORMAL\_VOLTAGE, EMBER\_ZCL\_EVENT\_ID\_PF\_BELOW\_THRESHOLD, EMBER\_ZCL\_EVENT\_ID\_PF ABOVE\_THRESHOLD,
 EMBER\_ZCL\_EVENT\_ID\_TERMINAL\_COVER\_REMOVED, EMBER\_ZCL\_EVENT\_ID\_TERMINAL\_COVER\_CLOSED, EMBER\_ZCL\_EVENT\_ID\_REVERSE\_FLOW, EMBER\_ZCL\_EVENT\_ID\_TILT\_TAMPER,
 EMBER\_ZCL\_EVENT\_ID\_BATTERY\_COVER\_REMOVED, EMBER\_ZCL\_EVENT\_ID\_BATTERY\_COVER\_CLOSED, EMBER\_ZCL\_EVENT\_ID\_EXCESS\_FLOW, EMBER\_ZCL\_EVENT\_ID\_EMERGENCY\_CREDIT\_IN\_USE,
 EMBER\_ZCL\_EVENT\_ID\_EMERGENCY\_CREDIT\_EXHAUSTED, EMBER\_ZCL\_EVENT\_ID\_ZERO\_CREDIT\_EC\_NOT\_SELECTED, EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_ON, EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_OFF\_ARMED,
 EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_OFF, EMBER\_ZCL\_EVENT\_ID\_DISCOUNT\_APPLIED, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_A, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_B,
 EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_C, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_D, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_E, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_F
 }

- enum EmberAfEventIdentification {  
EMBER\_ZCL\_EVENT\_IDENTIFICATION\_END\_OF\_CYCLE, EMBER\_ZCL\_EVENT\_IDENTIFICATION\_TEMPERATURE\_REACHED, EMBER\_ZCL\_EVENT\_IDENTIFICATION\_END\_OF\_COOKING, EMBER\_ZCL\_EVENT\_IDENTIFICATION\_SWITCHING\_OFF,  
EMBER\_ZCL\_EVENT\_IDENTIFICATION\_WRONG\_DATA }
- enum EmberAfEventLogId {  
EMBER\_ZCL\_EVENT\_LOG\_ID\_ALL\_LOGS, EMBER\_ZCL\_EVENT\_LOG\_ID\_TAMPER\_LOG, EMBER\_ZCL\_EVENT\_LOG\_ID\_FAULT\_LOG, EMBER\_ZCL\_EVENT\_LOG\_ID\_GENERAL\_EVENT\_LOG,  
EMBER\_ZCL\_EVENT\_LOG\_ID\_SECURITY\_EVENT\_LOG, EMBER\_ZCL\_EVENT\_LOG\_ID\_NETWORK\_EVENT\_LOG }
- enum EmberAfEventLogPayloadControl { EMBER\_ZCL\_EVENT\_LOG\_PAYLOAD\_CONTROL\_EVENTS\_DO\_NOT\_CROSS\_FRAME\_BOUNDARY, EMBER\_ZCL\_EVENT\_LOG\_PAYLOAD\_CONTROL\_EVENT\_CROSSES\_FRAME\_BOUNDARY }

- enum EmberAfExtendedGenericAlarmGroups {
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MEASUREMENT\_SYSTEM\_ERROR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_WATCHDOG\_ERROR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SUPPLY\_DISCONNECT\_FAILURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SUPPLY\_CONNECT\_FAILURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MEASURMENT\_SOFTWARE\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DST\_ENABLED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DST\_DISABLED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_ADJ\_BACKWARD,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_ADJ\_FORWARD,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_INVALID,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMUNICATION\_ERROR\_HAN,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMUNICATION\_OK\_H\_AN,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_FRAUD\_ATTEMPT,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_POWER\_LOSS,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNUSUAL\_HAN\_TRAFFIC,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_CLOCK\_CHANGE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMMS\_USING\_UNAUTHENTICATED\_COMPONENT,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_ERROR\_REG\_CLEAR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_ALARM\_REG\_CLEAR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_HW\_RESET,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_PROGRAM\_EXECUTION,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_EVENT\_LOG\_CLEARED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_EXCEEDED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_OK,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MAXIMUM\_DEMAND\_EXCEEDED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_PROFILE\_CLEARED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SAMPLING\_BUFFERCLEARED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_BATTERY\_WARNING,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_WRONG\_SIGNATURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_NO\_SIGNATURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNAUTHORISED\_ACTIONFROM\_HAN,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_FAST\_POLLING\_START,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_FAST\_POLLING\_END,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_REPORTING\_INTERVAL\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DISCONNECT\_DUE\_TO\_LOAD\_LIMIT,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_SUPPLY\_STATUS\_REGISTER\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_EXTENDED\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED
 }

- enum EmberAfExtendedNumberOfPriceTiers {
 EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_REFER\_TO\_NUMBER\_OF\_PRICE\_TIERS\_FIELD, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS16, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS17, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS18, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS19, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS20, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS21, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS22, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS23, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS24, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS25, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS26, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS27, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS28, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS29, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS30, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS31, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS32, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS33, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS34, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS35, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS36, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS37, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS38, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS39, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS40, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS41, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS42, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS43, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS44, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS45, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS46, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS47, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS48
 }

- enum EmberAfExtendedPriceTier {  
EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_REFER\_TO\_PRICE\_TIER\_FIELD, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER16\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER17\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER18\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER19\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER20\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER21\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER22\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER23\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER24\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER25\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER26\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER27\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER28\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER29\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER30\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER31\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER32\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER33\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER34\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER35\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER36\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER37\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER38\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER39\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER40\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER41\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER42\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER43\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER45\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER46\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER47\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER48\_PRICE\_LABEL }

- enum EmberAfExtendedRegisterTier {
 EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_REFER\_TO\_REGISTER\_TIER\_FIELD, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER16\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER17\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER18\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER19\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER20\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER21\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER22\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER23\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER24\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER25\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER26\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER27\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER28\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER29\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER30\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER31\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER32\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER33\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER34\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER35\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER36\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER37\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER38\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER39\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER40\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER41\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER42\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER43\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER44\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER45\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER46\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER47\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER48\_SUMMATION\_DELIVERED\_ATTRIBUTE }
- enum EmberAfEzModeCommissioningClusterType { EMBER\_ZCL\_EZ\_MODE\_COMMMISSIONING\_CLUSTER\_TYPE\_SERVER, EMBER\_ZCL\_EZ\_MODE\_COMMISIONING\_CLUSTER\_TYPE\_CLIENT }
- enum EmberAfFanMode {
 EMBER\_ZCL\_FAN\_MODE\_OFF, EMBER\_ZCL\_FAN\_MODE\_LOW, EMBER\_ZCL\_FAN\_MODE\_MEDIUM, EMBER\_ZCL\_FAN\_MODE\_HIGH, EMBER\_ZCL\_FAN\_MODE\_ON, EMBER\_ZCL\_FAN\_MODE\_AUTO, EMBER\_ZCL\_FAN\_MODE\_SMART }

- enum EmberAfFanModeSequence {  
EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_MED\_HIGH, EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_HIGH, EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_MED\_HIGH\_AUTO,  
EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_HIGH\_AUTO,  
EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_ON\_AUTO }
- enum EmberAfGasSpecificAlarmGroups {  
EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_TILT\_TAMPER, EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_BATTERY\_COVER\_REMOVED, EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_BATTERY\_COVER\_CLOSED, EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_EXCESS\_FLOW,  
EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_TILT\_TAMPER\_ENDED }



- enum EmberAfGenericAlarmGroups {
 EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_CHECK\_METER, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_LOW\_BATTERY, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_TAMPER\_DETECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_LEAK\_DETECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_SERVICE\_DISCONNECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_METER\_COVER\_REMOVED, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_METER\_COVER\_CLOSED, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_NO\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_BATTERY\_FAILURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_PROGRAM\_MEMORY\_ERROR, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_R\_A\_M\_ERROR, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_N\_V\_MEMORY\_ERROR }
- enum EmberAfGenericAlarmGroupsElectricity { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_ELECTRICITY\_POWER\_FAILURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_ELECTRICITY\_POWER\_QUALITY }
- enum EmberAfGenericAlarmGroupsGas { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_GAS\_LOW\_PRESSURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_GAS\_REVERSE\_FLOW }
- enum EmberAfGenericAlarmGroupsHeatCooling { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_TEMPERATURE\_SENSOR, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_BURST\_DETECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_FLOW\_SENSOR }
- enum EmberAfGenericAlarmGroupsWater { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_PIPE\_EMPTY, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_LOW\_PRESSURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_REVERSE\_FLOW }
- enum EmberAfGenericDeviceClass { EMBER\_ZCL\_GENERIC\_DEVICE\_CLASS\_LIGHTING }
- enum EmberAfGenericDeviceType {
 EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_INCANDESCENT, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_SPOTLIGHT\_HALOGEN, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_HALOGEN\_BULB, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_CFL, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LINEAR\_FLOURESCENT, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_BULB, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_SPOTLIGHT\_LED, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_STRIP, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_TUBE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_INDOOR\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_OUTDOOR\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PENDANT\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_FLOOR\_STANDING\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_CONTROLLER, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_WALL\_SWITCH, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PORTABLE\_REMOTE\_CONTROLLER, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_MOTION\_OR\_LIGHT\_SENSOR, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_ACTUATOR, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PLUGIN\_UNIT, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_RETROFIT\_ACTUATOR, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_UNSPECIFIED }

- enum EmberAfGenericFlowPressureAlarmGroups {  
    EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_BURST\_DETECT, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PRESSURE\_TOO\_LOW, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PRESSURE\_TOO\_HIGH, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_COMMUNICATION\_ERROR,  
    EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_MEASUREMENT\_FAULT, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_REVERSE\_FLOW, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_AIR\_DETECT, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PIPE\_EMPTY }
- enum EmberAfGpDeviceId { EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_SIMPLE\_GENERICE\_TWO\_STATE\_SWITCH, EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_ON\_OFF\_SWITCH, EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_LEVEL\_CONTROL\_SWITCH, EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_INDOOR\_ENVIRONMENT\_SNESOR }

- enum EmberAfGpGpdf {
 EMBER\_ZCL\_GP\_GPDF\_IDENTIFY, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE0, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE1, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE2, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE3, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE4, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE5, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE6, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE7, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE0, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE1, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE2, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE3, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE4, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE5, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE6, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE7, EMBER\_ZCL\_GP\_GPDF\_OFF, EMBER\_ZCL\_GP\_GPDF\_ON, EMBER\_ZCL\_GP\_GPDF\_TOGGLE, EMBER\_ZCL\_GP\_GPDF\_RELEASE, EMBER\_ZCL\_GP\_GPDF\_MOVE\_UP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_DOWN, EMBER\_ZCL\_GP\_GPDF\_STEP\_UP, EMBER\_ZCL\_GP\_GPDF\_STEP\_DOWN, EMBER\_ZCL\_GP\_GPDF\_LEVEL\_CONTROL\_STOP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_UP\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_MOVE\_DOWN\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_STEP\_UP\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_STEP\_DOWN\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_MOVE\_HUE\_STOP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_HUE\_UP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_HUE\_DOWN, EMBER\_ZCL\_GP\_GPDF\_STEP\_HUE\_UP, EMBER\_ZCL\_GP\_GPDF\_STEP\_HUE\_DOWN, EMBER\_ZCL\_GP\_GPDF\_MOVE\_SATURATION\_STOP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_SATURATION\_UP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_SATURATION\_DOWN, EMBER\_ZCL\_GP\_GPDF\_STEP\_SATURATION\_UP, EMBER\_ZCL\_GP\_GPDF\_STEP\_SATURATION\_DOWN, EMBER\_ZCL\_GP\_GPDF\_MOVE\_COLOR, EMBER\_ZCL\_GP\_GPDF\_STEP\_COLOR, EMBER\_ZCL\_GP\_GPDF\_LOCK\_DOOR, EMBER\_ZCL\_GP\_GPDF\_UNLOCK\_DOOR, EMBER\_ZCL\_GP\_GPDF\_PRESS1\_OF1, EMBER\_ZCL\_GP\_GPDF\_RELEASE1\_OF1, EMBER\_ZCL\_GP\_GPDF\_PRESS1\_OF2, EMBER\_ZCL\_GP\_GPDF\_RELEASE1\_OF2, EMBER\_ZCL\_GP\_GPDF\_PRESS2\_OF2, EMBER\_ZCL\_GP\_GPDF\_RELEASE2\_OF2, EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS1\_OF1, EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS1\_OF2, EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS2\_OF2, EMBER\_ZCL\_GP\_GPDF\_ATTRIBUTE\_REPORTING, EMBER\_ZCL\_GP\_GPDF\_MFR\_SP\_ATTR\_RPTG, EMBER\_ZCL\_GP\_GPDF\_MULTI\_CLUSTER\_RPTG, EMBER\_ZCL\_GP\_GPDF\_MFR\_SP\_MULTI\_CLUSTER\_RPTG, EMBER\_ZCL\_GP\_GPDF\_REQUEST\_ATTRIBUTE, EMBER\_ZCL\_GP\_GPDF\_READ\_ATTR\_RESPONSE, EMBER\_ZCL\_GP\_GPDF\_ZCL\_TUNNELING\_WITH\_PAYLOAD, EMBER\_ZCL\_GP\_GPDF\_ANY\_GPD\_SENSOR\_CMD, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD0, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD1, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD2, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD3, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD4, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD5, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD6, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD7, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD8, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD9, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_A, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_B, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_C, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_D, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_E, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_F, EMBER\_ZCL\_GP\_GPDF\_COMMISSIONING, EMBER\_ZCL\_GP\_GPDF\_DECOMMISSIONING, EMBER\_ZCL\_GP\_GPDF\_SUCCESS, EMBER\_ZCL\_GP\_GPDF\_CHANNEL\_REQUEST, EMBER\_ZCL\_GP\_GPDF\_COMMISIONING\_REPLY, EMBER\_ZCL\_GP\_GPDF\_WRITE\_ATTRIBUTES, EMBER\_ZCL\_GP\_GPDF\_READ\_ATTRIBUTES, EMBER\_ZCL\_GP\_GPDF\_CHANNEL\_CONFIGURATION, EMBER\_ZCL\_GP\_GPDF\_ZCL\_TU\_NNEVNG }

- enum EmberAfGpPairingConfigurationAction {
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_NO\_ACTION, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_EXTEND\_SINK\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REPLACE\_SINK\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REMOVE\_A\_PAIRING,
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REMOVE\_GPD
 }
- enum EmberAfGpPairingConfigurationOptionCommunicationMode { EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_D\_GROUP\_ID, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_PRE\_COMMISSED, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING\_LIGHTWEIGHT }
- enum EmberAfGpPairingOptionsCommunicationMode { EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_FULL\_UNICAST\_FORWARDING, EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_D\_GROUP\_ID, EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_PRE\_COMM\_UNIT, EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING\_BY\_PROX\_SUPPORT }
- enum EmberAfGpProxyTableRequestOptionsRequestType { EMBER\_ZCL\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_BY\_GPD\_ID, EMBER\_ZCL\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_BY\_INDEX }
- enum EmberAfGpProxyTableResponseStatus { EMBER\_ZCL\_GP\_PROXY\_TABLE\_RESPONSE\_STATUS\_SUCCESS, EMBER\_ZCL\_GP\_PROXY\_TABLE\_RESPONSE\_STATUS\_NOT\_FOUND }
- enum EmberAfGpSecurityKeyType {
 EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_NONE, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_ZIGBEE\_NETWORK\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_GPD\_GROUP\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_NETWORK\_DERIVED\_GROUP\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_INDIVIDUAL\_GPD\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_DERIVED\_INDIVIDUAL\_GPD\_KEY
 }
- enum EmberAfGpSinkTableRequestOptions { EMBER\_ZCL\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TABLE\_ENTRIES\_BY\_GPD\_ID, EMBER\_ZCL\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TABLE\_ENTRIES\_BY\_INDEX }
- enum EmberAfGpTranslationTableUpdateAction { EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_ADD\_TRANSLATION\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_REPLACE\_TRANSLATION\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_REMOVE\_TRANSLATION\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_RESERVED }
- enum EmberAfHeatAndCoolingSpecificAlarmGroups { EMBER\_ZCL\_HEAT\_AND\_COOLING\_SPECIFIC\_ALARM\_GROUPS\_INLET\_TEMPERATURE\_SENSOR\_FAULT, EMBER\_ZCL\_HEAT\_AND\_COOLING\_SPECIFIC\_ALARM\_GROUPS\_OUTLET\_TEMPERATURE\_SENSOR\_FAULT }
- enum EmberAfHueDirection { EMBER\_ZCL\_HUE\_DIRECTION\_SHORTEST\_DISTANCE, EMBER\_ZCL\_HUE\_DIRECTION\_LONGEST\_DISTANCE, EMBER\_ZCL\_HUE\_DIRECTION\_UP, EMBER\_ZCL\_HUE\_DIRECTION\_DOWN }
- enum EmberAfHueMoveMode { EMBER\_ZCL\_HUE\_MOVE\_MODE\_STOP, EMBER\_ZCL\_HUE\_MOVE\_MODE\_UP, EMBER\_ZCL\_HUE\_MOVE\_MODE\_DOWN }
- enum EmberAfHueStepMode { EMBER\_ZCL\_HUE\_STEP\_MODE\_UP, EMBER\_ZCL\_HUE\_STEP\_MODE\_DOWN }

- enum EmberAfIasAceAlarmStatus {
 EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_NO\_ALARM, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_BURGLAR, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_FIRE, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_EMERGENCY,
 EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_POLICE\_PANIC, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_FIRE\_PANIC, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_EMERGENCY\_PANIC
 }
- enum EmberAfIasAceArmMode { EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_DISARM, EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_DAY\_HOME\_ZONES\_ONLY, EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_NIGHT\_SLEEP\_ZONES\_ONLY, EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_ALL\_ZONES }
- enum EmberAfIasAceArmNotification {
 EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALL\_ZONES\_DISARMED, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ONLY\_DAY\_HOME\_ZONES\_ARMED, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ONLY\_NIGHT\_SLEEP\_ZONES\_ARMED, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALL\_ZONES\_ARMED,
 EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_INVALID\_ARM\_DISARM\_CODE, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_NOT\_READY\_TO\_ARM, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALREADY\_DISARMED
 }
- enum EmberAfIasAceAudibleNotification { EMBER\_ZCL\_IAS\_ACE\_AUDIBLE\_NOTIFICATION\_MUTE, EMBER\_ZCL\_IAS\_ACE\_AUDIBLE\_NOTIFICATION\_DEFAULT\_SOUND }
- enum EmberAfIasAceBypassResult {
 EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_ZONE\_BYPASSED, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_ZONE\_NOT\_BYPASSED, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_NOT\_ALLOWED, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_INVALID\_ZONE\_ID,
 EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_UNKNOWN\_ZONE\_ID, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_INVALID\_ARM\_DISARM\_CODE
 }
- enum EmberAfIasAcePanelStatus {
 EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_PANEL\_DISARMED, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMED\_STAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMED\_NIGHT, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMED\_AWAY,
 EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_EXIT\_DELAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ENTRY\_DELAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_NOT\_READY\_TO\_ARM, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_IN\_ALARM,
 EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMING\_STAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMING\_NIGHT, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMING\_AWAY
 }
- enum EmberAfIasEnrollResponseCode { EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_SUCCESS, EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_NOT\_SUPPORTED, EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_NO\_ENROLL\_PERMIT, EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_TOO\_MANY\_ZONES }
- enum EmberAfIasZoneState { EMBER\_ZCL\_IAS\_ZONE\_STATE\_NOT\_ENROLLED, EMBER\_ZCL\_IAS\_ZONE\_STATE\_ENROLLED }

- enum EmberAfIasZoneType {
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_STANDARD\_CIE, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_MOTION\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_CONTACT\_SWITCH, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_FIRE\_SENSOR,
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_WATER\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_GAS\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_PERSONAL\_EMERGENCY\_DEVICE, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_VIBRATION\_MOVEMENT\_SENSOR,
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_REMOTE\_CONTROL, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_KEY\_FOB, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_KEYPAD, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_STANDARD\_WARNING\_DEVICE,
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_GLASS\_BREAK\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_CARBON\_MONOXIDE\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_SECURITY\_REPEATER, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_INVALID\_ZONE\_TYPE }
- enum EmberAfIdentifyEffectIdentifier {
 EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_BLINK, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_BREATHE, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_OKAY, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_CHANNEL\_CHANGE,
 EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_FINISH\_EFFECT, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_STOP\_EFFECT }
- enum EmberAfIdentifyEffectVariant { EMBER\_ZCL\_IDENTIFY\_EFFECT VARIANT\_DEFAULT }
- enum EmberAfKeyIndex { EMBER\_ZCL\_KEY\_INDEX DEVELOPMENT, EMBER\_ZCL\_KEY\_INDEX\_MASTER, EMBER\_ZCL\_KEY\_INDEX\_CERTIFICATION }
- enum EmberAfKeypadLockout {
 EMBER\_ZCL\_KEYPAD\_LOCKOUT\_NO\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_ONE\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_TWO\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_THREE\_LOCKOUT,
 EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_FOUR\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVELFIVE\_LOCKOUT }
- enum EmberAfLevelControlOptions { EMBER\_ZCL\_LEVEL\_CONTROL\_OPTIONS\_EXECUTE\_IF\_OFF, EMBER\_ZCL\_LEVEL\_CONTROL\_OPTIONS\_COUPLE\_COLOR\_TEMP\_TO\_LEVEL }
- enum EmberAfLevelStatus { EMBER\_ZCL\_LEVEL\_STATUS\_ON\_TARGET, EMBER\_ZCL\_LEVEL\_STATUS\_BELOW\_TARGET, EMBER\_ZCL\_LEVEL\_STATUS\_ABOVE\_TARGET }
- enum EmberAfLocationMethod { EMBER\_ZCL\_LOCATION\_METHOD\_LATERATION, EMBER\_ZCL\_LOCATION\_METHOD\_SIGNPOSTING, EMBER\_ZCL\_LOCATION\_METHOD\_RF\_FINGERPRINTING, EMBER\_ZCL\_LOCATION\_METHOD\_OUT\_OF\_BAND }
- enum EmberAfManufacturerSpecificAlarmGroups {
 EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_A, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_B, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_C, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_D,
 EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_E, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_F, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_G, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_H,
 EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_I }
- enum EmberAfMeasurementLightSensorType { EMBER\_ZCL\_MEASUREMENT\_LIGHT\_SENSOR\_TYPE\_PHOTODIODE, EMBER\_ZCL\_MEASUREMENT\_LIGHT\_SENSOR\_TYPE\_CMO\_S }

- enum EmberAfMessagingControlConfirmation { EMBER\_ZCL\_MESSAGING\_CONTROL\_CONFIRMATION\_NOT\_REQUIRED, EMBER\_ZCL\_MESSAGING\_CONTROL\_CONFIRMATION\_REQUIRED }
- enum EmberAfMessagingControlEnhancedConfirmation { EMBER\_ZCL\_MESSAGING\_CONTROL\_ENHANCED\_CONFIRMATION\_NOT\_REQUIRED, EMBER\_ZCL\_MESSAGING\_CONTROL\_ENHANCED\_CONFIRMATION\_REQUIRED }
- enum EmberAfMessagingControlImportance { EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_LOW, EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_MEDIUM, EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_HIGH, EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_CRITICAL }
- enum EmberAfMessagingControlTransmission { EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_NORMAL, EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_NORMAL\_AND\_ANONYMOUS, EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_ANONYMOUS, EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_RESERVED }
- enum EmberAfMeterDeviceType {
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_ELECTRIC\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_GAS\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_WATER\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_THERMAL\_METER,
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_PRESSURE\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_HEAT\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_COOLING\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_GAS\_METER,
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_WATER\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_THERMAL\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_PRESSURE\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_HEAT\_METER,
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_COOLING\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_UNDEFINED\_MIRROR\_METER
 }
- enum EmberAfMeterTypeId {
 EMBER\_ZCL\_METER\_TYPE\_ID.Utility\_PRIMARY\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Utility\_PRODUCTION\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Utility\_SECONDARY\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Private\_PRIMARY\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Private\_PRODUCTION\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Private\_SECONDARY\_METERS, EMBER\_ZCL\_METER\_TYPE\_ID.Generic\_METER
 }

- enum EmberAfMeteringAlarmCode {
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_CHECK\_METER, EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_BATTERY, EMBER\_ZCL\_METERING\_ALARM\_CODE\_TAMPER\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_POWER\_FAILURE\_PIPE\_EMPTY\_TEMPERATURE\_SENSOR,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_POWER\_QUALITY\_LOW\_PRESSURE\_BURST\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_LEAK\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_SERVICE\_DISCONNECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_REVERSE\_FLOW\_FLOW\_SENSOR,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_COVER\_REMOVED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_COVER\_CLOSED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_METERING\_ALARM\_CODE\_NO\_STRONG\_MAGNETIC\_FIELD,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_FAILURE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_PROGRAM\_MEMORY\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_R\_A\_M\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_N\_V\_MEMORY\_ERROR,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_VOLTAGE\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_HIGH\_VOLTAGE\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_VOLTAGE\_L2, EMBER\_ZCL\_METERING\_ALARM\_CODE\_HIGH\_VOLTAGE\_L2,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_VOLTAGE\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_CURRENT\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_CURRENT\_L2,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_CURRENT\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L2,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L2, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_GROUND\_FAULT,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_ELECTRIC\_TAMPER\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_INCORRECT\_POLARITY, EMBER\_ZCL\_METERING\_ALARM\_CODE\_CURRENT\_NO\_VOLTAGE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNDER\_VOLTAGE,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_VOLTAGE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_NORMAL\_VOLTAGE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_P\_F\_BELOW\_THRESHOLD, EMBER\_ZCL\_METERING\_ALARM\_CODE\_P\_F\_ABOVE\_THRESHOLD,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_TERMINAL\_COVER\_REMOVED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_TERMINAL\_COVER\_CLOSED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_BURST\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_PRESSURE\_TOO\_LOW,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_PRESSURE\_TOO\_HIGH, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_COMMUNICATION\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_MEASUREMENT\_FAULT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_REVERSE\_FLOW,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_AIR\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_PIPE\_EMPTY, EMBER\_ZCL\_METERING\_ALARM\_CODE\_INLET\_TEMPERATURE\_SENSOR\_FAULT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_OUTLET\_TEMPERATURE\_SENSOR\_FAULT,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_TILT\_TAMPER, EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_COVER\_REMOVED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_COVER\_CLOSED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_EXCESS\_FLOW,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_TILT\_TAMPER\_ENDED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_MEASUREMENT\_SYSTEM\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_WATCHDOG\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_SUPPLY\_DISCONNECT\_FAILURE
 }

- enum EmberAfMeteringBlockEnumerations {
 EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_NO\_BLOCKS\_IN\_USE, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK1, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK2, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK3, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK4, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK5, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK6, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK7, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK8, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK9, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK10, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK11, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK12, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK13, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK14, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK15, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK16
 }
- enum EmberAfMeteringConsumptionStatus { EMBER\_ZCL\_METERING\_CONSUMPTION\_STATUS\_LOW\_ENERGY\_USAGE, EMBER\_ZCL\_METERING\_CONSUMPTION\_STATUS\_MEDIUM\_ENERGY\_USAGE, EMBER\_ZCL\_METERING\_CONSUMPTION\_STATUS\_HIGH\_ENERGY\_USAGE }
- enum EmberAfMeteringDeviceType {
 EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE GAS\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE WATER\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE THERMAL\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE PRESSURE\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE HEAT\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE COOLING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_VEHICLE\_CHARGING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE PV\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE WIND\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE WATER\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MICRO\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE SOLAR\_HOT\_WATER\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING\_ELEMENT1, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING\_ELEMENT2, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING\_ELEMENT3, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_GAS\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_WATER\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_THERMAL\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_PRESSURE\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_HEAT\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_COOLING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_VEHICLE\_CHARGING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_PV\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_WIND\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_WATER\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_MICRO\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_SOLAR\_HOT\_WATER\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING\_ELEMENT1, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING\_ELEMENT2, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING\_ELEMENT3, EMBER\_ZCL\_METERING\_DEVICE\_TYPE UNDEFINED\_MIRROR\_METER
 }

- enum EmberAfMeteringSupplyStatus { EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_OFF, EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED, EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_ON }
- enum EmberAfMeteringTemperatureUnitOfMeasure {
 EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_KELVIN, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_CELSIUS, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_FAHRENHEIT, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_KELVIN\_BCD,
 EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_CELSIUS\_BCD, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_FAHRENHEIT\_BCD }
- enum EmberAfMoveMode { EMBER\_ZCL\_MOVE\_MODE\_UP, EMBER\_ZCL\_MOVE\_MODE\_DOWN }
- enum EmberAfNotificationScheme { EMBER\_ZCL\_NOTIFICATION\_SCHEME\_NO\_NOTIFICATION\_SCHEME\_DEFINED, EMBER\_ZCL\_NOTIFICATION\_SCHEME\_PREDEFINED\_NOTIFICATION\_SCHEME\_A, EMBER\_ZCL\_NOTIFICATION\_SCHEME\_PREDEFINED\_NOTIFICATION\_SCHEME\_B }
- enum EmberAfOccupancySensorType { EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_PIR, EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_ULTRASONIC, EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_PIR\_AND\_ULTRASONIC }
- enum EmberAfOnOffDelayedAllOffEffectVariant { EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_FADE\_TO\_OFF\_IN\_0P8\_SECONDS, EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_NO\_FADE, EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_50\_PERCENT\_DIM\_DOWN\_IN\_0P8\_SECONDS\_THEN\_FADE\_TO\_OFF\_IN\_12\_SECONDS }
- enum EmberAfOnOffDyingLightEffectVariant { EMBER\_ZCL\_ON\_OFF\_DYING\_LIGHT\_EFFECT\_VARIANT\_20\_PERCENTER\_DIM\_UP\_IN\_0P5\_SECONDS\_THEN\_FADE\_TO\_OFF\_IN\_1\_SECOND }
- enum EmberAfOnOffEffectIdentifier { EMBER\_ZCL\_ON\_OFF\_EFFECT\_IDENTIFIER\_DELAYED\_ALL\_OFF, EMBER\_ZCL\_ON\_OFF\_EFFECT\_IDENTIFIER\_DYING\_LIGHT }
- enum EmberAfOperatingMode { EMBER\_ZCL\_OPERATING\_MODE\_NORMAL, EMBER\_ZCL\_OPERATING\_MODE\_CONFIGURE }
- enum EmberAfOriginatingDevice { EMBER\_ZCL\_ORIGINATING\_DEVICE\_ENERGY\_SERVICE\_INTERFACE, EMBER\_ZCL\_ORIGINATING\_DEVICE\_METER, EMBER\_ZCL\_ORIGINATING\_DEVICE\_IN\_HOME\_DISPLAY\_DEVICE }
- enum EmberAfPasswordType { EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD1\_SERVICE\_MENU\_ACCESS, EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD2\_CONSUMER\_MENU\_ACCESS, EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD3, EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD4 }
- enum EmberAfPaymentDiscountDuration {
 EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_CURRENT\_BILLING\_PERIOD, EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_CURRENT CONSOLIDATED\_BILL, EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_ONE\_MONTH, EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_ONE\_QUARTER,
 EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_ONE\_YEAR }
- enum EmberAfPhysicalEnvironment { EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_UNSPECIFIED, EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_FIRST\_PROFILE\_SPECIFIED\_VALUE, EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_LAST\_PROFILE\_SPECIFIED\_VALUE, EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_UNKNOWN }

- enum EmberAfPowerProfileState {
 EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_WAITING\_TO\_START, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_STARTED, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_RUNNING, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_ENDED,
 EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_WAITING\_TO\_START, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_STARTED, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_ENDED, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_READY\_FOR\_SCHEDULING,
 EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_SCHEDULED }
- enum EmberAfPowerSource {
 EMBER\_ZCL\_POWER\_SOURCE\_UNKNOWN, EMBER\_ZCL\_POWER\_SOURCE\_SINGLE\_PHASE\_MAINS, EMBER\_ZCL\_POWER\_SOURCE\_THREE\_PHASE\_MAINS, EMBER\_ZCL\_POWER\_SOURCE\_BATTERY,
 EMBER\_ZCL\_POWER\_SOURCE\_DC\_SOURCE, EMBER\_ZCL\_POWER\_SOURCE\_EMERGENCY\_MAINS\_CONSTANT\_POWER, EMBER\_ZCL\_POWER\_SOURCE\_EMERGENCY\_MAINS\_TRANSFER\_SWITCH, EMBER\_ZCL\_POWER\_SOURCE\_BATTERY\_BACKUP }
- enum EmberAfPrePayGenericAlarmGroup {
 EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_LOW\_CREDIT, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_NO\_CREDIT, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_CREDIT\_EXHAUSTED, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_EMERGENCY\_CREDIT\_ENABLED,
 EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_EMERGENCY\_CREDIT\_EXHAUSTED, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_IHD\_LOW\_CREDIT\_WARNING, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_EVENT\_LOG\_CLEARED }
- enum EmberAfPrepayEventAlarmGroup {
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_PHYSICAL\_ATTACK\_ON\_THE\_PREPAY\_METER, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ELECTRONIC\_ATTACK\_ON\_THE\_PREPAY\_METER, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_DISCOUNT\_APPLIED, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_CREDIT\_ADJUSTMENT,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_CREDIT\_ADJUSTMENT\_FAIL, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_DEBT\_ADJUSTMENT, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_DEBT\_ADJUSTMENT\_FAIL, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_CHANGE,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_CODE\_ERROR, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_ALREADY\_USED, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_CODE\_INVALID, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_IN\_USE,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_PERIOD-END, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ERROR\_REG\_CLEAR, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ALARM\_REG\_CLEAR,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_PREPAY\_CLUSTER\_NOT\_FOUND, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_CREDIT2\_PREPAY, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_PREPAY2\_CREDIT, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_DEFAULT }
- enum EmberAfPrepaySnapshotPayloadType { EMBER\_ZCL\_PREPAY\_SNAPSHOT\_PAYLOAD\_TYPE\_DEBT\_CREDIT\_STATUS, EMBER\_ZCL\_PREPAY\_SNAPSHOT\_PAYLOAD\_TYPE\_NOT\_USED }

- enum EmberAfPrepaySwitchAlarmGroup {
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_ON, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_ARM, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_OFF, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_FAILURE,
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_DUE\_TO\_TAMPER\_DETECTED, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_DUE\_TO\_CUT\_OFF\_VALUE, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_REMOTE\_DISCONNECTED }
- enum EmberAfPriceControlAcknowledgement { EMBER\_ZCL\_PRICE\_CONTROL\_ACKNOWLEDGEMENT\_NOT\_REQUIRED, EMBER\_ZCL\_PRICE\_CONTROL\_ACKNOWLEDGEMENT\_REQUIRED }
- enum EmberAfPriceTier {
 EMBER\_ZCL\_PRICE\_TIER\_NO\_TIER RELATED, EMBER\_ZCL\_PRICE\_TIER\_TIER1\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER2\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER3\_PRICE\_LABEL,
 EMBER\_ZCL\_PRICE\_TIER\_TIER4\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER5\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER6\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER7\_PRICE\_LABEL,
 EMBER\_ZCL\_PRICE\_TIER\_TIER8\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER9\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER10\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER11\_PRICE\_LABEL,
 EMBER\_ZCL\_PRICE\_TIER\_TIER12\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER13\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER14\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER15\_PRICE\_LABEL }
- enum EmberAfProductCode {
 EMBER\_ZCL\_PRODUCT\_CODE\_MANUFACTURER\_DEFINED, EMBER\_ZCL\_PRODUCT\_CODE\_INTERNATIONAL\_ARTICLE\_NUMBER, EMBER\_ZCL\_PRODUCT\_CODE\_GLOBAL\_TRADE\_ITEM\_NUMBER, EMBER\_ZCL\_PRODUCT\_CODE\_UNIVERSAL\_PRODUCT\_CODE,
 EMBER\_ZCL\_PRODUCT\_CODE\_STOCK\_KEEPING\_UNIT }
- enum EmberAfProductId {
 EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_WHITE\_GOODS, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_DISHWASHER, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_TUMBLE\_DRYER, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_WASHER\_DRYER,
 EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_WASHING\_MACHINE, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_HOBS, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_INDUCTION\_HOBS, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_OVEN,
 EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_ELECTRICAL\_OVEN, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_REFRIGERATOR\_FREEZER }
- enum EmberAfProposedSupplyStatus { EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_RESERVED, EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED, EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_SUPPLY\_ON }
- enum EmberAfPublishCppEventCppAuth { EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_PENDING, EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_ACCEPTED, EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_REJECTED, EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_FORCED }
- enum EmberAfPumpControlMode {
 EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_SPEED, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_PRESSURE, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_PROPORIONAL\_PRESSURE, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_FLOW,
 EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_TEMPERATURE, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_AUTOMATIC }

- enum EmberAfPumpOperationMode { EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_NORMAL, EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_MINIMUM, EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_MAXIMUM, EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_LOCAL }
- enum EmberAfPushHistoricalMeteringData { EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_DAY, EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_WEEK, EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_MONTH, EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_YEAR }
- enum EmberAfPushHistoricalPaymentData { EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_DAY, EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_WEEK, EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_MONTH, EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_YEAR }
- enum EmberAfRegisterTier {
 EMBER\_ZCL\_REGISTER\_TIER\_NO\_TIER RELATED, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER1\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER2\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER3\_SUMMATION\_DELIVERED\_ATTRIBUTE,
 EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER4\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER5\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER6\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER7\_SUMMATION\_DELIVERED\_ATTRIBUTE,
 EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER8\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER9\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER10\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER11\_SUMMATION\_DELIVERED\_ATTRIBUTE,
 EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER12\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER13\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER14\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER15\_SUMMATION\_DELIVERED\_ATTRIBUTE
 }
- enum EmberAfRelativeHumidityDisplay { EMBER\_ZCL\_RELATIVE\_HUMIDITY\_DISPLAY\_NOT\_DISPLAYED, EMBER\_ZCL\_RELATIVE\_HUMIDITY\_DISPLAY\_DISPLAYED }
- enum EmberAfRelativeHumidityMode { EMBER\_ZCL\_RELATIVE\_HUMIDITY\_MODE\_MEASURE\_LOCALLY, EMBER\_ZCL\_RELATIVE\_HUMIDITY\_MODE\_UPDATED\_OVER\_THE\_NETWORK }
- enum EmberAfRemoteEnableFlags { EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_DISABLED, EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_TEMPORARILY\_LOCKED\_DISABLED, EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_ENABLED\_REMOTE\_CONTROL, EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_ENABLED\_REMOTE\_AND\_ENERGY\_CONTROL }
- enum EmberAfRepaymentDebtType { EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT1, EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT2, EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT3, EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_ALL\_DEBTS }
- enum EmberAfReportingDirection { EMBER\_ZCL\_REPORTING\_DIRECTION\_REPORTED, EMBER\_ZCL\_REPORTING\_DIRECTION\_RECEIVED }
- enum EmberAfResultType {
 EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_INVALID\_TOP\_UP, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_DUPLICATE\_TOP\_UP, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_ERROR,
 EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_MAX\_CREDIT\_REACHED, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_KEYPAD\_LOCK, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_TOP\_UP\_VALUE\_TOO\_LARGE, EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_ENABLED, EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_DISABLED, EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_ARMED
 }

- enum EmberAfSampleType { EMBER\_ZCL\_SAMPLE\_TYPE\_CONSUMPTION\_DELIVERED }
- enum EmberAfSaturationMoveMode { EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_STOP, EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_UP, EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_DOWN }
- enum EmberAfSaturationStepMode { EMBER\_ZCL\_SATURATION\_STEP\_MODE\_UP, EMBER\_ZCL\_SATURATION\_STEP\_MODE\_DOWN }
- enum EmberAfSensingLightSensorType { EMBER\_ZCL\_SENSING\_LIGHT\_SENSOR\_TYPE\_PHOTODIODE, EMBER\_ZCL\_SENSING\_LIGHT\_SENSOR\_TYPE\_CMOS }
- enum EmberAfSetpointAdjustMode { EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_HEAT\_SETPOINT, EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_COOL\_SETPOINT, EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_HEAT\_AND\_COOL\_SETPOINTS }
- enum EmberAfSignatureType { EMBER\_ZCL\_SIGNATURE\_TYPE\_RESERVED, EMBER\_ZCL\_SIGNATURE\_TYPE\_ECDSA }
- enum EmberAfSnapshotConfirmation { EMBER\_ZCL\_SNAPSHOT\_CONFIRMATION\_ACCEPTED, EMBER\_ZCL\_SNAPSHOT\_CONFIRMATION\_SNAPSHOT\_CAUSE\_NOT\_SUPPORTED }
- enum EmberAfSnapshotPayloadType {
 EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_DELIVERED\_REGISTERS, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_RECEIVED\_REGISTERS, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_DELIVERED, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_RECEIVED,
 EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_DELIVERED\_REGISTERS\_NO\_BILLING, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_RECEIVED\_REGISTER\_NO\_BILLINGS, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_DELIVERED\_NO\_BILLING, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_RECEIVED\_NO\_BILLING, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_DATA\_UNAVAILABLE
 }
- enum EmberAfSnapshotScheduleConfirmation {
 EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_ACCEPTED, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_TYPE\_NOT\_SUPPORTED, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_CAUSE\_NOT\_SUPPORTED, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_SCHEDULE\_NOT\_CURRENTLY\_AVAILABLE,
 EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_SCHEDULES\_NOT\_SUPPORTED\_BY\_DEVICE, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_INSUFFICIENT\_SPACE\_FOR\_SNAPSHOT\_SCHEDULE
 }
- enum EmberAfSquawkLevel { EMBER\_ZCL\_SQUAWK\_LEVEL\_LOW\_LEVEL, EMBER\_ZCL\_SQUAWK\_LEVEL\_MEDIUM\_LEVEL, EMBER\_ZCL\_SQUAWK\_LEVEL VERY\_HIGH\_LEVEL }
- enum EmberAfSquawkMode { EMBER\_ZCL\_SQUAWK\_MODE\_SYSTEM\_IS\_ARMED, EMBER\_ZCL\_SQUAWK\_MODE\_SYSTEM\_IS\_DISARMED }
- enum EmberAfSquawkStobe { EMBER\_ZCL\_SQUAWK\_STOBE\_NO\_STROBE, EMBER\_ZCL\_SQUAWK\_STOBE\_USE\_STROBE }
- enum EmberAfStartOfWeek {
 EMBER\_ZCL\_START\_OF\_WEEK\_SUNDAY, EMBER\_ZCL\_START\_OF\_WEEK\_MONDAY, EMBER\_ZCL\_START\_OF\_WEEK\_TUESDAY, EMBER\_ZCL\_START\_OF\_WEEK\_WEDNESDAY,
 EMBER\_ZCL\_START\_OF\_WEEK\_THURSDAY, EMBER\_ZCL\_START\_OF\_WEEK\_FRIDAY, EMBER\_ZCL\_START\_OF\_WEEK\_SATURDAY
 }
- enum EmberAfStartUpOnOffValue { EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_OFF, EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_ON, EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_TOGGLE, EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_PREVIOUS }

- enum EmberAfStatus {
 EMBER\_ZCL\_STATUS\_SUCCESS, EMBER\_ZCL\_STATUS\_FAILURE, EMBER\_ZCL\_STATUS\_REQUEST\_DENIED, EMBER\_ZCL\_STATUS\_MULTIPLE\_REQUEST\_NOT\_ALLOWED, EMBER\_ZCL\_STATUS\_INDICATION\_REDIRECTION\_TO\_AP, EMBER\_ZCL\_STATUS\_PREFERENCE\_DENIED, EMBER\_ZCL\_STATUS\_PREFERENCE\_IGNORED, EMBER\_ZCL\_STATUS\_NOT\_AUTHORIZED,
 EMBER\_ZCL\_STATUS\_RESERVED\_FIELD\_NOT\_ZERO, EMBER\_ZCL\_STATUS\_MALFORMED\_COMMAND, EMBER\_ZCL\_STATUS\_UNSUP\_CLUSTER\_COMMAND, EMBER\_ZCL\_STATUS\_UNSUP\_GENERAL\_COMMAND,
 EMBER\_ZCL\_STATUS\_UNSUP\_MANUF\_CLUSTER\_COMMAND, EMBER\_ZCL\_STATUS\_UNSUP\_MANUF\_GENERAL\_COMMAND, EMBER\_ZCL\_STATUS\_INVALID\_FIELD, EMBER\_ZCL\_STATUS\_UNSUPPORTED\_ATTRIBUTE,
 EMBER\_ZCL\_STATUS\_INVALID\_VALUE, EMBER\_ZCL\_STATUS\_READ\_ONLY, EMBER\_ZCL\_STATUS\_INSUFFICIENT\_SPACE, EMBER\_ZCL\_STATUS\_DUPLICATE\_EXISTS,
 EMBER\_ZCL\_STATUS\_NOT\_FOUND, EMBER\_ZCL\_STATUS\_UNREPORTABLE\_ATTRIBUTE, EMBER\_ZCL\_STATUS\_INVALID\_DATA\_TYPE, EMBER\_ZCL\_STATUS\_INVALID\_SELECTOR,
 EMBER\_ZCL\_STATUS\_WRITE\_ONLY, EMBER\_ZCL\_STATUS\_INCONSISTENT\_STARTUP\_STATE, EMBER\_ZCL\_STATUS\_DEFINED\_OUT\_OF\_BAND, EMBER\_ZCL\_STATUS\_INCONSISTENT,
 EMBER\_ZCL\_STATUS\_ACTION\_DENIED, EMBER\_ZCL\_STATUS\_TIMEOUT, EMBER\_ZCL\_STATUS\_ABORT, EMBER\_ZCL\_STATUS\_INVALID\_IMAGE,
 EMBER\_ZCL\_STATUS\_WAIT\_FOR\_DATA, EMBER\_ZCL\_STATUS\_NO\_IMAGE\_AVAILABLE, EMBER\_ZCL\_STATUS\_REQUIRE\_MORE\_IMAGE, EMBER\_ZCL\_STATUS\_HARDWARE\_FAILURE,
 EMBER\_ZCL\_STATUS\_SOFTWARE\_FAILURE, EMBER\_ZCL\_STATUS\_CALIBRATION\_ERROR, EMBER\_ZCL\_STATUS\_UNSUPPORTED\_CLUSTER }
- enum EmberAfStepMode { EMBER\_ZCL\_STEP\_MODE\_UP, EMBER\_ZCL\_STEP\_MODE\_DOWN }
- enum EmberAfSupplyStatus { EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_OFF, EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED, EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_ON, EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_UNCHANGED }
- enum EmberAfSwitchActions { EMBER\_ZCL\_SWITCH\_ACTIONS\_ON, EMBER\_ZCL\_SWITCH\_ACTIONS\_OFF, EMBER\_ZCL\_SWITCH\_ACTIONS\_TOGGLE }
- enum EmberAfSwitchType { EMBER\_ZCL\_SWITCH\_TYPE\_TOGGLE, EMBER\_ZCL\_SWITCH\_TYPE\_MOMENTARY, EMBER\_ZCL\_SWITCH\_TYPE\_MULTI\_FUNCTION }
- enum EmberAfTariffChargingScheme { EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_TOU\_TARIFF, EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TARIFF, EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TOU\_TARIFF\_WITH\_COMMON\_THRESHOLDS, EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TOU\_TARIFF\_WITH\_INDIVIDUAL\_THRESHOLDS\_PER\_TIER }
- enum EmberAfTariffResolutionPeriod { EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_NOT\_DEFINED, EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_BLOCK\_PERIOD, EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_ONE\_DAY }
- enum EmberAfTariffType { EMBER\_ZCL\_TARIFF\_TYPE\_DELIVERED\_TARIFF, EMBER\_ZCL\_TARIFF\_TYPE\_RECEIVED\_TARIFF, EMBER\_ZCL\_TARIFF\_TYPE\_DELIVERED\_AND\_RECEIVED\_TARIFF }
- enum EmberAfTemperatureDisplayMode { EMBER\_ZCL\_TEMPERATURE\_DISPLAY\_MODE\_CELSIUS, EMBER\_ZCL\_TEMPERATURE\_DISPLAY\_MODE\_FAHRENHEIT }
- enum EmberAfTemperatureSetpointHold { EMBER\_ZCL\_TEMPERATURE\_SETPOINT\_HOLD\_SETPOINT\_HOLD\_OFF, EMBER\_ZCL\_TEMPERATURE\_SETPOINT\_HOLD\_SETPOINT\_HOLD\_ON }

- enum EmberAfThermostatControlSequence {
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_ONLY, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_WITH\_REHEAT, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_HEATING\_ONLY, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_HEATING\_WITH\_REHEAT,
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_AND\_HEATING, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_AND\_HEATING\_WITH\_REHEAT }
- enum EmberAfThermostatRunningMode { EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_OFF, EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_COOL, EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_HEAT }
- enum EmberAfThermostatSystemMode {
 EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_OFF, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_AUTO, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_COOL, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_HEAT,
 EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_EMERGENCY\_HEATING, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_PRECOOLING, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_FAN\_ONLY }
- enum EmberAfTierBlockMode { EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK, EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK\_PRICE\_TIER, EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK\_PRICE\_TIER\_THRESHOLD, EMBER\_ZCL\_TIER\_BLOCK\_MODE\_NOT\_USED }
- enum EmberAfTimeEncoding { EMBER\_ZCL\_TIME\_ENCODING\_RELATIVE, EMBER\_ZCL\_TIME\_ENCODING\_ABSOLUTE }
- enum EmberAfTunnelingProtocolId {
 EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_DLMS\_COSEM, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_IEC\_61107, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_ANSI\_C12, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_M\_BUS,
 EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_SML, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_CLIMATE\_TALK, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_GB\_HRG, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_TEST }
- enum EmberAfTunnelingTransferDataStatus { EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_NO SUCH TUNNEL, EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_WRONG\_DEVICE, EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_DATA\_OVERFLOW }
- enum EmberAfTunnelingTunnelStatus {
 EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_SUCCESS, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_BUSY, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_NO\_MORE\_TUNNEL\_IDS, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_PROTOCOL\_NOT\_SUPPORTED, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_FLOW\_CONTROL\_NOT\_SUPPORTED }
- enum EmberAfWanStatus { EMBER\_ZCL\_WAN\_STATUS\_CONNECTION\_TO\_WAN\_IS\_NOT\_AVAILABLE, EMBER\_ZCL\_WAN\_STATUS\_CONNECTION\_TO\_WAN\_IS\_AVAILABLE }
- enum EmberAfWarningEvent {
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING1\_OVERALL\_POWER\_ABOVE\_AVAILABLE\_POWER\_LEVEL, EMBER\_ZCL\_WARNING\_EVENT\_WARNING2\_OVERALL\_POWER\_ABOVE\_POWER\_THRESHOLD\_LEVEL, EMBER\_ZCL\_WARNING\_EVENT\_WARNING3\_OVERALL\_POWER\_BACK\_BELOW\_THE\_AVAILABLE\_POWER\_LEVEL, EMBER\_ZCL\_WARNING\_EVENT\_WARNING4\_OVERALL\_POWER\_BACK\_BELOW\_THE\_POWER\_THRESHOLD\_LEVEL,
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING5\_OVERALL\_POWER\_WILL\_BE\_POTENTIALLY ABOVE AVAILABLE\_POWER\_LEVEL\_IF\_THE\_APPLIANCE\_STARTS }

- enum EmberAfWarningMode {
 EMBER\_ZCL\_WARNING\_MODE\_STOP, EMBER\_ZCL\_WARNING\_MODE\_BURGLAR, EMBER\_ZCL\_WARNING\_MODE\_FIRE, EMBER\_ZCL\_WARNING\_MODE\_EMERGENCY, EMBER\_ZCL\_WARNING\_MODE\_POLICE\_PANIC, EMBER\_ZCL\_WARNING\_MODE\_FIRE\_PANIC, EMBER\_ZCL\_WARNING\_MODE\_EMERGENCY\_PANIC }
- enum EmberAfWarningStobe { EMBER\_ZCL\_WARNING\_STOBE\_NO\_STROBE, EMBER\_ZCL\_WARNING\_STOBE\_USE\_STROBE }
- enum EmberAfZigbeeInformationLogicalType { EMBER\_ZCL\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE\_COORDINATOR, EMBER\_ZCL\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE\_ROUTER, EMBER\_ZCL\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE\_END\_DEVICE }
- enum EmberAfZllStatus { EMBER\_ZCL\_ZLL\_STATUS\_SUCCESS, EMBER\_ZCL\_ZLL\_STATUS\_FAILURE }
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_OPERATIONAL
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_ADJUSTING
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_ADJUSTING\_OFFSET
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_OPENING
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_OPENING\_OFFSET
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_MOTOR\_OPENING
- #define EMBER\_AF SHADE\_CLOSURE\_STATUS\_MOTOR\_OPENING\_OFFSET
- #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_HW\_FAULT
- #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_SW\_FAULT
- #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_SW\_FAULT\_OFFSET
- #define EMBER\_AF\_RESTART\_OPTIONS\_START\_MODE1
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE2
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE2\_OFFSET
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE3
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE3\_OFFSET
- #define EMBER\_AF\_RESTART\_OPTIONS\_IMMEDIATE
- #define EMBER\_AF\_RESTART\_OPTIONS\_IMMEDIATE\_OFFSET
- #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_CURRENT
- #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_ALL
- #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_ALL\_OFFSET
- #define EMBER\_AF\_RESET\_OPTIONS\_ERASE\_INDEX
- #define EMBER\_AF\_RESET\_OPTIONS\_ERASE\_INDEX\_OFFSET
- #define EMBER\_AF MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_LOW
- #define EMBER\_AF MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_HIGH
- #define EMBER\_AF MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF MAINS\_ALARM\_MASK\_MAINS\_POWER\_SUPPLY\_LOST
- #define EMBER\_AF MAINS\_ALARM\_MASK\_MAINS\_POWER\_SUPPLY\_LOST\_OFFSET
- #define EMBER\_AF BATTERY\_ALARM\_MASK\_VOLTAGE\_TOO\_LOW
- #define EMBER\_AF DEVICE\_TEMP\_ALARM\_MASK\_TOO\_LOW
- #define EMBER\_AF DEVICE\_TEMP\_ALARM\_MASK\_TOO\_HIGH
- #define EMBER\_AF DEVICE\_TEMP\_ALARM\_MASK\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_TIME\_STATUS\_MASK\_MASTER\_CLOCK
- #define EMBER\_AF\_TIME\_STATUS\_MASK\_SYNCHRONIZED
- #define EMBER\_AF\_TIME\_STATUS\_MASK\_SYNCHRONIZED\_OFFSET
- #define EMBER\_AF\_LOCATION\_TYPE\_ABSOLUTE
- #define EMBER\_AF\_LOCATION\_TYPE2\_D
- #define EMBER\_AF\_LOCATION\_TYPE2\_D\_OFFSET
- #define EMBER\_AF\_LOCATION\_TYPE\_COORDINATE\_SYSTEM
- #define EMBER\_AF\_LOCATION\_TYPE\_COORDINATE\_SYSTEM\_OFFSET

- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_ABSOLUTE\_ONLY
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_RECALCULATE
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_RECALCULATE\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST\_RESPONSE
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST\_RESPONSE\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_COMPACT\_RESPONSE
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_COMPACT\_RESPONSE\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_DEVICE\_FAULT
- #define EMBER\_AF\_PUMP\_STATUS\_SUPPLYFAULT
- #define EMBER\_AF\_PUMP\_STATUS\_SUPPLYFAULT\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_LOW
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_LOW\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_HIGH
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_LOCAL\_OVERRIDE
- #define EMBER\_AF\_PUMP\_STATUS\_LOCAL\_OVERRIDE\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_RUNNING
- #define EMBER\_AF\_PUMP\_STATUS\_RUNNING\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_PRESSURE
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_PRESSURE\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_FLOW
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_FLOW\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_TEMPERATURE
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_TEMPERATURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_LOW
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_POWER\_MISSING\_PHASE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_POWER\_MISSING\_PHASE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_LOW
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_LOW\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_DRY\_RUNNING
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_DRY\_RUNNING\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_MOTOR\_TEMPERATURE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_MOTOR\_TEMPERATURE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_MOTOR\_HAS\_FATAL\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_MOTOR\_HAS\_FATAL\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_TEMPERATURE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_TEMPERATURE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_BLOCKED
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_BLOCKED\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SENSOR\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SENSOR\_FAILURE\_OFFSET

- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_NON\_FATAL\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_NON\_FATAL\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_FATAL\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_FATAL\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_GENERAL\_FAULT
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_GENERAL\_FAULT\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_OCCUPANCY\_OCCUPIED
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_LOCAL\_TEMP\_SENSED\_Remotely
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OUTDOOR\_TEMP\_SENSED\_Remotely
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OUTDOOR\_TEMP\_SENSED\_Remotely\_Offset
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OCCUPANCY\_SENSED\_Remotely
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OCCUPANCY\_SENSED\_Remotely\_Offset
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_INITIALIZATION\_FAILURE
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_HARDWARE\_FAILURE
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_HARDWARE\_FAILURE\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_SELFCALIBRATION\_FAILURE
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_SELFCALIBRATION\_FAILURE\_OFFSET
- #define EMBER\_AF\_BALAST\_STATUS\_NON\_OPERATIONAL
- #define EMBER\_AF\_BALAST\_STATUS\_LAMP\_NOT\_IN\_SOCKET
- #define EMBER\_AF\_BALAST\_STATUS\_LAMP\_NOT\_IN\_SOCKET\_OFFSET
- #define EMBER\_AF\_LAMP\_ALARM\_MODE\_LAMP\_BURN\_HOURS
- #define EMBER\_AF\_OCCUPANCY\_OCCUPIED
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM1
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM2
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM2\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TAMPER
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TAMPER\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_SUPERVISION\_REPORTS
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_SUPERVISION\_REPORTS\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_RESTORE\_REPORTS
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_RESTORE\_REPORTS\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TROUBLE
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TROUBLE\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_A\_C
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_A\_C\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TEST
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TEST\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_DEFECT
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_DEFECT\_OFFSET
- #define EMBER\_AF\_WARNING\_INFO\_MODE
- #define EMBER\_AF\_WARNING\_INFO\_MODE\_OFFSET
- #define EMBER\_AF\_WARNING\_INFO\_STROBE
- #define EMBER\_AF\_WARNING\_INFO\_STROBE\_OFFSET
- #define EMBER\_AF\_SQUAWK\_INFO\_MODE

- #define EMBER\_AF\_SQUAWK\_INFO\_MODE\_OFFSET
- #define EMBER\_AF\_SQUAWK\_INFO\_STROBE
- #define EMBER\_AF\_SQUAWK\_INFO\_STROBE\_OFFSET
- #define EMBER\_AF\_SQUAWK\_INFO\_LEVEL
- #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_RIGHT\_OF\_THE\_DECIMAL\_POINT
- #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_LEFT\_OF\_THE\_DECIMAL\_POINT
- #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_LEFT\_OF\_THE\_DECIMAL\_POINT\_OFFSET
- #define EMBER\_AF\_ENERGY\_FORMATTING\_SUPPRESS.LEADING\_ZEROS
- #define EMBER\_AF\_ENERGY\_FORMATTING\_SUPPRESS.LEADING\_ZEROS\_OFFSET
- #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_REMOTE\_ENABLE\_FLAGS
- #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_DEVICE\_STAT-US2\_STRUCTURE
- #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_DEVICE\_STAT-US2\_STRUCTURE\_OFFSET
- #define EMBER\_AF\_START\_TIME\_MINUTES
- #define EMBER\_AF\_START\_TIME\_TIME\_ENCODING
- #define EMBER\_AF\_START\_TIME\_TIME\_ENCODING\_OFFSET
- #define EMBER\_AF\_START\_TIME\_HOURS
- #define EMBER\_AF\_START\_TIME\_HOURS\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SUNDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_MONDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_MONDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_TUESDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_TUESDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_WEDNESDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_WEDNESDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_THURSDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_THURSDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_FRIDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_FRIDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SATURDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SATURDAY\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_SECOND\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_SECOND\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_SECOND\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_SECOND\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_SECOND\_STAGE\_STATE\_ON

- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_SECOND\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_THIRD\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_THIRD\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_SUNDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_MONDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_MONDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_TUESDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_TUESDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_WEDNESDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_WEDNESDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_THURSDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_THURSDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_FRIDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_FRIDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_SATURDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_SATURDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_AWAY\_OR\_VACATION
- #define EMBER\_AF\_DAY\_OF\_WEEK\_AWAY\_OR\_VACATION\_OFFSET
- #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_HEAT\_SETPOINT\_FIELD\_PRESENT
- #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_COOL\_SETPOINT\_FIELD\_PRESENT
- #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_COOL\_SETPOINT\_FIELD\_PRESENT\_OFFSET
- #define EMBER\_AF\_ALERT\_STRUCTURE\_ALERT\_ID
- #define EMBER\_AF\_ALERT\_STRUCTURE\_CATEGORY
- #define EMBER\_AF\_ALERT\_STRUCTURE\_CATEGORY\_OFFSET
- #define EMBER\_AF\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY
- #define EMBER\_AF\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_OFFSET
- #define EMBER\_AF\_ALERT\_COUNT\_NUMBER\_OF\_ALERTS
- #define EMBER\_AF\_ALERT\_COUNT\_TYPE\_OF\_ALERT
- #define EMBER\_AF\_ALERT\_COUNT\_TYPE\_OF\_ALERT\_OFFSET
- #define EMBER\_AF\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE
- #define EMBER\_AF\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL
- #define EMBER\_AF\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL\_OFFSET
- #define EMBER\_AF\_CONVERSION\_FACTOR\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_CONVERSION\_FACTOR\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_CALORIFIC\_VALUE\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_CALORIFIC\_VALUE\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_C\_O2\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_C\_O2\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_AND\_PRICE\_TIER\_PRICE\_TIER
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_AND\_PRICE\_TIER\_TRAILING\_DIGIT
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_AND\_PRICE\_TIER\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_NUMBER\_OF\_PRICE\_TIERS\_AND\_REGISTER\_TIER\_REGISTER\_TIER

- #define EMBER\_AF\_PRICE\_NUMBER\_OF\_PRICE\_TIERS\_AND\_REGISTER\_TIER\_NUMBER\_OF\_PRICE\_TIERS
- #define EMBER\_AF\_PRICE\_NUMBER\_OF\_PRICE\_TIERS\_AND\_REGISTER\_TIER\_NUMBER\_OF\_PRICE\_TIERS\_OFFSET
- #define EMBER\_AF\_ALTERNATE\_COST\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_ALTERNATE\_COST\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_CONTROL\_MASK\_PRICE\_ACKNOWLEDGEMENT\_REQUIREMENT
- #define EMBER\_AF\_PRICE\_CONTROL\_MASK\_TOTAL\_TIERS\_EXCEEDS15
- #define EMBER\_AF\_PRICE\_CONTROL\_MASK\_TOTAL\_TIERS\_EXCEEDS15\_OFFSET
- #define EMBER\_AF\_BLOCK\_PERIOD\_CONTROL\_PRICE\_ACKNOWLEDGEMENT\_REQUIREMENT
- #define EMBER\_AF\_BLOCK\_PERIOD\_CONTROL\_REPEAT\_BLOCK
- #define EMBER\_AF\_BLOCK\_PERIOD\_CONTROL\_REPEAT\_BLOCK\_OFFSET
- #define EMBER\_AF\_TARIFF\_TYPE\_CHARGING\_SCHEME\_TARIFF\_TYPE
- #define EMBER\_AF\_TARIFF\_TYPE\_CHARGING\_SCHEME\_TARIFF\_CHARGING\_SCHEME
- #define EMBER\_AF\_TARIFF\_TYPE\_CHARGING\_SCHEME\_TARIFF\_CHARGING\_SCHEME\_OFFSET
- #define EMBER\_AF\_PRICE\_MATRIX\_SUB\_PAYLOAD\_CONTROL\_TOU\_BASED
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_SUB\_PAYLOAD\_CONTROL\_APPLY\_TO\_ALL\_TOU\_TIERS\_OR\_WHEN\_BLOCK\_ONLY\_CHARGING
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_DURATION
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_UNITS
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_UNITS\_OFFSET
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_TYPE\_TIMEBASE
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_TYPE\_CONTROL
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_TYPE\_CONTROL\_OFFSET
- #define EMBER\_AF\_BILL\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_BILL\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CLEAR\_BILLING\_INFO
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_BILLING\_INFO\_USING\_NEW\_CURRENCY
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_BILLING\_INFO\_USING\_NEW\_CURRENCY\_OFFSET
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CLEAR\_OLD\_CONSUMPTION\_DATA
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CLEAR\_OLD\_CONSUMPTION\_DATA\_OFFSET
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_OLD\_CONSUMPTION\_DATA\_USING\_NEW\_CURRENCY
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_OLD\_CONSUMPTION\_DATA\_USING\_NEW\_CURRENCY\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER1
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER1\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER2
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER2\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER3
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER3\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER4
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER4\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER5

- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER5\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER6\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER6\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER7\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER7\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER8\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER8\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER9\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER9\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER10\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER10\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER11\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER11\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER12\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER12\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER13\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER13\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER14\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER15\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER15\_OFFSET
- #define EMBER\_AF\_AMI\_COMMAND\_OPTIONS\_REQUEST\_RX\_ON\_WHEN\_IDLE
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_HVAC\_COMPRESSOR\_OR\_FURNACE
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_STRIP\_HEAT\_BASEBOARD\_HEAT
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_STRIP\_HEAT\_BASEBOARD\_HEAT\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_WATER\_HEATER
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_WATER\_HEATER\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_POOL\_PUMP\_SPA\_JACUZZI
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_POOL\_PUMP\_SPA\_JACUZZI\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SMART\_APPLIANCES
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SMART\_APPLIANCES\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_IRRIGATION\_PUMP
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_IRRIGATION\_PUMP\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_MANAGED\_C\_AND\_I\_LOADS
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_MANAGED\_C\_AND\_I\_LOADS\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SIMPLE\_MISC\_LOADS
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SIMPLE\_MISC\_LOADS\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_EXTERIOR\_LIGHTING
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_EXTERIOR\_LIGHTING\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_INTERIOR\_LIGHTING
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_INTERIOR\_LIGHTING\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_ELECTRIC\_VEHICLE
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_ELECTRIC\_VEHICLE\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_GENERATION\_SYSTEMS
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_GENERATION\_SYSTEMS\_OFFSET
- #define EMBER\_AF\_AMI\_EVENT\_CONTROL\_RANDOMIZED\_START\_TIME
- #define EMBER\_AF\_AMI\_EVENT\_CONTROL\_RANDOMIZED\_END\_TIME
- #define EMBER\_AF\_AMI\_EVENT\_CONTROL\_RANDOMIZED\_END\_TIME\_OFFSET
- #define EMBER\_AF\_AMI\_CANCEL\_CONTROL\_TERMINATE\_WITH\_RANDOMIZATION
- #define EMBER\_AF\_AMI\_METER\_STATUS\_CHECK\_METER

- #define EMBER\_AF\_AMI\_METER\_STATUS\_LOW\_BATTERY
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_TAMPER\_DETECT
- #define EMBER\_AF\_AMI\_METER\_STATUS\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_FAILURE
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_FAILURE\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_QUALITY
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_QUALITY\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LEAK\_DETECT
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_SERVICE\_DISCONNECT\_OPEN
- #define EMBER\_AF\_AMI\_METER\_STATUS\_SERVICE\_DISCONNECT\_OPEN\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_RESERVED
- #define EMBER\_AF\_AMI\_METER\_STATUS\_RESERVED\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_FAILURE
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_QUALITY
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_QUALITY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_SERVICE\_DISCONNECT\_OPEN
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_SERVICE\_DISCONNECT\_OPEN\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_RESERVED
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_RESERVED\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_NOT\_DEFINED
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_NOT\_DEFINED\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_PRESSURE
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_PRESSURE\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_SERVICE\_DISCONNECT
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_SERVICE\_DISCONNECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_REVERSE\_FLOW
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_REVERSE\_FLOW\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_TAMPER\_DETECT\_OFFSET

- #define EMBER\_AF\_METERING\_STATUS\_WATER\_PIPE\_EMPTY
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_PIPE\_EMPTY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_PRESSURE
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_PRESSURE\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_SERVICE\_DISCONNECT
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_SERVICE\_DISCONNECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_REVERSE\_FLOW
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_REVERSE\_FLOW\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TEMPERATURE\_SENSOR
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TEMPERATURE\_SENSOR\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_BURST\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_BURST\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_SERVICE\_DISCONNECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_SERVICE\_DISCONNECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_FLOW\_SENSOR
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_FLOW\_SENSOR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_METER\_COVER\_REMOVED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_STRONG\_MAGNETIC\_FIELD\_DETECTED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_STRONG\_MAGNETIC\_FIELD\_DETECTED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_BATTERY\_FAILURE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_BATTERY\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_PROGRAM\_MEMORY\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_PROGRAM\_MEMORY\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_RAM\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_RAM\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_NV\_MEMORY\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_NV\_MEMORY\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SYSTEM\_ERROR

- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SYSTEM\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_WATCHDOG\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_WATCHDOG\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_DISCONNECT\_FAILURE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_DISCONNECT\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_CONNECT\_FAILURE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_CONNECT\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SW\_CHANGED\_TAMPERED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SW\_CHANGED\_TAMPERED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_CLOCK\_INVALID
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_CLOCK\_INVALID\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_TEMPERATURE\_EXCEEDED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_TEMPERATURE\_EXCEEDED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MOISTURE\_DETECTED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MOISTURE\_DETECTED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_BATTERY\_COVER\_REMOVED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_BATTERY\_COVER\_REMOVED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_TILT\_TAMPER
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_TILT\_TAMPER\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_EXCESS\_FLOW
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_EXCESS\_FLOW\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_LIMIT\_THRESHOLD\_EXCEEDED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_LIMIT\_THRESHOLD\_EXCEEDED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_UNDER\_VOLTAGE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_UNDER\_VOLTAGE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_OVER\_VOLTAGE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_OVER\_VOLTAGE\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NEW\_OTA\_FIRMWARE
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CBKE\_UPDATE\_REQUEST
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CBKE\_UPDATE\_REQUEST\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TIME\_SYNC
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TIME\_SYNC\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_HAN

- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_H\_AN\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_W\_AN
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_W\_AN\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NETWORK\_KEY\_ACTIVE
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NETWORK\_KEY\_ACTIVE\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_DISPLAY\_MESSAGE
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_DISPLAY\_MESSAGE\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CANCEL\_ALL\_MESSAGES
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CANCEL\_ALL\_MESSAGES\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CHANGE\_SUPPLY
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CHANGE\_SUPPLY\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_LOCAL\_CHANGE\_SUPPLY
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_LOCAL\_CHANGE\_SUPPLY\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TUNNEL\_MESSAGE\_PENDING
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TUNNEL\_MESSAGE\_PENDING\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SNAPSHOT
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SNAPSHOT\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SAMPLED\_DATA

- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SAMPLED\_DATA\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_GENERAL
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BLOCK\_PERIOD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BLOCK\_PERIOD\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_BLOCK\_THRESHOLDS
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_BLOCK\_THRESHOLDS\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CV
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CV\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CF
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CF\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CALENDAR
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CALENDAR\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CRITICAL\_PEAK\_PRICING
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CRITICAL\_PEAK\_PRICING\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_RESOLVE\_PERIOD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_RESOLVE\_PERIOD\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_MODE
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_MODE\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_DEBT\_PAYMENT
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_DEBT\_PAYMENT\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_SCHEDULED\_SNAPSHOT
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_SCHEDULED\_SNAPSHOT\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_OTA\_FIRMWARE\_DOWNLOAD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_OTA\_FIRMWARE\_DOWNLOAD\_OFFSET
- #define EMBER\_AF\_SUPPLY\_CONTROL\_BITS\_ACKNOWLEDGE\_REQUIRED
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_TRANS\_MECHANISM
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_URGENCY
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_URGENCY\_OFFSET
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_ENHANCED\_CONFIRMATION\_REQUEST
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_ENHANCED\_CONFIRMATION\_REQUEST\_OFFSET
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION\_OFFSET
- #define EMBER\_AF\_MESSAGING\_EXTENDED\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION\_STATUS

- #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_NO\_RETURNED
- #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_YES\_RETURNED
- #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_YES\_RETURNED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_DISCONNECTION\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_PREPAYMENT\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_PREPAYMENT\_ENABLED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_MANAGEMENT\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_MANAGEMENT\_ENABLED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_DISPLAY\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_DISPLAY\_ENABLED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_ACCOUNT\_BASE
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_ACCOUNT\_BASE\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CONTACTOR\_FITTED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CONTACTOR\_FITTED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_STANDING\_CHARGE\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_STANDING\_CHARGE\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_STANDING\_CHARGE\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_STANDING\_CHARGE\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_DEBT\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_DEBT\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_DEBT\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_DEBT\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_CREDIT\_OK
- #define EMBER\_AF\_CREDIT\_STATUS\_LOW\_CREDIT
- #define EMBER\_AF\_CREDIT\_STATUS\_LOW\_CREDIT\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_ENABLED
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_ENABLED\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_AVAILABLE
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_AVAILABLE\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_SELECTED
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_SELECTED\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_IN\_USE
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_IN\_USE\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_CREDIT\_EXHAUSTED
- #define EMBER\_AF\_CREDIT\_STATUS\_CREDIT\_EXHAUSTED\_OFFSET

- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_LOW\_CREDIT\_WARNING
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ERROR
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ERROR\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ALREADY\_USED
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ALREADY\_USED\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_INVALID
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_INVALID\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_IN\_USE
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_IN\_USE\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_EC\_AVAILABLE
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_EC\_AVAILABLE\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_UNAUTHORISED\_ENERGY\_USE
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_UNAUTHORISED\_ENERGY\_USE\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_CREDIT
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_CREDIT\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_TAMPER
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_TAMPER\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_HES
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_HES\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_PHYSICAL\_ATTACK
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_PHYSICAL\_ATTACK\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_ELECTRONIC\_ATTACK
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_ELECTRONIC\_ATTACK\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_A
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_A\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_B
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_B\_OFFSET
- #define EMBER\_AF\_ORIGINATOR\_ID\_SUPPLY\_CONTROL\_BITS\_ACKNOWLEDGE\_REQUIRED
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_GENERAL
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION\_OFFSET

- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TENANCY
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TENANCY\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_SUPPLIER
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_SUPPLIER\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_METER\_MODE
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_METER\_MODE\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_TOP\_UP\_ADDITION
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_TOP\_UP\_ADDITION\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_DEBT\_CREDIT\_ADDITION
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_DEBT\_CREDIT\_ADDITION\_OFFSET
- #define EMBER\_AF\_FRIENDLY\_CREDIT\_FRIENDLY\_CREDIT\_ENABLED
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_RELAY\_OPEN\_OR\_CONSUMPTION\_INTERRUPTED
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_EVENT\_IN\_PROGRESS
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_EVENT\_IN\_PROGRESS\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_POWER\_STABILIZING
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_POWER\_STABILIZING\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_OTHER\_LOAD\_REDUCTION
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_OTHER\_LOAD\_REDUCTION\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_CURRENT\_FLOW\_OR\_CONSUMING\_COMMODITY
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_CURRENT\_FLOW\_OR\_CONSUMING\_COMMODITY\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_LOAD\_CALL
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_LOAD\_CALL\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_START\_TIME
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_DURATION
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_DURATION\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EXTENDED\_BITS\_PRESENT
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EXTENDED\_BITS\_PRESENT\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EVENT\_ACTIVE
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EVENT\_ACTIVE\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_DEVICE\_PARTICIPATING\_IN\_EVENT
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_DEVICE\_PARTICIPATING\_IN\_EVENT\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_REDUCING\_LOAD
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_REDUCING\_LOAD\_OFFSET

- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_ON\_AT\_END\_OF\_EVENT
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_ON\_AT\_END\_OF\_EVENT\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH1
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH2
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH2\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH3
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH3\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH4
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH4\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH5
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH5\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH6
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH6\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH7
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH7\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH8
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH8\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_PRE\_SNAPSHOTS
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_POST\_SNAPSHOTS
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_POST\_SNAPSHOTS\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_CREDIT\_REGISTER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_CREDIT\_REGISTER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_DEBIT\_REGISTER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_DEBIT\_REGISTER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_BILLING\_PERIOD
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_BILLING\_PERIOD\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TARIFF\_PLAN
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TARIFF\_PLAN\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_STANDING\_CHARGE
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_STANDING\_CHARGE\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_BLOCK\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_BLOCK\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_CONSUMER

- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_CONSUMER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_SUPPLIER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_SUPPLIER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_METER\_CONNECTOR\_STATE\_ON\_OFF\_ARMED
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_METER\_CONNECTOR\_STATE\_ON\_OFF\_ARMED\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TRANSACTION\_LOG
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TRANSACTION\_LOG\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_PREPAYMENT\_LOG
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_PREPAYMENT\_LOG\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_LOG\_ACTION
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_W\_A\_N
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_W\_A\_N\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_H\_A\_N
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_H\_A\_N\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_ZIG\_BEE
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_ZIG\_BEE\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_PHYSICAL
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_PHYSICAL\_OFFSET
- #define EMBER\_AF\_EVENT\_CONTROL\_LOG\_ID\_LOG\_ID
- #define EMBER\_AF\_EVENT\_CONTROL\_LOG\_ID\_EVENT\_CONTROL
- #define EMBER\_AF\_EVENT\_CONTROL\_LOG\_ID\_EVENT\_CONTROL\_OFFSET
- #define EMBER\_AF\_EVENT\_ACTION\_CONTROL\_REPORT\_EVENT\_TO\_H\_A\_N\_DEVICES
- #define EMBER\_AF\_EVENT\_ACTION\_CONTROL\_REPORT\_EVENT\_TO\_W\_A\_N
- #define EMBER\_AF\_EVENT\_ACTION\_CONTROL\_REPORT\_EVENT\_TO\_W\_A\_N\_OFFSET
- #define EMBER\_AF\_NUMBER\_OF\_EVENTS\_LOG\_PAYLOAD\_CONTROL\_LOG\_PAYLOAD\_CONTROL
- #define EMBER\_AF\_NUMBER\_OF\_EVENTS\_LOG\_PAYLOAD\_CONTROL\_NUMBER\_OF\_EVENTS
- #define EMBER\_AF\_NUMBER\_OF\_EVENTS\_LOG\_PAYLOAD\_CONTROL\_NUMBER\_OF\_EVENTS\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_ALL\_LOGS\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_TAMPER\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_TAMPER\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_FAULT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_FAULT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_GENERAL\_EVENT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_GENERAL\_EVENT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_SECURITY\_EVENT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_SECURITY\_EVENT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_NETWORK\_EVENT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_NETWORK\_EVENT\_LOG\_CLEARED\_OFFSET

- #define EMBER\_AF\_SCENES\_COPY\_MODE\_COPY\_ALL\_SCENES
- #define EMBER\_AF\_ON\_OFF\_CONTROL\_ACCEPT\_ONLY\_WHEN\_ON
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_HUE\_SATURATION\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_ENHANCED\_HUE\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_ENHANCED\_HUE\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_LOOP\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_LOOP\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_X\_Y\_ATTRIBUTES\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_X\_Y\_ATTRIBUTES\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_TEMPERATURE\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_TEMPERATURE\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_ACTION
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_DIRECTION
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_DIRECTION\_OFFSET
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_TIME
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_TIME\_OFFSET
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_START\_HUE
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_START\_HUE\_OFFSET
- #define EMBER\_AF\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE
- #define EMBER\_AF\_ZIGBEE\_INFORMATION\_RX\_ON\_WHEN\_IDLE
- #define EMBER\_AF\_ZIGBEE\_INFORMATION\_RX\_ON\_WHEN\_IDLE\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_FACTORY\_NEW
- #define EMBER\_AF\_ZLL\_INFORMATION\_ADDRESS\_ASSIGNMENT
- #define EMBER\_AF\_ZLL\_INFORMATION\_ADDRESS\_ASSIGNMENT\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_INITIATOR
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_INITIATOR\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_PRIORITY\_REQUEST
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_PRIORITY\_REQUEST\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_PROFILE\_INTEROP
- #define EMBER\_AF\_ZLL\_INFORMATION\_PROFILE\_INTEROP\_OFFSET
- #define EMBER\_AF\_KEY\_BITMASK\_DEVELOPMENT
- #define EMBER\_AF\_KEY\_BITMASK\_MASTER
- #define EMBER\_AF\_KEY\_BITMASK\_MASTER\_OFFSET
- #define EMBER\_AF\_KEY\_BITMASK\_CERTIFICATION
- #define EMBER\_AF\_KEY\_BITMASK\_CERTIFICATION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_ACTIVE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_ACTIVE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_VALID
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_VALID\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SEQUENCE\_NUMBER\_CAP
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SEQUENCE\_NUMBER\_CAP\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_LIGHTWEIGHT\_UNICAST\_G-PS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_LIGHTWEIGHT\_UNICAST\_G-PS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_DERIVED\_GROUP\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_DERIVED\_GROUP\_GPS\_OFFSET

- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_COMMISIONED\_GROUP\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_COMMISIONED\_GROUP\_GPS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FIRST\_TO\_FORWARD
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FIRST\_TO\_FORWARD\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_IN\_RANGE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_IN\_RANGE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_GPD\_FIXED
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_GPD\_FIXED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_HAS\_ALL\_UNICAST\_ROUTES
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_HAS\_ALL\_UNICAST\_ROUTES\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ASSIGNED\_ALIAS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ASSIGNED\_ALIAS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SECURITY\_USE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SECURITY\_USE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_EXTENSION
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_EXTENSION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FULL\_UNICAST\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FULL\_UNICAST\_GPS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_MAC\_SEQ\_NUM\_CAP
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RX\_ON\_CAP
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RX\_ON\_CAP\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_APPLICATION\_INFORMATION\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_APPLICATION\_INFORMATION\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_PAN\_ID\_REQUEST
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_PAN\_ID\_REQUEST\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_GP\_SECURITY\_KEY\_REQUEST
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_GP\_SECURITY\_KEY\_REQUEST\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_FIXED\_LOCATION
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_FIXED\_LOCATION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_EXTENDED\_OPTIONS\_FIELD

- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_EXTENDED\_OPTIONS\_FIELD\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_SECURITY\_LEVEL\_CAPABILITIES
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_KEY\_TYPE
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_ENCRYPTION
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_ENCRYPTION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_OUTGOING\_COUNTER\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_OUTGOING\_COUNTER\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_PAN\_ID\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPD\_SECURITY\_KEY\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPD\_SECURITY\_KEY\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPDKEY\_ENCRYPTION
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPDKEY\_ENCRYPTION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_KEY\_TYPE
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_UNICAST
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_UNICAST\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_DERIVED\_GROUP
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_DERIVED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_COMMISSIONED\_GROUP
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_COMMISSIONED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_GP\_TX\_QUEUE\_FULL
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_GP\_TX\_QUEUE\_FULL\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY

- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_UNICAST\_SINKS
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_UNICAST\_SINKS\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_DERIVED\_GROUPCAST\_SINKS
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_DERIVED\_GROUPCAST\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_COMMISIONED\_GROUPCAST\_SINKS
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_COMMISIONED\_GROUPCAST\_SINKS\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_FRAME\_COUNTER
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_FRAME\_COUNTER\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_KEY
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_KEY\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_ALSO\_DERIVED\_GROUP
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_ALSO\_DERIVED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_ALSO\_COMMISIONED\_GROUP
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_ALSO\_COMMISIONED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX\_OFFSET
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_SECURITY\_PROCESSING\_FAILED
- #define EMBER\_AF\_GP\_COMMISIONING\_NOTIFICATION\_OPTION\_SECURITY\_PROCESSING\_FAILED\_OFFSET

- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_C-APABILITY
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_C-APABILITY\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_ACTION
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN-SECURITY
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN-SECURITY\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN-PAIRING
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN-PAIRING\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_PROXYIES
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_PROXYIES\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_ACTION
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_ACTION\_OFFSET
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_NUMBER\_OF\_TRANSLATIONS
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_NUMBER\_OF\_TRANSLATIONS\_OFFSET
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_ACTION
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_SEND\_GP\_PAIRING
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_SEND\_GP\_PAIRING\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_OFFSET

- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SEQUENCE\_NUMBER\_CAPABILITIES
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SEQUENCE\_NUMBER\_CAPABILITIES\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RX\_ON\_CAPABILITY
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RX\_ON\_CAPABILITY\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_FIXED\_LOCATION
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_FIXED\_LOCATION\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_ASSIGNED\_ALIAS
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_ASSIGNED\_ALIAS\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SECURITY\_USE
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SECURITY\_USE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_INFORMATION\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_INFORMATION\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MANUFACTURE\_ID\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MODEL\_ID\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MODEL\_ID\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_GPD\_COMMANDS\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_GPD\_COMMANDS\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_CLUSTER\_LIST\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_CLUSTER\_LIST\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_FIRST\_TO\_FORWARD
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_FIRST\_TO\_FORWARD\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_NO\_PAIRING
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_NO\_PAIRING\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ADD\_SINK
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ADD\_SINK\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_REMOVE\_GPD
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_REMOVE\_GPD\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_COMMUNICATION\_MODE
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_COMMUNICATION\_MODE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_FIXED
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_FIXED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_MAC\_SEQUENCE\_NUMBER\_CAPABILITIES
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_MAC\_SEQUENCE\_NUMBER\_CAPABILITIES\_OFFSET

- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_FRAME\_COUNTER\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_FRAME\_COUNTER\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_KEY\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_KEY\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ASSIGNED\_ALIAS\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ASSIGNED\_ALIAS\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_FORWARDING\_RADIUS\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_FORWARDING\_RADIUS\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_ACTION
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_EXIT\_MODE
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_EXIT\_MODE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_CHANNEL\_PRESENT
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_CHANNEL\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_UNICAST\_COMMUNICATION
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_UNICAST\_COMMUNICATION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_COMMISSIONING\_WINDOW\_EXPIRATION
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_COMMISSIONING\_WINDOW\_EXPIRATION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_FIRST\_PAIRING\_SUCCESS
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_FIRST\_PAIRING\_SUCCESS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_OFFSET
- #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_TRANSMIT CHANNEL
- #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_RESERVED
- #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_RESERVED\_OFFSET

- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_RESERVED\_OFFSET

### 6.6.1 Detailed Description

This header provides Application Framework enum definitions.

### 6.6.2 Macro Definition Documentation

#### 6.6.2.1 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_OPERATIONAL

Definition at line 2120 of file [enums.doc](#).

#### 6.6.2.2 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_ADJUSTING

Definition at line 2121 of file [enums.doc](#).

#### 6.6.2.3 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_ADJUSTING\_OFFSET

Definition at line 2122 of file [enums.doc](#).

#### 6.6.2.4 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_OPENING

Definition at line 2123 of file [enums.doc](#).

#### 6.6.2.5 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_OPENING\_OFFSET

Definition at line 2124 of file [enums.doc](#).

#### 6.6.2.6 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_MOTOR\_OPENING

Definition at line 2125 of file [enums.doc](#).

#### 6.6.2.7 #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_MOTOR\_OPENING\_OFFSET

Definition at line 2126 of file [enums.doc](#).

#### 6.6.2.8 #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_HW\_FAULT

Definition at line 2127 of file [enums.doc](#).

**6.6.2.9 #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_SWFAULT**

Definition at line 2128 of file [enums.doc](#).

**6.6.2.10 #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_SWFAULT\_OFFSET**

Definition at line 2129 of file [enums.doc](#).

**6.6.2.11 #define EMBER\_AF\_RESTART\_OPTIONS\_START\_MODE1**

Definition at line 2130 of file [enums.doc](#).

**6.6.2.12 #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE2**

Definition at line 2131 of file [enums.doc](#).

**6.6.2.13 #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE2\_OFFSET**

Definition at line 2132 of file [enums.doc](#).

**6.6.2.14 #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE3**

Definition at line 2133 of file [enums.doc](#).

**6.6.2.15 #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE3\_OFFSET**

Definition at line 2134 of file [enums.doc](#).

**6.6.2.16 #define EMBER\_AF\_RESTART\_OPTIONS\_IMMEDIATE**

Definition at line 2135 of file [enums.doc](#).

**6.6.2.17 #define EMBER\_AF\_RESTART\_OPTIONS\_IMMEDIATE\_OFFSET**

Definition at line 2136 of file [enums.doc](#).

**6.6.2.18 #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_CURRENT**

Definition at line 2137 of file [enums.doc](#).

**6.6.2.19 #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_ALL**

Definition at line 2138 of file [enums.doc](#).

**6.6.2.20 #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_ALL\_OFFSET**

Definition at line [2139](#) of file [enums.doc](#).

**6.6.2.21 #define EMBER\_AF\_RESET\_OPTIONS\_ERASE\_INDEX**

Definition at line [2140](#) of file [enums.doc](#).

**6.6.2.22 #define EMBER\_AF\_RESET\_OPTIONS\_ERASE\_INDEX\_OFFSET**

Definition at line [2141](#) of file [enums.doc](#).

**6.6.2.23 #define EMBER\_AF\_MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_LOW**

Definition at line [2142](#) of file [enums.doc](#).

**6.6.2.24 #define EMBER\_AF\_MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_HIGH**

Definition at line [2143](#) of file [enums.doc](#).

**6.6.2.25 #define EMBER\_AF\_MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_HIGH\_OFFSET**

Definition at line [2144](#) of file [enums.doc](#).

**6.6.2.26 #define EMBER\_AF\_MAINS\_ALARM\_MASK\_MAINS\_POWER\_SUPPLY\_LOST**

Definition at line [2145](#) of file [enums.doc](#).

**6.6.2.27 #define EMBER\_AF\_MAINS\_ALARM\_MASK\_MAINS\_POWER\_SUPPLY\_LOST\_OFFSET**

Definition at line [2146](#) of file [enums.doc](#).

**6.6.2.28 #define EMBER\_AF\_BATTERY\_ALARM\_MASK\_VOLTAGE\_TOO\_LOW**

Definition at line [2147](#) of file [enums.doc](#).

**6.6.2.29 #define EMBER\_AF\_DEVICE\_TEMP\_ALARM\_MASK\_TOO\_LOW**

Definition at line [2148](#) of file [enums.doc](#).

**6.6.2.30 #define EMBER\_AF\_DEVICE\_TEMP\_ALARM\_MASK\_TOO\_HIGH**

Definition at line [2149](#) of file [enums.doc](#).

**6.6.2.31 #define EMBER\_AF\_DEVICE\_TEMP\_ALARM\_MASK\_TOO\_HIGH\_OFFSET**

Definition at line 2150 of file [enums.doc](#).

**6.6.2.32 #define EMBER\_AF\_TIME\_STATUS\_MASK\_MASTER\_CLOCK**

Definition at line 2151 of file [enums.doc](#).

**6.6.2.33 #define EMBER\_AF\_TIME\_STATUS\_MASK\_SYNCHRONIZED**

Definition at line 2152 of file [enums.doc](#).

**6.6.2.34 #define EMBER\_AF\_TIME\_STATUS\_MASK\_SYNCHRONIZED\_OFFSET**

Definition at line 2153 of file [enums.doc](#).

**6.6.2.35 #define EMBER\_AF\_LOCATION\_TYPE\_ABSOLUTE**

Definition at line 2154 of file [enums.doc](#).

**6.6.2.36 #define EMBER\_AF\_LOCATION\_TYPE2\_D**

Definition at line 2155 of file [enums.doc](#).

**6.6.2.37 #define EMBER\_AF\_LOCATION\_TYPE2\_D\_OFFSET**

Definition at line 2156 of file [enums.doc](#).

**6.6.2.38 #define EMBER\_AF\_LOCATION\_TYPE\_COORDINATE\_SYSTEM**

Definition at line 2157 of file [enums.doc](#).

**6.6.2.39 #define EMBER\_AF\_LOCATION\_TYPE\_COORDINATE\_SYSTEM\_OFFSET**

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**6.6.2.40 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_ABSOLUTE\_ONLY**

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**6.6.2.41 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_RECALCULATE**

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**6.6.2.42 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS recalculate\_offset**

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**6.6.2.43 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS broadcast**

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**6.6.2.45 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS broadcast\_response**

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**6.6.2.46 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS broadcast\_response\_offset**

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**6.6.2.47 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS compact\_response**

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**6.6.2.48 #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS compact\_response\_offset**

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**6.6.2.49 #define EMBER\_AF\_PUMP\_STATUS\_DEVICE\_FAULT**

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**6.6.2.50 #define EMBER\_AF\_PUMP\_STATUS\_SUPPLYFAULT**

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**6.6.2.51 #define EMBER\_AF\_PUMP\_STATUS\_SUPPLYFAULT\_OFFSET**

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**6.6.2.52 #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_LOW**

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**6.6.2.53 #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_LOW\_OFFSET**

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**6.6.2.55 #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_HIGH\_OFFSET**

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**6.6.2.56 #define EMBER\_AF\_PUMP\_STATUS\_LOCAL\_OVERRIDE**

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**6.6.2.60 #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_PRESSURE**

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**6.6.2.61 #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_PRESSURE\_OFFSET**

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**6.6.2.63 #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_FLOW\_OFFSET**

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**6.6.2.64 #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_TEMPERATURE**

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**6.6.2.65 #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_TEMPERATURE\_OFFSET**

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**6.6.2.66 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_LOW**

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**6.6.2.67 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_HIGH**

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**6.6.2.69 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_POWER\_MISSING\_PHASE**

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**6.6.2.71 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_LOW**

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**6.6.2.75 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_DRY\_RUNNING**

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**6.6.2.77 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_MOTOR\_TEMPERATURE\_TOO\_HIGH**

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**6.6.2.79 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_MOTOR\_HAS\_FATAL\_FAILURE**

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**6.6.2.80 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_MOTOR\_HAS\_FATAL\_FAILURE\_OFFSET**

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**6.6.2.81 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_TEMPERATURE\_TOO\_HIGH**

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**6.6.2.82 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_TEMPERATURE\_TOO\_HIGH\_OFFSET**

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**6.6.2.83 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_BLOCKED**

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**6.6.2.84 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_BLOCKED\_OFFSET**

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**6.6.2.85 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SENSOR\_FAILURE**

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**6.6.2.87 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_NON\_FATAL\_FAILURE**

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**6.6.2.88 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_NON\_FATAL\_FAILURE\_OFFSET**

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**6.6.2.89 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_FATAL\_FAILURE**

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**6.6.2.90 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_FATAL\_FAILURE\_OFFSET**

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**6.6.2.91 #define EMBER\_AF\_PUMP\_ALARM\_MASK\_GENERAL\_FAULT**

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**6.6.2.93 #define EMBER\_AF\_THERMOSTAT\_OCCUPANCY\_OCCUPIED**

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**6.6.2.94 #define EMBER\_AF\_THERMOSTAT\_SENSING\_LOCAL\_TEMP\_SENSED\_Remotely**

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**6.6.2.99 #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_INITIALIZATION\_FAILURE**

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**6.6.2.100 #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_HARDWARE\_FAILURE**

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**6.6.2.102 #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_SELFCALIBRATION\_FAILURE**

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**6.6.2.103 #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_SELFCALIBRATION\_FAILURE\_Offset**

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**6.6.2.104 #define EMBER\_AF\_BALLAST\_STATUS\_NON\_OPERATIONAL**

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**6.6.2.105 #define EMBER\_AF\_BALLAST\_STATUS\_LAMP\_NOT\_IN\_SOCKET**

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**6.6.2.106 #define EMBER\_AF\_BALLAST\_STATUS\_LAMP\_NOT\_IN\_SOCKET\_Offset**

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**6.6.2.107 #define EMBER\_AF\_LAMP\_ALARM\_MODE\_LAMP\_BURN\_HOURS**

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**6.6.2.108 #define EMBER\_AF\_OCCUPANCY\_OCCUPIED**

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**6.6.2.109 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM1**

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**6.6.2.110 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM2**

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**6.6.2.112 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TAMPER**

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**6.6.2.114 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY**

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**6.6.2.116 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_SUPERVISION\_REPORTS**

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**6.6.2.118 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_RESTORE\_REPORTS**

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**6.6.2.119 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_RESTORE\_REPORTS\_OFFSET**

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**6.6.2.120 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TROUBLE**

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**6.6.2.122 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_A\_C**

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**6.6.2.124 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TEST**

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**6.6.2.126 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_DEFECT**

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**6.6.2.127 #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_DEFECT\_OFFSET**

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**6.6.2.128 #define EMBER\_AF\_WARNING\_INFO\_MODE**

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**6.6.2.129 #define EMBER\_AF\_WARNING\_INFO\_MODE\_OFFSET**

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**6.6.2.130 #define EMBER\_AF\_WARNING\_INFO\_STROBE**

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**6.6.2.131 #define EMBER\_AF\_WARNING\_INFO\_STROBE\_OFFSET**

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**6.6.2.132 #define EMBER\_AF\_SQUAWK\_INFO\_MODE**

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**6.6.2.133 #define EMBER\_AF\_SQUAWK\_INFO\_MODE\_OFFSET**

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**6.6.2.134 #define EMBER\_AF\_SQUAWK\_INFO\_STROBE**

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**6.6.2.135 #define EMBER\_AF\_SQUAWK\_INFO\_STROBE\_OFFSET**

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**6.6.2.136 #define EMBER\_AF\_SQUAWK\_INFO\_LEVEL**

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**6.6.2.137 #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_RIGHT\_OF\_THE\_DECIMAL\_POINT**

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**6.6.2.138 #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_LEFT\_OF\_THE\_DECIMAL\_POINT**

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**6.6.2.139 #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_LEFT\_OF\_THE\_DECIMAL\_POINT\_OFFSET**

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**6.6.2.140 #define EMBER\_AF\_ENERGY\_FORMATTING\_SUPPRESS.LEADING\_ZEROS**

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6.6.2.141 #define EMBER\_AF\_ENERGY\_FORMATTING\_SUPPRESS.LEADING\_ZEROS\_OFFSET

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6.6.2.142 #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_REMOTE\_ENABLE\_FLAGS

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6.6.2.143 #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_DEVICE\_STATUS2\_STRUCTURE

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6.6.2.144 #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_DEVICE\_STATUS2\_STRUCTURE\_OFFSET

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6.6.2.146 #define EMBER\_AF\_START\_TIME\_TIME\_ENCODING

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6.6.2.147 #define EMBER\_AF\_START\_TIME\_TIME\_ENCODING\_OFFSET

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6.6.2.149 #define EMBER\_AF\_START\_TIME\_HOURS\_OFFSET

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6.6.2.151 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_MONDAY

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**6.6.2.152 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_MONDAY\_OFFSET**

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**6.6.2.153 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_TUESDAY**

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**6.6.2.154 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_TUESDAY\_OFFSET**

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**6.6.2.155 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_WEDNESDAY**

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**6.6.2.156 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_WEDNESDAY\_OFFSET**

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**6.6.2.157 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_THURSDAY**

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**6.6.2.158 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_THURSDAY\_OFFSET**

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**6.6.2.159 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_FRIDAY**

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**6.6.2.160 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_FRIDAY\_OFFSET**

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**6.6.2.161 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SATURDAY**

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**6.6.2.162 #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SATURDAY\_OFFSET**

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6.6.2.163 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_STATE\_ON

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6.6.2.164 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_STATE\_ON

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6.6.2.165 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_STATE\_ON\_OFFSET

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6.6.2.166 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_STATE\_ON

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6.6.2.168 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_SECOND\_STAGE\_STATE\_ON

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6.6.2.169 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_SECOND\_STAGE\_STATE\_ON\_OFFSET

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6.6.2.170 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_SECOND\_STAGE\_STATE\_ON

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6.6.2.171 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_SECOND\_STAGE\_STATE\_ON\_OFFSET

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6.6.2.172 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_SECOND\_STAGE\_STATE\_ON

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**6.6.2.174 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_THIRD\_STAGE\_STATE\_ON**

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**6.6.2.175 #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_THIRD\_STAGE\_STATE\_ON\_OFFSET**

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**6.6.2.176 #define EMBER\_AF\_DAY\_OF\_WEEK\_SUNDAY**

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**6.6.2.177 #define EMBER\_AF\_DAY\_OF\_WEEK\_MONDAY**

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**6.6.2.178 #define EMBER\_AF\_DAY\_OF\_WEEK\_MONDAY\_OFFSET**

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**6.6.2.179 #define EMBER\_AF\_DAY\_OF\_WEEK\_TUESDAY**

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**6.6.2.180 #define EMBER\_AF\_DAY\_OF\_WEEK\_TUESDAY\_OFFSET**

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**6.6.2.181 #define EMBER\_AF\_DAY\_OF\_WEEK\_WEDNESDAY**

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**6.6.2.182 #define EMBER\_AF\_DAY\_OF\_WEEK\_WEDNESDAY\_OFFSET**

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**6.6.2.183 #define EMBER\_AF\_DAY\_OF\_WEEK\_THURSDAY**

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**6.6.2.184 #define EMBER\_AF\_DAY\_OF\_WEEK\_THURSDAY\_OFFSET**

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**6.6.2.185 #define EMBER\_AF\_DAY\_OF\_WEEK\_FRIDAY**

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**6.6.2.186 #define EMBER\_AF\_DAY\_OF\_WEEK\_FRIDAY\_OFFSET**

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**6.6.2.187 #define EMBER\_AF\_DAY\_OF\_WEEK\_SATURDAY**

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**6.6.2.188 #define EMBER\_AF\_DAY\_OF\_WEEK\_SATURDAY\_OFFSET**

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**6.6.2.189 #define EMBER\_AF\_DAY\_OF\_WEEK\_AWAY\_OR\_VACATION**

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**6.6.2.190 #define EMBER\_AF\_DAY\_OF\_WEEK\_AWAY\_OR\_VACATION\_OFFSET**

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**6.6.2.191 #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_HEAT\_SETPOINT\_FIELD\_PRESENT**

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**6.6.2.192 #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_COOL\_SETPOINT\_FIELD\_PRESENT**

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**6.6.2.193 #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_COOL\_SETPOINT\_FIELD\_PRESENT\_OFFSET**

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**6.6.2.194 #define EMBER\_AF\_ALERT\_STRUCTURE\_ALERT\_ID**

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**6.6.2.195 #define EMBER\_AF\_ALERT\_STRUCTURE\_CATEGORY**

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**6.6.2.205 #define EMBER\_AF\_CONVERSION\_FACTOR\_TRAILING\_DIGIT\_TRAILING\_DIGIT**

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**6.6.2.206 #define EMBER\_AF\_CONVERSION\_FACTOR\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET**

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**6.6.2.321 #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LOW\_BATTERY**

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**6.6.2.322 #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LOW\_BATTERY\_OFFSET**

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**6.6.2.323 #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_TAMPER\_DETECT**

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**6.6.2.325 #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_FAILURE**

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**6.6.2.336 #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_BATTERY**

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**6.6.2.337 #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_BATTERY\_OFFSET**

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6.6.2.341 #define EMBER\_AF\_METERING\_STATUS\_GAS\_NOT\_DEFINED\_OFFSET

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6.6.2.345 #define EMBER\_AF\_METERING\_STATUS\_GAS\_LEAK\_DETECT\_OFFSET

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6.6.2.346 #define EMBER\_AF\_METERING\_STATUS\_GAS\_SERVICE\_DISCONNECT

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6.6.2.347 #define EMBER\_AF\_METERING\_STATUS\_GAS\_SERVICE\_DISCONNECT\_OFFSET

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6.6.2.348 #define EMBER\_AF\_METERING\_STATUS\_GAS\_REVERSE\_FLOW

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**6.6.2.349 #define EMBER\_AF\_METERING\_STATUS\_GAS\_REVERSE\_FLOW\_OFFSET**

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**6.6.2.350 #define EMBER\_AF\_METERING\_STATUS\_WATER\_CHECK\_METER**

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**6.6.2.351 #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_BATTERY**

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**6.6.2.352 #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_BATTERY\_OFFSET**

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**6.6.2.353 #define EMBER\_AF\_METERING\_STATUS\_WATER\_TAMPER\_DETECT**

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**6.6.2.354 #define EMBER\_AF\_METERING\_STATUS\_WATER\_TAMPER\_DETECT\_OFFSET**

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**6.6.2.355 #define EMBER\_AF\_METERING\_STATUS\_WATER\_PIPE\_EMPTY**

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**6.6.2.356 #define EMBER\_AF\_METERING\_STATUS\_WATER\_PIPE\_EMPTY\_OFFSET**

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**6.6.2.357 #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_PRESSURE**

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**6.6.2.358 #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_PRESSURE\_OFFSET**

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**6.6.2.359 #define EMBER\_AF\_METERING\_STATUS\_WATER\_LEAK\_DETECT**

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**6.6.2.360 #define EMBER\_AF\_METERING\_STATUS\_WATER\_LEAK\_DETECT\_OFFSET**

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**6.6.2.361 #define EMBER\_AF\_METERING\_STATUS\_WATER\_SERVICE\_DISCONNECT**

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**6.6.2.362 #define EMBER\_AF\_METERING\_STATUS\_WATER\_SERVICE\_DISCONNECT\_OFFSET**

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**6.6.2.363 #define EMBER\_AF\_METERING\_STATUS\_WATER\_REVERSE\_FLOW**

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**6.6.2.364 #define EMBER\_AF\_METERING\_STATUS\_WATER\_REVERSE\_FLOW\_OFFSET**

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**6.6.2.365 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_CHECK\_METER**

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**6.6.2.366 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LOW\_BATTERY**

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**6.6.2.367 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LOW\_BATTERY\_OFFSET**

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**6.6.2.368 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TAMPER\_DETECT**

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**6.6.2.369 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TAMPER\_DETECT\_OFFSET**

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**6.6.2.370 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TEMPERATURE\_SENSOR**

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6.6.2.371 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TEMPERATURE\_SENSOR\_OFFSET

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6.6.2.372 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_BURST\_DETECT

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6.6.2.373 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_BURST\_DETECT\_OFFSET

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6.6.2.374 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LEAK\_DETECT

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6.6.2.375 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LEAK\_DETECT\_OFFSET

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6.6.2.376 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_SERVICE\_DISCONNECT

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6.6.2.377 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_SERVICE\_DISCONNECT\_OFFSET

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6.6.2.378 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_FLOW\_SENSOR

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6.6.2.379 #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_FLOW\_SENSOR\_OFFSET

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6.6.2.380 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_METER\_COVER\_REMOVED

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6.6.2.381 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_STRONG\_MAGNETIC\_FIELD\_DETECTED

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6.6.2.382 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_STRONG\_MAGNETIC\_FIELD\_DETECTED\_OFFSET

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6.6.2.383 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_BATTERY\_FAILURE

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6.6.2.384 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_BATTERY\_FAILURE\_OFFSET

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6.6.2.385 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_PROGRAM\_MEMORY\_ERROR

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6.6.2.386 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_PROGRAM\_MEMORY\_ERROR\_OFFSET

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6.6.2.387 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_RAM\_ERROR

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6.6.2.389 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_NV\_MEMORY\_ERROR

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6.6.2.390 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_NV\_MEMORY\_ERROR\_OFFSET

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6.6.2.391 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SYSTEM\_ERROR

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6.6.2.392 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SYSTEM\_ERROR\_OFFSET

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6.6.2.393 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_WATCHDOG\_ERROR

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6.6.2.394 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_WATCHDOG\_ERROR\_OFFSET

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6.6.2.395 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_DISCONNECT\_FAILURE

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6.6.2.396 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_DISCONNECT\_FAILURE\_OFFSET

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6.6.2.397 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_CONNECT\_FAILURE

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6.6.2.398 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_CONNECT\_FAILURE\_OFFSET

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6.6.2.399 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SW\_CHANGED\_TAMPERED

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6.6.2.400 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SW\_CHANGED\_TAMPERED\_OFFSET

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6.6.2.401 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_CLOCK\_INVALID

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6.6.2.402 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_CLOCK\_INVALID\_OFFSET

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6.6.2.403 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_TEMPERATURE\_EXCEEDED

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6.6.2.404 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_TEMPERATURE\_EXCEEDED\_OFFSET

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6.6.2.405 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MOISTURE\_DETECTED

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6.6.2.406 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MOISTURE\_DETECTED\_OFFSET

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6.6.2.407 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_BATTERY\_COVER\_REMOVED

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6.6.2.408 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_BATTERY\_COVER\_REMOVE-D\_OFFSET

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6.6.2.409 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_TILT\_TAMPER

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6.6.2.410 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_TILT\_TAMPER\_OFFSET

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6.6.2.411 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_EXCESS\_FLOW

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6.6.2.412 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_EXCESS\_FLOW\_OFFSET

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6.6.2.413 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_LIMIT\_THRESHOLD-EXCEEDED

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6.6.2.414 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_LIMIT\_THRESHOLD-EXCEEDED\_OFFSET

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**6.6.2.415 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_UNDER\_VOLTAGE**

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**6.6.2.416 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_UNDER\_VOLTAGE\_OFFSET**

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**6.6.2.417 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_OVER\_VOLTAGE**

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**6.6.2.418 #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_OVER\_VOLTAGE\_OFFSET**

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**6.6.2.419 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NEW\_OTA\_FIRMWARE**

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**6.6.2.420 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CBKE\_UPDATE\_REQUEST**

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**6.6.2.421 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CBKE\_UPDATE\_REQUEST\_OFFSET**

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**6.6.2.422 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TIME\_SYNC**

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**6.6.2.423 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TIME\_SYNC\_OFFSET**

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**6.6.2.424 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_HAN**

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**6.6.2.425 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_HAN\_OFFSET**

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**6.6.2.426 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_WAN**

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**6.6.2.427 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_WAN\_OFFSET**

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**6.6.2.428 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET**

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**6.6.2.429 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET\_OFFSET**

Definition at line [2548](#) of file [enums.doc](#).

**6.6.2.430 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET**

Definition at line [2549](#) of file [enums.doc](#).

**6.6.2.431 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET\_OFFSET**

Definition at line [2550](#) of file [enums.doc](#).

**6.6.2.432 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER**

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**6.6.2.433 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER\_OFFSET**

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**6.6.2.434 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER**

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**6.6.2.435 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER\_OFFSET**

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6.6.2.436 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER

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6.6.2.437 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER\_OFFSET

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6.6.2.438 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NETWORK\_KEY\_ACTIVE

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6.6.2.439 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NETWORK\_KEY\_ACTIVE\_OFFSET

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6.6.2.440 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_DISPLAY\_MESSAGE

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6.6.2.441 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_DISPLAY\_MESSAGE\_OFFSET

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6.6.2.442 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CANCEL\_ALL\_MESSAGES

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6.6.2.443 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CANCEL\_ALL\_MESSAGES\_OFFSET

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6.6.2.444 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CHANGE\_SUPPLY

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6.6.2.445 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CHANGE\_SUPPLY\_OFFSET

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6.6.2.446 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_LOCAL\_CHANGE\_SUPPLY

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6.6.2.447 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_LOCAL\_CHANGE\_SUPPLY\_OFFSET

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6.6.2.448 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD

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6.6.2.449 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD\_OFFSET

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6.6.2.450 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TUNNEL\_MESSAGE\_PENDING

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6.6.2.451 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TUNNEL\_MESSAGE\_PENDING\_OFFSET

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6.6.2.452 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SNAPSHOT

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6.6.2.453 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SNAPSHOT\_OFFSET

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6.6.2.454 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SAMPLED\_DATA

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6.6.2.455 #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SAMPLED\_DATA\_OFFSET

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6.6.2.456 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_GENERAL

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6.6.2.457 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD

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**6.6.2.458 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD\_OFFSET**

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**6.6.2.459 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BLOCK\_PERIOD**

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**6.6.2.460 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BLOCK\_PERIOD\_OFFSET**

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**6.6.2.461 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION**

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**6.6.2.462 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION\_OFFSET**

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**6.6.2.463 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX**

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**6.6.2.464 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX\_OFFSET**

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**6.6.2.465 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_BLOCK\_THRESHOLDS**

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**6.6.2.466 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_BLOCK\_THRESHOLDS\_OFFSET**

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**6.6.2.467 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CV**

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**6.6.2.468 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CV\_OFFSET**

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**6.6.2.469 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CF**

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**6.6.2.470 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CF\_OFFSET**

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**6.6.2.471 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CALENDAR**

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**6.6.2.472 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CALENDAR\_OFFSET**

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**6.6.2.473 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CRITICAL\_PEAK\_PRICING**

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**6.6.2.474 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CRITICAL\_PEAK\_PRICING\_OFFSET**

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**6.6.2.475 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT**

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**6.6.2.476 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT\_OFFSET**

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**6.6.2.477 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_RESOLVE\_PERIOD**

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**6.6.2.478 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_RESOLVE\_PERIOD\_OFFSET**

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**6.6.2.479 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY**

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**6.6.2.480 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY\_OFFSET**

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**6.6.2.481 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER**

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**6.6.2.482 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER\_OFFSET**

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**6.6.2.483 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_MODE**

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**6.6.2.484 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_MODE\_OFFSET**

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**6.6.2.485 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_DEBT\_PAYMENT**

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**6.6.2.486 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_DEBT\_PAYMENT\_OFFSET**

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**6.6.2.487 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_SCHEDULED\_SNAPSHOT**

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**6.6.2.488 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_SCHEDULED\_SNAPSHOT\_OFFSET**

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**6.6.2.489 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_OTA\_FIRMWARE\_DOWNLOAD**

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**6.6.2.490 #define EMBER\_AF\_SNAPSHOT\_CAUSE\_OTA\_FIRMWARE\_DOWNLOAD\_OFFSET**

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**6.6.2.491 #define EMBER\_AF\_SUPPLY\_CONTROL\_BITS\_ACKNOWLEDGE\_REQUIRED**

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**6.6.2.492 #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_TRANS\_MECHANISM**

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**6.6.2.493 #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_URGENCY**

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**6.6.2.494 #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_URGENCY\_OFFSET**

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**6.6.2.495 #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_ENHANCED\_CONFIRMATION\_REQUEST**

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**6.6.2.496 #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_ENHANCED\_CONFIRMATION\_REQUEST\_OFFSET**

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**6.6.2.498 #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION\_OFFSET**

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**6.6.2.499 #define EMBER\_AF\_MESSAGING\_EXTENDED\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION\_STATUS**

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**6.6.2.500 #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_NO\_RETURNED**

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**6.6.2.501 #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_YES\_RETURNED**

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**6.6.2.502 #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_YES\_RETURNED\_OFFSET**

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**6.6.2.504 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_PREPAYMENT\_ENABLED**

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**6.6.2.505 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_PREPAYMENT\_ENABLED\_OFFSET**

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**6.6.2.506 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_MANAGEMENT\_ENABLED**

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**6.6.2.507 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_MANAGEMENT\_ENABLED\_OFFSET**

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**6.6.2.508 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_DISPLAY\_ENABLED**

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**6.6.2.509 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_DISPLAY\_ENABLED\_OFFSET**

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**6.6.2.512 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CONTACTOR\_FITTED**

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**6.6.2.513 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CONTACTOR\_FITTED\_OFFSET**

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**6.6.2.514 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_STANDING\_CHARGE\_CONFIGURATION**

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**6.6.2.515 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_STANDING\_CHARGE\_CONFIGURATION\_OFFSET**

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**6.6.2.516 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_STANDING\_CHARGE\_CONFIGURATION**

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**6.6.2.520 #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_DEBT\_CONFIGURATION**

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**6.6.2.524 #define EMBER\_AF\_CREDIT\_STATUS\_LOW\_CREDIT\_OFFSET**

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**6.6.2.525 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_ENABLED**

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**6.6.2.526 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_ENABLED\_OFFSET**

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**6.6.2.527 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_AVAILABLE**

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**6.6.2.528 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_AVAILABLE\_OFFSET**

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**6.6.2.529 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_SELECTED**

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**6.6.2.531 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_IN\_USE**

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**6.6.2.532 #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_IN\_USE\_OFFSET**

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**6.6.2.538 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ALREADY\_USED**

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**6.6.2.542 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_IN\_USE**

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6.6.2.548 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_UNAUTHORISED\_ENERGY\_USE

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6.6.2.550 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_CREDIT

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6.6.2.553 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_TAMPER\_OFFSET

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6.6.2.554 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_HES

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6.6.2.555 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_HES\_OFFSET

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6.6.2.556 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_PHYSICAL\_ATTACK

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6.6.2.557 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_PHYSICAL\_ATTACK\_OFFSET

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6.6.2.559 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_ELECTRONIC\_ATTACK\_OFFSET

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6.6.2.560 #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_A

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6.6.2.564 #define EMBER\_AF\_ORIGINATOR\_ID\_SUPPLY\_CONTROL\_BITS\_ACKNOWLEDGE\_REQUIRED

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6.6.2.565 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_GENERAL

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6.6.2.566 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION

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6.6.2.567 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION\_OFFSET

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6.6.2.568 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX

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6.6.2.569 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX\_OFFSET

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6.6.2.570 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT

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6.6.2.572 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TENANCY

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6.6.2.573 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TENANCY\_OFFSET

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6.6.2.574 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_SUPPLIER

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6.6.2.575 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_SUPPLIER\_OFFSET

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6.6.2.576 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_METER\_MODE

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6.6.2.577 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_METER\_MODE\_OFFSET

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6.6.2.578 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_TOP\_UP\_ADDITION

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6.6.2.579 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_TOP\_UP\_ADDITION\_OFFSET

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6.6.2.581 #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_DEBT\_CREDIT\_ADDITION\_OFFSET

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6.6.2.582 #define EMBER\_AF\_FRIENDLY\_CREDIT\_FRIENDLY\_CREDIT\_ENABLED

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6.6.2.584 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_EVENT\_IN\_PROGRESS

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6.6.2.585 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_EVENT\_IN\_PROGRESS\_OFFSET

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6.6.2.586 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_POWER\_STABILIZING

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6.6.2.587 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_POWER\_STABILIZING\_OFFSET

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6.6.2.588 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_OTHER\_LOAD\_REDUCTION

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6.6.2.589 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_OTHER\_LOAD\_REDUCTION\_OFFSET

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6.6.2.590 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_CURRENT\_FLOW\_OR\_CONSUMING\_COMMODITY

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6.6.2.591 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_CURRENT\_FLOW\_OR\_CONSUMING\_COMMODITY -  
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6.6.2.593 #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_LOAD\_CALL\_OFFSET

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6.6.2.595 #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_DURATION

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6.6.2.596 #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_DURATION\_OFFSET

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6.6.2.597 #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EXTENDED\_BITS\_PRESENT

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6.6.2.599 #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EVENT\_ACTIVE

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6.6.2.600 #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EVENT\_ACTIVE\_OFFSET

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6.6.2.602 #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_DEVICE\_PARTICIPATING\_IN\_EVENT\_OFFSET

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6.6.2.607 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH1

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6.6.2.608 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH2

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6.6.2.609 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH2\_OFFSET

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6.6.2.610 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH3

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6.6.2.611 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH3\_OFFSET

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6.6.2.612 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH4

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6.6.2.613 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH4\_OFFSET

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6.6.2.614 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH5

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6.6.2.615 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH5\_OFFSET

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6.6.2.616 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH6

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6.6.2.617 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH6\_OFFSET

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6.6.2.618 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH7

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6.6.2.619 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH7\_OFFSET

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6.6.2.620 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH8

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6.6.2.621 #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH8\_OFFSET

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6.6.2.622 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_PRE\_SNAPSHOTS

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6.6.2.623 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_POST\_SNAPSHOTS

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6.6.2.625 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_CREDIT\_REGISTER

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6.6.2.626 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_CREDIT\_REGISTER\_OFFSET

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6.6.2.628 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_DEBIT\_REGISTER\_OFFSET

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6.6.2.629 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_BILLING\_PERIOD

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6.6.2.630 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_BILLING\_PERIOD\_OFFSET

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6.6.2.631 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TARIFF\_PLAN

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6.6.2.632 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TARIFF\_PLAN\_OFFSET

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6.6.2.633 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_STANDING\_CHARGE

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6.6.2.634 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_STANDING\_CHARGE\_OFFSET

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6.6.2.635 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_BLOCK\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION

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6.6.2.636 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_BLOCK\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION\_OFFSET

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6.6.2.637 #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION

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6.6.2.783 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_DERIVED\_GROUP

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**6.6.2.787 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL**

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**6.6.2.788 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL\_OFFSET**

Definition at line [2907](#) of file [enums.doc](#).

**6.6.2.789 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE**

Definition at line [2908](#) of file [enums.doc](#).

**6.6.2.790 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET**

Definition at line [2909](#) of file [enums.doc](#).

**6.6.2.791 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX**

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**6.6.2.792 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX\_OFFSET**

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**6.6.2.793 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_GP\_TX\_QUEUE\_FULL**

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**6.6.2.794 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_GP\_TX\_QUEUE\_FULL\_OFFSET**

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**6.6.2.795 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY**

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**6.6.2.796 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY\_OFFSET**

Definition at line [2915](#) of file [enums.doc](#).

**6.6.2.797 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT**

Definition at line [2916](#) of file [enums.doc](#).

**6.6.2.798 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT\_OFFSET**

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**6.6.2.799 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RESERVED**

Definition at line [2918](#) of file [enums.doc](#).

**6.6.2.800 #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RESERVED\_OFFSET**

Definition at line [2919](#) of file [enums.doc](#).

**6.6.2.801 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_APPLICATION\_ID**

Definition at line [2920](#) of file [enums.doc](#).

**6.6.2.802 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_UNICAST\_SINKS**

Definition at line [2921](#) of file [enums.doc](#).

**6.6.2.803 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_UNICAST\_SINKS\_OFFSET**

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**6.6.2.804 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_DERIVED\_GROUPCAST\_SINKS**

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**6.6.2.805 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_DERIVED\_GROUPCAST\_SINKS\_OFFSET**

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**6.6.2.806 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_COMMISIONED\_GROUPCAST\_SINKS**

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**6.6.2.807 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_COMMISIONED\_GROUPCAST\_OFFSET**

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**6.6.2.808 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_FRAME\_COUNTER**

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**6.6.2.809 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_FRAME\_COUNTER\_OFFSET**

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**6.6.2.810 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_KEY**

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**6.6.2.811 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_KEY\_OFFSET**

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**6.6.2.812 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_RESERVED**

Definition at line [2931](#) of file [enums.doc](#).

**6.6.2.813 #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_RESERVED\_OFFSET**

Definition at line [2932](#) of file [enums.doc](#).

**6.6.2.814 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_APPLICATION\_ID**

Definition at line [2933](#) of file [enums.doc](#).

**6.6.2.815 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_ALSO\_DERIVED\_GROUP**

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**6.6.2.816 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_ALSO\_DERIVED\_GROUP\_OFFSET**

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**6.6.2.817 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION ALSO\_COMMISSIONED\_GROUP**

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**6.6.2.818 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION ALSO\_COMMISSIONED\_GROUP\_OFFSET**

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**6.6.2.819 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_RESERVED**

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**6.6.2.820 #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_RESERVED\_OFFSET**

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**6.6.2.821 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_APPLICATION\_ID**

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**6.6.2.822 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX**

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**6.6.2.823 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX\_OFFSET**

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**6.6.2.824 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL**

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**6.6.2.825 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL\_OFFSET**

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**6.6.2.826 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE**

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**6.6.2.827 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET**

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**6.6.2.828 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_PROCESSING\_FAILED**

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**6.6.2.829 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_PROCESSING\_FAILED\_OFFSET**

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**6.6.2.830 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY**

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**6.6.2.831 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY\_OFFSET**

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**6.6.2.832 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT**

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**6.6.2.833 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT\_OFFSET**

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**6.6.2.834 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RESERVED**

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**6.6.2.835 #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RESERVED\_OFFSET**

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**6.6.2.836 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_ACTION**

Definition at line 2955 of file [enums.doc](#).

**6.6.2.837 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INVOKE\_GPM\_IN\_SECURITY**

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6.6.2.838 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_SECURITY\_OFFSET

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6.6.2.839 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_PAIRING

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6.6.2.840 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_PAIRING\_OFFSET

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6.6.2.841 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_PROXYIES

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6.6.2.842 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_PROXYIES\_OFFSET

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6.6.2.843 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_RESERVED

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6.6.2.844 #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_RESERVED\_OFFSET

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6.6.2.845 #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_APPLICATION\_ID

Definition at line 2964 of file [enums.doc](#).

6.6.2.846 #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE

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6.6.2.847 #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_OFFSET

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6.6.2.848 #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_RESERVED

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6.6.2.849 #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_RESERVED\_OFFSET

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6.6.2.850 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_APPLICATION\_ID

Definition at line 2969 of file [enums.doc](#).

6.6.2.851 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_ACTION

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6.6.2.852 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_ACTION\_OFFSET

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6.6.2.853 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_NUMBER\_OF\_TRANSLATIONS

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6.6.2.854 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_NUMBER\_OF\_TRANSLATIONS\_OFFSET

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6.6.2.855 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_RESERVED

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6.6.2.856 #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_RESERVED\_OFFSET

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6.6.2.857 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_ACTION

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6.6.2.858 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_SEND\_GP\_PAIRING

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6.6.2.859 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_SEND\_GP\_PAIRING\_OFFSET

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6.6.2.860 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_RESERVED

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6.6.2.861 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_RESERVED\_OFFSET

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6.6.2.862 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_ID

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6.6.2.863 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE

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6.6.2.864 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_OFFSET

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6.6.2.865 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SEQUENCE\_NUMBER\_CAPABILITIES

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6.6.2.866 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SEQUENCE\_NUMBER\_CAPABILITIES\_OFFSET

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6.6.2.867 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RX\_ON\_CAPABILITY

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6.6.2.868 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RX\_ON\_CAPABILITY\_OFFSET

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6.6.2.869 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_FIXED\_LOCATION

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6.6.2.870 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_FIXED\_LOCATION\_OFFSET

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6.6.2.871 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_ASSIGNED\_ALIAS

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6.6.2.872 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_ASSIGNED\_ALIAS\_OFFSET

Definition at line 2991 of file [enums.doc](#).

6.6.2.873 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SECURITY\_USE

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6.6.2.874 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SECURITY\_USE\_OFFSET

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6.6.2.875 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_INFORMATION\_PRESENT

Definition at line 2994 of file [enums.doc](#).

6.6.2.876 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_INFORMATION\_PRESENT\_OFFSET

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6.6.2.877 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RESERVED

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6.6.2.878 #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RESERVED\_OFFSET

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6.6.2.879 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MANUFACTURE\_ID\_PRESENT

Definition at line 2998 of file [enums.doc](#).

6.6.2.880 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MODEL\_ID\_PRESENT

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6.6.2.881 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MODEL\_ID\_PRESENT\_OFFSET

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**6.6.2.882 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_GPD\_COMMANDS\_PRESENT**

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**6.6.2.883 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_GPD\_COMMANDS\_PRESENT\_OFFSET**

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**6.6.2.884 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_CLUSTER\_LIST\_PRESENT**

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**6.6.2.885 #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_CLUSTER\_LIST\_PRESENT\_OFFSET**

Definition at line [3004](#) of file [enums.doc](#).

**6.6.2.886 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_APPLICATION\_ID**

Definition at line [3005](#) of file [enums.doc](#).

**6.6.2.887 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_FIRST\_TO\_FORWARD**

Definition at line [3006](#) of file [enums.doc](#).

**6.6.2.888 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_FIRST\_TO\_FORWARD\_OFFSET**

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**6.6.2.889 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_NO\_PAIRING**

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**6.6.2.890 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_NO\_PAIRING\_OFFSET**

Definition at line [3009](#) of file [enums.doc](#).

**6.6.2.891 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_RESERVED**

Definition at line [3010](#) of file [enums.doc](#).

**6.6.2.892 #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_RESERVED\_OFFSET**

Definition at line [3011](#) of file [enums.doc](#).

**6.6.2.893 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_APPLICATION\_ID**

Definition at line [3012](#) of file [enums.doc](#).

**6.6.2.894 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ADD\_SINK**

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**6.6.2.895 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ADD\_SINK\_OFFSET**

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**6.6.2.896 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_REMOVE\_GPD**

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**6.6.2.897 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_REMOVE\_GPD\_OFFSET**

Definition at line [3016](#) of file [enums.doc](#).

**6.6.2.898 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_COMMUNICATION\_MODE**

Definition at line [3017](#) of file [enums.doc](#).

**6.6.2.899 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_COMMUNICATION\_MODE\_OFFSET**

Definition at line [3018](#) of file [enums.doc](#).

**6.6.2.900 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_FIXED**

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**6.6.2.901 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_FIXED\_OFFSET**

Definition at line [3020](#) of file [enums.doc](#).

**6.6.2.902 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_MAC\_SEQUENCE\_NUMBER\_CAPABILITIES**

Definition at line [3021](#) of file [enums.doc](#).

**6.6.2.903 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_MAC\_SEQUENCE\_NUMBER\_CAPABILITIES\_OFFSET**

Definition at line [3022](#) of file [enums.doc](#).

6.6.2.904 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_LEVEL

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6.6.2.905 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_LEVEL\_OFFSET

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6.6.2.906 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_KEY\_TYPE

Definition at line 3025 of file [enums.doc](#).

6.6.2.907 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET

Definition at line 3026 of file [enums.doc](#).

6.6.2.908 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_FRAME\_COUNTER\_PRESENT

Definition at line 3027 of file [enums.doc](#).

6.6.2.909 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_FRAME\_COUNTER\_PRESENT\_OFFSET

Definition at line 3028 of file [enums.doc](#).

6.6.2.910 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_KEY\_PRESENT

Definition at line 3029 of file [enums.doc](#).

6.6.2.911 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_KEY\_PRESENT\_OFFSET

Definition at line 3030 of file [enums.doc](#).

6.6.2.912 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ASSIGNED\_ALIAS\_PRESENT

Definition at line 3031 of file [enums.doc](#).

6.6.2.913 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ASSIGNED\_ALIAS\_PRESENT\_OFFSET

Definition at line 3032 of file [enums.doc](#).

6.6.2.914 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_FORWARDING\_RADIUS\_PRESENT

Definition at line 3033 of file [enums.doc](#).

**6.6.2.915 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_FORWARDING\_RADIUS\_PRESENT\_OFFSET**

Definition at line [3034](#) of file [enums.doc](#).

**6.6.2.916 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_RESERVED**

Definition at line [3035](#) of file [enums.doc](#).

**6.6.2.917 #define EMBER\_AF\_GP\_PAIRING\_OPTION\_RESERVED\_OFFSET**

Definition at line [3036](#) of file [enums.doc](#).

**6.6.2.918 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_ACTION**

Definition at line [3037](#) of file [enums.doc](#).

**6.6.2.919 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_EXIT\_MODE**

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**6.6.2.920 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_EXIT\_MODE\_OFFSET**

Definition at line [3039](#) of file [enums.doc](#).

**6.6.2.921 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_CHANNEL\_PRESENT**

Definition at line [3040](#) of file [enums.doc](#).

**6.6.2.922 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_CHANNEL\_PRESENT\_OFFSET**

Definition at line [3041](#) of file [enums.doc](#).

**6.6.2.923 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_UNICAST\_COMMUNICATION**

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**6.6.2.924 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_UNICAST\_COMMUNICATION\_OFFSET**

Definition at line [3043](#) of file [enums.doc](#).

**6.6.2.925 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_RESERVED**

Definition at line [3044](#) of file [enums.doc](#).

6.6.2.926 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_RESERVED\_OFFSET

Definition at line 3045 of file [enums.doc](#).

6.6.2.927 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_COMMISIONING\_WINDOW\_EXPIRATION

Definition at line 3046 of file [enums.doc](#).

6.6.2.928 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_COMMISIONING\_WINDOW\_EXPIRATION\_OFFSET

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6.6.2.929 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_FIRST\_PAIRING\_SUCCESS

Definition at line 3048 of file [enums.doc](#).

6.6.2.930 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_FIRST\_PAIRING\_SUCCESS\_OFFSET

Definition at line 3049 of file [enums.doc](#).

6.6.2.931 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_GP\_PROXY\_COMMISIONING\_MODE\_EXIT

Definition at line 3050 of file [enums.doc](#).

6.6.2.932 #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_GP\_PROXY\_COMMISIONING\_MODE\_EXIT\_OFFSET

Definition at line 3051 of file [enums.doc](#).

6.6.2.933 #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_APPLICATION\_ID

Definition at line 3052 of file [enums.doc](#).

6.6.2.934 #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_RESERVED

Definition at line 3053 of file [enums.doc](#).

6.6.2.935 #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_RESERVED\_OFFSET

Definition at line 3054 of file [enums.doc](#).

**6.6.2.936 #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_TRANSMIT\_CHANNEL**

Definition at line [3055](#) of file [enums.doc](#).

**6.6.2.937 #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_RESERVED**

Definition at line [3056](#) of file [enums.doc](#).

**6.6.2.938 #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_RESERVED\_OFFSET**

Definition at line [3057](#) of file [enums.doc](#).

**6.6.2.939 #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_APPLICATION\_ID**

Definition at line [3058](#) of file [enums.doc](#).

**6.6.2.940 #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE**

Definition at line [3059](#) of file [enums.doc](#).

**6.6.2.941 #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_OFFSET**

Definition at line [3060](#) of file [enums.doc](#).

**6.6.2.942 #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_RESERVED**

Definition at line [3061](#) of file [enums.doc](#).

**6.6.2.943 #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_RESERVED\_OFFSET**

Definition at line [3062](#) of file [enums.doc](#).

## 6.6.3 Enumeration Type Documentation

**6.6.3.1 enum EmberAf11073ConnectRequestConnectControl**

Enumerator:

*EMBER\_ZCL\_11073\_CONNECT\_REQUEST\_CONNECT\_CONTROL\_PREEMPTIBLE*

Definition at line [18](#) of file [enums.doc](#).

**6.6.3.2 enum EmberAf11073TunnelConnectionStatus**

Enumerator:

*EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_DISCONNECTED*  
*EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_CONNECTED*

***EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_NOT\_AUTHORIZED***  
***EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_RECONNECT\_REQUEST***  
***EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_ALREADY\_CONNECTED***

Definition at line 22 of file [enums.doc](#).

#### 6.6.3.3 enum EmberAfAlertCountType

Enumerator:

***EMBER\_ZCL\_ALERT\_COUNT\_TYPE\_UNSTRUCTURED***

Definition at line 30 of file [enums.doc](#).

#### 6.6.3.4 enum EmberAfAlertStructureCategory

Enumerator:

***EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_WARNING***  
***EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_DANGER***  
***EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_FAILURE***

Definition at line 34 of file [enums.doc](#).

#### 6.6.3.5 enum EmberAfAlertStructurePresenceRecovery

Enumerator:

***EMBER\_ZCL\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_RECOVERY***  
***EMBER\_ZCL\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_PRESENCE***

Definition at line 40 of file [enums.doc](#).

#### 6.6.3.6 enum EmberAfAlternateCostUnit

Enumerator:

***EMBER\_ZCL\_ALTERNATE\_COST\_UNIT\_KG\_OF\_CO2\_PER\_UNIT\_OF\_MEASURE***

Definition at line 45 of file [enums.doc](#).

#### 6.6.3.7 enum EmberAfAmiCriticalityLevel

Enumerator:

***EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_RESERVED***  
***EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_GREEN***  
***EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_1***  
***EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_2***

```
EMBER_ZCL_AMI_CRITICALITY_LEVEL_3
EMBER_ZCL_AMI_CRITICALITY_LEVEL_4
EMBER_ZCL_AMI_CRITICALITY_LEVEL_5
EMBER_ZCL_AMI_CRITICALITY_LEVEL_EMERGENCY
EMBER_ZCL_AMI_CRITICALITY_LEVEL_PLANNED_OUTAGE
EMBER_ZCL_AMI_CRITICALITY_LEVEL_SERVICE_DISCONNECT
EMBER_ZCL_AMI_CRITICALITY_LEVEL.Utility_DEFINED1
EMBER_ZCL_AMI_CRITICALITY_LEVEL.Utility_DEFINED2
EMBER_ZCL_AMI_CRITICALITY_LEVEL.Utility_DEFINED3
EMBER_ZCL_AMI_CRITICALITY_LEVEL.Utility_DEFINED4
EMBER_ZCL_AMI_CRITICALITY_LEVEL.Utility_DEFINED5
EMBER_ZCL_AMI_CRITICALITY_LEVEL.Utility_DEFINED6
```

Definition at line 49 of file [enums.doc](#).

#### 6.6.3.8 enum EmberAfAmiEventStatus

Enumerator:

```
EMBER_ZCL_AMI_EVENT_STATUS_LOAD_CONTROL_EVENT_COMMAND_RX
EMBER_ZCL_AMI_EVENT_STATUS_EVENT_STARTED
EMBER_ZCL_AMI_EVENT_STATUS_EVENT_COMPLETED
EMBER_ZCL_AMI_EVENT_STATUS_USER_HAS_CHOOSE_TO_OPT_OUT
EMBER_ZCL_AMI_EVENT_STATUS_USER_HAS_CHOOSE_TO_OPT_IN
EMBER_ZCL_AMI_EVENT_STATUS_THE_EVENT_HAS_BEEN_CANCELED
EMBER_ZCL_AMI_EVENT_STATUS_THE_EVENT_HAS_BEEN_SUPERSEDED
EMBER_ZCL_AMI_EVENT_STATUS_EVENT_PARTIALLY_COMPLETED_WITH_USER_OPT_OUT

EMBER_ZCL_AMI_EVENT_STATUS_EVENT_PARTIALLY_COMPLETED_DUE_TO_USER_OPT_IN

EMBER_ZCL_AMI_EVENT_STATUS_EVENT_COMPLETED_NO_USER_PARTICIPATION_PREVIOUS_OPT_OUT

EMBER_ZCL_AMI_EVENT_STATUS_INVALID_OPT_OUT
EMBER_ZCL_AMI_EVENT_STATUS_EVENT_NOT_FOUND
EMBER_ZCL_AMI_EVENT_STATUS_REJECTED_INVALID_CANCEL_COMMAND
EMBER_ZCL_AMI_EVENT_STATUS_REJECTED_INVALID_CANCEL_COMMAND_INVALID_EFFECTIVE_TIME

EMBER_ZCL_AMI_EVENT_STATUS_REJECTED_EVENT_EXPIRED
EMBER_ZCL_AMI_EVENT_STATUS_REJECTED_INVALID_CANCEL_UNDEFINED_EVENT

EMBER_ZCL_AMI_EVENT_STATUS_LOAD_CONTROL_EVENT_COMMAND_REJECTED
```

Definition at line 68 of file [enums.doc](#).

### 6.6.3.9 enum EmberAfAmiGetProfileStatus

Enumerator:

*EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_SUCCESS  
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_UNDEFINED\_INTERVAL\_CHANNEL\_REQUESTED  
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_INTERVAL\_CHANNEL\_NOT\_SUPPORTED  
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_INVALID\_END\_TIME  
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_MORE\_PERIODS\_REQUESTED\_THAN\_CAN\_BE\_RETURNED  
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_NO\_INTERVALS\_AVAILABLE\_FOR\_THE\_REQUESTED\_TIME*

Definition at line 88 of file [enums.doc](#).

### 6.6.3.10 enum EmberAfAmiIntervalChannel

Enumerator:

*EMBER\_ZCL\_AMI\_INTERVAL\_CHANNEL\_CONSUMPTION\_DELIVERED  
 EMBER\_ZCL\_AMI\_INTERVAL\_CHANNEL\_CONSUMPTION\_RECEIVED*

Definition at line 97 of file [enums.doc](#).

### 6.6.3.11 enum EmberAfAmiIntervalPeriod

Enumerator:

*EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_DAILY  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES60  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES30  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES15  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES10  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES7P5  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES5  
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES2P5*

Definition at line 102 of file [enums.doc](#).

### 6.6.3.12 enum EmberAfAmiKeyEstablishmentStatus

Enumerator:

*EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_SUCCESS  
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_UNKNOWN\_ISSUER  
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_BAD\_KEY\_CONFIRM  
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_BAD\_MESSAGE*

*EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_NO\_RESOURCES  
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_UNSUPPORTED\_SUITE  
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_INVALID\_KEY\_USAGE*

Definition at line 113 of file [enums.doc](#).

#### 6.6.3.13 enum EmberAfAmiRegistrationState

Enumerator:

*EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_UNREGISTERED  
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_JOINING\_NETWORK  
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_JOINED\_NETWORK  
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_SUBMITTED\_REGISTRATION\_REQUEST  
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_REGISTRATION\_REJECTED  
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_REGISTERED  
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_REGISTRATION\_NOT\_POSSIBLE*

Definition at line 123 of file [enums.doc](#).

#### 6.6.3.14 enum EmberAfAmiUnitOfMeasure

Enumerator:

*EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KILO\_WATT\_HOURS  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_METER\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_FEET\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CENTUM\_CUBIC\_FEET\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_US\_GALLONS\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_IMPERIAL\_GALLONS\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_BT\_US\_OR\_BTU\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_LITERS\_OR\_LITERS\_PER\_HOUR  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_GAUGE  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_ABSOLUTE  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MCF\_OR\_MCF\_PER\_SECOND  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_UNITLESS  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MJ\_OR\_MJ\_PER\_SECOND  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_K\_VAR\_OR\_K\_VAR\_HOURS  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KILO\_WATT\_HOURS\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_METER\_PER\_HOUR\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_FEET\_PER\_HOUR\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CENTUM\_CUBIC\_FEET\_PER\_HOUR\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_US\_GALLONS\_PER\_HOUR\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_IMPERIAL\_GALLONS\_PER\_HOUR\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_BT\_US\_OR\_BTU\_PER\_HOUR\_BCD*

*EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_LITERS\_OR\_LITERS\_PER\_HOUR\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_GUAGE\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_ABSOLUTE\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MCF\_OR\_MCF\_PER\_SECOND\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_UNITLESS\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MJ\_OR\_MJ\_PER\_SECOND\_BCD  
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_K\_VAR\_OR\_K\_VAR\_HOURS\_BCD*

Definition at line 133 of file [enums.doc](#).

#### 6.6.3.15 enum EmberAfAnonymousDataState

Enumerator:

*EMBER\_ZCL\_ANONYMOUS\_DATA\_STATE\_NO\_SOURCE\_FOUND  
 EMBER\_ZCL\_ANONYMOUS\_DATA\_STATE\_SOURCE\_FOUND*

Definition at line 164 of file [enums.doc](#).

#### 6.6.3.16 enum EmberAfApplianceStatus

Enumerator:

*EMBER\_ZCL\_APPLIANCE\_STATUS\_OFF  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_STAND\_BY  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMMED  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMMED\_WAITING\_TO\_START  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_RUNNING  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_PAUSE  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_END\_PROGRAMMED  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_FAILURE  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMME\_INTERRUPTED  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_IDLE  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_RINSE\_HOLD  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_SERVICE  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERFREEZING  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERCOOLING  
 EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERHEATING*

Definition at line 169 of file [enums.doc](#).

#### 6.6.3.17 enum EmberAfAttributeReportingStatus

Enumerator:

*EMBER\_ZCL\_ATTRIBUTE\_REPORTING\_STATUS\_PENDING  
 EMBER\_ZCL\_ATTRIBUTE\_REPORTING\_STATUS\_ATTRIBUTE\_REPORTING\_COMPLETE*

Definition at line 187 of file [enums.doc](#).

### 6.6.3.18 enum EmberAfAttributeWritePermission

Enumerator:

```
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_DENY_WRITE
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_ALLOW_WRITE_NORMAL
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_ALLOW_WRITE_OF_READ_ONLY
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_UNSUPPORTED_ATTRIBUTE
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_INVALID_VALUE
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_READ_ONLY
EMBER_ZCL_ATTRIBUTE_WRITE_PERMISSION_INVALID_DATA_TYPE
```

Definition at line 192 of file [enums.doc](#).

### 6.6.3.19 enum EmberAfBatterySize

Enumerator:

```
EMBER_ZCL_BATTERY_SIZE_NO_BATTERY
EMBER_ZCL_BATTERY_SIZE_BUILT_IN
EMBER_ZCL_BATTERY_SIZE_OTHER
EMBER_ZCL_BATTERY_SIZE_AA
EMBER_ZCL_BATTERY_SIZE_AAA
EMBER_ZCL_BATTERY_SIZE_C
EMBER_ZCL_BATTERY_SIZE_D
EMBER_ZCL_BATTERY_SIZE_UNKNOWN
```

Definition at line 202 of file [enums.doc](#).

### 6.6.3.20 enum EmberAfBillingPeriodDurationUnits

Enumerator:

```
EMBER_ZCL_BILLING_PERIOD_DURATION_UNITS_MINUTES
EMBER_ZCL_BILLING_PERIOD_DURATION_UNITS_DAYS
EMBER_ZCL_BILLING_PERIOD_DURATION_UNITS_WEEKS
EMBER_ZCL_BILLING_PERIOD_DURATION_UNITS_MONTHS
```

Definition at line 213 of file [enums.doc](#).

### 6.6.3.21 enum EmberAfBlock

Enumerator:

```
EMBER_ZCL_BLOCK_NO_BLOCKS_IN_USE
EMBER_ZCL_BLOCK_BLOCK1
EMBER_ZCL_BLOCK_BLOCK2
EMBER_ZCL_BLOCK_BLOCK3
```

*EMBER\_ZCL\_BLOCK\_BLOCK4*  
*EMBER\_ZCL\_BLOCK\_BLOCK5*  
*EMBER\_ZCL\_BLOCK\_BLOCK6*  
*EMBER\_ZCL\_BLOCK\_BLOCK7*  
*EMBER\_ZCL\_BLOCK\_BLOCK8*  
*EMBER\_ZCL\_BLOCK\_BLOCK9*  
*EMBER\_ZCL\_BLOCK\_BLOCK10*  
*EMBER\_ZCL\_BLOCK\_BLOCK11*  
*EMBER\_ZCL\_BLOCK\_BLOCK12*  
*EMBER\_ZCL\_BLOCK\_BLOCK13*  
*EMBER\_ZCL\_BLOCK\_BLOCK14*  
*EMBER\_ZCL\_BLOCK\_BLOCK15*  
*EMBER\_ZCL\_BLOCK\_BLOCK16*

Definition at line 220 of file [enums.doc](#).

#### 6.6.3.22 enum EmberAfBlockPeriodDurationTypeControl

Enumerator:

*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL\_START\_OF\_TIMEBASE*  
*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL\_END\_OF\_TIMEBASE*  
*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL\_NOT\_SPECIFIED*

Definition at line 240 of file [enums.doc](#).

#### 6.6.3.23 enum EmberAfBlockPeriodDurationTypeTimebase

Enumerator:

*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_MINUTES*  
*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_DAYS*  
*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_WEEKS*  
*EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_MONTHS*

Definition at line 246 of file [enums.doc](#).

#### 6.6.3.24 enum EmberAfCO2Unit

Enumerator:

*EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_KILOWATT\_HOUR*  
*EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_GALLON\_OF\_GASOLINE*  
*EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_THERM\_OF\_NATURAL\_GAS*

Definition at line 253 of file [enums.doc](#).

### 6.6.3.25 enum EmberAfCalendarTimeReference

Enumerator:

*EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_UTC\_TIME*  
*EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_STANDARD\_TIME*  
*EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_LOCAL\_TIME*

Definition at line 259 of file [enums.doc](#).

### 6.6.3.26 enum EmberAfCalendarType

Enumerator:

*EMBER\_ZCL\_CALENDAR\_TYPE\_DELIVERED\_CALENDAR*  
*EMBER\_ZCL\_CALENDAR\_TYPE\_RECEIVED\_CALENDAR*  
*EMBER\_ZCL\_CALENDAR\_TYPE\_DELIVERED\_AND\_RECEIVED\_CALENDAR*  
*EMBER\_ZCL\_CALENDAR\_TYPE\_FRIENDLY\_CREDIT\_CALENDAR*  
*EMBER\_ZCL\_CALENDAR\_TYPE\_AUXILLIARY\_LOAD\_SWITCH\_CALENDAR*

Definition at line 265 of file [enums.doc](#).

### 6.6.3.27 enum EmberAfCalorificValueUnit

Enumerator:

*EMBER\_ZCL\_CALORIFIC\_VALUE\_UNIT\_MEGAJOULE\_PER\_CUBIC\_METER*  
*EMBER\_ZCL\_CALORIFIC\_VALUE\_UNIT\_MEGAJOULE\_PER\_KILOGRAM*

Definition at line 273 of file [enums.doc](#).

### 6.6.3.28 enum EmberAfCecedSpecificationVersion

Enumerator:

*EMBER\_ZCL\_CECED\_SPECIFICATION\_VERSION\_COMPLIANT\_WITH\_V10\_NOT\_CERTIFIED*  
*EMBER\_ZCL\_CECED\_SPECIFICATION\_VERSION\_COMPLIANT\_WITH\_V10\_CERTIFIED*

Definition at line 278 of file [enums.doc](#).

### 6.6.3.29 enum EmberAfColorLoopAction

Enumerator:

*EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_DEACTIVATE*  
*EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_ACTIVATE\_FROM\_COLOR\_LOOP\_START\_ENHANCED\_HUE*  
*EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_ACTIVATE\_FROM\_ENHANCED\_CURRENT\_HUE*

Definition at line 283 of file [enums.doc](#).

### 6.6.3.30 enum EmberAfColorLoopDirection

Enumerator:

*EMBER\_ZCL\_COLOR\_LOOP\_DIRECTION\_DECREMENT\_HUE*  
*EMBER\_ZCL\_COLOR\_LOOP\_DIRECTION\_INCREMENT\_HUE*

Definition at line 289 of file [enums.doc](#).

### 6.6.3.31 enum EmberAfColorMode

Enumerator:

*EMBER\_ZCL\_COLOR\_MODE\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION*  
*EMBER\_ZCL\_COLOR\_MODE\_CURRENT\_X\_AND\_CURRENT\_Y*  
*EMBER\_ZCL\_COLOR\_MODE\_COLOR\_TEMPERATURE*

Definition at line 294 of file [enums.doc](#).

### 6.6.3.32 enum EmberAfCommandIdentification

Enumerator:

*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_PAUSE*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START\_SUPERFREEZING*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP\_SUPERFREEZING*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START\_SUPERCOOLING*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP\_SUPERCOOLING*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_DISABLE\_GAS*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_ENABLE\_GAS*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_ENABLE\_ENERGY\_CONTROL*  
*EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_DISABLE\_ENERGY\_CONTROL*

Definition at line 300 of file [enums.doc](#).

### 6.6.3.33 enum EmberAfCommissioningStartupControl

Enumerator:

*EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_NO\_ACTION*  
*EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_FORM\_NETWORK*  
*EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_REJOIN\_NETWORK*  
*EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_START\_FROM\_SCRATCH*

Definition at line 314 of file [enums.doc](#).

### 6.6.3.34 enum EmberAfCommodityType

Enumerator:

```
EMBER_ZCL_COMMODITY_TYPE_ELECTRIC_METERING
EMBER_ZCL_COMMODITY_TYPE_GAS_METERING
EMBER_ZCL_COMMODITY_TYPE_WATER_METERING
EMBER_ZCL_COMMODITY_TYPE_THERMAL_METERING
EMBER_ZCL_COMMODITY_TYPE_PRESSURE_METERING
EMBER_ZCL_COMMODITY_TYPE_HEAT_METERING
EMBER_ZCL_COMMODITY_TYPE_COOLING_METERING
EMBER_ZCL_COMMODITY_TYPE_ELECTRIC_VEHICLE_CHARGING_METERING
EMBER_ZCL_COMMODITY_TYPE_PV_GENERATION_METERING
EMBER_ZCL_COMMODITY_TYPE_WIND_TURBINE_GENERATION_METERING
EMBER_ZCL_COMMODITY_TYPE_WATER_TURBINE_GENERATION_METERING
EMBER_ZCL_COMMODITY_TYPE_MICRO_GENERATION_METERING
EMBER_ZCL_COMMODITY_TYPE_SOLAR_HOT_WATER_GENERATION_METERING
EMBER_ZCL_COMMODITY_TYPE_ELECTRIC_METERING_ELEMENT1
EMBER_ZCL_COMMODITY_TYPE_ELECTRIC_METERING_ELEMENT2
EMBER_ZCL_COMMODITY_TYPE_ELECTRIC_METERING_ELEMENT3
```

Definition at line 321 of file [enums.doc](#).

### 6.6.3.35 enum EmberAfCppEventResponseCppTypeAuth

Enumerator:

```
EMBER_ZCL_CPP_EVENT_RESPONSE_CPP_AUTH_ACCEPTED
EMBER_ZCL_CPP_EVENT_RESPONSE_CPP_AUTH_REJECTED
```

Definition at line 340 of file [enums.doc](#).

### 6.6.3.36 enum EmberAfCppTypeTier

Enumerator:

```
EMBER_ZCL_CPP_PRICE_TIER_CPP1
EMBER_ZCL_CPP_PRICE_TIER_CPP2
```

Definition at line 345 of file [enums.doc](#).

### 6.6.3.37 enum EmberAfCreditAdjustmentType

Enumerator:

```
EMBER_ZCL_CREDIT_ADJUSTMENT_TYPE_CREDIT_INCREMENTAL
EMBER_ZCL_CREDIT_ADJUSTMENT_TYPE_CREDIT_ABSOLUTE
```

Definition at line 350 of file [enums.doc](#).

### 6.6.3.38 enum EmberAfCreditPaymentStatus

Enumerator:

*EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_PENDING*  
*EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_RECEIVED\_PAID*  
*EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_OVERDUE*  
*EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_2\_PAYMENTS\_OVERDUE*  
*EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_3\_PAYMENTS\_OVERDUE*

Definition at line 355 of file [enums.doc](#).

### 6.6.3.39 enum EmberAfDataQualityId

Enumerator:

*EMBER\_ZCL\_DATA\_QUALITY\_ID\_ALL\_DATA\_CERTIFIED*  
*EMBER\_ZCL\_DATA\_QUALITY\_ID\_ONLY\_INSTANTANEOUS\_POWER\_NOT\_CERTIFIED*  
*EMBER\_ZCL\_DATA\_QUALITY\_ID\_ONLY\_CUMULATED\_CONSUMPTION\_NOT\_CERTIFIED*  
*EMBER\_ZCL\_DATA\_QUALITY\_ID\_NOT\_CERTIFIED\_DATA*

Definition at line 363 of file [enums.doc](#).

### 6.6.3.40 enum EmberAfDebtAmountType

Enumerator:

*EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE1\_ABSOLUTE*  
*EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE1\_INCREMENTAL*  
*EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE2\_ABSOLUTE*  
*EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE2\_INCREMENTAL*  
*EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE3\_ABSOLUTE*  
*EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE3\_INCREMENTAL*

Definition at line 370 of file [enums.doc](#).

### 6.6.3.41 enum EmberAfDebtRecoveryFrequency

Enumerator:

*EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_HOUR*  
*EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_DAY*  
*EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_WEEK*  
*EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_MONTH*  
*EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_QUARTER*

Definition at line 379 of file [enums.doc](#).

#### 6.6.3.42 enum EmberAfDebtRecoveryMethod

Enumerator:

*EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_TIME\_BASED*  
*EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_PERCENTAGE\_BASED*  
*EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_CATCH\_UP\_BASED*

Definition at line 387 of file [enums.doc](#).

#### 6.6.3.43 enum EmberAfDehumidificationLockout

Enumerator:

*EMBER\_ZCL\_DEHUMIDIFICATION\_LOCKOUT\_NOT\_ALLOWED*  
*EMBER\_ZCL\_DEHUMIDIFICATION\_LOCKOUT\_ALLOWED*

Definition at line 393 of file [enums.doc](#).

#### 6.6.3.44 enum EmberAfDeviceInformationRecordSort

Enumerator:

*EMBER\_ZCL\_DEVICE\_INFORMATION\_RECORD\_SORT\_NOT\_SORTED*  
*EMBER\_ZCL\_DEVICE\_INFORMATION\_RECORD\_SORT\_TOP\_OF\_THE\_LIST*

Definition at line 398 of file [enums.doc](#).

#### 6.6.3.45 enum EmberAfDeviceStatus2Structure

Enumerator:

*EMBER\_ZCL\_DEVICE\_STATUS2\_STRUCTURE\_IRIS\_SYMPTOM\_CODE*

Definition at line 403 of file [enums.doc](#).

#### 6.6.3.46 enum EmberAfDoorLockEventSource

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_KEYPAD*  
*EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_RF*  
*EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_MANUAL*  
*EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_RFID*  
*EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_INDETERMINATE*

Definition at line 407 of file [enums.doc](#).

#### 6.6.3.47 enum EmberAfDoorLockEventType

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_OPERATION  
 EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_PROGRAMMING  
 EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_ALARM*

Definition at line 415 of file [enums.doc](#).

#### 6.6.3.48 enum EmberAfDoorLockOperatingMode

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_NORMAL\_MODE  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_VACATION\_MODE  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_PRIVACY\_MODE  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_NO\_RF\_LOCK\_OR\_UNLOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_LOCAL\_PROGRAMMING\_MODE  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_PASSAGE\_MODE*

Definition at line 421 of file [enums.doc](#).

#### 6.6.3.49 enum EmberAfDoorLockOperationEventCode

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNKNOWN\_OR\_MFG\_SPECIFIC  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK\_INVALID\_PIN\_OR\_ID  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK\_INVALID\_SCHEDULE  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK\_INVALID\_PIN\_OR\_ID  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK\_INVALID\_SCHEDULE  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_ONE\_TOUCH\_LOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_KEY\_LOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_KEY\_UNLOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_AUTO\_LOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_SCHEDULE\_LOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_SCHEDULE\_UNLOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_MANUAL\_LOCK  
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_MANUAL\_UNLOCK*

Definition at line 430 of file [enums.doc](#).

### 6.6.3.50 enum EmberAfDoorLockProgrammingEventCode

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_UNKNOWN\_OR\_MFG\_SPECIFIC*  
*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_MASTER\_CODE\_CHANGED*  
*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_ADDED*  
*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_DELETED*  
*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_CHANGED*  
*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_ID\_ADDED*  
*EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_ID\_DELETED*

Definition at line 448 of file [enums.doc](#).

### 6.6.3.51 enum EmberAfDoorLockSecurityLevel

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_SECURITY\_LEVEL\_NETWORK\_SECURITY*  
*EMBER\_ZCL\_DOOR\_LOCK\_SECURITY\_LEVEL\_APS\_SECURITY*

Definition at line 458 of file [enums.doc](#).

### 6.6.3.52 enum EmberAfDoorLockSetPinOrIdStatus

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_SUCCESS*  
*EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_GENERAL\_FAILURE*  
*EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_MEMORY\_FULL*  
*EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_DUPLICATE\_CODE\_ERROR*

Definition at line 463 of file [enums.doc](#).

### 6.6.3.53 enum EmberAfDoorLockSoundVolume

Enumerator:

*EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_SILENT*  
*EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_LOW*  
*EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_HIGH*

Definition at line 470 of file [enums.doc](#).

#### 6.6.3.54 enum EmberAfDoorLockState

Enumerator:

- EMBER\_ZCL\_DOOR\_LOCK\_STATE\_NOT\_FULLY\_LOCKED*
- EMBER\_ZCL\_DOOR\_LOCK\_STATE\_LOCKED*
- EMBER\_ZCL\_DOOR\_LOCK\_STATE\_UNLOCKED*

Definition at line 476 of file [enums.doc](#).

#### 6.6.3.55 enum EmberAfDoorLockType

Enumerator:

- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_DEAD\_BOLT*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_MAGNETIC*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_MORTISE*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_RIM*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_LATCH\_BOLT*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_CYLINDRICAL*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_TUBULAR*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_INTERCONNECTED*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_DEAD\_LATCH*
- EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_OTHER*

Definition at line 482 of file [enums.doc](#).

#### 6.6.3.56 enum EmberAfDoorLockUserStatus

Enumerator:

- EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_AVAILABLE*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_OCCUPIED\_ENABLED*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_OCCUPIED\_DISABLED*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_NOT\_SUPPORTED*

Definition at line 495 of file [enums.doc](#).

#### 6.6.3.57 enum EmberAfDoorLockUserType

Enumerator:

- EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_UNRESTRICTED*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_ONE\_TIME\_USER*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_USER\_WITH\_SCHEDULE*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_MASTER\_USER*
- EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_NOT\_SUPPORTED*

Definition at line 502 of file [enums.doc](#).

### 6.6.3.58 enum EmberAfDoorState

Enumerator:

```
EMBER_ZCL_DOOR_STATE_OPEN
EMBER_ZCL_DOOR_STATE_CLOSED
EMBER_ZCL_DOOR_STATE_ERROR_JAMMED
EMBER_ZCL_DOOR_STATE_ERROR_FORCED_OPEN
EMBER_ZCL_DOOR_STATE_ERROR_UNSPECIFIED
```

Definition at line 510 of file [enums.doc](#).

### 6.6.3.59 enum EmberAfElectricityAlarmGroups

Enumerator:

```
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_LOW_VOLTAGE_L1
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_HIGH_VOLTAGE_L1
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_LOW_VOLTAGE_L2
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_HIGH_VOLTAGE_L2
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_LOW_VOLTAGE_L3
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_HIGH_VOLTAGE_L3
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_OVER_CURRENT_L1
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_OVER_CURRENT_L2
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_OVER_CURRENT_L3
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_FREQUENCY_TOO_LOW_L1
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_FREQUENCY_TOO_HIGH_L1
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_FREQUENCY_TOO_LOW_L2
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_FREQUENCY_TOO_HIGH_L2
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_FREQUENCY_TOO_LOW_L3
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_FREQUENCY_TOO_HIGH_L3
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_GROUND_FAULT
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_ELECTRIC_TAMPER_DETECT
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_INCORRECT_POLARITY
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_CURRENT_NO_VOLTAGE
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_UNDER_VOLTAGE
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_OVER_VOLTAGE
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_NORMAL_VOLTAGE
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_P_F_BELOW_THRESHOLD
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_P_F_ABOVE_THRESHOLD
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_TERMINAL_COVER_REMOVED
EMBER_ZCL_ELECTRICITY_ALARM_GROUPS_TERMINAL_COVER_CLOSED
```

Definition at line 518 of file [enums.doc](#).

### 6.6.3.60 enum EmberAfEnhancedColorMode

Enumerator:

*EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION*  
*EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_CURRENT\_X\_AND\_CURRENT\_Y*  
*EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_COLOR\_TEMPERATURE*  
*EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_ENHANCED\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION*

Definition at line 547 of file [enums.doc](#).

### 6.6.3.61 enum EmberAfEventConfigurationControl

Enumerator:

*EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_LIST*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_EVENT\_GROUP*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_LOG\_TYPE*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_CONFIGURATION\_MATCH*

Definition at line 554 of file [enums.doc](#).

### 6.6.3.62 enum EmberAfEventConfigurationLogAction

Enumerator:

*EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_DO\_NOT\_LOG*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_TAMPER*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_FAULT*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_GENERAL\_EVENT*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_SECURITY\_EVENT*  
*EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_NETWORK\_EVENT*

Definition at line 561 of file [enums.doc](#).

### 6.6.3.63 enum EmberAfEventControl

Enumerator:

*EMBER\_ZCL\_EVENT\_CONTROL\_RETRIEVE\_MINIMAL\_INFORMATION*  
*EMBER\_ZCL\_EVENT\_CONTROL\_RETRIEVE\_FULL\_INFORMATION*

Definition at line 570 of file [enums.doc](#).

#### 6.6.3.64 enum EmberAfEventId

Enumerator:

```
EMBER_ZCL_EVENT_ID_METER_COVER_REMOVED
EMBER_ZCL_EVENT_ID_METER_COVER_CLOSED
EMBER_ZCL_EVENT_ID_STRONG_MAGNETIC_FIELD
EMBER_ZCL_EVENT_ID_NO_STRONG_MAGNETIC_FIELD
EMBER_ZCL_EVENT_ID_BATTERY_FAILURE
EMBER_ZCL_EVENT_ID_LOW_BATTERY
EMBER_ZCL_EVENT_ID_PROGRAM_MEMORY_ERROR
EMBER_ZCL_EVENT_ID_RAM_ERROR
EMBER_ZCL_EVENT_ID_NV_MEMORY_ERROR
EMBER_ZCL_EVENT_ID_MEASUREMENT_SYSTEM_ERROR
EMBER_ZCL_EVENT_ID_WATCHDOG_ERROR
EMBER_ZCL_EVENT_ID_SUPPLY_DISCONNECT_FAILURE
EMBER_ZCL_EVENT_ID_SUPPLY_CONNECT_FAILURE
EMBER_ZCL_EVENT_ID_MEASURMENT_SOFTWARE_CHANGED
EMBER_ZCL_EVENT_ID_DST_ENABLED
EMBER_ZCL_EVENT_ID_DST_DISABLED
EMBER_ZCL_EVENT_ID_CLOCK_ADJ_BACKWARD
EMBER_ZCL_EVENT_ID_CLOCK_ADJ_FORWARD
EMBER_ZCL_EVENT_ID_CLOCK_INVALID
EMBER_ZCL_EVENT_ID_COMMS_ERROR_HAN
EMBER_ZCL_EVENT_ID_COMMS_OK_HAN
EMBER_ZCL_EVENT_ID_FRAUD_ATTEMPT
EMBER_ZCL_EVENT_ID_POWER_LOSS
EMBER_ZCL_EVENT_ID_INCORRECT_PROTOCOL
EMBER_ZCL_EVENT_ID_UNUSUAL_HAN_TRAFFIC
EMBER_ZCL_EVENT_ID_UNEXPECTED_CLOCK_CHANGE
EMBER_ZCL_EVENT_ID_COMMS_USING_UNAUTHENTICATED_COMPONENT
EMBER_ZCL_EVENT_ID_ERROR_REG_CLEAR
EMBER_ZCL_EVENT_ID_ALARM_REG_CLEAR
EMBER_ZCL_EVENT_ID_UNEXPECTED_HW_RESET
EMBER_ZCL_EVENT_ID_UNEXPECTED_PROGRAM_EXECUTION
EMBER_ZCL_EVENT_ID_EVENT_LOG_CLEARED
EMBER_ZCL_EVENT_ID_MANUAL_DISCONNECT
EMBER_ZCL_EVENT_ID_MANUAL_CONNECT
EMBER_ZCL_EVENT_ID_REMOTE_DISCONNECTION
EMBER_ZCL_EVENT_ID_LOCAL_DISCONNECTION
EMBER_ZCL_EVENT_ID_LIMIT_THRESHOLD_EXCEEDED
EMBER_ZCL_EVENT_ID_LIMIT_THRESHOLD_OK
EMBER_ZCL_EVENT_ID_LIMIT_THRESHOLD_CHANGED
```

*EMBER\_ZCL\_EVENT\_ID\_MAXIMUM\_DEMAND\_EXCEEDED*  
*EMBER\_ZCL\_EVENT\_ID\_PROFILE\_CLEARED*  
*EMBER\_ZCL\_EVENT\_ID\_FIRMWARE\_READY\_FOR\_ACTIVATION*  
*EMBER\_ZCL\_EVENT\_ID\_FIRMWARE\_ACTIVATED*  
*EMBER\_ZCL\_EVENT\_ID\_PATCH\_FAILURE*  
*EMBER\_ZCL\_EVENT\_ID\_TOU\_TARIFF\_ACTIVATION*  
*EMBER\_ZCL\_EVENT\_ID\_8X8\_TARIFFACTIVATED*  
*EMBER\_ZCL\_EVENT\_ID\_SINGLE\_TARIFF\_RATE\_ACTIVATED*  
*EMBER\_ZCL\_EVENT\_ID\_ASYNCNCHRONOUS\_BILLING\_OCCURRED*  
*EMBER\_ZCL\_EVENT\_ID\_SYNCHRONOUS\_BILLING\_OCCURRED*  
*EMBER\_ZCL\_EVENT\_ID\_INCORRECT\_POLARITY*  
*EMBER\_ZCL\_EVENT\_ID\_CURRENT\_NO\_VOLTAGE*  
*EMBER\_ZCL\_EVENT\_ID\_UNDER\_VOLTAGE*  
*EMBER\_ZCL\_EVENT\_ID\_OVER\_VOLTAGE*  
*EMBER\_ZCL\_EVENT\_ID\_NORMAL\_VOLTAGE*  
*EMBER\_ZCL\_EVENT\_ID\_PF\_BELOW\_THRESHOLD*  
*EMBER\_ZCL\_EVENT\_ID\_PF\_ABOVE\_THRESHOLD*  
*EMBER\_ZCL\_EVENT\_ID\_TERMINAL\_COVER\_REMOVED*  
*EMBER\_ZCL\_EVENT\_ID\_TERMINAL\_COVER\_CLOSED*  
*EMBER\_ZCL\_EVENT\_ID\_REVERSE\_FLOW*  
*EMBER\_ZCL\_EVENT\_ID\_TILT\_TAMPER*  
*EMBER\_ZCL\_EVENT\_ID\_BATTERY\_COVER\_REMOVED*  
*EMBER\_ZCL\_EVENT\_ID\_BATTERY\_COVER\_CLOSED*  
*EMBER\_ZCL\_EVENT\_ID\_EXCESS\_FLOW*  
*EMBER\_ZCL\_EVENT\_ID\_EMERGENCY\_CREDIT\_IN\_USE*  
*EMBER\_ZCL\_EVENT\_ID\_EMERGENCY\_CREDIT\_EXHAUSTED*  
*EMBER\_ZCL\_EVENT\_ID\_ZERO\_CREDIT\_EC\_NOT\_SELECTED*  
*EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_ON*  
*EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_OFF\_AARMED*  
*EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_OFF*  
*EMBER\_ZCL\_EVENT\_ID\_DISCOUNT\_APPLIED*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_A*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_B*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_C*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_D*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_E*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_F*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_G*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_H*  
*EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_I*

Definition at line [575](#) of file `enums.doc`.

### 6.6.3.65 enum EmberAfEventIdentification

Enumerator:

*EMBER\_ZCL\_EVENT\_IDENTIFICATION\_END\_OF\_CYCLE  
 EMBER\_ZCL\_EVENT\_IDENTIFICATION\_TEMPERATURE\_REACHED  
 EMBER\_ZCL\_EVENT\_IDENTIFICATION\_END\_OF\_COOKING  
 EMBER\_ZCL\_EVENT\_IDENTIFICATION\_SWITCHING\_OFF  
 EMBER\_ZCL\_EVENT\_IDENTIFICATION\_WRONG\_DATA*

Definition at line 657 of file [enums.doc](#).

### 6.6.3.66 enum EmberAfEventLogId

Enumerator:

*EMBER\_ZCL\_EVENT\_LOG\_ID\_ALL\_LOGS  
 EMBER\_ZCL\_EVENT\_LOG\_ID\_TAMPER\_LOG  
 EMBER\_ZCL\_EVENT\_LOG\_ID\_FAULT\_LOG  
 EMBER\_ZCL\_EVENT\_LOG\_ID\_GENERAL\_EVENT\_LOG  
 EMBER\_ZCL\_EVENT\_LOG\_ID\_SECURITY\_EVENT\_LOG  
 EMBER\_ZCL\_EVENT\_LOG\_ID\_NETWORK\_EVENT\_LOG*

Definition at line 665 of file [enums.doc](#).

### 6.6.3.67 enum EmberAfEventLogPayloadControl

Enumerator:

*EMBER\_ZCL\_EVENT\_LOG\_PAYLOAD\_CONTROL\_EVENTS\_DO\_NOT\_CROSS\_FRAME\_BOUNDARY  
 EMBER\_ZCL\_EVENT\_LOG\_PAYLOAD\_CONTROL\_EVENT\_CROSSES\_FRAME\_BOUNDARY*

Definition at line 674 of file [enums.doc](#).

### 6.6.3.68 enum EmberAfExtendedGenericAlarmGroups

Enumerator:

*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MEASUREMENT\_SYSTEM\_ERROR  
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_WATCHDOG\_ERROR  
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SUPPLY\_DISCONNECT\_FAILURE  
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SUPPLY\_CONNECT\_FAILURE  
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MEASUREMENT\_SOFTWARE\_CHANGED  
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DST\_ENABLED*

*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DST\_DISABLED*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_ADJ\_BACKWARD*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_ADJ\_FORWARD*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_INVALID*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMUNICATION\_ERROR\_HAN*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMUNICATION\_OK\_H\_AN*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_FRAUD\_ATTEMPT*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_POWER\_LOSS*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNUSUAL\_HAN\_TRAFFIC*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_CLOCK\_CHANGE*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMS\_USING\_UNAUTHENTICATED\_COMPONENT*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_ERROR\_REG\_CLEAR*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_ALARM\_REG\_CLEAR*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_HW\_RESET*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_PROGRAM\_EXECUTION*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_EVENT\_LOG\_CLEARED*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_EXCEEDED*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_OK*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_CHANGED*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MAXIMUM\_DEMAND\_EXCEEDED*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_PROFILE\_CLEARED*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SAMPLING\_BUFFERCLEARED*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_BATTERY\_WARNING*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_WRONG\_SIGNATURE*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_NO\_SIGNATURE*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNAUTHORISED\_ACTIONFROM\_HAN*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_FAST\_POLLING\_START*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_FAST\_POLLING\_END*  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_REPORTING\_INTERVAL\_CHANGED*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DISCONNECT\_DUE\_TO\_LOAD\_LIMIT*  
  
*EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_SUPPLY\_STATUS\_REGISTER\_CHANGED*

***EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED***  
***EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_EXTENDED\_METER\_ALARM\_STATUS\_REGISTER\_CHANGE***

Definition at line 679 of file [enums.doc](#).

#### 6.6.3.69 enum EmberAfExtendedNumberOfPriceTiers

Enumerator:

***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_REFER\_TO\_NUMBER\_OF\_PRICE\_TIERS\_FIELD***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS16***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS17***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS18***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS19***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS20***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS21***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS22***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS23***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS24***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS25***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS26***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS27***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS28***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS29***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS30***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS31***  
***EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS32***

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS33*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS34*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS35*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS36*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS37*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS38*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS39*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS40*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS41*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS42*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS43*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS44*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS45*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS46*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS47*

*EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS48*

Definition at line [721](#) of file `enums.doc`.

#### 6.6.3.70 enum EmberAfExtendedPriceTier

Enumerator:

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_REFER\_TO\_PRICE\_TIER\_FIELD*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER16\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER17\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER18\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER19\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER20\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER21\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER22\_PRICE\_LABEL*

*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER23\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER24\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER25\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER26\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER27\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER28\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER29\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER30\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER31\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER32\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER33\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER34\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER35\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER36\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER37\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER38\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER39\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER40\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER41\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER42\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER43\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER44\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER45\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER46\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER47\_PRICE\_LABEL*  
*EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER48\_PRICE\_LABEL*

Definition at line 758 of file [enums.doc](#).

#### 6.6.3.71 enum EmberAfExtendedRegisterTier

Enumerator:

*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_REFER\_TO\_REGISTER\_TIER\_FIELD*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER16\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER17\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER18\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER19\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER20\_SUMMATION\_DELIVERED\_ATTRIBUTE*

*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER21\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER22\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER23\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER24\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER25\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER26\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER27\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER28\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER29\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER30\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER31\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER32\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER33\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER34\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER35\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER36\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER37\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER38\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER39\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER40\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER41\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER42\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER43\_SUMMATION\_DELIVERED\_ATTRIBUTE*

*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER44\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER45\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER46\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER47\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER48\_SUMMATION\_DELIVERED\_ATTRIBUTE*

Definition at line 795 of file [enums.doc](#).

#### 6.6.3.72 enum EmberAfEzModeCommissioningClusterType

Enumerator:

*EMBER\_ZCL\_EZ\_MODE\_COMMISSIONING\_CLUSTER\_TYPE\_SERVER*  
*EMBER\_ZCL\_EZ\_MODE\_COMMISSIONING\_CLUSTER\_TYPE\_CLIENT*

Definition at line 832 of file [enums.doc](#).

#### 6.6.3.73 enum EmberAfFanMode

Enumerator:

*EMBER\_ZCL\_FAN\_MODE\_OFF*  
*EMBER\_ZCL\_FAN\_MODE\_LOW*  
*EMBER\_ZCL\_FAN\_MODE\_MEDIUM*  
*EMBER\_ZCL\_FAN\_MODE\_HIGH*  
*EMBER\_ZCL\_FAN\_MODE\_ON*  
*EMBER\_ZCL\_FAN\_MODE\_AUTO*  
*EMBER\_ZCL\_FAN\_MODE\_SMART*

Definition at line 837 of file [enums.doc](#).

#### 6.6.3.74 enum EmberAfFanModeSequence

Enumerator:

*EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_MED\_HIGH*  
*EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_HIGH*  
*EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_MED\_HIGH\_AUTO*  
*EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_HIGH\_AUTO*  
*EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_ON\_AUTO*

Definition at line 847 of file [enums.doc](#).

### 6.6.3.75 enum EmberAfGasSpecificAlarmGroups

Enumerator:

```
EMBER_ZCL_GAS_SPECIFIC_ALARM_GROUPS_TILT_TAMPER
EMBER_ZCL_GAS_SPECIFIC_ALARM_GROUPS_BATTERY_COVER_REMOVED
EMBER_ZCL_GAS_SPECIFIC_ALARM_GROUPS_BATTERY_COVER_CLOSED
EMBER_ZCL_GAS_SPECIFIC_ALARM_GROUPS_EXCESS_FLOW
EMBER_ZCL_GAS_SPECIFIC_ALARM_GROUPS_TILT_TAMPER_ENDED
```

Definition at line [855](#) of file `enums.doc`.

### 6.6.3.76 enum EmberAfGenerationTier

Enumerator:

```
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER1_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER2_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER3_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER4_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER5_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER6_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER7_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER8_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER9_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER10_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER11_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER12_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER13_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER14_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER15_SUMMATION_RECEIVED_ATTRIBUTE
EMBER_ZCL_GENERATION_TIER_CURRENT_TIER16_SUMMATION_RECEIVED_ATTRIBUTE
```

*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER17\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER18\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER19\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER20\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER21\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER22\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER23\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER24\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER25\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER26\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER27\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER28\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER29\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER30\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER31\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER32\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER33\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER34\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER35\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER36\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER37\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER38\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER39\_SUMMATION\_RECEIVED\_ATTRIBUTE*

*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER40\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER41\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER42\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER43\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER44\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER45\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER46\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER47\_SUMMATION\_RECEIVED\_ATTRIBUTE*  
*EMBER\_ZCL\_GENERATION\_TIER\_CURRENT\_TIER48\_SUMMATION\_RECEIVED\_ATTRIBUTE*

Definition at line 863 of file [enums.doc](#).

#### 6.6.3.77 enum EmberAfGenericAlarmGroups

Enumerator:

*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_CHECK\_METER*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_LOW\_BATTERY*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_TAMPER\_DETECT*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_LEAK\_DETECT*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_SERVICE\_DISCONNECT*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_METER\_COVER\_REMOVED*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_METER\_COVER\_CLOSED*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_STRONG\_MAGNETIC\_FIELD*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_NO\_STRONG\_MAGNETIC\_FIELD*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_BATTERY\_FAILURE*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_PROGRAM\_MEMORY\_ERROR*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_R\_A\_M\_ERROR*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_N\_V\_MEMORY\_ERROR*

Definition at line 914 of file [enums.doc](#).

#### 6.6.3.78 enum EmberAfGenericAlarmGroupsElectricity

Enumerator:

*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_ELECTRICITY\_POWER\_FAILURE*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_ELECTRICITY\_POWER\_QUALITY*

Definition at line 930 of file [enums.doc](#).

### 6.6.3.79 enum EmberAfGenericAlarmGroupsGas

Enumerator:

*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_GAS\_LOW\_PRESSURE*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_GAS\_REVERSE\_FLOW*

Definition at line 935 of file [enums.doc](#).

### 6.6.3.80 enum EmberAfGenericAlarmGroupsHeatCooling

Enumerator:

*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_TEMPERATURE\_SENSOR*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_BURST\_DETECT*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_FLOW\_SENSOR*

Definition at line 940 of file [enums.doc](#).

### 6.6.3.81 enum EmberAfGenericAlarmGroupsWater

Enumerator:

*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_PIPE\_EMPTY*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_LOW\_PRESSURE*  
*EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_REVERSE\_FLOW*

Definition at line 946 of file [enums.doc](#).

### 6.6.3.82 enum EmberAfGenericDeviceClass

Enumerator:

*EMBER\_ZCL\_GENERIC\_DEVICE\_CLASS\_LIGHTING*

Definition at line 952 of file [enums.doc](#).

### 6.6.3.83 enum EmberAfGenericDeviceType

Enumerator:

*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_INCANDESCENT*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_SPOTLIGHT\_HALOGEN*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_HALOGEN\_BULB*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_CFL*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LINEAR\_FLOURESCENT*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_BULB*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_SPOTLIGHT\_LED*

*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_STRIP*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_TUBE*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_INDOOR\_FIXTURE*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_OUTDOOR\_FIXTURE*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PENDANT\_FIXTURE*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_FLOOR\_STANDING\_FIXTURE*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_CONTROLLER*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_WALL\_SWITCH*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PORTABLE\_REMOTE\_CONTROLLER*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_MOTION\_OR\_LIGHT\_SENSOR*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_ACTUATOR*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PLUGIN\_UNIT*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_RETROFIT\_ACTUATOR*  
*EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_UNSPECIFIED*

Definition at line 956 of file [enums.doc](#).

#### 6.6.3.84 enum EmberAfGenericFlowPressureAlarmGroups

Enumerator:

*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_BURST\_DETECT*  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PRESSURE\_TOO\_LOW*  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PRESSURE\_TOO\_HIGH*  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_COMMUNICATION\_ERROR*  
  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_MEASUREMENT\_FAULT*  
  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_REVERSE\_FLOW*  
  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_AIR\_DETECT*  
  
*EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PIPE\_EMPTY*

Definition at line 980 of file [enums.doc](#).

#### 6.6.3.85 enum EmberAfGpDeviceId

Enumerator:

*EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_SIMPLE\_GENERICE\_TWO\_STATE\_SWITCH*  
*EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_ON\_OFF\_SWITCH*  
*EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_LEVEL\_CONTROL\_SWITCH*  
*EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_INDOOR\_ENVIRONMENT\_SNESOR*

Definition at line 991 of file [enums.doc](#).

### 6.6.3.86 enum EmberAfGpGpdf

Enumerator:

```
EMBER_ZCL_GP_GPDF_IDENTIFY
EMBER_ZCL_GP_GPDF_RECALL_SCENE0
EMBER_ZCL_GP_GPDF_RECALL_SCENE1
EMBER_ZCL_GP_GPDF_RECALL_SCENE2
EMBER_ZCL_GP_GPDF_RECALL_SCENE3
EMBER_ZCL_GP_GPDF_RECALL_SCENE4
EMBER_ZCL_GP_GPDF_RECALL_SCENE5
EMBER_ZCL_GP_GPDF_RECALL_SCENE6
EMBER_ZCL_GP_GPDF_RECALL_SCENE7
EMBER_ZCL_GP_GPDF_STORE_SCENE0
EMBER_ZCL_GP_GPDF_STORE_SCENE1
EMBER_ZCL_GP_GPDF_STORE_SCENE2
EMBER_ZCL_GP_GPDF_STORE_SCENE3
EMBER_ZCL_GP_GPDF_STORE_SCENE4
EMBER_ZCL_GP_GPDF_STORE_SCENE5
EMBER_ZCL_GP_GPDF_STORE_SCENE6
EMBER_ZCL_GP_GPDF_STORE_SCENE7
EMBER_ZCL_GP_GPDF_OFF
EMBER_ZCL_GP_GPDF_ON
EMBER_ZCL_GP_GPDF_TOGGLE
EMBER_ZCL_GP_GPDF_RELEASE
EMBER_ZCL_GP_GPDF_MOVE_UP
EMBER_ZCL_GP_GPDF_MOVE_DOWN
EMBER_ZCL_GP_GPDF_STEP_UP
EMBER_ZCL_GP_GPDF_STEP_DOWN
EMBER_ZCL_GP_GPDF_LEVEL_CONTROL_STOP
EMBER_ZCL_GP_GPDF_MOVE_UP_WITH_ON_OFF
EMBER_ZCL_GP_GPDF_MOVE_DOWN_WITH_ON_OFF
EMBER_ZCL_GP_GPDF_STEP_UP_WITH_ON_OFF
EMBER_ZCL_GP_GPDF_STEP_DOWN_WITH_ON_OFF
EMBER_ZCL_GP_GPDF_MOVE_HUE_STOP
EMBER_ZCL_GP_GPDF_MOVE_HUE_UP
EMBER_ZCL_GP_GPDF_MOVE_HUE_DOWN
EMBER_ZCL_GP_GPDF_STEP_HUE_UP
EMBER_ZCL_GP_GPDF_STEP_HUE_DOWN
EMBER_ZCL_GP_GPDF_MOVE_SATURATION_STOP
EMBER_ZCL_GP_GPDF_MOVE_SATURATION_UP
EMBER_ZCL_GP_GPDF_MOVE_SATURATION_DOWN
EMBER_ZCL_GP_GPDF_STEP_SATURATION_UP
```

*EMBER\_ZCL\_GP\_GPDF\_STEP\_SATURATION\_DOWN  
EMBER\_ZCL\_GP\_GPDF\_MOVE\_COLOR  
EMBER\_ZCL\_GP\_GPDF\_STEP\_COLOR  
EMBER\_ZCL\_GP\_GPDF\_LOCK\_DOOR  
EMBER\_ZCL\_GP\_GPDF\_UNLOCK\_DOOR  
EMBER\_ZCL\_GP\_GPDF\_PRESS1\_OF1  
EMBER\_ZCL\_GP\_GPDF\_RELEASE1\_OF1  
EMBER\_ZCL\_GP\_GPDF\_PRESS1\_OF2  
EMBER\_ZCL\_GP\_GPDF\_RELEASE1\_OF2  
EMBER\_ZCL\_GP\_GPDF\_PRESS2\_OF2  
EMBER\_ZCL\_GP\_GPDF\_RELEASE2\_OF2  
EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS1\_OF1  
EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS1\_OF2  
EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS2\_OF2  
EMBER\_ZCL\_GP\_GPDF\_ATTRIBUTE\_REPORTING  
EMBER\_ZCL\_GP\_GPDF\_MFR\_SP\_ATTR\_RPTG  
EMBER\_ZCL\_GP\_GPDF\_MULTI\_CLUSTER\_RPTG  
EMBER\_ZCL\_GP\_GPDF\_MFR\_SP\_MULTI\_CLUSTER\_RPTG  
EMBER\_ZCL\_GP\_GPDF\_REQUEST\_ATTRIBUTE  
EMBER\_ZCL\_GP\_GPDF\_READ\_ATTR\_RESPONSE  
EMBER\_ZCL\_GP\_GPDF\_ZCL\_TUNNELING\_WITH\_PAYLOAD  
EMBER\_ZCL\_GP\_GPDF\_ANY\_GPD\_SENSOR\_CMD  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD0  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD1  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD2  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD3  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD4  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD5  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD6  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD7  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD8  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD9  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_A  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_B  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_C  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_D  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_E  
EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_F  
EMBER\_ZCL\_GP\_GPDF\_COMMISIONING  
EMBER\_ZCL\_GP\_GPDF\_DECOMMISSIONING  
EMBER\_ZCL\_GP\_GPDF\_SUCCESS*

*EMBER\_ZCL\_GP\_GPDF\_CHANNEL\_REQUEST  
 EMBER\_ZCL\_GP\_GPDF\_COMMISIONING\_REPLY  
 EMBER\_ZCL\_GP\_GPDF\_WRITE\_ATTRIBUTES  
 EMBER\_ZCL\_GP\_GPDF\_READ\_ATTRIBUTES  
 EMBER\_ZCL\_GP\_GPDF\_CHANNEL\_CONFIGURATION  
 EMBER\_ZCL\_GP\_GPDF\_ZCL\_TUNNELING*

Definition at line 998 of file [enums.doc](#).

#### 6.6.3.87 enum EmberAfGpPairingConfigurationAction

Enumerator:

*EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_NO\_ACTION  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_EXTEND\_SINK\_TABLE\_ENTRY  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REPLACE\_SINK\_TABLE\_ENTRY  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REMOVE\_A\_PAIRING  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REMOVE\_GPD*

Definition at line 1087 of file [enums.doc](#).

#### 6.6.3.88 enum EmberAfGpPairingConfigurationOptionCommunicationMode

Enumerator:

*EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING  
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING*

Definition at line 1095 of file [enums.doc](#).

#### 6.6.3.89 enum EmberAfGpPairingOptionsCommunicationMode

Enumerator:

*EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_FULL\_UNICAST\_FORWARDING  
 EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_D\_GROUP  
 EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_PRE\_COM*

*EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING\_BY\_PROX\_SUPPORT*

Definition at line 1102 of file [enums.doc](#).

#### 6.6.3.90 enum EmberAfGpProxyTableRequestOptionsRequestType

Enumerator:

*EMBER\_ZCL\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_BY\_GPD\_ID*  
*EMBER\_ZCL\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_BY\_INDEX*

Definition at line 1109 of file [enums.doc](#).

#### 6.6.3.91 enum EmberAfGpProxyTableResponseStatus

Enumerator:

*EMBER\_ZCL\_GP\_PROXY\_TABLE\_RESPONSE\_STATUS\_SUCCESS*  
*EMBER\_ZCL\_GP\_PROXY\_TABLE\_RESPONSE\_STATUS\_NOT\_FOUND*

Definition at line 1114 of file [enums.doc](#).

#### 6.6.3.92 enum EmberAfGpSecurityKeyType

Enumerator:

*EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_NONE*  
*EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_ZIGBEE\_NETWORK\_KEY*  
*EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_GPD\_GROUP\_KEY*  
*EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_NETWORK\_DERIVED\_GROUP\_KEY*  
*EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_INDIVIDUAL\_GPD\_KEY*  
*EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_DERIVED\_INDIVIDUAL\_GPD\_KEY*

Definition at line 1119 of file [enums.doc](#).

#### 6.6.3.93 enum EmberAfGpSinkTableRequestOptions

Enumerator:

*EMBER\_ZCL\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TABLE\_ENTRIES\_BY\_GPD\_ID*  
*EMBER\_ZCL\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TABLE\_ENTRIES\_BY\_INDEX*

Definition at line 1128 of file [enums.doc](#).

#### 6.6.3.94 enum EmberAfGpTranslationTableUpdateAction

Enumerator:

*EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_ADD\_TRANSLATION\_TABLE\_ENTRY*  
*EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_REPLACE\_TRANSLATION\_TABLE\_ENTRY*  
*EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_REMOVE\_TRANSLATION\_TABLE\_ENTRY*  
*EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_RESERVED*

Definition at line 1133 of file [enums.doc](#).

#### 6.6.3.95 enum EmberAfHeatAndCoolingSpecificAlarmGroups

Enumerator:

*EMBER\_ZCL\_HEAT\_AND\_COOLING\_SPECIFIC\_ALARM\_GROUPS\_INLET\_TEMPERATURE\_SENSOR\_FAULT*  
*EMBER\_ZCL\_HEAT\_AND\_COOLING\_SPECIFIC\_ALARM\_GROUPS\_OUTLET\_TEMPERATURE\_SENSOR\_FAULT*

Definition at line 1140 of file [enums.doc](#).

#### 6.6.3.96 enum EmberAfHueDirection

Enumerator:

*EMBER\_ZCL\_HUE\_DIRECTION\_SHORTEST\_DISTANCE*  
*EMBER\_ZCL\_HUE\_DIRECTION\_LONGEST\_DISTANCE*  
*EMBER\_ZCL\_HUE\_DIRECTION\_UP*  
*EMBER\_ZCL\_HUE\_DIRECTION\_DOWN*

Definition at line 1145 of file [enums.doc](#).

#### 6.6.3.97 enum EmberAfHueMoveMode

Enumerator:

*EMBER\_ZCL\_HUE\_MOVE\_MODE\_STOP*  
*EMBER\_ZCL\_HUE\_MOVE\_MODE\_UP*  
*EMBER\_ZCL\_HUE\_MOVE\_MODE\_DOWN*

Definition at line 1152 of file [enums.doc](#).

#### 6.6.3.98 enum EmberAfHueStepMode

Enumerator:

*EMBER\_ZCL\_HUE\_STEP\_MODE\_UP*

***EMBER\_ZCL\_HUE\_STEP\_MODE\_DOWN***

Definition at line 1158 of file [enums.doc](#).

**6.6.3.99 enum EmberAfIasAceAlarmStatus**

Enumerator:

*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_NO\_ALARM*  
*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_BURGLAR*  
*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_FIRE*  
*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_EMERGENCY*  
*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_POLICE\_PANIC*  
*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_FIRE\_PANIC*  
*EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_EMERGENCY\_PANIC*

Definition at line 1163 of file [enums.doc](#).

**6.6.3.100 enum EmberAfIasAceArmMode**

Enumerator:

*EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_DISARM*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_DAY\_HOME\_ZONES\_ONLY*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_NIGHT\_SLEEP\_ZONES\_ONLY*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_ALL\_ZONES*

Definition at line 1173 of file [enums.doc](#).

**6.6.3.101 enum EmberAfIasAceArmNotification**

Enumerator:

*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALL\_ZONES\_DISARMED*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ONLY\_DAY\_HOME\_ZONES\_ARMED*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ONLY\_NIGHT\_SLEEP\_ZONES\_ARMED*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALL\_ZONES\_ARMED*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_INVALID\_ARM\_DISARM\_CODE*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_NOT\_READY\_TO\_ARM*  
*EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALREADY\_DISARMED*

Definition at line 1180 of file [enums.doc](#).

**6.6.3.102 enum EmberAfIasAceAudibleNotification**

Enumerator:

*EMBER\_ZCL\_IAS\_ACE\_AUDIBLE\_NOTIFICATION\_MUTE*  
*EMBER\_ZCL\_IAS\_ACE\_AUDIBLE\_NOTIFICATION\_DEFAULT\_SOUND*

Definition at line 1190 of file [enums.doc](#).

### 6.6.3.103 enum EmberAfIasAceBypassResult

Enumerator:

```
EMBER_ZCL_IAS_ACE_BYPASS_RESULT_ZONE_BYPASSED
EMBER_ZCL_IAS_ACE_BYPASS_RESULT_ZONE_NOT_BYPASSED
EMBER_ZCL_IAS_ACE_BYPASS_RESULT_NOT_ALLOWED
EMBER_ZCL_IAS_ACE_BYPASS_RESULT_INVALID_ZONE_ID
EMBER_ZCL_IAS_ACE_BYPASS_RESULT_UNKNOWN_ZONE_ID
EMBER_ZCL_IAS_ACE_BYPASS_RESULT_INVALID_ARM_DISARM_CODE
```

Definition at line 1195 of file [enums.doc](#).

### 6.6.3.104 enum EmberAfIasAcePanelStatus

Enumerator:

```
EMBER_ZCL_IAS_ACE_PANEL_STATUS_PANEL_DISARMED
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ARMED_STAY
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ARMED_NIGHT
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ARMED_AWAY
EMBER_ZCL_IAS_ACE_PANEL_STATUS_EXIT_DELAY
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ENTRY_DELAY
EMBER_ZCL_IAS_ACE_PANEL_STATUS_NOT_READY_TO_ARM
EMBER_ZCL_IAS_ACE_PANEL_STATUS_IN_ALARM
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ARMING_STAY
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ARMING_NIGHT
EMBER_ZCL_IAS_ACE_PANEL_STATUS_ARMING_AWAY
```

Definition at line 1204 of file [enums.doc](#).

### 6.6.3.105 enum EmberAfIasEnrollResponseCode

Enumerator:

```
EMBER_ZCL_IAS_ENROLL_RESPONSE_CODE_SUCCESS
EMBER_ZCL_IAS_ENROLL_RESPONSE_CODE_NOT_SUPPORTED
EMBER_ZCL_IAS_ENROLL_RESPONSE_CODE_NO_ENROLL_PERMIT
EMBER_ZCL_IAS_ENROLL_RESPONSE_CODE_TOO_MANY_ZONES
```

Definition at line 1218 of file [enums.doc](#).

### 6.6.3.106 enum EmberAfIasZoneState

Enumerator:

```
EMBER_ZCL_IAS_ZONE_STATE_NOT_ENROLLED
EMBER_ZCL_IAS_ZONE_STATE_ENROLLED
```

Definition at line 1225 of file [enums.doc](#).

### 6.6.3.107 enum EmberAfIasZoneType

Enumerator:

```
EMBER_ZCL_IAS_ZONE_TYPE_STANDARD_CIE
EMBER_ZCL_IAS_ZONE_TYPE_MOTION_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_CONTACT_SWITCH
EMBER_ZCL_IAS_ZONE_TYPE_FIRE_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_WATER_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_GAS_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_PERSONAL_EMERGENCY_DEVICE
EMBER_ZCL_IAS_ZONE_TYPE_VIBRATION_MOVEMENT_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_REMOTE_CONTROL
EMBER_ZCL_IAS_ZONE_TYPE_KEY_FOB
EMBER_ZCL_IAS_ZONE_TYPE_KEYPAD
EMBER_ZCL_IAS_ZONE_TYPE_STANDARD_WARNING_DEVICE
EMBER_ZCL_IAS_ZONE_TYPE_GLASS_BREAK_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_CARBON_MONOXIDE_SENSOR
EMBER_ZCL_IAS_ZONE_TYPE_SECURITY_REPEATERS
EMBER_ZCL_IAS_ZONE_TYPE_INVALID_ZONE_TYPE
```

Definition at line 1230 of file [enums.doc](#).

### 6.6.3.108 enum EmberAfIdentifyEffectIdentifier

Enumerator:

```
EMBER_ZCL_IDENTIFY_EFFECT_IDENTIFIER_BLINK
EMBER_ZCL_IDENTIFY_EFFECT_IDENTIFIER_BREATHE
EMBER_ZCL_IDENTIFY_EFFECT_IDENTIFIER_OKAY
EMBER_ZCL_IDENTIFY_EFFECT_IDENTIFIER_CHANNEL_CHANGE
EMBER_ZCL_IDENTIFY_EFFECT_IDENTIFIER_FINISH_EFFECT
EMBER_ZCL_IDENTIFY_EFFECT_IDENTIFIER_STOP_EFFECT
```

Definition at line 1249 of file [enums.doc](#).

### 6.6.3.109 enum EmberAfIdentifyEffectVariant

Enumerator:

```
EMBER_ZCL_IDENTIFY_EFFECT_VARIANT_DEFAULT
```

Definition at line 1258 of file [enums.doc](#).

### 6.6.3.110 enum EmberAfKeyIndex

Enumerator:

*EMBER\_ZCL\_KEY\_INDEX\_DEVELOPMENT*  
*EMBER\_ZCL\_KEY\_INDEX\_MASTER*  
*EMBER\_ZCL\_KEY\_INDEX\_CERTIFICATION*

Definition at line 1262 of file [enums.doc](#).

### 6.6.3.111 enum EmberAfKeypadLockout

Enumerator:

*EMBER\_ZCL\_KEYPAD\_LOCKOUT\_NO\_LOCKOUT*  
*EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_ONE\_LOCKOUT*  
*EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_TWO\_LOCKOUT*  
*EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_THREE\_LOCKOUT*  
*EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_FOUR\_LOCKOUT*  
*EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVELFIVE\_LOCKOUT*

Definition at line 1268 of file [enums.doc](#).

### 6.6.3.112 enum EmberAfLevelControlOptions

Enumerator:

*EMBER\_ZCL\_LEVEL\_CONTROL\_OPTIONS\_EXECUTE\_IF\_OFF*  
*EMBER\_ZCL\_LEVEL\_CONTROL\_OPTIONS\_COUPLE\_COLOR\_TEMP\_TO\_LEVEL*

Definition at line 1277 of file [enums.doc](#).

### 6.6.3.113 enum EmberAfLevelStatus

Enumerator:

*EMBER\_ZCL\_LEVEL\_STATUS\_ON\_TARGET*  
*EMBER\_ZCL\_LEVEL\_STATUS\_BELOW\_TARGET*  
*EMBER\_ZCL\_LEVEL\_STATUS\_ABOVE\_TARGET*

Definition at line 1282 of file [enums.doc](#).

### 6.6.3.114 enum EmberAfLocationMethod

Enumerator:

*EMBER\_ZCL\_LOCATION\_METHOD\_LATERATION*  
*EMBER\_ZCL\_LOCATION\_METHOD\_SIGNPOSTING*  
*EMBER\_ZCL\_LOCATION\_METHOD\_RF\_FINGERPRINTING*  
*EMBER\_ZCL\_LOCATION\_METHOD\_OUT\_OF\_BAND*

Definition at line 1288 of file [enums.doc](#).

### 6.6.3.115 enum EmberAfManufacturerSpecificAlarmGroups

Enumerator:

*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_A*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_B*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_C*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_D*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_E*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_F*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_G*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_H*  
*EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_I*

Definition at line 1295 of file [enums.doc](#).

### 6.6.3.116 enum EmberAfMeasurementLightSensorType

Enumerator:

*EMBER\_ZCL\_MEASUREMENT\_LIGHT\_SENSOR\_TYPE\_PHOTODIODE*  
*EMBER\_ZCL\_MEASUREMENT\_LIGHT\_SENSOR\_TYPE\_CMOS*

Definition at line 1307 of file [enums.doc](#).

### 6.6.3.117 enum EmberAfMessagingControlConfirmation

Enumerator:

*EMBER\_ZCL\_MESSAGING\_CONTROL\_CONFIRMATION\_NOT\_REQUIRED*  
*EMBER\_ZCL\_MESSAGING\_CONTROL\_CONFIRMATION\_REQUIRED*

Definition at line 1312 of file [enums.doc](#).

### 6.6.3.118 enum EmberAfMessagingControlEnhancedConfirmation

Enumerator:

*EMBER\_ZCL\_MESSAGING\_CONTROL\_ENHANCED\_CONFIRMATION\_NOT\_REQUIRED*  
*EMBER\_ZCL\_MESSAGING\_CONTROL\_ENHANCED\_CONFIRMATION\_REQUIRED*

Definition at line 1317 of file [enums.doc](#).

### 6.6.3.119 enum EmberAfMessagingControlImportance

Enumerator:

- EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_LOW*
- EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_MEDIUM*
- EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_HIGH*
- EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_CRITICAL*

Definition at line 1322 of file [enums.doc](#).

### 6.6.3.120 enum EmberAfMessagingControlTransmission

Enumerator:

- EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_NORMAL*
- EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_NORMAL\_AND\_ANONYMOUS*
- EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_ANONYMOUS*
- EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_RESERVED*

Definition at line 1329 of file [enums.doc](#).

### 6.6.3.121 enum EmberAfMeterDeviceType

Enumerator:

- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_ELECTRIC\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_GAS\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_WATER\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_THERMAL\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_PRESSURE\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_HEAT\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_COOLING\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_GAS\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_WATER\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_THERMAL\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_PRESSURE\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_HEAT\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_COOLING\_METER*
- EMBER\_ZCL\_METER\_DEVICE\_TYPE\_UNDEFINED\_MIRROR\_METER*

Definition at line 1336 of file [enums.doc](#).

### 6.6.3.122 enum EmberAfMeterTypeId

Enumerator:

```
EMBER_ZCL_METER_TYPE_ID.Utility_Primary_Meter
EMBER_ZCL_METER_TYPE_ID.Utility_Production_Meter
EMBER_ZCL_METER_TYPE_ID.Utility_Secondary_Meter
EMBER_ZCL_METER_TYPE_ID.Private_Primary_Meter
EMBER_ZCL_METER_TYPE_ID.Private_Production_Meter
EMBER_ZCL_METER_TYPE_ID.Private_Secondary_Meters
EMBER_ZCL_METER_TYPE_ID.Generic_Meter
```

Definition at line 1353 of file [enums.doc](#).

### 6.6.3.123 enum EmberAfMeteringAlarmCode

Enumerator:

```
EMBER_ZCL_Metering_Alarm_Code_Check_Meter
EMBER_ZCL_Metering_Alarm_Code_Low_Battery
EMBER_ZCL_Metering_Alarm_Code_Tamper_Detect
EMBER_ZCL_Metering_Alarm_Code_Power_Failure_Pipe_Empty_Temperature_Sensor

EMBER_ZCL_Metering_Alarm_Code_Power_Quality_Low_Pressure_Burst_Detect

EMBER_ZCL_Metering_Alarm_Code_Leak_Detect
EMBER_ZCL_Metering_Alarm_Code_Service_Disconnect
EMBER_ZCL_Metering_Alarm_Code_Reverse_Flow_Flow_Sensor
EMBER_ZCL_Metering_Alarm_Code_Meter_Cover_Removed
EMBER_ZCL_Metering_Alarm_Code_Meter_Cover_Closed
EMBER_ZCL_Metering_Alarm_Code_Strong_Magnetic_Field
EMBER_ZCL_Metering_Alarm_Code_No_Strong_Magnetic_Field
EMBER_ZCL_Metering_Alarm_Code_Battery_Failure
EMBER_ZCL_Metering_Alarm_Code_Program_Memory_Error
EMBER_ZCL_Metering_Alarm_Code_R_A_M_Error
EMBER_ZCL_Metering_Alarm_Code_N_V_Memory_Error
EMBER_ZCL_Metering_Alarm_Code_Low_Voltage_L1
EMBER_ZCL_Metering_Alarm_Code_High_Voltage_L1
EMBER_ZCL_Metering_Alarm_Code_Low_Voltage_L2
EMBER_ZCL_Metering_Alarm_Code_High_Voltage_L2
EMBER_ZCL_Metering_Alarm_Code_Low_Voltage_L3
EMBER_ZCL_Metering_Alarm_Code_High_Voltage_L3
EMBER_ZCL_Metering_Alarm_Code_Over_Current_L1
EMBER_ZCL_Metering_Alarm_Code_Over_Current_L2
EMBER_ZCL_Metering_Alarm_Code_Over_Current_L3
```

*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L1*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L1*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L2*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L2*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L3*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L3*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_GROUND\_FAULT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_ELECTRIC\_TAMPER\_DETECT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_INCORRECT\_POLARITY*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_CURRENT\_NO\_VOLTAGE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNDER\_VOLTAGE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_VOLTAGE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_NORMAL\_VOLTAGE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_P\_F\_BELOW\_THRESHOLD*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_P\_F\_ABOVE\_THRESHOLD*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_TERMINAL\_COVER\_REMOVED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_TERMINAL\_COVER\_CLOSED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_BURST\_DETECT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_PRESSURE\_TOO\_LOW*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_PRESSURE\_TOO\_HIGH*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_COMMUNICATION\_ERROR*  
  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_MEASUREMENT\_FAULT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_REVERSE\_FLOW*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_AIR\_DETECT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_PIPE\_EMPTY*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_INLET\_TEMPERATURE\_SENSOR\_FAULT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_OUTLET\_TEMPERATURE\_SENSOR\_FAULT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_TILT\_TAMPER*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_COVER\_REMOVED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_COVER\_CLOSED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_EXCESS\_FLOW*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_TILT\_TAMPER\_ENDED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MEASUREMENT\_SYSTEM\_ERROR*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_WATCHDOG\_ERROR*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_SUPPLY\_DISCONNECT\_FAILURE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_SUPPLY\_CONNECT\_FAILURE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MEASURMENT\_SOFTWARE\_CHANGED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_DST\_ENABLED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_DST\_DISABLED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_CLOCK\_ADJ\_BACKWARD*

*EMBER\_ZCL\_METERING\_ALARM\_CODE\_CLOCK\_ADJ\_FORWARD*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_CLOCK\_INVALID*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_COMMUNICATION\_ERROR\_HAN*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_COMMUNICATION\_OK\_H\_AN*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_FRAUD\_ATTEMPT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_POWER\_LOSS*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNUSUAL\_HAN\_TRAFFIC*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNEXPECTED\_CLOCK\_CHANGE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_COMMS\_USING\_UNAUTHENTICATED\_COMPONENT*  
  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_ERROR\_REG\_CLEAR*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_ALARM\_REG\_CLEAR*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNEXPECTED\_HW\_RESET*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNEXPECTED\_PROGRAM\_EXECUTION*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_EVENT\_LOG\_CLEARED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_LIMIT\_THRESHOLD\_EXCEEDED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_LIMIT\_THRESHOLD\_OK*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_LIMIT\_THRESHOLD\_CHANGED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MAXIMUM\_DEMAND\_EXCEEDED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_PROFILE\_CLEARED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_SAMPLING\_BUFFERCLEARED*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_WARNING*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_WRONG\_SIGNATURE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_NO\_SIGNATURE*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNAUTHORISED\_ACTIONFROM\_HAN*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FAST\_POLLING\_START*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_FAST\_POLLING\_END*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_REPORTING\_INTERVAL\_CHANGED*  
  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_DISCONNECT\_DUETO\_LOAD\_LIMIT*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_SUPPLY\_STATUS\_REGISTER\_CHANGED*  
  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED*  
  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_EXTENDED\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED*  
  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_A*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_B*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_C*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_D*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_E*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_F*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_G*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_H*  
*EMBER\_ZCL\_METERING\_ALARM\_CODE\_MANUFACTURER\_SPECIFIC\_I*

Definition at line 1363 of file [enums.doc](#).

#### 6.6.3.124 enum EmberAfMeteringBlockEnumerations

Enumerator:

```
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_NO_BLOCKS_IN_USE
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK1
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK2
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK3
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK4
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK5
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK6
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK7
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK8
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK9
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK10
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK11
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK12
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK13
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK14
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK15
EMBER_ZCL_METERING_BLOCK_ENUMERATIONS_BLOCK16
```

Definition at line 1471 of file [enums.doc](#).

#### 6.6.3.125 enum EmberAfMeteringConsumptionStatus

Enumerator:

```
EMBER_ZCL_METERING_CONSUMPTION_STATUS_LOW_ENERGY_USAGE
EMBER_ZCL_METERING_CONSUMPTION_STATUS_MEDIUM_ENERGY_USAGE
EMBER_ZCL_METERING_CONSUMPTION_STATUS_HIGH_ENERGY_USAGE
```

Definition at line 1491 of file [enums.doc](#).

#### 6.6.3.126 enum EmberAfMeteringDeviceType

Enumerator:

```
EMBER_ZCL_METERING_DEVICE_TYPE_ELECTRIC_METERING
EMBER_ZCL_METERING_DEVICE_TYPE_GAS_METERING
EMBER_ZCL_METERING_DEVICE_TYPE_WATER_METERING
EMBER_ZCL_METERING_DEVICE_TYPE_THERMAL_METERING
EMBER_ZCL_METERING_DEVICE_TYPE_PRESSURE_METERING
EMBER_ZCL_METERING_DEVICE_TYPE_HEAT_METERING
EMBER_ZCL_METERING_DEVICE_TYPE_COOLING_METERING
```

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_ELECTRIC\_VEHICLE\_CHARGING\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_PV\_GENERATION\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_WIND\_TURBINE\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_WATER\_TURBINE\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MICRO\_GENERATION\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_SOLAR\_HOT\_WATER\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_ELECTRIC\_METERING\_ELEMENT1*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_ELECTRIC\_METERING\_ELEMENT2*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_ELECTRIC\_METERING\_ELEMENTS3*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_ELECTRIC\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_GAS\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_WATER\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_THERMAL\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_PRESSURE\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_HEAT\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_COOLING\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_ELECTRIC\_VEHICLE\_CHARGING\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_PV\_GENERATION\_METERING*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_WIND\_TURBINE\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_WATER\_TURBINE\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_MICRO\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_SOLAR\_HOT\_WATER\_GENERATION\_METERING*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_ELECTRIC\_METERING\_ELEMENT1*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_ELECTRIC\_METERING\_ELEMENT2*  
*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_MIRRORED\_ELECTRIC\_METERING\_ELEMENTS3*

*EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_UNDEFINED\_MIRROR\_METER*

Definition at line [1497](#) of file `enums.doc`.

### 6.6.3.127 enum EmberAfMeteringSupplyStatus

Enumerator:

- EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_OFF*
- EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED*
- EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_ON*

Definition at line 1533 of file [enums.doc](#).

### 6.6.3.128 enum EmberAfMeteringTemperatureUnitOfMeasure

Enumerator:

- EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_KELVIN*
- EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_CELSIUS*
- EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_FAHRENHEIT*
- EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_KELVIN\_BCD*
- EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_CELSIUS\_BCD*
- EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_FAHRENHEIT\_BCD*

Definition at line 1539 of file [enums.doc](#).

### 6.6.3.129 enum EmberAfMoveMode

Enumerator:

- EMBER\_ZCL\_MOVE\_MODE\_UP*
- EMBER\_ZCL\_MOVE\_MODE\_DOWN*

Definition at line 1548 of file [enums.doc](#).

### 6.6.3.130 enum EmberAfNotificationScheme

Enumerator:

- EMBER\_ZCL\_NOTIFICATION\_SCHEME\_NO\_NOTIFICATION\_SCHEME\_DEFINED*
- EMBER\_ZCL\_NOTIFICATION\_SCHEME\_PREDEFINED\_NOTIFICATION\_SCHEME\_A*
- EMBER\_ZCL\_NOTIFICATION\_SCHEME\_PREDEFINED\_NOTIFICATION\_SCHEME\_B*

Definition at line 1553 of file [enums.doc](#).

### 6.6.3.131 enum EmberAfOccupancySensorType

Enumerator:

- EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_PIR*
- EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_ULTRASONIC*
- EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_PIR\_AND\_ULTRASONIC*

Definition at line 1559 of file [enums.doc](#).

### 6.6.3.132 enum EmberAfOnOffDelayedAllOffEffectVariant

Enumerator:

*EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_FADE\_TO\_OFF\_IN\_0P8\_SECONDS*

*EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_NO\_FADE*

*EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_50\_PERCENT\_DIM\_DOWN\_IN\_0P8\_SECONDS*

Definition at line 1565 of file [enums.doc](#).

### 6.6.3.133 enum EmberAfOnOffDyingLightEffectVariant

Enumerator:

*EMBER\_ZCL\_ON\_OFF\_DYING\_LIGHT\_EFFECT\_VARIANT\_20\_PERCENTER\_DIM\_UP\_IN\_0P5\_SECONDS\_THE*

Definition at line 1571 of file [enums.doc](#).

### 6.6.3.134 enum EmberAfOnOffEffectIdentifier

Enumerator:

*EMBER\_ZCL\_ON\_OFF\_EFFECT\_IDENTIFIER\_DELAYED\_ALL\_OFF*

*EMBER\_ZCL\_ON\_OFF\_EFFECT\_IDENTIFIER\_DYING\_LIGHT*

Definition at line 1575 of file [enums.doc](#).

### 6.6.3.135 enum EmberAfOperatingMode

Enumerator:

*EMBER\_ZCL\_OPERATING\_MODE\_NORMAL*

*EMBER\_ZCL\_OPERATING\_MODE\_CONFIGURE*

Definition at line 1580 of file [enums.doc](#).

### 6.6.3.136 enum EmberAfOriginatingDevice

Enumerator:

*EMBER\_ZCL\_ORIGINATING\_DEVICE\_ENERGY\_SERVICE\_INTERFACE*

*EMBER\_ZCL\_ORIGINATING\_DEVICE\_METER*

*EMBER\_ZCL\_ORIGINATING\_DEVICE\_IN\_HOME\_DISPLAY\_DEVICE*

Definition at line 1585 of file [enums.doc](#).

### 6.6.3.137 enum EmberAfPasswordType

Enumerator:

```
EMBER_ZCL_PASSWORD_TYPE_PASSWORD1_SERVICE_MENU_ACCESS
EMBER_ZCL_PASSWORD_TYPE_PASSWORD2_CONSUMER_MENU_ACCESS
EMBER_ZCL_PASSWORD_TYPE_PASSWORD3
EMBER_ZCL_PASSWORD_TYPE_PASSWORD4
```

Definition at line 1591 of file [enums.doc](#).

### 6.6.3.138 enum EmberAfPaymentDiscountDuration

Enumerator:

```
EMBER_ZCL_PAYMENT_DISCOUNT_DURATION_CURRENT_BILLING_PERIOD
EMBER_ZCL_PAYMENT_DISCOUNT_DURATION_CURRENT CONSOLIDATED BILL
EMBER_ZCL_PAYMENT_DISCOUNT_DURATION_ONE_MONTH
EMBER_ZCL_PAYMENT_DISCOUNT_DURATION_ONE_QUARTER
EMBER_ZCL_PAYMENT_DISCOUNT_DURATION_ONE_YEAR
```

Definition at line 1598 of file [enums.doc](#).

### 6.6.3.139 enum EmberAfPhysicalEnvironment

Enumerator:

```
EMBER_ZCL_PHYSICAL_ENVIRONMENT_UNSPECIFIED
EMBER_ZCL_PHYSICAL_ENVIRONMENT_FIRST_PROFILE_SPECIFIED_VALUE
EMBER_ZCL_PHYSICAL_ENVIRONMENT_LAST_PROFILE_SPECIFIED_VALUE
EMBER_ZCL_PHYSICAL_ENVIRONMENT_UNKNOWN
```

Definition at line 1606 of file [enums.doc](#).

### 6.6.3.140 enum EmberAfPowerProfileState

Enumerator:

```
EMBER_ZCL_POWER_PROFILE_STATE_POWER_PROFILE_WAITING_TO_START
EMBER_ZCL_POWER_PROFILE_STATE_POWER_PROFILE_STARTED
EMBER_ZCL_POWER_PROFILE_STATE_ENERGY_PHASE_RUNNING
EMBER_ZCL_POWER_PROFILE_STATE_ENERGY_PHASE_ENDED
EMBER_ZCL_POWER_PROFILE_STATE_ENERGY_PHASE_WAITING_TO_START
EMBER_ZCL_POWER_PROFILE_STATE_ENERGY_PHASE_STARTED
EMBER_ZCL_POWER_PROFILE_STATE_POWER_PROFILE_ENDED
EMBER_ZCL_POWER_PROFILE_STATE_PROFILE_READY_FOR_SCHEDULING
EMBER_ZCL_POWER_PROFILE_STATE_POWER_PROFILE_SCHEDULED
```

Definition at line 1613 of file [enums.doc](#).

### 6.6.3.141 enum EmberAfPowerSource

Enumerator:

```
EMBER_ZCL_POWER_SOURCE_UNKNOWN
EMBER_ZCL_POWER_SOURCE_SINGLE_PHASE_MAINS
EMBER_ZCL_POWER_SOURCE_THREE_PHASE_MAINS
EMBER_ZCL_POWER_SOURCE_BATTERY
EMBER_ZCL_POWER_SOURCE_DC_SOURCE
EMBER_ZCL_POWER_SOURCE_EMERGENCY_MAINS_CONSTANT_POWER
EMBER_ZCL_POWER_SOURCE_EMERGENCY_MAINS_TRANSFER_SWITCH
EMBER_ZCL_POWER_SOURCE_BATTERY_BACKUP
```

Definition at line 1625 of file [enums.doc](#).

### 6.6.3.142 enum EmberAfPrePayGenericAlarmGroup

Enumerator:

```
EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_LOW_CREDIT
EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_NO_CREDIT
EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_CREDIT_EXHAUSTED
EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_EMERGENCY_CREDIT_ENABLED

EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_EMERGENCY_CREDIT_EXHAUSTED

EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_IHD_LOW_CREDIT_WARNING
EMBER_ZCL_PRE_PAY_GENERIC_ALARM_GROUP_EVENT_LOG_CLEARED
```

Definition at line 1636 of file [enums.doc](#).

### 6.6.3.143 enum EmberAfPrepayEventAlarmGroup

Enumerator:

```
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_PHYSICAL_ATTACK_ON_THE_PREPAY_METER

EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_ELECTRONIC_ATTACK_ON_THE_PREPAY_METER

EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_DISCOUNT_APPLIED
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_CREDIT_ADJUSTMENT
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_CREDIT_ADJUSTMENT_FAIL
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_DEBT_ADJUSTMENT
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_DEBT_ADJUSTMENT_FAIL
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_MODE_CHANGE
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_TOPUP_CODE_ERROR
EMBER_ZCL_PREPAY_EVENT_ALARM_GROUP_TOPUP_ALREADY_USED
```

*EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_CODE\_INVALID  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_IN\_USE  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING*

*EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_PERIOD\_END  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ERROR\_REG\_CLEAR  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ALARM\_REG\_CLEAR  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_PREPAY\_CLUSTER\_NOT\_FOUND  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_CREDIT2\_PREPAY  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_PREPAY2\_CREDIT  
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_DEFAULT*

Definition at line 1646 of file [enums.doc](#).

#### 6.6.3.144 enum EmberAfPrepaySnapshotPayloadType

Enumerator:

*EMBER\_ZCL\_PREPAY\_SNAPSHOT\_PAYLOAD\_TYPE\_DEBT\_CREDIT\_STATUS  
 EMBER\_ZCL\_PREPAY\_SNAPSHOT\_PAYLOAD\_TYPE\_NOT\_USED*

Definition at line 1669 of file [enums.doc](#).

#### 6.6.3.145 enum EmberAfPrepaySwitchAlarmGroup

Enumerator:

*EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_ON  
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_ARM  
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_OFF  
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTION\_FAILURE  
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_DUE\_TO\_TAMPER\_DETECTED*

*EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_DUE\_TO\_CUT\_OFF\_VALUE  
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_REMOTE\_DISCONNECTED*

Definition at line 1674 of file [enums.doc](#).

#### 6.6.3.146 enum EmberAfPriceControlAcknowledgement

Enumerator:

*EMBER\_ZCL\_PRICE\_CONTROL\_ACKNOWLEDGEMENT\_NOT\_REQUIRED  
 EMBER\_ZCL\_PRICE\_CONTROL\_ACKNOWLEDGEMENT\_REQUIRED*

Definition at line 1684 of file [enums.doc](#).

### 6.6.3.147 enum EmberAfPriceTier

Enumerator:

```
EMBER_ZCL_PRICE_TIER_NO_TIER RELATED
EMBER_ZCL_PRICE_TIER_TIER1_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER2_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER3_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER4_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER5_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER6_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER7_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER8_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER9_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER10_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER11_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER12_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER13_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER14_PRICE_LABEL
EMBER_ZCL_PRICE_TIER_TIER15_PRICE_LABEL
```

Definition at line [1689](#) of file [enums.doc](#).

### 6.6.3.148 enum EmberAfProductCode

Enumerator:

```
EMBER_ZCL_PRODUCT_CODE_MANUFACTURER_DEFINED
EMBER_ZCL_PRODUCT_CODE_ITERNATIONAL_ARTICLE_NUMBER
EMBER_ZCL_PRODUCT_CODE_GLOBAL_TRADE_ITEM_NUMBER
EMBER_ZCL_PRODUCT_CODE_UNIVERSAL_PRODUCT_CODE
EMBER_ZCL_PRODUCT_CODE_STOCK_KEEPING_UNIT
```

Definition at line [1708](#) of file [enums.doc](#).

### 6.6.3.149 enum EmberAfProductId

Enumerator:

```
EMBER_ZCL_PRODUCT_TYPE_ID_WHITE_GOODS
EMBER_ZCL_PRODUCT_TYPE_ID_DISHWASHER
EMBER_ZCL_PRODUCT_TYPE_ID_TUMBLE_DRYER
EMBER_ZCL_PRODUCT_TYPE_ID_WASHER_DRYER
EMBER_ZCL_PRODUCT_TYPE_ID_WASHING_MACHINE
EMBER_ZCL_PRODUCT_TYPE_ID_HOBS
EMBER_ZCL_PRODUCT_TYPE_ID_INDUCTION_HOBS
```

*EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_OVEN*  
*EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_ELECTRICAL\_OVEN*  
*EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_REFRIGERATOR\_FREEZER*

Definition at line 1716 of file [enums.doc](#).

#### 6.6.3.150 enum EmberAfProposedSupplyStatus

Enumerator:

*EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_RESERVED*  
*EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED*  
*EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_SUPPLY\_ON*

Definition at line 1729 of file [enums.doc](#).

#### 6.6.3.151 enum EmberAfPublishCppEventCppAuth

Enumerator:

*EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_PENDING*  
*EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_ACCEPTED*  
*EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_REJECTED*  
*EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_FORCED*

Definition at line 1735 of file [enums.doc](#).

#### 6.6.3.152 enum EmberAfPumpControlMode

Enumerator:

*EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_SPEED*  
*EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_PRESSURE*  
*EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_PROPORIONAL\_PRESSURE*  
*EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_FLOW*  
*EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_TEMPERATURE*  
*EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_AUTOMATIC*

Definition at line 1742 of file [enums.doc](#).

#### 6.6.3.153 enum EmberAfPumpOperationMode

Enumerator:

*EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_NORMAL*  
*EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_MINIMUM*  
*EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_MAXIMUM*  
*EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_LOCAL*

Definition at line 1751 of file [enums.doc](#).

### 6.6.3.154 enum EmberAfPushHistoricalMeteringData

Enumerator:

*EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_DAY*  
*EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_WEEK*  
*EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_MONTH*  
*EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_YEAR*

Definition at line 1758 of file [enums.doc](#).

### 6.6.3.155 enum EmberAfPushHistoricalPaymentData

Enumerator:

*EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_DAY*  
*EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_WEEK*  
*EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_MONTH*  
*EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_YEAR*

Definition at line 1765 of file [enums.doc](#).

### 6.6.3.156 enum EmberAfRegisterTier

Enumerator:

*EMBER\_ZCL\_REGISTER\_TIER\_NO\_TIER RELATED*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER1\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER2\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER3\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER4\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER5\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER6\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER7\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER8\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER9\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER10\_SUMMATION\_DELIVERED\_ATTRIBUTE*  
*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER11\_SUMMATION\_DELIVERED\_ATTRIBUTE*

*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER12\_SUMMATION\_DELIVERED\_ATTRIBUTE*

*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER13\_SUMMATION\_DELIVERED\_ATTRIBUTE*

*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER14\_SUMMATION\_DELIVERED\_ATTRIBUTE*

*EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER15\_SUMMATION\_DELIVERED\_ATTRIBUTE*

Definition at line 1772 of file [enums.doc](#).

#### 6.6.3.157 enum EmberAfRelativeHumidityDisplay

Enumerator:

*EMBER\_ZCL\_RELATIVE\_HUMIDITY\_DISPLAY\_NOT\_DISPLAYED*

*EMBER\_ZCL\_RELATIVE\_HUMIDITY\_DISPLAY\_DISPLAYED*

Definition at line 1791 of file [enums.doc](#).

#### 6.6.3.158 enum EmberAfRelativeHumidityMode

Enumerator:

*EMBER\_ZCL\_RELATIVE\_HUMIDITY\_MODE\_MEASURE\_LOCALLY*

*EMBER\_ZCL\_RELATIVE\_HUMIDITY\_MODE\_UPDATED\_OVER\_THE\_NETWORK*

Definition at line 1796 of file [enums.doc](#).

#### 6.6.3.159 enum EmberAfRemoteEnableFlags

Enumerator:

*EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_DISABLED*

*EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_TEMPORARILY\_LOCKED\_DISABLED*

*EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_ENABLED\_REMOTE\_CONTROL*

*EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_ENABLED\_REMOTE\_AND\_ENERGY\_CONTROL*

Definition at line 1801 of file [enums.doc](#).

#### 6.6.3.160 enum EmberAfRepaymentDebtType

Enumerator:

*EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT1*

*EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT2*

*EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT3*

*EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_ALL\_DEBTS*

Definition at line 1808 of file [enums.doc](#).

### 6.6.3.161 enum EmberAfReportingDirection

Enumerator:

*EMBER\_ZCL\_REPORTING\_DIRECTION\_REPORTED*  
*EMBER\_ZCL\_REPORTING\_DIRECTION RECEIVED*

Definition at line 1815 of file [enums.doc](#).

### 6.6.3.162 enum EmberAfResultType

Enumerator:

*EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED*  
*EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_INVALID\_TOP\_UP*  
*EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_DUPLICATE\_TOP\_UP*  
*EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_ERROR*  
*EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_MAX\_CREDIT\_REACHED*  
*EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_KEYPAD\_LOCK*  
*EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_TOP\_UP\_VALUE\_TOO\_LARGE*  
*EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_ENABLED*  
*EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_DISABLED*  
*EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_ARMED*

Definition at line 1820 of file [enums.doc](#).

### 6.6.3.163 enum EmberAfSampleType

Enumerator:

*EMBER\_ZCL\_SAMPLE\_TYPE\_CONSUMPTION\_DELIVERED*

Definition at line 1833 of file [enums.doc](#).

### 6.6.3.164 enum EmberAfSaturationMoveMode

Enumerator:

*EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_STOP*  
*EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_UP*  
*EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_DOWN*

Definition at line 1837 of file [enums.doc](#).

### 6.6.3.165 enum EmberAfSaturationStepMode

Enumerator:

*EMBER\_ZCL\_SATURATION\_STEP\_MODE\_UP*  
*EMBER\_ZCL\_SATURATION\_STEP\_MODE\_DOWN*

Definition at line 1843 of file [enums.doc](#).

### 6.6.3.166 enum EmberAfSensingLightSensorType

Enumerator:

*EMBER\_ZCL\_SENSING\_LIGHT\_SENSOR\_TYPE\_PHOTODIODE*  
*EMBER\_ZCL\_SENSING\_LIGHT\_SENSOR\_TYPE\_CMOS*

Definition at line 1848 of file [enums.doc](#).

### 6.6.3.167 enum EmberAfSetpointAdjustMode

Enumerator:

*EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_HEAT\_SETPOINT*  
*EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_COOL\_SETPOINT*  
*EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_HEAT\_AND\_COOL\_SETPOINTS*

Definition at line 1853 of file [enums.doc](#).

### 6.6.3.168 enum EmberAfSignatureType

Enumerator:

*EMBER\_ZCL\_SIGNATURE\_TYPE\_RESERVED*  
*EMBER\_ZCL\_SIGNATURE\_TYPE\_ECDSA*

Definition at line 1859 of file [enums.doc](#).

### 6.6.3.169 enum EmberAfSnapshotConfirmation

Enumerator:

*EMBER\_ZCL\_SNAPSHOT\_CONFIRMATION\_ACCEPTED*  
*EMBER\_ZCL\_SNAPSHOT\_CONFIRMATION\_SNAPSHOT\_CAUSE\_NOT\_SUPPORTED*

Definition at line 1864 of file [enums.doc](#).

### 6.6.3.170 enum EmberAfSnapshotPayloadType

Enumerator:

*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_DELIVERED\_REGISTERS*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_RECEIVED\_REGISTERS*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_DELIVERED*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_RECEIVED*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_DELIVERED\_REGISTERS\_NO\_BILLING*

*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_RECEIVED\_REGISTER\_NO\_BILLINGS*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_DELIVERED\_NO\_BILLING*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_RECEIVED\_NO\_BILLING*  
*EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_DATA\_UNAVAILABLE*

Definition at line 1869 of file [enums.doc](#).

#### 6.6.3.171 enum EmberAfSnapshotScheduleConfirmation

Enumerator:

*EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_ACCEPTED*  
*EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_TYPE\_NOT\_SUPPORTED*  
*EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_COUSE\_NOT\_SUPPORTED*  
*EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_SCHEDULE\_NOT\_CURRENTLY\_AVAILABLE*  
*EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_SCHEDULES\_NOT\_SUPPORTED\_BY\_DEVICE*  
*EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_INSUFFICIENT\_SPACE\_FOR\_SNAPSHOT\_SCHEDULE*

Definition at line 1881 of file [enums.doc](#).

#### 6.6.3.172 enum EmberAfSquawkLevel

Enumerator:

*EMBER\_ZCL\_SQUAWK\_LEVEL\_LOW\_LEVEL*  
*EMBER\_ZCL\_SQUAWK\_LEVEL\_MEDIUM\_LEVEL*  
*EMBER\_ZCL\_SQUAWK\_LEVEL VERY\_HIGH\_LEVEL*

Definition at line 1890 of file [enums.doc](#).

#### 6.6.3.173 enum EmberAfSquawkMode

Enumerator:

*EMBER\_ZCL\_SQUAWK\_MODE\_SYSTEM\_IS\_ARMED*  
*EMBER\_ZCL\_SQUAWK\_MODE\_SYSTEM\_IS\_DISARMED*

Definition at line 1896 of file [enums.doc](#).

### 6.6.3.174 enum EmberAfSquawkStobe

Enumerator:

*EMBER\_ZCL\_SQUAWK\_STOBE\_NO\_STROBE*  
*EMBER\_ZCL\_SQUAWK\_STOBE\_USE\_STROBE*

Definition at line 1901 of file [enums.doc](#).

### 6.6.3.175 enum EmberAfStartOfWeek

Enumerator:

*EMBER\_ZCL\_START\_OF\_WEEK\_SUNDAY*  
*EMBER\_ZCL\_START\_OF\_WEEK\_MONDAY*  
*EMBER\_ZCL\_START\_OF\_WEEK\_TUESDAY*  
*EMBER\_ZCL\_START\_OF\_WEEK\_WEDNESDAY*  
*EMBER\_ZCL\_START\_OF\_WEEK\_THURSDAY*  
*EMBER\_ZCL\_START\_OF\_WEEK\_FRIDAY*  
*EMBER\_ZCL\_START\_OF\_WEEK\_SATURDAY*

Definition at line 1906 of file [enums.doc](#).

### 6.6.3.176 enum EmberAfStartUpOnOffValue

Enumerator:

*EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_OFF*  
*EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_ON*  
*EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_TOGGLE*  
*EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_PREVIOUS*

Definition at line 1916 of file [enums.doc](#).

### 6.6.3.177 enum EmberAfStatus

Enumerator:

*EMBER\_ZCL\_STATUS\_SUCCESS*  
*EMBER\_ZCL\_STATUS\_FAILURE*  
*EMBER\_ZCL\_STATUS\_REQUEST\_DENIED*  
*EMBER\_ZCL\_STATUS\_MULTIPLE\_REQUEST\_NOT\_ALLOWED*  
*EMBER\_ZCL\_STATUS\_INDICATION\_REDIRECTION\_TO\_AP*  
*EMBER\_ZCL\_STATUS\_PREFERENCE\_DENIED*  
*EMBER\_ZCL\_STATUS\_PREFERENCE\_IGNORED*  
*EMBER\_ZCL\_STATUS\_NOT\_AUTHORIZED*  
*EMBER\_ZCL\_STATUS\_RESERVED\_FIELD\_NOT\_ZERO*  
*EMBER\_ZCL\_STATUS\_MALFORMED\_COMMAND*

*EMBER\_ZCL\_STATUS\_UNSUP\_CLUSTER\_COMMAND*  
*EMBER\_ZCL\_STATUS\_UNSUP\_GENERAL\_COMMAND*  
*EMBER\_ZCL\_STATUS\_UNSUP\_MANUF\_CLUSTER\_COMMAND*  
*EMBER\_ZCL\_STATUS\_UNSUP\_MANUF\_GENERAL\_COMMAND*  
*EMBER\_ZCL\_STATUS\_INVALID\_FIELD*  
*EMBER\_ZCL\_STATUS\_UNSUPPORTED\_ATTRIBUTE*  
*EMBER\_ZCL\_STATUS\_INVALID\_VALUE*  
*EMBER\_ZCL\_STATUS\_READ\_ONLY*  
*EMBER\_ZCL\_STATUS\_INSUFFICIENT\_SPACE*  
*EMBER\_ZCL\_STATUS\_DUPLICATE\_EXISTS*  
*EMBER\_ZCL\_STATUS\_NOT\_FOUND*  
*EMBER\_ZCL\_STATUS\_UNREPORTABLE\_ATTRIBUTE*  
*EMBER\_ZCL\_STATUS\_INVALID\_DATA\_TYPE*  
*EMBER\_ZCL\_STATUS\_INVALID\_SELECTOR*  
*EMBER\_ZCL\_STATUS\_WRITE\_ONLY*  
*EMBER\_ZCL\_STATUS\_INCONSISTENT\_STARTUP\_STATE*  
*EMBER\_ZCL\_STATUS\_DEFINED\_OUT\_OF\_BAND*  
*EMBER\_ZCL\_STATUS\_INCONSISTENT*  
*EMBER\_ZCL\_STATUS\_ACTION\_DENIED*  
*EMBER\_ZCL\_STATUS\_TIMEOUT*  
*EMBER\_ZCL\_STATUS\_ABORT*  
*EMBER\_ZCL\_STATUS\_INVALID\_IMAGE*  
*EMBER\_ZCL\_STATUS\_WAIT\_FOR\_DATA*  
*EMBER\_ZCL\_STATUS\_NO\_IMAGE\_AVAILABLE*  
*EMBER\_ZCL\_STATUS\_REQUIRE\_MORE\_IMAGE*  
*EMBER\_ZCL\_STATUS\_HARDWARE\_FAILURE*  
*EMBER\_ZCL\_STATUS\_SOFTWARE\_FAILURE*  
*EMBER\_ZCL\_STATUS\_CALIBRATION\_ERROR*  
*EMBER\_ZCL\_STATUS\_UNSUPPORTED\_CLUSTER*

Definition at line 1923 of file [enums.doc](#).

#### 6.6.3.178 enum EmberAfStepMode

Enumerator:

*EMBER\_ZCL\_STEP\_MODE\_UP*  
*EMBER\_ZCL\_STEP\_MODE\_DOWN*

Definition at line 1965 of file [enums.doc](#).

### 6.6.3.179 enum EmberAfSupplyStatus

Enumerator:

- EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_OFF*
- EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED*
- EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_ON*
- EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_UNCHANGED*

Definition at line 1970 of file [enums.doc](#).

### 6.6.3.180 enum EmberAfSwitchActions

Enumerator:

- EMBER\_ZCL\_SWITCH\_ACTIONS\_ON*
- EMBER\_ZCL\_SWITCH\_ACTIONS\_OFF*
- EMBER\_ZCL\_SWITCH\_ACTIONS\_TOGGLE*

Definition at line 1977 of file [enums.doc](#).

### 6.6.3.181 enum EmberAfSwitchType

Enumerator:

- EMBER\_ZCL\_SWITCH\_TYPE\_TOGGLE*
- EMBER\_ZCL\_SWITCH\_TYPE\_MOMENTARY*
- EMBER\_ZCL\_SWITCH\_TYPE\_MULTI\_FUNCTION*

Definition at line 1983 of file [enums.doc](#).

### 6.6.3.182 enum EmberAfTariffChargingScheme

Enumerator:

- EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_TOU\_TARIFF*
- EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TARIFF*
- EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TOU\_TARIFF\_WITH\_COMMON\_THRESHOLDS*
- EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TOU\_TARIFF\_WITH\_INDIVIDUAL\_THRESHOLDS\_PER*

Definition at line 1989 of file [enums.doc](#).

### 6.6.3.183 enum EmberAfTariffResolutionPeriod

Enumerator:

- EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_NOT\_DEFINED*
- EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_BLOCK\_PERIOD*
- EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_ONE\_DAY*

Definition at line 1996 of file [enums.doc](#).

### 6.6.3.184 enum EmberAfTariffType

Enumerator:

*EMBER\_ZCL\_TARIFF\_TYPE\_DELIVERED\_TARIFF  
 EMBER\_ZCL\_TARIFF\_TYPE\_RECEIVED\_TARIFF  
 EMBER\_ZCL\_TARIFF\_TYPE\_DELIVERED\_AND\_RECEIVED\_TARIFF*

Definition at line 2002 of file [enums.doc](#).

### 6.6.3.185 enum EmberAfTemperatureDisplayMode

Enumerator:

*EMBER\_ZCL\_TEMPERATURE\_DISPLAY\_MODE\_CELSIUS  
 EMBER\_ZCL\_TEMPERATURE\_DISPLAY\_MODE\_FAHRENHEIT*

Definition at line 2008 of file [enums.doc](#).

### 6.6.3.186 enum EmberAfTemperatureSetpointHold

Enumerator:

*EMBER\_ZCL\_TEMPERATURE\_SETPOINT\_HOLD\_SETPOINT\_HOLD\_OFF  
 EMBER\_ZCL\_TEMPERATURE\_SETPOINT\_HOLD\_SETPOINT\_HOLD\_ON*

Definition at line 2013 of file [enums.doc](#).

### 6.6.3.187 enum EmberAfThermostatControlSequence

Enumerator:

*EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_ONLY  
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_WITH\_REHEAT  
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_HEATING\_ONLY  
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_HEATING\_WITH\_REHEAT  
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_AND\_HEATING  
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_AND\_HEATING\_WITH\_REHEAT*

Definition at line 2018 of file [enums.doc](#).

### 6.6.3.188 enum EmberAfThermostatRunningMode

Enumerator:

*EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_OFF  
 EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_COOL  
 EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_HEAT*

Definition at line 2027 of file [enums.doc](#).

### 6.6.3.189 enum EmberAfThermostatSystemMode

Enumerator:

- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_OFF*
- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_AUTO*
- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_COOL*
- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_HEAT*
- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_EMERGENCY\_HEATING*
- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_PRECOOLING*
- EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_FAN\_ONLY*

Definition at line 2033 of file [enums.doc](#).

### 6.6.3.190 enum EmberAfTierBlockMode

Enumerator:

- EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK*
- EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK\_PRICE\_TIER*
- EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK\_PRICE\_TIER\_THRESHOLD*
- EMBER\_ZCL\_TIER\_BLOCK\_MODE\_NOT\_USED*

Definition at line 2043 of file [enums.doc](#).

### 6.6.3.191 enum EmberAfTimeEncoding

Enumerator:

- EMBER\_ZCL\_TIME\_ENCODING\_RELATIVE*
- EMBER\_ZCL\_TIME\_ENCODING\_ABSOLUTE*

Definition at line 2050 of file [enums.doc](#).

### 6.6.3.192 enum EmberAfTunnelingProtocolId

Enumerator:

- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_DLMS\_COSEM*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_IEC\_61107*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_ANSI\_CI2*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_M\_BUS*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_SML*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_CLIMATE\_TALK*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_GB\_HRGP*
- EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_TEST*

Definition at line 2055 of file [enums.doc](#).

### 6.6.3.193 enum EmberAfTunnelingTransferDataStatus

Enumerator:

*EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_NO\_SUCH\_TUNNEL  
 EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_WRONG\_DEVICE  
 EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_DATA\_OVERFLOW*

Definition at line 2066 of file [enums.doc](#).

### 6.6.3.194 enum EmberAfTunnelingTunnelStatus

Enumerator:

*EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_SUCCESS  
 EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_BUSY  
 EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_NO\_MORE\_TUNNEL\_IDS  
 EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_PROTOCOL\_NOT\_SUPPORTED  
 EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_FLOW\_CONTROL\_NOT\_SUPPORTED*

Definition at line 2072 of file [enums.doc](#).

### 6.6.3.195 enum EmberAfWanStatus

Enumerator:

*EMBER\_ZCL\_WAN\_STATUS\_CONNECTION\_TO\_WAN\_IS\_NOT\_AVAILABLE  
 EMBER\_ZCL\_WAN\_STATUS\_CONNECTION\_TO\_WAN\_IS\_AVAILABLE*

Definition at line 2080 of file [enums.doc](#).

### 6.6.3.196 enum EmberAfWarningEvent

Enumerator:

*EMBER\_ZCL\_WARNING\_EVENT\_WARNING1\_OVERALL\_POWER\_ABOVE\_AVAILABLE\_POWER\_LEVEL  
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING2\_OVERALL\_POWER\_ABOVE\_POWER\_THRESHOLD\_LEVEL  
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING3\_OVERALL\_POWER\_BACK\_BELOW\_THE\_AVAILABLE\_POWER\_LEVEL  
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING4\_OVERALL\_POWER\_BACK\_BELOW\_THE\_POWER\_THRESHOLD\_LEVEL  
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING5\_OVERALL\_POWER\_WILL\_BE\_POTENTIALLY\_ABOVE\_AVAILABLE\_POWER\_LEVEL*

Definition at line 2085 of file [enums.doc](#).

### 6.6.3.197 enum EmberAfWarningMode

Enumerator:

- EMBER\_ZCL\_WARNING\_MODE\_STOP*
- EMBER\_ZCL\_WARNING\_MODE\_BURGLAR*
- EMBER\_ZCL\_WARNING\_MODE\_FIRE*
- EMBER\_ZCL\_WARNING\_MODE\_EMERGENCY*
- EMBER\_ZCL\_WARNING\_MODE\_POLICE\_PANIC*
- EMBER\_ZCL\_WARNING\_MODE\_FIRE\_PANIC*
- EMBER\_ZCL\_WARNING\_MODE\_EMERGENCY\_PANIC*

Definition at line 2093 of file [enums.doc](#).

### 6.6.3.198 enum EmberAfWarningStobe

Enumerator:

- EMBER\_ZCL\_WARNING\_STOBE\_NO\_STROBE*
- EMBER\_ZCL\_WARNING\_STOBE\_USE\_STROBE*

Definition at line 2103 of file [enums.doc](#).

### 6.6.3.199 enum EmberAfZigbeeInformationLogicalType

Enumerator:

- EMBER\_ZCL\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE\_COORDINATOR*
- EMBER\_ZCL\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE\_ROUTER*
- EMBER\_ZCL\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE\_END\_DEVICE*

Definition at line 2108 of file [enums.doc](#).

### 6.6.3.200 enum EmberAfZllStatus

Enumerator:

- EMBER\_ZCL\_ZLL\_STATUS\_SUCCESS*
- EMBER\_ZCL\_ZLL\_STATUS\_FAILURE*

Definition at line 2114 of file [enums.doc](#).

## 6.7 Ember Application Framework Command Line Interface (CLI)

### Modules

- Attribute Management
- Building and Sending Messages
- Endpoint Manipulation
- General
- Global ZCL
- Informational
- Network
- Security
- Test Harness
- ZigBee Device Object Commands (ZDO)
- Cluster Commands: BACnet Protocol Tunnel
- Cluster Commands: Basic
- Cluster Commands: Calendar
- Cluster Commands: Color Control
- Cluster Commands: Demand Response and Load Control
- Cluster Commands: Device Management
- Cluster Commands: Door Lock
- Cluster Commands: Events
- Cluster Commands: Generic Tunnel
- Cluster Commands: Groups
- Cluster Commands: IAS ACE
- Cluster Commands: IAS Zone
- Cluster Commands: Identify
- Cluster Commands: Level Control
- Cluster Commands: Messaging
- Cluster Commands: On/off
- Cluster Commands: Poll Control
- Cluster Commands: Power Profile
- Cluster Commands: Prepayment
- Cluster Commands: Price
- Cluster Commands: Scenes
- Cluster Commands: Simple Metering
- Cluster Commands: Thermostat
- Cluster Commands: Tunneling
- Cluster Commands: Window Covering
- Plugin Commands: Address Table
- Plugin Commands: Button Joining
- Plugin Commands: Calendar Client
- Plugin Commands: Calendar Common
- Plugin Commands: Calendar Server
- Plugin Commands: Comms Hub Function
- Plugin Commands: Concentrator
- Plugin Commands: Connection Manager
- Plugin Commands: Counters
- Plugin Commands: Demand Response and Load Control
- Plugin Commands: Demand Response and Load Control Server

- [Plugin Commands: Device Database](#)
- [Plugin Commands: Device Management Client](#)
- [Plugin Commands: Device Management Server](#)
- [Plugin Commands: Device Query Service](#)
- [Plugin Commands: EEPROM](#)
- [Plugin Commands: EZ-Mode Commissioning](#)
- [Plugin Commands: End Device Support](#)
- [Plugin Commands: Events Server](#)
- [Plugin Commands: Find and Bind Initiator](#)
- [Plugin Commands: Find and Bind Target](#)
- [Plugin Commands: Fragmentation](#)
- [Plugin Commands: GBCS Device Log](#)
- [Plugin Commands: GBCS Gas Meter](#)
- [Plugin Commands: Gas Proxy Function](#)
- [Plugin Commands: Generic Device Profile](#)
- [Plugin Commands: Generic Device Profile Identification Client](#)
- [Plugin Commands: Generic Device Profile Identification Server](#)
- [Plugin Commands: Green Power Client](#)
- [Plugin Commands: Green Power Server](#)
- [Plugin Commands: Green Power Test Device](#)
- [Plugin Commands: Groups Server](#)
- [Plugin Commands: IAS Zone Client](#)
- [Plugin Commands: IAS Zone Server](#)
- [Plugin Commands: Identify](#)
- [Plugin Commands: Idle/Sleep](#)
- [Plugin Commands: Infrared LED](#)
- [Plugin Commands: Interpan](#)
- [Plugin Commands: Key Establishment](#)
- [Plugin Commands: LED Dim PWM](#)
- [Plugin Commands: Low Voltage Shutdown](#)
- [Plugin Commands: Manufacturing Library](#)
- [Plugin Commands: Messaging Client](#)
- [Plugin Commands: Messaging Server](#)
- [Plugin Commands: Meter Mirror](#)
- [Plugin Commands: Meter Snapshot Server](#)
- [Plugin Commands: Multi-Network Price Passthrough](#)
- [Plugin Commands: Network Creator](#)
- [Plugin Commands: Network Creator Security](#)
- [Plugin Commands: Network Steering](#)
- [Plugin Commands: OTA Bootload](#)
- [Plugin Commands: OTA Client](#)
- [Plugin Commands: OTA Server](#)
- [Plugin Commands: OTA Simple Storage EEPROM](#)
- [Plugin Commands: OTA Storage Common](#)
- [Plugin Commands: Partner Link Key Exchange](#)
- [Plugin Commands: Poll Control Client](#)
- [Plugin Commands: Prepayment Server](#)
- [Plugin Commands: Price Client](#)
- [Plugin Commands: Price Common](#)
- [Plugin Commands: Price Server](#)

- [Plugin Commands: RF4CE Multiple System Operators IR-RF Database Originator](#)
- [Plugin Commands: RF4CE Multiple System Operators IR-RF Database Recipient](#)
- [Plugin Commands: RF4CE Multiple System Operators Profile](#)
- [Plugin Commands: RF4CE Profile](#)
- [Plugin Commands: RGB control for PWM](#)
- [Plugin Commands: Relay Control Server](#)
- [Plugin Commands: Reporting](#)
- [Plugin Commands: SB1 Gesture Sensor](#)
- [Plugin Commands: Scenes Server](#)
- [Plugin Commands: Simple Metering Client](#)
- [Plugin Commands: Simple Metering Server](#)
- [Plugin Commands: Sleepy Message Queue](#)
- [Plugin Commands: Smart Energy Registration](#)
- [Plugin Commands: Stack Diagnostics](#)
- [Plugin Commands: Standalone Bootloader Client](#)
- [Plugin Commands: Standalone Bootloader Server](#)
- [Plugin Commands: Temperature Measurement Server commands](#)
- [Plugin Commands: Test Harness](#)
- [Plugin Commands: Throughput](#)
- [Plugin Commands: Trust Center Backup](#)
- [Plugin Commands: Tunneling Client](#)
- [Plugin Commands: Tunneling Server](#)
- [Plugin Commands: ZigBee 3.0 Test Harness](#)
- [Plugin Commands: ZigBee Light Link \(ZLL\) Commissioning](#)
- [Plugin Commands: ZigBee Remote Control 1.1 Profile](#)
- [Plugin Commands: ZigBee Remote Control 2.0 Action Mapping Client](#)
- [Plugin Commands: ZigBee Remote Control 2.0 Action Mapping Server](#)
- [Plugin Commands: ZigBee Remote Control 2.0 HA Server](#)
- [Plugin Commands: ZigBee Remote Control 2.0 Profile](#)

### 6.7.1 Detailed Description

This header provides cli command function prototypes for the Application Framework's core ZigBee Cluster Library implementation.

## 6.8 Ember ZigBee RF4CE Application Framework API Reference

### Modules

- [Generic Device Profile](#)
- [Generic Device Profile Identification Client](#)
- [Generic Device Profile Identification Server](#)
- [RF4CE Multiple System Operators Profile](#)
- [RF4CE Multiple System Operators IR-RF Database Originator](#)
- [RF4CE Multiple System Operators IR-RF Database Recipient](#)
- [RF4CE Profile Support](#)
- [ZigBee Remote Control 1.1 Profile](#)
- [ZigBee Remote Control 2.0 Profile](#)
- [ZigBee Remote Control 2.0 Action Mapping Client](#)
- [ZigBee Remote Control 2.0 Action Mapping Server](#)
- [ZigBee Remote Control 2.0 Home Automation Client](#)
- [ZigBee Remote Control 2.0 Home Automation Server](#)

#### 6.8.1 Detailed Description

The Ember ZigBee Radio Frequency for Consumer Electronics (RF4CE) Application Framework provides customers with robust implementations of RF4CE standards. Furthermore, it enables users to build custom applications on top of these implementations using application framework entities such as, but not limited to, callbacks (see [Application Framework Callback Interface](#)), a command line interface, sample applications, and architecture-agnostic plugins.

## 6.9 Generic Device Profile

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_IS\_ORIGINATOR
- #define POLL\_CLIENT
- #define POLL\_SERVER
- #define IDENTIFICATION\_CLIENT
- #define IDENTIFICATION\_SERVER

### Functions

- uint8\_t \* emberAfRf4ceGdpRandContents (EmberAfRf4ceGdpRand \*rand)
- uint8\_t \* emberAfRf4ceGdpTagContents (EmberAfRf4ceGdpTag \*tag)
- EmberStatus emberAfRf4ceGdpBind (uint8\_t \*profileIdList, uint8\_t profileIdListLength, uint8\_t searchDevType)
- EmberStatus emberAfRf4ceGdpProxyBind (EmberPanId panId, EmberEUI64 ieeeAddr, uint8\_t \*profileIdList, uint8\_t profileIdListLength)
- void emberAfRf4ceGdpConfigurationProcedureComplete (bool success)
- void emberAfRf4ceGdpPushButton (bool setPending)
- void emberAfRf4ceGdpSetValidationStatus (EmberAfRf4ceGdpCheckValidationStatus status)
- EmberStatus emberAfRf4ceGdpInitiateKeyExchange (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceGdpPoll (uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpHeartbeatTrigger trigger)
- bool emberAfRf4ceGdpMessageSent (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const uint8\_t \*message, uint8\_t messageLength, EmberStatus status)
- bool emberAfRf4ceGdpIncomingMessage (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption secured, const uint8\_t \*message, uint8\_t messageLength)
- EmberStatus emberAfRf4ceGdpGetCommandTxOptions (EmberAfRf4ceGdpCommandCode commandCode, uint8\_t pairingIndex, uint16\_t vendorId, EmberRf4ceTxOption \*txOptions)
- EmberStatus emberAfRf4ceGdpGenericResponse (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberAfRf4ceGdpResponseCode responseCode)
- EmberStatus emberAfRf4ceGdpConfigurationComplete (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberAfRf4ceGdpStatus status)
- EmberStatus emberAfRf4ceGdpHeartbeat (uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpHeartbeatTrigger trigger)
- EmberStatus emberAfRf4ceGdpGetAttributes (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeIdentificationRecord \*records, uint8\_t recordsLength)
- EmberStatus emberAfRf4ceGdpGetAttributesResponse (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeStatusRecord \*records, uint8\_t recordsLength)
- EmberStatus emberAfRf4ceGdpPushAttributes (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeRecord \*records, uint8\_t recordsLength)
- EmberStatus emberAfRf4ceGdpSetAttributes (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeRecord \*records, uint8\_t recordsLength)
- EmberStatus emberAfRf4ceGdpPullAttributes (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeIdentificationRecord \*records, uint8\_t recordsLength)
- EmberStatus emberAfRf4ceGdpPullAttributesResponse (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeStatusRecord \*records, uint8\_t recordsLength)
- EmberStatus emberAfRf4ceGdpCheckValidationRequest (uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t control)

- `EmberStatus emberAfRf4ceGdpCheckValidationResponse` (`uint8_t pairingIndex, uint16_t vendorId, EmberAfRf4ceGdpCheckValidationStatus status`)
- `EmberStatus emberAfRf4ceGdpClientNotificationIdentify` (`uint8_t pairingIndex, uint16_t vendorId, EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16_t timeS`)
- `EmberStatus emberAfRf4ceGdpClientNotificationRequestPollNegotiation` (`uint8_t pairingIndex, uint16_t vendorId`)
- `EmberStatus emberAfRf4ceGdpClientNotification` (`uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, uint8_t subtype, const uint8_t *payload, uint8_t payloadLength`)
- `EmberStatus emberAfRf4ceGdpSubscribeToHeartbeat` (`EmberAfRf4ceGdpHeartbeatCallback callback`)

### 6.9.1 Detailed Description

The Generic Device Profile (GDP) plugin provides APIs to service the different RF4CE profiles.

The plugin offers APIs to add in application level customization to the RF4CE GDP commissioning mechanism. One can initiate this commissioning process with `emberAfRf4ceGdpBind` or `emberAfRf4ceGdpProxyBind`. The application can use `emberAfRf4ceGdpConfigurationComplete` to learn the result of this binding operation.

One can configure basic security operations of an RF4CE network using this plugin. The plugin offers options Enhanced security, Standard shared secret, and Vendor-specific shared secrets, so that the user can dictate the level of security at which they would like this plugin to operate. During the commissioning process, or any time after, the application can use `emberAfRf4ceGdpInitiateKeyExchange` to force a key exchange to take place.

This plugin also gives the application the ability to interact with RF4CE attributes. There are APIs provided to perform the necessary GDP attribute operations over the air.

### 6.9.2 Macro Definition Documentation

#### 6.9.2.1 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_IS\_ORIGINATOR

Set if the RF4CE Profile plugin was configured as a controller or target.

Definition at line 40 of file `rf4ce-gdp.h`.

#### 6.9.2.2 #define POLL\_CLIENT

Definition at line 46 of file `rf4ce-gdp.h`.

#### 6.9.2.3 #define POLL\_SERVER

Definition at line 47 of file `rf4ce-gdp.h`.

#### 6.9.2.4 #define IDENTIFICATION\_CLIENT

Definition at line 57 of file `rf4ce-gdp.h`.

### 6.9.2.5 #define IDENTIFICATION\_SERVER

Definition at line 58 of file [rf4ce-gdp.h](#).

## 6.9.3 Function Documentation

### 6.9.3.1 uint8\_t\* emberAfRf4ceGdpRandContents ( EmberAfRf4ceGdpRand \* rand )

Accesses the actual random byte string of the [EmberAfRf4ceGdpRand](#) structure.

#### Parameters

<i>rand</i>	A pointer to an <a href="#">EmberAfRf4ceGdpRand</a> structure.
-------------	--

#### Returns

uint8\_t\* Returns a pointer to the first byte of the random byte string.

### 6.9.3.2 uint8\_t\* emberAfRf4ceGdpTagContents ( EmberAfRf4ceGdpTag \* tag )

Accesses the actual tag value of the [EmberAfRf4ceGdpTag](#) structure.

#### Parameters

<i>tag</i>	A pointer to an <a href="#">EmberAfRf4ceGdpTag</a> structure.
------------	---

#### Returns

uint8\_t\* Returns a pointer to the first byte of the tag value.

### 6.9.3.3 EmberStatus emberAfRf4ceGdpBind ( uint8\_t \* profileIdList, uint8\_t profileIdListLength, uint8\_t searchDevType )

Initiates the binding process.

#### Parameters

<i>profileIdList</i>	The list of profile IDs supported by the node.
<i>profileIdListLength</i>	The size of the profile ID list.
<i>searchDevType</i>	The device type the node will be matching against during the preliminary discovery process.

#### Returns

An [EmberStatus](#) value indicating whether the binding process was successfully initiated or the reason of failure.

**6.9.3.4 EmberStatus emberAfRf4ceGdpProxyBind ( EmberPanId *panId*, EmberEUI64 *ieeeAddr*, uint8\_t \* *profileIdList*, uint8\_t *profileIdListLength* )**

Initiates the proxy binding process.

**Parameters**

<i>panId</i>	The pan ID of the recipient.
<i>ieeeAddr</i>	The IEEE address of the recipient.
<i>profileIdList</i>	The list of profile IDs supported by the node.
<i>profileIdListLength</i>	The size of the profile ID list.

**Returns**

An [EmberStatus](#) value indicating whether the proxy binding process was successfully initiated or the reason of failure.

**6.9.3.5 void emberAfRf4ceGdpConfigurationProcedureComplete ( bool *success* )**

It notifies the GDP profile that a profile-specific configuration procedure has completed.

**Parameters**

<i>success</i>	Indicates whether the profile-specific configuration procedure completed successfully or not.
----------------	---

**6.9.3.6 void emberAfRf4ceGdpPushButton ( bool *setPending* )**

It sets or clears the push button stimulus pending flag at the GDP recipient.

**Parameters**

<i>The</i>	push button stimulus pending flag.
------------	------------------------------------

**6.9.3.7 void emberAfRf4ceGdpSetValidationStatus ( EmberAfRf4ceGdpCheckValidationStatus *status* )**

It sets the validation status at the GDP recipient.

**Parameters**

<i>status</i>	The validation status.
---------------	------------------------

**6.9.3.8 EmberStatus emberAfRf4ceGdpInitiateKeyExchange ( uint8\_t *pairingIndex* )**

It kicks off the extended key exchange procedure at the GDP originator or recipient.

**Parameters**

<i>The</i>	pairing index for which the key exchange procedure should be executed.
------------	--

**6.9.3.9 EmberStatus emberAfRf4ceGdpPoll ( uint8\_t *pairingIndex*, uint16\_t *vendorId*, EmberAfRf4ceGdpHeartbeatTrigger *trigger* )**

It polls the poll server by sending out a GDP heartbeat command to the poll server.

**Parameters**

<i>pairingIndex</i>	The pairing index of the poll server.
<i>vendorId</i>	The vendor ID to be included in the heartbeat command.
<i>trigger</i>	The heartbeat trigger to be included in the heartbeat command.

**Returns**

Indicates whether the heartbeat command was successfully sent out or the reason of failure.

**6.9.3.10 bool emberAfRf4ceGdpMessageSent ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, const uint8\_t \* *message*, uint8\_t *messageLength*, EmberStatus *status* )**

Submit a message sent indication to the GDP plugin for any applicable GDP-specific processing.

The application should submit all message sent indications for profiles that use GDP to this plugin before performing any profile-specific processing. Profile-specific processing should only occur if this API returns false.

**Returns**

true if the message sent indication was for a GDP command and has been handled by the GDP plugin and should therefore not be processed further by the application or false if the message sent indication was not for a GDP command and the application should perform profile-specific processing.

**6.9.3.11 bool emberAfRf4ceGdpIncomingMessage ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, EmberRf4ceTxOption *secured*, const uint8\_t \* *message*, uint8\_t *messageLength* )**

Submit an incoming message to the GDP plugin for any applicable GDP- specific processing.

The application should submit all incoming messages for profiles that use GDP to this plugin before performing any profile-specific processing. Profile-specific processing should only occur if this API returns false.

**Returns**

true if the incoming message was a GDP command and has been handled by the GDP plugin and should therefore not be processed further by the application or false if the incoming message was not a GDP command and the application should perform profile-specific processing.

### 6.9.3.12 EmberStatus emberAfRf4ceGdpGetCommandTxOptions ( EmberAfRf4ceGdpCommandCode *commandCode*, uint8\_t *pairingIndex*, uint16\_t *vendorId*, EmberRf4ceTxOption \* *txOptions* )

Allows the application to retrieve the RF4CE TX options used by GDP for a specific command, pairing index and vendor ID.

#### Returns

An [EmberStatus](#) indicating success or the reason of failure.

### 6.9.3.13 EmberStatus emberAfRf4ceGdpGenericResponse ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, EmberAfRf4ceGdpResponseCode *responseCode* )

It sends out a GDP generic response command.

#### Parameters

<i>paringIndex</i>	The pairing index the generic response command should be sent to.
<i>profileId</i>	The profile ID to be included in the generic response command.
<i>vendorId</i>	The vendor ID to be included in the generic response command.
<i>responseCode</i>	The response code to be included in the generic response command.

#### Returns

An [EmberStatus](#) value indicating whether the generic response command was successfully sent out or the reason of failure.

### 6.9.3.14 EmberStatus emberAfRf4ceGdpConfigurationComplete ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, EmberAfRf4ceGdpStatus *status* )

It sends out a GDP configuration complete command.

#### Parameters

<i>paringIndex</i>	The pairing index the configuration complete command should be sent to.
<i>profileId</i>	The profile ID to be included in the configuration complete command.
<i>vendorId</i>	The vendor ID to be included in the configuration complete command.
<i>status</i>	The status code to be included in the configuration complete command.

#### Returns

An [EmberStatus](#) value indicating whether the configuration complete command was successfully sent out or the reason of failure.

### 6.9.3.15 EmberStatus emberAfRf4ceGdpHeartbeat ( uint8\_t *pairingIndex*, uint16\_t *vendorId*, EmberAfRf4ceGdpHeartbeatTrigger *trigger* )

It sends out a GDP hearbeat command.

**Parameters**

<i>paringIndex</i>	The pairing index the heartbeat command should be sent to.
<i>vendorId</i>	The vendor ID to be included in the heartbeat command.
<i>trigger</i>	The trigger code to be included in the heartbeat command.

**Returns**

An [EmberStatus](#) value indicating whether the heartbeat command was successfully sent out or the reason of failure.

#### 6.9.3.16 EmberStatus emberAfRf4ceGdpGetAttributes ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, const EmberAfRf4ceGdpAttributeIdentificationRecord \* *records*, uint8\_t *recordsLength* )

It sends out a GDP get attributes command.

**Parameters**

<i>paringIndex</i>	The pairing index the get attributes command should be sent to.
<i>profileId</i>	The profile ID to be included in the get attributes command.
<i>vendorId</i>	The vendor ID to be included in the get attributes command.
<i>records</i>	A list of <a href="#">EmberAfRf4ceGdpAttributeIdentificationRecord</a> to be included in the get attributes command.
<i>recordsLength</i>	The size of the attribute identification records list.

**Returns**

An [EmberStatus](#) value indicating whether the get attributes command was successfully sent out or the reason of failure.

#### 6.9.3.17 EmberStatus emberAfRf4ceGdpGetAttributesResponse ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, const EmberAfRf4ceGdpAttributeStatusRecord \* *records*, uint8\_t *recordsLength* )

It sends out a GDP get attributes response command.

**Parameters**

<i>paringIndex</i>	The pairing index the get attributes response command should be sent to.
<i>profileId</i>	The profile ID to be included in the get attributes response command.
<i>vendorId</i>	The vendor ID to be included in the get attributes response command.
<i>records</i>	A list of <a href="#">EmberAfRf4ceGdpAttributeStatusRecord</a> to be included in the get attributes response command.
<i>recordsLength</i>	The size of the attribute status records list.

**Returns**

An [EmberStatus](#) value indicating whether the get attributes response command was successfully sent out or the reason of failure.

### 6.9.3.18 EmberStatus emberAfRf4ceGdpPushAttributes ( *uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeRecord \* records, uint8\_t recordsLength* )

It sends out a GDP push attributes command.

#### Parameters

<i>paringIndex</i>	The pairing index the push attributes command should be sent to.
<i>profileId</i>	The profile ID to be included in the push attributes command.
<i>vendorId</i>	The vendor ID to be included in the push attributes command.
<i>records</i>	A list of <a href="#">EmberAfRf4ceGdpAttributeRecord</a> to be included in the push attributes command.
<i>recordsLength</i>	The size of the attribute records list.

#### Returns

An [EmberStatus](#) value indicating whether the push attributes command was successfully sent out or the reason of failure.

### 6.9.3.19 EmberStatus emberAfRf4ceGdpSetAttributes ( *uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeRecord \* records, uint8\_t recordsLength* )

It sends out a GDP set attributes command.

#### Parameters

<i>paringIndex</i>	The pairing index the set attributes command should be sent to.
<i>profileId</i>	The profile ID to be included in the set attributes command.
<i>vendorId</i>	The vendor ID to be included in the set attributes command.
<i>records</i>	A list of <a href="#">EmberAfRf4ceGdpAttributeRecord</a> to be included in the set attributes command.
<i>recordsLength</i>	The size of the attribute records list.

#### Returns

An [EmberStatus](#) value indicating whether the set attributes command was successfully sent out or the reason of failure.

### 6.9.3.20 EmberStatus emberAfRf4ceGdpPullAttributes ( *uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeIdentificationRecord \* records, uint8\_t recordsLength* )

It sends out a GDP pull attributes command.

#### Parameters

<i>paringIndex</i>	The pairing index the pull attributes command should be sent to.
<i>profileId</i>	The profile ID to be included in the pull attributes command.
<i>vendorId</i>	The vendor ID to be included in the pull attributes command.
<i>records</i>	A list of <a href="#">EmberAfRf4ceGdpAttributeIdentificationRecord</a> to be included in the pull attributes command.
<i>recordsLength</i>	The size of the attribute identification records list.

## Returns

An [EmberStatus](#) value indicating whether the pull attributes command was successfully sent out or the reason of failure.

**6.9.3.21** `EmberStatus emberAfRf4ceGdpPullAttributesResponse ( uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, const EmberAfRf4ceGdpAttributeStatusRecord * records, uint8_t recordsLength )`

It sends out a GDP pull attributes response command.

## Parameters

<i>paringIndex</i>	The pairing index the pull attributes response command should be sent to.
<i>profileId</i>	The profile ID to be included in the pull attributes response command.
<i>vendorId</i>	The vendor ID to be included in the pull attributes response command.
<i>records</i>	A list of <a href="#">EmberAfRf4ceGdpAttributeStatusRecord</a> to be included in the pull attributes response command.
<i>recordsLength</i>	The size of the attribute status records list.

## Returns

An [EmberStatus](#) value indicating whether the pull attributes response command was successfully sent out or the reason of failure.

**6.9.3.22** `EmberStatus emberAfRf4ceGdpCheckValidationRequest ( uint8_t pairingIndex, uint16_t vendorId, uint8_t control )`

It sends out a GDP check validation request command.

## Parameters

<i>paringIndex</i>	The pairing index the check validation request command should be sent to.
<i>vendorId</i>	The vendor ID to be included in the check validation request command.
<i>control</i>	The control field to be included in the check validation request command.

## Returns

An [EmberStatus](#) value indicating whether the check validation request command was successfully sent out or the reason of failure.

**6.9.3.23** `EmberStatus emberAfRf4ceGdpCheckValidationResponse ( uint8_t pairingIndex, uint16_t vendorId, EmberAfRf4ceGdpCheckValidationStatus status )`

It sends out a GDP check validation response command.

## Parameters

<i>paringIndex</i>	The pairing index the check validation response command should be sent to.
<i>vendorId</i>	The vendor ID to be included in the check validation response command.
<i>status</i>	The status code to be included in the check validation response command.

## Returns

An [EmberStatus](#) value indicating whether the check validation response command was successfully sent out or the reason of failure.

### 6.9.3.24 EmberStatus emberAfRf4ceGdpClientNotificationIdentify ( *uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16\_t timeS* )

It sends out a GDP client notification identify command.

## Parameters

<i>paringIndex</i>	The pairing index the client notification identify command should be sent to.
<i>vendorId</i>	The vendor ID to be included in the client notification identify command.
<i>flags</i>	The flags field to be included in the client notification identify command.
<i>timeS</i>	The time field in seconds to be included in the client notification identify command.

## Returns

An [EmberStatus](#) value indicating whether the client notification identify command was successfully sent out or the reason of failure.

### 6.9.3.25 EmberStatus emberAfRf4ceGdpClientNotificationRequestPollNegotiation ( *uint8\_t pairingIndex, uint16\_t vendorId* )

It sends out a GDP client notification request poll negotiation command.

## Parameters

<i>paringIndex</i>	The pairing index the client notification request poll negotiation command should be sent to.
<i>vendorId</i>	The vendor ID to be included in the client notification request poll negotiation command.

## Returns

An [EmberStatus](#) value indicating whether the client notification request poll negotiation command was successfully sent out or the reason of failure.

### 6.9.3.26 EmberStatus emberAfRf4ceGdpClientNotification ( *uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, uint8\_t subtype, const uint8\_t \* payload, uint8\_t payloadLength* )

It sends out a generic GDP client notification command.

## Parameters

<i>paringIndex</i>	The pairing index the client notification command should be sent to.
<i>vendorId</i>	The vendor ID to be included in the client notification command.
<i>subType</i>	The sub-type field of the client notification command.
<i>payload</i>	The payload to be included in the client notification command.
<i>payloadLength</i>	The length in bytes of the payload.

**Returns**

An [EmberStatus](#) value indicating whether the client notification command was successfully sent out or the reason of failure.

**6.9.3.27 EmberStatus emberAfRf4ceGdpSubscribeToHeartbeat ( EmberAfRf4ceGdpHeartbeat-Callback *callback* )**

It allows a software module to subscribe to incoming heartbeat commands.

**Parameters**

<i>callback</i>	The callback to be called by the poll server upon receiving a heartbeat command.
-----------------	--

**Returns**

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if the subscription process succeeded. An [EmberStatus](#) value of [EMBER\\_TABLE\\_FULL](#) if there is no room in the subscription table. An [EmberStatus](#) of [EMBER\\_INVALID\\_CALL](#) if the node is not a poll server.

## 6.10 Generic Device Profile Identification Client

### Functions

- void [emberAfRf4ceGdpIdentificationClientDetectedUserInteraction](#) (void)

#### 6.10.1 Detailed Description

This plugin provides an implementation of the Generic Device Profile (GDP) Identification Client. It offers an excellent example of the role of an identification client under GDP using the Silicon Labs development kit. However, if a customer moves their application to different hardware, they will need to create their own implementation that makes use of the new hardware. See UG10310 for more information regarding the role of the GDP Identification Client.

In this Ember implementation of the GDP Identification Client, indicators on the Silicon Labs development board will react to identification commands from the server, notifying the user that it is in identifying mode. These notifications come in the form of flashing LEDs, a buzzer sounding, or printing status messages.

The application can notify the plugin that a user interaction has been detected using the API [emberAfRf4ce-GdpIdentificationClientDetectedUserInteraction](#). This will trigger the plugin to perform the necessary actions in accordance with the GDP standard. A user can also incite call upon this event by issuing the following command over the command line interface: *plugin rf4ce-gdp-identification-client user-interaction*.

Please see [Generic Device Profile Identification Server](#) for an implementation of the RF4CE GDP Identification Server.

#### 6.10.2 Function Documentation

##### 6.10.2.1 void [emberAfRf4ceGdpIdentificationClientDetectedUserInteraction](#) ( void )

Notify the plugin that a user interaction has been detected. Note that this command can also be called from the command line interface using the command *plugin rf4ce-gdp-identification-client user-interaction*.

## 6.11 Generic Device Profile Identification Server

### Functions

- [EmberStatus emberAfRf4ceGdpIdentificationServerIdentify](#) (uint8\_t pairingIndex, [EmberAfRf4ceGdpClientNotificationIdentifyFlags](#) flags, uint16\_t timeS)

#### 6.11.1 Detailed Description

This plugin provides an implementation of the RF4CE Generic Device Profile (GDP) Identification Server. It gives the user the opportunity to manage the GDP identification process from the server side.

The application can command the server to send an identify command to a client using the API [emberAfRf4ceGdpIdentificationServerIdentify](#). One can also begin the process over the command line interface by using the command *plugin rf4ce-gdp-identification-server identify* and supplying the desired arguments.

Please see [rf4ce-gdp-identification-Client](#) for an implementation of the RF4CE GDP Identification Client. Unlike the RF4CE GDP Identification Client plugin, this plugin is able to be used across hardware platforms.

#### 6.11.2 Function Documentation

##### 6.11.2.1 [EmberStatus emberAfRf4ceGdpIdentificationServerIdentify](#) ( uint8\_t pairingIndex, EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16\_t timeS )

Queue up an identify command to be sent to an identification client in the pairing table. Note that one can issue the command *plugin rf4ce-gdp-identification-server identify* over the command line interface in order to perform the same action.

#### Parameters

<i>pairingIndex</i>	The index in the pairing table to which to send the identification command.
<i>flags</i>	The flags to send in this command. See data type <a href="#">EmberAfRf4ceGdpClientNotificationIdentifyFlags</a> for more information on this parameter.
<i>timeS</i>	The time in seconds for which the client should identify.

#### Returns

An [EmberStatus](#) value indicating the success of the attempt to queue up the identify command.

## 6.12 RF4CE Multiple System Operators Profile

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_IS\_RECIPIENT

### Functions

- EmberStatus emberAfRf4ceMsoBind (void)
- EmberStatus emberAfRf4ceMsoWatchdogKick (uint16\_t validationWatchdogTimeMs)
- EmberStatus emberAfRf4ceMsoValidate (void)
- EmberStatus emberAfRf4ceMsoTerminateValidation (void)
- EmberStatus emberAfRf4ceMsoAbortValidation (bool fullAbort)
- EmberStatus emberAfRf4ceMsoUserControlPress (uint8\_t pairingIndex, EmberAfRf4ceMsoKeyCode rcCommandCode, const uint8\_t \*rcCommandPayload, uint8\_t rcCommandPayloadLength, bool atomic)
- EmberStatus emberAfRf4ceMsoUserControlRelease (uint8\_t pairingIndex, EmberAfRf4ceMsoKeyCode rcCommandCode)
- EmberStatus emberAfRf4ceMsoSetAttributeRequest (uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen, const uint8\_t \*value)
- EmberStatus emberAfRf4ceMsoGetAttributeRequest (uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen)
- bool emberAfRf4ceMsoIrRfDatabaseEntryUseDefault (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfPressedDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfRepeatedDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfReleasedDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- uint8\_t emberAfRf4ceMsoIrRfDatabaseEntryGetMinimumNumberOfTransmissions (const EmberAfRf4ceMsoIrRfDescriptor \*rfDescriptor)
- bool emberAfRf4ceMsoIrRfDatabaseEntryShouldTransmitUntilRelease (const EmberAfRf4ceMsoIrRfDescriptor \*rfDescriptor)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasIrDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)

### 6.12.1 Detailed Description

The RF4CE Multiple System Operators (MSO) plugin implements the MSO profile. The profile uses the simple user control procedure from the ZigBee Remote Control (ZRC) profile with a more robust discovery, pairing, and validating procedure for binding devices. The plugin manages these procedures for both originators and recipients.

This plugin supports originators and recipients. Originators send action messages to recipients after binding with them. Unlike ZRC, originators must be controllers. Recipients must be targets, as in ZRC. Both controllers and targets must start general network operations before beginning MSO-specific operations. Network operations should be started by calling `emberAfRf4ceStart` in the `RF4CE Profile Support` plugin.

Once network operations have started, controllers can initiate the binding procedure by calling [emberAfRf4ceMsoBind](#). The plugin will perform discovery for matching targets in range. Potential targets are ranked according to an algorithm described in the MSO specification. If one or more potential targets are identified, the plugin will attempt to pair with the highest-ranked target. Once the temporary pairing is established, the validation procedure begins. Validation is implementation-specific, but may be as simple as a button press on the target or a more involved challenge-response mechanism between target and originator. Only if validation is successful are the controller and target considered bound. If any step fails, the plugin will restart the binding procedure using the target that has the next-highest rank. At the conclusion of the binding procedure, the plugin will call [emberAfPluginRf4ceMsoBindingCompleteCallback](#) to indicate whether binding completed successfully with a target and, if so, which pairing index has been assigned to that target.

The plugin manages discovery and pairing for targets on behalf of the device. If pairing completes successfully, the plugin will call [emberAfPluginRf4ceMsoStartValidationCallback](#) so that the device can begin the implementation-specific validation procedure. During validation, the application must periodically call [emberAfRf4ceMsoWatchdogKick](#) to prevent a validation timeout. Once the application determines the controller has validated successfully, it should call [emberAfRf4ceMsoValidate](#). If the controller fails validation, the application may instead call [emberAfRf4ceMsoTerminateValidation](#) or [emberAfRf4ceMsoAbortValidation](#). Once binding completes, the plugin will call [emberAfPluginRf4ceMsoBindingCompleteCallback](#) to indicate whether binding completed successfully with a controller and, if so, which pairing index has been assigned to that controller.

Following a successful discovery and pairing, controllers may send user control messages to targets by calling [emberAfRf4ceMsoUserControlPress](#). In response, the plugin will transmit a user control press message to the indicated target with the HDMI-CEC command code and payload. If the press is atomic, the plugin performs no additional processing. Otherwise, the plugin will repeatedly transmit user control repeat messages at fixed intervals until [emberAfRf4ceMsoUserControlRelease](#) is called. The interval at which user control repeat messages are transmitted is configurable in the plugin options.

For targets, the plugin will keep track of incoming user control messages. Each time a user control press command is received, the plugin will call [emberAfPluginRf4ceMsoUserControlCallback](#) with its HDMI-CEC command code and payload. The plugin will then wait for a fixed duration for a corresponding user control repeat or release messages. If a user control repeat message is received within the timeout, the plugin will reset its timer and wait for the next message. If a user control repeat message is not received within the timeout or if a user control release is received, the plugin will call [emberAfPluginRf4ceMsoUserControlCallback](#) with an indication that the user control has stopped. The timeout for receiving repeat messages is configurable in the plugin options. Note that the plugin will not call [emberAfPluginRf4ceMsoUserControlCallback](#) for repeat messages that follow a press message.

The plugin is capable of keeping track of a fixed number of simultaneous incoming and outgoing user control messages. The limits are configurable in the plugin options.

This plugin manages the state of the receiver by calling [emberAfRf4ceRxEnable](#) using [EMBER\\_AF\\_RF4CE\\_PROFILE\\_MSO](#) as the profile id. If the application also wishes to manage the receiver, it should do so using [EMBER\\_AF\\_RF4CE\\_PROFILE\\_WILDCARD](#) as the profile id or by calling [emberAfRf4ceSetPowerSavingParameters](#).

This plugin utilizes the discovery, pairing, sending and receiving, and power-saving functionality provided by the [RF4CE Profile Support](#) plugin. Support for the optional IR-RF database feature is provided by the [RF4CE Multiple System Operators IR-RF Database Originator](#) and [RF4CE Multiple System Operators IR-RF Database Recipient](#) plugins.

## 6.12.2 Macro Definition Documentation

#### 6.12.2.1 `#define EMBER_AF_PLUGIN_RF4CE_MSO_IS_RECIPIENT`

Set if the RF4CE Profile plugin was configured as a target.

Definition at line 103 of file [rf4ce-mso.h](#).

### 6.12.3 Function Documentation

#### 6.12.3.1 `EmberStatus emberAfRf4ceMsoBind( void )`

Initiate the binding procedure.

The plugin begins the binding procedure by searching for and ranking potential targets with which to pair. If one or more targets is identified, the plugin will create a temporary pairing with the highest-ranked target. Once the temporary pairing completes, the application should perform the required validation procedure. During this time, the plugin will periodically query the target for the validation status. If validation completes successfully, the plugin will notify the application by calling [emberAfPluginRf4ceMsoBindingCompleteCallback](#). If the temporary pairing fails or if validation fails, the plugin will attempt to bind to the target with the next-highest rank. If the plugin fails to bind with any target, it will call [emberAfPluginRf4ceMsoBindingCompleteCallback](#) with an error.

This function is only applicable to target devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

#### 6.12.3.2 `EmberStatus emberAfRf4ceMsoWatchdogKick( uint16_t validationWatchdogTimeMs )`

Kick the watchdog.

If the plugin was configured with a non-zero initial watchdog time, this function must be called during validation to prevent the watchdog timer from expiring and triggering a TIMEOUT failure. The first call should occur within the initial watchdog time of the call to [emberAfPluginRf4ceMsoStartValidationCallback](#). To avoid further TIMEOUTs, each call to this function must either be followed either by a subsequent call within the provided timeout or by a call to [emberAfRf4ceMsoValidate](#), [emberAfRf4ceMsoTerminateValidation](#), or [emberAfRf4ceMsoAbortValidation](#).

This function is only applicable to target devices.

#### Parameters

<code>validation-WatchdogTime-Ms</code>	The time in milliseconds to reset the watchdog timer or zero to disable the watchdog timer.
---	---

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

#### 6.12.3.3 `EmberStatus emberAfRf4ceMsoValidate( void )`

Validate a controller.

This function can be called to indicate the validation procedure completed successfully. It should be called if the controller has performed the required validation procedure satisfactorily.

This function is only applicable to target devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.12.3.4 EmberStatus emberAfRf4ceMsoTerminateValidation ( void )

Terminate the validation procedure.

This function can be called to terminate the validation procedure. It should be called if the controller fails validation.

This function is only applicable to target devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.12.3.5 EmberStatus emberAfRf4ceMsoAbortValidation ( bool fullAbort )

Abort the validation procedure.

This function can be called to abort the validation procedure. It should be called in response to a controller sending the Abort or FullAbort keys during validation.

#### Parameters

<i>fullAbort</i>	true if the controller should not attempt to validate with other controllers or false if the controller should attempt to validate with other controller.
------------------	---

This function is only applicable to target devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.12.3.6 EmberStatus emberAfRf4ceMsoUserControlPress ( uint8\_t pairingIndex, EmberAfRf4ceMsoKeyCode rcCommandCode, const uint8\_t \* rcCommandPayload, uint8\_t rcCommandPayloadLength, bool atomic )

Send indications of user control presses and repeats to a pairing index.

This function can be called when a user control has been pressed and an indication of this should be sent to a remote node. If the user control should be repeated, the plugin will automatically send user control repeat messages at fixed intervals according to the plugin configuration. Every call to this function for a repeatable user control should be followed by a call to [emberAfRf4ceMsoUserControlRelease](#).

**Parameters**

<i>pairingIndex</i>	The pairing index to which to send user control messages.
<i>rcCommand-Code</i>	The RC command code of the user control.
<i>rcCommand-Payload</i>	The optional RC command payload of the user control.
<i>rcCommand-PayloadLength</i>	The length of the optional RC command payload of the user control.
<i>atomic</i>	true if the user control is atomic or false if it should repeat.

This function is only applicable to controller devices.

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.12.3.7 EmberStatus emberAfRf4ceMsoUserControlRelease ( *uint8\_t pairingIndex, EmberAfRf4ceMsoKeyCode rcCommandCode* )

Send indications of user control release to a pairing index.

This function can be called when a user control has been released and an indication of this should be sent to a remote node.

**Parameters**

<i>pairingIndex</i>	The pairing index to which to send user control messages.
<i>rcCommand-Code</i>	The RC command code of the user control.

This function is only applicable to controller devices.

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.12.3.8 EmberStatus emberAfRf4ceMsoSetAttributeRequest ( *uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen, const uint8\_t \* value* )

Set an attribute on a remote node.

This function can be called to set an attribute on a remote node. After sending the request, the plugin will automatically idle for a fixed duration as required by the MSO specification and then wait a configurable duration for the response from the target. The plugin will call ::emberAfPluginRf4ceMsoSetAttribute-ResponseCallback when the response is received or if a timeout occurs.

**Parameters**

<i>pairingIndex</i>	The pairing index on which to set the attribute.
<i>attributeId</i>	The attribute id to set..
<i>index</i>	The index of the element for vector attributes.
<i>valueLen</i>	The length of the value to set.
<i>value</i>	The value to set.

This function is only applicable to controller devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### **6.12.3.9 EmberStatus emberAfRf4ceMsoGetAttributeRequest ( *uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen* )**

Get an attribute on a remote node.

This function can be called to get an attribute on a remote node. After sending the request, the plugin will automatically idle for a fixed duration as required by the MSO specification and then wait a configurable duration for the response from the target. The plugin will call ::emberAfPluginRf4ceMsoGetAttributeResponseCallback when the response is received or if a timeout occurs.

#### Parameters

<i>pairingIndex</i>	The pairing index on which to get the attribute.
<i>attributeId</i>	The attribute id to get.
<i>index</i>	The index of the element for vector attributes.
<i>valueLen</i>	The length of the value to get.

This function is only applicable to controller devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### **6.12.3.10 bool emberAfRf4ceMsolrRfDatabaseEntryUseDefault ( *const EmberAfRf4ceMsoIrRfDatabaseEntry \* entry* )**

Determine if the IR-RF database entry is the default.

Implemented as a macro for efficiency.

#### Returns

true if the IR-RF database table entry is the default or false otherwise.

### **6.12.3.11 bool emberAfRf4ceMsolrRfDatabaseEntryHasRfPressedDescriptor ( *const EmberAfRf4ceMsoIrRfDatabaseEntry \* entry* )**

Determine if the IR-RF database entry has an RF pressed descriptor.

Implemented as a macro for efficiency.

#### Returns

true if the IR-RF database table entry has an RF pressed descriptor or false otherwise.

**6.12.3.12 bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfRepeatedDescriptor ( const EmberAfRf4ceMsoIrRfDatabaseEntry \* entry )**

Determine if the IR-RF database entry has an RF repeated descriptor.

Implemented as a macro for efficiency.

**Returns**

true if the IR-RF database table entry has an RF repeated descriptor or false otherwise.

**6.12.3.13 bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfReleasedDescriptor ( const EmberAfRf4ceMsoIrRfDatabaseEntry \* entry )**

Determine if the IR-RF database entry has an RF released descriptor.

Implemented as a macro for efficiency.

**Returns**

true if the IR-RF database table entry has an RF released descriptor or false otherwise.

**6.12.3.14 uint8\_t emberAfRf4ceMsoIrRfDatabaseEntryGetMinimumNumberOfTransmissions ( const EmberAfRf4ceMsoIrRfDatabaseRfDescriptor \* rfDescriptor )**

Get the minimum number of transmissions for a key code from its RF RF descriptor.

Implemented as a macro for efficiency.

**Returns**

The minimum number of transmissions.

**6.12.3.15 bool emberAfRf4ceMsoIrRfDatabaseEntryShouldTransmitUntilRelease ( const EmberAfRf4ceMsoIrRfDatabaseRfDescriptor \* rfDescriptor )**

Determine if a key code should continue being transmitted after the minimum number of transmissions have taken place when the key is kept pressed.

Implemented as a macro for efficiency.

**Returns**

true if the key code should continue being transmitted after the minimum number of transmissions have taken place or false otherwise.

**6.12.3.16 bool emberAfRf4ceMsoIrRfDatabaseEntryHasIrDescriptor ( const EmberAfRf4ceMsoIrRfDatabaseEntry \* entry )**

Determine if the IR-RF database entry has an IR descriptor.

Implemented as a macro for efficiency.

**Returns**

true if the IR-RF database table entry has an IR descriptor or false otherwise.

## 6.13 RF4CE Multiple System Operators IR-RF Database Originator

### Functions

- `EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorGet (EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry *entry)`
- `EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorSet (EmberAfRf4ceMsoKeyCode keyCode, const EmberAfRf4ceMsoIrRfDatabaseEntry *entry)`
- `EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorClear (EmberAfRf4ceMsoKeyCode keyCode)`
- void `emberAfRf4ceMsoIrRfDatabaseOriginatorClearAll (void)`

#### 6.13.1 Detailed Description

The RF4CE Multiple System Operators (MSO) IR-RF Database Originator plugin implements the optional IR-RF database feature of the MSO profile for controllers. The IR-RF database provides a standard mechanism for remapping keys on a remote to control legacy IR devices or to perform simultaneous IR and RF functions. This plugin manages the storage and retrieval of these mappings for controllers.

When the application queries the target for IR-RF information via the [RF4CE Multiple System Operators Profile](#) plugin, the data from the target are passed to this plugin via `emberAfPluginRf4ceMsoIncomingIrRfDatabaseAttributeCallback`. This plugin, in turn, will store the data in RAM. The keys that may be remapped are configuration in AppBuilder and the amount of storage space dedicated to storing IR-RF database entries is configurable via the plugin options.

When `emberAfRf4ceMsoUserControlPress` and `emberAfRf4ceMsoUserControlRelease` are called, the [RF4CE Multiple System Operators Profile](#) plugin will ask this plugin to retrieve RF mappings for the key via `emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback`. If a database entry exists for the key, it will be used in lieu of the original key. The same callback may be used by the application to retrieve IR mappings for keys.

Support for the optional IR-RF database feature for targets is provided by the [RF4CE Multiple System Operators IR-RF Database Recipient](#) plugin.

#### 6.13.2 Function Documentation

##### 6.13.2.1 EmberStatus `emberAfRf4ceMsoIrRfDatabaseOriginatorGet ( EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry * entry )`

Get the IR-RF entry from the database for a key code.

#### Parameters

<code>keyCode</code>	The key code.
<code>entry</code>	A pointer to the <code>EmberAfRf4ceMsoIrRfDatabaseEntry</code> to be populated.

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **6.13.2.2 EmberStatus emberAfRf4ceMsolrRfDatabaseOriginatorSet ( EmberAfRf4ceMsoKeyCode keyCode, const EmberAfRf4ceMsoIrRfDatabaseEntry \* entry )**

Set the IR-RF entry in the database for a key code.

**Parameters**

<i>keyCode</i>	The key code.
<i>entry</i>	A pointer to the <a href="#">EmberAfRf4ceMsoIrRfDatabaseEntry</a> .

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **6.13.2.3 EmberStatus emberAfRf4ceMsolrRfDatabaseOriginatorClear ( EmberAfRf4ceMsoKeyCode keyCode )**

Clear the IR-RF entry from the database for a key code.

**Parameters**

<i>keyCode</i>	The key code.
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**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **6.13.2.4 void emberAfRf4ceMsolrRfDatabaseOriginatorClearAll ( void )**

Clear all of the IR-RF entries from the database.

## 6.14 RF4CE Multiple System Operators IR-RF Database Recipient

### Functions

- `EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientAdd (EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry *entry)`
- `EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientRemove (EmberAfRf4ceMsoKeyCode keyCode)`
- `void emberAfRf4ceMsoIrRfDatabaseRecipientRemoveAll (void)`

#### 6.14.1 Detailed Description

The RF4CE Multiple System Operators (MSO) IR-RF Database Recipient plugin implements the optional IR-RF database feature of the MSO profile for targets. The IR-RF database provides a standard mechanism for remapping keys on a remote to control legacy IR devices or to perform simultaneous IR and RF functions. This plugin manages the storage and retrieval of these mappings for targets.

When a controller queries this device for IR-RF information, the [RF4CE Multiple System Operators Profile](#) plugin will pass the request to this plugin via `emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback` and `emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback`. This plugin, in turn, will provide the IR-RF information so that it may be sent back to the controller.

This plugin only stores IR-RF database entries on behalf of the application. The actual IR and RF descriptors themselves must be provided by the application. Entries can be added to the database by calling `emberAfRf4ceMsoIrRfDatabaseRecipientAdd` with the key code to be remapped. `emberAfRf4ceMsoIrRfDatabaseRecipientRemove` can be used to clear a specific entry or `emberAfRf4ceMsoIrRfDatabaseRecipientRemoveAll` may be used to clear all entries in the database. Note that database entries are stored in RAM. The amount of storage space dedicated to storing IR-RF database entries is configurable via the plugin options.

Support for the optional IR-RF database feature for controllers is provided by the [RF4CE Multiple System Operators IR-RF Database Originator](#) plugin.

#### 6.14.2 Function Documentation

##### 6.14.2.1 `EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientAdd ( EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry * entry )`

Add an IR-RF entry to the database for a key code.

#### Parameters

<code>keyCode</code>	The key code.
<code>entry</code>	A pointer to the <a href="#">EmberAfRf4ceMsoIrRfDatabaseEntry</a> .

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.14.2.2 EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientRemove ( EmberAfRf4ceMsoKeyCode keyCode )**

Remove an IR-RF entry from the database.

**Parameters**

<i>keyCode</i>	The key code which entry is to be removed.
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**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.14.2.3 void emberAfRf4ceMsoIrRfDatabaseRecipientRemoveAll ( void )**

Clear all of the IR-RF entries from the database.

## 6.15 RF4CE Profile Support

### Macros

- #define EMBER\_AF\_RF4CE\_MAXIMUM\_RF4CE\_PAYLOAD\_LENGTH
- #define EMBER\_AF\_RF4CE\_MESSAGE\_TAG\_MASK

### Functions

- bool `emberAfRf4ceIsCurrentNetwork` (void)
- `EmberStatus emberAfRf4cePushNetworkIndex` (void)
- `EmberStatus emberAfRf4ceStart` (void)
- `EmberStatus emberAfRf4ceSetPowerSavingParameters` (uint32\_t dutyCycleMs, uint32\_t activePeriodMs)
- `EmberStatus emberAfRf4ceRxEnable` (`EmberAfRf4ceProfileId` profileId, bool enable)
- `EmberStatus emberAfRf4ceSetFrequencyAgilityParameters` (uint8\_t rssiWindowSize, uint8\_t channelChangeReads, int8\_t rssiThreshold, uint16\_t readIntervalS, uint8\_t readDuration)
- `EmberStatus emberAfRf4ceSetDiscoveryLqiThreshold` (uint8\_t threshold)
- `uint8_t emberAfRf4ceGetBaseChannel` (void)
- `EmberStatus emberAfRf4ceDiscovery` (`EmberPanId` panId, `EmberNodeId` nodeId, uint8\_t searchDevType, uint16\_t discDurationMs, uint8\_t maxDiscRepetitions, uint8\_t discProfileIdListLength, uint8\_t \*discProfileIdList)
- `EmberStatus emberAfRf4ceEnableAutoDiscoveryResponse` (uint16\_t durationMs, uint8\_t discProfileIdListLength, uint8\_t \*discProfileIdList)
- `EmberStatus emberAfRf4cePair` (uint8\_t channel, `EmberPanId` panId, `EmberEUI64` ieeeAddr, uint8\_t keyExchangeTransferCount, `EmberAfRf4cePairCompleteCallback` pairCompleteCallback)
- `uint8_t emberAfRf4ceGetPairingIndex` (void)
- `EmberStatus emberAfRf4ceSetPairingTableEntry` (uint8\_t pairingIndex, `EmberRf4cePairingTableEntry` \*entry)
- `EmberStatus emberAfRf4ceGetPairingTableEntry` (uint8\_t pairingIndex, `EmberRf4cePairingTableEntry` \*entry)
- `EmberStatus emberAfRf4ceSetApplicationInfo` (`EmberRf4ceApplicationInfo` \*appInfo)
- `EmberStatus emberAfRf4ceGetApplicationInfo` (`EmberRf4ceApplicationInfo` \*appInfo)
- `EmberStatus emberAfRf4ceKeyUpdate` (uint8\_t pairingIndex, `EmberKeyData` \*key)
- `EmberStatus emberAfRf4ceSend` (uint8\_t pairingIndex, uint8\_t profileId, uint8\_t \*message, uint8\_t messageLength, uint8\_t \*messageTag)
- `EmberStatus emberAfRf4ceSendVendorSpecific` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, uint8\_t \*message, uint8\_t messageLength, uint8\_t \*messageTag)
- `EmberStatus emberAfRf4ceSendExtended` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, `EmberRf4ceTxOption` txOptions, uint8\_t \*message, uint8\_t messageLength, uint8\_t \*messageTag)
- `EmberStatus emberAfRf4ceGetDefaultTxOptions` (uint8\_t pairingIndex, `EmberRf4ceTxOption` \*txOptions)
- `EmberStatus emberAfRf4ceUnpair` (uint8\_t pairingIndex)
- `EmberStatus emberAfRf4ceStop` (void)
- `uint8_t emberAfRf4ceGetMaxPayload` (uint8\_t pairingIndex, `EmberRf4ceTxOption` txOptions)
- `uint8_t emberAfRf4ceDeviceTypeListLength` (`EmberRf4ceApplicationCapabilities` capabilities)
- `uint8_t emberAfRf4ceProfileIdListLength` (`EmberRf4ceApplicationCapabilities` capabilities)
- `uint16_t emberAfRf4ceVendorId` (void)
- `bool emberAfRf4ceIsDeviceTypeSupported` (const `EmberRf4ceApplicationInfo` \*appInfo, `EmberAfRf4ceDeviceType` deviceType)

- bool `emberAfRf4ceIsDeviceTypeSupportedLocally` (`EmberAfRf4ceDeviceType` deviceType)
- bool `emberAfRf4ceIsProfileSupported` (const `EmberRf4ceApplicationInfo` \*appInfo, `EmberAfRf4ceProfileId` profileId)
- bool `emberAfRf4ceIsProfileSupportedLocally` (`EmberAfRf4ceProfileId` profileId)
- bool `emberAfRf4cePairingTableEntryIsUnused` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)
- bool `emberAfRf4cePairingTableEntryIsProvisional` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)
- bool `emberAfRf4cePairingTableEntryIsActive` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)
- bool `emberAfRf4cePairingTableEntryHasLinkKey` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)
- bool `emberAfRf4cePairingTableEntryIsPairingInitiator` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)
- bool `emberAfRf4cePairingTableEntryHasSecurity` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)
- bool `emberAfRf4cePairingTableEntryHasChannelNormalization` (const `EmberRf4cePairingTableEntry` \*pairingTableEntry)

### 6.15.1 Detailed Description

The RF4CE Profile Support plugin provides the necessary foundation of APIs to interface with an RF4CE-capable device.

The functionality contained in this plugin provides basic RF4CE networking features like discovery, pairing, security, profile and device support, and transmission. In order to commence operations in an RF4CE network, one must call `emberAfRf4ceStart`. This is the starting point for beginning any RF4CE activity, over any profile. In the same sense, RF4CE network operations can be stopped with a call to `emberAfRf4ceStop`.

After network operations have been brought up as discussed above, one can easily configure their device using APIs in this plugin, regardless of what profile they are operating on. See `emberAfRf4ceSetPowerSavingParameters`, `emberAfRf4ceRxEnable`, `emberAfRf4ceSetDiscoveryLqiThreshold`, and `emberAfRf4ceSetApplicationInfo` for examples of ways to do this.

Once an RF4CE network has been started as described above, one can use the `::emberAfDiscovery` and `emberAfRf4cePair` APIs to initiate discovery and pairing processes, respectively. This functionality is complemented by various other discovery and pairing helper functions that aid in configuring the mechanisms. For example, a device can call `emberAfRf4ceEnableAutoDiscoveryResponse` to have the plugin handle discovery request messages. There are also convenience macros to read different information regarding the pairing table entries.

Note that in this plugin, these functions are purposely very generic. Please see [Generic Device Profile](#), [ZigBee Remote Control 1.1 Profile](#), [ZigBee Remote Control 2.0 Profile](#), and [RF4CE Multiple System Operators Profile](#) for specific implementations of RF4CE profiles.

### 6.15.2 Macro Definition Documentation

#### 6.15.2.1 #define EMBER\_AF\_RF4CE\_MAXIMUM\_RF4CE\_PAYLOAD\_LENGTH

Definition at line 720 of file `rf4ce-profile.h`.

### 6.15.2.2 #define EMBER\_AF\_RF4CE\_MESSAGE\_TAG\_MASK

The mask applied by [emberAfRf4ceSend](#), [emberAfRf4ceSendVendorSpecific](#), and [emberAfRf4ceSendExtended](#) when allocating a new message tag to an outgoing message. Customers who call ::emberRf4ceSend or ::ezspRf4ceSend directly must use message tags outside this mask.

Definition at line 728 of file [rf4ce-profile.h](#).

## 6.15.3 Function Documentation

### 6.15.3.1 bool emberAfRf4celsCurrentNetwork ( void )

Determine if the current network is the RF4CE network.

#### Returns

true if the current network is the RF4CE network or false otherwise.

### 6.15.3.2 EmberStatus emberAfRf4cePushNetworkIndex ( void )

Set the current network to the RF4CE network.

This function is a convenience wrapper for [emberAfPushNetworkIndex](#). Like the other push APIs, every call to this API must be paired with a subsequent call to [emberAfPopNetworkIndex](#). Note that is it not necessary to call function before any of the emberAfRf4ce functions or in any emberAfPluginRf4ce callbacks. This function is intended primarily for internal use, but is made available to the application in case it is useful for application-specific behavior not generally supported by the plugin.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.3 EmberStatus emberAfRf4ceStart ( void )

Start the RF4CE network operations.

The function is a convenience wrapper for ::emberRf4ceStart and ::ezspRf4ceStart. It will start the network operations according to the plugin configuration.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.4 EmberStatus emberAfRf4ceSetPowerSavingParameters ( uint32\_t *dutyCycleMs*, uint32\_t *activePeriodMs* )

Set the power-saving parameters.

Setting the duty cycle to zero disables power saving and will force the receiver to be kept on. It is equivalent to using `emberAfRf4ceRxEnable` to set the wildcard profile to enabled. Setting the duty cycle to non-zero and the active period to zero will allow the receiver to be disabled when all of the profiles are inactive. It is equivalent to setting the wildcard profile to disabled. Otherwise, when all profiles are inactive, the receiver will duty cycle, will the receiver turned on for `activePeriodMs` within each `dutyCycleMs` period.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An `EmberStatus` value that indicates the success or failure of the command.

### **6.15.3.5 EmberStatus `emberAfRf4ceRxEnable` ( `EmberAfRf4ceProfileId profileId, bool enable` )**

Enable or disable the receiver for the given profile.

Each profile can individually indicate whether it needs the receiver on or if the receiver can be disabled to conserve power. If at least one profile requires the receiver to be on (e.g., when it expects to receive a message), the plugin will enable the receiver. Otherwise, the device will revert back to the previously specified power-saving parameters.

The profile `EMBER_AF_RF4CE_PROFILE_WILDCARD` may be used to set the default state for the application. Enabling the receiver for the wildcard profile will force the receiver to be kept on. Disabling the receiver for the wildcard profile will permit the receiver to be turned off when all of the other profiles are inactive.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An `EmberStatus` value that indicates the success or failure of the command.

### **6.15.3.6 EmberStatus `emberAfRf4ceSetFrequencyAgilityParameters` ( `uint8_t rssiWindowSize, uint8_t channelChangeReads, int8_t rssiThreshold, uint16_t readIntervalS, uint8_t readDuration` )**

Set the frequency agility parameters.

The function is a convenience wrapper for `::emberRf4ceSetFrequencyAgilityParameters` and `::ezspRf4ceSetFrequencyAgilityParameters`.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An `EmberStatus` value that indicates the success or failure of the command.

### 6.15.3.7 EmberStatus emberAfRf4ceSetDiscoveryLqiThreshold ( *uint8\_t threshold* )

Set the discovery LQI threshold.

The function is a convenience wrapper for ::emberRf4ceSetDiscoveryLqiThreshold and ::ezspSetValue(EZSP\_VALUE\_RF4CE\_DISCOVERY\_LQI\_THRESHOLD, ...).

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.8 uint8\_t emberAfRf4ceGetBaseChannel ( *void* )

Get the device RF4CE base channel.

The function is a convenience wrapper for ::emberRf4ceGetBaseChannel and ::ezspGetValue(EZSP\_VALUE\_RF4CE\_BASE\_CHANNEL, ...).

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

The device RF4CE base channel.

### 6.15.3.9 EmberStatus emberAfRf4ceDiscovery ( *EmberPanId panId*, *EmberNodeId nodeId*, *uint8\_t searchDevType*, *uint16\_t discDurationMs*, *uint8\_t maxDiscRepetitions*, *uint8\_t discProfileIdListLength*, *uint8\_t \* discProfileIdList* )

Start the discovery procedure.

The function is a convenience wrapper for ::emberRf4ceDiscovery and ::ezspRf4ceDiscovery. The plugin will call the DiscoveryResponse callback for any profile id that was requested if a response is received from a node supporting that profile. For any given response, discovery will continue if at least one matching profile requests it. Otherwise, the plugin instructs the stack to end discovery at the conclusion of the current triad. When discovery completes, the plugin will call the DiscoveryComplete callback for each profile id that was requested.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.10 EmberStatus emberAfRf4ceEnableAutoDiscoveryResponse ( *uint16\_t durationMs*, *uint8\_t discProfileIdListLength*, *uint8\_t \* discProfileIdList* )

Enable auto discovery mode.

The function is a convenience wrapper for ::emberRf4ceEnableAutoDiscoveryResponse and ::ezspRf4ceEnableAutoDiscoveryResponse. When auto discovery completes, the plugin will call the AutoDiscoveryResponseComplete callback for each profile id that was requested.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.15.3.11 EmberStatus emberAfRf4cePair ( uint8\_t channel, EmberPanId panId, EmberEUI64 ieeeAddr, uint8\_t keyExchangeTransferCount, EmberAfRf4cePairCompleteCallback pairCompleteCallback )**

Start the pairing procedure.

The function is a convenience wrapper for ::emberRf4cePair and ::ezspRf4cePair. When pairing completes, if a callback was specified in the API call (that is, callback was a non-NULL function pointer), the passed callback shall be called, otherwise the plugin will call the PairComplete callback for each profile id.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.15.3.12 uint8\_t emberAfRf4ceGetPairingIndex ( void )**

Get the pairing index of the incoming or sent message.

The function returns the pairing index of the sender of the current incoming message or the destination of the current outgoing message. This function can only be called in the context of ::emberRf4ceIncomingMessageHandler, ::ezspRf4ceIncomingMessageHandler, ::emberRf4ceMessageSentHandler, or ::ezspRf4ceMessageSentHandler.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

### Returns

The pairing index of the incoming or outgoing message or 0xFF if called from outside the context of ::emberRf4ceIncomingMessageHandler, ::ezspRf4ceIncomingMessageHandler, ::emberRf4ceMessageSentHandler, or ::ezspRf4ceMessageSentHandler.

**6.15.3.13 EmberStatus emberAfRf4ceSetPairingTableEntry ( uint8\_t pairingIndex, EmberRf4cePairingTableEntry \* entry )**

Set the pairing table entry at a particular index.

The function is a convenience wrapper for ::emberRf4ceSetPairingTableEntry and ::ezspRf4ceSetPairingTableEntry.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### **6.15.3.14 EmberStatus emberAfRf4ceGetPairingTableEntry ( uint8\_t *pairingIndex*, EmberRf4cePairingTableEntry \* *entry* )**

Get the pairing table entry at a particular index.

The function is a convenience wrapper for ::emberRf4ceGetPairingTableEntry and ::ezspRf4ceGetPairingTableEntry.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### **6.15.3.15 EmberStatus emberAfRf4ceSetApplicationInfo ( EmberRf4ceApplicationInfo \* *appInfo* )**

Set the node application information.

The function is a convenience wrapper for ::emberRf4ceSetApplicationInfo and ::ezspRf4ceSetApplicationInfo.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### **6.15.3.16 EmberStatus emberAfRf4ceGetApplicationInfo ( EmberRf4ceApplicationInfo \* *appInfo* )**

Get the node application information.

The function is a convenience wrapper for ::emberRf4ceGetApplicationInfo and ::ezspRf4ceGetApplicationInfo.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.17 EmberStatus emberAfRf4ceKeyUpdate ( *uint8\_t pairingIndex*, *EmberKeyData \* key* )

Update the link key of a pairing table entry.

The function is a convenience wrapper for ::emberRf4ceKeyUpdate and ::ezspRf4ceKeyUpdate.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.18 EmberStatus emberAfRf4ceSend ( *uint8\_t pairingIndex*, *uint8\_t profileId*, *uint8\_t \* message*, *uint8\_t messageLength*, *uint8\_t \* messageTag* )

Send a message to a pairing index.

The function is a convenience wrapper for ::emberRf4ceSend and ::ezspRf4ceSend. If the pairing index is ::EMBER\_RF4CE\_PAIRING\_TABLE\_BROADCAST\_INDEX, the plugin will broadcast the message. Otherwise, the plugin will send a unicast. For unicasts, the plugin automatically enables security if the remote node is security capable and if a link key exists to the node. If the local node is a target and the remote node supports channel normalization, the plugin will automatically set the channel designator option in the outgoing message. The plugin always requests acknowledgements for unicast messages.

The plugin will allocate a new message tag for the message and, if messageTag is not NULL, store it in the address pointed to by messageTag. See [EMBER\\_AF\\_RF4CE\\_MESSAGE\\_TAG\\_MASK](#) for more information about the message tags allocated by the plugin.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.15.3.19 EmberStatus emberAfRf4ceSendVendorSpecific ( *uint8\_t pairingIndex*, *uint8\_t profileId*, *uint16\_t vendorId*, *uint8\_t \* message*, *uint8\_t messageLength*, *uint8\_t \* messageTag* )

Send a vendor-specific message to a pairing index.

The function is a convenience wrapper for ::emberRf4ceSend and ::ezspRf4ceSend. If the pairing index is ::EMBER\_RF4CE\_PAIRING\_TABLE\_BROADCAST\_INDEX, the plugin will broadcast the message. Otherwise, the plugin will send a unicast. For unicasts, the plugin automatically enables security if the remote node is security capable and if a link key exists to the node. If the local node is a target and the remote node supports channel normalization, the plugin will automatically set the channel designator option in the outgoing message. The plugin always requests acknowledgements for unicast messages.

The plugin will allocate a new message tag for the message and, if messageTag is not NULL, store it in the address pointed to by messageTag. See [EMBER\\_AF\\_RF4CE\\_MESSAGE\\_TAG\\_MASK](#) for more information about the message tags allocated by the plugin.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

## Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.15.3.20 EmberStatus emberAfRf4ceSendExtended ( *uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption txOptions, uint8\_t \* message, uint8\_t messageLength, uint8\_t \* messageTag* )**

Send a message to a pairing index specifying the transmission options as described in the RF4CE specifications.

The function is a convenience wrapper for ::emberRf4ceSend and ::ezspRf4ceSend. If the pairing index is ::EMBER\_RF4CE\_PAIRING\_TABLE\_BROADCAST\_INDEX, the plugin will broadcast the message. Otherwise, the plugin will send a unicast.

The plugin will allocate a new message tag for the message and, if messageTag is not NULL, store it in the address pointed to by messageTag. See [EMBER\\_AF\\_RF4CE\\_MESSAGE\\_TAG\\_MASK](#) for more information about the message tags allocated by the plugin.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

## Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.15.3.21 EmberStatus emberAfRf4ceGetDefaultTxOptions ( *uint8\_t pairingIndex, EmberRf4ceTxOption \* txOptions* )**

Get the default TX options for the pairing index.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

## Parameters

<i>pairingIndex</i>	The pairing index to check.
<i>txOptions</i>	A pointer to the ::EmberRf4ceTxOption to be populated.

## Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.15.3.22 EmberStatus emberAfRf4ceUnpair ( *uint8\_t pairingIndex* )**

Remove a pairing.

The function is a convenience wrapper for ::emberRf4ceUnpair and ::ezspRf4ceUnpair. When unpairing completes, the plugin will call UnpairComplete callback for each profile id.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **6.15.3.23 EmberStatus emberAfRf4ceStop ( void )**

Stop the RF4CE network operations.

The function is a convenience wrapper for ::emberRf4ceStop and ::ezspRf4ceStop.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **6.15.3.24 uint8\_t emberAfRf4ceGetMaxPayload ( uint8\_t pairingIndex, EmberRf4ceTxOption txOptions )**

Returns the maximum RF4CE network layer payload.

The function is a convenience wrapper for ::emberRf4ceGetMaxPayload and ::ezspRf4ceGetMaxPayload.

Note that this function automatically switches to the RF4CE network index before calling any stack APIs and switches back to the previous network index when it is finished. Therefore, it is not necessary to push and pop the RF4CE network index before and after calling this function.

#### Returns

The maximum allowed length in bytes of the RF4CE network layer payload according to the passed pairing index and TX options.

#### **6.15.3.25 uint8\_t emberAfRf4ceDeviceTypeListLength ( EmberRf4ceApplicationCapabilities capabilities )**

Get the length of the device type list from the application capabilities bitmask.

Implemented as a macro for efficiency.

#### Returns

The length of the device type list.

#### **6.15.3.26 uint8\_t emberAfRf4ceProfileIdListLength ( EmberRf4ceApplicationCapabilities capabilities )**

Get the length of the profile id list from the application capabilities bitmask.

Implemented as a macro for efficiency.

**Returns**

The length of the profile id list.

**6.15.3.27 uint16\_t emberAfRf4ceVendorId ( void )**

Get the vendor id of the local application.

Implemented as a macro for efficiency.

**Returns**

The vendor id.

**6.15.3.28 bool emberAfRf4ceIsDeviceTypeSupported ( const EmberRf4ceApplicationInfo \* appInfo, EmberAfRf4ceDeviceType deviceType )**

Determine if the application implements a particular device type.

If the device type is [EMBER\\_AF\\_RF4CE\\_DEVICE\\_TYPE\\_WILDCARD](#), this function always returns true.

**Returns**

true if the application implements the device type or false otherwise.

**6.15.3.29 bool emberAfRf4ceIsDeviceTypeSupportedLocally ( EmberAfRf4ceDeviceType deviceType )**

Determine if the local application implements a particular device type.

If the device type is [EMBER\\_AF\\_RF4CE\\_DEVICE\\_TYPE\\_WILDCARD](#), this function always returns true.

Implemented as a macro for efficiency.

**Returns**

true if the application implements the device type or false otherwise.

**6.15.3.30 bool emberAfRf4ceIsProfileSupported ( const EmberRf4ceApplicationInfo \* appInfo, EmberAfRf4ceProfileId profileId )**

Determine if the application implements a particular profile.

**Returns**

true if the application implements the profile or false otherwise.

### **6.15.3.31 bool emberAfRf4celsProfileSupportedLocally ( EmberAfRf4ceProfileId *profileId* )**

Determine if the local application implements a particular profile.

Implemented as a macro for efficiency.

#### **Returns**

true if the application implements the profile or false otherwise.

### **6.15.3.32 bool emberAfRf4cePairingTableEntryIsUnused ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the pairing table entry is unused.

Implemented as a macro for efficiency.

#### **Returns**

true if the pairing table entry is unused or false otherwise.

### **6.15.3.33 bool emberAfRf4cePairingTableEntryIsProvisional ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the pairing table entry is provisional.

Implemented as a macro for efficiency.

#### **Returns**

true if the pairing table entry is provisional or false otherwise.

### **6.15.3.34 bool emberAfRf4cePairingTableEntryIsActive ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the pairing table entry is active.

Implemented as a macro for efficiency.

#### **Returns**

true if the pairing table entry is active or false otherwise.

### **6.15.3.35 bool emberAfRf4cePairingTableEntryHasLinkKey ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the pairing table entry has a link key.

Implemented as a macro for efficiency.

#### **Returns**

true if the pairing table entry has a link key or false otherwise.

**6.15.3.36 bool emberAfRf4cePairingTableEntryIsPairingInitiator ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the local node was the pairing initiator for the pairing table entry.

Implemented as a macro for efficiency.

**Returns**

true if the local node was the pairing initiator for the pairing table entry or false otherwise.

**6.15.3.37 bool emberAfRf4cePairingTableEntryHasSecurity ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the pairing table entry is security capable.

Implemented as a macro for efficiency.

**Returns**

true if the pairing table entry is security capable or false otherwise.

**6.15.3.38 bool emberAfRf4cePairingTableEntryHasChannelNormalization ( const EmberRf4cePairingTableEntry \* *pairingTableEntry* )**

Determine if the pairing table entry supports channel normalization.

Implemented as a macro for efficiency.

**Returns**

true if the pairing table entry supports channel normalization or false otherwise.

## 6.16 ZigBee Remote Control 1.1 Profile

### Functions

- `EmberStatus emberAfRf4ceZrc11Discovery (EmberPanId panId, EmberNodeId nodeId, EmberAfRf4ceDeviceType searchDevType)`
- `EmberStatus emberAfRf4ceZrc11EnableAutoDiscoveryResponse (void)`
- `EmberStatus emberAfRf4ceZrc11UserControlPress (uint8_t pairingIndex, EmberAfRf4ceUserControlCode rcCommandCode, const uint8_t *rcCommandPayload, uint8_t rcCommandPayloadLength, bool atomic)`
- `EmberStatus emberAfRf4ceZrc11UserControlRelease (uint8_t pairingIndex, EmberAfRf4ceUserControlCode rcCommandCode)`
- `EmberStatus emberAfRf4ceZrc11CommandDiscoveryRequest (uint8_t pairingIndex)`
- `uint8_t *emberAfRf4ceZrcCommandsSupportedContents (EmberAfRf4ceZrcCommandsSupported *commandsSupported)`

### 6.16.1 Detailed Description

The ZigBee Remote Control 1.1 (ZRC1.1) plugin implements the ZRC1.1 profile. The profile describes a simple discovery and pairing procedure for joining devices and a simple user control procedure for controlling devices via HDMI-CEC UI commands. The plugin manages these procedures for both originators and recipients. Note that this plugin implements version 1.1 of the ZRC profile. Version 1.1 devices are fully interoperable with version 1.0 devices. (ZRC1.0 was also known as the Consumer Electronics Remote Control (CERC) profile.) As required by the specification, this plugin sends ZRC1.1-formatted messages and receives both ZRC1.0- and ZRC1.1- formatted messages.

This plugin supports originators and recipients. Originators send user control messages to recipients after pairing with them. Originators are most typically controllers but may also be targets. Recipients must be targets. Both originators and recipients must start general network operations before beginning ZRC-specific operations. Network operations should be started by calling `emberAfRf4ceStart` in the [RF4CE Profile Support](#) plugin.

Once network operations have started, ZRC1.1 originators can initiate the discovery and pairing procedure by calling `emberAfRf4ceZrc11Discovery` with the appropriate discovery parameters. The plugin will first perform discovery for matching targets in range. If exactly one target is identified, the plugin will then continue to the pairing procedure. At the conclusion of the discovery and pairing procedure, the plugin will call `emberAfPluginRf4ceZrc11PairingCompleteCallback` to indicate whether pairing completed successfully with a target and, if so, which pairing index has been assigned to that target.

Recipients can initiate the discovery and pairing procedure by calling `emberAfRf4ceZrc11EnableAutoDiscoveryResponse`. This will put the node into auto discovery mode for a fixed duration of time. During this time, the stack will automatically respond to discovery requests from originators that match the configuration of this device. If an originator discovers this device, the plugin will then wait for a pair request from the same originator. When the process completes, the plugin will call `emberAfPluginRf4ceZrc11PairingCompleteCallback` to indicate whether pairing completed successfully with an originator and, if so, which pairing index has been assigned to that originator.

Following a successful discovery and pairing, originators may send user control messages to targets by calling `emberAfRf4ceZrc11UserControlPress`. In response, the plugin will transmit a user control press message to the indicated target with the HDMI-CEC command code and payload. If the press is atomic, the plugin performs no additional processing. Otherwise, the plugin will repeatedly transmit user control repeat messages at fixed intervals until `emberAfRf4ceZrc11UserControlRelease` is called. The interval at which user control repeat messages are transmitted is configurable in the plugin options.

For targets, the plugin will keep track of incoming user control messages. Each time a user control press command is received, the plugin will call `emberAfPluginRf4ceZrc11UserControlCallback` with its HDMI-CEC command code and payload. The plugin will then wait for a fixed duration for a corresponding user control repeat or release messages. If a user control repeat message is received within the timeout, the plugin will reset its timer and wait for the next message. If a user control repeat message is not received within the timeout or if a user control release is received, the plugin will call `emberAfPluginRf4ceZrc11UserControlCallback` with an indication that the user control has stopped. The timeout for receiving repeat messages is configurable in the plugin options. Note that the plugin will not call `emberAfPluginRf4ceZrc11UserControlCallback` for repeat messages that follow a press message.

The plugin is capable of keeping track of a fixed number of simultaneous incoming and outgoing user control messages. The limits are configurable in the plugin options.

Originators and recipients may each perform command discovery to determine which user control codes are supported by the paired node. This is done by calling `emberAfRf4ceZrc11CommandDiscoveryRequest`. Once command discovery completes, the plugin calls `emberAfPluginRf4ceZrc11CommandDiscoveryResponseCallback` with the results. If this node receives a command discovery request, it will automatically respond with the list of HDMI-CEC command codes that the device supports. The supported command codes are configurable in AppBuilder.

This plugin manages the state of the receiver by calling `emberAfRf4ceRxEnable` using `EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_1_1` as the profile id. If the application also wishes to manage the receiver, it should do so using `EMBER_AF_RF4CE_PROFILE_WILDCARD` as the profile id or by calling `emberAfRf4ceSetPowerSavingParameters`.

This plugin utilizes the discovery, pairing, sending and receiving, and power-saving functionality provided by the [RF4CE Profile Support](#) plugin.

## 6.16.2 Function Documentation

### 6.16.2.1 EmberStatus emberAfRf4ceZrc11Discovery ( EmberPanId *panId*, EmberNodeId *nodeId*, EmberAfRf4ceDeviceType *searchDevType* )

Initiate the pairing procedure for an originator.

The plugin begins the pairing procedure by searching for a potential target with which to pair. If exactly one target is found, the plugin will attempt to pair with it. If no targets or more than one target is found, the pairing will fail, as required by the ZRC1.x specification. The plugin will call `emberAfPluginRf4ceZrc11PairingCompleteCallback` with the results of the pairing procedure.

#### Parameters

<i>panId</i>	The pan id to search or <code>::EMBER_RF4CE_BROADCAST_PAN_ID</code> .
<i>nodeId</i>	The node id for which to search or <code>::EMBER_RF4CE_BROADCAST_ADDRESS</code> .
<i>searchDevType</i>	The device type for which to search or <code>EMBER_AF_RF4CE_DEVICE_TYPE_WILDCARD</code> .

#### Returns

An `EmberStatus` value that indicates the success or failure of the command.

### 6.16.2.2 EmberStatus emberAfRf4ceZrc11EnableAutoDiscoveryResponse ( void )

Initiate the pairing procedure for a recipient.

The plugin performs the binding procedure by enabling auto discovery mode. The plugin will call [emberAfPluginRf4ceZrc11PairingCompleteCallback](#) with the results of the pairing. This function may only be called on a target device.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.16.2.3 EmberStatus emberAfRf4ceZrc11UserControlPress ( *uint8\_t pairingIndex, EmberAfRf4ceUserControlCode rcCommandCode, const uint8\_t \* rcCommandPayload, uint8\_t rcCommandPayloadLength, bool atomic* )**

Send indications of user control presses and repeats to a pairing index.

This function can be called when a user control has been pressed and an indication of this should be sent to a target. If the user control should be repeated, the plugin will automatically send user control repeat messages at fixed intervals according to the plugin configuration. Every call to this function for a repeatable user control should be followed by a call to [emberAfRf4ceZrc11UserControlRelease](#).

#### Parameters

<i>pairingIndex</i>	The pairing index to which to send user control messages.
<i>rcCommand-Code</i>	The RC command code of the user control.
<i>rcCommand-Payload</i>	The optional RC command payload of the user control.
<i>rcCommand-PayloadLength</i>	The length of the optional RC command payload of the user control.
<i>atomic</i>	true if the user control is atomic or false if it should repeat.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

**6.16.2.4 EmberStatus emberAfRf4ceZrc11UserControlRelease ( *uint8\_t pairingIndex, EmberAfRf4ceUserControlCode rcCommandCode* )**

Send indications of user control release to a pairing index.

This function can be called when a user control has been released and an indication of this should be sent to a remote node.

#### Parameters

<i>pairingIndex</i>	The pairing index to which to send user control messages.
<i>rcCommand-Code</i>	The RC command code of the user control.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 6.16.2.5 EmberStatus emberAfRf4ceZrc11CommandDiscoveryRequest ( `uint8_t pairingIndex` )

Send a command discovery request to a pairing index.

This function can be called to discover which commands are supported by a remote node. The plugin will call `emberAfPluginRf4ceZrc11CommandDiscoveryResponseCallback` when the response is received.

#### Parameters

<code>pairingIndex</code>	The pairing index to which to the request.
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#### Returns

An `EmberStatus` value that indicates the success or failure of the command.

### 6.16.2.6 `uint8_t* emberAfRf4ceZrcCommandsSupportedContents ( EmberAfRf4ceZrcCommands-Supported * commandsSupported )`

Accesses the actual command discovery data of the `EmberAfRf4ceZrcCommandsSupported` structure.

#### Parameters

<code>tag</code>	A pointer to an <code>EmberAfRf4ceZrcCommandsSupported</code> structure.
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#### Returns

Returns a pointer to the first byte of the command discovery value.

## 6.17 ZigBee Remote Control 2.0 Profile

### Macros

- #define ACTION\_MAPPING\_CLIENT
- #define ACTION\_MAPPING\_SERVER
- #define SET\_DEFAULT(entry)

### Functions

- EmberStatus emberAfRf4ceZrc20Bind (EmberAfRf4ceDeviceType searchDevType)
- EmberStatus emberAfRf4ceZrc20ProxyBind (EmberPanId panId, EmberEUI64 ieeeAddr)
- EmberStatus emberAfRf4ceZrc20ActionStart (uint8\_t pairingIndex, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcModifierBit actionModifier, uint16\_t actionVendorId, const uint8\_t \*actionData, uint8\_t actionDataLength, bool atomic)
- EmberStatus emberAfRf4ceZrc20ActionStop (uint8\_t pairingIndex, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcModifierBit actionModifier, uint16\_t actionVendorId)
- EmberStatus emberAfRf4ceZrc20LegacyCommandDiscovery (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceZrc20StartActionMappingsNegotiation (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceZrc20StartHomeAutomationSupportedAnnouncement (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceZrc20PullHomeAutomationAttribute (uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t haInstanceId, uint8\_t haAttributeId)
- uint8\_t \*emberAfRf4ceZrcCommandsSupportedContents (EmberAfRf4ceZrcCommandsSupported \*commandsSupported)
- bool emberAfRf4ceZrc20ActionMappingEntryHasRfDescriptor (const EmberAfRf4ceZrcActionMapping \*entry)
- bool emberAfRf4ceZrc20ActionMappingEntryHasIrDescriptor (const EmberAfRf4ceZrcActionMapping \*entry)
- bool emberAfRf4ceZrc20ActionMappingEntryHasIrVendorId (const EmberAfRf4ceZrcActionMapping \*entry)

#### 6.17.1 Detailed Description

The ZigBee Remote Control 2.0 (ZRC2.0) plugin implements the ZRC2.0 profile. Compared to versions 1.0 and 1.1 of the profile, ZRC2.0 describes a more complex discovery, pairing, configuration, and validation procedure for binding devices and a more robust mechanism for controlling devices via action commands. The ZRC2.0 profile is based on the Generic Device Profile (GDP). In conjunction with the [Generic Device Profile](#) plugin, this plugin manages these procedures for both originators and recipients. Note that this plugin implements version 2.0 of the ZRC profile. Version 2.0 devices are fully interoperable with version 1.0 and 1.1 devices. (ZRC1.0 was also known as the Consumer Electronics Remote Control (CERC) profile.) As required by the specification, this plugin sends ZRC1.1-formatted messages to ZRC1.x devices and ZRC2.0-formatted messages to ZRC2.0 devices. It receives ZRC1.0-, ZRC1.1-, and ZRC2.0-formatted messages.

This plugin supports originators and recipients. Originators send action messages to recipients after binding with them. Originators are most typically controllers but may also be targets. Recipients must be targets. Both originators and recipients must start general network operations before beginning ZRC-specific operations. Network operations should be started by calling [emberAfRf4ceStart](#) in the [RF4CE Profile Support](#) plugin.

Once network operations have started, ZRC2.0 originators can initiate the binding procedure by calling [emberAfRf4ceZrc20Bind](#) with the requested search device type. This causes the GDP plugin to perform discovery for matching targets in range. Potential targets are ranked according to an algorithm described in the GDP specification. If one or more potential targets are identified, the GDP plugin will attempt to pair with the highest-ranked target. Once the temporary pairing is established, both the GDP and ZRC profiles will perform their respective configuration procedures. Finally, the validation procedure begins. Validation is implementation specific, but may be as simple as a button press on the target or a more involved challenge-response mechanism between target and originator. Only if validation is successful are the originator and recipient considered bound. If any step fails, the GDP plugin will restart the binding procedure using the target that has the next-highest rank. At the conclusion of the binding procedure, the GDP plugin will call [emberAfPluginRf4ceGdpBindingCompleteCallback](#) to indicate whether binding completed successfully with a target and, if so, which pairing index has been assigned to that target.

The GDP plugin and this plugin will manage discovery, pairing, and configuration for recipients on behalf of the device. If configuration completes successfully, the GDP plugin will call [emberAfPluginRf4ceGdpStartValidationCallback](#) so that the device can begin the implementation-specific validation procedure. Once the application determines the validation status of the originator, it should call [emberAfRf4ceGdpSetValidationStatus](#). Alternatively, the recipient may call [emberAfRf4ceGdpPushButton](#) to set the push-button stimulus flag. Once set, the GDP plugin will automatically validate binding attempts. Push-button mode lasts for a fixed duration as described in the GDP specification and may be initiated at any time before or during binding, including during the validation procedure.

Following a successful binding, action originators may send action messages to action recipients by calling [emberAfRf4ceZrc20ActionStart](#). In response, the plugin will transmit a start or atomic message to the indicated target with specific action parameters. If the action is atomic, the plugin performs no additional processing. Otherwise, the plugin will repeatedly transmit repeat messages at fixed intervals until [emberAfRf4ceZrc20ActionStop](#) is called. The interval at which repeat messages are transmitted is configurable in the plugin options.

For action recipients, the plugin will keep track of incoming action messages. Each time a start or atomic command is received, the plugin will call [emberAfPluginRf4ceZrc20ActionCallback](#) with its information. For non-atomic actions, the plugin will then wait for a fixed duration for a corresponding repeat action. If a repeat action is received within the timeout, the plugin will reset its timer and wait for the next message. If a repeat message is not received within the timeout, the plugin will call [emberAfPluginRf4ceZrc20ActionCallback](#) with an indication that the action has stopped. The timeout for receiving repeat messages is configurable in the plugin options. Note that the plugin will not call [emberAfPluginRf4ceZrc20ActionCallback](#) for repeat messages that follow a start message.

The plugin is capable of keeping track of a fixed number of simultaneous incoming and outgoing actions. The limits are configurable in the plugin options.

This plugin manages the state of the receiver by calling [emberAfRf4ceRxEnable](#) using [EMBER\\_AF\\_RF4CE\\_PROFILE\\_REMOTE\\_CONTROL\\_2\\_0](#) as the profile id. If the application also wishes to manage the receiver, it should do so using [EMBER\\_AF\\_RF4CE\\_PROFILE\\_WILDCARD](#) as the profile id or by calling [emberAfRf4ceSetPowerSavingParameters](#).

This plugin utilizes the discovery, pairing, sending and receiving, and power-saving functionality provided by the [RF4CE Profile Support](#) plugin. It also utilizes the binding functionality provided by the [Generic Device Profile](#) plugin. Support for the optional Action Mapping feature in ZRC2.0 is provided by the [ZigBee Remote Control 2.0 Action Mapping Client](#) and [ZigBee Remote Control 2.0 Action Mapping Server](#) plugins. Support for the optional Home Automation (HA) interoperability feature is provided by the [ZigBee Remote Control 2.0 Home Automation Client](#) and [ZigBee Remote Control 2.0 Home Automation Server](#) plugins.

### 6.17.2 Macro Definition Documentation

### 6.17.2.1 #define ACTION\_MAPPING\_CLIENT

Definition at line 117 of file [rf4ce-zrc20.h](#).

### 6.17.2.2 #define ACTION\_MAPPING\_SERVER

Definition at line 118 of file [rf4ce-zrc20.h](#).

### 6.17.2.3 #define SET\_DEFAULT( entry )

Definition at line 343 of file [rf4ce-zrc20.h](#).

## 6.17.3 Function Documentation

6.17.3.1 EmberStatus `emberAfRf4ceZrc20Bind ( EmberAfRf4ceDeviceType searchDevType )`

6.17.3.2 EmberStatus `emberAfRf4ceZrc20ProxyBind ( EmberPanId panId, EmberEUI64 ieeeAddr )`

6.17.3.3 EmberStatus `emberAfRf4ceZrc20ActionStart ( uint8_t pairingIndex, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcModifierBit actionModifier, uint16_t actionVendorId, const uint8_t * actionData, uint8_t actionDataLength, bool atomic )`

Adds the passed action record to the internal list of outstanding action records. If the passed action record is already in the internal record list, the action type for the matching record is set back to 'start' and a new actions command is sent out right away. This API ensures that the passed record fits in the next outgoing actions command.

### Parameters

<code>pairingIndex</code>	The index of the pairing the passed action record is destined to.
<code>actionBank</code>	The action bank field of the action record.
<code>actionCode</code>	The action code field of the action record.
<code>actionModifier</code>	The modifier bits of the action record.
<code>actionVendorId</code>	The vendor ID to be included in the action record. A value of ::EMBER_RF4CE_NUL_Vendor_ID won't be included in the over-the-air action record.
<code>actionData</code>	A pointer to the actionData field of the action record. Notice that this memory area is not copied, therefore it should refer some global memory area. A NULL pointer causes this field to not be included in the over-the-air action record.
<code>actionDataLength</code>	The length in bytes of the actionData field.

### Returns

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if there is a free entry in the table of outstanding action records and the passed action record fits in the next outgoing actions command for the passed pairing index. Otherwise it returns an [EmberStatus](#) value of [EMBER\\_INVALID\\_CALL](#).

#### 6.17.3.4 EmberStatus emberAfRf4ceZrc20ActionStop ( *uint8\_t pairingIndex*, *EmberAfRf4ceZrcActionBank actionBank*, *EmberAfRf4ceZrcActionCode actionCode*, *EmberAfRf4ceZrcModifierBit actionModifier*, *uint16\_t actionVendorId* )

Removes the passed action record from the internal list of outstanding action records.

##### Parameters

<i>pairingIndex</i>	The index of the pairing the passed action record is destined to.
<i>actionBank</i>	The action bank field of the action record to be removed.
<i>actionCode</i>	The action code field of the action record to be removed.
<i>actionModifier</i>	The modifier bits of the action record to be removed.

##### Returns

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if the passed action record was successfully found and removed from the table of outstanding action records. Otherwise it returns an [EmberStatus](#) value of [EMBER\\_INVALID\\_CALL](#).

#### 6.17.3.5 EmberStatus emberAfRf4ceZrc20LegacyCommandDiscovery ( *uint8\_t pairingIndex* )

Initiates the legacy ZRC 1.1 command discovery process. If this API returns a successful status, the corresponding `emberAfRf4ceZrc20LegacyCommandDiscoveryComplete()` callback will be called upon receiving the discovery response command from the peer node or upon timeout.

##### Parameters

<i>pairingIndex</i>	The index of the destination pairing.
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##### Returns

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if a ZRC 1.1 Discovery Request command was sent to the pairing corresponding to the passed pairing index. An [EmberStatus](#) value of [EMBER\\_INVALID\\_CALL](#) if the destination pairing supports ZRC 2.0 or does not support ZRC 1.1. Otherwise it returns an [EmberStatus](#) value indicating the TX failure reason.

#### 6.17.3.6 EmberStatus emberAfRf4ceZrc20StartActionMappingsNegotiation ( *uint8\_t pairingIndex* )

Initiates the action mapping negotiation procedure at the action mapping client with the action mapping server.

##### Parameters

<i>pairingIndex</i>	The index of the action mapping server pairing.
---------------------	---

##### Returns

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if the action mapping negotiation procedure is successfully initiated. Otherwise it returns an [EmberStatus](#) value of [EMBER\\_INVALID\\_CALL](#).

### 6.17.3.7 EmberStatus emberAfRf4ceZrc20StartHomeAutomationSupportedAnnouncement ( uint8\_t pairingIndex )

Initiates the Home Automation supported announcement procedure at the Home Automation originator with the Home Automation recipient.

#### Parameters

<i>pairingIndex</i>	The index of the Home Automation recipient pairing.
---------------------	---

#### Returns

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if the Home Automation supported announcement procedure is successfully initiated. Otherwise it returns an [EmberStatus](#) value of [EMBER\\_INVALID\\_COMMAND\\_CODE](#).

### 6.17.3.8 EmberStatus emberAfRf4ceZrc20PullHomeAutomationAttribute ( uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t haInstanceId, uint8\_t haAttributelId )

Pulls a Home Automation attribute from the Home Automation recipient.

#### Parameters

<i>pairingIndex</i>	The index of the Home Automation recipient pairing.
<i>vendorId</i>	The vendor ID to be included in the Pull command. If a value of ::EMBER_RF4CE_NULL_VENDOR_ID is passed, no vendor ID will be included in the Pull command.
<i>haInstanceId</i>	The Home Automation instance ID.
<i>haAttributelId</i>	The Home Automation attribute ID.

#### Returns

An [EmberStatus](#) value of [EMBER\\_SUCCESS](#) if the Home Automation Pull command was successfully sent. If this is the case, the corresponding callback [::emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback\(\)](#) will fire. Otherwise it returns an [EmberStatus](#) indicating the reason of failure.

### 6.17.3.9 uint8\_t\* emberAfRf4ceZrcCommandsSupportedContents ( EmberAfRf4ceZrcCommandsSupported \* commandsSupported )

Accesses the actual command discovery data of the [EmberAfRf4ceZrcCommandsSupported](#) structure.

#### Parameters

<i>tag</i>	A pointer to an <a href="#">EmberAfRf4ceZrcCommandsSupported</a> structure.
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#### Returns

uint8\_t\* Returns a pointer to the first byte of the command discovery value.

**6.17.3.10 bool emberAfRf4ceZrc20ActionMappingEntryHasRfDescriptor ( const EmberAfRf4ceZrcActionMapping \* entry )**

Determine if the action mapping entry has an RF descriptor.

Implemented as a macro for efficiency.

**Returns**

true if the action mapping table entry has an RF descriptor or false otherwise.

**6.17.3.11 bool emberAfRf4ceZrc20ActionMappingEntryHasIrDescriptor ( const EmberAfRf4ceZrcActionMapping \* entry )**

Determine if the action mapping entry has an IR descriptor.

Implemented as a macro for efficiency.

**Returns**

true if the action mapping table entry has an IR descriptor or false otherwise.

**6.17.3.12 bool emberAfRf4ceZrc20ActionMappingEntryHasIrVendorId ( const EmberAfRf4ceZrcActionMapping \* entry )**

Determine if the action mapping entry has an IR vendor ID.

Implemented as a macro for efficiency.

**Returns**

true if the action mapping table entry has an IR vendor ID or false otherwise.

## 6.18 ZigBee Remote Control 2.0 Action Mapping Client

### Functions

- void [emberAfRf4ceZrc20ActionMappingClientClearAllActionMappings](#) (void)
- EmberStatus [emberAfRf4ceZrc20ActionMappingClientClearActionMappingsPerPairing](#) (uint8\_t pairingIndex)
- EmberStatus [emberAfRf4ceZrc20ActionMappingClientClearActionMapping](#) (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode)
- EmberStatus [emberAfRf4ceZrc20ActionMappingClientGetActionMapping](#) (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \*actionMapping)
- EmberStatus [emberAfRf4ceZrc20ActionMappingClientLookUpActionMapping](#) (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \*actionMapping)
- EmberStatus [emberAfRf4ceZrc20ActionMappingClientSetActionMapping](#) (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \*actionMapping)

#### 6.18.1 Detailed Description

The ZigBee Remote Control 2.0 (ZRC2.0) Action Mapping Client plugin implements the optional action mapping feature of the ZRC2.0 profile for clients. Action mapping provides a standard mechanism for remapping actions and is generally used to allow a remote to control legacy IR devices or to perform simultaneous IR and RF functions. This plugin manages the storage and retrieval of these mappings for action originators.

This plugin provides information to the [ZigBee Remote Control 2.0 Profile](#) plugin about which mappable actions this device supports. A mappable action is simply an action on the local device that may be remapped by the server to an IR code, some other RF action, or to some IR-RF combination. During binding, the mappable actions supported by this device are exchanged with the server. The server uses this information to set up the appropriate remappings. The mappable actions are configurable in AppBuilder.

When the server provides action mappings, either during the binding procedure or when the application manually queries the server for them, the [ZigBee Remote Control 2.0 Profile](#) plugin receives the mappings and passes them to this plugin via [emberAfPluginRf4ceZrc20IncomingActionMappingCallback](#). This plugin, in turn, will store the data in RAM. The amount of storage space dedicated to storing the mappings is configurable via the plugin options.

Prior to starting an action, the application should call [emberAfRf4ceZrc20ActionMappingClientGetActionMapping](#) to determine if the action has been remapped. If the action has been remapped and an IR code has been specified, the application should transmit it using application-specific means. If an RF mapping has been specified, the application should pass it to [emberAfRf4ceZrc20ActionStart](#) instead of the original action.

Action mappings are generally managed by the server, but the application is provided some control as well. Specific mappings can be manipulated by calling [emberAfRf4ceZrc20ActionMappingClientSetActionMapping](#). An action may be set to the default behavior by calling [emberAfRf4ceZrc20ActionMappingClientClearActionMapping](#). Resetting all actions to the defaults can be accomplished on a per-pairing basis by calling [emberAfRf4ceZrc20ActionMappingClientClearActionMappingsPerPairing](#) or for all pairings by calling [emberAfRf4ceZrc20ActionMappingClientClearAllActionMappings](#). It may be desirable to reset action mappings when the device unpairs from a specific server or is reset to factory new.

Support for the optional action mapping feature for servers is provided by the [ZigBee Remote Control 2.0 Action Mapping Server](#) plugin.

## 6.18.2 Function Documentation

### 6.18.2.1 void emberAfRf4ceZrc20ActionMappingClientClearAllActionMappings ( void )

Clear all action mappings on the client.

### 6.18.2.2 EmberStatus emberAfRf4ceZrc20ActionMappingClientClearActionMappingsPerPairing ( uint8\_t pairingIndex )

Clear action mappings per pairing on the client.

#### Parameters

<i>pairingIndex</i>	The pairing index the clear action mapping command should be sent to.
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#### Returns

An [EmberStatus](#) value indicating whether the clear action mappings per pairing command was successfully sent out or the reason of failure.

### 6.18.2.3 EmberStatus emberAfRf4ceZrc20ActionMappingClientClearActionMapping ( uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode )

Clear action mapping that belongs to a mappable action.

#### Parameters

<i>pairingIndex</i>	The pairing index the clear action mapping command should be sent to.
<i>actionDeviceType</i>	The action device type of the mappable action.
<i>actionBank</i>	The action bank of the mappable action.
<i>actionCode</i>	The action code of the mappable action.

#### Returns

An [EmberStatus](#) value indicating whether the clear action mapping command was successfully sent out or the reason of failure.

### 6.18.2.4 EmberStatus emberAfRf4ceZrc20ActionMappingClientGetActionMapping ( uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \* actionMapping )

Get action mapping corresponding to a mappable action.

**Parameters**

<i>pairingIndex</i>	The pairing index the get action mapping command should be sent to.
<i>actionDevice-Type</i>	The action device type of the mappable action.
<i>actionBank</i>	The action bank of the mappable action.
<i>actionCode</i>	The action code of the mappable action.
<i>actionMapping</i>	The action mapping structure describing the action mapping.

**Returns**

An [EmberStatus](#) value indicating whether the get action mapping command was successfully sent out or the reason of failure.

**6.18.2.5 EmberStatus emberAfRf4ceZrc20ActionMappingClientLookUpActionMapping ( *uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \* actionMapping* )**

Look up action mapping that belongs to a mappable action.

**Parameters**

<i>pairingIndex</i>	The pairing index the look up action mapping command should be sent to.
<i>actionDevice-Type</i>	The action device type of the mappable action.
<i>actionBank</i>	The action bank of the mappable action.
<i>actionCode</i>	The action code of the mappable action.
<i>actionMapping</i>	The action mapping structure describing the action mapping.

**Returns**

An [EmberStatus](#) value indicating whether the look up action mapping command was successfully sent out or the reason of failure.

**Deprecated** This function is deprecated and will be removed in a future release. Customers should use [emberAfRf4ceZrc20ActionMappingClientGetActionMapping](#) instead.

**6.18.2.6 EmberStatus emberAfRf4ceZrc20ActionMappingClientSetActionMapping ( *uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \* actionMapping* )**

Set action mapping corresponding to a mappable action.

**Parameters**

<i>pairingIndex</i>	The pairing index the set action mapping command should be sent to.
<i>actionDevice-Type</i>	The action device type of the mappable action.
<i>actionBank</i>	The action bank of the mappable action.
<i>actionCode</i>	The action code of the mappable action.
<i>actionMapping</i>	The action mapping structure describing the action mapping.

**Returns**

An [EmberStatus](#) value indicating whether the set action mapping command was successfully sent out or the reason of failure.

## 6.19 ZigBee Remote Control 2.0 Action Mapping Server

### Functions

- `EmberStatus emberAfRf4ceZrc20ActionMappingServerRemapAction (EmberAfRf4ceZrcMappableAction *mappableAction, EmberAfRf4ceZrcActionMapping *actionMapping)`
- `EmberStatus emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAction (EmberAfRf4ceZrcMappableAction *mappableAction)`
- `void emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAllActions (void)`
- `uint16_t emberAfRf4ceZrc20ActionMappingServerGetMappableActionCount (void)`

#### 6.19.1 Detailed Description

The ZigBee Remote Control 2.0 (ZRC2.0) Action Mapping Server plugin implements the optional action mapping feature of the ZRC2.0 profile for servers. Action mapping provides a standard mechanism for remapping actions and is generally used to allow a remote to control legacy IR devices or to perform simultaneous IR and RF functions. This plugin manages the storage and retrieval of these mappings for action recipients.

This plugin provides information to the [ZigBee Remote Control 2.0 Profile](#) plugin about action mappings for clients. An action mapping remaps an action on the client to an IR code, some other RF action, or to some IR-RF combination. During binding, the mappable actions supported by the client are exchanged with this device. The [ZigBee Remote Control 2.0 Profile](#) plugin receives the actions and passes them to this plugin via [emberAfPluginRf4ceZrc20IncomingMappableActionCallback](#). This plugin, in turn, will store the data in RAM. The amount of storage space dedicated to storing mappable actions and action mappings is configurable via the plugin options.

To create a mapping, the application should call [emberAfRf4ceZrc20ActionMappingServerRemapAction](#) with the action to remap and the new mapping. Once created, the mapping will apply to all clients for that particular action. Clients will be notified of action mappings during the binding procedure or if they manually query the server for them after binding. How the remappings are determined is application specific, but may involve an interactive menu that a user must navigate to identify the appropriate mappings. If a mapping no longer applies, perhaps because a connected peripheral such as a television has changed, the mapping may be removed and the action restored to its default by calling [emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAction](#). To reset all actions to the default, for example due to a reset to factory new, [emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAllActions](#) may be called.

Support for the optional action mapping feature for clients is provided by the [ZigBee Remote Control 2.0 Action Mapping Client](#) plugin.

#### 6.19.2 Function Documentation

##### 6.19.2.1 `EmberStatus emberAfRf4ceZrc20ActionMappingServerRemapAction (EmberAfRf4ceZrcMappableAction * mappableAction, EmberAfRf4ceZrcActionMapping * actionMapping )`

Remap mappable action on the server.

#### Parameters

<i>mappableAction</i>	The mappable action structure describing the mappable action to remap.
<i>actionMapping</i>	The action mapping structure describing the action mapping to be written into the action mapping table.

### Returns

An [EmberStatus](#) value indicating whether the remap action mapping command was successfully sent out or the reason of failure.

#### **6.19.2.2 EmberStatus emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAction ( EmberAfRf4ceZrcMappableAction \* *mappableAction* )**

Restore default action of the mappable action on the server.

#### Parameters

<i>mappableAction</i>	The mappable action structure describing the mappable action which action is restored to default.
-----------------------	---

### Returns

An [EmberStatus](#) value indicating whether the restore default action command was successfully sent out or the reason of failure.

#### **6.19.2.3 void emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAllActions ( void )**

Restore all actions to default on the server.

#### **6.19.2.4 uint16\_t emberAfRf4ceZrc20ActionMappingServerGetMappableActionCount ( void )**

Get the number of mappable actions on the server.

### Returns

Mappable Action count

## 6.20 ZigBee Remote Control 2.0 Home Automation Client

### Macros

- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene`(scene)
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene`(scene)
- #define `emberAfRf4ceZrcHaFillCommandPreviousDestinationGroup()`
- #define `emberAfRf4ceZrcHaFillCommandNextDestinationGroup()`

### Enumerations

- enum `EmberAfThermostatSetpointRaiseLowerMode` { EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_HEAT, EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_COOL, EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_BOOTH }

### Functions

- uint16\_t `emAfPluginRf4ceZrc20HaFillExternalBuffer` (PGM\_P format,...)
- `EmberStatus emberAfRf4ceZrcHaSend` (uint8\_t pairingIndex, uint8\_t haInstanceId)

### Scenes Commands

- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene0()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene1()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene2()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene3()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene4()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene5()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene6()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene7()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene8()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene9()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene10()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene11()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene12()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene13()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene14()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene15()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene0()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene1()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene2()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene3()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene4()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene5()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene6()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene7()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene8()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene9()`

- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene10()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene11()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene12()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene13()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene14()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene15()`

## On/off Commands

- #define `emberAfRf4ceZrcHaFillCommandOnOffClusterOff()`
- #define `emberAfRf4ceZrcHaFillCommandOnOffClusterOn()`
- #define `emberAfRf4ceZrcHaFillCommandOnOffClusterToggle()`

## Level Control Commands

- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevel(level,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMove(moveMode,rate)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStep(stepMode,stepSize,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStop()`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevelWithOnOff(level,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveWithOnOff(moveMode, rate)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStepWithOnOff(stepMode,stepSize,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStopWithOnOff()`

## Door Lock Commands

- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterLockDoor(pinRfidCode)`
- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockDoor(pinRfidCode)`
- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterToggle(pinRfidCode)`
- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockWithTimeout(timeoutInSeconds,pinRfidCode)`

## Window Covering Commands

- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterUpOpen()`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterDownClose()`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterStop()`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftValue(liftValue)`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftPercentage(percentageLiftValue)`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltValue(tiltValue)`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltPercentage(percentageTiltValue)`

## Thermostat Commands

- #define `emberAfRf4ceZrcHaFillCommandThermostatClusterSetpointRaiseLower(mode,amount)`

## Color Control Commands

- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHue`(hue,direction,transition-Time)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveHue`(moveMode,rate)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterStepHue`(stepMode,stepSize,transition-Time)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToSaturation`(saturation,transition-Time)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveSaturation`(moveMode, rate)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterStepSaturation`(stepMode,stepSize,transition-Time)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHueAndSaturation`(hue,saturation,transition-Time)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColor`(colorX,colorY,transition-Time)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveColor`(rateX,rateY)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterStepColor`(stepX,stepY,transitionTime)
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColorTemperature`(colorTemperature, transitionTime)

## IAS ACE Commands

- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterArm`(armMode)
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterBypass`(numberOfZones,zoneIds,zoneIds-Len)
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterEmergency`()
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterFire`()
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterPanic`()

### 6.20.1 Detailed Description

The ZigBee Remote Control 2.0 (ZRC2.0) Home Automation (HA) Client plugin implements the optional HA interoperability feature of the ZRC2.0 profile for HA action originators. HA interoperability allows RF4CE devices to control HA devices operating on a ZigBee PRO network within the same premises.

HA action originators are most typically controllers but may also be targets. HA action recipients must be targets. HA originators transmit HA commands to an HA recipient over the RF4CE network as ZR-C2.0 actions. The recipient then translates these actions to ZigBee Cluster Library (ZCL) messages and retransmits them to the appropriate HA device on the PRO network. The originator directs all actions to abstract HA instances. Each HA action recipient is responsible for mapping HA instances to actual physical devices.

After binding with an HA action recipient, the originator can construct an HA command by calling one of the `emberAfZrcHaFill` APIs. The message can then be sent to the recipient by calling `emberAfRf4ce-ZrcHaSend`. For example, the application can toggle the light bulb identified as HA instance 0 on its first pairing by calling `emberAfRf4ceZrcHaFillCommandOnOffClusterToggle` followed by `::emberAfRf4ce-ZrcHaSend(0, EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_0)`.

This plugin also provides information to the [ZigBee Remote Control 2.0 Profile](#) plugin about which HA attributes this device is interested in. During binding, this information is exchanged with the HA action recipient. The recipient will use this information to send notifications when those attributes change on the HA network. The supported attributes are configurable in AppBuilder.

This plugin utilizes the action functionality provided by the [ZigBee Remote Control 2.0 Profile](#) plugin. Support for the optional HA action recipient feature is provided by the [ZigBee Remote Control 2.0 Home Automation Server](#) plugin.

## 6.20.2 Macro Definition Documentation

### 6.20.2.1 `#define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene( scene )`

Definition at line [53](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.2 `#define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene( scene )`

Definition at line [57](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.3 `#define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene0( )`

Store local scene 0.

Cluster: Scenes, Provides an interface for storing local scene 0. Command: StoreLocalScene0

Definition at line [87](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.4 `#define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene1( )`

Store local scene 1.

Cluster: Scenes, Provides an interface for storing local scene 1. Command: StoreLocalScene1

Definition at line [96](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.5 `#define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene2( )`

Store local scene 2.

Cluster: Scenes, Provides an interface for storing local scene 2. Command: StoreLocalScene2

Definition at line [105](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.6 `#define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene3( )`

Store local scene 3.

Cluster: Scenes, Provides an interface for storing local scene 3. Command: StoreLocalScene3

Definition at line [114](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.7 `#define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene4( )`

Store local scene 4.

Cluster: Scenes, Provides an interface for storing local scene 4. Command: StoreLocalScene4

Definition at line [123](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.8 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene5( )**

Store local scene 5.

Cluster: Scenes, Provides an interface for storing local scene 5. Command: StoreLocalScene5

Definition at line 132 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.9 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene6( )**

Store local scene 6.

Cluster: Scenes, Provides an interface for storing local scene 6. Command: StoreLocalScene6

Definition at line 141 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.10 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene7( )**

Store local scene 7.

Cluster: Scenes, Provides an interface for storing local scene 7. Command: StoreLocalScene7

Definition at line 150 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.11 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene8( )**

Store local scene 8.

Cluster: Scenes, Provides an interface for storing local scene 8. Command: StoreLocalScene8

Definition at line 159 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.12 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene9( )**

Store local scene 9.

Cluster: Scenes, Provides an interface for storing local scene 9. Command: StoreLocalScene9

Definition at line 168 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.13 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene10( )**

Store local scene 10.

Cluster: Scenes, Provides an interface for storing local scene 10. Command: StoreLocalScene10

Definition at line 177 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.14 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene11( )**

Store local scene 11.

Cluster: Scenes, Provides an interface for storing local scene 11. Command: StoreLocalScene11

Definition at line 186 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.15 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene12( )**

Store local scene 12.

Cluster: Scenes, Provides an interface for storing local scene 12. Command: StoreLocalScene12  
Definition at line 195 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.16 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene13( )**

Store local scene 13.

Cluster: Scenes, Provides an interface for storing local scene 13. Command: StoreLocalScene13  
Definition at line 204 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.17 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene14( )**

Store local scene 14.

Cluster: Scenes, Provides an interface for storing local scene 14. Command: StoreLocalScene14  
Definition at line 213 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.18 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene15( )**

Store local scene 15.

Cluster: Scenes, Provides an interface for storing local scene 15. Command: StoreLocalScene15  
Definition at line 222 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.19 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene0( )**

Recall local scene 0.

Cluster: Scenes, Provides an interface for recalling local scene 0. Command: RecallLocalScene0  
Definition at line 231 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.20 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene1( )**

Recall local scene 1.

Cluster: Scenes, Provides an interface for recalling local scene 1. Command: RecallLocalScene1  
Definition at line 240 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.21 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene2( )**

Recall local scene 2.

Cluster: Scenes, Provides an interface for recalling local scene 2. Command: RecallLocalScene2  
Definition at line 249 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.22 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene3( )**

Recall local scene 3.

Cluster: Scenes, Provides an interface for recalling local scene 3. Command: RecallLocalScene3

Definition at line [258](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.23 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene4( )**

Recall local scene 4.

Cluster: Scenes, Provides an interface for recalling local scene 4. Command: RecallLocalScene4

Definition at line [267](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.24 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene5( )**

Recall local scene 5.

Cluster: Scenes, Provides an interface for recalling local scene 5. Command: RecallLocalScene5

Definition at line [276](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.25 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene6( )**

Recall local scene 6.

Cluster: Scenes, Provides an interface for recalling local scene 6. Command: RecallLocalScene6

Definition at line [285](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.26 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene7( )**

Recall local scene 7.

Cluster: Scenes, Provides an interface for recalling local scene 7. Command: RecallLocalScene7

Definition at line [294](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.27 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene8( )**

Recall local scene 8.

Cluster: Scenes, Provides an interface for recalling local scene 8. Command: RecallLocalScene8

Definition at line [303](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.28 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene9( )**

Recall local scene 9.

Cluster: Scenes, Provides an interface for recalling local scene 9. Command: RecallLocalScene9

Definition at line [312](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.29 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene10( )**

Recall local scene 10.

Cluster: Scenes, Provides an interface for recalling local scene 10. Command: RecallLocalScene10

Definition at line [321](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.30 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene11( )**

Recall local scene 11.

Cluster: Scenes, Provides an interface for recalling local scene 11. Command: RecallLocalScene11

Definition at line [330](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.31 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene12( )**

Recall local scene 12.

Cluster: Scenes, Provides an interface for recalling local scene 12. Command: RecallLocalScene12

Definition at line [339](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.32 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene13( )**

Recall local scene 13.

Cluster: Scenes, Provides an interface for recalling local scene 13. Command: RecallLocalScene13

Definition at line [348](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.33 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene14( )**

Recall local scene 14.

Cluster: Scenes, Provides an interface for recalling local scene 14. Command: RecallLocalScene14

Definition at line [357](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.34 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene15( )**

Recall local scene 15.

Cluster: Scenes, Provides an interface for recalling local scene 15. Command: RecallLocalScene15

Definition at line [366](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.35 #define emberAfRf4ceZrcHaFillCommandOnOffClusterOff( )**

Command description for Off.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: Off

Definition at line [378](#) of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.36 #define emberAfRf4ceZrcHaFillCommandOnOffClusterOn( )

Command description for On.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: On

Definition at line 388 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.37 #define emberAfRf4ceZrcHaFillCommandOnOffClusterToggle( )

Command description for Toggle.

Cluster: On/off, Attributes and commands for switching devices between 'On' and 'Off' states. Command: Toggle

Definition at line 398 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.38 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevel( *level*, *transitionTime* )

Command description for Move To Level.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: MoveToLevel

#### Parameters

<i>level</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 413 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.39 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMove( *moveMode*, *rate* )

Command description for Move.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Move

#### Parameters

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line 428 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.40 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStep( *stepMode*, *stepSize*, *transitionTime* )

Command description for Step.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Step

**Parameters**

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 444 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.41 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStop( )**

Command description for Stop.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Stop

Definition at line 459 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.42 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevelWithOnOff( *level*, *transitionTime* )**

Command description for Move To Level With On/Off.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Move To Level With On/Off

**Parameters**

<i>level</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 471 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.43 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveWithOnOff( *moveMode*, *rate* )**

Command description for Move With On/Off.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Move With On/Off

**Parameters**

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line 486 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.44 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStepWithOnOff( *stepMode*, *stepSize*, *transitionTime* )**

Command description for Step With On/Off.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Step With On/Off

**Parameters**

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 502 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.45 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStopWithOnOff( )**

Command description for Stop With On/Off.

Cluster: Level Control, Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.' Command: Stop With On/Off

Definition at line 517 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.46 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterLockDoor( pinRfidCode )**

Locks the door.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: LockDoor

**Parameters**

<i>pinRfidCode</i>	uint8_t*
--------------------	----------

Definition at line 531 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.47 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockDoor( pinRfidCode )**

Unlocks the door.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: UnlockDoor

**Parameters**

<i>pinRfidCode</i>	uint8_t*
--------------------	----------

Definition at line 543 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.48 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterToggle( pinRfidCode )**

Toggles the door lock from its current state to the opposite state locked or unlocked.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: Toggle

**Parameters**

<i>pinRfidCode</i>	uint8_t*
--------------------	----------

Definition at line 555 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.49 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockWithTimeout( timeoutInSeconds, pinRfidCode )**

Unlock the door with a timeout. When the timeout expires, the door will automatically re-lock.

Cluster: Door Lock, Provides an interface into a generic way to secure a door. Command: UnlockWithTimeout

#### Parameters

<i>timeoutIn-Seconds</i>	uint16_t
<i>pinRfidCode</i>	uint8_t*

Definition at line [568](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.50 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterUpOpen( )**

Moves window covering to InstalledOpenLimit - Lift and InstalledOpenLimit - Tilt.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringUpOpen

Definition at line [584](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.51 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterDownClose( )**

Moves window covering to InstalledClosedLimit - Lift and InstalledCloseLimit - Tilt.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringDownClose

Definition at line [594](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.52 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterStop( )**

Stop any adjusting of window covering.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringStop

Definition at line [604](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.53 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftValue( liftValue )**

Goto lift value specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToLiftValue

#### Parameters

<i>liftValue</i>	uint16_t
------------------	----------

Definition at line [615](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.54 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftPercentage( percentageLiftValue )**

Goto lift percentage specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToLiftPercentage

**Parameters**

<i>percentageLift-Value</i>	uint8_t
-----------------------------	---------

Definition at line [627](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.55 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltValue( tiltValue )**

Goto tilt value specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToTiltValue

**Parameters**

<i>tiltValue</i>	uint16_t
------------------	----------

Definition at line [639](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.56 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltPercentage( percentageTiltValue )**

Goto tilt percentage specified.

Cluster: Window Covering, Provides an interface for controlling and adjusting automatic window coverings. Command: WindowCoveringGoToTiltPercentage

**Parameters**

<i>percentageTilt-Value</i>	uint8_t
-----------------------------	---------

Definition at line [651](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.57 #define emberAfRf4ceZrcHaFillCommandThermostatClusterSetpointRaiseLower( mode, amount )**

Command description for SetpointRaiseLower.

Cluster: Thermostat, An interface for configuring and controlling the functionality of a thermostat. Command: SetpointRaiseLower

**Parameters**

<i>mode</i>	uint8_t
<i>amount</i>	int8_t

Definition at line 667 of file [rf4ce-zrc20-ha-client.h](#).

#### 6.20.2.58 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHue( *hue*, *direction*, *transitionTime* )

Move to specified hue.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToHue

##### Parameters

<i>hue</i>	uint8_t
<i>direction</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 686 of file [rf4ce-zrc20-ha-client.h](#).

#### 6.20.2.59 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveHue( *moveMode*, *rate* )

Move hue up or down at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveHue

##### Parameters

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line 703 of file [rf4ce-zrc20-ha-client.h](#).

#### 6.20.2.60 #define emberAfRf4ceZrcHaFillCommandColorControlClusterStepHue( *stepMode*, *stepSize*, *transitionTime* )

Step hue up or down by specified size at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepHue

##### Parameters

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint8_t

Definition at line 719 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.61 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToSaturation( *saturation*, *transitionTime* )**

Move to specified saturation.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToSaturation

#### Parameters

<i>saturation</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line [736](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.62 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveSaturation( *moveMode*, *rate* )**

Move saturation up or down at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveSaturation

#### Parameters

<i>moveMode</i>	uint8_t
<i>rate</i>	uint8_t

Definition at line [751](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.63 #define emberAfRf4ceZrcHaFillCommandColorControlClusterStepSaturation( *stepMode*, *stepSize*, *transitionTime* )**

Step saturation up or down by specified size at specified rate.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepSaturation

#### Parameters

<i>stepMode</i>	uint8_t
<i>stepSize</i>	uint8_t
<i>transitionTime</i>	uint8_t

Definition at line [767](#) of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.64 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHueAndSaturation( *hue*, *saturation*, *transitionTime* )**

Move to hue and saturation.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToHueAndSaturation

**Parameters**

<i>hue</i>	uint8_t
<i>saturation</i>	uint8_t
<i>transitionTime</i>	uint16_t

Definition at line 785 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.65 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColor( *colorX*, *colorY*, *transitionTime* )

Move to specified color.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToColor

**Parameters**

<i>colorX</i>	uint16_t
<i>colorY</i>	uint16_t
<i>transitionTime</i>	uint16_t

Definition at line 803 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.66 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveColor( *rateX*, *rateY* )

Moves the color.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveColor

**Parameters**

<i>rateX</i>	int16_t
<i>rateY</i>	int16_t

Definition at line 820 of file [rf4ce-zrc20-ha-client.h](#).

### 6.20.2.67 #define emberAfRf4ceZrcHaFillCommandColorControlClusterStepColor( *stepX*, *stepY*, *transitionTime* )

Steps the lighting to a specific color.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: StepColor

**Parameters**

<i>stepX</i>	int16_t
<i>stepY</i>	int16_t
<i>transitionTime</i>	uint16_t

Definition at line 836 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.68 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColorTemperature( colorTemperature, transitionTime )**

Moves the lighting to a specific color temperature.

Cluster: Color Control, Attributes and commands for controlling the color properties of a color-capable light. Command: MoveToColorTemperature

#### Parameters

<i>colorTemperature</i>	uint16_t
<i>transitionTime</i>	uint16_t

Definition at line 853 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.69 #define emberAfRf4ceZrcHaFillCommandIASACEClusterArm( armMode )**

Command description for Arm.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Arm

#### Parameters

<i>armMode</i>	uint8_t
----------------	---------

Definition at line 870 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.70 #define emberAfRf4ceZrcHaFillCommandIASACEClusterBypass( numberOfZones, zoneIds, zoneIdsLen )**

Command description for Bypass.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Bypass

#### Parameters

<i>numberOfZones</i>	uint8_t
<i>zoneIds</i>	uint8_t*
<i>zoneIdsLen</i>	uint16_t

Definition at line 884 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.71 #define emberAfRf4ceZrcHaFillCommandIASACEClusterEmergency( )**

Command description for Emergency.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Emergency

Definition at line 899 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.72 #define emberAfRf4ceZrcHaFillCommandIASACEClusterFire( )**

Command description for Fire.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Fire  
Definition at line 909 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.73 #define emberAfRf4ceZrcHaFillCommandIASACEClusterPanic( )**

Command description for Panic.

Cluster: IAS ACE, Attributes and commands for IAS Ancillary Control Equipment. Command: Panic  
Definition at line 919 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.74 #define emberAfRf4ceZrcHaFillCommandPreviousDestinationGroup( )**

Previous destination group.

Command: PreviousDestinationGroup

Definition at line 929 of file [rf4ce-zrc20-ha-client.h](#).

**6.20.2.75 #define emberAfRf4ceZrcHaFillCommandNextDestinationGroup( )**

Next destination group.

Command: NextDestinationGroup

Definition at line 938 of file [rf4ce-zrc20-ha-client.h](#).

## 6.20.3 Enumeration Type Documentation

**6.20.3.1 enum EmberAfThermostatSetpointRaiseLowerMode**

Enumerator:

*EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_HEAT*  
*EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_COOL*  
*EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_BOTH*

Definition at line 44 of file [rf4ce-zrc20-ha-client.h](#).

## 6.20.4 Function Documentation

**6.20.4.1 uint16\_t emAfPluginRf4ceZrc20HaFillExternalBuffer ( PGM\_P *format*, ... )****6.20.4.2 EmberStatus emberAfRf4ceZrcHaSend ( uint8\_t *pairingIndex*, uint8\_t *halInstanceld* )**

Send HA command to the server.

**Parameters**

<i>pairingIndex</i>	The pairing index the send HA command should be sent to.
<i>haInstanceId</i>	The HA instance ID the send HA command should be sent to.

**Returns**

An [EmberStatus](#) value indicating whether the send HA command was successfully sent out or the reason of failure.

## 6.21 ZigBee Remote Control 2.0 Home Automation Server

### Data Structures

- struct DestStruct
- struct HaAttributesInfo

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_ZCL\_BUFFER\_SIZE
- #define ZRC\_HA\_SERVER\_NUM\_OF\_HA\_INSTANCES
- #define ZRC\_ACTION\_ID\_HIGH\_NIBBLE\_MASK
- #define ZRC\_ACTION\_ID\_LOW\_NIBBLE\_MASK
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE0\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE1\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE2\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE3\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE4\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE5\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE6\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE7\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE8\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE9\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE10\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE11\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE12\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE13\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE14\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE15\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE\_SIZE
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID0\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID1\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID2\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID3\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID4\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID5\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID6\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID7\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID8\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID9\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID10\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID11\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID12\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID13\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID14\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID15\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID\_ID\_SIZE
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID\_SIZE
- #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_ID

- #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_ID\_SIZE
- #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_SIZE
- #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_ID
- #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_ID\_SIZE
- #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_ID
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_ID\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_ID
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_ID\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_ID
- #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_ID\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_ID
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_ID\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_ID
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_ID\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_SIZE
- #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_ID
- #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_ID\_SIZE

- #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_SIZE
- #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_ID
- #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_SIZE
- #define ZRC\_HA\_ATTRIBUTE\_STATUS\_TABLE\_SIZE
- #define ZRC\_HA\_ATTRIBUTE\_TABLE\_SIZE
- #define HA\_ATTRIBUTE\_STATUS\_LENGTH
- #define HA\_ATTRIBUTE\_STATUS\_CHANGED\_FLAG

## Functions

- void emberAfPluginRf4ceZrc20HaServerClearAllHaAttributes (void)
- EmberAfRf4ceGdpAttributeStatus emberAfPluginRf4ceZrc20HaServerGetHaAttribute (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributeId, EmberAfRf4ceZrcHomeAutomationAttribute \*haAttribute)
- EmberAfRf4ceGdpAttributeStatus emberAfPluginRf4ceZrc20HaServerSetHaAttribute (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributeId, EmberAfRf4ceZrcHomeAutomationAttribute \*haAttribute)
- EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceAdd (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t destIndex)
- EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceRemove (uint8\_t destIndex)
- EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceGet (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t \*destIndex)
- EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationAdd (DestStruct \*dest, uint8\_t \*index)
- EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationRemove (DestStruct \*dest, uint8\_t \*index)
- uint8\_t emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationTableSize (void)
- EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationGet (uint8\_t pairingIndex, uint8\_t haInstanceId, DestStruct \*dest)
- EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceIndexLookUp (DestStruct \*dest, uint8\_t \*index)
- void emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingClear (void)
- EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingAdd (uint8\_t pairingIndex, uint8\_t haInstanceId, DestStruct \*dest)
- EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingRemove (DestStruct \*dest)
- EmberStatus emAfRf4ceZrc20ParseHaActionAndForwardToZclNetwork (const EmberAfRf4ceZrcActionRecord \*record)
- void emAfRf4ceZrc20ClearLogicalDevicesTable (void)
- void emAfRf4ceZrc20ClearInstanceToLogicalDeviceTable (void)
- EmberStatus emAfRf4ceZrc20AddLogicalDeviceDestination (DestStruct \*dest, uint8\_t \*index)
- EmberStatus emAfRf4ceZrc20RemoveLogicalDeviceDestination (uint8\_t destIndex)
- uint8\_t GetLogicalDeviceDestination (uint8\_t i, DestStruct \*dest)
- void DestLookup (uint8\_t pairingIndex, uint8\_t haInstanceId, DestStruct \*dest)

## Variables

- `EmberOutgoingMessageType DestStruct::type`
- `uint16_t DestStruct::indexOrDestination`
- `uint8_t DestStruct::sourceEndpoint`
- `uint8_t DestStruct::destinationEndpoint`
- `uint8_t HaAttributesInfo::id`
- `uint8_t HaAttributesInfo::length`

### 6.21.1 Detailed Description

The ZigBee Remote Control 2.0 (ZRC2.0) Home Automation (HA) Server plugin implements the optional HA interoperability feature of the ZRC2.0 profile for HA action recipients. HA interoperability allows RF4CE devices to control HA devices operating on a ZigBee PRO network within the same premises.

HA action originators are most typically controllers but may also be targets. HA action recipients must be targets. HA originators transmit HA commands to an HA recipient over the RF4CE network as ZRC2.0 actions. The recipient then translates these actions to ZigBee Cluster Library (ZCL) messages and retransmits them to the appropriate HA device on the PRO network. The originator directs all actions to abstract HA instances. Each HA action recipient is responsible for mapping HA instances to actual physical devices.

Users will want to take note of the callback `emberAfPluginZrc20HaServerHaActionSentCallback` (see [Application Framework Callback Interface](#) for more information regarding callbacks). This callback conveys to the application that the HA server has sent an HA action to a ZCL network.

Furthermore, customers can use this plugin to manage an application's store of HA Attributes and Logical Device information. There are functions to interface with the database of these items, as well as definitions of constants for an application to use.

This plugin utilizes the action functionality provided by the [ZigBee Remote Control 2.0 Profile](#) plugin. Support for the optional HA action originator feature is provided by the [ZigBee Remote Control 2.0 Home Automation Client](#) plugin.

### 6.21.2 Macro Definition Documentation

#### 6.21.2.1 `#define EMBER_AF_PLUGIN_RF4CE_ZRC20_HA_SERVER_ZCL_BUFFER_SIZE`

Definition at line [43](#) of file `rf4ce-zrc20-ha-server.h`.

#### 6.21.2.2 `#define ZRC_HA_SERVER_NUM_OF_HA_INSTANCES`

Definition at line [45](#) of file `rf4ce-zrc20-ha-server.h`.

#### 6.21.2.3 `#define ZRC_ACTION_ID_HIGH_NIBBLE_MASK`

Definition at line [47](#) of file `rf4ce-zrc20-ha-server.h`.

#### 6.21.2.4 `#define ZRC_ACTION_ID_LOW_NIBBLE_MASK`

Definition at line [48](#) of file `rf4ce-zrc20-ha-server.h`.

**6.21.2.5 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE0\_ID**

Definition at line 53 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.6 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE1\_ID**

Definition at line 54 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.7 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE2\_ID**

Definition at line 55 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.8 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE3\_ID**

Definition at line 56 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.9 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE4\_ID**

Definition at line 57 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.10 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE5\_ID**

Definition at line 58 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.11 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE6\_ID**

Definition at line 59 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.12 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE7\_ID**

Definition at line 60 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.13 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE8\_ID**

Definition at line 61 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.14 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE9\_ID**

Definition at line 62 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.15 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE10\_ID**

Definition at line 63 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.16 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE11\_ID**

Definition at line 64 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.17 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE12\_ID**

Definition at line 65 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.18 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE13\_ID**

Definition at line 66 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.19 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE14\_ID**

Definition at line 67 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.20 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE15\_ID**

Definition at line 68 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.21 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE\_ID\_SIZE**

Definition at line 69 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.22 #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE\_SIZE**

Definition at line 70 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.23 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID0\_ID**

Definition at line 71 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.24 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID1\_ID**

Definition at line 72 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.25 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID2\_ID**

Definition at line 73 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.26 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID3\_ID**

Definition at line 74 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.27 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID4\_ID**

Definition at line 75 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.28 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID5\_ID**

Definition at line 76 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.29 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID6\_ID**

Definition at line 77 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.30 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID7\_ID**

Definition at line 78 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.31 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID8\_ID**

Definition at line 79 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.32 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID9\_ID**

Definition at line 80 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.33 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID10\_ID**

Definition at line 81 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.34 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID11\_ID**

Definition at line 82 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.35 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID12\_ID**

Definition at line 83 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.36 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID13\_ID**

Definition at line 84 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.37 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID14\_ID**

Definition at line 85 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.38 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID15\_ID**

Definition at line 86 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.39 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID\_ID\_SIZE**

Definition at line 87 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.40 #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID\_SIZE**

Definition at line 88 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.41 #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_ID**

Definition at line 89 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.42 #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_ID\_SIZE**

Definition at line 90 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.43 #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_SIZE**

Definition at line 91 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.44 #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_ID**

Definition at line 92 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.45 #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_ID\_SIZE**

Definition at line 93 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.46 #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_SIZE**

Definition at line 94 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.47 #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_ID**

Definition at line 95 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.48 #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_ID\_SIZE**

Definition at line 96 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.49 #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_SIZE**

Definition at line 97 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.50 #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_ID**

Definition at line 98 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.51 #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_ID\_SIZE**

Definition at line 99 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.52 #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_SIZE**

Definition at line 100 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.53 #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_ID**

Definition at line 101 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.54 #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_ID\_SIZE**

Definition at line 102 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.55 #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_SIZE**

Definition at line 103 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.56 #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_ID**

Definition at line 104 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.57 #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_ID\_SIZE**

Definition at line 105 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.58 #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_SIZE**

Definition at line 106 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.59 #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_ID**

Definition at line 107 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.60 #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_ID\_SIZE

Definition at line 108 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.61 #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_SIZE

Definition at line 109 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.62 #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_ID

Definition at line 110 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.63 #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_ID\_SIZE

Definition at line 111 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.64 #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_SIZE

Definition at line 112 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.65 #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_ID

Definition at line 113 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.66 #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_ID\_SIZE

Definition at line 114 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.67 #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_SIZE

Definition at line 115 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.68 #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_ID

Definition at line 116 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.69 #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_ID\_SIZE

Definition at line 117 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.70 #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_SIZE

Definition at line 118 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.71 #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_ID

Definition at line 119 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.72 #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_ID\_SIZE

Definition at line 120 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.73 #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_SIZE

Definition at line 121 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.74 #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_ID

Definition at line 122 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.75 #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_ID\_SIZE

Definition at line 123 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.76 #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_SIZE

Definition at line 124 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.77 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_ID

Definition at line 125 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.78 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_ID\_SIZE

Definition at line 126 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.79 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_SIZE

Definition at line 127 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.80 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_ID

Definition at line 128 of file [rf4ce-zrc20-ha-server.h](#).

6.21.2.81 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_ID\_SIZE

Definition at line 129 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.82 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_SIZE**

Definition at line 130 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.83 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_ID**

Definition at line 131 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.84 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_ID\_SIZE**

Definition at line 132 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.85 #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_SIZE**

Definition at line 133 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.86 #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_ID**

Definition at line 134 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.87 #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_ID\_SIZE**

Definition at line 135 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.88 #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_SIZE**

Definition at line 136 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.89 #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_ID**

Definition at line 137 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.90 #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_ID\_SIZE**

Definition at line 138 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.91 #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_SIZE**

Definition at line 139 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.92 #define ZRC\_HA\_ATTRIBUTE\_STATUS\_TABLE\_SIZE**

Definition at line 141 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.93 #define ZRC\_HA\_ATTRIBUTE\_TABLE\_SIZE**

Definition at line 162 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.94 #define HA\_ATTRIBUTE\_STATUS\_LENGTH**

Definition at line 183 of file [rf4ce-zrc20-ha-server.h](#).

**6.21.2.95 #define HA\_ATTRIBUTE\_STATUS\_CHANGED\_FLAG**

Definition at line 188 of file [rf4ce-zrc20-ha-server.h](#).

### 6.21.3 Function Documentation

**6.21.3.1 void emberAfPluginRf4ceZrc20HaServerClearAllHaAttributes ( void )**

Clear all HA attributes on the server.

**6.21.3.2 EmberAfRf4ceGdpAttributeStatus emberAfPluginRf4ceZrc20HaServerGetHaAttribute ( uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributId, EmberAfRf4ceZrcHomeAutomationAttribute \* haAttribute )**

Get selected HA attribute on the server.

#### Parameters

<i>pairingIndex</i>	The pairing index the get HA attribute command should be sent to.
<i>haInstanceId</i>	The instance ID of the HA attribute to get.
<i>haAttributId</i>	The attribute ID of the HA attribute to get.
<i>haAttribute</i>	The HA attribute structure describing the HA attribute.

#### Returns

An [EmberAfRf4ceGdpAttributeStatus](#) value indicating whether the get HA attribute command was successfully sent out or the reason of failure.

**6.21.3.3 EmberAfRf4ceGdpAttributeStatus emberAfPluginRf4ceZrc20HaServerSetHaAttribute ( uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributId, EmberAfRf4ceZrcHomeAutomationAttribute \* haAttribute )**

Set selected HA attribute on the server.

#### Parameters

<i>pairingIndex</i>	The pairing index the set HA attribute command should be sent to.
<i>haInstanceId</i>	The instance ID of the HA attribute to set.
<i>haAttributId</i>	The attribute ID of the HA attribute to set.
<i>haAttribute</i>	The HA attribute structure describing the HA attribute.

### Returns

An [EmberAfRf4ceGdpAttributeStatus](#) value indicating whether the set HA attribute command was successfully sent out or the reason of failure.

#### 6.21.3.4 EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceAdd ( uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t destIndex )

Add mapping to HA logical device on the server.

### Parameters

<i>pairingIndex</i>	The pairing index to which the HA logical device is mapped.
<i>haInstanceId</i>	The instance ID to which the HA logical device is mapped.
<i>destIndex</i>	The index of the HA logical device in the logical devices table.

### Returns

An [EmberStatus](#) value indicating whether adding mapping to the HA logical device was successfully sent out or the reason of failure.

#### 6.21.3.5 EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceRemove ( uint8\_t destIndex )

Remove mapping to HA logical device on the server.

### Parameters

<i>destIndex</i>	The index of the HA logical device in the logical devices table.
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### Returns

An [EmberStatus](#) value indicating whether removing mapping to the HA logical device was successfully sent out or the reason of failure.

#### 6.21.3.6 EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceGet ( uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t \* destIndex )

Get mapping to HA logical device on the server.

### Parameters

<i>pairingIndex</i>	The pairing index to which the HA logical device is mapped.
<i>haInstanceId</i>	The instance ID to which the HA logical device is mapped.
<i>destIndex</i>	The index of the HA logical device in the logical devices table.

### Returns

An [EmberStatus](#) value indicating whether getting mapping to the HA logical device was successfully sent out or the reason of failure.

### 6.21.3.7 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationAdd ( DestStruct \* *dest*, uint8\_t \* *index* )

Add HA logical device to the logical devices table on the server.

#### Parameters

<i>dest</i>	The destination structure describing the logical device to add.
<i>index</i>	The index of the logical device table to which the HA logical device was added.

#### Returns

An [EmberStatus](#) value indicating whether adding logical device was successfully sent out or the reason of failure.

### 6.21.3.8 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationRemove ( DestStruct \* *dest*, uint8\_t \* *index* )

Remove HA logical device from the logical devices table on the server.

#### Parameters

<i>dest</i>	The destination structure describing the logical device to remove.
<i>index</i>	The index of the logical device table from which the HA logical device was removed.

#### Returns

An [EmberStatus](#) value indicating whether removing logical device was successfully sent out or the reason of failure.

### 6.21.3.9 uint8\_t emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationTableSize ( void )

Get the size of the HA logical devices table on the server.

#### Returns

Size of the HA logical devices table.

### 6.21.3.10 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationGet ( uint8\_t *pairingIndex*, uint8\_t *haInstanceId*, DestStruct \* *dest* )

Get the destination of the HA logical device on the server.

#### Parameters

<i>pairingIndex</i>	The pairing index to which the HA logical device is mapped.
<i>haInstanceId</i>	The instance ID to which the HA logical device is mapped.
<i>dest</i>	The destination structure describing the HA logical device to get.

### Returns

An [EmberStatus](#) value indicating whether getting HA logical device destination was successfully sent out or the reason of failure.

#### 6.21.3.11 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceIndexLookUp ( DestStruct \* *dest*, uint8\_t \* *index* )

Look up the index of the HA logical device on the server.

### Parameters

<i>dest</i>	The destination structure describing the HA logical device to look up.
<i>index</i>	The index of the HA logical device in the logical devices table.

### Returns

An [EmberStatus](#) value indicating whether looking up HA logical device destination was successfully sent out or the reason of failure.

#### 6.21.3.12 void emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceIdToLogicalDeviceMappingClear ( void )

Clear all HA logical devices and mappings to logical devices.

#### 6.21.3.13 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceIdToLogicalDeviceMappingAdd ( uint8\_t *pairingIndex*, uint8\_t *haInstanceId*, DestStruct \* *dest* )

Add HA logical device and map it to pairing index and HA instance ID.

### Parameters

<i>pairingIndex</i>	The pairing index to which the HA logical device will be mapped.
<i>haInstanceId</i>	The instance ID to which the HA logical device will be mapped.
<i>dest</i>	The destination structure describing the HA logical device to map.

### Returns

An [EmberStatus](#) value indicating whether mapping the HA logical device was successfully sent out or the reason of failure.

#### 6.21.3.14 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceIdToLogicalDeviceMappingRemove ( DestStruct \* *dest* )

Remove HA logical device and its mappings.

### Parameters

<i>dest</i>	The destination structure describing the HA logical device to remove.
-------------	---

## Returns

An `EmberStatus` value indicating whether removing the HA logical device was successfully sent out or the reason of failure.

- 6.21.3.15 `EmberStatus emAfRf4ceZrc20ParseHaActionAndForwardToZclNetwork ( const EmberAfRf4ceZrcActionRecord * record )`
- 6.21.3.16 `void emAfRf4ceZrc20ClearLogicalDevicesTable ( void )`
- 6.21.3.17 `void emAfRf4ceZrc20ClearInstanceToLogicalDeviceTable ( void )`
- 6.21.3.18 `EmberStatus emAfRf4ceZrc20AddLogicalDeviceDestination ( DestStruct * dest, uint8_t * index )`
- 6.21.3.19 `EmberStatus emAfRf4ceZrc20RemoveLogicalDeviceDestination ( uint8_t destIndex )`
- 6.21.3.20 `uint8_t GetLogicalDeviceDestination ( uint8_t i, DestStruct * dest )`
- 6.21.3.21 `void DestLookup ( uint8_t pairingIndex, uint8_t haInstanceId, DestStruct * dest )`

## 6.21.4 Variable Documentation

### 6.21.4.1 EmberOutgoingMessageType DestStruct::type

Definition at line 193 of file [rf4ce-zrc20-ha-server.h](#).

### 6.21.4.2 uint16\_t DestStruct::indexOrDestination

Definition at line 194 of file [rf4ce-zrc20-ha-server.h](#).

### 6.21.4.3 uint8\_t DestStruct::sourceEndpoint

Definition at line 195 of file [rf4ce-zrc20-ha-server.h](#).

### 6.21.4.4 uint8\_t DestStruct::destinationEndpoint

Definition at line 196 of file [rf4ce-zrc20-ha-server.h](#).

### 6.21.4.5 uint8\_t HaAttributesInfo::id

Definition at line 201 of file [rf4ce-zrc20-ha-server.h](#).

### 6.21.4.6 uint8\_t HaAttributesInfo::length

Definition at line 202 of file [rf4ce-zrc20-ha-server.h](#).

## 6.22 Ember NCP API Reference

### Modules

- Extensible Network Co-processor (xNCP)

#### 6.22.1 Detailed Description

The Ember Network Co-processor (NCP) application framework allows customers to build custom applications for a device acting as a network co-processor while communicating with a HOST over a serial interface. Currently, this application framework contains simple functionality so that users can build applications that send and receive custom Ember ZigBee Serial Protocol (EZSP) messages. The main functionality currently provided can be viewed here [Extensible Network Co-processor \(xNCP\)](#).

## 6.23 Extensible Network Co-processor (xNCP)

### Functions

- [EmberStatus emberAfPluginXncpSendCustomEzspMessage](#) (uint8\_t length, uint8\_t \*payload)

#### 6.23.1 Detailed Description

The XNCP functionality provides a way for an NCP application to send and receive custom EZSP frames to and from a HOST. This gives users the ability to develop their own serial protocols between a HOST and the NCP.

An NCP application can use the API [emberAfPluginXncpSendCustomEzspMessage](#) to send custom EZSP messages to the HOST. The message will be sent to the HOST in an asynchronous manner, but the application can use the [EmberStatus](#) return byte from the API to tell if their message was successfully scheduled.

An NCP application wishing to receive and handle custom EZSP frames from a HOST should make use of the callbacks provided by this module. The two most important callbacks to an NCP application will most likely be [emberAfPluginXncpGetXncpInformation](#) and [emberAfPluginXncpIncomingCustomFrameCallback](#). Users will want to implement the former of these two callbacks to declare the manufacturer ID and version of their NCP application. The second callback will need to be implemented in order for the NCP application to process custom EZSP frames coming from the HOST. Using this callback, the message can be processed and the response can be written. Upon return of this function, the custom response will be sent back to the HOST.

#### 6.23.2 Function Documentation

##### 6.23.2.1 EmberStatus emberAfPluginXncpSendCustomEzspMessage ( uint8\_t *length*, uint8\_t \* *payload* )

Send Custom EZSP Message.

This function will send a custom EZSP message payload of length to the HOST.

#### Parameters

<i>length</i>	The length of the custom EZSP message. Ver.: always
<i>payload</i>	The custom EZSP message itself. Ver.: always

#### Returns

An [EmberStatus](#) value describing the result of sending the custom EZSP frame to the HOST.

## 6.24 Status Codes

### Generic Messages

These messages are system wide.

- #define EMBER\_SUCCESS(x00)
- #define EMBER\_ERR\_FATAL(x01)
- #define EMBER\_BAD\_ARGUMENT(x02)
- #define EMBER\_NOT\_FOUND(x03)
- #define EMBER\_EEPROM\_MFG\_STACK\_VERSION\_MISMATCH(x04)
- #define EMBER\_INCOMPATIBLE\_STATIC\_MEMORY\_DEFINITIONS(x05)
- #define EMBER\_EEPROM\_MFG\_VERSION\_MISMATCH(x06)
- #define EMBER\_EEPROM\_STACK\_VERSION\_MISMATCH(x07)

### Packet Buffer Module Errors

- #define EMBER\_NO\_BUFFERS(x18)

### Serial Manager Errors

- #define EMBER\_SERIAL\_INVALID\_BAUD\_RATE(x20)
- #define EMBER\_SERIAL\_INVALID\_PORT(x21)
- #define EMBER\_SERIAL\_TX\_OVERFLOW(x22)
- #define EMBER\_SERIAL\_RX\_OVERFLOW(x23)
- #define EMBER\_SERIAL\_RX\_FRAME\_ERROR(x24)
- #define EMBER\_SERIAL\_RX\_PARITY\_ERROR(x25)
- #define EMBER\_SERIAL\_RX\_EMPTY(x26)
- #define EMBER\_SERIAL\_RX\_OVERRUN\_ERROR(x27)

### MAC Errors

- #define EMBER\_MAC\_TRANSMIT\_QUEUE\_FULL(x39)
- #define EMBER\_MAC\_UNKNOWN\_HEADER\_TYPE(x3A)
- #define EMBER\_MAC\_ACK\_HEADER\_TYPE(x3B)
- #define EMBER\_MAC\_SCANNING(x3D)
- #define EMBER\_MAC\_NO\_DATA(x31)
- #define EMBER\_MAC\_JOINED\_NETWORK(x32)
- #define EMBER\_MAC\_BAD\_SCAN\_DURATION(x33)
- #define EMBER\_MAC\_INCORRECT\_SCAN\_TYPE(x34)
- #define EMBER\_MAC\_INVALID\_CHANNEL\_MASK(x35)
- #define EMBER\_MAC\_COMMAND\_TRANSMIT\_FAILURE(x36)
- #define EMBER\_MAC\_NO\_ACK RECEIVED(x40)
- #define EMBER\_MAC\_RADIO\_NETWORK\_SWITCH\_FAILED(x41)
- #define EMBER\_MAC\_INDIRECT\_TIMEOUT(x42)

## Simulated EEPROM Errors

- #define EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_GREEN(x43)
- #define EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_RED(x44)
- #define EMBER\_SIM\_EEPROM\_FULL(x45)
- #define EMBER\_SIM\_EEPROM\_INIT\_1\_FAILED(x48)
- #define EMBER\_SIM\_EEPROM\_INIT\_2\_FAILED(x49)
- #define EMBER\_SIM\_EEPROM\_INIT\_3\_FAILED(x4A)
- #define EMBER\_SIM\_EEPROM\_REPAIRING(x4D)

## Flash Errors

- #define EMBER\_ERR\_FLASH\_WRITE\_INHIBITED(x46)
- #define EMBER\_ERR\_FLASH\_VERIFY FAILED(x47)
- #define EMBER\_ERR\_FLASH\_PROG\_FAIL(x4B)
- #define EMBER\_ERR\_FLASH\_ERASE\_FAIL(x4C)

## Bootloader Errors

- #define EMBER\_ERR\_BOOTLOADER\_TRAP\_TABLE\_BAD(x58)
- #define EMBER\_ERR\_BOOTLOADER\_TRAP\_UNKNOWN(x59)
- #define EMBER\_ERR\_BOOTLOADER\_NO\_IMAGE(x05A)

## Transport Errors

- #define EMBER\_DELIVERY FAILED(x66)
- #define EMBER\_BINDING\_INDEX\_OUT\_OF\_RANGE(x69)
- #define EMBER\_ADDRESS\_TABLE\_INDEX\_OUT\_OF\_RANGE(x6A)
- #define EMBER\_INVALID\_BINDING\_INDEX(x6C)
- #define EMBER\_INVALID\_CALL(x70)
- #define EMBER\_COST\_NOT\_KNOWN(x71)
- #define EMBER\_MAX\_MESSAGE\_LIMIT\_REACHED(x72)
- #define EMBER\_MESSAGE\_TOO\_LONG(x74)
- #define EMBER\_BINDING\_IS\_ACTIVE(x75)
- #define EMBER\_ADDRESS\_TABLE\_ENTRY\_IS\_ACTIVE(x76)

## Green Power status codes

- #define EMBER\_MATCH(x78)
- #define EMBER\_DROP\_FRAME(x79)
- #define EMBER\_PASS\_UNPROCESSED(x7A)
- #define EMBER\_TX\_THEN\_DROP(x7B)
- #define EMBER\_NO\_SECURITY(x7C)
- #define EMBER\_COUNTER\_FAILURE(x7D)
- #define EMBER\_AUTH\_FAILURE(x7E)
- #define EMBER\_UNPROCESSED(x7F)

## HAL Module Errors

- #define EMBER\_ADC\_CONVERSION\_DONE(x80)
- #define EMBER\_ADC\_CONVERSION\_BUSY(x81)
- #define EMBER\_ADC\_CONVERSION\_DEFERRED(x82)
- #define EMBER\_ADC\_NO\_CONVERSION\_PENDING(x84)
- #define EMBER\_SLEEP\_INTERRUPTED(x85)

## PHY Errors

- #define EMBER\_PHY\_TX\_UNDERFLOW(x88)
- #define EMBER\_PHY\_TX\_INCOMPLETE(x89)
- #define EMBER\_PHY\_INVALID\_CHANNEL(x8A)
- #define EMBER\_PHY\_INVALID\_POWER(x8B)
- #define EMBER\_PHY\_TX\_BUSY(x8C)
- #define EMBER\_PHY\_TX\_CCA\_FAIL(x8D)
- #define EMBER\_PHY\_OSCILLATOR\_CHECK\_FAILED(x8E)
- #define EMBER\_PHY\_ACK RECEIVED(x8F)

## Return Codes Passed to emberStackStatusHandler()

See also [emberStackStatusHandler\(\)](#).

- #define EMBER\_NETWORK\_UP(x90)
- #define EMBER\_NETWORK\_DOWN(x91)
- #define EMBER\_JOIN FAILED(x94)
- #define EMBER\_MOVE FAILED(x96)
- #define EMBER\_CANNOT JOIN AS ROUTER(x98)
- #define EMBER\_NODE\_ID\_CHANGED(x99)
- #define EMBER\_PAN\_ID\_CHANGED(x9A)
- #define EMBER\_CHANNEL\_CHANGED(x9B)
- #define EMBER\_NO\_BEACONS(xAB)
- #define EMBER RECEIVED KEY IN THE CLEAR(xAC)
- #define EMBER\_NO\_NETWORK\_KEY RECEIVED(xAD)
- #define EMBER\_NO\_LINK\_KEY RECEIVED(xAE)
- #define EMBER\_PRECONFIGURED\_KEY REQUIRED(xAF)

## Security Errors

- #define EMBER\_KEY\_INVALID(xB2)
- #define EMBER\_INVALID\_SECURITY\_LEVEL(x95)
- #define EMBER\_APS\_ENCRYPTION\_ERROR(xA6)
- #define EMBER\_TRUST\_CENTER\_MASTER\_KEY\_NOT\_SET(xA7)
- #define EMBER\_SECURITY\_STATE\_NOT\_SET(xA8)
- #define EMBER\_KEY\_TABLE\_INVALID\_ADDRESS(xB3)
- #define EMBER\_SECURITY\_CONFIGURATION\_INVALID(xB7)
- #define EMBER\_TOO\_SOON\_FOR\_SWITCH\_KEY(xB8)
- #define EMBER\_SIGNATURE\_VERIFY\_FAILURE(xB9)
- #define EMBER\_KEY\_NOTAUTHORIZED(xBB)
- #define EMBER\_SECURITY\_DATA\_INVALID(xBD)

## Miscellaneous Network Errors

- #define EMBER\_NOT\_JOINED(x93)
- #define EMBER\_NETWORK\_BUSY(xA1)
- #define EMBER\_INVALID\_ENDPOINT(xA3)
- #define EMBER\_BINDING\_HAS\_CHANGED(xA4)
- #define EMBER\_INSUFFICIENT\_RANDOM\_DATA(xA5)
- #define EMBER\_SOURCE\_ROUTE\_FAILURE(xA9)
- #define EMBER\_MANY\_TO\_ONE\_ROUTE\_FAILURE(xAA)

## Miscellaneous Utility Errors

- #define EMBER\_STACK\_AND\_HARDWARE\_MISMATCH(xB0)
- #define EMBER\_INDEX\_OUT\_OF\_RANGE(xB1)
- #define EMBER\_TABLE\_FULL(xB4)
- #define EMBER\_TABLE\_ENTRY\_ERASED(xB6)
- #define EMBER\_LIBRARY\_NOT\_PRESENT(xB5)
- #define EMBER\_OPERATION\_IN\_PROGRESS(xBA)
- #define EMBER\_TRUST\_CENTER\_EUI\_HAS\_CHANGED(xBC)

## ZigBee RF4CE specific errors.

- #define EMBER\_NO\_RESPONSE(xC0)
- #define EMBER\_DUPLICATE\_ENTRY(xC1)
- #define EMBER\_NOT\_PERMITTED(xC2)
- #define EMBER\_DISCOVERY\_TIMEOUT(xC3)
- #define EMBER\_DISCOVERY\_ERROR(xC4)
- #define EMBER\_SECURITY\_TIMEOUT(xC5)
- #define EMBER\_SECURITY\_FAILURE(xC6)

## Application Errors

These error codes are available for application use.

- #define EMBER\_APPLICATION\_ERROR\_0(xF0)
- #define EMBER\_APPLICATION\_ERROR\_1(xF1)
- #define EMBER\_APPLICATION\_ERROR\_2(xF2)
- #define EMBER\_APPLICATION\_ERROR\_3(xF3)
- #define EMBER\_APPLICATION\_ERROR\_4(xF4)
- #define EMBER\_APPLICATION\_ERROR\_5(xF5)
- #define EMBER\_APPLICATION\_ERROR\_6(xF6)
- #define EMBER\_APPLICATION\_ERROR\_7(xF7)
- #define EMBER\_APPLICATION\_ERROR\_8(xF8)
- #define EMBER\_APPLICATION\_ERROR\_9(xF9)
- #define EMBER\_APPLICATION\_ERROR\_10(xFA)
- #define EMBER\_APPLICATION\_ERROR\_11(xFB)
- #define EMBER\_APPLICATION\_ERROR\_12(xFC)
- #define EMBER\_APPLICATION\_ERROR\_13(xFD)
- #define EMBER\_APPLICATION\_ERROR\_14(xFE)
- #define EMBER\_APPLICATION\_ERROR\_15(xFF)

### 6.24.1 Detailed Description

Many EmberZNet API functions return an [EmberStatus](#) value to indicate the success or failure of the call. Return codes are one byte long. This page documents the possible status codes and their meanings.

See [error-def.h](#) for source code.

See also [error.h](#) for information on how the values for the return codes are built up from these definitions. The file [error-def.h](#) is separated from [error.h](#) because utilities will use this file to parse the return codes.

#### Note

Do not include [error-def.h](#) directly. It is included by [error.h](#) inside an enum typedef, which is in turn included by [ember.h](#).

### 6.24.2 Macro Definition Documentation

#### 6.24.2.1 #define EMBER\_SUCCESS( x00 )

The generic "no error" message.

Definition at line [43](#) of file [error-def.h](#).

#### 6.24.2.2 #define EMBER\_ERR\_FATAL( x01 )

The generic "fatal error" message.

Definition at line [53](#) of file [error-def.h](#).

#### 6.24.2.3 #define EMBER\_BAD\_ARGUMENT( x02 )

An invalid value was passed as an argument to a function.

Definition at line [63](#) of file [error-def.h](#).

#### 6.24.2.4 #define EMBER\_NOT\_FOUND( x03 )

The requested information was not found.

Definition at line [73](#) of file [error-def.h](#).

#### 6.24.2.5 #define EMBER\_EEPROM\_MFG\_STACK\_VERSION\_MISMATCH( x04 )

The manufacturing and stack token format in non-volatile memory is different than what the stack expects (returned at initialization).

Definition at line [84](#) of file [error-def.h](#).

#### 6.24.2.6 #define EMBER\_INCOMPATIBLE\_STATIC\_MEMORY\_DEFINITIONS( x05 )

The static memory definitions in [ember-static-memory.h](#) are incompatible with this stack version.

Definition at line [95](#) of file [error-def.h](#).

**6.24.2.7 #define EMBER\_EEPROM\_MFG\_VERSION\_MISMATCH( x06 )**

The manufacturing token format in non-volatile memory is different than what the stack expects (returned at initialization).

Definition at line 106 of file [error-def.h](#).

**6.24.2.8 #define EMBER\_EEPROM\_STACK\_VERSION\_MISMATCH( x07 )**

The stack token format in non-volatile memory is different than what the stack expects (returned at initialization).

Definition at line 117 of file [error-def.h](#).

**6.24.2.9 #define EMBER\_NO\_BUFFERS( x18 )**

There are no more buffers.

Definition at line 134 of file [error-def.h](#).

**6.24.2.10 #define EMBER\_SERIAL\_INVALID\_BAUD\_RATE( x20 )**

Specified an invalid baud rate.

Definition at line 150 of file [error-def.h](#).

**6.24.2.11 #define EMBER\_SERIAL\_INVALID\_PORT( x21 )**

Specified an invalid serial port.

Definition at line 160 of file [error-def.h](#).

**6.24.2.12 #define EMBER\_SERIAL\_TX\_OVERFLOW( x22 )**

Tried to send too much data.

Definition at line 170 of file [error-def.h](#).

**6.24.2.13 #define EMBER\_SERIAL\_RX\_OVERFLOW( x23 )**

There was not enough space to store a received character and the character was dropped.

Definition at line 181 of file [error-def.h](#).

**6.24.2.14 #define EMBER\_SERIAL\_RX\_FRAME\_ERROR( x24 )**

Detected a UART framing error.

Definition at line 191 of file [error-def.h](#).

**6.24.2.15 #define EMBER\_SERIAL\_RX\_PARITY\_ERROR( x25 )**

Detected a UART parity error.

Definition at line [201](#) of file [error-def.h](#).

**6.24.2.16 #define EMBER\_SERIAL\_RX\_EMPTY( x26 )**

There is no received data to process.

Definition at line [211](#) of file [error-def.h](#).

**6.24.2.17 #define EMBER\_SERIAL\_RX\_OVERRUN\_ERROR( x27 )**

The receive interrupt was not handled in time, and a character was dropped.

Definition at line [222](#) of file [error-def.h](#).

**6.24.2.18 #define EMBER\_MAC\_TRANSMIT\_QUEUE\_FULL( x39 )**

The MAC transmit queue is full.

Definition at line [238](#) of file [error-def.h](#).

**6.24.2.19 #define EMBER\_MAC\_UNKNOWN\_HEADER\_TYPE( x3A )**

MAC header FCF error on receive.

Definition at line [249](#) of file [error-def.h](#).

**6.24.2.20 #define EMBER\_MAC\_ACK\_HEADER\_TYPE( x3B )**

MAC ACK header received.

Definition at line [258](#) of file [error-def.h](#).

**6.24.2.21 #define EMBER\_MAC\_SCANNING( x3D )**

The MAC can't complete this task because it is scanning.

Definition at line [269](#) of file [error-def.h](#).

**6.24.2.22 #define EMBER\_MAC\_NO\_DATA( x31 )**

No pending data exists for device doing a data poll.

Definition at line [279](#) of file [error-def.h](#).

**6.24.2.23 #define EMBER\_MAC\_JOINED\_NETWORK( x32 )**

Attempt to scan when we are joined to a network.

Definition at line [289](#) of file [error-def.h](#).

**6.24.2.24 #define EMBER\_MAC\_BAD\_SCAN\_DURATION( x33 )**

Scan duration must be 0 to 14 inclusive. Attempt was made to scan with an incorrect duration value.

Definition at line 300 of file [error-def.h](#).

**6.24.2.25 #define EMBER\_MAC\_INCORRECT\_SCAN\_TYPE( x34 )**

emberStartScan was called with an incorrect scan type.

Definition at line 310 of file [error-def.h](#).

**6.24.2.26 #define EMBER\_MAC\_INVALID\_CHANNEL\_MASK( x35 )**

emberStartScan was called with an invalid channel mask.

Definition at line 320 of file [error-def.h](#).

**6.24.2.27 #define EMBER\_MAC\_COMMAND\_TRANSMIT\_FAILURE( x36 )**

Failed to scan current channel because we were unable to transmit the relevant MAC command.

Definition at line 331 of file [error-def.h](#).

**6.24.2.28 #define EMBER\_MAC\_NO\_ACK RECEIVED( x40 )**

We expected to receive an ACK following the transmission, but the MAC level ACK was never received.

Definition at line 342 of file [error-def.h](#).

**6.24.2.29 #define EMBER\_MAC\_RADIO\_NETWORK\_SWITCH\_FAILED( x41 )**

MAC failed to transmit a message because could not successfully perform a radio network switch.

Definition at line 353 of file [error-def.h](#).

**6.24.2.30 #define EMBER\_MAC INDIRECT\_TIMEOUT( x42 )**

Indirect data message timed out before polled.

Definition at line 363 of file [error-def.h](#).

**6.24.2.31 #define EMBER\_SIM EEPROM\_ERASE\_PAGE\_GREEN( x43 )**

The Simulated EEPROM is telling the application that there is at least one flash page to be erased. The GREEN status means the current page has not filled above the ::ERASE\_CRITICAL\_THRESHOLD.

The application should call the function ::halSimEepromErasePage() when it can to erase a page.

Definition at line 386 of file [error-def.h](#).

Referenced by [halSimEepromCallback\(\)](#).

**6.24.2.32 #define EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_RED( x44 )**

The Simulated EEPROM is telling the application that there is at least one flash page to be erased. The RED status means the current page has filled above the ::ERASE\_CRITICAL\_THRESHOLD.

Due to the shrinking availability of write space, there is a danger of data loss. The application must call the function ::halSimEepromErasePage() as soon as possible to erase a page.

Definition at line 402 of file [error-def.h](#).

Referenced by [halSimEepromCallback\(\)](#).

**6.24.2.33 #define EMBER\_SIM\_EEPROM\_FULL( x45 )**

The Simulated EEPROM has run out of room to write any new data and the data trying to be set has been lost. This error code is the result of ignoring the ::SIM\_EEPROM\_ERASE\_PAGE\_RED error code.

The application must call the function ::halSimEepromErasePage() to make room for any further calls to set a token.

Definition at line 417 of file [error-def.h](#).

Referenced by [halSimEepromCallback\(\)](#).

**6.24.2.34 #define EMBER\_SIM\_EEPROM\_INIT\_1\_FAILED( x48 )**

Attempt 1 to initialize the Simulated EEPROM has failed.

This failure means the information already stored in Flash (or a lack thereof), is fatally incompatible with the token information compiled into the code image being run.

Definition at line 435 of file [error-def.h](#).

**6.24.2.35 #define EMBER\_SIM\_EEPROM\_INIT\_2\_FAILED( x49 )**

Attempt 2 to initialize the Simulated EEPROM has failed.

This failure means Attempt 1 failed, and the token system failed to properly reload default tokens and reset the Simulated EEPROM.

Definition at line 448 of file [error-def.h](#).

**6.24.2.36 #define EMBER\_SIM\_EEPROM\_INIT\_3\_FAILED( x4A )**

Attempt 3 to initialize the Simulated EEPROM has failed.

This failure means one or both of the tokens ::TOKEN\_MFG\_NVDATA\_VERSION or ::TOKEN\_STACK\_NVDATA\_VERSION were incorrect and the token system failed to properly reload default tokens and reset the Simulated EEPROM.

Definition at line 462 of file [error-def.h](#).

**6.24.2.37 #define EMBER\_SIM\_EEPROM\_REPAIRING( x4D )**

The Simulated EEPROM is repairing itself.

While there's nothing for an app to do when the SimEE is going to repair itself (SimEE has to be fully functional for the rest of the system to work), alert the application to the fact that repairing is occurring. There are debugging scenarios where an app might want to know that repairing is happening; such as monitoring frequency.

#### **Note**

Common situations will trigger an expected repair, such as using an erased chip or changing token definitions.

Definition at line [480](#) of file [error-def.h](#).

Referenced by [halSimEepromCallback\(\)](#).

#### **6.24.2.38 #define EMBER\_ERR\_FLASH\_WRITE\_INHIBITED( x46 )**

A fatal error has occurred while trying to write data to the Flash. The target memory attempting to be programmed is already programmed. The flash write routines were asked to flip a bit from a 0 to 1, which is physically impossible and the write was therefore inhibited. The data in the flash cannot be trusted after this error.

Definition at line [501](#) of file [error-def.h](#).

Referenced by [halSimEepromCallback\(\)](#).

#### **6.24.2.39 #define EMBER\_ERR\_FLASH\_VERIFY\_FAILED( x47 )**

A fatal error has occurred while trying to write data to the Flash and the write verification has failed. The data in the flash cannot be trusted after this error, and it is possible this error is the result of exceeding the life cycles of the flash.

Definition at line [514](#) of file [error-def.h](#).

Referenced by [halSimEepromCallback\(\)](#).

#### **6.24.2.40 #define EMBER\_ERR\_FLASH\_PROG\_FAIL( x4B )**

##### **Description:**

A fatal error has occurred while trying to write data to the flash, possibly due to write protection or an invalid address. The data in the flash cannot be trusted after this error, and it is possible this error is the result of exceeding the life cycles of the flash.

Definition at line [527](#) of file [error-def.h](#).

#### **6.24.2.41 #define EMBER\_ERR\_FLASH\_ERASE\_FAIL( x4C )**

##### **Description:**

A fatal error has occurred while trying to erase flash, possibly due to write protection. The data in the flash cannot be trusted after this error, and it is possible this error is the result of exceeding the life cycles of the flash.

Definition at line [540](#) of file [error-def.h](#).

**6.24.2.42 #define EMBER\_ERR\_BOOTLOADER\_TRAP\_TABLE\_BAD( x58 )**

The bootloader received an invalid message (failed attempt to go into bootloader).

Definition at line [559](#) of file [error-def.h](#).

**6.24.2.43 #define EMBER\_ERR\_BOOTLOADER\_TRAP\_UNKNOWN( x59 )**

Bootloader received an invalid message (failed attempt to go into bootloader).

Definition at line [570](#) of file [error-def.h](#).

**6.24.2.44 #define EMBER\_ERR\_BOOTLOADER\_NO\_IMAGE( x05A )**

The bootloader cannot complete the bootload operation because either an image was not found or the image exceeded memory bounds.

Definition at line [581](#) of file [error-def.h](#).

**6.24.2.45 #define EMBER\_DELIVERY\_FAILED( x66 )**

The APS layer attempted to send or deliver a message, but it failed.

Definition at line [599](#) of file [error-def.h](#).

**6.24.2.46 #define EMBER\_BINDING\_INDEX\_OUT\_OF\_RANGE( x69 )**

This binding index is out of range for the current binding table.

Definition at line [609](#) of file [error-def.h](#).

**6.24.2.47 #define EMBER\_ADDRESS\_TABLE\_INDEX\_OUT\_OF\_RANGE( x6A )**

This address table index is out of range for the current address table.

Definition at line [620](#) of file [error-def.h](#).

**6.24.2.48 #define EMBER\_INVALID\_BINDING\_INDEX( x6C )**

An invalid binding table index was given to a function.

Definition at line [630](#) of file [error-def.h](#).

**6.24.2.49 #define EMBER\_INVALID\_CALL( x70 )**

The API call is not allowed given the current state of the stack.

Definition at line [641](#) of file [error-def.h](#).

Referenced by [emberAfPluginEzspZigbeeProSetConcentratorCommandCallback\(\)](#), and [emberSetOrGetEzspTokenCommandHandler\(\)](#).

**6.24.2.50 #define EMBER\_COST\_NOT\_KNOWN( x71 )**

The link cost to a node is not known.

Definition at line [651](#) of file `error-def.h`.

**6.24.2.51 #define EMBER\_MAX\_MESSAGE\_LIMIT\_REACHED( x72 )**

The maximum number of in-flight messages (i.e. ::EMBER\_APS\_UNICAST\_MESSAGE\_COUNT) has been reached.

Definition at line [662](#) of file `error-def.h`.

**6.24.2.52 #define EMBER\_MESSAGE\_TOO\_LONG( x74 )**

The message to be transmitted is too big to fit into a single over-the-air packet.

Definition at line [672](#) of file `error-def.h`.

**6.24.2.53 #define EMBER\_BINDING\_IS\_ACTIVE( x75 )**

The application is trying to delete or overwrite a binding that is in use.

Definition at line [683](#) of file `error-def.h`.

**6.24.2.54 #define EMBER\_ADDRESS\_TABLE\_ENTRY\_IS\_ACTIVE( x76 )**

The application is trying to overwrite an address table entry that is in use.

Definition at line [693](#) of file `error-def.h`.

**6.24.2.55 #define EMBER\_MATCH( x78 )**

security match

Definition at line [710](#) of file `error-def.h`.

**6.24.2.56 #define EMBER\_DROP\_FRAME( x79 )**

drop frame

Definition at line [718](#) of file `error-def.h`.

**6.24.2.57 #define EMBER\_PASS\_UNPROCESSED( x7A )**

security match

Definition at line [726](#) of file `error-def.h`.

**6.24.2.58 #define EMBER\_TX\_THEN\_DROP( x7B )**

security match

Definition at line 734 of file [error-def.h](#).

**6.24.2.59 #define EMBER\_NO\_SECURITY( x7C )**

security match

Definition at line 742 of file [error-def.h](#).

**6.24.2.60 #define EMBER\_COUNTER\_FAILURE( x7D )**

security match

Definition at line 750 of file [error-def.h](#).

**6.24.2.61 #define EMBER\_AUTH\_FAILURE( x7E )**

security match

Definition at line 758 of file [error-def.h](#).

**6.24.2.62 #define EMBER\_UNPROCESSED( x7F )**

security match

Definition at line 766 of file [error-def.h](#).

**6.24.2.63 #define EMBER\_ADC\_CONVERSION\_DONE( x80 )**

Conversion is complete.

Definition at line 784 of file [error-def.h](#).

**6.24.2.64 #define EMBER\_ADC\_CONVERSION\_BUSY( x81 )**

Conversion cannot be done because a request is being processed.

Definition at line 795 of file [error-def.h](#).

**6.24.2.65 #define EMBER\_ADC\_CONVERSION\_DEFERRED( x82 )**

Conversion is deferred until the current request has been processed.

Definition at line 806 of file [error-def.h](#).

**6.24.2.66 #define EMBER\_ADC\_NO\_CONVERSION\_PENDING( x84 )**

No results are pending.

Definition at line 816 of file [error-def.h](#).

**6.24.2.67 #define EMBER\_SLEEP\_INTERRUPTED( x85 )**

Sleeping (for a duration) has been abnormally interrupted and exited prematurely.

Definition at line [827](#) of file [error-def.h](#).

**6.24.2.68 #define EMBER\_PHY\_TX\_UNDERFLOW( x88 )**

The transmit hardware buffer underflowed.

Definition at line [844](#) of file [error-def.h](#).

**6.24.2.69 #define EMBER\_PHY\_TX\_INCOMPLETE( x89 )**

The transmit hardware did not finish transmitting a packet.

Definition at line [854](#) of file [error-def.h](#).

**6.24.2.70 #define EMBER\_PHY\_INVALID\_CHANNEL( x8A )**

An unsupported channel setting was specified.

Definition at line [864](#) of file [error-def.h](#).

**6.24.2.71 #define EMBER\_PHY\_INVALID\_POWER( x8B )**

An unsupported power setting was specified.

Definition at line [874](#) of file [error-def.h](#).

**6.24.2.72 #define EMBER\_PHY\_TX\_BUSY( x8C )**

The requested operation cannot be completed because the radio is currently busy, either transmitting a packet or performing calibration.

Definition at line [885](#) of file [error-def.h](#).

**6.24.2.73 #define EMBER\_PHY\_TX\_CCA\_FAIL( x8D )**

The transmit attempt failed because all CCA attempts indicated that the channel was busy.

Definition at line [896](#) of file [error-def.h](#).

**6.24.2.74 #define EMBER\_PHY\_OSCILLATOR\_CHECK\_FAILED( x8E )**

The software installed on the hardware doesn't recognize the hardware radio type.

Definition at line [907](#) of file [error-def.h](#).

**6.24.2.75 #define EMBER\_PHY\_ACK RECEIVED( x8F )**

The expected ACK was received after the last transmission.

Definition at line 917 of file [error-def.h](#).

#### **6.24.2.76 #define EMBER\_NETWORK\_UP( x90 )**

The stack software has completed initialization and is ready to send and receive packets over the air.

Definition at line 936 of file [error-def.h](#).

#### **6.24.2.77 #define EMBER\_NETWORK\_DOWN( x91 )**

The network is not operating.

Definition at line 946 of file [error-def.h](#).

#### **6.24.2.78 #define EMBER\_JOIN\_FAILED( x94 )**

An attempt to join a network failed.

Definition at line 956 of file [error-def.h](#).

#### **6.24.2.79 #define EMBER\_MOVE\_FAILED( x96 )**

After moving, a mobile node's attempt to re-establish contact with the network failed.

Definition at line 967 of file [error-def.h](#).

#### **6.24.2.80 #define EMBER\_CANNOT\_JOIN\_AS\_ROUTER( x98 )**

An attempt to join as a router failed due to a ZigBee versus ZigBee Pro incompatibility. ZigBee devices joining ZigBee Pro networks (or vice versa) must join as End Devices, not Routers.

Definition at line 979 of file [error-def.h](#).

#### **6.24.2.81 #define EMBER\_NODE\_ID\_CHANGED( x99 )**

The local node ID has changed. The application can obtain the new node ID by calling ::emberGetNodeId().

Definition at line 989 of file [error-def.h](#).

#### **6.24.2.82 #define EMBER\_PAN\_ID\_CHANGED( x9A )**

The local PAN ID has changed. The application can obtain the new PAN ID by calling ::emberGetPanId().

Definition at line 999 of file [error-def.h](#).

#### **6.24.2.83 #define EMBER\_CHANNEL\_CHANGED( x9B )**

The channel has changed.

Definition at line 1007 of file [error-def.h](#).

**6.24.2.84 #define EMBER\_NO\_BEACONS( xAB )**

An attempt to join or rejoin the network failed because no router beacons could be heard by the joining node.

Definition at line 1016 of file [error-def.h](#).

**6.24.2.85 #define EMBER RECEIVED KEY IN THE CLEAR( xAC )**

An attempt was made to join a Secured Network using a pre-configured key, but the Trust Center sent back a Network Key in-the-clear when an encrypted Network Key was required. ([EMBER\\_REQUIRE\\_ENCRYPTED\\_KEY](#)).

Definition at line 1027 of file [error-def.h](#).

**6.24.2.86 #define EMBER NO NETWORK KEY RECEIVED( xAD )**

An attempt was made to join a Secured Network, but the device did not receive a Network Key.

Definition at line 1037 of file [error-def.h](#).

**6.24.2.87 #define EMBER NO LINK KEY RECEIVED( xAE )**

After a device joined a Secured Network, a Link Key was requested ([EMBER\\_GET\\_LINK\\_KEY\\_WHEN\\_JOINING](#)) but no response was ever received.

Definition at line 1047 of file [error-def.h](#).

**6.24.2.88 #define EMBER PRECONFIGURED KEY REQUIRED( xAF )**

An attempt was made to join a Secured Network without a pre-configured key, but the Trust Center sent encrypted data using a pre-configured key.

Definition at line 1058 of file [error-def.h](#).

**6.24.2.89 #define EMBER KEY INVALID( xB2 )**

The passed key data is not valid. A key of all zeros or all F's are reserved values and cannot be used.

Definition at line 1074 of file [error-def.h](#).

**6.24.2.90 #define EMBER INVALID SECURITY LEVEL( x95 )**

The chosen security level (the value of ::EMBER\_SECURITY\_LEVEL) is not supported by the stack.

Definition at line 1084 of file [error-def.h](#).

**6.24.2.91 #define EMBER APS ENCRYPTION ERROR( xA6 )**

There was an error in trying to encrypt at the APS Level.

This could result from either an inability to determine the long address of the recipient from the short address (no entry in the binding table) or there is no link key entry in the table associated with the destination, or there was a failure to load the correct key into the encryption core.

Definition at line [1098](#) of file `error-def.h`.

#### **6.24.2.92 #define EMBER\_TRUST\_CENTER\_MASTER\_KEY\_NOT\_SET( xA7 )**

There was an attempt to form a network using High security without setting the Trust Center master key first.

Definition at line [1107](#) of file `error-def.h`.

#### **6.24.2.93 #define EMBER\_SECURITY\_STATE\_NOT\_SET( xA8 )**

There was an attempt to form or join a network with security without calling `::emberSetInitialSecurityState()` first.

Definition at line [1116](#) of file `error-def.h`.

#### **6.24.2.94 #define EMBER\_KEY\_TABLE\_INVALID\_ADDRESS( xB3 )**

There was an attempt to set an entry in the key table using an invalid long address. An entry cannot be set using either the local device's or Trust Center's IEEE address. Or an entry already exists in the table with the same IEEE address. An Address of all zeros or all F's are not valid addresses in 802.15.4.

Definition at line [1129](#) of file `error-def.h`.

#### **6.24.2.95 #define EMBER\_SECURITY\_CONFIGURATION\_INVALID( xB7 )**

There was an attempt to set a security configuration that is not valid given the other security settings.

Definition at line [1138](#) of file `error-def.h`.

#### **6.24.2.96 #define EMBER\_TOO\_SOON\_FOR\_SWITCH\_KEY( xB8 )**

There was an attempt to broadcast a key switch too quickly after broadcasting the next network key. The Trust Center must wait at least a period equal to the broadcast timeout so that all routers have a chance to receive the broadcast of the new network key.

Definition at line [1149](#) of file `error-def.h`.

#### **6.24.2.97 #define EMBER\_SIGNATURE\_VERIFY\_FAILURE( xB9 )**

The received signature corresponding to the message that was passed to the CBKE Library failed verification, it is not valid.

Definition at line [1158](#) of file `error-def.h`.

**6.24.2.98 #define EMBER\_KEY\_NOT\_AUTHORIZED( *xBB* )**

The message could not be sent because the link key corresponding to the destination is not authorized for use in APS data messages. APS Commands (sent by the stack) are allowed. To use it for encryption of APS data messages it must be authorized using a key agreement protocol (such as CBKE).

Definition at line [1170](#) of file [error-def.h](#).

**6.24.2.99 #define EMBER\_SECURITY\_DATA\_INVALID( *xBD* )**

The security data provided was not valid, or an integrity check failed.

Definition at line [1180](#) of file [error-def.h](#).

**6.24.2.100 #define EMBER\_NOT\_JOINED( *x93* )**

The node has not joined a network.

Definition at line [1198](#) of file [error-def.h](#).

**6.24.2.101 #define EMBER\_NETWORK\_BUSY( *xA1* )**

A message cannot be sent because the network is currently overloaded.

Definition at line [1208](#) of file [error-def.h](#).

**6.24.2.102 #define EMBER\_INVALID\_ENDPOINT( *xA3* )**

The application tried to send a message using an endpoint that it has not defined.

Definition at line [1219](#) of file [error-def.h](#).

**6.24.2.103 #define EMBER\_BINDING\_HAS\_CHANGED( *xA4* )**

The application tried to use a binding that has been remotely modified and the change has not yet been reported to the application.

Definition at line [1230](#) of file [error-def.h](#).

**6.24.2.104 #define EMBER\_INSUFFICIENT\_RANDOM\_DATA( *xA5* )**

An attempt to generate random bytes failed because of insufficient random data from the radio.

Definition at line [1240](#) of file [error-def.h](#).

**6.24.2.105 #define EMBER\_SOURCE\_ROUTE\_FAILURE( *xA9* )**

A ZigBee route error command frame was received indicating that a source routed message from this node failed en route.

Definition at line [1250](#) of file [error-def.h](#).

**6.24.2.106 #define EMBER\_MANY\_TO\_ONE\_ROUTE\_FAILURE( xAA )**

A ZigBee route error command frame was received indicating that a message sent to this node along a many-to-one route failed en route. The route error frame was delivered by an ad-hoc search for a functioning route.

Definition at line [1261](#) of file [error-def.h](#).

**6.24.2.107 #define EMBER\_STACK\_AND\_HARDWARE\_MISMATCH( xB0 )**

A critical and fatal error indicating that the version of the stack trying to run does not match with the chip it is running on. The software (stack) on the chip must be replaced with software that is compatible with the chip.

Definition at line [1282](#) of file [error-def.h](#).

**6.24.2.108 #define EMBER\_INDEX\_OUT\_OF\_RANGE( xB1 )**

An index was passed into the function that was larger than the valid range.

Definition at line [1293](#) of file [error-def.h](#).

**6.24.2.109 #define EMBER\_TABLE\_FULL( xB4 )**

There are no empty entries left in the table.

Definition at line [1302](#) of file [error-def.h](#).

**6.24.2.110 #define EMBER\_TABLE\_ENTRY\_ERASED( xB6 )**

The requested table entry has been erased and contains no valid data.

Definition at line [1312](#) of file [error-def.h](#).

**6.24.2.111 #define EMBER\_LIBRARY\_NOT\_PRESENT( xB5 )**

The requested function cannot be executed because the library that contains the necessary functionality is not present.

Definition at line [1322](#) of file [error-def.h](#).

Referenced by [emberAfPluginXncpIncomingCustomFrameCallback\(\)](#).

**6.24.2.112 #define EMBER\_OPERATION\_IN\_PROGRESS( xB4 )**

The stack accepted the command and is currently processing the request. The results will be returned via an appropriate handler.

Definition at line [1332](#) of file [error-def.h](#).

**6.24.2.113 #define EMBER\_TRUST\_CENTER\_EUI\_HAS\_CHANGED( *xC*<sub>BC</sub> )**

The EUI of the Trust center has changed due to a successful rejoin. The device may need to perform other authentication to verify the new TC is authorized to take over.

Definition at line [1343](#) of file [error-def.h](#).

**6.24.2.114 #define EMBER\_NO\_RESPONSE( *xC*<sub>0</sub> )**

The ZigBee RF4CE stack has not received the response it was waiting for.

Definition at line [1360](#) of file [error-def.h](#).

**6.24.2.115 #define EMBER\_DUPLICATE\_ENTRY( *xC*<sub>1</sub> )**

The ZigBee RF4CE stack has detected a duplicate entry in the pairing table.

Definition at line [1370](#) of file [error-def.h](#).

**6.24.2.116 #define EMBER\_NOT\_PERMITTED( *xC*<sub>2</sub> )**

A pairing request was denied by the recipient node or an attempt to update a security link key was not possible due to one or more nodes not supporting security.

Definition at line [1381](#) of file [error-def.h](#).

**6.24.2.117 #define EMBER\_DISCOVERY\_TIMEOUT( *xC*<sub>3</sub> )**

The node has timed out during auto discovery response mode.

Definition at line [1390](#) of file [error-def.h](#).

**6.24.2.118 #define EMBER\_DISCOVERY\_ERROR( *xC*<sub>4</sub> )**

The node has received two matching discovery request command frames from two different nodes while in auto discovery response mode.

Definition at line [1401](#) of file [error-def.h](#).

**6.24.2.119 #define EMBER\_SECURITY\_TIMEOUT( *xC*<sub>5</sub> )**

The node has timed while transferring the (n+1) key seed messages to the pairing originator.

Definition at line [1412](#) of file [error-def.h](#).

**6.24.2.120 #define EMBER\_SECURITY\_FAILURE( *xC*<sub>6</sub> )**

Generic error code indicating a security failure.

Definition at line [1422](#) of file [error-def.h](#).

**6.24.2.121 #define EMBER\_APPLICATION\_ERROR\_0( xF0 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1440](#) of file [error-def.h](#).

**6.24.2.122 #define EMBER\_APPLICATION\_ERROR\_1( xF1 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1441](#) of file [error-def.h](#).

**6.24.2.123 #define EMBER\_APPLICATION\_ERROR\_2( xF2 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1442](#) of file [error-def.h](#).

**6.24.2.124 #define EMBER\_APPLICATION\_ERROR\_3( xF3 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1443](#) of file [error-def.h](#).

**6.24.2.125 #define EMBER\_APPLICATION\_ERROR\_4( xF4 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1444](#) of file [error-def.h](#).

**6.24.2.126 #define EMBER\_APPLICATION\_ERROR\_5( xF5 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1445](#) of file [error-def.h](#).

**6.24.2.127 #define EMBER\_APPLICATION\_ERROR\_6( xF6 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1446](#) of file [error-def.h](#).

**6.24.2.128 #define EMBER\_APPLICATION\_ERROR\_7( xF7 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1447](#) of file `error-def.h`.

#### **6.24.2.129 #define EMBER\_APPLICATION\_ERROR\_8( xF8 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1448](#) of file `error-def.h`.

#### **6.24.2.130 #define EMBER\_APPLICATION\_ERROR\_9( xF9 )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1449](#) of file `error-def.h`.

#### **6.24.2.131 #define EMBER\_APPLICATION\_ERROR\_10( xFA )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1450](#) of file `error-def.h`.

#### **6.24.2.132 #define EMBER\_APPLICATION\_ERROR\_11( xFB )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1451](#) of file `error-def.h`.

#### **6.24.2.133 #define EMBER\_APPLICATION\_ERROR\_12( xFC )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1452](#) of file `error-def.h`.

#### **6.24.2.134 #define EMBER\_APPLICATION\_ERROR\_13( xFD )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1453](#) of file `error-def.h`.

#### **6.24.2.135 #define EMBER\_APPLICATION\_ERROR\_14( xFE )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1454](#) of file `error-def.h`.

**6.24.2.136 #define EMBER\_APPLICATION\_ERROR\_15( *xFF* )**

This error is reserved for customer application use. This will never be returned from any portion of the network stack or HAL.

Definition at line [1455](#) of file [error-def.h](#).

## 6.25 Ember Common Data Types

### Data Structures

- struct [EmberReleaseTypeStruct](#)  
*A structure relating version types to human readable strings.*
- struct [EmberVersion](#)  
*Version struct containing all version information.*
- struct [EmberZigbeeNetwork](#)  
*Defines a ZigBee network and the associated parameters.*
- struct [EmberNetworkInitStruct](#)  
*Defines the network initialization configuration that should be used when ::emberNetworkInitExtended() is called by the application.*
- struct [EmberNetworkParameters](#)  
*Holds network parameters.*
- struct [EmberApsFrame](#)  
*An in-memory representation of a ZigBee APS frame of an incoming or outgoing message.*
- struct [EmberBindingTableEntry](#)  
*Defines an entry in the binding table.*
- struct [EmberNeighborTableEntry](#)  
*Defines an entry in the neighbor table.*
- struct [EmberRouteTableEntry](#)  
*Defines an entry in the route table.*
- struct [EmberMulticastTableEntry](#)  
*Defines an entry in the multicast table.*
- struct [EmberEventControl](#)  
*Control structure for events.*
- struct [EmberEventData\\_S](#)  
*Complete events with a control and a handler procedure.*
- struct [EmberTaskControl](#)  
*Control structure for tasks.*
- struct [EmberKeyData](#)  
*This data structure contains the key data that is passed into various other functions.*
- struct [EmberCertificateData](#)  
*This data structure contains the certificate data that is used for Certificate Based Key Exchange (CBKE).*
- struct [EmberPublicKeyData](#)  
*This data structure contains the public key data that is used for Certificate Based Key Exchange (CBKE).*
- struct [EmberPrivateKeyData](#)  
*This data structure contains the private key data that is used for Certificate Based Key Exchange (CBKE).*
- struct [EmberSmacData](#)  
*This data structure contains the Shared Message Authentication Code (SMAC) data that is used for Certificate Based Key Exchange (CBKE).*
- struct [EmberSignatureData](#)  
*This data structure contains a DSA signature. It is the bit concatenation of the 'r' and 's' components of the signature.*
- struct [EmberMessageDigest](#)  
*This data structure contains an AES-MMO Hash (the message digest).*

- struct [EmberAesMmoHashContext](#)  
*This data structure contains the context data when calculating an AES MMO hash (message digest).*
- struct [EmberCertificate283k1Data](#)  
*This data structure contains the certificate data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.*
- struct [EmberPublicKey283k1Data](#)  
*This data structure contains the public key data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.*
- struct [EmberPrivateKey283k1Data](#)  
*This data structure contains the private key data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.*
- struct [EmberSignature283k1Data](#)  
*This data structure contains a DSA signature used in SECT283k1 Elliptical Cryptography. It is the bit concatenation of the 'r' and 's' components of the signature.*
- struct [EmberInitialSecurityState](#)  
*This describes the Initial Security features and requirements that will be used when forming or joining the network.*
- struct [EmberCurrentSecurityState](#)  
*This describes the security features used by the stack for a joined device.*
- struct [EmberKeyStruct](#)  
*This describes a one of several different types of keys and its associated data.*
- struct [EmberMfgSecurityStruct](#)  
*This structure is used to get/set the security config that is stored in manufacturing tokens.*
- struct [EmberMacFilterMatchStruct](#)  
*This structure indicates a matching raw MAC message has been received by the application configured MAC filters.*

## Macros

- #define [EMBER\\_MIN\\_BROADCAST\\_ADDRESS](#)
- #define [emberIsZigbeeBroadcastAddress\(address\)](#)
- #define [EMBER\\_JOIN\\_DECISION\\_STRINGS](#)
- #define [EMBER\\_DEVICE\\_UPDATE\\_STRINGS](#)
- #define [emberInitializeNetworkParameters\(parameters\)](#)
- #define [EMBER\\_COUNTER\\_STRINGS](#)
- #define [EMBER\\_STANDARD\\_SECURITY\\_MODE](#)
- #define [EMBER\\_TRUST\\_CENTER\\_NODE\\_ID](#)
- #define [EMBER\\_NO\\_TRUST\\_CENTER\\_MODE](#)
- #define [EMBER\\_GLOBAL\\_LINK\\_KEY](#)
- #define [EMBER\\_MFG\\_SECURITY\\_CONFIG\\_MAGIC\\_NUMBER](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ENABLED\\_MASK](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ON\\_PAN\\_DEST\\_MASK](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ON\\_PAN\\_SOURCE\\_MASK](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ON\\_DEST\\_MASK](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ON\\_SOURCE\\_MASK](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ENABLED](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_DISABLED](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ON\\_PAN\\_DEST\\_NONE](#)
- #define [EMBER\\_MAC\\_FILTER\\_MATCH\\_ON\\_PAN\\_DEST\\_LOCAL](#)

- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_BROADCAST
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_NONE
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_NON\_LOCAL
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_LOCAL
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_BROADCAST\_SHORT
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_UNICAST\_SHORT
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_UNICAST\_LONG
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_LONG
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_SHORT
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_NONE
- #define EMBER\_MAC\_FILTER\_MATCH\_END
- #define WEAK\_TEST

## Typedefs

- typedef uint8\_t EmberTaskId
- typedef PGM struct EmberEventData\_S EmberEventData
- typedef uint16\_t EmberMacFilterMatchData
- typedef uint8\_t EmberLibraryStatus

## Enumerations

- enum EmberNodeType {
 EMBER\_UNKNOWN\_DEVICE, EMBER\_COORDINATOR, EMBER\_ROUTER, EMBER\_END\_DEVICE,
 EMBER\_SLEEPY\_END\_DEVICE, EMBER\_MOBILE\_END\_DEVICE, EMBER\_RF4CE\_TARGET, EMBER\_RF4CE\_CONTROLLER
 }
- enum EmberEndDeviceConfiguration { EMBER\_END\_DEVICE\_CONFIG\_NONE, EMBER\_END\_DEVICE\_CONFIG\_PERSIST\_DATA\_ON\_PARENT }
- enum EmberNetworkInitBitmask { EMBER\_NETWORK\_INIT\_NO\_OPTIONS, EMBER\_NETWORK\_INIT\_PARENT\_INFO\_IN\_TOKEN }
- enum EmberApsOption {
 EMBER\_APS\_OPTION\_NONE, EMBER\_APS\_OPTION\_DSA\_SIGN, EMBER\_APS\_OPTION\_ENCRYPTION, EMBER\_APS\_OPTION\_RETRY,
 EMBER\_APS\_OPTION\_ENABLE\_ROUTE\_DISCOVERY, EMBER\_APS\_OPTION\_FORCE\_ROUTE\_DISCOVERY, EMBER\_APS\_OPTION\_SOURCE\_EUI64, EMBER\_APS\_OPTION\_DESTINATION\_EUI64,
 EMBER\_APS\_OPTION\_ENABLE\_ADDRESS\_DISCOVERY, EMBER\_APS\_OPTION\_POLL\_RESPONSE, EMBER\_APS\_OPTION\_ZDO\_RESPONSE\_REQUIRED, EMBER\_APS\_OPTION\_FRAGMENT
 }
- enum EmberIncomingMessageType {
 EMBER\_INCOMING\_UNICAST, EMBER\_INCOMING\_UNICAST\_REPLY, EMBER\_INCOMING\_MULTICAST, EMBER\_INCOMING\_MULTICAST\_LOOPBACK,
 EMBER\_INCOMING\_BROADCAST, EMBER\_INCOMING\_BROADCAST\_LOOPBACK
 }
- enum EmberOutgoingMessageType {
 EMBER\_OUTGOING\_DIRECT, EMBER\_OUTGOING\_VIA\_ADDRESS\_TABLE, EMBER\_OUTGOING\_VIA\_BINDING, EMBER\_OUTGOING\_MULTICAST,
 EMBER\_OUTGOING\_MULTICAST\_WITH\_ALIAS, EMBER\_OUTGOING\_BROADCAST\_WITH\_ALIAS, EMBER\_OUTGOING\_BROADCAST
 }

- enum `EmberZigbeeCommandType` {
 `EMBER_ZIGBEE_COMMAND_TYPE_MAC`, `EMBER_ZIGBEE_COMMAND_TYPE_NWK`, `EMBER_ZIGBEE_COMMAND_TYPE_APS`, `EMBER_ZIGBEE_COMMAND_TYPE_ZDO`, `EMBER_ZIGBEE_COMMAND_TYPE_ZCL`, `EMBER_ZIGBEE_COMMAND_TYPE_BEACON`
}
- enum `EmberNetworkStatus` {
 `EMBER_NO_NETWORK`, `EMBER_JOINING_NETWORK`, `EMBER_JOINED_NETWORK`, `EMBER_JOINED_NETWORK_NO_PARENT`, `EMBER_LEAVING_NETWORK`
}
- enum `EmberNetworkScanType` { `EMBER_ENERGY_SCAN`, `EMBER_ACTIVE_SCAN` }
- enum `EmberBindingType` { `EMBER_UNUSED_BINDING`, `EMBER_UNICAST_BINDING`, `EMBER_MANY_TO_ONE_BINDING`, `EMBER_MULTICAST_BINDING` }
- enum `EmberJoinDecision` { `EMBER_USE_PRECONFIGURED_KEY`, `EMBER_SEND_KEY_IN_THE_CLEAR`, `EMBER_DENY_JOIN`, `EMBER_NO_ACTION` }
- enum `EmberDeviceUpdate` {
 `EMBER_STANDARD_SECURITY_SECURED_REJOIN`, `EMBER_STANDARD_SECURITY_UNSECURED_JOIN`, `EMBER_DEVICE_LEFT`, `EMBER_STANDARD_SECURITY_UNSECURED_REJOIN`, `EMBER_HIGH_SECURITY_SECURED_REJOIN`, `EMBER_HIGH_SECURITY_UNSECURED_JOIN`, `EMBER_HIGH_SECURITY_UNSECURED_REJOIN`
}
- enum `EmberRejoinReason` {
 `EMBER_REJOIN_REASON_NONE`, `EMBER_REJOIN_DUE_TO_NWK_KEY_UPDATE`, `EMBER_REJOIN_DUE_TO_LEAVE_MESSAGE`, `EMBER_REJOIN_DUE_TO_NO_PARENT`, `EMBER_REJOIN_DUE_TO_ZLL_TOUCHLINK`, `EMBER_REJOIN_DUE_TO_APP_EVENT_5`, `EMBER_REJOIN_DUE_TO_APP_EVENT_4`, `EMBER_REJOIN_DUE_TO_APP_EVENT_3`, `EMBER_REJOIN_DUE_TO_APP_EVENT_2`, `EMBER_REJOIN_DUE_TO_APP_EVENT_1`
}
- enum `EmberClusterListId` { `EMBER_INPUT_CLUSTER_LIST`, `EMBER_OUTPUT_CLUSTER_LIST` }
- enum `EmberEventUnits` {
 `EMBER_EVENT_INACTIVE`, `EMBER_EVENT_MS_TIME`, `EMBER_EVENT_QS_TIME`, `EMBER_EVENT_MINUTE_TIME`, `EMBER_EVENT_ZERO_DELAY`
}
- enum `EmberJoinMethod` { `EMBER_USE_MAC_ASSOCIATION`, `EMBER_USE_NWK_REJOIN`, `EMBER_USE_NWK_REJOIN_HAVE_NWK_KEY`, `EMBER_USE_NWK_COMMISSIONING` }

- enum [EmberCounterType](#) {
 EMBER\_COUNTER\_MAC\_RX\_BROADCAST, EMBER\_COUNTER\_MAC\_TX\_BROADCAST, EMBER\_COUNTER\_MAC\_RX\_UNICAST, EMBER\_COUNTER\_MAC\_TX\_UNICAST\_SUCCESS,
 EMBER\_COUNTER\_MAC\_TX\_UNICAST\_RETRY, EMBER\_COUNTER\_MAC\_TX\_UNICAST\_FAILED, EMBER\_COUNTER\_APSS\_DATA\_RX\_BROADCAST, EMBER\_COUNTER\_APSS\_DATA\_TX\_BROADCAST,
 EMBER\_COUNTER\_APSS\_DATA\_RX\_UNICAST, EMBER\_COUNTER\_APSS\_DATA\_TX\_UNICAST\_SUCCESS, EMBER\_COUNTER\_APSS\_DATA\_TX\_UNICAST\_RETRY, EMBER\_COUNTER\_APSS\_DATA\_TX\_UNICAST\_FAILED,
 EMBER\_COUNTER\_ROUTE\_DISCOVERY\_INITIATED, EMBER\_COUNTER\_NEIGHBOR\_ADDED, EMBER\_COUNTER\_NEIGHBOR\_REMOVED, EMBER\_COUNTER\_NEIGHBOR\_STALE,
 EMBER\_COUNTER\_JOIN\_INDICATION, EMBER\_COUNTER\_CHILD\_REMOVED, EMBER\_COUNTER\_ASH\_OVERFLOW\_ERROR, EMBER\_COUNTER\_ASH\_FRAMING\_ERROR,
 EMBER\_COUNTER\_ASH\_OVERRUN\_ERROR, EMBER\_COUNTER\_NWK\_FRAME\_COUNTER\_FAILURE, EMBER\_COUNTER\_APSS\_FRAME\_COUNTER\_FAILURE, EMBER\_COUNTER\_ASH\_XOFF,
 EMBER\_COUNTER\_APSS\_LINK\_KEY\_NOTAUTHORIZED, EMBER\_COUNTER\_NWK\_DECRYPTION\_FAILURE, EMBER\_COUNTER\_APSS\_DECRYPTION\_FAILURE, EMBER\_COUNTER\_ALLOCATE\_PACKET\_BUFFER\_FAILURE,
 EMBER\_COUNTER\_RELAYED\_UNICAST, EMBER\_COUNTER\_PHY\_TO\_MAC\_QUEUE\_LIMIT\_REACHED, EMBER\_COUNTER\_PACKET\_VALIDATE\_LIBRARY\_DROPPED\_COUNT, EMBER\_COUNTER\_TYPE\_NWK\_RETRY\_OVERFLOW,
 EMBER\_COUNTER\_PHY\_CCA\_FAIL\_COUNT, EMBER\_COUNTER\_BROADCAST\_TABLE\_FULL, EMBER\_COUNTER\_TYPE\_COUNT }
- enum [EmberInitialSecurityBitmask](#) {
 EMBER\_DISTRIBUTED\_TRUST\_CENTER\_MODE, EMBER\_TRUST\_CENTER\_GLOBAL\_LINK\_KEY, EMBER\_PRECONFIGURED\_NETWORK\_KEY\_MODE, EMBER\_HAVE\_TRUST\_CENTER\_EUI64,
 EMBER\_TRUST\_CENTER\_USES\_HASHED\_LINK\_KEY, EMBER\_HAVE\_PRECONFIGURED\_KEY, EMBER\_HAVE\_NETWORK\_KEY, EMBER\_GET\_LINK\_KEY\_WHEN\_JOINING,
 EMBER\_REQUIRE\_ENCRYPTED\_KEY, EMBER\_NO\_FRAME\_COUNTER\_RESET, EMBER\_GET\_PRECONFIGURED\_KEY\_FROM\_INSTALL\_CODE }
- enum [EmberExtendedSecurityBitmask](#) { EMBER\_JOINER\_GLOBAL\_LINK\_KEY, EMBER\_EXT\_NO\_FRAME\_COUNTER\_RESET, EMBER\_NWK\_LEAVE\_REQUEST\_NOT\_ALLOWED }
- enum [EmberCurrentSecurityBitmask](#) {
 EMBER\_STANDARD\_SECURITY\_MODE\_, EMBER\_DISTRIBUTED\_TRUST\_CENTER\_MODE\_, EMBER\_TRUST\_CENTER\_GLOBAL\_LINK\_KEY\_, EMBER\_HAVE\_TRUST\_CENTER\_LINK\_KEY,
 EMBER\_TRUST\_CENTER\_USES\_HASHED\_LINK\_KEY\_ }
- enum [EmberKeyStructBitmask](#) {
 EMBER\_KEY\_HAS\_SEQUENCE\_NUMBER, EMBER\_KEY\_HAS\_OUTGOING\_FRAME\_COUNTER, EMBER\_KEY\_HAS\_INCOMING\_FRAME\_COUNTER, EMBER\_KEY\_HAS\_PARTNER\_EUI64,
 EMBER\_KEY\_IS\_AUTHORIZED, EMBER\_KEY\_PARTNER\_IS\_SLEEPY }
- enum [EmberKeyType](#) {
 EMBER\_TRUST\_CENTER\_LINK\_KEY, EMBER\_TRUST\_CENTER\_MASTER\_KEY, EMBER\_CURRENT\_NETWORK\_KEY, EMBER\_NEXT\_NETWORK\_KEY,
 EMBER\_APPLICATION\_LINK\_KEY, EMBER\_APPLICATION\_MASTER\_KEY }

- enum `EmberKeyStatus` {
 `EMBER_KEY_STATUS_NONE`, `EMBER_APP_LINK_KEY_ESTABLISHED`, `EMBER_APP_MASTER_KEY_ESTABLISHED`, `EMBER_TRUST_CENTER_LINK_KEY_ESTABLISHED`, `EMBER_KEY_ESTABLISHMENT_TIMEOUT`, `EMBER_KEY_TABLE_FULL`, `EMBER_TC_RESPONDED_TO_KEY_REQUEST`, `EMBER_TC_APP_KEY_SENT_TO_REQUESTER`, `EMBER_TC_RESPONSE_TO_KEY_REQUEST_FAILED`, `EMBER_TC_REQUEST_KEY_TYPE_NOT_SUPPORTED`, `EMBER_TC_NO_LINK_KEY_FOR_REQUESTER`, `EMBER_TC_REQUESTER_EUI64_UNKNOWN`, `EMBER_TC RECEIVED FIRST APP KEY REQUEST`, `EMBER_TC_TIMEOUT_WAITING FOR SECOND APP KEY REQUEST`, `EMBER_TC_NON_MATCHING_APP_KEY_REQUEST_RECEIVED`, `EMBER_TC FAILED TO SEND APP KEYS`, `EMBER_TC FAILED TO STORE APP KEY REQUEST`, `EMBER_TC REJECTED APP KEY REQUEST`, `EMBER_TC FAILED TO GENERATE NEW KEY`, `EMBER_TC FAILED TO SEND TC KEY`, `EMBER_TRUST_CENTER_IS_PRE_R21`, `EMBER_TC_REQUESTER_VERIFY_KEY_TIMEOUT`, `EMBER_TC_REQUESTER_VERIFY_KEY_FAILURE`, `EMBER_TC_REQUESTER_VERIFY_KEY_SUCCESS`, `EMBER_VERIFY_LINK_KEY_FAILURE`, `EMBER_VERIFY_LINK_KEY_SUCCESS` }
- enum `EmberLinkKeyRequestPolicy` { `EMBER_DENY_KEY_REQUESTS`, `EMBER_ALLOW_KEY_REQUESTS`, `EMBER_GENERATE_NEW_TC_LINK_KEY` }
- enum `EmberKeySettings` { `EMBER_KEY_PERMISSIONS_NONE`, `EMBER_KEY_PERMISSIONS_READING_ALLOWED`, `EMBER_KEY_PERMISSIONS_HASHING_ALLOWED` }
- enum `EmberMacPassthroughType` {
 `EMBER_MAC_PASSTHROUGH_NONE`, `EMBER_MAC_PASSTHROUGH_SE_INTERPAN`, `EMBER_MAC_PASSTHROUGH_EMBERNET`, `EMBER_MAC_PASSTHROUGH_EMBERNET_SOURCE`, `EMBER_MAC_PASSTHROUGH_APPLICATION`, `EMBER_MAC_PASSTHROUGH_CUSTOM` }

## Functions

- `uint8_t * emberKeyContents (EmberKeyData *key)`
- `uint8_t * emberCertificateContents (EmberCertificateData *cert)`
- `uint8_t * emberPublicKeyContents (EmberPublicKeyData *key)`
- `uint8_t * emberPrivateKeyContents (EmberPrivateKeyData *key)`
- `uint8_t * emberSmacContents (EmberSmacData *key)`
- `uint8_t * emberSignatureContents (EmberSignatureData *sig)`
- `uint8_t * emberCertificate283k1Contents (EmberCertificate283k1Data *cert)`
- `uint8_t * emberPublicKey283k1Contents (EmberPublicKey283k1Data *key)`
- `uint8_t * emberPrivateKey283k1Contents (EmberPrivateKey283k1Data *key)`
- `uint8_t * ember283k1SignatureContents (Ember283k1SignatureData *sig)`

## Miscellaneous Ember Types

- enum `EmberVersionType` {
 `EMBER_VERSION_TYPE_PRE_RELEASE`, `EMBER_VERSION_TYPE_ALPHA_1`, `EMBER_VERSION_TYPE_ALPHA_2`, `EMBER_VERSION_TYPE_ALPHA_3`, `EMBER_VERSION_TYPE_BETA_1`, `EMBER_VERSION_TYPE_BETA_2`, `EMBER_VERSION_TYPE_BETA_3`, `EMBER_VERSION_TYPE_GA` }
- enum `EmberLeaveRequestFlags` { `EMBER_ZIGBEE_LEAVE_AND_REJOIN`, `EMBER_ZIGBEE_LEAVE_AND_REMOVE_CHILDREN` }

- enum EmberLeaveReason {
 EMBER\_LEAVE\_REASON\_NONE, EMBER\_LEAVE\_DUE\_TO\_NWK\_LEAVE\_MESSAGE, EMBER\_LEAVE\_DUE\_TO\_AP\_REMOVE\_MESSAGE, EMBER\_LEAVE\_DUE\_TO\_ZDO\_LEAVE\_MESSAGE,
 EMBER\_LEAVE\_DUE\_TO\_ZLL\_TOUCHLINK, EMBER\_LEAVE\_DUE\_TO\_APP\_EVENT\_1
 }
- typedef uint8\_t EmberStatus
- typedef uint8\_t EmberEUI64 [EUI64\_SIZE]
- typedef uint8\_t EmberMessageBuffer
- typedef uint16\_t EmberNodeId
- typedef uint16\_t EmberMulticastId
- typedef uint16\_t EmberPanId
- const EmberVersion emberVersion
- #define EMBER\_RELEASE\_TYPE\_TO\_STRING\_STRUCT\_DATA
- #define EUI64\_SIZE
- #define EXTENDED\_PAN\_ID\_SIZE
- #define EMBER\_ENCRYPTION\_KEY\_SIZE
- #define EMBER\_CERTIFICATE\_SIZE
- #define EMBER\_PUBLIC\_KEY\_SIZE
- #define EMBER\_PRIVATE\_KEY\_SIZE
- #define EMBER\_SMAC\_SIZE
- #define EMBER\_SIGNATURE\_SIZE
- #define EMBER\_AES\_HASH\_BLOCK\_SIZE
- #define EMBER\_CERTIFICATE\_283K1\_SIZE
- #define EMBER\_PUBLIC\_KEY\_283K1\_SIZE
- #define EMBER\_PRIVATE\_KEY\_283K1\_SIZE
- #define EMBER\_SIGNATURE\_283K1\_SIZE
- #define \_\_EMBERSTATUS\_TYPE\_\_
- #define EMBER\_MAX\_802\_15\_4\_CHANNEL\_NUMBER
- #define EMBER\_MIN\_802\_15\_4\_CHANNEL\_NUMBER
- #define EMBER\_NUM\_802\_15\_4\_CHANNELS
- #define EMBER\_ALL\_802\_15\_4\_CHANNELS\_MASK
- #define EMBER\_ZIGBEE\_COORDINATOR\_ADDRESS
- #define EMBER\_NULL\_NODE\_ID
- #define EMBER\_NULL\_BINDING
- #define EMBER\_TABLE\_ENTRY\_UNUSED\_NODE\_ID
- #define EMBER\_MULTICAST\_NODE\_ID
- #define EMBER\_UNKNOWN\_NODE\_ID
- #define EMBER\_DISCOVERY\_ACTIVE\_NODE\_ID
- #define EMBER\_NULL\_ADDRESS\_TABLE\_INDEX
- #define EMBER\_ZDO\_ENDPOINT
- #define EMBER\_BROADCAST\_ENDPOINT
- #define EMBER\_ZDO\_PROFILE\_ID
- #define EMBER\_WILDCARD\_PROFILE\_ID
- #define EMBER\_MAXIMUM\_STANDARD\_PROFILE\_ID
- #define EMBER\_BROADCAST\_TABLE\_TIMEOUT\_QS
- #define EMBER\_MANUFACTURER\_ID

## ZigBee Broadcast Addresses

ZigBee specifies three different broadcast addresses that reach different collections of nodes. Broadcasts are normally sent only to routers. Broadcasts can also be forwarded to end devices, either all of them or only those that do not sleep. Broadcasting to end devices is both significantly more resource-intensive and significantly less reliable than broadcasting to routers.

- #define EMBER\_BROADCAST\_ADDRESS
- #define EMBER\_RX\_ON\_WHEN\_IDLE\_BROADCAST\_ADDRESS
- #define EMBER\_SLEEPY\_BROADCAST\_ADDRESS

## Ember Concentrator Types

- #define EMBER\_LOW\_RAM\_CONCENTRATOR
- #define EMBER\_HIGH\_RAM\_CONCENTRATOR

## txPowerModes for emberSetTxPowerMode and mfplibSetPower

- #define EMBER\_TX\_POWER\_MODE\_DEFAULT
- #define EMBER\_TX\_POWER\_MODE\_BOOST
- #define EMBER\_TX\_POWER\_MODE\_ALTERNATE
- #define EMBER\_TX\_POWER\_MODE\_BOOST\_AND\_ALTERNATE

## Alarm Message and Counters Request Definitions

- #define EMBER\_PRIVATE\_PROFILE\_ID
- #define EMBER\_PRIVATE\_PROFILE\_ID\_START
- #define EMBER\_PRIVATE\_PROFILE\_ID\_END
- #define EMBER\_BROADCAST\_ALARM\_CLUSTER
- #define EMBER\_UNICAST\_ALARM\_CLUSTER
- #define EMBER\_CACHED\_UNICAST\_ALARM\_CLUSTER
- #define EMBER\_REPORT\_COUNTERS\_REQUEST
- #define EMBER\_REPORT\_COUNTERS\_RESPONSE
- #define EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_REQUEST
- #define EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_RESPONSE
- #define EMBER\_OTA\_CERTIFICATE\_UPGRADE\_CLUSTER

## ZDO response status.

Most responses to ZDO commands contain a status byte. The meaning of this byte is defined by the ZigBee Device Profile.

- enum EmberZdoStatus {
 EMBER\_ZDP\_SUCCESS, EMBER\_ZDP\_INVALID\_REQUEST\_TYPE, EMBER\_ZDP\_DEVICE\_NOT\_FOUND, EMBER\_ZDP\_INVALID\_ENDPOINT,
 EMBER\_ZDP\_NOT\_ACTIVE, EMBER\_ZDP\_NOT\_SUPPORTED, EMBER\_ZDP\_TIMEOUT, EMBER\_ZDP\_NO\_MATCH,
 EMBER\_ZDP\_NO\_ENTRY, EMBER\_ZDP\_NO\_DESCRIPTOR, EMBER\_ZDP\_INSUFFICIENT\_SPACE, EMBER\_ZDP\_NOT\_PERMITTED,
 EMBER\_ZDP\_TABLE\_FULL, EMBER\_ZDP\_NOT\_AUTHORIZED, EMBER\_NWK\_ALREADY\_PRESENT, EMBER\_NWK\_TABLE\_FULL,
 EMBER\_NWK\_UNKNOWN\_DEVICE }

## Network and IEEE Address Request/Response

Defines for ZigBee device profile cluster IDs follow. These include descriptions of the formats of the messages.

Note that each message starts with a 1-byte transaction sequence number. This sequence number is used to match a response command frame to the request frame that it is replying to. The application shall maintain a 1-byte counter that is copied into this field and incremented by one for each command sent. When a value of 0xff is reached, the next command shall re-start the counter with a value of 0x00

```
Network request: <transaction sequence number: 1>
                  <EUI64:8>  <type:1> <start index:1>
IEEE request:    <transaction sequence number: 1>
                  <node ID:2> <type:1> <start index:1>
                  <type> = 0x00 single address response, ignore the start index
                  = 0x01 extended response -> sends kid's IDs as well
Response: <transaction sequence number: 1>
          <status:1> <EUI64:8> <node ID:2>
          <ID count:1> <start index:1> <child ID:2>*
```

- #define NETWORK\_ADDRESS\_REQUEST
- #define NETWORK\_ADDRESS\_RESPONSE
- #define IEEE\_ADDRESS\_REQUEST
- #define IEEE\_ADDRESS\_RESPONSE

## Node Descriptor Request/Response

<br>

```
@code
Request: <transaction sequence number: 1> <node ID:2>
Response: <transaction sequence number: 1> <status:1> <node ID:2>
```

```
// <node descriptor: 13> // // Node Descriptor field is divided into subfields of bitmasks as follows: //
(Note: All lengths below are given in bits rather than bytes.) // Logical Type: 3 // Complex Descriptor Available: 1 // User Descriptor Available: 1 // (reserved/unused): 3 // APS Flags: 3 // Frequency Band: 5 // MAC capability flags: 8 // Manufacturer Code: 16 // Maximum buffer size: 8 // Maximum incoming transfer size: 16 // Server mask: 16 // Maximum outgoing transfer size: 16 // Descriptor Capability Flags: 8 // See ZigBee document 053474, Section 2.3.2.3 for more details.
```

- #define NODE\_DESCRIPTOR\_REQUEST
- #define NODE\_DESCRIPTOR\_RESPONSE

## Power Descriptor Request / Response

```
<br>
@code
Request: <transaction sequence number: 1> <node ID:2>
Response: <transaction sequence number: 1> <status:1> <node ID:2>
           <current power mode, available power sources:1>
           <current power source, current power source level:1>
```

// See ZigBee document 053474, Section 2.3.2.4 for more details.

- #define **POWER\_DESCRIPTOR\_REQUEST**
- #define **POWER\_DESCRIPTOR\_RESPONSE**

## Simple Descriptor Request / Response

```
Request: <transaction sequence number: 1>
          <node ID:2> <endpoint:1>
Response: <transaction sequence number: 1>
          <status:1> <node ID:2> <length:1> <endpoint:1>
          <app profile ID:2> <app device ID:2>
          <app device version, app flags:1>
          <input cluster count:1> <input cluster:2>*
          <output cluster count:1> <output cluster:2>*
```

- #define **SIMPLE\_DESCRIPTOR\_REQUEST**
- #define **SIMPLE\_DESCRIPTOR\_RESPONSE**

## Active Endpoints Request / Response

```
Request: <transaction sequence number: 1> <node ID:2>
Response: <transaction sequence number: 1>
          <status:1> <node ID:2> <endpoint count:1> <endpoint:1>*
```

- #define **ACTIVE\_ENDPOINTS\_REQUEST**
- #define **ACTIVE\_ENDPOINTS\_RESPONSE**

## Match Descriptors Request / Response

```
Request: <transaction sequence number: 1>
          <node ID:2> <app profile ID:2>
          <input cluster count:1> <input cluster:2>*
          <output cluster count:1> <output cluster:2>*
Response: <transaction sequence number: 1>
          <status:1> <node ID:2> <endpoint count:1> <endpoint:1>*
```

- #define **MATCH\_DESCRIPTOR\_REQUEST**
- #define **MATCH\_DESCRIPTOR\_RESPONSE**

## Discovery Cache Request / Response

```
Request: <transaction sequence number: 1>
          <source node ID:2> <source EUI64:8>
Response: <transaction sequence number: 1>
          <status (== EMBER_ZDP_SUCCESS):1>
```

- #define **DISCOVERY\_CACHE\_REQUEST**
- #define **DISCOVERY\_CACHE\_RESPONSE**

## End Device Announce and End Device Announce Response

```
Request: <transaction sequence number: 1>
         <node ID:2> <EUI64:8> <capabilities:1>
No response is sent.
```

- #define END\_DEVICE\_ANNOUNCE
- #define END\_DEVICE\_ANNOUNCE\_RESPONSE

## System Server Discovery Request / Response

This is broadcast and only servers which have matching services respond. The response contains the request services that the recipient provides.

```
Request: <transaction sequence number: 1> <server mask:2>
Response: <transaction sequence number: 1>
          <status (== EMBER_ZDP_SUCCESS):1> <server mask:2>
```

- #define SYSTEM\_SERVER\_DISCOVERY\_REQUEST
- #define SYSTEM\_SERVER\_DISCOVERY\_RESPONSE

## Parent Announce and Parent Announce Response

This is broadcast and only servers which have matching children respond. The response contains the list of children that the recipient now holds.

```
Request: <transaction sequence number: 1>
         <number of children:1> <child EUI64:8> <child Age:4>*
Response: <transaction sequence number: 1>
          <number of children:1> <child EUI64:8> <child Age:4>*
```

- #define PARENT\_ANNOUNCE
- #define PARENT\_ANNOUNCE\_RESPONSE

## ZDO server mask bits

These are used in server discovery requests and responses.

- enum EmberZdoServerMask {
 EMBER\_ZDP\_PRIMARY\_TRUST\_CENTER, EMBER\_ZDP\_SECONDARY\_TRUST\_CENTER,
 EMBER\_ZDP\_PRIMARY\_BINDING\_TABLE\_CACHE, EMBER\_ZDP\_SECONDARY\_BINDING\_TABLE\_CACHE,
 EMBER\_ZDP\_PRIMARY\_DISCOVERY\_CACHE, EMBER\_ZDP\_SECONDARY\_DISCOVERY\_CACHE,
 EMBER\_ZDP\_NETWORK\_MANAGER }

## Find Node Cache Request / Response

This is broadcast and only discovery servers which have the information for the device of interest, or the device of interest itself, respond. The requesting device can then direct any service discovery requests to the responder.

```

Request: <transaction sequence number: 1>
<device of interest ID:2> <d-of-i EUI64:8>
Response: <transaction sequence number: 1>
<responder ID:2> <device of interest ID:2> <d-of-i EUI64:8>

```

- #define FIND\_NODE\_CACHE\_REQUEST
- #define FIND\_NODE\_CACHE\_RESPONSE

## End Device Bind Request / Response

```

Request: <transaction sequence number: 1>
<node ID:2> <EUI64:8> <endpoint:1> <app profile ID:2>
<input cluster count:1> <input cluster:2>*
<output cluster count:1> <output cluster:2>*
Response: <transaction sequence number: 1> <status:1>

```

- #define END\_DEVICE\_BIND\_REQUEST
- #define END\_DEVICE\_BIND\_RESPONSE

## Binding types and Request / Response

Bind and unbind have the same formats. There are two possible formats, depending on whether the destination is a group address or a device address. Device addresses include an endpoint, groups don't.

```

Request: <transaction sequence number: 1>
<source EUI64:8> <source endpoint:1>
<cluster ID:2> <destination address:3 or 10>
Destination address:
<0x01:1> <destination group:2>
Or:
<0x03:1> <destination EUI64:8> <destination endpoint:1>
Response: <transaction sequence number: 1> <status:1>

```

- #define UNICAST\_BINDING
- #define UNICAST\_MANY\_TO\_ONE\_BINDING
- #define MULTICAST\_BINDING
- #define BIND\_REQUEST
- #define BIND\_RESPONSE
- #define UNBIND\_REQUEST
- #define UNBIND\_RESPONSE

## LQI Table Request / Response

```

Request: <transaction sequence number: 1> <start index:1>
Response: <transaction sequence number: 1> <status:1>
<neighbor table entries:1> <start index:1>
<entry count:1> <entry:22>*
<entry> = <extended PAN ID:8> <EUI64:8> <node ID:2>
<device type, rx on when idle, relationship:1>
<permit joining:1> <depth:1> <LQI:1>

```

The device-type byte has the following fields:

Name	Mask	Values
device type	0x03	0x00 coordinator 0x01 router 0x02 end device 0x03 unknown

rx mode	0x0C	0x00 off when idle 0x04 on when idle 0x08 unknown
relationship	0x70	0x00 parent 0x10 child 0x20 sibling 0x30 other 0x40 previous child
reserved	0x10	

The permit-joining byte has the following fields

Name	Mask	Values
permit joining	0x03	0x00 not accepting join requests 0x01 accepting join requests 0x02 unknown
reserved	0xFC	

- #define [LQI\\_TABLE\\_REQUEST](#)
- #define [LQI\\_TABLE\\_RESPONSE](#)

## Routing Table Request / Response

```

Request: <transaction sequence number: 1> <start index:1>
Response: <transaction sequence number: 1> <status:1>
           <routing table entries:1> <start index:1>
           <entry count:1> <entry:5>*
           <entry> = <destination address:2>
                     <status:1>
                     <next hop:2>

```

The status byte has the following fields:

Name	Mask	Values
status	0x07	0x00 active 0x01 discovery underway 0x02 discovery failed 0x03 inactive 0x04 validation underway
flags	0x38	0x08 memory constrained 0x10 many-to-one 0x20 route record required
reserved	0xC0	

- #define [ROUTING\\_TABLE\\_REQUEST](#)
- #define [ROUTING\\_TABLE\\_RESPONSE](#)

## Binding Table Request / Response

```

Request: <transaction sequence number: 1> <start index:1>
Response: <transaction sequence number: 1>
           <status:1> <binding table entries:1> <start index:1>
           <entry count:1> <entry:14/21>*
           <entry> = <source EUI64:8> <source endpoint:1> <cluster ID:2>
                     <dest addr mode:1> <dest:2/8> <dest endpoint:0/1>

```

### Note

If Dest. Address Mode = 0x03, then the Long Dest. Address will be used and Dest. endpoint will be included. If Dest. Address Mode = 0x01, then the Short Dest. Address will be used and there will be no Dest. endpoint.

- #define **BINDING\_TABLE\_REQUEST**
- #define **BINDING\_TABLE\_RESPONSE**

## Leave Request / Response

```
Request: <transaction sequence number: 1> <EUI64:8> <flags:1>
          The flag bits are:
          0x40 remove children
          0x80 rejoin
Response: <transaction sequence number: 1> <status:1>
```

- #define **LEAVE\_REQUEST**
- #define **LEAVE\_RESPONSE**
- #define **LEAVE\_REQUEST\_REMOVE\_CHILDREN\_FLAG**
- #define **LEAVE\_REQUEST\_REJOIN\_FLAG**

## Permit Joining Request / Response

```
Request: <transaction sequence number: 1>
          <duration:1> <permit authentication:1>
Response: <transaction sequence number: 1> <status:1>
```

- #define **PERMIT\_JOINING\_REQUEST**
- #define **PERMIT\_JOINING\_RESPONSE**

## Network Update Request / Response

```
Request: <transaction sequence number: 1>
          <scan channels:4> <duration:1> <count:0/1> <manager:0/2>

If the duration is in 0x00 ... 0x05, then 'count' is present but
not 'manager'. Perform 'count' scans of the given duration on the
given channels.

If duration is 0xFE, then 'channels' should have a single channel
and 'count' and 'manager' are not present. Switch to the indicated
channel.

If duration is 0xFF, then 'count' is not present. Set the active
channels and the network manager ID to the values given.

Unicast requests always get a response, which is INVALID_REQUEST if the
duration is not a legal value.
```

```
Response: <transaction sequence number: 1> <status:1>
          <scanned channels:4> <transmissions:2> <failures:2>
          <energy count:1> <energy:1>*
```

- #define **NWK\_UPDATE\_REQUEST**
- #define **NWK\_UPDATE\_RESPONSE**

## Unsupported

Not mandatory and not supported.

- #define COMPLEX\_DESCRIPTOR\_REQUEST
- #define COMPLEX\_DESCRIPTOR\_RESPONSE
- #define USER\_DESCRIPTOR\_REQUEST
- #define USER\_DESCRIPTOR\_RESPONSE
- #define DISCOVERY\_REGISTER\_REQUEST
- #define DISCOVERY\_REGISTER\_RESPONSE
- #define USER\_DESCRIPTOR\_SET
- #define USER\_DESCRIPTOR\_CONFIRM
- #define NETWORK\_DISCOVERY\_REQUEST
- #define NETWORK\_DISCOVERY\_RESPONSE
- #define DIRECT\_JOIN\_REQUEST
- #define DIRECT\_JOIN\_RESPONSE
- #define CLUSTER\_ID\_RESPONSE\_MINIMUM

## ZDO configuration flags.

For controlling which ZDO requests are passed to the application. These are normally controlled via the following configuration definitions:

```
EMBER_APPLICATION RECEIVES_SUPPORTED_ZDO_REQUESTS EMBER_APPLICATION_HANDLES_UNSUPPORTED_ZDO_REQUESTS EMBER_APPLICATION_HANDLES_ENDPOINT_ZDO_REQUESTS EMBER_APPLICATION_HANDLES_BINDING_ZDO_REQUESTS
```

See `ember-configuration.h` for more information.

- enum `EmberZdoConfigurationFlags` { `EMBER_APP_RECEIVES_SUPPORTED_ZDO_REQUESTS`, `EMBER_APP_HANDLES_UNSUPPORTED_ZDO_REQUESTS`, `EMBER_APP_HANDLES_ENDPOINT_ZDO_REQUESTS`, `EMBER_APP_HANDLES_BINDING_ZDO_REQUESTS` }

### 6.25.1 Detailed Description

See `ember-types.h` for source code.

### 6.25.2 Macro Definition Documentation

#### 6.25.2.1 #define EMBER\_RELEASE\_TYPE\_TO\_STRING\_STRUCT\_DATA

`EmberReleaseTypeStruct` Data that relates release type to the correct string.

Definition at line 75 of file `ember-types.h`.

#### 6.25.2.2 #define EUI64\_SIZE

Size of EUI64 (an IEEE address) in bytes (8).

Definition at line 107 of file `ember-types.h`.

**6.25.2.3 #define EXTENDED\_PAN\_ID\_SIZE**

Size of an extended PAN identifier in bytes (8).

Definition at line 112 of file [ember-types.h](#).

**6.25.2.4 #define EMBER\_ENCRYPTION\_KEY\_SIZE**

Size of an encryption key in bytes (16).

Definition at line 117 of file [ember-types.h](#).

**6.25.2.5 #define EMBER\_CERTIFICATE\_SIZE**

Size of Implicit Certificates used for Certificate Based Key Exchange.

Definition at line 123 of file [ember-types.h](#).

**6.25.2.6 #define EMBER\_PUBLIC\_KEY\_SIZE**

Size of Public Keys used in Elliptical Cryptography ECMQV algorithms.

Definition at line 128 of file [ember-types.h](#).

**6.25.2.7 #define EMBER\_PRIVATE\_KEY\_SIZE**

Size of Private Keys used in Elliptical Cryptography ECMQV algorithms.

Definition at line 133 of file [ember-types.h](#).

**6.25.2.8 #define EMBER\_SMAC\_SIZE**

Size of the SMAC used in Elliptical Cryptography ECMQV algorithms.

Definition at line 138 of file [ember-types.h](#).

**6.25.2.9 #define EMBER\_SIGNATURE\_SIZE**

Size of the DSA signature used in Elliptical Cryptography Digital Signature Algorithms.

Definition at line 144 of file [ember-types.h](#).

**6.25.2.10 #define EMBER\_AES\_HASH\_BLOCK\_SIZE**

The size of AES-128 MMO hash is 16-bytes. This is defined in the core. ZigBee specification.

Definition at line 149 of file [ember-types.h](#).

**6.25.2.11 #define EMBER\_CERTIFICATE\_283K1\_SIZE**

Size of Implicit Certificates used for Certificate Based Key Exchange using the ECC283K1 curve in bytes.

Definition at line 155 of file [ember-types.h](#).

**6.25.2.12 #define EMBER\_PUBLIC\_KEY\_283K1\_SIZE**

Size of Public Keys used in SECT283k1 Elliptical Cryptography ECMQV algorithms.

Definition at line 160 of file [ember-types.h](#).

**6.25.2.13 #define EMBER\_PRIVATE\_KEY\_283K1\_SIZE**

Size of Private Keys used SECT283k1 in Elliptical Cryptography ECMQV algorithms.

Definition at line 165 of file [ember-types.h](#).

**6.25.2.14 #define EMBER\_SIGNATURE\_283K1\_SIZE**

Size of the DSA signature used in SECT283k1 Elliptical Cryptography Digital Signature Algorithms.

Definition at line 171 of file [ember-types.h](#).

**6.25.2.15 #define \_\_EMBERSTATUS\_TYPE\_\_**

Return type for Ember functions.

Definition at line 177 of file [ember-types.h](#).

**6.25.2.16 #define EMBER\_MAX\_802\_15\_4\_CHANNEL\_NUMBER**

The maximum 802.15.4 channel number is 26.

Definition at line 215 of file [ember-types.h](#).

**6.25.2.17 #define EMBER\_MIN\_802\_15\_4\_CHANNEL\_NUMBER**

The minimum 802.15.4 channel number is 11.

Definition at line 220 of file [ember-types.h](#).

**6.25.2.18 #define EMBER\_NUM\_802\_15\_4\_CHANNELS**

There are sixteen 802.15.4 channels.

Definition at line 225 of file [ember-types.h](#).

**6.25.2.19 #define EMBER\_ALL\_802\_15\_4\_CHANNELS\_MASK**

Bitmask to scan all 802.15.4 channels.

Definition at line 231 of file [ember-types.h](#).

**6.25.2.20 #define EMBER\_ZIGBEE\_COORDINATOR\_ADDRESS**

The network ID of the coordinator in a ZigBee network is 0x0000.

Definition at line 236 of file [ember-types.h](#).

**6.25.2.21 #define EMBER\_NULL\_NODE\_ID**

A distinguished network ID that will never be assigned to any node. Used to indicate the absence of a node ID.

Definition at line 242 of file [ember-types.h](#).

**6.25.2.22 #define EMBER\_NULL\_BINDING**

A distinguished binding index used to indicate the absence of a binding.

Definition at line 248 of file [ember-types.h](#).

**6.25.2.23 #define EMBER\_TABLE\_ENTRY\_UNUSED\_NODE\_ID**

A distinguished network ID that will never be assigned to any node.

This value is used when setting or getting the remote node ID in the address table or getting the remote node ID from the binding table. It indicates that address or binding table entry is not in use.

Definition at line 259 of file [ember-types.h](#).

**6.25.2.24 #define EMBER\_MULTICAST\_NODE\_ID**

A distinguished network ID that will never be assigned to any node. This value is returned when getting the remote node ID from the binding table and the given binding table index refers to a multicast binding entry.

Definition at line 267 of file [ember-types.h](#).

**6.25.2.25 #define EMBER\_UNKNOWN\_NODE\_ID**

A distinguished network ID that will never be assigned to any node. This value is used when getting the remote node ID from the address or binding tables. It indicates that the address or binding table entry is currently in use but the node ID corresponding to the EUI64 in the table is currently unknown.

Definition at line 276 of file [ember-types.h](#).

**6.25.2.26 #define EMBER\_DISCOVERY\_ACTIVE\_NODE\_ID**

A distinguished network ID that will never be assigned to any node. This value is used when getting the remote node ID from the address or binding tables. It indicates that the address or binding table entry is currently in use and network address discovery is underway.

Definition at line 285 of file [ember-types.h](#).

**6.25.2.27 #define EMBER\_NULL\_ADDRESS\_TABLE\_INDEX**

A distinguished address table index used to indicate the absence of an address table entry.

Definition at line 291 of file [ember-types.h](#).

**6.25.2.28 #define EMBER\_ZDO\_ENDPOINT**

The endpoint where the ZigBee Device Object (ZDO) resides.

Definition at line [296](#) of file [ember-types.h](#).

**6.25.2.29 #define EMBER\_BROADCAST\_ENDPOINT**

The broadcast endpoint, as defined in the ZigBee spec.

Definition at line [301](#) of file [ember-types.h](#).

**6.25.2.30 #define EMBER\_ZDO\_PROFILE\_ID**

The profile ID used by the ZigBee Device Object (ZDO).

Definition at line [306](#) of file [ember-types.h](#).

**6.25.2.31 #define EMBER\_WILDCARD\_PROFILE\_ID**

The profile ID used to address all the public profiles.

Definition at line [311](#) of file [ember-types.h](#).

**6.25.2.32 #define EMBER\_MAXIMUM\_STANDARD\_PROFILE\_ID**

The maximum value for a profile ID in the standard profile range.

Definition at line [316](#) of file [ember-types.h](#).

**6.25.2.33 #define EMBER\_BROADCAST\_TABLE\_TIMEOUT\_QS**

The broadcast table timeout. How long a broadcast entry persists in the local device's broadcast table. This is the maximum length it will persist, in quarter seconds.

Definition at line [323](#) of file [ember-types.h](#).

**6.25.2.34 #define EMBER\_MANUFACTURER\_ID**

Ember's Manufacturer ID.

Definition at line [329](#) of file [ember-types.h](#).

**6.25.2.35 #define EMBER\_BROADCAST\_ADDRESS**

Broadcast to all routers.

Definition at line [378](#) of file [ember-types.h](#).

**6.25.2.36 #define EMBER\_RX\_ON\_WHEN\_IDLE\_BROADCAST\_ADDRESS**

Broadcast to all non-sleepy devices.

Definition at line 380 of file [ember-types.h](#).

#### **6.25.2.37 #define EMBER\_SLEEPY\_BROADCAST\_ADDRESS**

Broadcast to all devices, including sleepy end devices.

Definition at line 382 of file [ember-types.h](#).

#### **6.25.2.38 #define EMBER\_MIN\_BROADCAST\_ADDRESS**

Definition at line 387 of file [ember-types.h](#).

#### **6.25.2.39 #define emberIsZigbeeBroadcastAddress( *address* )**

Definition at line 389 of file [ember-types.h](#).

#### **6.25.2.40 #define EMBER\_LOW\_RAM\_CONCENTRATOR**

A concentrator with insufficient memory to store source routes for the entire network. Route records are sent to the concentrator prior to every inbound APS unicast.

Definition at line 711 of file [ember-types.h](#).

#### **6.25.2.41 #define EMBER\_HIGH\_RAM\_CONCENTRATOR**

A concentrator with sufficient memory to store source routes for the entire network. Remote nodes stop sending route records once the concentrator has successfully received one.

Definition at line 716 of file [ember-types.h](#).

#### **6.25.2.42 #define EMBER\_JOIN\_DECISION\_STRINGS**

@ brief Defines the CLI enumerations for the [EmberJoinDecision](#) enum

Definition at line 744 of file [ember-types.h](#).

#### **6.25.2.43 #define EMBER\_DEVICE\_UPDATE\_STRINGS**

@ brief Defines the CLI enumerations for the [EmberDeviceUpdate](#) enum.

Definition at line 779 of file [ember-types.h](#).

#### **6.25.2.44 #define emberInitializeNetworkParameters( *parameters* )**

Definition at line 951 of file [ember-types.h](#).

#### **6.25.2.45 #define EMBER\_COUNTER\_STRINGS**

@ brief Defines the CLI enumerations for the [EmberCounterType](#) enum.

Definition at line 1226 of file [ember-types.h](#).

**6.25.2.46 #define EMBER\_TX\_POWER\_MODE\_DEFAULT**

The application should call ::emberSetTxPowerMode() with the txPowerMode parameter set to this value to disable all power mode options, resulting in normal power mode and bi-directional RF transmitter output.

Definition at line 1319 of file [ember-types.h](#).

**6.25.2.47 #define EMBER\_TX\_POWER\_MODE\_BOOST**

The application should call ::emberSetTxPowerMode() with the txPowerMode parameter set to this value to enable boost power mode.

Definition at line 1323 of file [ember-types.h](#).

**6.25.2.48 #define EMBER\_TX\_POWER\_MODE\_ALTERNATE**

The application should call ::emberSetTxPowerMode() with the txPowerMode parameter set to this value to enable the alternate transmitter output.

Definition at line 1328 of file [ember-types.h](#).

**6.25.2.49 #define EMBER\_TX\_POWER\_MODE\_BOOST\_AND\_ALTERNATE**

The application should call ::emberSetTxPowerMode() with the txPowerMode parameter set to this value to enable both boost mode and the alternate transmitter output.

Definition at line 1333 of file [ember-types.h](#).

**6.25.2.50 #define EMBER\_PRIVATE\_PROFILE\_ID**

This is a ZigBee application profile ID that has been assigned to Ember Corporation.

It is used to send for sending messages that have a specific, non-standard interaction with the Ember stack. Its only current use is for alarm messages and stack counters requests.

Definition at line 1357 of file [ember-types.h](#).

**6.25.2.51 #define EMBER\_PRIVATE\_PROFILE\_ID\_START**

Ember's first private profile ID.

Definition at line 1362 of file [ember-types.h](#).

**6.25.2.52 #define EMBER\_PRIVATE\_PROFILE\_ID\_END**

Ember's last private profile ID.

Definition at line 1367 of file [ember-types.h](#).

**6.25.2.53 #define EMBER\_BROADCAST\_ALARM\_CLUSTER**

Alarm messages provide a reliable means for communicating with sleeping end devices.

A messages sent to a sleeping device is normally buffered on the device's parent for a short time (the precise time can be specified using the configuration parameter ::EMBER\_INDIRECT\_TRANSMISSION\_TIMEOUT). If the child does not poll its parent within that time the message is discarded.

In contrast, alarm messages are buffered by the parent indefinitely. Because of the limited RAM available, alarm messages are necessarily brief. In particular, the parent only stores alarm payloads. The header information in alarm messages is not stored on the parent.

The memory used for buffering alarm messages is allocated statically. The amount of memory set aside for alarms is controlled by two configuration parameters:

- ::EMBER\_BROADCAST\_ALARM\_DATA\_SIZE
- ::EMBER\_UNICAST\_ALARM\_DATA\_SIZE

Alarm messages must use the [EMBER\\_PRIVATE\\_PROFILE\\_ID](#) as the application profile ID. The source and destination endpoints are ignored.

Broadcast alarms must use [EMBER\\_BROADCAST\\_ALARM\\_CLUSTER](#) as the cluster id and messages with this cluster ID must be sent to [EMBER\\_RX\\_ON\\_WHEN\\_IDLE\\_BROADCAST\\_ADDRESS](#). A broadcast alarm may not contain more than ::EMBER\_BROADCAST\_ALARM\_DATA\_SIZE bytes of payload.

Broadcast alarm messages arriving at a node are passed to the application via ::emberIncomingMessageHandler(). If the receiving node has sleepy end device children, the payload of the alarm is saved and then forwarded to those children when they poll for data. When a sleepy child polls its parent, it receives only the most recently arrived broadcast alarm. If the child has already received the most recent broadcast alarm it is not forwarded again.

Definition at line 1407 of file [ember-types.h](#).

#### **6.25.2.54 #define EMBER\_UNICAST\_ALARM\_CLUSTER**

Unicast alarms must use [EMBER\\_UNICAST\\_ALARM\\_CLUSTER](#) as the cluster id and messages with this cluster ID must be unicast.

The payload of a unicast alarm consists of three one-byte length fields followed by three variable length fields.

1. flags length
2. priority length (must be 0 or 1)
3. data length
4. flags
5. priority
6. payload

The three lengths must total ::EMBER\_UNICAST\_ALARM\_DATA\_SIZE or less.

When a unicast alarm message arrives at its destination it is passed to the application via ::emberIncomingMessageHandler(). When a node receives a unicast alarm message whose destination is a sleepy end device child of that node, the payload of the message is saved until the child polls for data. To conserve memory, the values of the length fields are not saved. The alarm will be forwarded to the child using the [EMBER\\_CACHED\\_UNICAST\\_ALARM\\_CLUSTER](#) cluster ID.

If a unicast alarm arrives when a previous one is still pending, the two payloads are combined. This combining is controlled by the length fields in the arriving message. The incoming flag bytes are or'ed with those of the pending message. If the priority field is not present, or if it is present and the incoming priority value is equal or greater than the pending priority value, the pending data is replaced by the incoming data.

Because the length fields are not saved, the application designer must fix on a set of field lengths that will be used for all unicast alarm message sent to a particular device.

Definition at line 1445 of file [ember-types.h](#).

#### **6.25.2.55 #define EMBER\_CACHED\_UNICAST\_ALARM\_CLUSTER**

A unicast alarm that has been cached on the parent of a sleepy end device is delivered to that device using the [EMBER\\_CACHED\\_UNICAST\\_ALARM\\_CLUSTER](#) cluster ID. The payload consists of three variable length fields.

1. flags
2. priority
3. payload

The parent will pad the payload out to ::EMBER\_UNICAST\_ALARM\_DATA\_SIZE bytes.

The lengths of the these fields must be fixed by the application designer and must be the same for all unicast alarms sent to a particular device.

Definition at line 1462 of file [ember-types.h](#).

#### **6.25.2.56 #define EMBER\_REPORT\_COUNTERS\_REQUEST**

The cluster id used to request that a node respond with a report of its Ember stack counters. See app/util/counters/counters-ota.h.

Definition at line 1467 of file [ember-types.h](#).

#### **6.25.2.57 #define EMBER\_REPORT\_COUNTERS\_RESPONSE**

The cluster id used to respond to an EMBER\_REPORT\_COUNTERS\_REQUEST.

Definition at line 1470 of file [ember-types.h](#).

#### **6.25.2.58 #define EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_REQUEST**

The cluster id used to request that a node respond with a report of its Ember stack counters. The node will also reset its clusters to zero after a successful response. See app/util/counters/counters-ota.h.

Definition at line 1476 of file [ember-types.h](#).

#### **6.25.2.59 #define EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_RESPONSE**

The cluster id used to respond to an EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_REQUEST.

Definition at line 1479 of file [ember-types.h](#).

**6.25.2.60 #define EMBER\_OTA\_CERTIFICATE\_UPGRADE\_CLUSTER**

The cluster id used to send and receive Over-the-air certificate messages. This is used to field upgrade devices with Smart Energy Certificates and other security data.

Definition at line 1485 of file [ember-types.h](#).

**6.25.2.61 #define EMBER\_STANDARD\_SECURITY\_MODE**

This is an [EmberInitialSecurityBitmask](#) value but it does not actually set anything. It is the default mode used by the ZigBee Pro stack. It is defined here so that no legacy code is broken by referencing it.

Definition at line 1574 of file [ember-types.h](#).

**6.25.2.62 #define EMBER\_TRUST\_CENTER\_NODE\_ID**

This is the short address of the trust center. It never changes from this value throughout the life of the network.

Definition at line 1579 of file [ember-types.h](#).

**6.25.2.63 #define EMBER\_NO\_TRUST\_CENTER\_MODE**

This is the legacy name for the Distributed Trust Center Mode.

Definition at line 1730 of file [ember-types.h](#).

**6.25.2.64 #define EMBER\_GLOBAL\_LINK\_KEY**

This is the legacy name for the Trust Center Global Link Key.

Definition at line 1734 of file [ember-types.h](#).

**6.25.2.65 #define EMBER\_MFG\_SECURITY\_CONFIG\_MAGIC\_NUMBER**

This magic number prevents accidentally changing the key settings. The ::emberSetMfgSecurityConfig() API will return EMBER\_INVALID\_CALL unless it is passed in.

Definition at line 2138 of file [ember-types.h](#).

**6.25.2.66 #define EMBER\_MAC\_FILTER\_MATCH\_ENABLED\_MASK**

Definition at line 2178 of file [ember-types.h](#).

**6.25.2.67 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_MASK**

Definition at line 2179 of file [ember-types.h](#).

**6.25.2.68 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_MASK**

Definition at line 2180 of file [ember-types.h](#).

**6.25.2.69 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_MASK**

Definition at line [2181](#) of file [ember-types.h](#).

**6.25.2.70 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_MASK**

Definition at line [2182](#) of file [ember-types.h](#).

**6.25.2.71 #define EMBER\_MAC\_FILTER\_MATCH\_ENABLED**

Definition at line [2185](#) of file [ember-types.h](#).

**6.25.2.72 #define EMBER\_MAC\_FILTER\_MATCH\_DISABLED**

Definition at line [2186](#) of file [ember-types.h](#).

**6.25.2.73 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_NONE**

Definition at line [2189](#) of file [ember-types.h](#).

**6.25.2.74 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_LOCAL**

Definition at line [2190](#) of file [ember-types.h](#).

**6.25.2.75 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_BROADCAST**

Definition at line [2191](#) of file [ember-types.h](#).

**6.25.2.76 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_NONE**

Definition at line [2194](#) of file [ember-types.h](#).

**6.25.2.77 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_NON\_LOCAL**

Definition at line [2195](#) of file [ember-types.h](#).

**6.25.2.78 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_LOCAL**

Definition at line [2196](#) of file [ember-types.h](#).

**6.25.2.79 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_BROADCAST\_SHORT**

Definition at line [2199](#) of file [ember-types.h](#).

**6.25.2.80 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_UNICAST\_SHORT**

Definition at line [2200](#) of file [ember-types.h](#).

**6.25.2.81 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_UNICAST\_LONG**

Definition at line [2201](#) of file [ember-types.h](#).

**6.25.2.82 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_LONG**

Definition at line [2204](#) of file [ember-types.h](#).

**6.25.2.83 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_SHORT**

Definition at line [2205](#) of file [ember-types.h](#).

**6.25.2.84 #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_NONE**

Definition at line [2206](#) of file [ember-types.h](#).

**6.25.2.85 #define EMBER\_MAC\_FILTER\_MATCH\_END**

Definition at line [2209](#) of file [ember-types.h](#).

**6.25.2.86 #define NETWORK\_ADDRESS\_REQUEST**

Definition at line [2293](#) of file [ember-types.h](#).

**6.25.2.87 #define NETWORK\_ADDRESS\_RESPONSE**

Definition at line [2294](#) of file [ember-types.h](#).

**6.25.2.88 #define IEEE\_ADDRESS\_REQUEST**

Definition at line [2295](#) of file [ember-types.h](#).

**6.25.2.89 #define IEEE\_ADDRESS\_RESPONSE**

Definition at line [2296](#) of file [ember-types.h](#).

**6.25.2.90 #define NODE\_DESCRIPTOR\_REQUEST**

Definition at line [2324](#) of file [ember-types.h](#).

**6.25.2.91 #define NODE\_DESCRIPTOR\_RESPONSE**

Definition at line [2325](#) of file [ember-types.h](#).

**6.25.2.92 #define POWER\_DESCRIPTOR\_REQUEST**

Definition at line [2338](#) of file [ember-types.h](#).

**6.25.2.93 #define POWER\_DESCRIPTOR\_RESPONSE**

Definition at line [2339](#) of file [ember-types.h](#).

**6.25.2.94 #define SIMPLE\_DESCRIPTOR\_REQUEST**

Definition at line [2355](#) of file [ember-types.h](#).

**6.25.2.95 #define SIMPLE\_DESCRIPTOR\_RESPONSE**

Definition at line [2356](#) of file [ember-types.h](#).

**6.25.2.96 #define ACTIVE\_ENDPOINTS\_REQUEST**

Definition at line [2367](#) of file [ember-types.h](#).

**6.25.2.97 #define ACTIVE\_ENDPOINTS\_RESPONSE**

Definition at line [2368](#) of file [ember-types.h](#).

**6.25.2.98 #define MATCH\_DESCRIPTOR\_REQUEST**

Definition at line [2382](#) of file [ember-types.h](#).

**6.25.2.99 #define MATCH\_DESCRIPTOR\_RESPONSE**

Definition at line [2383](#) of file [ember-types.h](#).

**6.25.2.100 #define DISCOVERY\_CACHE\_REQUEST**

Definition at line [2395](#) of file [ember-types.h](#).

**6.25.2.101 #define DISCOVERY\_CACHE\_RESPONSE**

Definition at line [2396](#) of file [ember-types.h](#).

**6.25.2.102 #define END\_DEVICE\_ANNOUNCE**

Definition at line [2407](#) of file `ember-types.h`.

**6.25.2.103 #define END\_DEVICE\_ANNOUNCE\_RESPONSE**

Definition at line [2408](#) of file `ember-types.h`.

**6.25.2.104 #define SYSTEM\_SERVER\_DISCOVERY\_REQUEST**

Definition at line [2422](#) of file `ember-types.h`.

**6.25.2.105 #define SYSTEM\_SERVER\_DISCOVERY\_RESPONSE**

Definition at line [2423](#) of file `ember-types.h`.

**6.25.2.106 #define PARENT\_ANNOUNCE**

Definition at line [2438](#) of file `ember-types.h`.

**6.25.2.107 #define PARENT\_ANNOUNCE\_RESPONSE**

Definition at line [2439](#) of file `ember-types.h`.

**6.25.2.108 #define FIND\_NODE\_CACHE\_REQUEST**

Definition at line [2476](#) of file `ember-types.h`.

**6.25.2.109 #define FIND\_NODE\_CACHE\_RESPONSE**

Definition at line [2477](#) of file `ember-types.h`.

**6.25.2.110 #define END\_DEVICE\_BIND\_REQUEST**

Definition at line [2490](#) of file `ember-types.h`.

**6.25.2.111 #define END\_DEVICE\_BIND\_RESPONSE**

Definition at line [2491](#) of file `ember-types.h`.

**6.25.2.112 #define UNICAST\_BINDING**

Definition at line [2511](#) of file `ember-types.h`.

**6.25.2.113 #define UNICAST\_MANY\_TO\_ONE\_BINDING**

Definition at line [2512](#) of file [ember-types.h](#).

**6.25.2.114 #define MULTICAST\_BINDING**

Definition at line [2513](#) of file [ember-types.h](#).

**6.25.2.115 #define BIND\_REQUEST**

Definition at line [2515](#) of file [ember-types.h](#).

**6.25.2.116 #define BIND\_RESPONSE**

Definition at line [2516](#) of file [ember-types.h](#).

**6.25.2.117 #define UNBIND\_REQUEST**

Definition at line [2517](#) of file [ember-types.h](#).

**6.25.2.118 #define UNBIND\_RESPONSE**

Definition at line [2518](#) of file [ember-types.h](#).

**6.25.2.119 #define LQI\_TABLE\_REQUEST**

Definition at line [2568](#) of file [ember-types.h](#).

**6.25.2.120 #define LQI\_TABLE\_RESPONSE**

Definition at line [2569](#) of file [ember-types.h](#).

**6.25.2.121 #define ROUTING\_TABLE\_REQUEST**

Definition at line [2604](#) of file [ember-types.h](#).

**6.25.2.122 #define ROUTING\_TABLE\_RESPONSE**

Definition at line [2605](#) of file [ember-types.h](#).

**6.25.2.123 #define BINDING\_TABLE\_REQUEST**

Definition at line [2626](#) of file [ember-types.h](#).

**6.25.2.124 #define BINDING\_TABLE\_RESPONSE**

Definition at line [2627](#) of file [ember-types.h](#).

**6.25.2.125 #define LEAVE\_REQUEST**

Definition at line [2640](#) of file [ember-types.h](#).

**6.25.2.126 #define LEAVE\_RESPONSE**

Definition at line [2641](#) of file [ember-types.h](#).

**6.25.2.127 #define LEAVE\_REQUEST\_REMOVE\_CHILDREN\_FLAG**

Definition at line [2643](#) of file [ember-types.h](#).

**6.25.2.128 #define LEAVE\_REQUEST\_REJOIN\_FLAG**

Definition at line [2644](#) of file [ember-types.h](#).

**6.25.2.129 #define PERMIT\_JOINING\_REQUEST**

Definition at line [2655](#) of file [ember-types.h](#).

**6.25.2.130 #define PERMIT\_JOINING\_RESPONSE**

Definition at line [2656](#) of file [ember-types.h](#).

**6.25.2.131 #define NWK\_UPDATE\_REQUEST**

Definition at line [2684](#) of file [ember-types.h](#).

**6.25.2.132 #define NWK\_UPDATE\_RESPONSE**

Definition at line [2685](#) of file [ember-types.h](#).

**6.25.2.133 #define COMPLEX\_DESCRIPTOR\_REQUEST**

Definition at line [2691](#) of file [ember-types.h](#).

**6.25.2.134 #define COMPLEX\_DESCRIPTOR\_RESPONSE**

Definition at line [2692](#) of file [ember-types.h](#).

**6.25.2.135 #define USER\_DESCRIPTOR\_REQUEST**

Definition at line [2693](#) of file `ember-types.h`.

**6.25.2.136 #define USER\_DESCRIPTOR\_RESPONSE**

Definition at line [2694](#) of file `ember-types.h`.

**6.25.2.137 #define DISCOVERY\_REGISTER\_REQUEST**

Definition at line [2695](#) of file `ember-types.h`.

**6.25.2.138 #define DISCOVERY\_REGISTER\_RESPONSE**

Definition at line [2696](#) of file `ember-types.h`.

**6.25.2.139 #define USER\_DESCRIPTOR\_SET**

Definition at line [2697](#) of file `ember-types.h`.

**6.25.2.140 #define USER\_DESCRIPTOR\_CONFIRM**

Definition at line [2698](#) of file `ember-types.h`.

**6.25.2.141 #define NETWORK\_DISCOVERY\_REQUEST**

Definition at line [2699](#) of file `ember-types.h`.

**6.25.2.142 #define NETWORK\_DISCOVERY\_RESPONSE**

Definition at line [2700](#) of file `ember-types.h`.

**6.25.2.143 #define DIRECT\_JOIN\_REQUEST**

Definition at line [2701](#) of file `ember-types.h`.

**6.25.2.144 #define DIRECT\_JOIN\_RESPONSE**

Definition at line [2702](#) of file `ember-types.h`.

**6.25.2.145 #define CLUSTER\_ID\_RESPONSE\_MINIMUM**

Definition at line [2705](#) of file `ember-types.h`.

#### **6.25.2.146 #define WEAK\_TEST**

Definition at line [2739](#) of file [ember-types.h](#).

### **6.25.3 Typedef Documentation**

#### **6.25.3.1 typedef uint8\_t EmberStatus**

[EmberReleaseTypeStruct](#) Data that relates release type to the correct string.

Definition at line [178](#) of file [ember-types.h](#).

#### **6.25.3.2 typedef uint8\_t EmberEUI64[EUI64\_SIZE]**

EUI 64-bit ID (an IEEE address).

Definition at line [186](#) of file [ember-types.h](#).

#### **6.25.3.3 typedef uint8\_t EmberMessageBuffer**

Incoming and outgoing messages are stored in buffers. These buffers are allocated and freed as needed.

Buffers are 32 bytes in length and can be linked together to hold longer messages.

See [packet-buffer.h](#) for APIs related to stack and linked buffers.

Definition at line [197](#) of file [ember-types.h](#).

#### **6.25.3.4 typedef uint16\_t EmberNodeId**

16-bit ZigBee network address.

Definition at line [202](#) of file [ember-types.h](#).

#### **6.25.3.5 typedef uint16\_t EmberMulticastId**

16-bit ZigBee multicast group identifier.

Definition at line [205](#) of file [ember-types.h](#).

#### **6.25.3.6 typedef uint16\_t EmberPanId**

802.15.4 PAN ID.

Definition at line [210](#) of file [ember-types.h](#).

#### **6.25.3.7 typedef uint8\_t EmberTaskId**

brief An identifier for a task

Definition at line [1264](#) of file [ember-types.h](#).

### 6.25.3.8 `typedef PGM struct EmberEventData_S EmberEventData`

#### 6.25.3.9 `typedef uint16_t EmberMacFilterMatchData`

This is a bitmask describing a filter for MAC data messages that the stack should accept and passthrough to the application.

Definition at line 2176 of file [ember-types.h](#).

#### 6.25.3.10 `typedef uint8_t EmberLibraryStatus`

This indicates the presence, absence, or status of an Ember stack library.

Definition at line 2224 of file [ember-types.h](#).

### 6.25.4 Enumeration Type Documentation

#### 6.25.4.1 `enum EmberVersionType`

Type of Ember software version.

**Enumerator:**

```
EMBER_VERSION_TYPE_PRE_RELEASE
EMBER_VERSION_TYPE_ALPHA_1
EMBER_VERSION_TYPE_ALPHA_2
EMBER_VERSION_TYPE_ALPHA_3
EMBER_VERSION_TYPE_BETA_1
EMBER_VERSION_TYPE_BETA_2
EMBER_VERSION_TYPE_BETA_3
EMBER_VERSION_TYPE_GA
```

Definition at line 37 of file [ember-types.h](#).

#### 6.25.4.2 `enum EmberLeaveRequestFlags`

[EmberReleaseTypeStruct](#) Data that relates release type to the correct string.

**Enumerator:**

```
EMBER_ZIGBEE_LEAVE_AND_REJOIN Leave and rejoin
EMBER_ZIGBEE_LEAVE_AND_REMOVE_CHILDREN Send all children leave command
```

Definition at line 333 of file [ember-types.h](#).

#### 6.25.4.3 `enum EmberLeaveReason`

[EmberReleaseTypeStruct](#) Data that relates release type to the correct string.

Enumerator:

*EMBER\_LEAVE\_REASON\_NONE*  
*EMBER\_LEAVE\_DUE\_TO\_NWK\_LEAVE\_MESSAGE*  
*EMBER\_LEAVE\_DUE\_TO\_AP\_REMOVE\_MESSAGE*  
*EMBER\_LEAVE\_DUE\_TO\_ZDO\_LEAVE\_MESSAGE*  
*EMBER\_LEAVE\_DUE\_TO\_ZLL\_TOUCHLINK*  
*EMBER\_LEAVE\_DUE\_TO\_APP\_EVENT\_I*

Definition at line 347 of file [ember-types.h](#).

#### 6.25.4.4 enum EmberNodeType

Defines the possible types of nodes and the roles that a node might play in a network.

Enumerator:

*EMBER\_UNKNOWN\_DEVICE* Device is not joined  
*EMBER\_COORDINATOR* Will relay messages and can act as a parent to other nodes.  
*EMBER\_ROUTER* Will relay messages and can act as a parent to other nodes.  
*EMBER\_END\_DEVICE* Communicates only with its parent and will not relay messages.  
*EMBER\_SLEEPY\_END\_DEVICE* An end device whose radio can be turned off to save power. The application must call ::emberPollForData() to receive messages.  
*EMBER\_MOBILE\_END\_DEVICE* A sleepy end device that can move through the network.  
*EMBER\_RF4CE\_TARGET* RF4CE target node.  
*EMBER\_RF4CE\_CONTROLLER* RF4CE controller node.

Definition at line 398 of file [ember-types.h](#).

#### 6.25.4.5 enum EmberEndDeviceConfiguration

The configuration advertised by the end device to the parent when joining/rejoining.

Enumerator:

*EMBER\_END\_DEVICE\_CONFIG\_NONE*  
*EMBER\_END\_DEVICE\_CONFIG\_PERSIST\_DATA\_ON\_PARENT*

Definition at line 428 of file [ember-types.h](#).

#### 6.25.4.6 enum EmberNetworkInitBitmask

Defines the options that should be used when initializing the node's network configuration.

Enumerator:

*EMBER\_NETWORK\_INIT\_NO\_OPTIONS*  
*EMBER\_NETWORK\_INIT\_PARENT\_INFO\_IN\_TOKEN* The Parent Node ID and EUI64 are stored in a token. This prevents the need to perform an Orphan scan on startup.

Definition at line 456 of file [ember-types.h](#).

#### 6.25.4.7 enum EmberApsOption

Options to use when sending a message.

The discover route, APS retry, and APS indirect options may be used together. Poll response cannot be combined with any other options.

Enumerator:

***EMBER\_APS\_OPTION\_NONE*** No options.

***EMBER\_APS\_OPTION\_DSA\_SIGN*** This signs the application layer message body (APS Frame not included) and appends the ECDSA signature to the end of the message. Needed by Smart Energy applications. This requires the CBKE and ECC libraries. The ::emberDsaSignHandler() function is called after DSA signing is complete but before the message has been sent by the APS layer. Note that when passing a buffer to the stack for DSA signing, the final byte in the buffer has special significance as an indicator of how many leading bytes should be ignored for signature purposes. Refer to API documentation of emberDsaSign() or the dsaSign EZSP command for further details about this requirement.

***EMBER\_APS\_OPTION\_ENCRYPTION*** Send the message using APS Encryption, using the Link Key shared with the destination node to encrypt the data at the APS Level.

***EMBER\_APS\_OPTION\_RETRY*** Resend the message using the APS retry mechanism. In the mesh stack, this option and the enable route discovery option must be enabled for an existing route to be repaired automatically.

***EMBER\_APS\_OPTION\_ENABLE\_ROUTE\_DISCOVERY*** Send the message with the NWK 'enable route discovery' flag, which causes a route discovery to be initiated if no route to the destination is known. Note that in the mesh stack, this option and the APS retry option must be enabled an existing route to be repaired automatically.

***EMBER\_APS\_OPTION\_FORCE\_ROUTE\_DISCOVERY*** Send the message with the NWK 'force route discovery' flag, which causes a route discovery to be initiated even if one is known.

***EMBER\_APS\_OPTION\_SOURCE\_EUI64*** Include the source EUI64 in the network frame.

***EMBER\_APS\_OPTION\_DESTINATION\_EUI64*** Include the destination EUI64 in the network frame.

***EMBER\_APS\_OPTION\_ENABLE\_ADDRESS\_DISCOVERY*** Send a ZDO request to discover the node ID of the destination, if it is not already known.

***EMBER\_APS\_OPTION\_POLL\_RESPONSE*** This message is being sent in response to a call to ::emberPollHandler(). It causes the message to be sent immediately instead of being queued up until the next poll from the (end device) destination.

***EMBER\_APS\_OPTION\_ZDO\_RESPONSE\_REQUIRED*** This incoming message is a valid ZDO request and the application is responsible for sending a ZDO response. This flag is used only within emberIncomingMessageHandler() when EMBER\_APPLICATION RECEIVES\_UNSUPPORTED\_ZDO\_REQUESTS is defined.

***EMBER\_APS\_OPTION\_FRAGMENT*** This message is part of a fragmented message. This option may only be set for unicasts. The groupId field gives the index of this fragment in the low-order byte. If the low-order byte is zero this is the first fragment and the high-order byte contains the number of fragments in the message.

Definition at line 486 of file [ember-types.h](#).

#### 6.25.4.8 enum EmberIncomingMessageType

Defines the possible incoming message types.

Enumerator:

- EMBER\_INCOMING\_UNICAST*** Unicast.
- EMBER\_INCOMING\_UNICAST\_REPLY*** Unicast reply.
- EMBER\_INCOMING\_MULTICAST*** Multicast.
- EMBER\_INCOMING\_MULTICAST\_LOOPBACK*** Multicast sent by the local device.
- EMBER\_INCOMING\_BROADCAST*** Broadcast.
- EMBER\_INCOMING\_BROADCAST\_LOOPBACK*** Broadcast sent by the local device.

Definition at line 559 of file [ember-types.h](#).

#### 6.25.4.9 enum EmberOutgoingMessageType

Defines the possible outgoing message types.

Enumerator:

- EMBER\_OUTGOING\_DIRECT*** Unicast sent directly to an EmberNodeId.
- EMBER\_OUTGOING\_VIA\_ADDRESS\_TABLE*** Unicast sent using an entry in the address table.
- EMBER\_OUTGOING\_VIA\_BINDING*** Unicast sent using an entry in the binding table.
- EMBER\_OUTGOING\_MULTICAST*** Multicast message. This value is passed to emberMessageSentHandler() only. It may not be passed to emberSendUnicast().
- EMBER\_OUTGOING\_MULTICAST\_WITH\_ALIAS*** aliased multicast message. This value is passed to emberMessageSentHandler() only. It may not be passed to emberSendUnicast().
- EMBER\_OUTGOING\_BROADCAST\_WITH\_ALIAS*** aliased Broadcast message. This value is passed to emberMessageSentHandler() only. It may not be passed to emberSendUnicast().
- EMBER\_OUTGOING\_BROADCAST*** Broadcast message. This value is passed to emberMessageSentHandler() only. It may not be passed to emberSendUnicast().

Definition at line 584 of file [ember-types.h](#).

#### 6.25.4.10 enum EmberZigbeeCommandType

A type of command received by the stack.

This enum provides a way to indicate which protocol layer in the Ember stack an incoming command was meant for.

Enumerator:

- EMBER\_ZIGBEE\_COMMAND\_TYPE\_MAC*** Describes an 802.15.4 MAC layer command.
- EMBER\_ZIGBEE\_COMMAND\_TYPE\_NWK*** Describes a ZigBee Network layer command.
- EMBER\_ZIGBEE\_COMMAND\_TYPE\_APS*** Describes a ZigBee Application Support layer command.
- EMBER\_ZIGBEE\_COMMAND\_TYPE\_ZDO*** Describes a ZigBee Device Object command.
- EMBER\_ZIGBEE\_COMMAND\_TYPE\_ZCL*** Describes a ZigBee Cluster Library command.
- EMBER\_ZIGBEE\_COMMAND\_TYPE\_BEACON*** Although a beacon is not a MAC command, we have it here for simplicity.

Definition at line 616 of file [ember-types.h](#).

#### 6.25.4.11 enum EmberNetworkStatus

Defines the possible join states for a node.

**Enumerator:**

- EMBER\_NO\_NETWORK*** The node is not associated with a network in any way.
- EMBER\_JOINING\_NETWORK*** The node is currently attempting to join a network.
- EMBER\_JOINED\_NETWORK*** The node is joined to a network.
- EMBER\_JOINED\_NETWORK\_NO\_PARENT*** The node is an end device joined to a network but its parent is not responding.
- EMBER\_LEAVING\_NETWORK*** The node is in the process of leaving its current network.

Definition at line 641 of file [ember-types.h](#).

#### 6.25.4.12 enum EmberNetworkScanType

Type for a network scan.

**Enumerator:**

- EMBER\_ENERGY\_SCAN*** An energy scan scans each channel for its RSSI value.
- EMBER\_ACTIVE\_SCAN*** An active scan scans each channel for available networks.

Definition at line 665 of file [ember-types.h](#).

#### 6.25.4.13 enum EmberBindingType

Defines binding types.

**Enumerator:**

- EMBER\_UNUSED\_BINDING*** A binding that is currently not in use.
- EMBER\_UNICAST\_BINDING*** A unicast binding whose 64-bit identifier is the destination EUI64.
- EMBER\_MANY\_TO\_ONE\_BINDING*** A unicast binding whose 64-bit identifier is the many-to-one destination EUI64. Route discovery should be disabled when sending unicasts via many-to-one bindings.
- EMBER\_MULTICAST\_BINDING*** A multicast binding whose 64-bit identifier is the group address. A multicast binding can be used to send messages to the group and to receive messages sent to the group.

Definition at line 682 of file [ember-types.h](#).

#### 6.25.4.14 enum EmberJoinDecision

Decision made by the Trust Center when a node attempts to join.

**Enumerator:**

- EMBER\_USE\_PRECONFIGURED\_KEY*** Allow the node to join. The node has the key.

***EMBER\_SEND\_KEY\_IN\_THE\_CLEAR*** Allow the node to join. Send the key to the node.

***EMBER\_DENY\_JOIN*** Deny join.

***EMBER\_NO\_ACTION*** Take no action.

Definition at line 725 of file [ember-types.h](#).

#### 6.25.4.15 enum EmberDeviceUpdate

The Status of the Update Device message sent to the Trust Center. The device may have joined or rejoined insecurely, rejoined securely, or left. MAC Security has been deprecated and therefore there is no secure join.

Enumerator:

```
EMBER_STANDARD_SECURITY_SECURED_REJOIN
EMBER_STANDARD_SECURITY_UNSECURED_JOIN
EMBER_DEVICE_LEFT
EMBER_STANDARD_SECURITY_UNSECURED_REJOIN
EMBER_HIGH_SECURITY_SECURED_REJOIN
EMBER_HIGH_SECURITY_UNSECURED_JOIN
EMBER_HIGH_SECURITY_UNSECURED_REJOIN
```

Definition at line 759 of file [ember-types.h](#).

#### 6.25.4.16 enum EmberRejoinReason

Notes the last rejoin reason.

Enumerator:

```
EMBER_REJOIN_REASON_NONE
EMBER_REJOIN_DUE_TO_NWK_KEY_UPDATE
EMBER_REJOIN_DUE_TO_LEAVE_MESSAGE
EMBER_REJOIN_DUE_TO_NO_PARENT
EMBER_REJOIN_DUE_TO_ZLL_TOUCHLINK
EMBER_REJOIN_DUE_TO_APP_EVENT_5
EMBER_REJOIN_DUE_TO_APP_EVENT_4
EMBER_REJOIN_DUE_TO_APP_EVENT_3
EMBER_REJOIN_DUE_TO_APP_EVENT_2
EMBER_REJOIN_DUE_TO_APP_EVENT_1
```

Definition at line 793 of file [ember-types.h](#).

#### 6.25.4.17 enum EmberClusterListId

Defines the lists of clusters that must be provided for each endpoint.

**Enumerator:**

**EMBER\_INPUT\_CLUSTER\_LIST** Input clusters the endpoint will accept.

**EMBER\_OUTPUT\_CLUSTER\_LIST** Output clusters the endpoint can send.

Definition at line 823 of file [ember-types.h](#).

#### 6.25.4.18 enum EmberEventUnits

Either marks an event as inactive or specifies the units for the event execution time.

**Enumerator:**

**EMBER\_EVENT\_INACTIVE** The event is not scheduled to run.

**EMBER\_EVENT\_MS\_TIME** The execution time is in approximate milliseconds.

**EMBER\_EVENT\_QS\_TIME** The execution time is in 'binary' quarter seconds (256 approximate milliseconds each).

**EMBER\_EVENT\_MINUTE\_TIME** The execution time is in 'binary' minutes (65536 approximate milliseconds each).

**EMBER\_EVENT\_ZERO\_DELAY** The event is scheduled to run at the earliest opportunity.

Definition at line 841 of file [ember-types.h](#).

#### 6.25.4.19 enum EmberJoinMethod

The type of method used for joining.

**Enumerator:**

**EMBER\_USE\_MAC\_ASSOCIATION** Normally devices use MAC Association to join a network, which respects the "permit joining" flag in the MAC Beacon. For mobile nodes this value causes the device to use an Ember Mobile Node Join, which is functionally equivalent to a MAC association. This value should be used by default.

**EMBER\_USE\_NWK\_REJOIN** For those networks where the "permit joining" flag is never turned on, they will need to use a ZigBee NWK Rejoin. This value causes the rejoin to be sent with OUT NWK security and the Trust Center will be asked to send the NWK key to the device. The NWK key sent to the device can be encrypted with the device's corresponding Trust Center link key. That is determined by the [EmberJoinDecision](#) on the Trust Center returned by the ::emberTrustCenterJoinHandler(). For a mobile node this value will cause it to use an Ember Mobile node rejoin, which is functionally equivalent.

**EMBER\_USE\_NWK\_REJOIN\_HAVE\_NWK\_KEY**

**EMBER\_USE\_NWK\_COMMISSIONING** For those networks where all network and security information is known ahead of time, a router device may be commissioned such that it does not need to send any messages to begin communicating on the network.

Definition at line 866 of file [ember-types.h](#).

#### 6.25.4.20 enum EmberCounterType

Defines the events reported to the application by the [emberCounterHandler\(\)](#).

**Enumerator:**

**EMBER\_COUNTER\_MAC\_RX\_BROADCAST** The MAC received a broadcast.

**EMBER\_COUNTER\_MAC\_TX\_BROADCAST** The MAC transmitted a broadcast.

**EMBER\_COUNTER\_MAC\_RX\_UNICAST** The MAC received a unicast.

**EMBER\_COUNTER\_MAC\_TX\_UNICAST\_SUCCESS** The MAC successfully transmitted a unicast.

**EMBER\_COUNTER\_MAC\_TX\_UNICAST\_RETRY** The MAC retried a unicast. This is a placeholder and is not used by the [emberCounterHandler\(\)](#) callback. Instead the number of MAC retries are returned in the data parameter of the callback for the [EMBER\\_COUNTER\\_MAC\\_TX\\_UNICAST\\_SUCCESS](#) and [EMBER\\_COUNTER\\_MAC\\_TX\\_UNICAST\\_FAILED](#) types.

**EMBER\_COUNTER\_MAC\_TX\_UNICAST\_FAILED** The MAC unsuccessfully transmitted a unicast.

**EMBER\_COUNTERAPS\_DATA\_RX\_BROADCAST** The APS layer received a data broadcast.

**EMBER\_COUNTERAPS\_DATA\_TX\_BROADCAST** The APS layer transmitted a data broadcast.

**EMBER\_COUNTERAPS\_DATA\_RX\_UNICAST** The APS layer received a data unicast.

**EMBER\_COUNTERAPS\_DATA\_TX\_UNICAST\_SUCCESS** The APS layer successfully transmitted a data unicast.

**EMBER\_COUNTERAPS\_DATA\_TX\_UNICAST\_RETRY** The APS layer retried a data unicast. This is a placeholder and is not used by the [emberCounterHandler\(\)](#) callback. Instead the number of APS retries are returned in the data parameter of the callback for the [EMBER\\_COUNTERAPS\\_DATA\\_TX\\_UNICAST\\_SUCCESS](#) and [EMBER\\_COUNTERAPS\\_DATA\\_TX\\_UNICAST\\_FAILED](#) types.

**EMBER\_COUNTERAPS\_DATA\_TX\_UNICAST\_FAILED** The APS layer unsuccessfully transmitted a data unicast.

**EMBER\_COUNTERROUTE\_DISCOVERY\_INITIATED** The network layer successfully submitted a new route discovery to the MAC.

**EMBER\_COUNTERNEIGHBOR\_ADDED** An entry was added to the neighbor table.

**EMBER\_COUNTERNEIGHBOR\_REMOVED** An entry was removed from the neighbor table.

**EMBER\_COUNTERNEIGHBOR\_STALE** A neighbor table entry became stale because it had not been heard from.

**EMBER\_COUNTERJOIN\_INDICATION** A node joined or rejoined to the network via this node.

**EMBER\_COUNTERCHILD\_REMOVED** An entry was removed from the child table.

**EMBER\_COUNTERASH\_OVERFLOW\_ERROR** EZSP-UART only. An overflow error occurred in the UART.

**EMBER\_COUNTERASH\_FRAMING\_ERROR** EZSP-UART only. A framing error occurred in the UART.

**EMBER\_COUNTERASH\_OVERRUN\_ERROR** EZSP-UART only. An overrun error occurred in the UART.

**EMBER\_COUNTER\_NWK\_FRAME\_COUNTER\_FAILURE** A message was dropped at the Network layer because the NWK frame counter was not higher than the last message seen from that source.

**EMBER\_COUNTER\_APSS\_FRAME\_COUNTER\_FAILURE** A message was dropped at the APS layer because the APS frame counter was not higher than the last message seen from that source.

**EMBER\_COUNTER\_ASH\_XOFF** EZSP-UART only. An XOFF was transmitted by the UART.

**EMBER\_COUNTER\_APSS\_LINK\_KEY\_NOT\_AUTHORIZED** A message was dropped at the APS layer because it had APS encryption but the key associated with the sender has not been authenticated, and thus the key is not authorized for use in APS data messages.

**EMBER\_COUNTER\_NWK\_DECRYPTION\_FAILURE** A NWK encrypted message was received but dropped because decryption failed.

**EMBER\_COUNTER\_APSS\_DECRYPTION\_FAILURE** An APS encrypted message was received but dropped because decryption failed.

**EMBER\_COUNTER\_ALLOCATE\_PACKET\_BUFFER\_FAILURE** The number of times we failed to allocate a set of linked packet buffers. This doesn't necessarily mean that the packet buffer count was 0 at the time, but that the number requested was greater than the number free.

**EMBER\_COUNTER\_RELAYED\_UNICAST** The number of relayed unicast packets.

**EMBER\_COUNTER\_PHY\_TO\_MAC\_QUEUE\_LIMIT\_REACHED** The number of times we dropped a packet due to reaching the preset PHY to MAC queue limit (emMaxPhyToMacQueueLength). The limit will determine how many messages are accepted by the PHY between calls to emberTick(). After that limit is hit, packets will be dropped. The number of dropped packets will be recorded in this counter.

NOTE: For each call to `emberCounterHandler()` there may be more than 1 packet that was dropped due to the limit reached. The actual number of packets dropped will be returned in the 'data' parameter passed to that function.

**EMBER\_COUNTER\_PACKET\_VALIDATE\_LIBRARY\_DROPPED\_COUNT** The number of times we dropped a packet due to the packet-validate library checking a packet and rejecting it due to length or other formatting problems.

**EMBER\_COUNTER\_TYPE\_NWK\_RETRY\_OVERFLOW** The number of times the NWK retry queue is full and a new message failed to be added.

**EMBER\_COUNTER\_PHY\_CCA\_FAIL\_COUNT** The number of times the PHY layer was unable to transmit due to a failed CCA

**EMBER\_COUNTER\_BROADCAST\_TABLE\_FULL** The number of times a NWK broadcast was dropped because the broadcast table was full.

**EMBER\_COUNTER\_TYPE\_COUNT** A placeholder giving the number of Ember counter types.

Definition at line 1089 of file `ember-types.h`.

#### 6.25.4.21 enum EmberInitialSecurityBitmask

This is the Initial Security Bitmask that controls the use of various security features.

**Enumerator:**

**EMBER\_DISTRIBUTED\_TRUST\_CENTER\_MODE** This enables Distributed Trust Center Mode for the device forming the network. (Previously known as `EMBER_NO_TRUST_CENTER_MODE`)

**EMBER\_TRUST\_CENTER\_GLOBAL\_LINK\_KEY** This enables a Global Link Key for the Trust Center. All nodes will share the same Trust Center Link Key.

**EMBER\_PRECONFIGURED\_NETWORK\_KEY\_MODE** This enables devices that perform MAC Association with a pre-configured Network Key to join the network. It is only set on the Trust Center.

**EMBER\_HAVE\_TRUST\_CENTER\_EUI64** This denotes that the `EmberInitialSecurityState::preconfiguredTrustCenterEui64` has a value in it containing the trust center EUI64. The device will only join a network and accept commands from a trust center with that EUI64. Normally this bit is NOT set, and the EUI64 of the trust center is learned during the join process. When commissioning a device to join onto an existing network that is using a trust center, and without sending any messages, this bit must be set and the field `EmberInitialSecurityState::preconfiguredTrustCenterEui64` must be populated with the appropriate EUI64.

**EMBER\_TRUST\_CENTERUSES\_HASHED\_LINK\_KEY** This denotes that the `EmberInitialSecurityState::preconfiguredKey` is not the actual Link Key but a Root Key known only to the Trust Center. It is hashed with the IEEE Address of the destination device in order to create the actual Link Key used in encryption. This is bit is only used by the Trust Center. The joining device need not set this.

**EMBER\_HAVE\_PRECONFIGURED\_KEY** This denotes that the `EmberInitialSecurityState::preconfiguredKey` element has valid data that should be used to configure the initial security state.

**EMBER\_HAVE\_NETWORK\_KEY** This denotes that the `EmberInitialSecurityState::networkKey` element has valid data that should be used to configure the initial security state.

**EMBER\_GET\_LINK\_KEY\_WHEN\_JOINING** This denotes to a joining node that it should attempt to acquire a Trust Center Link Key during joining. This is necessary if the device does not have a pre-configured key, or wants to obtain a new one (since it may be using a well-known key during joining).

**EMBER\_REQUIRE\_ENCRYPTED\_KEY** This denotes that a joining device should only accept an encrypted network key from the Trust Center (using its pre-configured key). A key sent in-the-clear by the Trust Center will be rejected and the join will fail. This option is only valid when utilizing a pre-configured key.

**EMBER\_NO\_FRAME\_COUNTER\_RESET** This denotes whether the device should NOT reset its outgoing frame counters (both NWK and APS) when `::emberSetInitialSecurityState()` is called. Normally it is advised to reset the frame counter before joining a new network. However in cases where a device is joining to the same network again (but not using `::emberRejoinNetwork()`) it should keep the NWK and APS frame counters stored in its tokens.

NOTE: The application is allowed to dynamically change the behavior via `EMBER_EXT_NO_FRAME_COUNTER_RESET` field.

**EMBER\_GET\_PRECONFIGURED\_KEY\_FROM\_INSTALL\_CODE** This denotes that the device should obtain its preconfigured key from an installation code stored in the manufacturing token. The token contains a value that will be hashed to obtain the actual preconfigured key. If that token is not valid than the call to `::emberSetInitialSecurityState()` will fail.

Definition at line 1586 of file `ember-types.h`.

#### 6.25.4.22 enum EmberExtendedSecurityBitmask

This is the Extended Security Bitmask that controls the use of various extended security features.

Enumerator:

**EMBER\_JOINER\_GLOBAL\_LINK\_KEY** This denotes whether a joiner node (router or end-device) uses a Global Link Key or a Unique Link Key.

**EMBER\_EXT\_NO\_FRAME\_COUNTER\_RESET** This denotes whether the device's outgoing frame counter is allowed to be reset during forming or joining. If flag is set, the outgoing frame counter is not allowed to be reset. If flag is not set, the frame counter is allowed to be reset.

**EMBER\_NWK\_LEAVE\_REQUEST\_NOT\_ALLOWED** This denotes whether a router node should discard or accept network Leave Commands.

Definition at line 1683 of file [ember-types.h](#).

#### 6.25.4.23 enum EmberCurrentSecurityBitmask

This is the Current Security Bitmask that details the use of various security features.

**Enumerator:**

***EMBER\_STANDARD\_SECURITY\_MODE*** This denotes that the device is running in a network with ZigBee Standard Security.

***EMBER\_DISTRIBUTED\_TRUST\_CENTER\_MODE*** This denotes that the device is running in a network without a centralized Trust Center.

***EMBER\_TRUST\_CENTER\_GLOBAL\_LINK\_KEY*** This denotes that the device has a Global Link Key. The Trust Center Link Key is the same across multiple nodes.

***EMBER\_HAVE\_TRUST\_CENTER\_LINK\_KEY*** This denotes that the node has a Trust Center Link Key.

***EMBER\_TRUST\_CENTERUSES\_HASHED\_LINK\_KEY*** This denotes that the Trust Center is using a Hashed Link Key.

Definition at line 1791 of file [ember-types.h](#).

#### 6.25.4.24 enum EmberKeyStructBitmask

This bitmask describes the presence of fields within the [EmberKeyStruct](#).

**Enumerator:**

***EMBER\_KEY\_HAS\_SEQUENCE\_NUMBER*** This indicates that the key has a sequence number associated with it. (i.e. a Network Key).

***EMBER\_KEY\_HAS\_OUTGOING\_FRAME\_COUNTER*** This indicates that the key has an outgoing frame counter and the corresponding value within the [EmberKeyStruct](#) has been populated with the data.

***EMBER\_KEY\_HAS\_INCOMING\_FRAME\_COUNTER*** This indicates that the key has an incoming frame counter and the corresponding value within the [EmberKeyStruct](#) has been populated with the data.

***EMBER\_KEY\_HAS\_PARTNER\_EUI64*** This indicates that the key has an associated Partner EUI64 address and the corresponding value within the [EmberKeyStruct](#) has been populated with the data.

***EMBER\_KEY\_IS\_AUTHORIZED*** This indicates the key is authorized for use in APS data messages. If the key is not authorized for use in APS data messages it has not yet gone through a key agreement protocol, such as CBKE (i.e. ECC)

***EMBER\_KEY\_PARTNER\_IS\_SLEEPY*** This indicates that the partner associated with the link is a sleepy end device. This bit is set automatically if the local device hears a device announce from the partner indicating it is not an 'RX on when idle' device.

Definition at line 1843 of file [ember-types.h](#).

#### 6.25.4.25 enum EmberKeyType

This denotes the type of security key.

Enumerator:

***EMBER\_TRUST\_CENTER\_LINK\_KEY*** This denotes that the key is a Trust Center Link Key.  
***EMBER\_TRUST\_CENTER\_MASTER\_KEY*** This denotes that the key is a Trust Center Master Key.  
***EMBER\_CURRENT\_NETWORK\_KEY*** This denotes that the key is the Current Network Key.  
***EMBER\_NEXT\_NETWORK\_KEY*** This denotes that the key is the Next Network Key.  
***EMBER\_APPLICATION\_LINK\_KEY*** This denotes that the key is an Application Link Key  
***EMBER\_APPLICATION\_MASTER\_KEY*** This denotes that the key is an Application Master Key

Definition at line 1878 of file [ember-types.h](#).

#### 6.25.4.26 enum EmberKeyStatus

This denotes the status of an attempt to establish a key with another device.

Enumerator:

***EMBER\_KEY\_STATUS\_NONE***  
***EMBER\_APP\_LINK\_KEY\_ESTABLISHED***  
***EMBER\_APP\_MASTER\_KEY\_ESTABLISHED***  
***EMBER\_TRUST\_CENTER\_LINK\_KEY\_ESTABLISHED***  
***EMBER\_KEY\_ESTABLISHMENT\_TIMEOUT***  
***EMBER\_KEY\_TABLE\_FULL***  
***EMBER\_TC RESPONDED\_TO\_KEY\_REQUEST***  
***EMBER\_TC\_APP\_KEY\_SENT\_TO\_REQUESTER***  
***EMBER\_TC\_RESPONSE\_TO\_KEY\_REQUEST\_FAILED***  
***EMBER\_TC\_REQUEST\_KEY\_TYPE\_NOT\_SUPPORTED***  
***EMBER\_TC\_NO\_LINK\_KEY\_FOR\_REQUESTER***  
***EMBER\_TC\_REQUESTER\_EUI64\_UNKNOWN***  
***EMBER\_TC RECEIVED\_FIRST\_APP\_KEY\_REQUEST***  
***EMBER\_TC\_TIMEOUT\_WAITING\_FOR\_SECOND\_APP\_KEY\_REQUEST***  
***EMBER\_TC\_NON\_MATCHING\_APP\_KEY\_REQUEST\_RECEIVED***  
***EMBER\_TC FAILED\_TO\_SEND\_APP\_KEYS***  
***EMBER\_TC FAILED\_TO\_STORE\_APP\_KEY\_REQUEST***  
***EMBER\_TC REJECTED\_APP\_KEY\_REQUEST***  
***EMBER\_TC FAILED\_TO\_GENERATE\_NEW\_KEY***  
***EMBER\_TC FAILED\_TO\_SEND\_TC\_KEY***  
***EMBER\_TRUST\_CENTER\_IS\_PRE\_R21***  
***EMBER\_TC REQUESTER\_VERIFY\_KEY\_TIMEOUT***  
***EMBER\_TC REQUESTER\_VERIFY\_KEY\_FAILURE***  
***EMBER\_TC REQUESTER\_VERIFY\_KEY\_SUCCESS***  
***EMBER\_VERIFY\_LINK\_KEY\_FAILURE***  
***EMBER\_VERIFY\_LINK\_KEY\_SUCCESS***

Definition at line 1929 of file [ember-types.h](#).

#### 6.25.4.27 enum EmberLinkKeyRequestPolicy

This enumeration determines whether or not a Trust Center answers link key requests.

Enumerator:

- EMBER\_DENY\_KEY\_REQUESTS*
- EMBER\_ALLOW\_KEY\_REQUESTS*
- EMBER\_GENERATE\_NEW\_TC\_LINK\_KEY*

Definition at line 1982 of file [ember-types.h](#).

#### 6.25.4.28 enum EmberKeySettings

Enumerator:

- EMBER\_KEY\_PERMISSIONS\_NONE*
- EMBER\_KEY\_PERMISSIONS\_READING\_ALLOWED*
- EMBER\_KEY\_PERMISSIONS\_HASHING\_ALLOWED*

Definition at line 2114 of file [ember-types.h](#).

#### 6.25.4.29 enum EmberMacPassthroughType

The types of MAC passthrough messages that an application may receive. This is a bitmask.

Enumerator:

- EMBER\_MAC\_PASSTHROUGH\_NONE* No MAC passthrough messages
- EMBER\_MAC\_PASSTHROUGH\_SE\_INTERPAN* SE InterPAN messages
- EMBER\_MAC\_PASSTHROUGH\_EMBERNET* EmberNet and first generation (v1) standalone bootloader messages
- EMBER\_MAC\_PASSTHROUGH\_EMBERNET\_SOURCE* EmberNet messages filtered by their source address.
- EMBER\_MAC\_PASSTHROUGH\_APPLICATION* Application-specific passthrough messages.
- EMBER\_MAC\_PASSTHROUGH\_CUSTOM* Custom inter-pan filter

Definition at line 2146 of file [ember-types.h](#).

#### 6.25.4.30 enum EmberZdoStatus

Enumerator:

- EMBER\_ZDP\_SUCCESS*
- EMBER\_ZDP\_INVALID\_REQUEST\_TYPE*
- EMBER\_ZDP\_DEVICE\_NOT\_FOUND*
- EMBER\_ZDP\_INVALID\_ENDPOINT*
- EMBER\_ZDP\_NOT\_ACTIVE*
- EMBER\_ZDP\_NOT\_SUPPORTED*

```
EMBER_ZDP_TIMEOUT
EMBER_ZDP_NO_MATCH
EMBER_ZDP_NO_ENTRY
EMBER_ZDP_NO_DESCRIPTOR
EMBER_ZDP_INSUFFICIENT_SPACE
EMBER_ZDP_NOT_PERMITTED
EMBER_ZDP_TABLE_FULL
EMBER_ZDP_NOTAUTHORIZED
EMBER_NWK_ALREADY_PRESENT
EMBER_NWK_TABLE_FULL
EMBER_NWK_UNKNOWN_DEVICE
```

Definition at line [2237](#) of file `ember-types.h`.

#### 6.25.4.31 enum EmberZdoServerMask

Enumerator:

```
EMBER_ZDP_PRIMARY_TRUST_CENTER
EMBER_ZDP_SECONDARY_TRUST_CENTER
EMBER_ZDP_PRIMARY_BINDING_TABLE_CACHE
EMBER_ZDP_SECONDARY_BINDING_TABLE_CACHE
EMBER_ZDP_PRIMARY_DISCOVERY_CACHE
EMBER_ZDP_SECONDARY_DISCOVERY_CACHE
EMBER_ZDP_NETWORK_MANAGER
```

Definition at line [2447](#) of file `ember-types.h`.

#### 6.25.4.32 enum EmberZdoConfigurationFlags

Enumerator:

```
EMBER_APP RECEIVES SUPPORTED_ZDO_REQUESTS
EMBER_APP HANDLES UNSUPPORTED_ZDO_REQUESTS
EMBER_APP HANDLES ZDO_ENDPOINT_REQUESTS
EMBER_APP HANDLES ZDO_BINDING_REQUESTS
```

Definition at line [2721](#) of file `ember-types.h`.

### 6.25.5 Function Documentation

#### 6.25.5.1 uint8\_t\* emberKeyContents ( EmberKeyData \* key )

This function allows the programmer to gain access to the actual key data bytes of the `EmberKeyData` struct.

##### Parameters

<i>key</i>	A Pointer to an <a href="#">EmberKeyData</a> structure.
------------	---

**Returns**

`uint8_t*` Returns a pointer to the first byte of the Key data.

**6.25.5.2 `uint8_t* emberCertificateContents ( EmberCertificateData * cert )`**

This function allows the programmer to gain access to the actual certificate data bytes of the [EmberCertificateData](#) struct.

**Parameters**

<i>cert</i>	A Pointer to an <a href="#">EmberCertificateData</a> structure.
-------------	---

**Returns**

`uint8_t*` Returns a pointer to the first byte of the certificate data.

**6.25.5.3 `uint8_t* emberPublicKeyContents ( EmberPublicKeyData * key )`**

This function allows the programmer to gain access to the actual public key data bytes of the [EmberPublicKeyData](#) struct.

**Parameters**

<i>key</i>	A Pointer to an <a href="#">EmberPublicKeyData</a> structure.
------------	---

**Returns**

`uint8_t*` Returns a pointer to the first byte of the public key data.

**6.25.5.4 `uint8_t* emberPrivateKeyContents ( EmberPrivateKeyData * key )`**

This function allows the programmer to gain access to the actual private key data bytes of the [EmberPrivateKeyData](#) struct.

**Parameters**

<i>key</i>	A Pointer to an <a href="#">EmberPrivateKeyData</a> structure.
------------	--

**Returns**

`uint8_t*` Returns a pointer to the first byte of the private key data.

**6.25.5.5 `uint8_t* emberSmacContents ( EmberSmacData * key )`**

This function allows the programmer to gain access to the actual SMAC (Secured Message Authentication Code) data of the [EmberSmacData](#) struct.

**6.25.5.6 `uint8_t* emberSignatureContents ( EmberSignatureData * sig )`**

This function allows the programmer to gain access to the actual ECDSA signature data of the [EmberSignatureData](#) struct.

**6.25.5.7 `uint8_t* emberCertificate283k1Contents ( EmberCertificate283k1Data * cert )`**

This function allows the programmer to gain access to the actual certificate data bytes of the [Ember283k1-CertificateData](#) struct.

**Parameters**

<code>cert</code>	A Pointer to an <code>::Ember283k1CertificateData</code> structure.
-------------------	---

**Returns**

`uint8_t*` Returns a pointer to the first byte of the certificate data.

**6.25.5.8 `uint8_t* emberPublicKey283k1Contents ( EmberPublicKey283k1Data * key )`**

This function allows the programmer to gain access to the actual public key data bytes of the [Ember283k1-PublicKeyData](#) struct.

**Parameters**

<code>key</code>	A Pointer to an <code>Ember283k1PublicKeyData</code> structure.
------------------	---

**Returns**

`uint8_t*` Returns a pointer to the first byte of the public key data.

**6.25.5.9 `uint8_t* emberPrivateKey283k1Contents ( EmberPrivateKey283k1Data * key )`**

This function allows the programmer to gain access to the actual private key data bytes of the [Ember283k1-PrivateKeyData](#) struct.

**Parameters**

<code>key</code>	A Pointer to an <code>Ember283k1PrivateKeyData</code> structure.
------------------	--

**Returns**

`uint8_t*` Returns a pointer to the first byte of the private key data.

**6.25.5.10 `uint8_t* ember283k1SignatureContents ( Ember283k1SignatureData * sig )`**

This function allows the programmer to gain access to the actual ECDSA signature data of the Ember283k1-SignatureData struct.

**6.25.6 Variable Documentation****6.25.6.1 `const EmberVersion emberVersion`**

Struct containing the version info.

## 6.26 Attribute Management

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ATTRIBUTE\_READ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ATTRIBUTE\_WRITE

#### 6.26.1 Detailed Description

Commands related to reading and writing attributes locally on a device.

#### 6.26.2 Macro Definition Documentation

##### 6.26.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ATTRIBUTE\_READ

**read [endpoint:1] [cluster:2] [attribute:2] [mask:1]**

- *Read an attribute from the local attribute table. The attribute is displayed on the command line.*
  - endpoint - INT8U - endpoint of the attribute to read
  - cluster - INT16U - cluster id of the attribute to read
  - attribute - INT16U - attribute id of the attribute to read
  - mask - INT8U - direction mask of the attribute to read (client=0 or server=1)

Definition at line 33 of file [cli.doc](#).

##### 6.26.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ATTRIBUTE\_WRITE

**write [endpoint:1] [cluster:2] [attribute:2] [mask:1] [dataType:1] [dataBytes:-1]**

- *Write an attribute value into the local attribute table*
  - endpoint - INT8U - endpoint of the attribute to write
  - cluster - INT16U - cluster id of the attribute to write
  - attribute - INT16U - attribute id of the attribute to write
  - mask - INT8U - direction mask of the attribute to write (client=0 or server=1)
  - dataType - INT8U - the attribute type as listed in the generated file attribute-type.h
  - dataBytes - OCTET\_STRING - string of bytes you wish to write into the attribute table.

Definition at line 44 of file [cli.doc](#).

## 6.27 Building and Sending Messages

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_SEND\_MULTICAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_BSEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_TIMESYNC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_RAW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_INTERPAN\_GROUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_INTERPAN\_SHORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_INTERPAN\_LONG

### 6.27.1 Detailed Description

Commands for building and sending messages out onto the network.

### 6.27.2 Macro Definition Documentation

#### 6.27.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_SEND

##### send [id:2] [src-endpoint:1] [dst-endpoint:1]

- *Send a pre-buffered message from a given endpoint to an endpoint on a device with a given short address.*
  - id - INT16U - short id of the device to send the message to
  - src-endpoint - INT8U - The endpoint to send the message from
  - dst-endpoint - INT8U - The endpoint to send the message to

Definition at line 61 of file [cli.doc](#).

#### 6.27.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_SEND\_MULTICAST

##### send\_multicast [groupId:2] [src-endpoint:1]

- *Send a pre-buffered multicast message to a given group id from a given endpoint.*
  - groupId - INT16U - group id of the multicast group to send the message to
  - src-endpoint - INT8U - The endpoint to send the message from

Definition at line 68 of file [cli.doc](#).

### 6.27.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_BSEND

#### bsend [srcEndpoint:1]

- *send using a binding based on the clusterId in the globalApsFrame and the srcEndpoint specified (if the src endpoint is zero it only sends based on the clusterId)*
  - srcEndpoint - INT8U - source endpoint to send a binding based message from

Definition at line 74 of file [cli.doc](#).

### 6.27.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_TIMESYNC

#### timesync [id:2] [srcEndpoint:1] [destEndpoint:1]

- *This sends a read attr for the time of the device specified. It sets a flag so when it gets the response it writes the time to its own time attr*
  - id - INT16U - two byte short id of the time server
  - srcEndpoint - INT8U - source endpoint to send time sync from
  - destEndpoint - INT8U - destination endpoint to expect response on

Definition at line 82 of file [cli.doc](#).

### 6.27.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_RAW

#### raw [clusterId:2] [data:-1]

- *Creates a message by specifying the raw bytes. Use "send" to send the message once it has been created. Ex: raw 0x000F {00 0A 00 11 22 33 44 55} sends a message to cluster 15 (0x000F) of length 8 which includes the ZCL header.*
  - clusterId - INT16U - two byte cluster id
  - data - OCTET\_STRING - ZCL message, including ZCL header and payload

Definition at line 89 of file [cli.doc](#).

### 6.27.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_INTERPAN\_GROUP

#### interpan group [groupId:2] [destPan:2] [destprofileID:2]

- *send an interpan message to a group id.*
  - groupId - INT16U - group id to send to
  - destPan - INT16U - destination pan id
  - destprofileID - INT16U - destination profile ID

Definition at line 97 of file [cli.doc](#).

**6.27.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_INTERPAN\_SHORT****interpan short [shortId:2] [destPan:2] [destprofileID:2]**

- *Send an interpan message to a short id.*
  - shortId - INT16U - group id to send to
  - destPan - INT16U - destination pan id
  - destprofileID - INT16U - destination profile ID

Definition at line 105 of file [cli.doc](#).**6.27.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BUILD\_SEND\_MSG\_INTERPAN\_LONG****interpan long [longId:8] [destPAN:2] [destProfileID:2] [options:2]**

- *Send an interpan message to a long address (8 byte eui64)*
  - longId - IEEE\_ADDRESS - long ieee address to send the interpan message to
  - destPAN - INT16U - two byte destination PA ID
  - destProfileID - INT16U - two byte destination profile ID
  - options - INT16U - two byte options

Definition at line 114 of file [cli.doc](#).

## 6.28 Endpoint Manipulation

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ENDPOINT\_ENDPOINT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ENDPOINT\_ENDPOINT\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ENDPOINT\_ENDPOINT\_DISABLE

#### 6.28.1 Detailed Description

Commands related to the manipulation of endpoints.

#### 6.28.2 Macro Definition Documentation

##### 6.28.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ENDPOINT\_ENDPOINT\_PRINT

###### **endpoint print**

- *Print the status of all the endpoints.*

Definition at line 128 of file [cli.doc](#).

##### 6.28.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ENDPOINT\_ENDPOINT\_ENABLE

###### **endpoint enable [endpoint:1]**

- *Enable the endpoint for processing ZCL messages.*
  - endpoint - INT8U - Endpoint in question.

Definition at line 134 of file [cli.doc](#).

##### 6.28.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ENDPOINT\_ENDPOINT\_DISABLE

###### **endpoint disable [endpoint:1]**

- *Disable the endpoint for processing ZCL messages.*
  - endpoint - INT8U - Endpoint in question.

Definition at line 140 of file [cli.doc](#).

## 6.29 General

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ZCL\_MFG\_CODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ZCL\_X\_DEFAULT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ZCL\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ECHO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_EVENTS

#### 6.29.1 Detailed Description

General commands that are applicable to the node regardless of clusters or plugins.

#### 6.29.2 Macro Definition Documentation

##### 6.29.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ZCL\_MFG\_CODE

**zcl mfg-code [mfgSpecificId:2]**

- Sets the two byte manufacturer specific identifier to use for the next command if the command is not already built.
  - mfgSpecificId - INT16U - Manufacturer Specific Id

Definition at line 156 of file [cli.doc](#).

##### 6.29.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ZCL\_X\_DEFAULT\_RESP

**zcl x-default-resp [disableDefaultResponse:1]**

- Sets the Disable Default Response Frame Control bit to use for the next command if the command is not already built.
  - disableDefaultResponse - BOOLEAN - bool value indicating whether the disable default response bit is set(1) or not (0).

Definition at line 162 of file [cli.doc](#).

##### 6.29.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ZCL\_TIME

**zcl time [utcTime:4]**

- Cli command to call emberAfSetTime function documented in [af.h](#)
  - utcTime - INT32U - ZigBee UTC time, number of seconds since the year 2000

Definition at line 168 of file [cli.doc](#).

**6.29.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_RESET****reset**

- *resets the device*

Definition at line 173 of file [cli.doc](#).**6.29.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_ECHO****echo [echoOn:1]**

- *Turns echo on the command line on or off depending on the argument*
  - echoOn - INT8U - bool indicating whether to turn echo on (1) or off (0)

Definition at line 179 of file [cli.doc](#).**6.29.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERAL\_EVENTS****events**

- *Print the list of timer events.*

Definition at line 184 of file [cli.doc](#).

## 6.30 Global ZCL

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_READ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_WRITE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_UWRIT-E
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_NWRIT-E
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISCOV-ER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_REPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_REPORT-\_READ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_SEND\_M-E\_A\_REPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_EXPECT-\_REPORT\_FROM\_ME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DIRECTION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISC\_C-OM\_GEN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISC\_C-OM\_REC

### 6.30.1 Detailed Description

All the ZCL global commands defined in the ZigBee Cluster Library Specification. These command line commands can be used to send messages over the air to, for instance, read and write attributes to devices on the network.

### 6.30.2 Macro Definition Documentation

#### 6.30.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_READ

**zcl global read [cluster:2] [attributeId:2]**

- Creates a global read command message to read from the cluster and attribute specified
  - cluster - INT16U - The cluster id of the cluster to read from.
  - attributeId - INT16U - The attribute id of the attribute to read.

Definition at line 203 of file [cli.doc](#).

#### 6.30.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_WRITE

**zcl global write [cluster:2] [attributeId:2] [type:4] [data:-1]**

- Creates a global write command message to write to the cluster and attribute specified

- cluster - INT16U - The cluster id of the cluster to write to.
- attributeId - INT16U - The attribute id of the attribute to write.
- type - INT32U - The type of the attribute to write.
- data - OCTET\_STRING - The data to be written.

Definition at line 212 of file [cli.doc](#).

#### **6.30.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_UWRITE**

**zcl global uwrite [cluster:2] [attributeId:2] [type:1] [data:-1]**

- *Creates a global write undivided command message to write to the cluster and attribute specified*
  - cluster - INT16U - The cluster id of the cluster to write to.
  - attributeId - INT16U - The attribute id of the attribute to write.
  - type - INT8U - The type of the attribute to write.
  - data - OCTET\_STRING - The data to be written.

Definition at line 221 of file [cli.doc](#).

#### **6.30.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_NWRITE**

**zcl global nwrite [cluster:2] [attributeId:2] [type:1] [data:-1]**

- *Creates a global write command message to write to the cluster and attribute specified*
  - cluster - INT16U - The cluster id of the cluster to read from.
  - attributeId - INT16U - The attribute id of the attribute to read.
  - type - INT8U - The type of the attribute to write.
  - data - OCTET\_STRING - The data to be written.

Definition at line 230 of file [cli.doc](#).

#### **6.30.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISCOVER**

**zcl global discover [cluster:2] [attributeId:2] [max:1]**

- *Creates discovery message for devices with the associated cluster and attribute specified.*
  - cluster - INT16U - The cluster id of the cluster to discover.
  - attributeId - INT16U - The attribute id of the attribute to read during discovery.
  - max - INT8U - Max number of discovery responses.

Definition at line 238 of file [cli.doc](#).

### 6.30.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_REPORT

**zcl global report [endpoint:1] [clusterId:2] [attributeId:2] [mask:1]**

- – endpoint - INT8U - The desired endpoint.
- clusterId - INT16U - The cluster id.
- attributeId - INT16U - The attribute id.
- mask - INT8U - The mask.

Definition at line 247 of file [cli.doc](#).

### 6.30.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_REPORT\_READ

**zcl global report-read [cluster:2] [attributeId:2] [direction:1]**

- *Creates a global read reporting command for the associated cluster, attribute and server/client direction.*
  - cluster - INT16U - The cluster id to read from.
  - attributeId - INT16U - The attribute id to read from.
  - direction - INT8U - 0 for client-to-server, 1 for server-to-client.

Definition at line 255 of file [cli.doc](#).

### 6.30.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_SEND\_ME\_A\_REPORT

**zcl global send-me-a-report [cluster:2] [attributeId:2] [dataType:1] [minReportTime:2] [maxReportTime:2] [reportableChange:-1]**

- *Creates a global send me a report command for the associated values.*
  - cluster - INT16U - The cluster id of the requested report.
  - attributeId - INT16U - The attribute id for requested report.
  - dataType - INT8U - The two byte ZigBee type value for the requested report.
  - minReportTime - INT16U - Minimum number of seconds between reports.
  - maxReportTime - INT16U - Maximum number of seconds between reports.
  - reportableChange - OCTET\_STRING - Amount of change to trigger a report.

Definition at line 266 of file [cli.doc](#).

### 6.30.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_EXPECT\_REPORT\_FROM\_ME

**zcl global expect-report-from-me [cluster:2] [attributeId:2] [timeout:2]**

- *Create a expect-report-from-me message with associated values.*

- cluster - INT16U - The cluster id for the requested report.
- attributeId - INT16U - The attribute id for the requested report.
- timeout - INT16U - Maximum amount of time between reports.

Definition at line 274 of file [cli.doc](#).

#### **6.30.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DIRECTION**

##### **zcl global direction [direction:1]**

- *Sets the direction for global commands, either client to server or server to client.*
  - direction - INT8U - The direction for global commands, 0 = client to server, 1 = server to client.

Definition at line 280 of file [cli.doc](#).

#### **6.30.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISC\_COM\_GEN**

##### **zcl global disc-com-gen [clusterId:2] [startCommandId:1] [maxCommandId:1]**

- *Create a Discover Commands Generated command with associated values.*
  - clusterId - INT16U - The cluster to find commands on.
  - startCommandId - INT8U - The command id to start the command search on.
  - maxCommandId - INT8U - Max command ids to search for.

Definition at line 288 of file [cli.doc](#).

#### **6.30.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISC\_COM\_REC**

##### **zcl global disc-com-rec [clusterId:2] [startCommandId:1] [maxCommandId:1]**

- *Create a Discover Commands Received command with associated values.*
  - clusterId - INT16U - The cluster to find commands on.
  - startCommandId - INT8U - The command id to start the command search on.
  - maxCommandId - INT8U - Max command ids to search for.

Definition at line 296 of file [cli.doc](#).

## 6.31 Informational

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_LIBS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_PRINT\_RX\_MSGS\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_PRINT\_RX\_MSGS\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_BINDING\_TABLE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_PRINT\_ATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_PRINT\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ALL\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ALL\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_VERSION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_HELP

### 6.31.1 Detailed Description

The Informational command set provides commands for displaying information about the device. These commands include things like printing out the attribute table.

### 6.31.2 Macro Definition Documentation

#### 6.31.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_INFO

##### info

- Gives information about the local node

Definition at line 312 of file [cli.doc](#).

#### 6.31.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_LIBS

##### libs

- Lists which optional libraries of the stack are implemented on this device

Definition at line 317 of file [cli.doc](#).

**6.31.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_PRINT\_RX\_MSGS\_ENABLE**  
**option print-rx-msgs enable**

- *Enable the printing of received messages.*

Definition at line 322 of file [cli.doc](#).

**6.31.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_PRINT\_RX\_MSGS\_DISABLE**  
**option print-rx-msgs disable**

- *Disable the printing of received messages.*

Definition at line 327 of file [cli.doc](#).

**6.31.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_BINDING\_TABLE\_PRINT**  
**option binding-table print**

- *Prints out the binding table to the command line.*

Definition at line 332 of file [cli.doc](#).

**6.31.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_PRINT\_ATTR**  
**print attr**

- *Print the attribute table.*

Definition at line 337 of file [cli.doc](#).

**6.31.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_PRINT\_TIME**  
**print time**

- *Print out the time information*

Definition at line 342 of file [cli.doc](#).

**6.31.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_STATUS**  
**debugprint status**

- *Prints out the current settings for debug printing on the device*

Definition at line 347 of file [cli.doc](#).

**6.31.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ALL\_ON**  
**debugprint all\_on**

- *Turns on all compiled in debug printing*

Definition at line 352 of file [cli.doc](#).

**6.31.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ALL\_OFF**  
**debugprint all\_off**

- *Turns off all debug printing*

Definition at line 357 of file [cli.doc](#).

**6.31.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ON**  
**debugprint on [area:1]**

- *Turns on compiled in debug printing for a specific debug printing area. Debug print areas are defined in the generated <application>.h header file.*
  - area - INT8U - The debug area mask listed in the <application>.h file

Definition at line 363 of file [cli.doc](#).

**6.31.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_OFF**  
**debugprint off [area:1]**

- *Turns off compiled in debug printing for a specific debug printing area. Debug print areas are defined in the generated <application>.h header file.*
  - area - INT8U - The debug area mask listed in the <application>.h file

Definition at line 369 of file [cli.doc](#).

**6.31.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_VERSION**  
**version**

- *Shows the version of the software*

Definition at line 374 of file [cli.doc](#).

6.31.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_HELP

**help**

- Prints out the cli command options for the device

Definition at line [379](#) of file [cli.doc](#).

## 6.32 Network

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_DISC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_EDB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_BINDING\_TABLE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_BINDING\_TABLE\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_APSPRETRY\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_APSPRETRY\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_APSPRETRY\_DEFAULT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FORM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_JOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_REJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_REJOIN\_DIFF\_DEVICE\_TYPE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_LEAVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_PJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_BROAD\_PJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_EXTPANID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FIND\_UNUSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FIND\_JOINABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_CHANGE\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_ID

#### 6.32.1 Detailed Description

The Network command set provides commands for interacting with the network. This includes building as well as sending ZigBee commands out on to the network.

#### 6.32.2 Macro Definition Documentation

##### 6.32.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_DISC

**option disc [profileId:2] [clusterId:2]**

- Sends a ZDO Match Descriptor Request for the server side of the specified cluster from the specified application profile. Match Descriptor Responses received are printed to the serial output.

- profileId - INT16U - the profile id to send with the discovery message
- clusterId - INT16U - cluster id to send with the discovery message

Definition at line 397 of file [cli.doc](#).

### 6.32.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_EDB

#### option edb [endpoint:1]

- Sends a ZDO End Device Bind Request using the given local endpoint.
  - endpoint - INT8U - The local endpoint whose simple descriptor will be used to create the request

Definition at line 403 of file [cli.doc](#).

### 6.32.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_BINDING\_TABLE\_CLEAR

#### option binding-table clear

- Clear the binding table

Definition at line 408 of file [cli.doc](#).

### 6.32.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_BINDING\_TABLE\_SET

#### option binding-table set [bindingTableIndex:1] [clusterId:2] [localEndpoint:1] [remoteEndpoint:1] [ieeeAddress:8]

- Set a binding table entry for the arguments specified.
  - bindingTableIndex - INT8U - one byte index into the binding table
  - clusterId - INT16U - cluster id to send with the discovery message
  - localEndpoint - INT8U - local endpoint to bind
  - remoteEndpoint - INT8U - remote endpoint to bind
  - ieeeAddress - IEEE\_ADDRESS - 8 byte IEEE address provided big endian

Definition at line 418 of file [cli.doc](#).

### 6.32.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTIONAPSRETRY\_ON

#### option apsretry on

- Forces the AppFramework to set/clear the APS Retry option (in APS Frame options mask) for all subsequent outgoing messages; Turns APS retry on.

Definition at line 423 of file [cli.doc](#).

### 6.32.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTIONAPSRETRY\_OFF

#### option apsretry off

- Forces the AppFramework to set/clear the APS Retry option (in APS Frame options mask) for all subsequent outgoing messages; Turns APS retry off

Definition at line 428 of file [cli.doc](#).

**6.32.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTIONAPSRETRY\_DEFAULT**  
**option apsretry default**

- Forces the AppFramework to set/clear the APS Retry option (in APS Frame options mask) for all subsequent outgoing messages; a value of "default" allows the AppFramework to use its own default logic to determine when the APS Retry option should be used.

Definition at line 433 of file [cli.doc](#).

**6.32.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FORM**  
**network form [channel:1] [power:1] [panId:2]**

- Create a network on the given channel, power and panId.
  - channel - INT8U - The channel on which to form the network
  - power - INT8S - One byte signed value indicating the TX power that the radio should be set to
  - panId - INT16U - Two byte pan id for the network

Definition at line 441 of file [cli.doc](#).

**6.32.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_JOIN**  
**network join [channel:1] [power:1] [panId:2]**

- Join an existing network on the given channel, power and panId.
  - channel - INT8U - The channel on which to form the network
  - power - INT8S - One byte signed value indicating the TX power that the radio should be set to
  - panId - INT16U - Two byte pan id for the network

Definition at line 449 of file [cli.doc](#).

**6.32.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_INIT**  
**network init**

- Initialize a network; this is a test command used for tc-swap-out testing.

Definition at line 454 of file [cli.doc](#).

**6.32.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_REJOIN**  
**network rejoin [haveCurrentNetworkKey:1] [channelMask:4]**

- Rejoin an existing network in a secure or insecure manner.

- haveCurrentNetworkKey - INT8U - Boolean indicating whether the device can rejoin secure or not. 1=rejoin with encryption, 0=rejoin without encryption
- channelMask - INT32U - 4 byte channel mask which should be used to search for the network to rejoin.

Definition at line 461 of file [cli.doc](#).

#### **6.32.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_REJOIN\_DIFF\_DEVICE\_TYPE**

**network rejoin-diff-device-type [haveCurrentNetworkKey:1] [channelMask:4] [nodeType:1]**

- *Rejoin an existing network in a secure or insecure manner with a different device type.*

  - haveCurrentNetworkKey - INT8U - Boolean indicating whether the device can rejoin secure or not. 1=rejoin with encryption, 0=rejoin without encryption
  - channelMask - INT32U - 4 byte channel mask which should be used to search for the network to rejoin.
  - nodeType - INT8U - An enumeration indicating the device type to rejoin as. The stack only accepts EMBER\_END\_DEVICE and EMBER\_SLEEPY\_END\_DEVICE.

Definition at line 469 of file [cli.doc](#).

#### **6.32.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_LEAVE**

**network leave**

- *Leave the current network.*

Definition at line 474 of file [cli.doc](#).

#### **6.32.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_PJOIN**

**network pjoin [seconds:1]**

- *Permit joining on the network for a given number of seconds*

  - seconds - INT8U - Number of seconds during which devices will be allowed to join the network. A value of 0xff turns permit joining on permanently

Definition at line 480 of file [cli.doc](#).

#### **6.32.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_BROAD\_PJOIN**

**network broad-pjoin [seconds:1]**

- *Permit joining on the network for a given number of seconds AND broadcast a ZDO Mgmt Permit Joining request to all routers.*

  - seconds - INT8U - Number of seconds during which devices will be allowed to join the network. A value of 0xff turns permit joining on permanently

Definition at line 486 of file [cli.doc](#).

**6.32.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_EXTPANID**

**network extpanid [extPanId:-1]**

- *Write the extended pan id for the device.*
  - extPanId - OCTET\_STRING - The bytes for the extended pan id

Definition at line 492 of file [cli.doc](#).

**6.32.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FIND\_UNUSED**

**network find unused**

- *Begins a search for an unused Channel and Pan Id. Will automatically form a network on the first unused Channel and Pan Id it finds.*

Definition at line 497 of file [cli.doc](#).

**6.32.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FIND\_JOINABLE**

**network find joinable**

- *Begins a search for a joinable network. Will automatically attempt to join the first network that it finds.*

Definition at line 502 of file [cli.doc](#).

**6.32.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_CHANGE\_CHANNEL**

**network change-channel [channel:1]**

- *Attempts to change device over to a different channel given in the channel argument*
  - channel - INT8U - The channel to change to.

Definition at line 508 of file [cli.doc](#).

**6.32.2.20 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_SET**

**network set [networkIndex:1]**

- *Set the network index used by all future CLI commands. Before executing a CLI command, the framework will switch to this network. After the command finishes executing, the framework will switch back to the previous network. The CLI uses the same network index until the device resets or it is changed through this command.*

- networkIndex - INT8U - The network index to use for CLI commands

Definition at line 514 of file [cli.doc](#).

6.32.2.21 #define EMBER\_AF\_DIXGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_ID

**network id**

- Prints the current Node ID, EUI64, and Pan ID.

Definition at line 519 of file [cli.doc](#).

## 6.33 Security

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_REGISTER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_APSSOFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_APSON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_SET\_ALLOW\_TRUST\_CENTER\_REJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_LINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_INSTALL\_CODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_SECURITY\_MFG\_TOKENGET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_SECURITY\_MFG\_TOKENSET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_DELETE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_CHANGEKEY\_LINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_CHANGEKEY\_NETWORK

#### 6.33.1 Detailed Description

The Security command set includes all of the commands related to security configuration on the device.

#### 6.33.2 Macro Definition Documentation

##### 6.33.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_REGISTER

###### option register

- Initiates Smart Energy Registration including Key Establishment. This command expects that the device has already joined a smart energy network.

Definition at line 534 of file [cli.doc](#).

##### 6.33.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_APSSOFF

###### option security aps off

- Turns aps security off

Definition at line 539 of file [cli.doc](#).

**6.33.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITYAPS\_ON**  
**option security aps on**

- *Turns aps security on*

Definition at line 544 of file [cli.doc](#).

**6.33.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITYOPTION\_SECURITYSET\_ALLOWTRUSTCENTERREJOIN**

**option security set-allow-trust-center-rejoin [allowTrustCenterRejoin:1]**

- *Set whether or not a Trust Center application will allow trust center rejoins.*
  - allowTrustCenterRejoin - BOOLEAN - Whether or not the Trust Center should allow trust center rejoins.

Definition at line 550 of file [cli.doc](#).

**6.33.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITYOPTIONLINK**

**option link [keyTableIndex:1] [ieeeAddress:8] [linkKey:-1]**

- *Sets a link key in the link key table. Example: option link 0x00 { 06 00 ab 41 64 30 00 0a } {aa bb cc dd ee ff aa bb cc dd ee ff aa bb cc dd}*
  - keyTableIndex - INT8U - index into the link key table
  - ieeeAddress - IEEE\_ADDRESS - IEEE address to enter into the link key table
  - linkKey - OCTET\_STRING - link key to enter into the table

Definition at line 558 of file [cli.doc](#).

**6.33.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITYOPTIONINSTALLCODE**

**option install-code [keyTableIndex:1] [ieeeAddress:8] [installCode:-1]**

- *Derives a link key from an install code and sets it in the link key table.*
  - keyTableIndex - INT8U - index into the link key table
  - ieeeAddress - IEEE\_ADDRESS - IEEE address to enter into the link key table
  - installCode - OCTET\_STRING - install code including two-byte, little-endian CRC

Definition at line 567 of file [cli.doc](#).

**6.33.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITYSECURITYMFGTOKENGET**  
**security mfg-token get**

- 

Definition at line 574 of file [cli.doc](#).

**6.33.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_SECURITY\_MFG\_TOKEN\_SET**  
**security mfg-token set [magicNumber:4] [value:2]**

- – magicNumber - INT32U
- value - INT16U

Definition at line 583 of file [cli.doc](#).

**6.33.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_CLEAR**  
**keys clear**

- *Clear all security keys*

Definition at line 589 of file [cli.doc](#).

**6.33.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_PRINT**  
**keys print**

- *Print all security keys out to the command line.*

Definition at line 594 of file [cli.doc](#).

**6.33.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_DELETE**  
**keys delete [index:1]**

- *Delete a security key from a given index*
  - index - INT8U - index into the security key table

Definition at line 600 of file [cli.doc](#).

**6.33.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_CHANGEKEY\_LINK**  
**changekey link [key:-1]**

- *Change the link key to the one provided in the 16 byte array argument for this command.*
  - key - OCTET\_STRING - The link key provided as a 16 byte array

Definition at line 606 of file [cli.doc](#).

6.33.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_CHANGEKEY\_NETWORK

**changekey network [key:-1]**

- *Change the network key to the 16 byte array provided as an argument to this command.*
  - key - OCTET\_STRING - The network key provided as a 16 byte array

Definition at line 612 of file [cli.doc](#).

## 6.34 Test Harness

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TEST\_ZCL\_TEST\_RESPONSE\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TEST\_ZCL\_TEST\_RESPONSE\_OFF

#### 6.34.1 Detailed Description

All commands related to the testing of a device.

#### 6.34.2 Macro Definition Documentation

##### 6.34.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TEST\_ZCL\_TEST\_RESPONSE\_ON

###### **zcl test response on**

- *Sets a flag so that the application framework WILL respond to the next ZCL message that comes in over the air.*

Definition at line 626 of file [cli.doc](#).

##### 6.34.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TEST\_ZCL\_TEST\_RESPONSE\_OFF

###### **zcl test response off**

- *Sets a flag so that the application framework WILL NOT respond to the next ZCL message that comes in over the air.*

Definition at line 631 of file [cli.doc](#).

## 6.35 ZigBee Device Object Commands (ZDO)

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IN\_CL\_LIST\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IN\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_OUT\_CL\_LIST\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_OUT\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_CHAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_SCAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IEEE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_SIMPLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MATCH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_ACTIVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_UNBIND\_UNICAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_UNBIND\_GROUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_LEAVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MGMT\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MGMT\_LQI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_ROUTE

### 6.35.1 Detailed Description

Commands related to the management of a ZigBee device including device discovery and commissioning.

### 6.35.2 Macro Definition Documentation

#### 6.35.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IN\_CL\_LIST\_ADD

##### **zdo in-cl-list add [clusterId:2]**

- Add clusters to the known server (in) clusters on this device.
  - clusterId - INT16U - Server cluster id

Definition at line 647 of file [cli.doc](#).

#### 6.35.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IN\_CL\_LIST\_CLEAR

##### **zdo in-cl-list clear**

- Clear the ZDO list of server (in) clusters.

Definition at line 652 of file [cli.doc](#).

**6.35.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_OUT\_CL\_LIST\_ADD**

**zdo out-cl-list add [clusterId:2]**

- Add clusters to the known client (out) clusters on this device.
  - clusterId - INT16U - Client cluster ids

Definition at line 658 of file [cli.doc](#).

**6.35.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_OUT\_CL\_LIST\_CLEAR**

**zdo out-cl-list clear**

- Clear the ZDO list of client (out) clusters.

Definition at line 663 of file [cli.doc](#).

**6.35.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_CHAN**

**zdo nwk-upd chan [channel:1]**

- Sends an update channel request.
  - channel - INT8U - One byte channel to change to.

Definition at line 669 of file [cli.doc](#).

**6.35.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_SCAN**

**zdo nwk-upd scan [targetNodeId:2] [scanDuration:1] [scanCount:2]**

- Performs an energy scan.
  - targetNodeId - INT16U - Two byte short id of the target device
  - scanDuration - INT8U - One byte scan duration. Must be in range 0 - 5
  - scanCount - INT16U - Number of scans to perform. Must be in range 1 - 8

Definition at line 677 of file [cli.doc](#).

**6.35.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_SET**

**zdo nwk-upd set [nwkMgrId:2] [channelMask:4]**

- Broadcasts the ID of the new network manager and active channels.
  - nwkMgrId - INT16U - Two byte network manager id
  - channelMask - INT32U - Four byte channel mask

Definition at line 684 of file [cli.doc](#).

### 6.35.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK

#### **zdo nwk [ieee:8]**

- Sends a network address request for the given IEEE address.
  - ieee - IEEE\_ADDRESS - IEEE address for which a short address is being requested

Definition at line 690 of file [cli.doc](#).

### 6.35.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IEEE

#### **zdo ieee [nodeId:2]**

- Request an ieee address based on a given node id.
  - nodeId - INT16U - Short address of the device for which a long address is requested

Definition at line 696 of file [cli.doc](#).

### 6.35.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_SIMPLE

#### **zdo simple [dest:2] [targetEndpoint:1]**

- Sends out a simple descriptor request for the short address and endpoint specified.
  - dest - INT16U - Short address of the device where the simple descriptor request should be sent
  - targetEndpoint - INT8U - The endpoint on the target device where the simple descriptor request will be sent

Definition at line 703 of file [cli.doc](#).

### 6.35.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NODE

#### **zdo node [target:2]**

- Sends a node descriptor request to a given target device
  - target - INT16U - Two byte address for the target device.

Definition at line 709 of file [cli.doc](#).

### 6.35.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MATCH

#### **zdo match [nodeId:2] [profile:2]**

- Sends a matchDescriptorsRequest to the given destination with the given profile.
  - nodeId - INT16U - Two byte node id indicating wher
  - profile - INT16U - Two byte profile id for the match descriptor request

Definition at line 716 of file [cli.doc](#).

### 6.35.2.13 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_BIND

**zdo bind [destination:2] [source Endpoint:1] [destEndpoint:1] [cluster:2] [remoteEUI64:8] [destEU-I64:8]**

- *Send a ZDO Bind command to a device specified in the command arguments.*
  - destination - INT16U - Two byte destination node id
  - source Endpoint - INT8U - Remote device's source endpoint to bind
  - destEndpoint - INT8U - Remote endpoint to bind
  - cluster - INT16U - Cluster on which to bind
  - remoteEUI64 - IEEE\_ADDRESS - Remote node EUI64
  - destEUI64 - IEEE\_ADDRESS - Binding's dest EUI64. Usually the local node's EUI64

Definition at line 727 of file [cli.doc](#).

### 6.35.2.14 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_ACTIVE

**zdo active [nodeId:2]**

- *Send an active endpoint request to the device with the given short id.*
  - nodeId - INT16U - Two byte short id, destination for the active endpoint request

Definition at line 733 of file [cli.doc](#).

### 6.35.2.15 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_UNBIND\_UNICAST

**zdo unbind unicast [target:2] [source eui64:8] [source endpoint:1] [clusterID:2] [destinationEUI64:8] [destEndpoint:1]**

- *Sends an unbind request for a unicast binding to the target device.*
  - target - INT16U - Target node ID
  - source eui64 - IEEE\_ADDRESS - The source EUI64 of the binding (the remote device's EU-I64)
  - source endpoint - INT8U - The source endpoint of the binding.
  - clusterID - INT16U - The cluster ID to unbind.
  - destinationEUI64 - IEEE\_ADDRESS - The destination EUI64 in the binding (usually the local node's EUI64)
  - destEndpoint - INT8U - The destination endpoint of the binding

Definition at line 744 of file [cli.doc](#).

**6.35.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_UNBIND\_GROUP**

**zdo unbind group [target:2] [source eui64:8] [source endpoint:1] [clusterID:2] [groupAddress:2]**

- Sends an unbind request for a multicast binding to the target device.
  - target - INT16U - Target node ID
  - source eui64 - IEEE\_ADDRESS - The source EUI64 of the binding (the remote device's EU-I64)
  - source endpoint - INT8U - The source endpoint of the binding.
  - clusterID - INT16U - The cluster ID to unbind.
  - groupAddress - INT16U - The group address in the binding

Definition at line 754 of file [cli.doc](#).

**6.35.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_LEAVE**

**zdo leave [target:2] [removeChildren:1] [rejoin:1]**

- Send a ZDO Management Leave command to the target device.
  - target - INT16U - Target node ID
  - removeChildren - BOOLEAN - Remove children
  - rejoin - BOOLEAN - Rejoin after leave

Definition at line 762 of file [cli.doc](#).

**6.35.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MGMT\_BIND**

**zdo mgmt-bind [target:2] [startIndex:1]**

- Send a ZDO MGMT-Bind (Binding Table) Request to the target device.
  - target - INT16U - Target node ID
  - startIndex - INT8U - Starting index into table query

Definition at line 769 of file [cli.doc](#).

**6.35.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MGMT\_LQI**

**zdo mgmt-lqi [target:2] [startIndex:1]**

- Send a ZDO MGMT-LQI (LQI Table) Request to the target device.
  - target - INT16U - Target node ID
  - startIndex - INT8U - Starting index into table query

Definition at line 776 of file [cli.doc](#).

6.35.2.20 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_POWER

**zdo power [target:2]**

- *Send a ZDO Power Descriptor Request to the target device.*
  - target - INT16U - Target node ID

Definition at line 782 of file [cli.doc](#).

6.35.2.21 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_ROUTE

**zdo route [target:2] [index:1]**

- *Send a ZDO route request command to the target.*
  - target - INT16U - Target node ID
  - index - INT8U - The index of the remote node's routing table to request.

Definition at line 789 of file [cli.doc](#).

## 6.36 Cluster Commands: BACnet Protocol Tunnel

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BACNET\_PROTOCOL\_TUNNEL\_ZCL\_-BACNET\_TRANSFER\_NPDU\_WHOIS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_B\_A\_CNET\_PROTOCOL\_TUNNEL\_RA-NDOM

#### 6.36.1 Detailed Description

This group describes the CLI commands for the BACnet Protocol Tunnel cluster. Listed below is a description of the cluster:

*Commands and attributes required to tunnel the BACnet protocol.*

#### 6.36.2 Macro Definition Documentation

##### 6.36.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BACNET\_PROTOCOL\_TUNNEL\_ZCL\_BACNET\_TR-ANSFER\_NPDU\_WHOIS

###### **zcl bacnet transfer-npdu whois**

- *Send a sample whois command.*

Definition at line 805 of file [cli.doc](#).

##### 6.36.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_B\_A\_CNET\_PROTOCOL\_TUNNEL\_RANDOM

###### **zcl bacnet transfer-npdu random [npdu:1]**

- *This command is generated when a BACnet network layer wishes to transfer a BACnet NPDU across a ZigBee tunnel to another BACnet network layer.*

– npdu - DATA8

Definition at line 7294 of file [cli.doc](#).

## 6.37 Cluster Commands: Basic

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BASIC\_RTFD

#### 6.37.1 Detailed Description

This group describes the CLI commands for the Basic cluster. Listed below is a description of the cluster:

*Attributes for determining basic information about a device, setting user device information such as location, and enabling a device.*

#### 6.37.2 Macro Definition Documentation

##### 6.37.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BASIC\_RTFD

###### **zcl basic rtfd**

- *Command that resets all attribute values to factory default.*

Definition at line 7311 of file [cli.doc](#).

## 6.38 Cluster Commands: Calendar

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_DAY\_PROFILES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_WEEK\_PROFILES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_SEASONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_CANCELLATION

### 6.38.1 Detailed Description

This group describes the CLI commands for the Calendar cluster. Listed below is a description of the cluster:

*This cluster provides attributes and commands to assist applications in developing time and date based protocol.*

### 6.38.2 Macro Definition Documentation

#### 6.38.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_CALENDAR

**zcl calendar get-calendar [earliestStartTime:4] [minIssuerEventId:4] [numberOfCalendars:1] [calendarType:1] [providerId:4]**

- This command initiates PublishCalendar command(s) for scheduled Calendar updates.
  - earliestStartTime - UTC\_TIME
  - minIssuerEventId - INT32U
  - numberOfCalendars - INT8U
  - calendarType - CalendarType [ENUM8]
  - providerId - INT32U

#### See Also

[EmberAfCalendarType](#)

Definition at line [7335](#) of file [cli.doc](#).

#### 6.38.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_DAY\_PROFILES

**zcl calendar get-day-profiles [providerId:4] [issuerCalendarId:4] [startDayId:1] [numberOfDays:1]**

- This command initiates one or more PublishDayProfile commands for the referenced Calendar.
  - providerId - INT32U
  - issuerCalendarId - INT32U
  - startDayId - INT8U
  - numberOfDays - INT8U

Definition at line [7344](#) of file [cli.doc](#).

### 6.38.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_WEEK\_PROFILES

**zcl calendar get-week-profiles [providerId:4] [issuerCalendarId:4] [startWeekId:1] [numberOfWeeks:1]**

- This command initiates one or more PublishWeekProfile commands for the referenced Calendar.
  - providerId - INT32U
  - issuerCalendarId - INT32U
  - startWeekId - INT8U
  - numberOfWeeks - INT8U

Definition at line [7353](#) of file [cli.doc](#).

### 6.38.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_SEASONS

**zcl calendar get-seasons [providerId:4] [issuerCalendarId:4]**

- This command initiates one or more PublishSeasons commands for the referenced Calendar.
  - providerId - INT32U
  - issuerCalendarId - INT32U

Definition at line [7360](#) of file [cli.doc](#).

### 6.38.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_SPECIAL\_DAYS

**zcl calendar get-special-days [startTime:4] [numberOfEvents:1] [calendarType:1] [providerId:4] [issuerCalendarId:4]**

- This command initiates one or more PublishSpecialDays commands for the scheduled Special Day Table updates.
  - startTime - UTC\_TIME
  - numberOfEvents - INT8U
  - calendarType - CalendarType [ENUM8]
  - providerId - INT32U
  - issuerCalendarId - INT32U

**See Also**

[EmberAfCalendarType](#)

Definition at line [7372](#) of file [cli.doc](#).

### 6.38.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_CANCELLATION

**zcl calendar get-cancellation**

- This command initiates the return of the last CancelCalendar command held on the associated server.

Definition at line [7377](#) of file [cli.doc](#).

## 6.39 Cluster Commands: Color Control

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVESAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOHUEANDSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOCOLOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVECOLOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEP COLOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOCOLORTEMP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVETO HUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_ESTEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVETO HUEANDSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_LOOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STOPMOVE STEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVECOLOR TEMP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEP COLOR TEMP

### 6.39.1 Detailed Description

This group describes the CLI commands for the Color Control cluster. Listed below is a description of the cluster:

*Attributes and commands for controlling the color properties of a color-capable light.*

### 6.39.2 Macro Definition Documentation

#### 6.39.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOHUE

**zcl color-control movetohue [hue:1] [direction:1] [transitionTime:2]**

- Move to specified hue.
  - hue - INT8U
  - direction - HueDirection [ENUM8]
  - transitionTime - INT16U

**See Also**

[EmberAfHueDirection](#)

Definition at line 7398 of file [cli.doc](#).

**6.39.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVEHUE**

**zcl color-control movehue [moveMode:1] [rate:1]**

- *Move hue up or down at specified rate.*
  - moveMode - HueMoveMode [ENUM8]
  - rate - INT8U

**See Also**

[EmberAfHueMoveMode](#)

Definition at line 7407 of file [cli.doc](#).

**6.39.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEHUE**

**zcl color-control stephue [stepMode:1] [stepSize:1] [transitionTime:1]**

- *Step hue up or down by specified size at specified rate.*
  - stepMode - HueStepMode [ENUM8]
  - stepSize - INT8U
  - transitionTime - INT8U

**See Also**

[EmberAfHueStepMode](#)

Definition at line 7417 of file [cli.doc](#).

**6.39.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOSAT**

**zcl color-control movetosat [saturation:1] [transitionTime:2]**

- *Move to specified saturation.*
  - saturation - INT8U
  - transitionTime - INT16U

Definition at line 7424 of file [cli.doc](#).

**6.39.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVESAT**

**zcl color-control movesat [moveMode:1] [rate:1]**

- *Move saturation up or down at specified rate.*
  - moveMode - SaturationMoveMode [ENUM8]
  - rate - INT8U

**See Also**

[EmberAfSaturationMoveMode](#)

Definition at line 7433 of file [cli.doc](#).

**6.39.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPSAT**

**zcl color-control stepsat [stepMode:1] [stepSize:1] [transitionTime:1]**

- *Step saturation up or down by specified size at specified rate.*

- stepMode - SaturationStepMode [ENUM8]
- stepSize - INT8U
- transitionTime - INT8U

**See Also**

[EmberAfSaturationStepMode](#)

Definition at line [7443](#) of file [cli.doc](#).

**6.39.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOHUEANDSAT**

**zcl color-control movetohueandsat [hue:1] [saturation:1] [transitionTime:2]**

- *Move to hue and saturation.*

- hue - INT8U
- saturation - INT8U
- transitionTime - INT16U

Definition at line [7451](#) of file [cli.doc](#).

**6.39.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOCOLOR**

**zcl color-control movetocolor [colorX:2] [colorY:2] [transitionTime:2]**

- *Move to specified color.*

- colorX - INT16U
- colorY - INT16U
- transitionTime - INT16U

Definition at line [7459](#) of file [cli.doc](#).

**6.39.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVECOLOR**

**zcl color-control movecolor [rateX:2] [rateY:2]**

- *Moves the color.*

- rateX - INT16S
- rateY - INT16S

Definition at line [7466](#) of file [cli.doc](#).

**6.39.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPCOLOR**

**zcl color-control stepcolor [stepX:2] [stepY:2] [transitionTime:2]**

- *Steps the lighting to a specific color.*
  - stepX - INT16S
  - stepY - INT16S
  - transitionTime - INT16U

Definition at line 7474 of file [cli.doc](#).

**6.39.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOCOLORTEMP**

**zcl color-control movetocolortemp [colorTemperature:2] [transitionTime:2]**

- *Moves the lighting to a specific color temperature.*
  - colorTemperature - INT16U
  - transitionTime - INT16U

Definition at line 7481 of file [cli.doc](#).

**6.39.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVETOHUE**

**zcl color-control emovetohue [enhancedHue:2] [direction:1] [transitionTime:2]**

- *Command description for EnhancedMoveToHue*
  - enhancedHue - INT16U
  - direction - HueDirection [ENUM8]
  - transitionTime - INT16U

**See Also**

[EmberAfHueDirection](#)

Definition at line 7491 of file [cli.doc](#).

**6.39.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVEHUE**

**zcl color-control emovehue [moveMode:1] [rate:2]**

- *Command description for EnhancedMoveHue*
  - moveMode - HueMoveMode [ENUM8]
  - rate - INT16U

**See Also**

[EmberAfHueMoveMode](#)

Definition at line 7500 of file [cli.doc](#).

6.39.2.14 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_ESTEPHUE

**zcl color-control estephue [stepMode:1] [stepSize:2] [transitionTime:2]**

- *Command description for EnhancedStepHue*
  - stepMode - HueStepMode [ENUM8]
  - stepSize - INT16U
  - transitionTime - INT16U

**See Also**

[EmberAfHueStepMode](#)

Definition at line 7510 of file [cli.doc](#).

6.39.2.15 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOTETOHUEANDSAT

**zcl color-control emovetohueandsat [enhancedHue:2] [saturation:1] [transitionTime:2]**

- *Command description for EnhancedMoveToHueAndSaturation*
  - enhancedHue - INT16U
  - saturation - INT8U
  - transitionTime - INT16U

Definition at line 7518 of file [cli.doc](#).

6.39.2.16 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_LOOP

**zcl color-control loop [updateFlags:1] [action:1] [direction:1] [time:2] [startHue:2]**

- *Command description for ColorLoopSet*
  - updateFlags - ColorLoopUpdateFlags [BITMAP8]
  - action - ColorLoopAction [ENUM8]
  - direction - ColorLoopDirection [ENUM8]
  - time - INT16U
  - startHue - INT16U

**See Also**

[EmberAfColorLoopAction](#) [EmberAfColorLoopDirection](#)

Definition at line 7531 of file [cli.doc](#).

6.39.2.17 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STOPMOVESTEP

**zcl color-control stopmovestep**

- *Command description for StopMoveStep*

Definition at line 7536 of file [cli.doc](#).

6.39.2.18 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVECOLORTEMP

**zcl color-control movecolortemp [moveMode:1] [rate:2] [colorTemperatureMinimum:2] [colorTemperatureMaximum:2]**

- *Command description for MoveColorTemperature*

- moveMode - HueMoveMode [ENUM8]
- rate - INT16U
- colorTemperatureMinimum - INT16U
- colorTemperatureMaximum - INT16U

**See Also**

[EmberAfHueMoveMode](#)

Definition at line [7547](#) of file [cli.doc](#).

6.39.2.19 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPCOLORTEMP

**zcl color-control stepcolortemp [stepMode:1] [stepSize:2] [transitionTime:2] [colorTemperatureMinimum:2] [colorTemperatureMaximum:2]**

- *Command description for StepColorTemperatue*

- stepMode - HueStepMode [ENUM8]
- stepSize - INT16U
- transitionTime - INT16U
- colorTemperatureMinimum - INT16U
- colorTemperatureMaximum - INT16U

**See Also**

[EmberAfHueStepMode](#)

Definition at line [7559](#) of file [cli.doc](#).

## 6.40 Cluster Commands: Demand Response and Load Control

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_ZCL\_DRLC\_LCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_CL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_CA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_GSE

#### 6.40.1 Detailed Description

This group describes the CLI commands for the Demand Response and Load Control cluster. Listed below is a description of the cluster:

*This cluster provides an interface to the functionality of Smart Energy Demand Response and Load Control. Devices targeted by this cluster include thermostats and devices that support load control.*

#### 6.40.2 Macro Definition Documentation

##### 6.40.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_ZCL\_DRLC\_LCE

**zcl drlc lce [eventId:4] [utilityEnrollmentGroup:1] [start:4] [duration:2] [eventControl:1]**

- *Populate a buffer to send a static load control event with the following values: all device classes, all uegs, criticality level: normal, 1.1c cooling temp offset, 1.1c heating temp offset, cool temp set point 23.3c, heat temp set point, -10% avg load percent, duty cycle*
  - eventId - INT32U - 4 byte event id for the load control event
  - utilityEnrollmentGroup - INT8U - UEG of the load control event
  - start - INT32U - Start time for the load control event
  - duration - INT16U - Duration for the load control event
  - eventControl - INT8U - Control byte for the load control event

Definition at line 866 of file [cli.doc](#).

##### 6.40.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_CL

**zcl drlc cl [issuerEventId:4] [deviceClass:2] [utilityEnrollmentGroup:1] [cancelControl:1] [effectiveTime:4]**

- *Command description for CancelLoadControlEvent*
  - issuerEventId - INT32U
  - deviceClass - AmiDeviceClass [BITMAP16]

- utilityEnrollmentGroup - INT8U
- cancelControl - AmiCancelControl [BITMAP8]
- effectiveTime - UTC\_TIME

Definition at line [7582](#) of file [cli.doc](#).

#### **6.40.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_CA**

**zcl drlc ca [cancelControl:1]**

- *Command description for CancelAllLoadControlEvents*
  - cancelControl - AmiCancelControl [BITMAP8]

Definition at line [7588](#) of file [cli.doc](#).

#### **6.40.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_GS-E**

**zcl drlc gse [startTime:4] [numberOfEvents:1] [issuerEventId:4]**

- *Command description for GetScheduledEvents*
  - startTime - UTC\_TIME
  - numberOfEvents - INT8U
  - issuerEventId - INT32U

Definition at line [7596](#) of file [cli.doc](#).

## 6.41 Cluster Commands: Device Management

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CHG\_OF\_TENANCY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CHG\_OF\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_REQ\_NEW\_PASS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_SITE\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_RPT\_EVENT\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_PUB\_CHG\_OF\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_REQ\_NEW\_PASS\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_SET\_EVENT\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_EVENT\_CONFIG

### 6.41.1 Detailed Description

This group describes the CLI commands for the Device Management cluster. Listed below is a description of the cluster:

*This cluster provides attributes and commands to support device-cognisant application layer protocols.*

### 6.41.2 Macro Definition Documentation

#### 6.41.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CHG\_OF\_TENANCY

**zcl dm get-chg-of-tenancy**

- *This command is used to request the ESI to respond with information regarding any available change of tenancy.*

Definition at line 7613 of file [cli.doc](#).

#### 6.41.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CHG\_OF\_SUPPLIER

**zcl dm get-chg-of-supplier**

- *This command is used to request the ESI to respond with information regarding any available change of supplier.*

Definition at line 7618 of file [cli.doc](#).

**6.41.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_REQ\_NEW\_PASS**

**zcl dm req-new-pass [passwordType:1]**

- This command is used to request the current password from the server.
  - passwordType - PasswordType [ENUM8]

**See Also**

[EmberAfPasswordType](#)

Definition at line [7626](#) of file [cli.doc](#).

**6.41.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_SITE\_ID**

**zcl dm get-site-id**

- This command is used to request the ESI to respond with information regarding any pending change of Site ID.

Definition at line [7631](#) of file [cli.doc](#).

**6.41.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_RPT\_EVENT\_CONFIG**

**zcl dm rpt-event-config [commandIndex:1] [totalCommands:1] [eventConfigurationPayload:3]**

- This command is sent in response to a GetEventConfiguration command.
  - commandIndex - INT8U
  - totalCommands - INT8U
  - eventConfigurationPayload - struct EventConfigurationPayload

Definition at line [7639](#) of file [cli.doc](#).

**6.41.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CIN**

**zcl dm get-cin**

- This command is used to request the ESI to respond with information regarding any pending change of Customer ID Number.

Definition at line [7644](#) of file [cli.doc](#).

**6.41.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_PUB\_CHG\_OF\_SUPPLIER**

**zcl dm pub-chg-of-supplier [currentProviderId:4] [issuerEventId:4] [tariffType:1] [proposedProviderId:4] [providerChangeImplementationTime:4] [providerChangeControl:4] [proposedProviderName:-1] [proposedProviderContactDetails:-1]**

- This command is used to change the Supplier (energy supplier) that is supplying the meter (s).

- currentProviderId - INT32U
- issuerEventId - INT32U
- tariffType - TariffType [ENUM8]
- proposedProviderId - INT32U
- providerChangeImplementationTime - UTC\_TIME
- providerChangeControl - ProposedChangeControl [BITMAP32]
- proposedProviderName - OCTET\_STRING
- proposedProviderContactDetails - OCTET\_STRING

**See Also**

[EmberAfTariffType](#)

Definition at line [7659](#) of file [cli.doc](#).

#### 6.41.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_REQ\_NEW\_PASS\_RESP

```
zcl dm req-new-pass-resp [issuerEventId:4] [implementationDateTime:4] [durationInMinutes:2] [password-Type:1] [password:-1]
```

- This command is used to send the current password to the client.

- issuerEventId - INT32U
- implementationDateTime - UTC\_TIME
- durationInMinutes - INT16U
- passwordType - PasswordType [ENUM8]
- password - OCTET\_STRING

**See Also**

[EmberAfPasswordType](#)

Definition at line [7671](#) of file [cli.doc](#).

#### 6.41.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_SET\_EVENT\_CONFIG

```
zcl dm set-event-config [issuerEventId:4] [startDateTime:4] [eventConfiguration:1] [configuration-Control:1] [eventConfigurationPayload:1]
```

- This command provides a method to set the event configuration attributes, held in a client device.

- issuerEventId - INT32U
- startDateTime - UTC\_TIME
- eventConfiguration - EventConfiguration [BITMAP8]
- configurationControl - EventConfigurationControl [ENUM8]
- eventConfigurationPayload - INT8U

**See Also**

[EmberAfEventConfigurationControl](#)

Definition at line [7683](#) of file [cli.doc](#).

6.41.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_EVENT\_CONFIG  
**zcl dm get-event-config [eventId:2]**

- This command allows the server to request details of event configurations.
  - eventId - INT16U

Definition at line [7689](#) of file [cli.doc](#).

## 6.42 Cluster Commands: Door Lock

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DOOR\_LOCK\_LOCK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DOOR\_LOCK\_UNLOCK

#### 6.42.1 Detailed Description

This group describes the CLI commands for the Door Lock cluster. Listed below is a description of the cluster:

*Provides an interface into a generic way to secure a door.*

#### 6.42.2 Macro Definition Documentation

##### 6.42.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DOOR\_LOCK\_LOCK

###### **zcl lock lock [PIN:-1]**

- *Locks the door*
  - PIN - CHAR\_STRING

Definition at line 7706 of file [cli.doc](#).

##### 6.42.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DOOR\_LOCK\_UNLOCK

###### **zcl lock unlock [PIN:-1]**

- *Unlocks the door*
  - PIN - CHAR\_STRING

Definition at line 7712 of file [cli.doc](#).

## 6.43 Cluster Commands: Events

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_EVENTS\_GET\_EVENT\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_EVENTS\_CLEAR\_EVENT\_LOG

#### 6.43.1 Detailed Description

This group describes the CLI commands for the Events cluster. Listed below is a description of the cluster:  
*This cluster provides an interface on which applications can use event-based protocols.*

#### 6.43.2 Macro Definition Documentation

##### 6.43.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_EVENTS\_GET\_EVENT\_LOG

**zcl events get-event-log [eventControlLogId:1] [eventId:2] [startTime:4] [endTime:4] [numberOfEvents:1] [eventOffset:2]**

- *The GetEventLog command allows a client to request events from a server's event logs. One or more PublishEventLog commands are returned on receipt of this command.*
  - eventControlLogId - EventControlLogId [BITMAP8]
  - eventId - INT16U
  - startTime - UTC\_TIME
  - endTime - UTC\_TIME
  - numberOfEvents - INT8U
  - eventOffset - INT16U

Definition at line 7734 of file [cli.doc](#).

##### 6.43.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_EVENTS\_CLEAR\_EVENT\_LOG

**zcl events clear-event-log [logId:1]**

- *The ClearEventLogRequest command requests that an Events server device clear the specified event log(s).*
  - logId - EventLogId [ENUM8]

#### See Also

[EmberAfEventLogId](#)

Definition at line 7742 of file [cli.doc](#).

## 6.44 Cluster Commands: Generic Tunnel

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_MATCH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_RESPONSE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_ADVERTISE

#### 6.44.1 Detailed Description

This group describes the CLI commands for the Generic Tunnel cluster. Listed below is a description of the cluster:

*The minimum common commands and attributes required to tunnel any protocol.*

#### 6.44.2 Macro Definition Documentation

##### 6.44.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_MATCH

###### **zcl tunnel match [protocolAddress:-1]**

- *This command is generated when an application wishes to find the ZigBee address (node, endpoint) of the Generic Tunnel server cluster with a given ProtocolAddress attribute. The command is typically multicast to a group of inter-communicating Generic Tunnel clusters*
  - protocolAddress - OCTET\_STRING

Definition at line [7759](#) of file [cli.doc](#).

##### 6.44.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_RESPONSE

###### **zcl tunnel response [deviceIeeeAddress:8] [protocolAddress:-1]**

- *This command is generated upon receipt of a Match Protocol Address command to indicate that the Protocol Address was successfully matched.*
  - deviceIeeeAddress - IEEE\_ADDRESS
  - protocolAddress - OCTET\_STRING

Definition at line [7766](#) of file [cli.doc](#).

##### 6.44.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_ADVERTISE

###### **zcl tunnel advertise [protocolAddress:-1]**

- *This command is typically sent upon startup, and whenever the ProtocolAddress attribute changes. It is typically multicast to a group of inter-communicating Generic Tunnel clusters.*
  - protocolAddress - OCTET\_STRING

Definition at line [7772](#) of file [cli.doc](#).

## 6.45 Cluster Commands: Groups

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_VIEW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_RMALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_ADD\_IF\_ID

### 6.45.1 Detailed Description

This group describes the CLI commands for the Groups cluster. Listed below is a description of the cluster:

*Attributes and commands for group configuration and manipulation.*

### 6.45.2 Macro Definition Documentation

#### 6.45.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_ADD

**zcl groups add [groupId:2] [groupName:-1]**

- *Command description for AddGroup*
  - groupId - INT16U
  - groupName - CHAR\_STRING

Definition at line 7790 of file [cli.doc](#).

#### 6.45.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_VIEW

**zcl groups view [groupId:2]**

- *Command description for ViewGroup*
  - groupId - INT16U

Definition at line 7796 of file [cli.doc](#).

#### 6.45.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_GET

**zcl groups get [groupCount:1] [groupList:2]**

- *Command description for GetGroupMembership*
  - groupCount - INT8U
  - groupList - INT16U

Definition at line 7803 of file [cli.doc](#).

**6.45.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_REMOVE****zcl groups remove [groupId:2]**

- *Command description for RemoveGroup*
  - groupId - INT16U

Definition at line [7809](#) of file [cli.doc](#).

**6.45.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_RMALL****zcl groups rmall**

- *Command description for RemoveAllGroups*

Definition at line [7814](#) of file [cli.doc](#).

**6.45.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_ADD\_IF\_ID****zcl groups add-if-id [groupId:2] [groupName:-1]**

- *Command description for AddGroupIfIdentifying*
  - groupId - INT16U
  - groupName - CHAR\_STRING

Definition at line [7821](#) of file [cli.doc](#).

## 6.46 Cluster Commands: IAS ACE

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_A
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_B
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_E
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_F
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_P
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_GETZM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_GETZI

### 6.46.1 Detailed Description

This group describes the CLI commands for the IAS ACE cluster. Listed below is a description of the cluster:

*Attributes and commands for IAS Ancillary Control Equipment.*

### 6.46.2 Macro Definition Documentation

#### 6.46.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_A

**zcl ias-ace a [armMode:1] [armDisarmCode:-1] [zoneId:1]**

- *Command description for Arm*
  - armMode - IasAceArmMode [ENUM8]
  - armDisarmCode - CHAR\_STRING
  - zoneId - INT8U

**See Also**

[EmberAfIasAceArmMode](#)

Definition at line [7842](#) of file [cli.doc](#).

#### 6.46.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_B

**zcl ias-ace b [numberOfZones:1] [zoneIds:1] [armDisarmCode:-1]**

- *Command description for Bypass*
  - numberOfZones - INT8U
  - zoneIds - INT8U
  - armDisarmCode - CHAR\_STRING

Definition at line [7850](#) of file [cli.doc](#).

6.46.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_E

**zcl ias-ace e**

- *Command description for Emergency*

Definition at line [7855](#) of file [cli.doc](#).

6.46.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_F

**zcl ias-ace f**

- *Command description for Fire*

Definition at line [7860](#) of file [cli.doc](#).

6.46.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_P

**zcl ias-ace p**

- *Command description for Panic*

Definition at line [7865](#) of file [cli.doc](#).

6.46.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_GETZM

**zcl ias-ace getzm**

- *Command description for GetZoneIdMap*

Definition at line [7870](#) of file [cli.doc](#).

6.46.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_GETZI

**zcl ias-ace getzi [zoneId:1]**

- *Command description for GetZoneInformation*
  - zoneId - INT8U

Definition at line [7876](#) of file [cli.doc](#).

## 6.47 Cluster Commands: IAS Zone

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_I\_A\_S\_ZONE\_SC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_I\_A\_S\_ZONE\_ENROLL

### 6.47.1 Detailed Description

This group describes the CLI commands for the IAS Zone cluster. Listed below is a description of the cluster:

*Attributes and commands for IAS security zone devices.*

### 6.47.2 Macro Definition Documentation

#### 6.47.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_I\_A\_S\_ZONE\_SC

**zcl ias-zone sc [zoneStatus:2] [extendedStatus:1] [zoneId:1] [delay:2]**

- *Command description for zoneStatusChangeNotification*
  - zoneStatus - IasZoneStatus [BITMAP16]
  - extendedStatus - BITMAP8
  - zoneId - INT8U
  - delay - INT16U

Definition at line 7896 of file [cli.doc](#).

#### 6.47.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_I\_A\_S\_ZONE\_ENROLL

**zcl ias-zone enroll [zoneType:2] [manufacturerCode:2]**

- *Command description for zoneEnrollRequest*
  - zoneType - IasZoneType [ENUM16]
  - manufacturerCode - INT16U

#### See Also

[EmberAflasZoneType](#)

Definition at line 7905 of file [cli.doc](#).

## 6.48 Cluster Commands: Identify

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ZCL\_IDENTIFY\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ZCL\_IDENTIFY\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_QUERY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_EZ\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_TRIGGER

### 6.48.1 Detailed Description

This group describes the CLI commands for the Identify cluster. Listed below is a description of the cluster:  
*Attributes and commands for putting a device into Identification mode (e.g. flashing a light).*

### 6.48.2 Macro Definition Documentation

#### 6.48.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ZCL\_IDENTIFY\_ON

**zcl identify on [endpoint:1] [time:2]**

- Writes the *IdentifyTime* attribute
  - endpoint - INT8U - The endpoint on the device which should begin identifying
  - time - INT16U - The number of seconds to spend identifying

Definition at line 962 of file [cli.doc](#).

#### 6.48.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ZCL\_IDENTIFY\_OFF

**zcl identify off [endpoint:1]**

- Writes the *IdentifyTime* attribute
  - endpoint - INT8U - The endpoint on which to stop identifying

Definition at line 968 of file [cli.doc](#).

#### 6.48.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ID

**zcl identify id [identifyTime:2]**

- Command description for *Identify*
  - identifyTime - INT16U

Definition at line 7922 of file [cli.doc](#).

**6.48.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTITY\_QUERY****zcl identify query**

- *Command description for IdentifyQuery*

Definition at line [7927](#) of file [cli.doc](#).

**6.48.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTITY\_EZ\_MODE****zcl identify ez-mode [action:1]**

- *Invoke EZMode on an Identify Server*
  - action - BITMAP8

Definition at line [7933](#) of file [cli.doc](#).

**6.48.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTITY\_TRIGGER****zcl identify trigger [effectId:1] [effectVariant:1]**

- *Command description for TriggerEffect*
  - effectId - IdentifyEffectIdentifier [ENUM8]
  - effectVariant - IdentifyEffectVariant [ENUM8]

**See Also**

[EmberAfIdentifyEffectIdentifier](#) [EmberAfIdentifyEffectVariant](#)

Definition at line [7943](#) of file [cli.doc](#).

## 6.49 Cluster Commands: Level Control

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_MV\_TO\_LEVEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_MOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_STEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_MV\_TO\_LEVEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_MOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_STEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_STOP

### 6.49.1 Detailed Description

This group describes the CLI commands for the Level Control cluster. Listed below is a description of the cluster:

*Attributes and commands for controlling devices that can be set to a level between fully 'On' and fully 'Off.'*

### 6.49.2 Macro Definition Documentation

#### 6.49.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_MV\_TO\_LEVEL

**zcl level-control mv-to-level [level:1] [transitionTime:2]**

- *Command description for MoveToLevel*
  - level - INT8U
  - transitionTime - INT16U

Definition at line 7962 of file [cli.doc](#).

#### 6.49.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_MOVE

**zcl level-control move [moveMode:1] [rate:1]**

- *Command description for Move*
  - moveMode - MoveMode [ENUM8]
  - rate - INT8U

**See Also**

[EmberAfMoveMode](#)

Definition at line 7971 of file [cli.doc](#).

**6.49.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_STEP**

**zcl level-control step [stepMode:1] [stepSize:1] [transitionTime:2]**

- *Command description for Step*
  - stepMode - StepMode [ENUM8]
  - stepSize - INT8U
  - transitionTime - INT16U

**See Also**

[EmberAfStepMode](#)

Definition at line [7981](#) of file [cli.doc](#).

**6.49.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_STOP**

**zcl level-control stop**

- *Command description for Stop*

Definition at line [7986](#) of file [cli.doc](#).

**6.49.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_MV\_TO\_LEVEL**

**zcl level-control o-mv-to-level [level:1] [transitionTime:2]**

- *Command description for MoveToLevelWithOnOff*
  - level - INT8U
  - transitionTime - INT16U

Definition at line [7993](#) of file [cli.doc](#).

**6.49.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_MOVE**

**zcl level-control o-move [moveMode:1] [rate:1]**

- *Command description for MoveWithOnOff*
  - moveMode - MoveMode [ENUM8]
  - rate - INT8U

**See Also**

[EmberAfMoveMode](#)

Definition at line [8002](#) of file [cli.doc](#).

**6.49.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_STEP****zcl level-control o-step [stepMode:1] [stepSize:1] [transitionTime:2]**

- *Command description for StepWithOnOff*

- stepMode - StepMode [ENUM8]
- stepSize - INT8U
- transitionTime - INT16U

**See Also**[EmberAfStepMode](#)

Definition at line 8012 of file [cli.doc](#).

**6.49.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_STOP****zcl level-control o-stop**

- *Command description for StopWithOnOff*

Definition at line 8017 of file [cli.doc](#).

## 6.50 Cluster Commands: Messaging

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_DISP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_CANCEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_DISP\_PROTD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_X\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_CONFIRM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_GET\_MSG\_X

### 6.50.1 Detailed Description

This group describes the CLI commands for the Messaging cluster. Listed below is a description of the cluster:

*This cluster provides an interface for passing text messages between SE devices.*

### 6.50.2 Macro Definition Documentation

#### 6.50.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_DISP

**zcl msg disp [messageId:4] [messageControl:1] [startTime:4] [durationInMinutes:2] [message:-1] [optionalExtendedMessageControl:1]**

- *Command description for DisplayMessage*
  - messageId - INT32U
  - messageControl - MessagingControlMask [BITMAP8]
  - startTime - UTC\_TIME
  - durationInMinutes - INT16U
  - message - CHAR\_STRING
  - optionalExtendedMessageControl - MessagingExtendedControlMask [BITMAP8]

Definition at line 8039 of file [cli.doc](#).

#### 6.50.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_CANCEL

**zcl msg cancel [messageId:4] [messageControl:1]**

- *The CancelMessage command provides the ability to cancel the sending or acceptance of previously sent messages.*
  - messageId - INT32U
  - messageControl - MessagingControlMask [BITMAP8]

Definition at line 8046 of file [cli.doc](#).

#### 6.50.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_DISP\_PROTD

**zcl msg disp-protd [messageId:4] [messageControl:1] [startTime:4] [durationInMinutes:2] [message:-1] [optionalExtendedMessageControl:1]**

- *The DisplayProtected Message command is for use with messages that are protected by a password or PIN.*
  - messageId - INT32U
  - messageControl - MessagingControlMask [BITMAP8]
  - startTime - UTC\_TIME
  - durationInMinutes - INT16U
  - message - CHAR\_STRING
  - optionalExtendedMessageControl - MessagingExtendedControlMask [BITMAP8]

Definition at line 8057 of file [cli.doc](#).

#### 6.50.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_X\_ALL

**zcl msg x-all [implementationDateTime:4]**

- *The CancelAllMessages command indicates to a client device that it should cancel all display messages currently held by it.*
  - implementationDateTime - UTC\_TIME

Definition at line 8063 of file [cli.doc](#).

#### 6.50.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_GET

**zcl msg get**

- *Command description for GetLastMessage*

Definition at line 8068 of file [cli.doc](#).

#### 6.50.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_CONFIRM

**zcl msg confirm [messageId:4] [confirmationTime:4] [messageConfirmationControl:1] [messageResponse:-1]**

- *The Message Confirmation command provides an indication that a Utility Customer has acknowledged and/or accepted the contents of a previously sent message. Enhanced Message Confirmation commands shall contain an answer of 'NO', 'YES' and/or a message confirmation string.*

- messageId - INT32U
- confirmationTime - UTC\_TIME
- messageConfirmationControl - BITMAP8
- messageResponse - OCTET\_STRING

Definition at line 8077 of file [cli.doc](#).

6.50.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_GET\_MSG\_X

**zcl msg get-msg-x [earliestImplementationTime:4]**

- *This command initiates the return of the first (and maybe only) Cancel All Messages command held on the associated server, and which has an implementation time equal to or later than the value indicated in the payload.*

– earliestImplementationTime - UTC\_TIME

Definition at line 8083 of file [cli.doc](#).

## 6.51 Cluster Commands: On/off

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

### 6.51.1 Detailed Description

This group describes the CLI commands for the On/off cluster. Listed below is a description of the cluster:

*Attributes and commands for switching devices between 'On' and 'Off' states.*

### 6.51.2 Macro Definition Documentation

#### 6.51.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

**zcl on-off off**

**zcl on-off ontimedoff [onOffControl:1] [onTime:2] [offWaitTime:2]**

**zcl on-off onrecall**

**zcl on-off offeffect [effectId:1] [effectVariant:1]**

**zcl on-off toggle**

**zcl on-off on**

- *Command description for Off*

- *Command description for On*

- *Command description for Toggle*

– *Command description for OffWithEffect*

  \* effectId - OnOffEffectIdentifier [ENUM8]

  \* effectVariant - ENUM8

**See Also**

[EmberAfOnOffEffectIdentifier](#)

- *Command description for OnWithRecallGlobalScene*

- *Command description for OnWithTimedOff*

  – onOffControl - OnOffControl [BITMAP8]

  – onTime - INT16U

  – offWaitTime - INT16U

Definition at line 8131 of file [cli.doc](#).

### 6.51.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

**zcl on-off off**

**zcl on-off ontimedoff [onOffControl:1] [onTime:2] [offWaitTime:2]**

**zcl on-off onrecall**

**zcl on-off offeffect [effectId:1] [effectVariant:1]**

**zcl on-off toggle**

**zcl on-off on**

- *Command description for Off*

- *Command description for On*

- *Command description for Toggle*

- *Command description for OffWithEffect*

- \* effectId - OnOffEffectIdentifier [ENUM8]

- \* effectVariant - ENUM8

**See Also**

[EmberAfOnOffEffectIdentifier](#)

- *Command description for OnWithRecallGlobalScene*

- *Command description for OnWithTimedOff*

- onOffControl - OnOffControl [BITMAP8]

- onTime - INT16U

- offWaitTime - INT16U

Definition at line 8131 of file [cli.doc](#).

### 6.51.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

**zcl on-off off**

**zcl on-off ontimedoff [onOffControl:1] [onTime:2] [offWaitTime:2]**

**zcl on-off onrecall**

**zcl on-off offeffect [effectId:1] [effectVariant:1]**

**zcl on-off toggle**

**zcl on-off on**

- *Command description for Off*

- *Command description for On*

- *Command description for Toggle*

- *Command description for OffWithEffect*
  - \* effectId - OnOffEffectIdentifier [ENUM8]
  - \* effectVariant - ENUM8

**See Also**

[EmberAfOnOffEffectIdentifier](#)

- *Command description for OnWithRecallGlobalScene*
- *Command description for OnWithTimedOff*
  - onOffControl - OnOffControl [BITMAP8]
  - onTime - INT16U
  - offWaitTime - INT16U

Definition at line [8131](#) of file [cli.doc](#).

#### 6.51.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

**zcl on-off off**

**zcl on-off ontimedoff [onOffControl:1] [onTime:2] [offWaitTime:2]**

**zcl on-off onrecall**

**zcl on-off offeffect [effectId:1] [effectVariant:1]**

**zcl on-off toggle**

**zcl on-off on**

- *Command description for Off*
- *Command description for On*
- *Command description for Toggle*
  - *Command description for OffWithEffect*
    - \* effectId - OnOffEffectIdentifier [ENUM8]
    - \* effectVariant - ENUM8

**See Also**

[EmberAfOnOffEffectIdentifier](#)

- *Command description for OnWithRecallGlobalScene*
- *Command description for OnWithTimedOff*
  - onOffControl - OnOffControl [BITMAP8]
  - onTime - INT16U
  - offWaitTime - INT16U

Definition at line [8131](#) of file [cli.doc](#).

### 6.51.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

**zcl on-off off**

**zcl on-off ontimedoff [onOffControl:1] [onTime:2] [offWaitTime:2]**

**zcl on-off onrecall**

**zcl on-off offeffect [effectId:1] [effectVariant:1]**

**zcl on-off toggle**

**zcl on-off on**

- *Command description for Off*

- *Command description for On*

- *Command description for Toggle*

- *Command description for OffWithEffect*

- \* effectId - OnOffEffectIdentifier [ENUM8]

- \* effectVariant - ENUM8

**See Also**

[EmberAfOnOffEffectIdentifier](#)

- *Command description for OnWithRecallGlobalScene*

- *Command description for OnWithTimedOff*

- onOffControl - OnOffControl [BITMAP8]

- onTime - INT16U

- offWaitTime - INT16U

Definition at line 8131 of file [cli.doc](#).

### 6.51.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON

**zcl on-off off**

**zcl on-off ontimedoff [onOffControl:1] [onTime:2] [offWaitTime:2]**

**zcl on-off onrecall**

**zcl on-off offeffect [effectId:1] [effectVariant:1]**

**zcl on-off toggle**

**zcl on-off on**

- *Command description for Off*

- *Command description for On*

- *Command description for Toggle*

- *Command description for OffWithEffect*
  - \* effectId - OnOffEffectIdentifier [ENUM8]
  - \* effectVariant - ENUM8

**See Also**

[EmberAfOnOffEffectIdentifier](#)

- *Command description for OnWithRecallGlobalScene*
- *Command description for OnWithTimedOff*
  - onOffControl - OnOffControl [BITMAP8]
  - onTime - INT16U
  - offWaitTime - INT16U

Definition at line [8131](#) of file [cli.doc](#).

## 6.52 Cluster Commands: Poll Control

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_LONG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_SHORT

#### 6.52.1 Detailed Description

This group describes the CLI commands for the Poll Control cluster. Listed below is a description of the cluster:

*This cluster provides a mechanism for the management of an end device's MAC Data Poll rate. For the purposes of this cluster, the term "poll" always refers to the sending of a MAC Data Poll from the end device to the end device's parent.*

#### 6.52.2 Macro Definition Documentation

##### 6.52.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_STOP

###### **zcl poll-control stop**

- *The Fast Poll Stop command is used to stop the fast poll mode initiated by the Check-in response.*

Definition at line 8149 of file [cli.doc](#).

##### 6.52.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_LONG

###### **zcl poll-control long [newLongPollInterval:4]**

- *The Set Long Poll Interval command is used to set the read only Long Poll Interval Attribute.*
  - newLongPollInterval - INT32U

Definition at line 8155 of file [cli.doc](#).

##### 6.52.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_SHORT

###### **zcl poll-control short [newShortPollInterval:2]**

- *The Set Short Poll Interval command is used to set the read only Short Poll Interval Attribute.*
  - newShortPollInterval - INT16U

Definition at line 8161 of file [cli.doc](#).

## 6.53 Cluster Commands: Power Profile

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_STATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_ENERGY\_PHASES\_SCHEDULE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_SCHEDULE\_CONSTRAINTS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_ENERGY\_PHASES\_SCHEDULE\_STATES

### 6.53.1 Detailed Description

This group describes the CLI commands for the Power Profile cluster. Listed below is a description of the cluster:

*This cluster provides an interface for transferring power profile information from a device (e.g. Whitegood) to a controller (e.g. the Home Gateway). The Power Profile transferred can be solicited by client side (request command) or can be notified directly from the device (server side).*

### 6.53.2 Macro Definition Documentation

#### 6.53.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_PROFILE

**zcl power-profile profile [powerProfileId:1]**

- *The PowerProfileRequest Command is generated by a device supporting the client side of the Power Profile cluster in order to request the Power Profile of a server device.*
  - powerProfileId - INT8U

Definition at line 8181 of file [cli.doc](#).

#### 6.53.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_STATE

**zcl power-profile state**

- *The PowerProfileStateRequest Command is generated in order to retrieve the identifiers of current Power Profiles.*

Definition at line 8186 of file [cli.doc](#).

#### 6.53.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_ENERGY\_PHASES\_SCHEDULE

**zcl power-profile energy-phases-schedule [powerProfileId:1] [numOfScheduledPhases:1] [scheduled-Phases:3]**

- The *EnergyPhasesScheduleNotification Command* is generated by a device supporting the client side of the Power Profile cluster in order to schedule the start of the selected Power Profile and its phases.
  - powerProfileId - INT8U
  - numOfScheduledPhases - INT8U
  - scheduledPhases - struct ScheduledPhase

Definition at line 8194 of file [cli.doc](#).

#### **6.53.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_SCHEDULE\_CONSTRAINTS**

##### **zcl power-profile schedule-constraints [powerProfileId:1]**

- The *PowerProfileScheduleConstraintsRequest Command* is generated by a device supporting the client side of the Power Profile cluster in order to request the constraints -if set- of Power Profile of a client device, in order to set the proper boundaries for the scheduling when calculating the schedules.
  - powerProfileId - INT8U

Definition at line 8200 of file [cli.doc](#).

#### **6.53.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_ENERGY\_PHASES\_SCHEDULE\_STATES**

##### **zcl power-profile energy-phases-schedule-states [powerProfileId:1]**

- The *EnergyPhasesScheduleStateRequest Command* is generated by a device supporting the client side of the Power Profile cluster to check the states of the scheduling of a power profile, which is supported in the device implementing the server side of Power Profile cluster.
  - powerProfileId - INT8U

Definition at line 8206 of file [cli.doc](#).

## 6.54 Cluster Commands: Prepayment

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SEL\_AV\_EM\_CRED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_DEBT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_EM\_CRED\_SETUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CONS\_TOP\_UP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CRED\_ADJ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_PMT\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_PP\_SS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_TOP\_UP\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_LOW\_CRED\_WNG\_LVL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_DEBT\_REPMT\_L\_OG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_MAX\_CRED\_LMT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_OA\_DEBT\_CAP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_PREP\_SS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_PMT\_MODE\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CONS\_TOP\_UP\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_TOP\_UP\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_DEBT\_LOG

### 6.54.1 Detailed Description

This group describes the CLI commands for the Prepayment cluster. Listed below is a description of the cluster:

*The Prepayment Cluster provides the facility to pass messages relating to prepayment between devices on the HAN.*

### 6.54.2 Macro Definition Documentation

#### 6.54.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SEL\_AV\_EM\_CRED

**zcl prepayment sel-av-em-cred [commandIssueDateTime:4] [originatingDevice:1] [siteId:-1] [meterSerialNumber:-1]**

- This command is sent to the Metering Device to activate the use of any Emergency Credit available on the Metering Device.
  - commandIssueDateTime - UTC\_TIME
  - originatingDevice - OriginatingDevice [ENUM8]
  - siteId - OCTET\_STRING
  - meterSerialNumber - OCTET\_STRING

#### See Also

[EmberAfOriginatingDevice](#)

Definition at line 8229 of file [cli.doc](#).

#### 6.54.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_DEBT

**zcl prepayment chg-debt [issuerEventId:4] [debtLabel:-1] [debtAmount:4] [debtRecoveryMethod:1] [debtAmountType:1] [debtRecoveryStartTime:4] [debtRecoveryCollectionTime:2] [debtRecoveryFrequency:1] [debtRecoveryAmount:4] [debtRecoveryBalancePercentage:2]**

- *The ChangeDebt command is send to the Metering Device to change the fuel or Non fuel debt values.*
  - issuerEventId - INT32U
  - debtLabel - OCTET\_STRING
  - debtAmount - INT32U
  - debtRecoveryMethod - DebtRecoveryMethod [ENUM8]
  - debtAmountType - DebtAmountType [ENUM8]
  - debtRecoveryStartTime - UTC\_TIME
  - debtRecoveryCollectionTime - INT16U
  - debtRecoveryFrequency - DebtRecoveryFrequency [ENUM8]
  - debtRecoveryAmount - INT32U
  - debtRecoveryBalancePercentage - INT16U

**See Also**

[EmberAfDebtRecoveryMethod](#) [EmberAfDebtAmountType](#) [EmberAfDebtRecoveryFrequency](#)

Definition at line 8248 of file [cli.doc](#).

#### 6.54.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_EM\_CRED\_SETUP

**zcl prepayment em-cred-setup [issuerEventId:4] [startTime:4] [emergencyCreditLimit:4] [emergencyCreditThreshold:4]**

- *This command is a method to set up the parameters for the emergency credit.*
  - issuerEventId - INT32U
  - startTime - UTC\_TIME
  - emergencyCreditLimit - INT32U
  - emergencyCreditThreshold - INT32U

Definition at line 8257 of file [cli.doc](#).

#### 6.54.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CONS\_TOP\_UP

**zcl prepayment cons-top-up [originatingDevice:1] [topUpCode:-1]**

- *The ConsumerTopUp command is used by the IPD and the ESI as a method of applying credit top up values to the prepayment meter.*
  - originatingDevice - OriginatingDevice [ENUM8]
  - topUpCode - OCTET\_STRING

**See Also**

[EmberAfOriginatingDevice](#)

Definition at line 8266 of file [cli.doc](#).

#### 6.54.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CRED\_ADJ

**zcl prepayment cred-adj [issuerEventId:4] [startTime:4] [creditAdjustmentType:1] [creditAdjustmentValue:4]**

- *The CreditAdjustment command is sent to update the accounting base for the Prepayment meter.*

- issuerEventId - INT32U
- startTime - UTC\_TIME
- creditAdjustmentType - CreditAdjustmentType [ENUM8]
- creditAdjustmentValue - INT32U

##### See Also

[EmberAfCreditAdjustmentType](#)

Definition at line 8277 of file [cli.doc](#).

#### 6.54.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_PMT\_MODE

**zcl prepayment chg-pmt-mode [providerId:4] [issuerEventId:4] [implementationDateTime:4] [proposedPaymentControlConfiguration:2] [cutOffValue:4]**

- *This command is sent to a Metering Device to instruct it to change its mode of operation. i.e. from Credit to Prepayment.*

- providerId - INT32U
- issuerEventId - INT32U
- implementationDateTime - UTC\_TIME
- proposedPaymentControlConfiguration - PaymentControlConfiguration [BITMAP16]
- cutOffValue - INT32U

Definition at line 8287 of file [cli.doc](#).

#### 6.54.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_PP\_SS

**zcl prepayment get-pp-ss [earliestStartTime:4] [latestEndTime:4] [snapshotOffset:1] [snapshotCause:4]**

- *This command is used to request the cluster server for snapshot data.*

- earliestStartTime - UTC\_TIME
- latestEndTime - UTC\_TIME
- snapshotOffset - INT8U
- snapshotCause - PrepaySnapshotPayloadCause [BITMAP32]

Definition at line 8296 of file [cli.doc](#).

**6.54.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_TOP\_UP\_LOG**

**zcl prepayment get-top-up-log [latestEndTime:4] [numberOfRecords:1]**

- *This command is sent to the Metering Device to retrieve the log of Top Up codes received by the meter.*
  - latestEndTime - UTC\_TIME
  - numberOfRecords - INT8U

Definition at line 8303 of file [cli.doc](#).

**6.54.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_LOW\_CRED\_WNG\_LVL**

**zcl prepayment set-low-cred-wng-lvl [lowCreditWarningLevel:4]**

- *This command is sent from client to a Prepayment server to set the warning level for low credit.*
  - lowCreditWarningLevel - INT32U

Definition at line 8309 of file [cli.doc](#).

**6.54.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_DEBT\_REPMT\_LOG**

**zcl prepayment get-debt-repmt-log [latestEndTime:4] [numberOfDebts:1] [debtType:1]**

- *This command is used to request the contents of the repayment log.*
  - latestEndTime - UTC\_TIME
  - numberOfDebts - INT8U
  - debtType - RepaymentDebtType [ENUM8]

**See Also**

[EmberAfRepaymentDebtType](#)

Definition at line 8319 of file [cli.doc](#).

**6.54.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_MAX\_CRED\_LMT**

**zcl prepayment set-max-cred-lmt [providerId:4] [issuerEventId:4] [implementationDateTime:4] [maximumCreditLevel:4] [maximumCreditPerTopUp:4]**

- *This command is sent from a client to the Prepayment server to set the maximum credit level allowed in the meter.*
  - providerId - INT32U
  - issuerEventId - INT32U
  - implementationDateTime - UTC\_TIME
  - maximumCreditLevel - INT32U
  - maximumCreditPerTopUp - INT32U

Definition at line 8329 of file [cli.doc](#).

#### 6.54.2.12 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_OA\_DEBT\_CAP

**zcl prepayment set-**oa-debt-cap** [providerId:4] [issuerEventId:4] [implementationDateTime:4] [overall-**DebtCap**:4]**

- This command is sent from a client to the Prepayment server to set the overall debt cap allowed in the meter.

- providerId - INT32U
- issuerEventId - INT32U
- implementationDateTime - UTC\_TIME
- overallDebtCap - INT32U

Definition at line [8338](#) of file [cli.doc](#).

#### 6.54.2.13 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_PREP\_SS

**zcl prepayment pub-prep-ss [snapshotId:4] [snapshotTime:4] [totalSnapshotsFound:1] [command-Index:1] [totalNumberOfCommands:1] [snapshotCause:4] [snapshotPayloadType:1] [snapshotPayload:1]**

- This command is generated in response to a GetPrepaySnapshot command. It is used to return a single snapshot to the client.

- snapshotId - INT32U
- snapshotTime - UTC\_TIME
- totalSnapshotsFound - INT8U
- commandIndex - INT8U
- totalNumberOfCommands - INT8U
- snapshotCause - PrepaySnapshotPayloadCause [BITMAP32]
- snapshotPayloadType - PrepaySnapshotPayloadType [ENUM8]
- snapshotPayload - INT8U

##### See Also

[EmberAfPrepaySnapshotPayloadType](#)

Definition at line [8353](#) of file [cli.doc](#).

#### 6.54.2.14 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_PMT\_MODE\_RESP

**zcl prepayment chg-pmt-mode-resp [friendlyCredit:1] [friendlyCreditCalendarId:4] [emergencyCredit-Limit:4] [emergencyCreditThreshold:4]**

- This command is send in response to the ChangePaymentMode Command.

- friendlyCredit - FriendlyCredit [BITMAP8]
- friendlyCreditCalendarId - INT32U
- emergencyCreditLimit - INT32U
- emergencyCreditThreshold - INT32U

Definition at line [8362](#) of file [cli.doc](#).

**6.54.2.15 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CONS\_TOP\_UP\_RESP**

**zcl prepayment cons-top-up-resp [resultType:1] [topUpValue:4] [sourceOfTopUp:1] [creditRemaining:4]**

- This command is send in response to the ConsumerTopUp Command.

- resultType - ResultType [ENUM8]
- topUpValue - INT32U
- sourceOfTopUp - OriginatingDevice [ENUM8]
- creditRemaining - INT32U

**See Also**

[EmberAfResultType](#) [EmberAfOriginatingDevice](#)

Definition at line 8374 of file [cli.doc](#).

**6.54.2.16 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_TOP\_UP\_LOG**

**zcl prepayment pub-top-up-log [commandIndex:1] [totalNumberOfCommands:1] [topUpPayload:7]**

- This command is used to send the Top Up Code Log entries to the client.

- commandIndex - INT8U
- totalNumberOfCommands - INT8U
- topUpPayload - struct TopUpPayload

Definition at line 8382 of file [cli.doc](#).

**6.54.2.17 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_DEBT\_LOG**

**zcl prepayment pub-debt-log [commandIndex:1] [totalNumberOfCommands:1] [debtPayload:13]**

- This command is used to send the contents of the Repayment Log.

- commandIndex - INT8U
- totalNumberOfCommands - INT8U
- debtPayload - struct DebtPayload

Definition at line 8390 of file [cli.doc](#).

## 6.55 Cluster Commands: Price

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_PRICE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BLOCK\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_X\_FACTOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CAL\_VAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_TARIFF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_PRICE\_MATRIX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BLOCK\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CO2\_VAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_TIER\_LABELS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BILLING\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CONSOLIDATED\_BILL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CPP\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CREDIT\_PAYMENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CURRENCY\_CONVERSIO-N
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CANCEL\_TARIFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_SCHEDULED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PRICE\_ACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BLOCK\_PERIODS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CONVERSION\_FACTOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CAL\_VAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TARIFF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_PRICE\_MATRIX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BLOCK\_THRESHOLDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CO2\_VALUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TIER\_LABELS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BILLING\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CON\_BILL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CPP\_EVENT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CREDIT\_PAYMENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CUR\_CONV\_CMD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TARIFF\_CANCELLATION

### 6.55.1 Detailed Description

This group describes the CLI commands for the Price cluster. Listed below is a description of the cluster:

*The Price Cluster provides the mechanism for communicating Gas, Energy, or Water pricing information within the premises.*

## 6.55.2 Macro Definition Documentation

### 6.55.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_PRICE

```
zcl price pub-price [providerId:4] [rateLabel:-1] [issuerEventId:4] [currentTime:4] [unitOfMeasure:  
:1] [currency:2] [priceTrailingDigitAndPriceTier:1] [numberOfPriceTiersAndRegisterTier:1] [start-  
Time:4] [durationInMinutes:2] [price:4] [priceRatio:1] [generationPrice:4] [generationPriceRatio-  
:1] [alternateCostDelivered:4] [alternateCostUnit:1] [alternateCostTrailingDigit:1] [numberofBlock-  
Thresholds:1] [priceControl:1] [numberOfGenerationTiers:1] [generationTier:1] [extendedNumber-  
OfPriceTiers:1] [extendedPriceTier:1] [extendedRegisterTier:1]
```

- *The PublishPrice command is generated in response to receiving a Get Current Price command, in response to a Get Scheduled Prices command, and when an update to the pricing information is available from the commodity provider, either before or when a TOU price becomes active.*

- providerId - INT32U
- rateLabel - OCTET\_STRING
- issuerEventId - INT32U
- currentTime - UTC\_TIME
- unitOfMeasure - AmiUnitOfMeasure [ENUM8]
- currency - INT16U
- priceTrailingDigitAndPriceTier - PriceTrailingDigitAndPriceTier [BITMAP8]
- numberOfPriceTiersAndRegisterTier - PriceNumberOfPriceTiersAndRegisterTier [BITMAP8]
- startTime - UTC\_TIME
- durationInMinutes - INT16U
- price - INT32U
- priceRatio - INT8U
- generationPrice - INT32U
- generationPriceRatio - INT8U
- alternateCostDelivered - INT32U
- alternateCostUnit - AlternateCostUnit [ENUM8]
- alternateCostTrailingDigit - AlternateCostTrailingDigit [BITMAP8]
- numberofBlockThresholds - INT8U
- priceControl - PriceControlMask [BITMAP8]
- numberOfGenerationTiers - INT8U
- generationTier - GenerationTier [ENUM8]
- extendedNumberOfPriceTiers - ExtendedNumberOfPriceTiers [ENUM8]
- extendedPriceTier - ExtendedPriceTier [ENUM8]
- extendedRegisterTier - ExtendedRegisterTier [ENUM8]

#### See Also

[EmberAfAmiUnitOfMeasure](#) [EmberAfAlternateCostUnit](#) [EmberAfGenerationTier](#) [Ember-  
AfExtendedNumberOfPriceTiers](#) [EmberAfExtendedPriceTier](#) [EmberAfExtendedRegister-  
Tier](#)

Definition at line 8438 of file [cli.doc](#).

#### 6.55.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BLOCK\_PERIOD

**zcl price pub-block-period [providerId:4] [issuerEventId:4] [blockPeriodStartTime:4] [blockPeriodDuration:3] [numberOfPriceTiersAndNumberOfBlockThresholds:1] [blockPeriodControl:1] [blockPeriodDurationType:1] [tariffType:1] [tariffResolutionPeriod:1]**

- *The PublishBlockPeriod command is generated in response to receiving a GetBlockPeriod(s) command or when an update to the block tariff schedule is available from the commodity provider.*

- providerId - INT32U
- issuerEventId - INT32U
- blockPeriodStartTime - UTC\_TIME
- blockPeriodDuration - INT24U
- numberOfPriceTiersAndNumberOfBlockThresholds - BITMAP8
- blockPeriodControl - BlockPeriodControl [BITMAP8]
- blockPeriodDurationType - BlockPeriodDurationType [BITMAP8]
- tariffType - TariffType [ENUM8]
- tariffResolutionPeriod - TariffResolutionPeriod [ENUM8]

##### See Also

[EmberAfTariffType](#) [EmberAfTariffResolutionPeriod](#)

Definition at line 8455 of file [cli.doc](#).

#### 6.55.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_X\_FACTOR

**zcl price pub-x-factor [issuerEventId:4] [startTime:4] [conversionFactor:4] [conversionFactorTrailingDigit:1]**

- *The PublishConversionFactor command is sent in response to a GetConversionFactor command or if a new Conversion factor is available.*

- issuerEventId - INT32U
- startTime - UTC\_TIME
- conversionFactor - INT32U
- conversionFactorTrailingDigit - ConversionFactorTrailingDigit [BITMAP8]

Definition at line 8464 of file [cli.doc](#).

#### 6.55.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CAL\_VAL

**zcl price pub-cal-val [issuerEventId:4] [startTime:4] [calorificValue:4] [calorificValueUnit:1] [calorificValueTrailingDigit:1]**

- *The PublishCalorificValue command is sent in response to a GetCalorificValue command or if a new calorific value is available.*

- issuerEventId - INT32U
- startTime - UTC\_TIME

- calorificValue - INT32U
- calorificValueUnit - CalorificValueUnit [ENUM8]
- calorificValueTrailingDigit - CalorificValueTrailingDigit [BITMAP8]

**See Also**

[EmberAfCalorificValueUnit](#)

Definition at line 8476 of file [cli.doc](#).

#### 6.55.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_TARIFF\_INFO

```
zcl price pub-tariff-info [providerId:4] [issuerEventId:4] [issuerTariffId:4] [startTime:4] [tariffType-
ChargingScheme:1] [tariffLabel:-1] [numberOfPriceTiersInUse:1] [numberOfBlockThresholdsIn-
Use:1] [unitOfMeasure:1] [currency:2] [priceTrailingDigit:1] [standingCharge:4] [tierBlockMode:1]
[blockThresholdMultiplier:3] [blockThresholdDivisor:3]
```

- *The PublishTariffInformation command is sent in response to a GetTariffInformation command or if new tariff information is available (including price matrix and block thresholds).*

- providerId - INT32U
- issuerEventId - INT32U
- issuerTariffId - INT32U
- startTime - UTC\_TIME
- tariffTypeChargingScheme - TariffTypeChargingScheme [BITMAP8]
- tariffLabel - OCTET\_STRING
- numberOfPriceTiersInUse - INT8U
- numberOfBlockThresholdsInUse - INT8U
- unitOfMeasure - AmiUnitOfMeasure [ENUM8]
- currency - INT16U
- priceTrailingDigit - PriceTrailingDigit [BITMAP8]
- standingCharge - INT32U
- tierBlockMode - TierBlockMode [ENUM8]
- blockThresholdMultiplier - INT24U
- blockThresholdDivisor - INT24U

**See Also**

[EmberAfAmiUnitOfMeasure](#) [EmberAfTierBlockMode](#)

Definition at line 8499 of file [cli.doc](#).

#### 6.55.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_PRICE\_MATRIX

```
zcl price pub-price-matrix [providerId:4] [issuerEventId:4] [startTime:4] [issuerTariffId:4] [command-
Index:1] [numberOfCommands:1] [subPayloadControl:1] [payload:5]
```

- *PublishPriceMatrix command is used to publish the Block Price Information Set (up to 15 tiers x 15 blocks) and the Extended Price Information Set (up to 48 tiers). The PublishPriceMatrix command is sent in response to a GetPriceMatrix command.*

- providerId - INT32U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- issuerTariffId - INT32U
- commandIndex - INT8U
- numberOfCommands - INT8U
- subPayloadControl - PriceMatrixSubPayloadControl [BITMAP8]
- payload - struct PriceMatrixSubPayload

Definition at line 8512 of file [cli.doc](#).

#### **6.55.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BLOCK\_THRESHOLD**

**zcl price pub-block-threshold [providerId:4] [issuerEventId:4] [startTime:4] [issuerTariffId:4] [commandIndex:1] [numberOfCommands:1] [subPayloadControl:1] [payload:7]**

- *The PublishBlockThreshold command is sent in response to a GetBlockThreshold command.*

- providerId - INT32U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- issuerTariffId - INT32U
- commandIndex - INT8U
- numberOfCommands - INT8U
- subPayloadControl - BlockThresholdSubPayloadControl [BITMAP8]
- payload - struct BlockThresholdSubPayload

Definition at line 8525 of file [cli.doc](#).

#### **6.55.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CO2\_VAL**

**zcl price pub-co2-val [providerId:4] [issuerEventId:4] [startTime:4] [tariffType:1] [cO2Value:4] [cO2ValueUnit:1] [cO2ValueTrailingDigit:1]**

- *The PublishCO2Value command is sent in response to a GetCO2Value command or if a new CO2 conversion factor is available.*

- providerId - INT32U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- tariffType - TariffType [ENUM8]
- cO2Value - INT32U
- cO2ValueUnit - CO2Unit [ENUM8]
- cO2ValueTrailingDigit - CO2TrailingDigit [BITMAP8]

#### **See Also**

[EmberAfTariffType](#) [EmberAfCO2Unit](#)

Definition at line 8540 of file [cli.doc](#).

#### 6.55.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_TIER\_LABELS

**zcl price pub-tier-labels [providerId:4] [issuerEventId:4] [issuerTariffId:4] [commandIndex:1] [numberOfCommands:1] [numberOfLabels:1] [tierLabelsPayload:1]**

- *The PublishTierLabels command is generated in response to receiving a GetTierLabels command or when there is a tier label change.*
  - providerId - INT32U
  - issuerEventId - INT32U
  - issuerTariffId - INT32U
  - commandIndex - INT8U
  - numberOfCommands - INT8U
  - numberOfLabels - INT8U
  - tierLabelsPayload - INT8U

Definition at line 8552 of file [cli.doc](#).

#### 6.55.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BILLING\_PERIOD

**zcl price pub-billing-period [providerId:4] [issuerEventId:4] [billingPeriodStartTime:4] [billingPeriodDuration:3] [billingPeriodDurationType:1] [tariffType:1]**

- *The PublishBillingPeriod command is generated in response to receiving a GetBillingPeriod(s) command or when an update to the Billing schedule is available from the commodity Supplier.*

- providerId - INT32U
- issuerEventId - INT32U
- billingPeriodStartTime - UTC\_TIME
- billingPeriodDuration - BillingPeriodDuration [BITMAP24]
- billingPeriodDurationType - BillingPeriodDurationType [BITMAP8]
- tariffType - TariffType [ENUM8]

##### See Also

[EmberAfTariffType](#)

Definition at line 8565 of file [cli.doc](#).

#### 6.55.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CONsolidated\_BILL

**zcl price pub-consolidated-bill [providerId:4] [issuerEventId:4] [billingPeriodStartTime:4] [billingPeriodDuration:3] [billingPeriodDurationType:1] [tariffType:1] [consolidatedBill:4] [currency:2] [billTrailingDigit:1]**

- *The PublishConsolidatedBill command is used to make consolidated billing information of previous billing periods available to other end devices. This command is issued in response to a GetConsolidatedBill command or if new billing information is available.*

- providerId - INT32U

- issuerEventId - INT32U
- billingPeriodStartTime - UTC\_TIME
- billingPeriodDuration - BillingPeriodDuration [BITMAP24]
- billingPeriodDurationType - BillingPeriodDurationType [BITMAP8]
- tariffType - TariffType [ENUM8]
- consolidatedBill - INT32U
- currency - INT16U
- billTrailingDigit - BillTrailingDigit [BITMAP8]

**See Also**

[EmberAfTariffType](#)

Definition at line 8581 of file [cli.doc](#).

**6.55.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CPP\_EVENT**

**zcl price pub-cpp-event [providerId:4] [issuerEventId:4] [startTime:4] [durationInMinutes:2] [tariffType:1] [cppPriceTier:1] [cppAuth:1]**

- *The PublishCPPEvent command is sent from an ESI to its price clients to notify them of a Critical Peak Pricing event.*

- providerId - INT32U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- durationInMinutes - INT16U
- tariffType - TariffType [ENUM8]
- cppPriceTier - CppPriceTier [ENUM8]
- cppAuth - PublishCppEventCppAuth [ENUM8]

**See Also**

[EmberAfTariffType](#) [EmberAfCppPriceTier](#) [EmberAfPublishCppEventCppAuth](#)

Definition at line 8597 of file [cli.doc](#).

**6.55.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CREDIT\_PAYMENT**

**zcl price pub-credit-payment [providerId:4] [issuerEventId:4] [creditPaymentDueDate:4] [creditPaymentOverDueAmount:4] [creditPaymentStatus:1] [creditPayment:4] [creditPaymentDate:4] [creditPaymentRef:-1]**

- *The PublishCreditPayment command is used to update the credit payment information is available.*

- providerId - INT32U
- issuerEventId - INT32U
- creditPaymentDueDate - UTC\_TIME
- creditPaymentOverDueAmount - INT32U

- creditPaymentStatus - CreditPaymentStatus [ENUM8]
- creditPayment - INT32U
- creditPaymentDate - UTC\_TIME
- creditPaymentRef - OCTET\_STRING

**See Also**

[EmberAfCreditPaymentStatus](#)

Definition at line 8612 of file [cli.doc](#).

#### 6.55.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CURRENCY\_CONVERSION

**zcl price pub-currency-conversion [providerId:4] [issuerEventId:4] [startTime:4] [oldCurrency:2] [newCurrency:2] [conversionFactor:4] [conversionFactorTrailingDigit:1] [currencyChangeControlFlags:4]**

- *The PublishCurrencyConversion command is sent in response to a GetCurrencyConversion command or when a new currency becomes available.*

- providerId - INT32U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- oldCurrency - INT16U
- newCurrency - INT16U
- conversionFactor - INT32U
- conversionFactorTrailingDigit - ConversionFactorTrailingDigit [BITMAP8]
- currencyChangeControlFlags - CurrencyChangeControl [BITMAP32]

Definition at line 8625 of file [cli.doc](#).

#### 6.55.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CANCEL\_TARIFF

**zcl price cancel-tariff [providerId:4] [issuerTariffId:4] [tariffType:1]**

- *The CancelTariff command indicates that all data associated with a particular tariff instance should be discarded.*

- providerId - INT32U
- issuerTariffId - INT32U
- tariffType - TariffType [ENUM8]

**See Also**

[EmberAfTariffType](#)

Definition at line 8635 of file [cli.doc](#).

**6.55.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CURRENT**

**zcl price current [commandOptions:1]**

- *The GetCurrentPrice command initiates a PublishPrice command for the current time.*
  - commandOptions - AmiCommandOptions [BITMAP8]

Definition at line 8641 of file [cli.doc](#).

**6.55.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_SCHEDULED**

**zcl price scheduled [startTime:4] [numberOfEvents:1]**

- *The GetScheduledPrices command initiates a PublishPrice command for available price events.*
  - startTime - UTC\_TIME
  - numberOfEvents - INT8U

Definition at line 8648 of file [cli.doc](#).

**6.55.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PRICE\_ACK**

**zcl price price-ack [providerId:4] [issuerEventId:4] [priceAckTime:4] [control:1]**

- *The PriceAcknowledgement command described provides the ability to acknowledge a previously sent PublishPrice command.*
  - providerId - INT32U
  - issuerEventId - INT32U
  - priceAckTime - UTC\_TIME
  - control - PriceControlMask [BITMAP8]

Definition at line 8657 of file [cli.doc](#).

**6.55.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BLOCK\_PERIODS**

**zcl price get-block-periods [startTime:4] [numberOfEvents:1] [tariffType:1]**

- *The GetBlockPeriods command initiates a PublishBlockPeriod command for the currently scheduled block periods.*
  - startTime - UTC\_TIME
  - numberOfEvents - INT8U
  - tariffType - TariffType [ENUM8]

**See Also**

[EmberAfTariffType](#)

Definition at line 8667 of file [cli.doc](#).

**6.55.2.20 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CONVERSION\_FACTOR**

**zcl price get-conversion-factor [earliestStartTime:4] [minIssuerEventId:4] [numberOfCommands:1]**

- *The GetConversionFactor command initiates a PublishConversionFactor command for the scheduled conversion factor updates.*

- earliestStartTime - UTC\_TIME
- minIssuerEventId - INT32U
- numberOfCommands - INT8U

Definition at line [8675](#) of file [cli.doc](#).

**6.55.2.21 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CAL\_VAL**

**zcl price get-cal-val [earliestStartTime:4] [minIssuerEventId:4] [numberOfCommands:1]**

- *The GetCalorificValue command initiates a PublishCalorificValue command for the scheduled conversion factor updates.*

- earliestStartTime - UTC\_TIME
- minIssuerEventId - INT32U
- numberOfCommands - INT8U

Definition at line [8683](#) of file [cli.doc](#).

**6.55.2.22 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TARIFF\_INFO**

**zcl price get-tariff-info [earliestStartTime:4] [minIssuerEventId:4] [numberOfCommands:1] [tariffType:1]**

- *The GetTariffInformation command initiates a PublishTariffInformation command for the scheduled tariff updates.*

- earliestStartTime - UTC\_TIME
- minIssuerEventId - INT32U
- numberOfCommands - INT8U
- tariffType - TariffType [ENUM8]

**See Also**

[EmberAfTariffType](#)

Definition at line [8694](#) of file [cli.doc](#).

**6.55.2.23 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_PRICE\_MATRIX**

**zcl price get-price-matrix [issuerTariffId:4]**

- *The GetPriceMatrix command initiates a PublishPriceMatrix command for the scheduled Price Matrix updates.*

– issuerTariffId - INT32U

Definition at line 8700 of file [cli.doc](#).

**6.55.2.24 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BLOCK\_THRESHOLDS**

**zcl price get-block-thresholds [issuerTariffId:4]**

- *The GetBlockThresholds command initiates a PublishBlockThreshold command for the scheduled Block Threshold updates.*

– issuerTariffId - INT32U

Definition at line 8706 of file [cli.doc](#).

**6.55.2.25 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CO2\_VALUE**

**zcl price get-co2-value [earliestStartTime:4] [minIssuerEventId:4] [numberOfCommands:1] [tariffType:1]**

- *The GetCO2Value command initiates a PublishCO2Value command for the scheduled CO2 conversion factor updates.*

– earliestStartTime - UTC\_TIME  
 – minIssuerEventId - INT32U  
 – numberOfCommands - INT8U  
 – tariffType - TariffType [ENUM8]

**See Also**

[EmberAfTariffType](#)

Definition at line 8717 of file [cli.doc](#).

**6.55.2.26 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TIER\_LABELS**

**zcl price get-tier-labels [issuerTariffId:4]**

- *The GetTierLabels command allows a client to retrieve the tier labels associated with a given tariff; this command initiates a PublishTierLabels command from the server.*

– issuerTariffId - INT32U

Definition at line 8723 of file [cli.doc](#).

6.55.2.27 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BILLING\_PERIOD

**zcl price get-billing-period [earliestStartTime:4] [minIssuerEventId:4] [numberOfCommands:1] [tariffType:1]**

- The *GetBillingPeriod* command initiates one or more *PublishBillingPeriod* commands for the currently scheduled billing periods.

- earliestStartTime - UTC\_TIME
- minIssuerEventId - INT32U
- numberOfCommands - INT8U
- tariffType - TariffType [ENUM8]

**See Also**

[EmberAfTariffType](#)

Definition at line 8734 of file [cli.doc](#).

6.55.2.28 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CON\_BILL

**zcl price get-con-bill [earliestStartTime:4] [minIssuerEventId:4] [numberOfCommands:1] [tariffType:1]**

- The *GetConsolidatedBill* command initiates one or more *PublishConsolidatedBill* commands with the requested billing information.

- earliestStartTime - UTC\_TIME
- minIssuerEventId - INT32U
- numberOfCommands - INT8U
- tariffType - TariffType [ENUM8]

**See Also**

[EmberAfTariffType](#)

Definition at line 8745 of file [cli.doc](#).

6.55.2.29 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CPP\_EVENT\_RESP

**zcl price cpp-event-resp [issuerEventId:4] [cppAuth:1]**

- The *CPPEventResponse* command is sent from a Client (IHD) to the ESI to notify it of a Critical Peak Pricing event authorization.

- issuerEventId - INT32U
- cppAuth - CppEventResponseCppAuth [ENUM8]

**See Also**

[EmberAfCppEventResponseCppAuth](#)

Definition at line 8754 of file [cli.doc](#).

**6.55.2.30 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CREDIT\_PAYMENT**

**zcl price get-credit-payment [latestEndTime:4] [numberOfRecords:1]**

- *The GetCreditPayment command initiates PublishCreditPayment commands for the requested credit payment information.*
  - latestEndTime - UTC\_TIME
  - numberOfRecords - INT8U

Definition at line [8761](#) of file [cli.doc](#).

**6.55.2.31 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CUR\_CONV\_CMD**

**zcl price get-cur-conv-cmd**

- *The GetCurrencyConversionCommand command initiates a PublishCurrencyConversion command for the currency conversion factor updates. A server shall be capable of storing both the old and the new currencies.*

Definition at line [8766](#) of file [cli.doc](#).

**6.55.2.32 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TARIFF\_CANCELLATION**

**zcl price get-tariff-cancellation**

- *The GetTariffCancellation command initiates the return of the last CancelTariff command held on the associated server.*

Definition at line [8771](#) of file [cli.doc](#).

## 6.56 Cluster Commands: Scenes

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_VIEW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_RMALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_STORE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_RECALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_EADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_EVIEW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_COPY

### 6.56.1 Detailed Description

This group describes the CLI commands for the Scenes cluster. Listed below is a description of the cluster:  
*Attributes and commands for scene configuration and manipulation.*

### 6.56.2 Macro Definition Documentation

#### 6.56.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_ADD

**zcl scenes add [groupId:2] [sceneId:1] [transitionTime:2] [sceneName:-1] [extensionFieldSets:4]**

- Add a scene to the scene table. Extension field sets are supported, and are inputed as arrays of the form [[cluster ID] [length] [value0...n] ...]
  - groupId - INT16U
  - sceneId - INT8U
  - transitionTime - INT16U
  - sceneName - CHAR\_STRING
  - extensionFieldSets - struct SceneExtensionFieldSet

Definition at line 8792 of file [cli.doc](#).

#### 6.56.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_VIEW

**zcl scenes view [groupId:2] [sceneId:1]**

- Command description for ViewScene
  - groupId - INT16U
  - sceneId - INT8U

Definition at line 8799 of file [cli.doc](#).

**6.56.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_REMOVE****zcl scenes remove [groupId:2] [sceneId:1]**

- *Command description for RemoveScene*
  - groupId - INT16U
  - sceneId - INT8U

Definition at line [8806](#) of file [cli.doc](#).**6.56.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_RMALL****zcl scenes rmall [groupId:2]**

- *Command description for RemoveAllScenes*
  - groupId - INT16U

Definition at line [8812](#) of file [cli.doc](#).**6.56.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_STORE****zcl scenes store [groupId:2] [sceneId:1]**

- *Command description for StoreScene*
  - groupId - INT16U
  - sceneId - INT8U

Definition at line [8819](#) of file [cli.doc](#).**6.56.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_RECALL****zcl scenes recall [groupId:2] [sceneId:1]**

- *Command description for RecallScene*
  - groupId - INT16U
  - sceneId - INT8U

Definition at line [8826](#) of file [cli.doc](#).**6.56.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_GET****zcl scenes get [groupId:2]**

- *Command description for GetSceneMembership*
  - groupId - INT16U

Definition at line [8832](#) of file [cli.doc](#).

**6.56.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_EADD**

**zcl scenes eadd [groupId:2] [sceneId:1] [transitionTime:2] [sceneName:-1] [extensionFieldSets:4]**

- *Command description for EnhancedAddScene*
  - groupId - INT16U
  - sceneId - INT8U
  - transitionTime - INT16U
  - sceneName - CHAR\_STRING
  - extensionFieldSets - struct SceneExtensionFieldSet

Definition at line 8842 of file [cli.doc](#).

**6.56.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_EVIEW**

**zcl scenes eview [groupId:2] [sceneId:1]**

- *Command description for EnhancedViewScene*
  - groupId - INT16U
  - sceneId - INT8U

Definition at line 8849 of file [cli.doc](#).

**6.56.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_COPY**

**zcl scenes copy [mode:1] [groupIdFrom:2] [sceneIdFrom:1] [groupIdTo:2] [sceneIdTo:1]**

- *Command description for CopyScene*
  - mode - ScenesCopyMode [BITMAP8]
  - groupIdFrom - INT16U
  - sceneIdFrom - INT8U
  - groupIdTo - INT16U
  - sceneIdTo - INT8U

Definition at line 8859 of file [cli.doc](#).

## 6.57 Cluster Commands: Simple Metering

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REQUEST\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REMOVE\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SCH\_SNAPSHOT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_TAKE\_SNAPSHOT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_PUB\_SS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_NFT\_SCHEMA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_NFT\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_NTFY\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SUP\_STAT\_RSP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_START\_SAMPLE\_RSP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_PROFILE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_MIRROR\_REMOVED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REQ\_FAST\_POLL\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SCH\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_TAKE\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_START\_SAMPLING
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_RST\_LOAD\_LIMIT\_CTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CHG\_SUPPLY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_LOCAL\_CHG\_SUPPLY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SET\_SUPPLY\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SET\_UNCNTRL\_FLOW\_THRESHOLD

### 6.57.1 Detailed Description

This group describes the CLI commands for the Simple Metering cluster. Listed below is a description of the cluster:

*The Metering Cluster provides a mechanism to retrieve usage information from Electric, Gas, Water, and potentially Thermal metering devices.*

## 6.57.2 Macro Definition Documentation

**6.57.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REQUEST\_MIRROR**

**zcl metering request-mirror**

- *This command is used to request the ESI to mirror Metering Device data.*

Definition at line 8876 of file [cli.doc](#).

**6.57.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REMOVE\_MIRROR**

**zcl metering remove-mirror**

- *This command is used to request the ESI to remove its mirror of Metering Device data.*

Definition at line 8881 of file [cli.doc](#).

**6.57.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SCH\_SNAPSHOT\_RESP**

**zcl metering sch-snapshot-resp [issuerEventId:4] [snapshotResponsePayload:2]**

- *This command is generated in response to a ScheduleSnapshot command, and is sent to confirm whether the requested snapshot schedule has been set up.*

- issuerEventId - INT32U
- snapshotResponsePayload - struct SnapshotResponsePayload

Definition at line 8888 of file [cli.doc](#).

**6.57.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_TAKE\_SNAPSHOT\_RESP**

**zcl metering take-snapshot-resp [snapshotId:4] [snapshotConfirmation:1]**

- *This command is generated in response to a TakeSnapshot command, and is sent to confirm whether the requested snapshot has been accepted and successfully taken.*

- snapshotId - INT32U
- snapshotConfirmation - SnapshotConfirmation [ENUM8]

**See Also**

[EmberAfSnapshotConfirmation](#)

Definition at line 8897 of file [cli.doc](#).

#### 6.57.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_PUB\_SS

**zcl metering pub-ss [snapshotId:4] [snapshotTime:4] [totalSnapshotsFound:1] [commandIndex:1] [totalCommands:1] [snapshotCause:4] [snapshotPayloadType:1] [snapshotPayload:1]**

- This command is generated in response to a GetSnapshot command. It is used to return a single snapshot to the client.
  - snapshotId - INT32U
  - snapshotTime - UTC\_TIME
  - totalSnapshotsFound - INT8U
  - commandIndex - INT8U
  - totalCommands - INT8U
  - snapshotCause - SnapshotCause [BITMAP32]
  - snapshotPayloadType - SnapshotPayloadType [ENUM8]
  - snapshotPayload - INT8U

##### See Also

[EmberAfSnapshotPayloadType](#)

Definition at line 8912 of file [cli.doc](#).

#### 6.57.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_MIRROR

**zcl metering cfg-mirror [issuerEventId:4] [reportingInterval:3] [mirrorNotificationReporting:1] [notificationScheme:1]**

- ConfigureMirror is sent to the mirror once the mirror has been created. The command deals with the operational configuration of the Mirror.
  - issuerEventId - INT32U
  - reportingInterval - INT24U
  - mirrorNotificationReporting - BOOLEAN
  - notificationScheme - INT8U

Definition at line 8921 of file [cli.doc](#).

#### 6.57.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_NFT\_SCHEME

**zcl metering cfg-nft-scheme [issuerEventId:4] [notificationScheme:1] [notificationFlagOrder:4]**

- The ConfigureNotificationScheme is sent to the mirror once the mirror has been created. The command deals with the operational configuration of the Mirror and the device that reports to the mirror. No default schemes are allowed to be overwritten.
  - issuerEventId - INT32U
  - notificationScheme - INT8U
  - notificationFlagOrder - BITMAP32

Definition at line 8929 of file [cli.doc](#).

#### 6.57.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_NFT\_FLAGS

**zcl metering cfg-nft-flags [issuerEventId:4] [notificationScheme:1] [notificationFlagAttributeId:2] [clusterId:2] [manufacturerCode:2] [numberOfCommands:1] [commandIds:1]**

- *The ConfigureNotificationFlags command is used to set the commands relating to the bit value for each NotificationFlags attribute that the scheme is proposing to use.*
  - issuerEventId - INT32U
  - notificationScheme - INT8U
  - notificationFlagAttributeId - INT16U
  - clusterId - INT16U
  - manufacturerCode - INT16U
  - numberOfCommands - INT8U
  - commandIds - INT8U

Definition at line 8941 of file [cli.doc](#).

#### 6.57.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_NTFY\_MSG

**zcl metering get-ntfy-msg [notificationScheme:1] [notificationFlagAttributeId:2] [notificationFlagsN:4]**

- *The GetNotifiedMessage command is used only when a BOMD is being mirrored. This command provides a method for the BOMD to notify the Mirror message queue that it wants to receive commands that the Mirror has queued. The Notification flags set within the command shall inform the mirror of the commands that the BOMD is requesting.*
  - notificationScheme - INT8U
  - notificationFlagAttributeId - INT16U
  - notificationFlagsN - BITMAP32

Definition at line 8949 of file [cli.doc](#).

#### 6.57.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SUP\_STAT\_RSP

**zcl metering sup-stat-rsp [providerId:4] [issuerEventId:4] [implementationDateTime:4] [supplyStatus:1]**

- *This command is transmitted by a Metering Device in response to a ChangeSupply command.*
  - providerId - INT32U
  - issuerEventId - INT32U
  - implementationDateTime - UTC\_TIME
  - supplyStatus - MeteringSupplyStatus [ENUM8]

##### See Also

[EmberAfMeteringSupplyStatus](#)

Definition at line 8960 of file [cli.doc](#).

**6.57.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_START\_SAMP\_RSP**  
**zcl metering start-samp-rsp [sampleId:2]**

- This command is transmitted by a Metering Device in response to a StartSampling command.
  - sampleId - INT16U

Definition at line 8966 of file [cli.doc](#).

**6.57.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_PROFILE**  
**zcl metering get-profile [intervalChannel:1] [endTime:4] [numberOfPeriods:1]**

- The GetProfile command is generated when a client device wishes to retrieve a list of captured Energy, Gas or water consumption for profiling purposes.
  - intervalChannel - AmiIntervalChannel [ENUM8]
  - endTime - UTC\_TIME
  - numberOfPeriods - INT8U

**See Also**

[EmberAfAmiIntervalChannel](#)

Definition at line 8976 of file [cli.doc](#).

**6.57.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_MIRROR\_REMOVED**

**zcl metering mirror-removed [endpointId:2]**

- The Mirror Removed Command allows the ESI to inform a sleepy Metering Device mirroring support has been removed or halted.
  - endpointId - INT16U

Definition at line 8982 of file [cli.doc](#).

**6.57.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REQ\_FAST\_POLL\_MODE**

**zcl metering req-fast-poll-mode [fastPollUpdatePeriod:1] [duration:1]**

- The Request Fast Poll Mode command is generated when the metering client wishes to receive near real-time updates of InstantaneousDemand.
  - fastPollUpdatePeriod - INT8U
  - duration - INT8U

Definition at line 8989 of file [cli.doc](#).

**6.57.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SCH\_SNAPSHOT**

**zcl metering sch-snapshot [issuerEventId:4] [commandIndex:1] [commandCount:1] [snapshotSchedulePayload:13]**

- This command is used to set up a schedule of when the device shall create snapshot data.
  - issuerEventId - INT32U
  - commandIndex - INT8U
  - commandCount - INT8U
  - snapshotSchedulePayload - struct SnapshotSchedulePayload

Definition at line [8998](#) of file [cli.doc](#).

**6.57.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_TAKE\_SNAPSHOT**

**zcl metering take-snapshot [snapshotCause:4]**

- This command is used to instruct the cluster server to take a single snapshot.
  - snapshotCause - SnapshotCause [BITMAP32]

Definition at line [9004](#) of file [cli.doc](#).

**6.57.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_SNAPSHOT**

**zcl metering get-snapshot [earliestStartTime:4] [latestEndTime:4] [snapshotOffset:1] [snapshotCause:4]**

- This command is used to request snapshot data from the cluster server.
  - earliestStartTime - UTC\_TIME
  - latestEndTime - UTC\_TIME
  - snapshotOffset - INT8U
  - snapshotCause - SnapshotCause [BITMAP32]

Definition at line [9013](#) of file [cli.doc](#).

**6.57.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_START\_SAMPLING**

**zcl metering start-sampling [issuerEventId:4] [startSamplingTime:4] [sampleType:1] [sampleRequestInterval:2] [maxNumberOfSamples:2]**

- The sampling mechanism allows a set of samples of the specified type of data to be taken, commencing at the stipulated start time. This mechanism may run concurrently with the capturing of profile data, and may refer the same parameters, albeit possibly at a different sampling rate.
  - issuerEventId - INT32U
  - startSamplingTime - UTC\_TIME

- sampleType - SampleType [ENUM8]
- sampleRequestInterval - INT16U
- maxNumberOfSamples - INT16U

**See Also**

[EmberAfSampleType](#)

Definition at line 9025 of file [cli.doc](#).

**6.57.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_SAMPLED\_DATA**  
**zcl metering get-sampled-data [sampleId:2] [earliestSampleTime:4] [sampleType:1] [numberOfSamples:2]**

- *This command is used to request sampled data from the server. Note that it is the responsibility of the client to ensure that it does not request more samples than can be held in a single command payload.*

- sampleId - INT16U
- earliestSampleTime - UTC\_TIME
- sampleType - SampleType [ENUM8]
- numberOfSamples - INT16U

**See Also**

[EmberAfSampleType](#)

Definition at line 9036 of file [cli.doc](#).

**6.57.2.20 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_RST\_LOAD\_LIMIT\_CTR**

**zcl metering rst-load-limit-ctr [providerId:4] [issuerEventId:4]**

- *The ResetLoadLimitCounter command shall cause the LoadLimitCounter attribute to be reset.*

- providerId - INT32U
- issuerEventId - INT32U

Definition at line 9043 of file [cli.doc](#).

**6.57.2.21 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CHG\_SUPPLY**

**zcl metering chg-supply [providerId:4] [issuerEventId:4] [requestDateTime:4] [implementationDateTime:4] [proposedSupplyStatus:1] [supplyControlBits:1]**

- *This command is sent from the Head-end or ESI to the Metering Device to instruct it to change the status of the valve or load switch, i.e. the supply.*

- providerId - INT32U
- issuerEventId - INT32U
- requestDateTime - UTC\_TIME

- implementationDateTime - UTC\_TIME
- proposedSupplyStatus - MeteringSupplyStatus [ENUM8]
- supplyControlBits - SupplyControlBits [BITMAP8]

**See Also**

[EmberAfMeteringSupplyStatus](#)

Definition at line [9056](#) of file `cli.doc`.

#### **6.57.2.22 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_LOCAL\_CHG\_SUPPLY**

**zcl metering local-chg-supply [proposedSupplyStatus:1]**

- *This command is a simplified version of the ChangeSupply command, intended to be sent from an IHD to a meter as the consequence of a user action on the IHD. Its purpose is to provide a local disconnection/reconnection button on the IHD in addition to the one on the meter.*

- proposedSupplyStatus - ProposedSupplyStatus [ENUM8]

**See Also**

[EmberAfProposedSupplyStatus](#)

Definition at line [9064](#) of file `cli.doc`.

#### **6.57.2.23 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SET\_SUPPLY\_STATUS**

**zcl metering set-supply-status [issuerEventId:4] [supplyTamperState:1] [supplyDepletionState:1] [supplyUncontrolledFlowState:1] [loadLimitSupplyState:1]**

- *This command is used to specify the required status of the supply following the occurrence of certain events on the meter.*

- issuerEventId - INT32U
- supplyTamperState - SupplyStatus [ENUM8]
- supplyDepletionState - SupplyStatus [ENUM8]
- supplyUncontrolledFlowState - SupplyStatus [ENUM8]
- loadLimitSupplyState - SupplyStatus [ENUM8]

**See Also**

[EmberAfSupplyStatus](#) [EmberAfSupplyStatus](#) [EmberAfSupplyStatus](#) [EmberAfSupplyStatus](#)

Definition at line [9079](#) of file `cli.doc`.

#### **6.57.2.24 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SET\_UNCNTRL\_FLOW\_THRESHOLD**

**zcl metering set-uncntrl-flow-threshold [providerId:4] [issuerEventId:4] [uncontrolledFlowThreshold:2] [unitOfMeasure:1] [multiplier:2] [divisor:2] [stabilisationPeriod:1] [measurementPeriod:2]**

- This command is used to update the 'Uncontrolled Flow Rate' configuration data used by flow meters.

- providerId - INT32U
- issuerEventId - INT32U
- uncontrolledFlowThreshold - INT16U
- unitOfMeasure - AmiUnitOfMeasure [ENUM8]
- multiplier - INT16U
- divisor - INT16U
- stabilisationPeriod - INT8U
- measurementPeriod - INT16U

**See Also**

[EmberAfAmiUnitOfMeasure](#)

Definition at line [9094](#) of file [cli.doc](#).

## 6.58 Cluster Commands: Thermostat

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_THERMOSTAT\_SET

#### 6.58.1 Detailed Description

This group describes the CLI commands for the Thermostat cluster. Listed below is a description of the cluster:

*An interface for configuring and controlling the functionality of a thermostat.*

#### 6.58.2 Macro Definition Documentation

##### 6.58.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_THERMOSTAT\_SET

**zcl tstat set [mode:1] [amount:1]**

- *Command description for SetpointRaiseLower*
  - mode - SetpointAdjustMode [ENUM8]
  - amount - INT8S

**See Also**

[EmberAfSetpointAdjustMode](#)

Definition at line [9114](#) of file [cli.doc](#).

## 6.59 Cluster Commands: Tunneling

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_RANDOM\_TO\_SERVER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_TRANSFER\_TO\_SERVER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_TRANSFER\_TO\_CLIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_RANDOM\_TO\_CLIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_CLOSE

### 6.59.1 Detailed Description

This group describes the CLI commands for the Tunneling cluster. Listed below is a description of the cluster:

*The tunneling cluster provides an interface for tunneling protocols.*

### 6.59.2 Macro Definition Documentation

#### 6.59.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_RANDOM\_TO\_SERVER

##### **zcl tunneling random-to-server [tunnel-id:2] [length:2]**

- *Send a random amount of data through a tunnel to the server (used for testing)*
  - tunnel-id - INT16U - The two byte tunnel id
  - length - INT16U - The two byte length of the random data to send

Definition at line 1105 of file [cli.doc](#).

#### 6.59.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_TRANSFER\_TO\_SERVER

##### **zcl tunneling transfer-to-server [tunnel-id:2] [data:-1]**

- *Transfer data through a tunnel to the server.*
  - tunnel-id - INT16U - The two byte tunnel id
  - data - OCTET\_STRING - data to transfer to the client

Definition at line 1112 of file [cli.doc](#).

**6.59.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_TRANSFER\_TO\_CLIENT**

**zcl tunneling transfer-to-client [tunnel-id:2] [data:-1]**

- *Transfer data through a tunnel to the client (used for testing)*
  - tunnel-id - INT16U - The two byte tunnel id
  - data - OCTET\_STRING - data to transfer to the client

Definition at line 1119 of file [cli.doc](#).

**6.59.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_RANDOM\_TO\_CLIENT**

**zcl tunneling random-to-client [tunnel-id:2] [length:2]**

- *Send a random amount of data through a tunnel to the server (used for testing)*
  - tunnel-id - INT16U - The two byte tunnel id
  - length - INT16U - the length of random data to send to the client

Definition at line 1126 of file [cli.doc](#).

**6.59.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_REQUEST**

**zcl tunneling request [protocolId:1] [manufacturerCode:2] [flowControlSupport:1] [maximumIncomingTransferSize:2]**

- *RequestTunnel is the client command used to setup a tunnel association with the server. The request payload specifies the protocol identifier for the requested tunnel, a manufacturer code in case of proprietary protocols and the use of flow control for streaming protocols.*
  - protocolId - INT8U
  - manufacturerCode - INT16U
  - flowControlSupport - BOOLEAN
  - maximumIncomingTransferSize - INT16U

Definition at line 9134 of file [cli.doc](#).

**6.59.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_CLOSE**

**zcl tunneling close [tunnelId:2]**

- *Client command used to close the tunnel with the server. The parameter in the payload specifies the tunnel identifier of the tunnel that has to be closed. The server leaves the tunnel open and the assigned resources allocated until the client sends the CloseTunnel command or the CloseTunnel-Timeout fires.*
  - tunnelId - INT16U

Definition at line 9140 of file [cli.doc](#).

## 6.60 Cluster Commands: Window Covering

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_UP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_DOWN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_LIFT\_V-  
ALUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_LIFT\_P-  
ERCENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_TILT\_V-  
ALUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_TILT\_P-  
ERCENTAGE

### 6.60.1 Detailed Description

This group describes the CLI commands for the Window Covering cluster. Listed below is a description of the cluster:

*Provides an interface for controlling and adjusting automatic window coverings.*

### 6.60.2 Macro Definition Documentation

#### 6.60.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_UP

##### **zcl window-covering up**

- Moves window covering to InstalledOpenLimit - Lift and InstalledOpenLimit - Tilt

Definition at line 9156 of file [cli.doc](#).

#### 6.60.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_DOWN

##### **zcl window-covering down**

- Moves window covering to InstalledClosedLimit - Lift and InstalledCloseLimit - Tilt

Definition at line 9161 of file [cli.doc](#).

#### 6.60.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_STOP

##### **zcl window-covering stop**

- Stop any adjusting of window covering

Definition at line 9166 of file [cli.doc](#).

**6.60.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_LIFT\_VALUE**

**zcl window-covering go-to-lift-value [liftValue:2]**

- *Goto lift value specified*

– liftValue - INT16U

Definition at line [9172](#) of file [cli.doc](#).

**6.60.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_LIFT\_PERCENT**

**zcl window-covering go-to-lift-percent [percentageLiftValue:1]**

- *Goto lift percentage specified*

– percentageLiftValue - INT8U

Definition at line [9178](#) of file [cli.doc](#).

**6.60.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_TILT\_VALUE**

**zcl window-covering go-to-tilt-value [tiltValue:2]**

- *Goto tilt value specified*

– tiltValue - INT16U

Definition at line [9184](#) of file [cli.doc](#).

**6.60.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_TILT\_PERCENTAGE**

**zcl window-covering go-to-tilt-percentage [percentageTiltValue:1]**

- *Goto tilt percentage specified*

– percentageTiltValue - INT8U

Definition at line [9190](#) of file [cli.doc](#).

## 6.61 Plugin Commands: Address Table

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_ADD
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_SET
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_REMOVE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_LOOKUP
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_PRINT

### 6.61.1 Detailed Description

This plugin provides a set of APIs and CLI commands for managing the address table

### 6.61.2 Macro Definition Documentation

#### 6.61.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_ADD

**plugin address-table add [entry:8]**

- Add an entry to the address table.
  - entry - IEEE\_ADDRESS - Entry to be added.

Definition at line 1153 of file [cli.doc](#).

#### 6.61.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_SET

**plugin address-table set [index:1] [eui64:8] [nodeId:2]**

- Set an entry in the address table according to the arguments specified
  - index - INT8U
  - eui64 - IEEE\_ADDRESS
  - nodeId - INT16U

Definition at line 1161 of file [cli.doc](#).

6.61.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_REMOVE

**plugin address-table remove [entry:8]**

- Remove an entry from the address table.
  - entry - IEEE\_ADDRESS - Entry to be removed.

Definition at line 1167 of file [cli.doc](#).

6.61.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_LOOKUP

**plugin address-table lookup [entry:8]**

- Lookup an entry in the address table.
  - entry - IEEE\_ADDRESS - Entry to be looked up.

Definition at line 1173 of file [cli.doc](#).

6.61.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_PRINT

**plugin address-table print**

- Prints the address table.

Definition at line 1178 of file [cli.doc](#).

## 6.62 Plugin Commands: Button Joining

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_BUTTON\_JOINING\_PLUGIN\_-  
BUTTON\_JOINING\_BUTTON0
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_BUTTON\_JOINING\_PLUGIN\_-  
BUTTON\_JOINING\_BUTTON1

#### 6.62.1 Detailed Description

The Button Joining plugin contributes CLI commands to simulate button presses for the purposes of joining networks.

#### 6.62.2 Macro Definition Documentation

##### 6.62.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_BUTTON\_JOINING\_PLUGIN\_BUTTON\_JO- INING\_BUTTON0

###### **plugin button-joining button0**

- *Simulate a depression of button 0.*

Definition at line 1193 of file [cli.doc](#).

##### 6.62.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_BUTTON\_JOINING\_PLUGIN\_BUTTON\_JO- INING\_BUTTON1

###### **plugin button-joining button1**

- *Simulate a depression of button 1.*

Definition at line 1198 of file [cli.doc](#).

## 6.63 Plugin Commands: Calendar Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR\_CLIENT\_PLUGIN \_CALENDAR\_CLIENT\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR\_CLIENT\_PLUGIN \_CALENDAR\_CLIENT\_PRINT

#### 6.63.1 Detailed Description

The Calendar Client plugin contributes several commands to the application framework's CLI. These commands are used for interacting with calendars.

#### 6.63.2 Macro Definition Documentation

##### 6.63.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR\_CLIENT\_PLUGIN CALENDAR\_CLIENT\_CLEAR

**plugin calendar-client clear [endpoint:1]**

- *Clear the calendars.*
  - endpoint - INT8U - The endpoint.

Definition at line 1214 of file [cli.doc](#).

##### 6.63.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR\_CLIENT\_PLUGIN CALENDAR\_CLIENT\_PRINT

**plugin calendar-client print [endpoint:1]**

- *Print the calendars.*
  - endpoint - INT8U - The endpoint.

Definition at line 1220 of file [cli.doc](#).

## 6.64 Plugin Commands: Calendar Common

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SELECT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SUMMARY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_WEEKS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SEASONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_TEST\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_SIMPLE\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_ENHANCED\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_FLAT\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_SIMPLE\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_ENHANCED\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_CAL\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_ADD\_CAL\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_DAY\_PROF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_WEEK\_PROF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_SEASONS\_INFO

### 6.64.1 Detailed Description

The calendar common plugin commands provide commands to view and manipulate the local copy of the calendar.

### 6.64.2 Macro Definition Documentation

6.64.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SELECT

**plugin calendar-common select [index:1]**

- *Selects a calendar to be printed.*
  - index - INT8U - The index of the calendar to be selected.

Definition at line 1236 of file [cli.doc](#).

6.64.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SUMMARY

**plugin calendar-common print summary**

- *Prints the local calendar summary at the previously selected index.*

Definition at line 1241 of file [cli.doc](#).

6.64.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_WEEKS

**plugin calendar-common print weeks**

- *Prints the local calendar's weeks.*

Definition at line 1246 of file [cli.doc](#).

6.64.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_DAYS

**plugin calendar-common print days**

- *Prints the local calendar's days*

Definition at line 1251 of file [cli.doc](#).

6.64.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SPECIAL\_DAYS

**plugin calendar-common print special-days**

- *Prints the local calendar's special days.*

Definition at line 1256 of file [cli.doc](#).

**6.64.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SEASONS**

**plugin calendar-common print seasons**

- Prints the local calendar's seasons.

Definition at line 1261 of file [cli.doc](#).

**6.64.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_TEST\_INIT**

**plugin calendar-common test-init**

- Initializes test calendars with dummy data.

Definition at line 1266 of file [cli.doc](#).

**6.64.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_CLEAR**

**plugin calendar-common clear**

- Clear the calendars.

Definition at line 1271 of file [cli.doc](#).

**6.64.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_SIMPLE\_CALENDAR**

**plugin calendar-common load-simple-calendar [index:1] [providerId:4] [issuerEventId:4] [issuerCalendarId:4] [startTime:4] [type:1] [name:-1]**

- Loads the Simple Calendar defined in Appendix D.1 in the SE 1.2 Test specification.
  - index - INT8U - The index in the internal calendar table where this calendar is to be stored
  - providerId - INT32U - The provider ID
  - issuerEventId - INT32U - The issuer event ID
  - issuerCalendarId - INT32U - The issuer calendar ID
  - startTime - INT32U - The time when this calendar is to be considered active
  - type - INT8U - The type: Del=0x00, Rec=0x01, DelAndRec=0x02, Friendly=0x03, Aux=0x04
  - name - OCTET\_STRING - The calendar name

Definition at line 1283 of file [cli.doc](#).

**6.64.2.10 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_ENHANCED\_CALENDAR**

**plugin calendar-common load-enhanced-calendar [index:1] [providerId:4] [issuerEventId:4] [issuerCalendarId:4] [startTime:4] [type:1] [name:-1]**

- *Loads the Enhanced Calendar defined in Appendix D.2 in the SE 1.2 Test specification.*
  - index - INT8U - The index in the internal calendar table where this calendar is to be stored
  - providerId - INT32U - The provider ID
  - issuerEventId - INT32U - The issuer event ID
  - issuerCalendarId - INT32U - The issuer calendar ID
  - startTime - INT32U - The time when this calendar is to be considered active
  - type - INT8U - The type: Del=0x00, Rec=0x01, DelAndRec=0x02, Friendly=0x03, Aux=0x04
  - name - OCTET\_STRING - The calendar name

Definition at line 1295 of file [cli.doc](#).

**6.64.2.11 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_FLAT\_CALENDAR**

**plugin calendar-common load-flat-calendar [index:1] [providerId:4] [issuerEventId:4] [issuerCalendarId:4] [startTime:4] [type:1] [name:-1]**

- *Loads the Flat Calendar defined in Appendix D.3 in the SE 1.2 Test specification.*
  - index - INT8U - The index in the internal calendar table where this calendar is to be stored
  - providerId - INT32U - The provider ID
  - issuerEventId - INT32U - The issuer event ID
  - issuerCalendarId - INT32U - The issuer calendar ID
  - startTime - INT32U - The time when this calendar is to be considered active
  - type - INT8U - The type: Del=0x00, Rec=0x01, DelAndRec=0x02, Friendly=0x03, Aux=0x04
  - name - OCTET\_STRING - The calendar name

Definition at line 1307 of file [cli.doc](#).

**6.64.2.12 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_SIMPLE\_SPECIAL\_DAYS**

**plugin calendar-common load-simple-special-days [index:1]**

- *Loads the Simple Special Days defined in Appendix D.4 in the SE 1.2 Test specification.*
  - index - INT8U - The index in the internal calendar table where the speical days are to be stored

Definition at line 1313 of file [cli.doc](#).

**6.64.2.13 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_ENHANCED\_SPECIAL\_DAYS**

**plugin calendar-common load-enhanced-special-days [index:1]**

- Loads the Simple Special Days defined in Appendix D.5 in the SE 1.2 Test specification.
  - index - INT8U - The index in the internal calendar table where the speical days are to be stored

Definition at line 1319 of file [cli.doc](#).

**6.64.2.14 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_CAL\_INFO**

**plugin calendar-common set-cal-info [index:1] [providerId:4] [issuerEventId:4] [calId:4] [startTime:4] [calType:1] [calName:-1] [numberOfSeasons:1] [numberOfWeekProfiles:1] [numberOfDayProfiles:1]**

- Manually set local calendar information.
  - index - INT8U
  - providerId - INT32U
  - issuerEventId - INT32U
  - calId - INT32U
  - startTime - INT32U
  - calType - INT8U
  - calName - OCTET\_STRING
  - numberOfSeasons - INT8U
  - numberOfWeekProfiles - INT8U
  - numberOfDayProfiles - INT8U

Definition at line 1334 of file [cli.doc](#).

**6.64.2.15 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_ADD\_CAL\_INFO**

**plugin calendar-common add-cal-info [providerId:4] [issuerEventId:4] [calId:4] [startTime:4] [calType:1] [calName:-1] [numberOfSeasons:1] [numberOfWeekProfiles:1] [numberOfDayProfiles:1]**

- Adding calendar information.
  - providerId - INT32U
  - issuerEventId - INT32U
  - calId - INT32U
  - startTime - INT32U
  - calType - INT8U
  - calName - OCTET\_STRING

- numberOfSeasons - INT8U
- numberOfWeekProfiles - INT8U
- numberOfDayProfiles - INT8U

Definition at line 1348 of file [cli.doc](#).

**6.64.2.16 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_DAY\_PROF\_INFO**

**plugin calendar-common set-day-prof-info [index:1] [dayId:1] [entryId:1] [minutesFromMidnight:2] [data:1]**

- *Manually set local calendar's day profiles information.*

- index - INT8U
- dayId - INT8U
- entryId - INT8U
- minutesFromMidnight - INT16U
- data - INT8U

Definition at line 1358 of file [cli.doc](#).

**6.64.2.17 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_WEEK\_PROF\_INFO**

**plugin calendar-common set-week-prof-info [index:1] [weekId:1] [dayIdRefMon:1] [dayIdRefTue:1] [dayIdRefWed:1] [dayIdRefThu:1] [dayIdRefFri:1] [dayIdRefSat:1] [dayIdRefSun:1]**

- *Manually set local calendar's week profiles information.*

- index - INT8U
- weekId - INT8U
- dayIdRefMon - INT8U
- dayIdRefTue - INT8U
- dayIdRefWed - INT8U
- dayIdRefThu - INT8U
- dayIdRefFri - INT8U
- dayIdRefSat - INT8U
- dayIdRefSun - INT8U

Definition at line 1372 of file [cli.doc](#).

6.64.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_SEASONS\_INFO

**plugin calendar-common set-seasons-info [index:1] [weekId:1] [startDate:4] [weekIdRef:1]**

- *Manually set local calendar's seasons information.*

- index - INT8U
- weekId - INT8U
- startDate - DATE
- weekIdRef - INT8U

Definition at line 1381 of file [cli.doc](#).

## 6.65 Plugin Commands: Calendar Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH DAY PROFILES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH WEEK PROFILE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH SEASONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH SPECIAL DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH CALENDAR CANCEL CALENDAR

### 6.65.1 Detailed Description

The calendar-server plugin contributes several commands to the application framework's CLI. These commands are used for adding, clearing, and printing calendars.

### 6.65.2 Macro Definition Documentation

#### 6.65.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH CALENDAR

**plugin calendar-server publish-calendar [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [calendarIndex:1]**

- *Publish an calendar.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - calendarIndex - INT8U - the index of the calendar within the calendar table

Definition at line 1401 of file [cli.doc](#).

#### 6.65.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH DAY PROFILES

**plugin calendar-server publish-day-profiles [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [calendarIndex:1] [dayIndex:1]**

- *Publish the day profiles of the specified day in the specified calendar.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint

- dstEndpoint - INT8U - the destination endpoint
- calendarIndex - INT8U - the index of the calendar within the calendar table
- dayIndex - INT8U - the index of the day in the calendar

Definition at line 1411 of file [cli.doc](#).

#### **6.65.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH WEEK PROFILE**

**plugin calendar-server publish-week-profile [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [calendarIndex:1] [weekIndex:1]**

- *Publish the week profile of the specified week in the specified calendar.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - calendarIndex - INT8U - the index of the calendar within the calendar table
  - weekIndex - INT8U - the index of the week in the calendar

Definition at line 1421 of file [cli.doc](#).

#### **6.65.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH SEASONS**

**plugin calendar-server publish-seasons [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [calendarIndex:1]**

- *Publish the seasons in the specified calendar.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - calendarIndex - INT8U - the index of the calendar within the calendar table

Definition at line 1430 of file [cli.doc](#).

#### **6.65.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN CALENDAR SERVER PLUGIN CALENDAR SERVER PUBLISH SPECIAL DAYS**

**plugin calendar-server publish-special-days [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [calendarIndex:1]**

- *Publish the special days for the specified calendar.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - calendarIndex - INT8U - the index of the calendar within the calendar table

Definition at line 1439 of file [cli.doc](#).

6.65.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_CANCEL\_CALENDAR

**plugin calendar-server cancel-calendar [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [calendarIndex:1]**

- *Invalidate the specified calendar and sends a cancel calendar.*

- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- calendarIndex - INT8U - the index of the calendar within the calendar table

Definition at line 1448 of file [cli.doc](#).

## 6.66 Plugin Commands: Comms Hub Function

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_SIMULATE\_GBZ\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PRINT\_SUPPORTED\_USE\_CASES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_TIMEOUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_GET\_TUNNEL\_ENDPOINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_CLOSE\_TUNNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_CREATE\_TUNNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PRINT

### 6.66.1 Detailed Description

The comms-hub-function plugin contributes several CLI commands to the application framework to be used in configuring and managing the CHF.

### 6.66.2 Macro Definition Documentation

#### 6.66.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_SIMULATE\_GBZ\_MSG

**plugin comms-hub-function simulate-gbz-msg [dstEUI64:8] [useCase:2]**

- *Simulate transmission of a GBZ message to the Comms Hub Function.*
  - dstEUI64 - IEEE\_ADDRESS
  - useCase - INT16U

Definition at line 1465 of file [cli.doc](#).

#### 6.66.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PLUGIN\_COMMIS\_HUB\_FUNCTION\_PRINT\_SUPPORTED\_USE\_CASES

**plugin comms-hub-function print-supported-use-cases**

- *Print the list of supported use cases. The message code printed should be used with the simulate-gbz-msg command.*

Definition at line 1470 of file [cli.doc](#).

**6.66.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMM\_HUB\_FUNCTION\_PLUGIN\_COMM\_HUB\_FUNCTION\_SEND**

**plugin comms-hub-function send [dstEUI64:8] [payload:-1]**

- *Send a message.*
  - dstEUI64 - IEEE\_ADDRESS
  - payload - OCTET\_STRING

Definition at line 1477 of file [cli.doc](#).

**6.66.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMM\_HUB\_FUNCTION\_PLUGIN\_COMM\_HUB\_FUNCTION\_TIMEOUT**

**plugin comms-hub-function timeout [timeout:4]**

- *Set the default sleepy message timeout.*
  - timeout - INT32U

Definition at line 1483 of file [cli.doc](#).

**6.66.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMM\_HUB\_FUNCTION\_PLUGIN\_COMM\_HUB\_FUNCTION\_GET\_TUNNEL\_ENDPOINT**

**plugin comms-hub-function get-tunnel-endpoint [nodeId:2]**

- *Retrieve the tunneling endpoint for a given nodeId.*
  - nodeId - INT16U

Definition at line 1489 of file [cli.doc](#).

**6.66.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMM\_HUB\_FUNCTION\_PLUGIN\_COMM\_HUB\_FUNCTION\_CLOSE\_TUNNEL**

**plugin comms-hub-function close-tunnel [dstEUI64:8]**

- *Remove the tunnel for a given device.*
  - dstEUI64 - IEEE\_ADDRESS

Definition at line 1495 of file [cli.doc](#).

6.66.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMM\_HUB\_FUNCTION\_PLUGIN\_COMMS\_HUB\_FUNCTION\_CREATE\_TUNNEL

**plugin comms-hub-function create-tunnel [dstEUI64:8] [endpoint:1]**

- *Create tunnel for the given device and endpoint.*

- dstEUI64 - IEEE\_ADDRESS
- endpoint - INT8U

Definition at line 1502 of file [cli.doc](#).

6.66.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMM\_HUB\_FUNCTION\_PLUGIN\_COMM\_S\_HUB\_FUNCTION\_PRINT

**plugin comms-hub-function print**

- *Prints the comms hub tunnel table.*

Definition at line 1507 of file [cli.doc](#).

## 6.67 Plugin Commands: Concentrator

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_C-ONCENTRATOR\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_C-ONCENTRATOR\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_C-ONCENTRATOR\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_C-ONCENTRATOR\_AGG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_C-ONCENTRATOR\_PRINT\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_C-ONCENTRATOR\_SET\_ROUTER\_BEHAVIOR

### 6.67.1 Detailed Description

The Concentrator plugin contributes several CLI commands to the application framework for controlling the sending of MTORRs.

### 6.67.2 Macro Definition Documentation

#### 6.67.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_STATUS

##### **plugin concentrator status**

- Prints current status and configured parameters of the concentrator

Definition at line 1522 of file [cli.doc](#).

#### 6.67.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_START

##### **plugin concentrator start**

- Starts the periodic broadcast of MTORRs

Definition at line 1527 of file [cli.doc](#).

#### 6.67.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_STOP

##### **plugin concentrator stop**

- Stops the periodic broadcast of MTORRs

Definition at line 1532 of file [cli.doc](#).

**6.67.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_AGG**

**plugin concentrator agg**

- (*Requires Concentrator Support to be enabled on this device.*) *Schedules a ZigBee PRO Many To One Route Request (MTORR) to be sent out at next opportunity, which will cause aggregation (many-to-one) routes to be created towards this concentrator.*

Definition at line 1537 of file [cli.doc](#).

**6.67.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_PRINT\_TABLE**

**plugin concentrator print-table**

- *Print the source route table.*

Definition at line 1542 of file [cli.doc](#).

**6.67.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_SET\_ROUTER\_BEHAVIOR**

**plugin concentrator set-router-behavior [behavior:1]**

- *This command allows the user to set the router behavior for this plugin. The argument values come from [concentrator-support.h](#) in the enum with members starting with EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_.*
  - behavior - INT8U - The value of a EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_ enum member.

Definition at line 1548 of file [cli.doc](#).

## 6.68 Plugin Commands: Connection Manager

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONNECTION\_MANAGER\_PLUGIN\_CONNECTION\_MANAGER\_SET\_FORCE\_SHORT\_POLL

#### 6.68.1 Detailed Description

Runtime configuration CLI commands for Connection Manager

#### 6.68.2 Macro Definition Documentation

##### 6.68.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONNECTION\_MANAGER\_PLUGIN\_CONNECTION\_MANAGER\_SET\_FORCE\_SHORT\_POLL

**plugin connection-manager set-force-short-poll [sleepyEnable:1]**

- *Can be used to force the device to permanently poll on a short interval (must enabled for HA testing).*
  - sleepyEnable - INT8U - 1 to permanently force short polling, 0 to behave as normal (default).

Definition at line 1563 of file [cli.doc](#).

## 6.69 Plugin Commands: Counters

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTER\_TYPE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SIMPLE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_PRINT\_THRESHOLDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SET\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_RESET\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SEND\_REQUEST

### 6.69.1 Detailed Description

This plugin provides APIs and CLI commands for reading and manipulating counters that record different events in the stack.

### 6.69.2 Macro Definition Documentation

#### 6.69.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_PRINT

##### plugin counters print

- Print all counter values and clear them.

Definition at line 1578 of file [cli.doc](#).

#### 6.69.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTER\_PRINT\_TYPE

##### plugin counter print-counter-type [type:1]

- Print value of this particular counter.
  - type - INT8U - The counter type to print.

Definition at line 1584 of file [cli.doc](#).

6.69.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SIMPLE\_PRINT

### **plugin counters simple-print**

- Print all counter values.

Definition at line 1589 of file [cli.doc](#).

6.69.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_CLEAR

### **plugin counters clear**

- Clear all counter values.

Definition at line 1594 of file [cli.doc](#).

6.69.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_PRINT\_THRESHOLDS

### **plugin counters print-thresholds**

- Prints the thresholds of all the counters.

Definition at line 1599 of file [cli.doc](#).

6.69.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SET\_THRESHOLD

### **plugin counters set-threshold [type:1] [threshold:2]**

- Set a threshold value for a particular type of counter.
  - type - INT8U - type of counter
  - threshold - INT16U - Threshold Value

Definition at line 1606 of file [cli.doc](#).

6.69.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_RESET\_THRESHOLD

### **plugin counters reset-threshold**

- Resets all thresholds values to 0xFFFF.

Definition at line 1611 of file [cli.doc](#).

6.69.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SEND\_-  
REQUEST

**plugin counters send-request**

- *Sends a request for ota counters*

Definition at line 1616 of file [cli.doc](#).

## 6.70 Plugin Commands: Demand Response and Load Control

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_OPT\_IN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_OPT\_OUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_CLEAR

#### 6.70.1 Detailed Description

The drlc plugin contributes CLI commands to the application framework to be used for constructing demand response load control commands.

#### 6.70.2 Macro Definition Documentation

##### 6.70.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_OPT\_IN

###### **plugin drlc opt in [endpoint:1] [eventId:4]**

- *Modify the entry in the clients load control event table to opt in for a scheduled load control event.*
  - endpoint - INT8U - The relevant endpoint.
  - eventId - INT32U - The event id of the event that the user is opting in or out of.

Definition at line 1633 of file [cli.doc](#).

##### 6.70.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_OPT\_OUT

###### **plugin drlc opt out [endpoint:1] [eventId:4]**

- *Modify the entry in the clients load control event table to opt out of a scheduled load control event.*
  - endpoint - INT8U - The relevant endpoint.
  - eventId - INT32U - The event id of the event that the user is opting in or out of.

Definition at line 1640 of file [cli.doc](#).

##### 6.70.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_PRINT

###### **plugin drlc print [endpoint:1]**

- *Print the Demand Response Load Control Table.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 1646 of file [cli.doc](#).

6.70.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_CLEAR  
**plugin drlc clear [endpoint:1]**

- *Clear the load control event table.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 1652 of file [cli.doc](#).

## 6.71 Plugin Commands: Demand Response and Load Control Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DR-LC\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DR-LC\_SERVER\_SLCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DR-LC\_SERVER\_LCE\_SCHEDULE\_MAND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DR-LC\_SERVER\_SSLCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DR-LC\_SERVER\_CSLE

### 6.71.1 Detailed Description

The drlc-server plugin contributes CLI commands to the application framework to be used for constructing demand response load control commands on the server side.

### 6.71.2 Macro Definition Documentation

#### 6.71.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER- \_PRINT

##### plugin drlc-server print [endpoint:1]

- *Print the Demand Response Load Control Table.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 1669 of file [cli.doc](#).

#### 6.71.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER- \_SLCE

##### plugin drlc-server slce [endpoint:1] [index:1] [length:1] [event:-1]

- *Schedule a load control event in the load control event table on a load control server. load control event bytes are expected as 23 raw bytes in the form {<eventId:4> <deviceClass:2> >ueg:1> >startTime:4> >duration:2> <criticalityLevel:1> >coolingTempOffset:1> >heatingTempOffset:1> >coolingTempSetPoint:2> >heatingTempSetPoint:2> >afgLoadPercentage:1> <dutyCycle:1> <eventControl:1>} all multibyte values should be little endian as though they were coming over the air. Example: plugin drlc-server slce 0 23 { ab 00 00 00 ff 0f 00 00 00 00 01 00 01 00 00 09 1a 09 1a 0a 00 }*
  - endpoint - INT8U - The relevant endpoint.
  - index - INT8U - Location in the load control event table for the event to be scheduled
  - length - INT8U - The length in the number of bytes
  - event - OCTET\_STRING - Byte array value for the load control event

Definition at line 1684 of file [cli.doc](#).

**6.71.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_LCE\_SCHEDULE\_MAND**

**plugin drlc-server lce-schedule-mand [endpoint:1] [index:1] [eventId:4] [deviceClass:2] [utilityEnrollmentGroup:1] [startTime:4] [duration:2] [criticalityLevel:1] [eventControl:1]**

- *Schedules a load control event on the server.*
  - endpoint - INT8U - The relevant endpoint.
  - index - INT8U - Index of the load control event table that will be configured.
  - eventId - INT32U - The issuer event ID for this load control event.
  - deviceClass - INT16U - The device class bitfield this event applies to.
  - utilityEnrollmentGroup - INT8U - The UEG of the load control event.
  - startTime - INT32U - Time when the load control event should start.
  - duration - INT16U - Duration, in minutes, of the event.
  - criticalityLevel - INT8U - The level of criticality of the event. Higher values are more critical.
  - eventControl - INT8U - Bitmask that identifies other control options for the event.

Definition at line 1698 of file [cli.doc](#).

**6.71.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_SSLLCE**

**plugin drlc-server ssllce [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [index:1]**

- *Command used on a DRLC server to send a scheduled load control event out of the load control event table.*
  - nodeId - INT16U - The destination node id.
  - srcEndpoint - INT8U - The source endpoint.
  - dstEndpoint - INT8U - The destination endpoint.
  - index - INT8U - index of the load control event in the server's load control event table.

Definition at line 1707 of file [cli.doc](#).

**6.71.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_CSLCE**

**plugin drlc-server csllce [endpoint:1]**

- *Clear the scheduled load control events table.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 1713 of file [cli.doc](#).

## 6.72 Plugin Commands: Device Database

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_PRINT\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_ERASE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_ADD\_DUMMY

#### 6.72.1 Detailed Description

This plugin provides a set of CLI commands for printing and manipulating the device database.

#### 6.72.2 Macro Definition Documentation

##### 6.72.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_PRINT\_ALL

###### **plugin device-database print-all**

- Print all devices in the database.

Definition at line 1728 of file [cli.doc](#).

##### 6.72.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_PRINT

###### **plugin device-database device print [eui64:8]**

- Print all the clusters and endpoints known about the specified device in the database.
  - eui64 - IEEE\_ADDRESS - The address of the device to be looked up (little endian)

Definition at line 1734 of file [cli.doc](#).

##### 6.72.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_ERASE

###### **plugin device-database device erase [eui64:8]**

- Erase the device with specified EUI64 from the database.
  - eui64 - IEEE\_ADDRESS - The address of the device to erase from the database.

Definition at line 1740 of file [cli.doc](#).

6.72.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_D-  
ATABASE\_DEVICE\_ADD\_DUMMY

**plugin device-database device add-dummy [eui64:8] [endpoints:1] [clusters:2]**

- Add a device with specified EUI64 and a sequential number of clusters and endpoints.

- eui64 - IEEE\_ADDRESS - The address of the dummy device to add.
- endpoints - INT8U - The number of dummy endpoints to add.
- clusters - INT16U - The number of dummy clusters to add.

Definition at line 1748 of file [cli.doc](#).

## 6.73 Plugin Commands: Device Management Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_CLIENT\_PLUGIN\_DEVICE\_MANAGEMENT\_CLIENT\_PRINT

#### 6.73.1 Detailed Description

The device management client plugin contributes CLI commands to the application framework to be used for getting, setting, and displaying information relevant to the Smart Energy 1.2 Device Management Cluster.

#### 6.73.2 Macro Definition Documentation

##### 6.73.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_CLIENT\_PLUGIN\_DEVICE\_MANAGEMENT\_CLIENT\_PRINT

###### **plugin device-management-client print**

- *Print the info relevant to device management.*

Definition at line 1764 of file [cli.doc](#).

## 6.74 Plugin Commands: Device Management Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PROVIDER\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_ISSUER\_EVENT\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_TARIFF\_TYPE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_TENANCY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SITE\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_CIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PASSWORD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PUB\_CHG\_OF\_TENANCY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PUB\_CHG\_OF\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_UPDATE\_SITE\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_UPDATE\_CIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PENDING\_UPDATES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SEND\_REQ\_NEW\_PASS\_RESP

### 6.74.1 Detailed Description

The device management server plugin contributes CLI commands to the application framework to be used for getting, setting, and displaying information relevant to the Smart Energy 1.2 Device Management Cluster.

### 6.74.2 Macro Definition Documentation

#### 6.74.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PRINT

##### **plugin device-management-server print**

- *Print the info relevant to device management.*

Definition at line 1780 of file [cli.doc](#).

6.74.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PROVIDER\_ID

**plugin device-management-server provider-id [providerId:4]**

- Set the provider id.
  - providerId - INT32U

Definition at line 1786 of file [cli.doc](#).

6.74.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_ISSUER\_EVENT\_ID

**plugin device-management-server issuer-event-id [issuerEventId:4]**

- Set the issuer event id.
  - issuerEventId - INT32U

Definition at line 1792 of file [cli.doc](#).

6.74.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_TARIFF\_TYPE

**plugin device-management-server tariff-type [tariffType:1]**

- Set the tariff type.
  - tariffType - INT8U

Definition at line 1798 of file [cli.doc](#).

6.74.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_TENANCY

**plugin device-management-server tenancy [implementationDateTime:4] [tenancy:4]**

- Set the tenancy information.
  - implementationDateTime - UTC\_TIME
  - tenancy - INT32U

Definition at line 1805 of file [cli.doc](#).

**6.74.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SUPPLIER**

**plugin device-management-server supplier [endpoint:1] [proposedProviderId:4] [implementation-  
Date:4] [providerChangeControl:4] [proposedProviderName:-1] [proposedProviderContactDetails-  
:-1]**

- Set the supplier information.
  - endpoint - INT8U
  - proposedProviderId - INT32U
  - implementationDate:4 - UTC\_TIME
  - providerChangeControl - BITMAP32
  - proposedProviderName - OCTET\_STRING
  - proposedProviderContactDetails - OCTET\_STRING

Definition at line 1816 of file [cli.doc](#).

**6.74.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SITE\_ID**

**plugin device-management-server site-id [siteId:-1] [implementationDate:4]**

- Set the site id information.
  - siteId - OCTET\_STRING
  - implementationDate:4 - UTC\_TIME

Definition at line 1823 of file [cli.doc](#).

**6.74.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_CIN**

**plugin device-management-server cin [cin:-1] [implementationDate:4]**

- Set the customer id number information.
  - cin - OCTET\_STRING
  - implementationDate:4 - UTC\_TIME

Definition at line 1830 of file [cli.doc](#).

**6.74.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PASSWORD**

**plugin device-management-server password [password:-1] [implementationDate:4] [duration-  
InMinutes:2] [passwordType:1]**

- Set the specified password.

- password - OCTET\_STRING
- implementationDateTime - UTC\_TIME
- durationInMinutes - INT16U
- passwordType - INT8U

Definition at line 1839 of file [cli.doc](#).

**6.74.2.10 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PUB\_CHG\_OF\_TENANCY**

**plugin device-management-server pub-chg-of-tenancy [server:2] [clientEndpoint:1] [serverEndpoint:1]**

- *Send PublishChangeOfTenancy command*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.

Definition at line 1847 of file [cli.doc](#).

**6.74.2.11 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PUB\_CHG\_OF\_SUPPLIER**

**plugin device-management-server pub-chg-of-supplier [server:2] [clientEndpoint:1] [serverEndpoint:1]**

- *Send PublishChangeOfSupplier command*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.

Definition at line 1855 of file [cli.doc](#).

**6.74.2.12 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_UPDATE\_SITE\_ID**

**plugin device-management-server update-site-id [server:2] [clientEndpoint:1] [serverEndpoint:1]**

- *Send UpdateSiteId command*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.

Definition at line 1863 of file [cli.doc](#).

6.74.2.13 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_UPDATE\_CIN

**plugin device-management-server update-cin [server:2] [clientEndpoint:1] [serverEndpoint:1]**

- *Send UpdateCIN command*

- server - INT16U - The network address of the server to which the request will be sent.
- clientEndpoint - INT8U - The local endpoint from which the request will be sent.
- serverEndpoint - INT8U - The remote endpoint to which the request will be sent.

Definition at line 1871 of file [cli.doc](#).

6.74.2.14 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PENDING\_UPDATES

**plugin device-management-server pending-updates [pendingUpdatesMask:1]**

- *Set appropriate flag for pending updates. Details for each pending flag can be found via definition of EmberAfDeviceManagementChangePendingFlags.*
- pendingUpdatesMask - INT8U - A bitmask that determines if there's a valid pending update for different actions

Definition at line 1877 of file [cli.doc](#).

6.74.2.15 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SEND\_REQ\_NEW\_PASS\_RESP

**plugin device-management-server send-req-new-pass-resp [passwordType:1] [server:2] [clientEndpoint:1] [serverEndpoint:1]**

- *Send unsolicited request new password response.*

- passwordType - INT8U - Service Producer or Consumer.
- server - INT16U - The network address of the server to which the response will be sent.
- clientEndpoint - INT8U - The local endpoint from which the request will be sent.
- serverEndpoint - INT8U - The remote endpoint to which the request will be sent.

Definition at line 1886 of file [cli.doc](#).

## 6.75 Plugin Commands: Device Query Service

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_DISABLE

#### 6.75.1 Detailed Description

This plugin provides a set of CLI commands for printing and manipulating the device database.

#### 6.75.2 Macro Definition Documentation

##### 6.75.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_STATUS

###### **plugin device-query-service status**

- *Print the current status of the device query service.*

Definition at line 1901 of file [cli.doc](#).

##### 6.75.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_ENABLE

###### **plugin device-query-service enable**

- *Enable the Device Query Service.*

Definition at line 1906 of file [cli.doc](#).

##### 6.75.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_DISABLE

###### **plugin device-query-service disable**

- *Disable the Device Query Service.*

Definition at line 1911 of file [cli.doc](#).

## 6.76 Plugin Commands: EEPROM

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_-  
DATA\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_-  
STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_-  
INFO

#### 6.76.1 Detailed Description

The OTA Storage Common plugin provides Over-the-air commands for upgrading firmware and downloading specific files common to both server and client.

#### 6.76.2 Macro Definition Documentation

##### 6.76.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_DATA\_PRIN- T

###### **plugin eeprom data-print [offset:4]**

- *Print raw bytes stored in the EEPROM*
  - offset - INT32U - The offset within the EEPROM to print.

Definition at line 1929 of file [cli.doc](#).

##### 6.76.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_STATUS

###### **plugin eeprom status**

- *Print the state of the EEPROM driver.*

Definition at line 1934 of file [cli.doc](#).

##### 6.76.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_INFO

###### **plugin eeprom info**

- *Print detailed info about the EEPROM part.*

Definition at line 1939 of file [cli.doc](#).

## 6.77 Plugin Commands: EZ-Mode Commissioning

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EZMODE\_COMMISSIONING\_PLUGIN\_EZMODE\_COMMISSIONING\_CLIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EZMODE\_COMMISSIONING\_PLUGIN\_EZMODE\_COMMISSIONING\_SERVER

### 6.77.1 Detailed Description

The EZ-Mode Commissioning plugin contributes several commands to the application framework's CLI.

### 6.77.2 Macro Definition Documentation

#### 6.77.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EZMODE\_COMMISSIONING\_PLUGIN\_EZMODE\_COMMISSIONING\_CLIENT

**plugin ezmode-commissioning client [endpoint:1] [direction:1] [clusterIds:2]**

- Start EZ-Mode client commissioning.
  - endpoint - INT8U - The local endpoint.
  - direction - INT8U - EMBER\_AF\_EZMODE\_COMMISSIONING\_SERVER\_TO\_CLIENT or EMBER\_AF\_EZMODE\_COMMISSIONING\_CLIENT\_TO\_SERVER.
  - clusterIds - INT16U - A list of cluster ids.

Definition at line 1957 of file [cli.doc](#).

#### 6.77.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EZMODE\_COMMISSIONING\_PLUGIN\_EZMODE\_COMMISSIONING\_SERVER

**plugin ezmode-commissioning server [endpoint:1] [identifyTimeS:2]**

- Start EZ-Mode server commissioning.
  - endpoint - INT8U - The local endpoint.
  - identifyTimeS - INT16U - The identify time in seconds.

Definition at line 1964 of file [cli.doc](#).

## 6.78 Plugin Commands: End Device Support

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_POLL\_COMPLETED\_CALLBACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_FORCE\_SHORT\_POLL

#### 6.78.1 Detailed Description

The End Device Support plugin contributes commands for controlling the polling behavior of the device.

#### 6.78.2 Macro Definition Documentation

##### 6.78.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_STATUS

###### **plugin end-device-support status**

- *Display the status of the End Device's polling.*

Definition at line 1979 of file [cli.doc](#).

##### 6.78.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_POLL\_COMPLETED\_CALLBACK

###### **plugin end-device-support poll-completed-callback [pollCompletedCallbackCommand:1]**

- *Sets whether the device's poll completed callback function is enabled.*
  - pollCompletedCallbackCommand - BOOLEAN - The value indicating whether the device's poll completed callback function is enabled.

Definition at line 1985 of file [cli.doc](#).

##### 6.78.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_FORCE\_SHORT\_POLL

###### **plugin end-device-support force-short-poll [shortPoll:1]**

- *Sets whether the CLI forces the device to short poll.*
  - shortPoll - BOOLEAN - The value indicating whether the device should short poll.

Definition at line 1991 of file [cli.doc](#).

## 6.79 Plugin Commands: Events Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_EPRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_PUBLISH

### 6.79.1 Detailed Description

The events-server plugin contributes several commands to the application framework's CLI. These commands are used for adding, clearing, and printing events.

### 6.79.2 Macro Definition Documentation

#### 6.79.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_CLEAR

**plugin events-server clear [endpoint:1] [logId:1]**

- Clear out the specified event log for the provided endpoint.
  - endpoint - INT8U - the relevant endpoint
  - logId - INT8U - the log to be cleared

Definition at line 2009 of file [cli.doc](#).

#### 6.79.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_PRINT

**plugin events-server print [endpoint:1] [logId:1]**

- Print the specified event log for the provided endpoint.
  - endpoint - INT8U - the relevant endpoint
  - logId - INT8U - the log to be printed

Definition at line 2016 of file [cli.doc](#).

**6.79.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_EPRINT**

**plugin events-server eprint [endpoint:1] [logId:1] [index:1]**

- Print the event at the given index in the specified event log for the provided endpoint.

- endpoint - INT8U - the relevant endpoint
- logId - INT8U - the relevant log
- index - INT8U - the index within the event log to print

Definition at line 2024 of file [cli.doc](#).

**6.79.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_SET**

**plugin events-server set [endpoint:1] [logId:1] [index:1] [eventId:2] [eventTime:4] [eventData:-1]**

- Set the event at the specified index in the event log for the provided endpoint.

- endpoint - INT8U - the relevant endpoint
- logId - INT8U - the relevant log
- index - INT8U - the index within the event log to set
- eventId - INT16U - the event id
- eventTime - INT32U - the event time
- eventData - OCTET\_STRING - additional event data

Definition at line 2035 of file [cli.doc](#).

**6.79.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_ADD**

**plugin events-server add [endpoint:1] [logId:1] [eventId:2] [eventTime:4] [eventData:-1]**

- Append the event to the event log for the provided endpoint. Once the event log is full, new events will start overwriting old events at the beginning of the table.

- endpoint - INT8U - the relevant endpoint
- logId - INT8U - the relevant log
- eventId - INT16U - the event id
- eventTime - INT32U - the event time
- eventData - OCTET\_STRING - additional event data

Definition at line 2046 of file [cli.doc](#).

**6.79.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_PUBLISH****plugin events-server publish [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [logId:1] [index:1] [eventControl:1]**

- *Publish an event.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - logId - INT8U - the relevant log
  - index - INT8U - the index within the event log to set
  - eventControl - INT8U - the event control

Definition at line [2057](#) of file [cli.doc](#).

## 6.80 Plugin Commands: Find and Bind Initiator

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR

#### 6.80.1 Detailed Description

Commands for the finding and binding initiator process from the Base Device Behavior spec.

#### 6.80.2 Macro Definition Documentation

##### 6.80.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR

**plugin find-and-bind initiator [endpoint:1]**

- *Makes this node start the initiator part of the finding and binding process.*
  - endpoint - INT8U - The endpoint on which to begin the Finding and Binding initiator process.

Definition at line 2073 of file [cli.doc](#).

## 6.81 Plugin Commands: Find and Bind Target

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_PLUGIN\_FIND\_AND\_BIND\_TARGET

#### 6.81.1 Detailed Description

Commands for the finding and binding target process from the Base Device Behavior spec.

#### 6.81.2 Macro Definition Documentation

##### 6.81.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_PLUGIN\_FIND\_AND\_BIND\_TARGET

**plugin find-and-bind target [endpoint:1]**

- *Makes this node start identifying as a target for binding with an initiator node.*
  - endpoint - INT8U - The endpoint on which to begin the Finding and Binding target process.

Definition at line 2089 of file [cli.doc](#).

## 6.82 Plugin Commands: Fragmentation

The Fragmentation Plugin provides the ability to support fragmentation transmissions. The CLI allows it to introduce negative behavior to foster testing.

## 6.83 Plugin Commands: GBCS Device Log

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_COUNT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_STORE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_EXISTS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_IS\_SLEEPY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_FILL

### 6.83.1 Detailed Description

The gbc-device-log plugin contributes several CLI commands to the application framework to be used in configuring and managing the GBCS Device Log.

### 6.83.2 Macro Definition Documentation

#### 6.83.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_CLEAR

##### **plugin gbc-device-log clear**

- Clear all entries from the GBCS Device Log.

Definition at line 2132 of file [cli.doc](#).

#### 6.83.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_RESET

##### **plugin gbc-device-log reset**

- Reset the GBCS Device Log to include just those entries configured with the plugin.

Definition at line 2137 of file [cli.doc](#).

**6.83.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_COUNT**

**plugin gbc-device-log count**

- *Get the number of entries in the GBCS Device Log.*

Definition at line 2142 of file [cli.doc](#).

**6.83.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_STORE**

**plugin gbc-device-log store [deviceId:8] [deviceType:1]**

- *Add or update an entry within the GBCS Device Log.*
  - deviceId - IEEE\_ADDRESS - The EUI64 of the device to be added or updated
  - deviceType - INT8U - The GBCS device type of the device to be added or updated

Definition at line 2149 of file [cli.doc](#).

**6.83.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_REMOVE**

**plugin gbc-device-log remove [deviceId:8]**

- *Remove an entry from the GBCS Device Log.*
  - deviceId - IEEE\_ADDRESS - The EUI64 of the device to be removed

Definition at line 2155 of file [cli.doc](#).

**6.83.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_GET**

**plugin gbc-device-log get [deviceId:8]**

- *Get device info about an entry in the GBCS Device Log*
  - deviceId - IEEE\_ADDRESS - The EUI64 of the device for which information is requested

Definition at line 2161 of file [cli.doc](#).

**6.83.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_EXISTS**

**plugin gbc-device-log exists [deviceId:8] [deviceType:1]**

- *Check to see if a device exists in the GBCS Device Log.*
  - deviceId - IEEE\_ADDRESS - The EUI64 of the device in question
  - deviceType - INT8U - The GBCS device type of the device in question

Definition at line 2168 of file [cli.doc](#).

6.83.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_PRINT

**plugin gbcst-device-log print**

- Print all entries in the GBCS Device log.

Definition at line 2173 of file [cli.doc](#).

6.83.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_IS\_SLEEPY

**plugin gbcst-device-log is-sleepy [deviceType:1]**

- Is the given device type a sleepy device.
  - deviceType - INT8U - The GBCS device type to be checked

Definition at line 2179 of file [cli.doc](#).

6.83.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_FILL

**plugin gbcst-device-log fill**

- Helper command to fill the GBCS Device Log with random info.

Definition at line 2184 of file [cli.doc](#).

## 6.84 Plugin Commands: GBCS Gas Meter

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_GAS\_METER\_PLUGIN\_GBCS\_GAS\_METER\_REPORT\_ATTRIBUTES

#### 6.84.1 Detailed Description

The GBCS gas meter plugin contributes several CLI commands to the application framework to be used in configuring and managing the GSME.

#### 6.84.2 Macro Definition Documentation

##### 6.84.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_GAS\_METER\_PLUGIN\_GBCS\_GAS\_METER\_REPORT\_ATTRIBUTES

###### **plugin gbcsgasmeter report-attributes**

- *Report the gas meter attributes to the mirror.*

Definition at line 2199 of file [cli.doc](#).

## 6.85 Plugin Commands: Gas Proxy Function

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_GBZ\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_GBZ\_MSG\_CREATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PRINT\_SUPPORTED\_USE\_CASES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PRINT\_LOG\_CATCHUPS\_IN\_PROGRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_FUTURE\_DATED\_MSG

### 6.85.1 Detailed Description

The reporting plugin contributes several CLI commands to the application framework to be used in creating and managing Gas Proxy Function functionality on the device.

### 6.85.2 Macro Definition Documentation

#### 6.85.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_GBZ\_MSG

##### **plugin gas-proxy-function simulate-gbz-msg [useCase:2]**

- *Simulate transmission of a GBZ message to the Gas Proxy Function.*
  - useCase - INT16U

Definition at line 2216 of file [cli.doc](#).

#### 6.85.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_GBZ\_MSG\_CREATION

##### **plugin gas-proxy-function simulate-gbz-msg-creation**

- *Testing of GBZ message controller API.*

Definition at line 2221 of file [cli.doc](#).

#### 6.85.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PRINT\_SUPPORTED\_USE\_CASES

##### **plugin gas-proxy-function print-supported-use-cases**

- *Print the list of supported use cases. The message code printed should be used with the simulate-gbz-msg command.*

Definition at line 2226 of file [cli.doc](#).

6.85.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_-  
PROXY\_FUNCTION\_PRINT\_LOG\_CATCHUPS\_IN\_PROGRESS

**plugin gas-proxy-function print-log-catchups-in-progress**

- *Print the number of logs that are currently catching up with missed entries.*

Definition at line 2231 of file [cli.doc](#).

6.85.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_-  
PROXY\_FUNCTION\_SIMULATE\_FUTURE\_DATED\_MSG

**plugin gas-proxy-function simulate-future-dated-msg**

- *Simulate transmission of a GBZ message to the Gas Proxy Function.*

Definition at line 2236 of file [cli.doc](#).

## 6.86 Plugin Commands: Generic Device Profile

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_PUSH\_BUTTON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_INITIATE\_KEY\_EXCHANGE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_SET\_VALIDATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_PUSH\_ATTRIBUTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_IDENTIFY

### 6.86.1 Detailed Description

The RF4CE GDP plugin contributes several commands to the application framework's CLI.

### 6.86.2 Macro Definition Documentation

#### 6.86.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_PUSH\_BUTTON

##### **plugin rf4ce-gdp push-button [setPending:1]**

- Set or clear the "push-button stimulus received" flag.
  - setPending - BOOLEAN - 0 to clear the flag or any other value to set it.

Definition at line [2252](#) of file [cli.doc](#).

#### 6.86.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_INITIATE\_KEY\_EXCHANGE

##### **plugin rf4ce-gdp initiate-key-exchange [pairingIndex:1]**

- Initiate key exchange.
  - pairingIndex - INT8U - The index of the entry in the pairing table with which to initiate key exchange.

Definition at line [2258](#) of file [cli.doc](#).

#### 6.86.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_SET\_VALIDATION

##### **plugin rf4ce-gdp set-validation [success:1]**

- Accept or reject the validation.

- success - BOOLEAN - 0 if validation has failed or any other value if it succeeded.

Definition at line 2264 of file [cli.doc](#).

#### **6.86.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_PUSH\_ATTRIBUTE**

**plugin rf4ce-gdp push-attribute [pairingIndex:1] [profileId:1] [vendorId:2] [attributeId:1] [entryId:2] [value:-1]**

- *Send a Push Attributes command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - profileId - INT8U - The profile id.
  - vendorId - INT16U - The vendor id.
  - attributeId - INT8U - The attribute id.
  - entryId - INT16U - The entry id.
  - value - OCTET\_STRING - The value.

Definition at line 2275 of file [cli.doc](#).

#### **6.86.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_IDEN-TIFY**

**plugin rf4ce-gdp identify [pairingIndex:1] [vendorId:2] [flags:1] [timeS:2]**

- *Send an Identify command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - vendorId - INT16U - The vendor id.
  - flags - INT8U - The identify flags.
  - timeS - INT16U - The identify time in seconds.

Definition at line 2284 of file [cli.doc](#).

## 6.87 Plugin Commands: Generic Device Profile Identification Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CLIENT\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CLIENT\_USER\_INTERACTION

#### 6.87.1 Detailed Description

The RF4CE GDP Identification Client plugin contributes several commands to the application framework's CLI.

#### 6.87.2 Macro Definition Documentation

##### 6.87.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CLIENT\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CLIENT\_USER\_INTERACTION

**plugin rf4ce-gdp-identification-client user-interaction**

- *Indicate that user interaction has occurred.*

Definition at line 2299 of file [cli.doc](#).

## 6.88 Plugin Commands: Generic Device Profile Identification Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_SERVER\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_SERVER\_IDENTITY

#### 6.88.1 Detailed Description

The RF4CE GDP Identification Server plugin contributes several commands to the application framework's CLI.

#### 6.88.2 Macro Definition Documentation

##### 6.88.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_SERVER\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_SERVER\_IDENTITY

**plugin rf4ce-gdp-identification-server identify [pairingIndex:1] [flags:1] [timeS:2]**

- *Send an Identify command to an identification client. If the local device is a polling server and the identification client is also a polling client, the plugin will wait for the next poll before sending the command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - flags - INT8U - The identify flags.
  - timeS - INT16U - The identify time in seconds.

Definition at line 2317 of file [cli.doc](#).

## 6.89 Plugin Commands: Green Power Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_SET\_PROXY\_ENTRY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_ADD\_SINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_ADD\_GROUP\_SINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_RM\_GPD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_RM\_SINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_PRINT\_PROXY\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_CLEAR\_PROXY\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_DUPLICATE\_FILTER\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_SET\_KEY

### 6.89.1 Detailed Description

The Green Power Client plugin contributes CLI commands to the application framework to be used for getting, setting, and displaying information relevant to the Green Power Client cluster.

### 6.89.2 Macro Definition Documentation

#### 6.89.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_SET\_PROXY\_ENTRY

**plugin green-power-client set-proxy-entry [index:1] [sourceID:4] [sinkNodeId:2] [options:4]**

- *Set a proxy table entry*
  - index - INT8U - index to proxy table
  - sourceID - INT32U - GPD Source ID
  - sinkNodeId - INT16U - Sink's node address
  - options - INT32U

Definition at line 2337 of file [cli.doc](#).

#### 6.89.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_ADD\_SINK

**plugin green-power-client add-sink [sourceID:4] [sinkIeee:8]**

- Add a sink for a given GPD
  - sourceID - INT32U - GPD Source ID
  - sinkIeee - IEEE\_ADDRESS - Sink's IEEE address

Definition at line 2344 of file [cli.doc](#).

**6.89.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_ADD\_GROUP\_SINK**

**plugin green-power-client add-group-sink [sourceID:4] [sinkGroup:2]**

- Add a groupcast sink for a given GPD
  - sourceID - INT32U - GPD Source ID
  - sinkGroup - INT16U - Sink group

Definition at line 2351 of file [cli.doc](#).

**6.89.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_RM\_GPD**

**plugin green-power-client rm-gpd [sourceID:4]**

- Remove a given GPD from the proxy table
  - sourceID - INT32U - GPD Source ID

Definition at line 2357 of file [cli.doc](#).

**6.89.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_RM\_SINK**

**plugin green-power-client rm-sink [sourceID:4] [sinkIeee:8]**

- remove a sink for a given GPD. If that's the last sink, remove the proxy table entry
  - sourceID - INT32U - GPD Source ID
  - sinkIeee - IEEE\_ADDRESS - Sink's IEEE address

Definition at line 2364 of file [cli.doc](#).

**6.89.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_PRINT\_PROXY\_TABLE**

**plugin green-power-client print-proxy-table**

- Print the proxy table

Definition at line 2369 of file [cli.doc](#).

6.89.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_CLEAR\_PROXY\_TABLE

**plugin green-power-client clear-proxy-table**

- *clear the proxy table*

Definition at line 2374 of file [cli.doc](#).

6.89.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_DUPLICATE\_FILTER\_TEST

**plugin green-power-client duplicate-filter-test [endpoint:1] [sourceId:4] [sequenceNumber:1]**

- *This is used to instrument the current device receiving a message in order to test the duplicate message filtering functionality.*
  - endpoint - INT8U
  - sourceId - INT32U - source Id of the fake incoming message
  - sequenceNumber - INT8U

Definition at line 2382 of file [cli.doc](#).

6.89.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_SET\_KEY

**plugin green-power-client set-key [index:1] [key:16]**

- *This is used to set the key for a proxy table entry*
  - index - INT8U
  - key - SECURITY\_KEY - source Id of the fake incoming message

Definition at line 2389 of file [cli.doc](#).

## 6.90 Plugin Commands: Green Power Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_CRYPTOTEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_COMMISION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_PRINT

#### 6.90.1 Detailed Description

The Green Power Server plugin contributes CLI commands to the application framework to be used for getting, setting, and displaying information relevant to the Green Power Server cluster.

#### 6.90.2 Macro Definition Documentation

##### 6.90.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_CRYPTOTEST

###### **plugin green-power-server cryptotest**

- *Crypto test*

Definition at line 2405 of file [cli.doc](#).

##### 6.90.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_COMMISION

###### **plugin green-power-server commission [action:1]**

- *Put the GPS in commissioning mode*
  - action - INT8U - 1 to enter, 2 to leave

Definition at line 2411 of file [cli.doc](#).

##### 6.90.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_CLEAR

###### **plugin green-power-server table-clear**

- *Clear all entries within the customized translation table.*

Definition at line 2416 of file [cli.doc](#).

**6.90.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_SET**

**plugin green-power-server table-set [index:1] [valid:1] [options:1] [gpdEndpoint:1] [gpdIeeeAddr:8] [sourceId:4] [endpoint:1] [gpdCommand:1] [zigbeeProfile:2] [zigbeeCluster:2] [zigbeeCommandId:2] [payloadSrc:1] [zclPayloadDefault:-1]**

- *Clear all entries within the customized translation table.*
  - index - INT8U - index to translation table
  - valid - BOOLEAN - flag indicating if the entry is valid or not
  - options - INT8U
  - gpdEndpoint - INT8U
  - gpdIeeeAddr - IEEE\_ADDRESS
  - sourceId - INT32U
  - endpoint - INT8U - the endpoint for which the translation is valid.
  - gpdCommand - INT8U
  - zigbeeProfile - INT16U
  - zigbeeCluster - INT16U
  - zigbeeCommandId - INT16U
  - payloadSrc - INT8U
  - zclPayloadDefault - OCTET\_STRING

Definition at line [2434](#) of file [cli.doc](#).

**6.90.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_PRINT**

**plugin green-power-server table-print**

- *Clear all entries within the customized translation table.*

Definition at line [2439](#) of file [cli.doc](#).

## 6.91 Plugin Commands: Green Power Test Device

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_IEEE\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_COMM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_CHANNEL\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SET\_PHY\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SETUP\_GPD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SETUP\_IEEE\_GPD

#### 6.91.1 Detailed Description

The Green Power Test Device plugin contributes CLI commands to the application framework to be used for generating commands from a GPD

#### 6.91.2 Macro Definition Documentation

##### 6.91.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_TEST

**plugin green-power-test-device send-test [gpdCommandId:1] [gpdCommandPayload:-1]**

- *Send a test GPD command*
  - gpdCommandId - INT8U - gpd command ID
  - gpdCommandPayload - OCTET\_STRING - gpd command payload

Definition at line 2456 of file [cli.doc](#).

##### 6.91.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_IEEE\_TEST

**plugin green-power-test-device send-ieee-test [gpdCommandId:1] [gpdCommandPayload:-1]**

- *Send a test GPD command*
  - gpdCommandId - INT8U - gpd command ID
  - gpdCommandPayload - OCTET\_STRING - gpd command payload

Definition at line 2463 of file [cli.doc](#).

6.91.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_COMM

**plugin green-power-test-device send-comm [type:1]**

- *Send a test GPD command*
  - type - INT8U - 0 for tx only, 1 for bidir

Definition at line 2469 of file [cli.doc](#).

6.91.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_CHANNEL\_REQUEST

**plugin green-power-test-device send-channel-request [channel:1]**

- *Send a test GPD command*
  - channel - INT8U - Channel to set

Definition at line 2475 of file [cli.doc](#).

6.91.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SET\_PHY\_CHANNEL

**plugin green-power-test-device set-phy-channel [channel:1]**

- *set the phy channel*
  - channel - INT8U - Channel to set

Definition at line 2481 of file [cli.doc](#).

6.91.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SETUP\_GPD

**plugin green-power-test-device setup-gpd [srcId:4] [key:-1]**

- *init a GPD*
  - srcId - INT32U - gpd src ID
  - key - OCTET\_STRING - the key

Definition at line 2488 of file [cli.doc](#).

6.91.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN-  
\_GREEN\_POWER\_TEST\_DEVICE\_SETUP\_IEEE\_GPD

**plugin green-power-test-device setup-ieee-gpd [eui:-1] [key:-1]**

- *init a Ieee GPD*
  - eui - OCTET\_STRING - gpd Ieee ID
  - key - OCTET\_STRING - the key

Definition at line [2495](#) of file [cli.doc](#).

## 6.92 Plugin Commands: Groups Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GROUPS\_SERVER\_PLUGIN\_GROUPS\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GROUPS\_SERVER\_PLUGIN\_GROUPS\_SERVER\_CLEAR

#### 6.92.1 Detailed Description

The groups server plugin contributes a CLI command to the application framework to be used for printing information related to groups.

#### 6.92.2 Macro Definition Documentation

##### 6.92.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GROUPS\_SERVER\_PLUGIN\_GROUPS\_SERVER\_PRINT

###### **plugin groups-server print**

- *Print information about the contents of the groups table.*

Definition at line 2510 of file [cli.doc](#).

##### 6.92.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GROUPS\_SERVER\_PLUGIN\_GROUPS\_SERVER\_CLEAR

###### **plugin groups-server clear**

- *Clear the groups table on every endpoint.*

Definition at line 2515 of file [cli.doc](#).

## 6.93 Plugin Commands: IAS Zone Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_CLIENT\_PLUGIN\_IAS\_ZONE\_CLIENT\_PRINT\_SERVERS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_CLIENT\_PLUGIN\_IAS\_ZONE\_CLIENT\_CLEAR\_ALL

#### 6.93.1 Detailed Description

This plugin provides a set of CLI commands for managing the servers known to the IAS Zone client.

#### 6.93.2 Macro Definition Documentation

##### 6.93.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_CLIENT\_PLUGIN\_IAS\_ZONE\_CLIENT\_PRINT\_SERVERS

###### **plugin ias-zone-client print-servers**

- *Print the known IAS Zone Servers.*

Definition at line 2530 of file [cli.doc](#).

##### 6.93.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_CLIENT\_PLUGIN\_IAS\_ZONE\_CLIENT\_CLEAR\_ALL

###### **plugin ias-zone-client clear-all**

- *Clear all known IAS Zone Servers from local device.*

Definition at line 2535 of file [cli.doc](#).

## 6.94 Plugin Commands: IAS Zone Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_SERVER\_PLUGIN\_IAS\_ZONE\_SERVER\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_SERVER\_PLUGIN\_IAS\_ZONE\_SERVER\_CHANGE\_STATUS

#### 6.94.1 Detailed Description

This plugin provides a set of CLI commands for managing the local IAS Zone server.

#### 6.94.2 Macro Definition Documentation

##### 6.94.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_SERVER\_PLUGIN\_IAS\_ZONE\_SERVER\_INFO

**plugin ias-zone-server info [endpoint:1]**

- *Print current value of the following cluster attributes: zone type, zone state, zone status, zone id*
  - endpoint - INT8U - The endpoint whose IAS Zone Cluster information is to be printed

Definition at line 2551 of file [cli.doc](#).

##### 6.94.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_SERVER\_PLUGIN\_IAS\_ZONE\_SERVER\_CHANGE\_STATUS

**plugin ias-zone-server changeStatus [newStatus:2] [timeSinceOccurredSeconds:1] [endpoint:1]**

- *Update the zone status attribute of a given endpoint's IAS Zone cluster to the given value*
  - newStatus - INT16U - The new status to be written
  - timeSinceOccurredSeconds - INT8U - The amount time that has passed since the last update occurred (seconds)
  - endpoint - INT8U - The endpoint whose zone status attribute is to be updated

Definition at line 2559 of file [cli.doc](#).

## 6.95 Plugin Commands: Identify

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDENTIFY\_PLUGIN\_IDEN-  
Y\_PRINT

#### 6.95.1 Detailed Description

The identify plugin contributes a CLI command to the application framework to be used for printing information related to identification.

#### 6.95.2 Macro Definition Documentation

##### 6.95.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDENTIFY\_PLUGIN\_IDEN- Y\_PRINT

###### plugin identify print

- *Print which endpoints are reporting.*

Definition at line 2574 of file [cli.doc](#).

## 6.96 Plugin Commands: Idle/Sleep

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_FORCE\_AWAKE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_AWAKE\_WHEN\_NOT\_JOINED

### 6.96.1 Detailed Description

The Sleep plugin contributes several commands to the application framework's CLI. These commands are used to control the idling and sleeping behavior of the device.

### 6.96.2 Macro Definition Documentation

#### 6.96.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_STATUS

##### **plugin idle-sleep status**

- *Display the status of the sleeping behavior.*

Definition at line 2590 of file [cli.doc](#).

#### 6.96.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_FORCE\_AWAKE

##### **plugin idle-sleep force-awake [stayAwake:1]**

- *Sets whether the device is forced to stay awake.*
  - stayAwake - BOOLEAN - The value indicating whether the device should stay awake.

Definition at line 2596 of file [cli.doc](#).

#### 6.96.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_AWAKE\_WHEN\_NOT\_JOINED

##### **plugin idle-sleep awake-when-not-joined [stayAwakeWhenNotJoined:1]**

- *Sets whether the device stays awake when not joined to a ZigBee network.*
  - stayAwakeWhenNotJoined - BOOLEAN - The value indicating whether the device should stay awake when not joined to a ZigBee network.

Definition at line 2602 of file [cli.doc](#).

## 6.97 Plugin Commands: Infrared LED

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_TOGGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_BUTTON\_TOGGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_BUTTON\_ON\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_PRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_HOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_REMOTE

### 6.97.1 Detailed Description

The Infrared LED plugin contributes several commands to the application framework's CLI. These commands are used for testing low level operation of the LED and sending out IR waveforms as if a button had been pressed or held.

### 6.97.2 Macro Definition Documentation

#### 6.97.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_TOGGLE

##### **plugin infrared-led toggle**

- *Toggle IR LED once.*

Definition at line 2618 of file [cli.doc](#).

#### 6.97.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_ON

##### **plugin infrared-led on**

- *Turn on IR LED.*

Definition at line 2623 of file [cli.doc](#).

**6.97.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_OFF**

**plugin infrared-led off**

- Turn off IR LED.

Definition at line 2628 of file [cli.doc](#).

**6.97.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_BUTTON\_TOGGLE**

**plugin infrared-led button-toggle**

- Toggle IR LED each time BUTTON1 is pressed.

Definition at line 2633 of file [cli.doc](#).

**6.97.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_BUTTON\_ON\_OFF**

**plugin infrared-led button-on-off**

- Turn IR LED on and off based on state of BUTTON1.

Definition at line 2638 of file [cli.doc](#).

**6.97.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_PRESS**

**plugin infrared-led simulate-press [index:1]**

- Output IR waveform as if a button were pressed.
  - index - INT8U - The index of UIRD database to use for the waveform.

Definition at line 2644 of file [cli.doc](#).

**6.97.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_HOLD**

**plugin infrared-led simulate-hold [index:1]**

- Output IR waveform as if a button were held.
  - index - INT8U - The index of UIRD database to use for the waveform.

Definition at line 2650 of file [cli.doc](#).

6.97.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_REMOTE

**plugin infrared-led simulate-remote [index:1]**

- *Output IR waveform when BUTTON1 is pressed or held.*

- index - INT8U - The index of UIRD database to use for the waveform.

Definition at line [2656](#) of file [cli.doc](#).

## 6.98 Plugin Commands: Interpan

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_FRAGMENT\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_SET\_MSG\_TIMEOUT

#### 6.98.1 Detailed Description

The Interpan commands provide commands to set global interpan state and test interpan fragmentation.

#### 6.98.2 Macro Definition Documentation

##### 6.98.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_ENABLE

###### plugin interpan enable

- Enables inter-PAN globally.

Definition at line 2671 of file [cli.doc](#).

##### 6.98.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_DISABLE

###### plugin interpan disable

- Disables inter-PAN globally.

Definition at line 2676 of file [cli.doc](#).

##### 6.98.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_FRAGMENT\_TEST

###### plugin interpan fragment-test [panId:2] [eui64:8] [clusterId:2] [msgLen:2]

- Sends a message of specified length of random values to target device over inter-PAN.

- panId - INT16U - The PAN ID that the target is located on
- eui64 - IEEE\_ADDRESS - The target's EUI64 (big endian)
- clusterId - INT16U - The cluster ID that the sample message should contain
- msgLen - INT16U - The length of the randomly-filled message to be sent across inter-PAN

Definition at line 2685 of file [cli.doc](#).

6.98.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_SET\_MS-G\_TIMEOUT

**plugin interpan set-msg-timeout [timeout:1]**

- Sets the timeout for inter-PAN messages sent and received.

- timeout - INT8U - Message timeout in seconds.

Definition at line 2691 of file [cli.doc](#).

## 6.99 Plugin Commands: Key Establishment

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_KEY\_ESTABLISHMENT\_PLUGIN\_KEY\_ESTABLISHMENT\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_KEY\_ESTABLISHMENT\_PLUGIN\_KEY\_ESTABLISHMENT\_INTERPAN

#### 6.99.1 Detailed Description

The Key Establishment commands provide commands to initiate key establishment with a remote target.

#### 6.99.2 Macro Definition Documentation

##### 6.99.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_KEY\_ESTABLISHMENT\_PLUGIN\_KEY\_ES-TABLISHMENT\_START

**plugin key-establishment start [nodeId:2] [endpoint:1]**

- *Initiates key establishment with the target node ID.*
  - nodeId - INT16U - Target node ID.
  - endpoint - INT8U - Target node's endpoint.

Definition at line 2708 of file [cli.doc](#).

##### 6.99.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_KEY\_ESTABLISHMENT\_PLUGIN\_KEY\_ES-TABLISHMENT\_INTERPAN

**plugin key-establishment interpan [panId:2] [eui64:-1]**

- *Initiate key establishment with the target device over interpan.*
  - panId - INT16U - The PAN ID that the target is located on.
  - eui64 - OCTET\_STRING - The target's EUI64 (big endian)

Definition at line 2715 of file [cli.doc](#).

## 6.100 Plugin Commands: LED Dim PWM

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_LED\_DIM\_PWM\_PLUGIN\_PWM\_CONTROL\_TEST

#### 6.100.1 Detailed Description

RGB-PWM is a plugin to control color for a 3 LED system with red, blue, and green.

#### 6.100.2 Macro Definition Documentation

##### 6.100.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_LED\_DIM\_PWM\_PLUGIN\_PWM\_CONTROL\_TEST

**plugin pwm-control test [value:2]**

- *Value of white PWM.*
  - value - INT16U - Value to write to the white PWM output.

Definition at line [2731](#) of file [cli.doc](#).

## 6.101 Plugin Commands: Low Voltage Shutdown

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PRINT\_VDD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_SHUTDOWN

### 6.101.1 Detailed Description

The Low Voltage Shutdown plugin provides a few commands to monitor the VDD voltage or disable the checking and shutdown logic.

### 6.101.2 Macro Definition Documentation

#### 6.101.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_STATUS

##### **plugin low-voltage-shutdown status**

- *Display the status of the check and shutdown behavior.*

Definition at line 2746 of file [cli.doc](#).

#### 6.101.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_ENABLE

##### **plugin low-voltage-shutdown enable [forceDisable:1]**

- *Sets whether the plugin's check and shutdown logic is enabled or disabled.*
  - forceDisable - BOOLEAN - The value indicating whether the shutdown logic should be disabled.

Definition at line 2752 of file [cli.doc](#).

#### 6.101.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PRINT\_VDD

##### **plugin low-voltage-shutdown print-vdd**

- *Report the current VDD voltage as checked by the shutdown logic. (Doesn't do any shutdown logic if VDD is below threshold; this is just informational.)*

Definition at line 2757 of file [cli.doc](#).

6.101.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_-  
LOW\_VOLTAGE\_SHUTDOWN\_SHUTDOWN

**plugin low-voltage-shutdown shutdown**

- Force the shutdown logic to engage immediately, regardless of VDD voltage.

Definition at line 2762 of file [cli.doc](#).

## 6.102 Plugin Commands: Manufacturing Library

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_TONE\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_TONE\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SET\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SET\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_TEST\_MOD\_CAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SYN\_OFFSET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STREAM\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STREAM\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SEND\_RANDOM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SEND\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SEND\_MESSAGE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SLEEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_PROGRAM\_EUI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_MFGENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_CALDATA

### 6.102.1 Detailed Description

CLI commands related to the manufacturing library.

### 6.102.2 Macro Definition Documentation

#### 6.102.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_START

**plugin mfplib start [useCallback:1]**

- Start the *mfplib* test mode.
  - useCallback - BOOLEAN - Use the Rx callback.

Definition at line [2777](#) of file [cli.doc](#).

**6.102.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STOP**

### **plugin mfplib stop**

- Stop the *mfplib* test mode.

Definition at line [2782](#) of file [cli.doc](#).

**6.102.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_TONE\_START**

### **plugin mfplib tone start**

- Starts a tone test.

Definition at line [2787](#) of file [cli.doc](#).

**6.102.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_TONE\_STOP**

### **plugin mfplib tone stop**

- Stops the tone test.

Definition at line [2792](#) of file [cli.doc](#).

**6.102.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STATUS**

### **plugin mfplib status**

- Prints the current status of the manufacturing library.

Definition at line [2797](#) of file [cli.doc](#).

**6.102.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_SET\_CHANNEL**

### **plugin mfplib set-channel [channel:1]**

- Sets the channel used by the manufacturing library for testing.
  - channel - INT8U - The 802.15.4 channel number.

Definition at line [2803](#) of file [cli.doc](#).

6.102.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_SET\_POWER

**plugin mfplib set-power [powerLevel:1] [powerMode:2]**

- Set the power level and mode for the manufacturing test.
  - powerLevel - INT8S - The power level
  - powerMode - INT16U - The power mode

Definition at line 2810 of file [cli.doc](#).

6.102.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_TEST\_MOD\_CAL

**plugin mfplib test-mod-cal [channel:1] [timeMs:4]**

- Run the mod DAC calibration on the specified channel for the specified time.
  - channel - INT8U - The channel to calibrate.
  - timeMs - INT32U - The length of time to run the test is ms.

Definition at line 2817 of file [cli.doc](#).

6.102.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_SYN\_OFFSET

**plugin mfplib syn-offset [synOffset:1]**

- Sets the Synth offset.
  - synOffset - INT8S - The synth offset.

Definition at line 2823 of file [cli.doc](#).

6.102.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_STREAM\_START

**plugin mfplib stream start**

- Start the stream test.

Definition at line 2828 of file [cli.doc](#).

6.102.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_STREAM\_STOP

**plugin mfplib stream stop**

- Stop the stream test.

Definition at line 2833 of file [cli.doc](#).

6.102.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_SEND\_RANDOM

**plugin mfplib send random [numPackets:2] [length:1]**

- *Send a series of test packets with random data..*
  - numPackets - INT16U - The number of packets to send.
  - length - INT8U - The length of the packet to send.

Definition at line 2840 of file [cli.doc](#).

6.102.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_SEND\_TEST

**plugin mfplib send test [numPackets:2] [length:1]**

- *Send a series of test packets with fixed data..*
  - numPackets - INT16U - The number of packets to send.
  - length - INT8U - The length of the packet to send.

Definition at line 2847 of file [cli.doc](#).

6.102.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_SEND\_MESSAGE

**plugin mfplib send message [data:-1] [numPackets:2]**

- *Send a test message with the specified data in it..*
  - data - OCTET\_STRING - The hex data to send, up to 16 bytes.
  - numPackets - INT16U - The number of packets to send.

Definition at line 2854 of file [cli.doc](#).

6.102.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_-  
MFGLIB\_SLEEP

**plugin mfplib sleep [duration:2]**

- *Sleep..*
  - duration - INT16U - Sleep duration (mS).

Definition at line 2860 of file [cli.doc](#).

```
6.102.2.16 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_MANUFACTURING_LIBRARY_PLUGIN_-  
MFGLIB_PROGRAM_EUI
```

**plugin mfplib programEui [duration:8]**

- *Program EUI.*
  - duration - IEEE\_ADDRESS - IEEE address to program.

Definition at line [2866](#) of file [cli.doc](#).

```
6.102.2.17 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_MANUFACTURING_LIBRARY_PLUGIN_-  
MFGLIB_MFGENABLE
```

**plugin mfplib mfgenable [enabled:1]**

- *Enable mfplib.*
  - enabled - INT8U - 1 = enable, 0 = disable.

Definition at line [2872](#) of file [cli.doc](#).

```
6.102.2.18 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_MANUFACTURING_LIBRARY_PLUGIN_-  
MFGLIB_CALDATA
```

**plugin mfplib caldata**

- *Print out channel calibration data.*

Definition at line [2877](#) of file [cli.doc](#).

## 6.103 Plugin Commands: Messaging Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUGIN\_MESSAGING\_CLIENT\_CONFIRM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUGIN\_MESSAGING\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUGIN\_MESSAGING\_CLIENT\_CLEAR

### 6.103.1 Detailed Description

The messaging-client plugin contributes CLI commands to the application framework to be used for manipulating messages in a client context.

### 6.103.2 Macro Definition Documentation

#### 6.103.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUGIN\_MESSAGING\_CLIENT\_CONFIRM

##### **plugin messaging-client confirm [endpoint:1]**

- *Send the message confirmation.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 2893 of file [cli.doc](#).

#### 6.103.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUGIN\_MESSAGING\_CLIENT\_PRINT

##### **plugin messaging-client print [endpoint:1]**

- *Print the message info.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 2899 of file [cli.doc](#).

#### 6.103.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUGIN\_MESSAGING\_CLIENT\_CLEAR

##### **plugin messaging-client clear [endpoint:1]**

- *Clear the message.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 2905 of file [cli.doc](#).

## 6.104 Plugin Commands: Messaging Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_MESSAGE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_APPEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_RELATIVE\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_TRANSMISSION\_NORMAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_TRANSMISSION\_IPAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_TRANSMISSION\_BOTH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_LOW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_MEDIUM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_HIGH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_CRITICAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CONFIRM\_NOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CONFIRM\_REQ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_VALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_INVALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_DISPLAY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CANCEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_PRINT

### 6.104.1 Detailed Description

The messaging-server plugin contributes CLI commands to the application framework to be used for manipulating messages in a server context.

## 6.104.2 Macro Definition Documentation

6.104.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_MESSAGE

**plugin messaging-server message [message:-1]**

- Set the message used by the message plugin.
  - message - OCTET\_STRING - The message to set

Definition at line 2921 of file [cli.doc](#).

6.104.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_APPEND

**plugin messaging-server append [message:-1]**

- Append an additional string to the message contained in the message plugin
  - message - OCTET\_STRING - the string to append to the current message

Definition at line 2927 of file [cli.doc](#).

6.104.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_ID

**plugin messaging-server id [messageId:4]**

- Set the message id for the message contained in the messaging plugin
  - messageId - INT32U - message id

Definition at line 2933 of file [cli.doc](#).

6.104.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_TIME

**plugin messaging-server time [time:4] [duration:2]**

- Set the start time and duration for the message used by the message plugin.
  - time - INT32U - start time
  - duration - INT16U - duration

Definition at line 2940 of file [cli.doc](#).

6.104.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_RELATIVE\_TIME

#### **plugin messaging-server relative-time [time:4] [duration:4]**

- *Set the relative time on the message.*

- time - INT32U - number of minutes to add to the message time above the current time
- duration - INT32U - duration in minutes for the message to be valid

Definition at line 2947 of file [cli.doc](#).

6.104.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_TRANSMISSION\_NORMAL

#### **plugin messaging-server transmission normal**

- *Sets the message control bit mask to normal transmission.*

Definition at line 2952 of file [cli.doc](#).

6.104.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_TRANSMISSION\_IPAN

#### **plugin messaging-server transmission ipan**

- *Set the message control bit mask in the message to anonymous.*

Definition at line 2957 of file [cli.doc](#).

6.104.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_TRANSMISSION\_BOTH

#### **plugin messaging-server transmission both**

- *Set the message control bit mask in the message to normal and anonymous.*

Definition at line 2962 of file [cli.doc](#).

6.104.2.9 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGEGING\_SERVER\_IMPORTANCE\_LOW

#### **plugin messaging-server importance low**

- *Set the message importance to low.*

Definition at line 2967 of file [cli.doc](#).

6.104.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_MEDIUM

**plugin messaging-server importance medium**

- Set the message importance to medium.

Definition at line 2972 of file [cli.doc](#).

6.104.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_HIGH

**plugin messaging-server importance high**

- Set the message importance to high.

Definition at line 2977 of file [cli.doc](#).

6.104.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_CRITICAL

**plugin messaging-server importance critical**

- Set the message importance to critical.

Definition at line 2982 of file [cli.doc](#).

6.104.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CONFIRM\_NOT

**plugin messaging-server confirm not**

- Set the message confirmation to not used.

Definition at line 2987 of file [cli.doc](#).

6.104.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CONFIRM\_REQ

**plugin messaging-server confirm req**

- Set message confirmation to required.

Definition at line 2992 of file [cli.doc](#).

**6.104.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_VALID**

**plugin messaging-server valid [endpoint:1]**

- *Set the message validity to valid.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 2998 of file [cli.doc](#).

**6.104.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_INVALID**

**plugin messaging-server invalid [endpoint:1]**

- *Set the message validity to invalid.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 3004 of file [cli.doc](#).

**6.104.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_DISPLAY**

**plugin messaging-server display [nodeId:2] [srcEndpoint:1] [dstEndpoint:1]**

- *Display the message.*
  - nodeId - INT16U - The destination of the message.
  - srcEndpoint - INT8U - The source endpoint of the message.
  - dstEndpoint - INT8U - The destination endpoint of the message.

Definition at line 3012 of file [cli.doc](#).

**6.104.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CANCEL**

**plugin messaging-server cancel [nodeId:2] [srcEndpoint:1] [dstEndpoint:1]**

- *Cancel the message.*
  - nodeId - INT16U - The destination of the message.
  - srcEndpoint - INT8U - The source endpoint of the message.
  - dstEndpoint - INT8U - The destination endpoint of the message.

Definition at line 3020 of file [cli.doc](#).

```
6.104.2.19 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_MESSAGING_SERVER_PLUGIN_MESS-  
AGING_SERVER_PRINT
```

**plugin messaging-server print [endpoint:1]**

- *Print the message info.*
  - endpoint - INT8U - The relevant endpoint.

Definition at line 3026 of file [cli.doc](#).

## 6.105 Plugin Commands: Meter Mirror

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_MIRROR\_PLUGIN\_METER\_MIRROR\_STATUS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_MIRROR\_PLUGIN\_METER\_MIRROR\_REMOVE

#### 6.105.1 Detailed Description

The Meter mirror plugin provides commands for managing the meter devices whose attributes are mirrored locally.

#### 6.105.2 Macro Definition Documentation

##### 6.105.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_MIRROR\_PLUGIN\_METER\_MIRROR\_STATUS

###### **plugin meter-mirror status**

- Prints the status of all mirrors.

Definition at line 3041 of file [cli.doc](#).

##### 6.105.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_MIRROR\_PLUGIN\_METER\_MIRROR\_REMOVE

###### **plugin meter-mirror remove [endpoint:1]**

- Manually removes a registered mirror at the specified endpoint.
  - endpoint - INT8U - The endpoint of the mirror to remove.

Definition at line 3047 of file [cli.doc](#).

## 6.106 Plugin Commands: Meter Snapshot Server

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_TAKE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PUBLISH

### 6.106.1 Detailed Description

The meter-snapshot-server plugin contributes several commands to the application framework's CLI. These commands are used for taking and publishing snapshots.

### 6.106.2 Macro Definition Documentation

#### 6.106.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_TAKE

**plugin meter-snapshot-server take [endpoint:1] [cause:4]**

- *Take a snapshot.*
  - endpoint - INT8U - the source endpoint
  - cause - INT32U - the cause of the snapshot

Definition at line 3065 of file [cli.doc](#).

#### 6.106.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PUBLISH

**plugin meter-snapshot-server publish [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [startTime:4] [endTime:4] [offset:1] [cause:4]**

- *Publish a snapshot.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - startTime - INT32U - the earliest time of a snapshot to be published
  - endTime - INT32U - the latest time of a snapshot to be published
  - offset - INT8U - identifies the snapshot to be published
  - cause - INT32U - select only snapshots that were taken due to a specific cause

Definition at line 3077 of file [cli.doc](#).

## 6.107 Plugin Commands: Multi-Network Price Passthrough

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_-  
PLUGIN\_MN\_PRICE\_PASSTHROUGH\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_-  
PLUGIN\_MN\_PRICE\_PASSTHROUGH\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_-  
PLUGIN\_MN\_PRICE\_PASSTHROUGH\_SET\_ROUTING
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_-  
PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PRINT

### 6.107.1 Detailed Description

The Multi-Network Price Passthrough plugin is a plugin designed to demonstrate multi-network functionality by passing data from a "real" ESI on one network to a "proxy" ESI on another network via periodic polling and forwarding.

### 6.107.2 Macro Definition Documentation

#### 6.107.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_M- N\_PRICE\_PASSTHROUGH\_START

##### **plugin mn-price-passthrough start**

- Starts polling and forwarding.

Definition at line 3094 of file [cli.doc](#).

#### 6.107.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_M- N\_PRICE\_PASSTHROUGH\_STOP

##### **plugin mn-price-passthrough stop**

- Stops polling and forwarding.

Definition at line 3099 of file [cli.doc](#).

#### 6.107.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_M- N\_PRICE\_PASSTHROUGH\_SET\_ROUTING

##### **plugin mn-price-passthrough set-routing [fwdId:2] [fwdEndpoint:1] [esiEndpoint:1]**

- Set the routing parameters.
  - fwdId - INT16U - The node id of the forwarding endpoint.
  - fwdEndpoint - INT8U - The forwarding endpoint.
  - esiEndpoint - INT8U - The endpoint of the proxy ESI.

Definition at line 3107 of file [cli.doc](#).

6.107.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_M-  
N\_PRICE\_PASSTHROUGH\_PRINT

**plugin mn-price-passthrough print**

- *Print the current price known to the proxy esi.*

Definition at line 3112 of file [cli.doc](#).

## 6.108 Plugin Commands: Network Creator

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_START
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_STOP
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_ADD
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_SUBTRACT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_SET
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_STATUS

### 6.108.1 Detailed Description

Commands pertaining to network creation with the Network Creator plugin.

### 6.108.2 Macro Definition Documentation

#### 6.108.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_START

**plugin network-creator start [useCentralizedSecurity:1]**

- Starts the network formation process.
  - useCentralizedSecurity - BOOLEAN - Whether or not to form a centralized network. If this value is false, the device will attempt to join a distributed network.

Definition at line 3127 of file [cli.doc](#).

#### 6.108.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_STOP

**plugin network-creator stop**

- Stops the network formation process.

Definition at line 3132 of file [cli.doc](#).

#### 6.108.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_ADD

**plugin network-creator mask add [mask:1] [channel:4]**

- Add a channel to the channel mask of choice.

- mask - INT8U - The mask of choice to which to add the channel. Entering an argument of '1' will choose the primary channel mask. Any other argument will choose the secondary channel mask.
- channel - INT32U - The channel to add to the channel mask.

Definition at line 3139 of file [cli.doc](#).

**6.108.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_SUBTRACT**

**plugin network-creator mask subtract [mask:1] [channel:4]**

- Subtract a channel from the channel mask of choice.

- mask - INT8U - The mask of choice from which to subtract the channel. Entering an argument of '1' will choose the primary channel mask. Any other argument will choose the secondary channel mask.
- channel - INT32U - The channel to subtract from the channel mask.

Definition at line 3146 of file [cli.doc](#).

**6.108.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_SET**

**plugin network-creator mask set [mask:1] [newChannelMask:4]**

- Set a channel mask.

- mask - INT8U - The mask of choice to set. Entering an argument of '1' will choose the primary channel mask. Any other argument will choose the secondary channel mask.
- newChannelMask - INT32U - The bit mask to which to set the chosen channel mask.

Definition at line 3153 of file [cli.doc](#).

**6.108.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_STATUS**

**plugin network-creator status**

- Print the status of the network-creator plugin.

Definition at line 3158 of file [cli.doc](#).

## 6.109 Plugin Commands: Network Creator Security

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_SET\_JOINING\_LINK\_KEY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_CLEAR\_JOINING\_LINK\_KEYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_OPEN\_NETWORK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_CLOSE\_NETWORK

#### 6.109.1 Detailed Description

Commands pertaining to network creation with the Network Creator plugin.

#### 6.109.2 Macro Definition Documentation

##### 6.109.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_SET\_JOINING\_LINK\_KEY

**plugin network-creator-security set-joining-link-key [eui64:8] [joiningLinkKey:-1]**

- Set the link key that a specific joining device will use when joining the network. This command can be also used to add install code derived link keys. If all FF's are entered for the EUI64 for the joining device, then this link key will be used for all joining devices without a joining key entry.
  - eui64 - IEEE\_ADDRESS - The EUI64 of the joining device.
  - joiningLinkKey - OCTET\_STRING - The link key that the joining device will use to enter the network.

Definition at line 3174 of file [cli.doc](#).

##### 6.109.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_CLEAR\_JOINING\_LINK\_KEYS

**plugin network-creator-security clear-joining-link-keys**

- Clear all of the joining link keys stored in the stack.

Definition at line 3179 of file [cli.doc](#).

##### 6.109.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_OPEN\_NETWORK

**plugin network-creator-security open-network**

- Open the network for joining.

Definition at line 3184 of file [cli.doc](#).

6.109.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_CLOSE\_NETWORK

**plugin network-creator-security close-network**

- *Close the network for joining.*

Definition at line 3189 of file [cli.doc](#).

## 6.110 Plugin Commands: Network Steering

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_ADD
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_SUBTRACT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_SET
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_STATUS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_START
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_STOP

### 6.110.1 Detailed Description

The Network Steering plugin commands are currently being used for the Profile Interop event.

### 6.110.2 Macro Definition Documentation

#### 6.110.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_ADD

**plugin network-steering mask add [whichMask:1] [channel:1]**

- Adds a channel to either the primary or secondary channel mask of the network-steering plugin.
  - whichMask - INT8U - The channel mask to add a channel to.
  - channel - INT8U - The channel to add to the mask.

Definition at line 3206 of file [cli.doc](#).

#### 6.110.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_SUBTRACT

**plugin network-steering mask subtract [whichMask:1] [channel:1]**

- Subtracts a channel from either the primary or secondary channel mask of the network-steering plugin.
  - whichMask - INT8U - The channel mask to subtract the channel from.
  - channel - INT8U - The channel to subtract the mask from.

Definition at line 3213 of file [cli.doc](#).

6.110.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_SET

**plugin network-steering mask set [whichMask:1] [mask:4]**

- *Set either the primary or secondary channel mask.*
  - whichMask - INT8U - The channel mask to subtract the channel from.
  - mask - INT32U - The value to set the channel mask to.

Definition at line 3220 of file [cli.doc](#).

6.110.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_STATUS

**plugin network-steering status**

- *Displays the current status of the network steering process.*

Definition at line 3225 of file [cli.doc](#).

6.110.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_START

**plugin network-steering start [options:1]**

- *Starts the network steering process.*
  - options - INT8U - A mask of options for indicating specific behavior within the network-steering process.

Definition at line 3231 of file [cli.doc](#).

6.110.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_STOP

**plugin network-steering stop**

- *Stops the network steering process.*

Definition at line 3236 of file [cli.doc](#).

## 6.111 Plugin Commands: OTA Bootload

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_BOOTLOAD\_PLUGIN\_OTA\_BOOTLOAD\_INFO

#### 6.111.1 Detailed Description

The OTA Bootload Plugin provides information on the installed bootloader.

#### 6.111.2 Macro Definition Documentation

- 6.111.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_BOOTLOAD\_PLUGIN\_OTA\_BOOTLOAD\_INFO

##### plugin ota-bootload info

- Prints info about the installed bootloader.

Definition at line [3250](#) of file [cli.doc](#).

## 6.112 Plugin Commands: OTA Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_BOOTLOAD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_VERIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_BLOCK\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_PAGE\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_PAUSE\_AT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_UPGRADE\_REQUEST

### 6.112.1 Detailed Description

The OTA Client plugin provides Over-the-air commands for upgrading firmware and downloading specific files on the client side.

### 6.112.2 Macro Definition Documentation

#### 6.112.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_BOOTLOAD

##### plugin ota-client bootload [index:1]

- *Bootloads the image at the specified index by calling the OTA bootload callback.*
  - index - INT8U - The index at which to begin bootloading the image

Definition at line 3266 of file [cli.doc](#).

#### 6.112.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_VERIFY

##### plugin ota-client verify [index:1]

- *Perform signature verification on the image at the specified index*

- index - INT8U - The index at which to begin verification of the image

Definition at line 3272 of file [cli.doc](#).

**6.112.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_INFO**

#### **plugin ota-client info**

- Prints the manufacturer ID, Image Type ID, and Version information that are used when a query next image is sent to the server by the client

Definition at line 3277 of file [cli.doc](#).

**6.112.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_START**

#### **plugin ota-client start**

- Starts the ota client state machine. The state machine discovers the OTA server, queries for new images, downloads the images and waits for the server command to upgrade

Definition at line 3282 of file [cli.doc](#).

**6.112.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_STOP**

#### **plugin ota-client stop**

- Stops the OTA state machine

Definition at line 3287 of file [cli.doc](#).

**6.112.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_STATUS**

#### **plugin ota-client status**

- Prints information on the current state of the OTA client download.

Definition at line 3292 of file [cli.doc](#).

**6.112.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_BLOCK\_TEST**

#### **plugin ota-client block-test**

- Sends an image block request for a file the server should not have. Test harness only (test case 9.5.6 - Missing File)

Definition at line 3297 of file [cli.doc](#).

6.112.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_PAGE\_REQUEST

**plugin ota-client page-request [pageRequest:1]**

- pageRequest - INT8U - boolean value turning on (1) or off (0) the page request flag

Definition at line [3303](#) of file [cli.doc](#).

6.112.2.9 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_PAUSE\_AT

**plugin ota-client pause-at [stopDownloadPercentage:1]**

- stopDownloadPercentage - INT8U

Definition at line [3309](#) of file [cli.doc](#).

6.112.2.10 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_UPGRADE\_REQUEST

**plugin ota-client upgrade-request**

- *Send an OTA server an UpgradeEndRequest*

Definition at line [3314](#) of file [cli.doc](#).

## 6.113 Plugin Commands: OTA Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_NOTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_UPGRADE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_QUERY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_UPGRADE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PAGE\_REQ\_MISS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PAGE\_REQ\_SUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_BLOCK\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_IMAGE\_REQ\_MIN\_PERIOD

### 6.113.1 Detailed Description

The OTA Server plugin provides Over-the-air commands for upgrading firmware and downloading specific files on the server side.

### 6.113.2 Macro Definition Documentation

#### 6.113.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_NOTIFY

**plugin ota-server notify [destination:2] [endpoint:1] [payloadType:1] [jitter:1] [manuf-id:2] [image-TypeId:2] [version:4]**

- Sends an OTA Image Notify message to the specified destination indicating a new version of an image is available for download.
  - destination - INT16U - The node ID (can be a broadcast address) to which this OTA Notify message should be sent
  - endpoint - INT8U - Target endpoint for the OTA Notify message (only really meaningful for non-broadcast target destination).
  - payloadType - INT8U - Used to specify which parameters you want included in the OTA Notify cluster command payload (0 = jitter value only; 1 = jitter and manufacturer id; 2 = jitter, mfr id, and device id; 3 = jitter, mfr id, device id, and firmware version)
  - jitter - INT8U - Corresponds to QueryJitter parameter in the OTA Upgrade cluster specification. The parameter indicates whether the client receiving Image Notify Command should send in Query Next Image Request command or not.

- manuf-id - INT16U - Manufacturer ID for the image being advertised (should match the mfr ID in the OTA file's header)
- imageTypeId - INT16U - Image type ID for the image being advertised (should match the image type ID from the OTA file's header)
- version - INT32U - Firmware version of the image being advertised (should match the version from the OTA file's header)

Definition at line [3336](#) of file `cli.doc`.

#### **6.113.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_UPGRADE**

**plugin ota-server upgrade [nodeId:2] [endpoint:1] [mfrId:2] [imageType:2] [fileVersion:4]**

- *Instruct a device to upgrade now.*
  - nodeId - INT16U - Short destination to send message
  - endpoint - INT8U - Endpoint destination to send message
  - mfrId - INT16U - Manufacturer ID for the image (0xFFFF for wildcard)
  - imageType - INT16U - Image type for the image (0xFFFF for wildcard)
  - fileVersion - INT32U - File version for the image (0xFFFFFFFF for wildcard)

Definition at line [3346](#) of file `cli.doc`.

#### **6.113.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PRINT**

**plugin ota-server policy print**

- *Prints the policies used by the OTA Server Policy Plugin*

Definition at line [3351](#) of file `cli.doc`.

#### **6.113.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_QUERY**

**plugin ota-server policy query [policyValue:1]**

- *Sets the policy used by the OTA Server Policy Plugin when it receives a query request from the client.*
  - policyValue - INT8U - 0: Upgrade if server has newer (default), 1: Downgrade if server has older, 2: Reinstall if server has same, 3: No next version (no next image is available for download)

Definition at line [3357](#) of file `cli.doc`.

**6.113.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_-  
POLICY\_UPGRADE**

**plugin ota-server policy upgrade [policyValue:1]**

- Sets the policy used by the OTA Server Policy Plugin when it receives an upgrade end request
  - policyValue - INT8U - 0: Upgrade Now (default), 1: Upgrade in 2 minutes, 2: Ask me later to upgrade, 3: Abort Upgrade (send default response)

Definition at line [3363](#) of file [cli.doc](#).

**6.113.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_-  
POLICY\_PAGE\_REQ\_MISS**

**plugin ota-server policy page-req-miss [policyValue:1]**

- – policyValue - INT8U - 0: Upgrade if server has newer (default), 1: Downgrade if server has older, 2: Reinstall if server has same, 3: No next version (no next image is available for download)

Definition at line [3369](#) of file [cli.doc](#).

**6.113.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_-  
POLICY\_PAGE\_REQ\_SUP**

**plugin ota-server policy page-req-sup [policyValue:1]**

- – policyValue - INT8U - 0: Upgrade if server has newer (default), 1: Downgrade if server has older, 2: Reinstall if server has same, 3: No next version (no next image is available for download)

Definition at line [3375](#) of file [cli.doc](#).

**6.113.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_-  
POLICY\_BLOCK\_REQUEST**

**plugin ota-server policy blockRequest [policyValue:1]**

- Sets the policy used by the ota-server Policy Plugin when it receives an image block request.
  - policyValue - INT8U - 0: Send block (default), 1: Delay download once for 2 minutes, 2: Always abort download after first block

Definition at line [3381](#) of file [cli.doc](#).

```
6.113.2.9 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_OTA_SERVER_PLUGIN_OTA_SERVER_-  
POLICY_IMAGE_REQ_MIN_PERIOD
```

**plugin ota-server policy image-req-min-period [period:2]**

- – period - INT16U - The minimum request period in seconds.

Definition at line [3387](#) of file [cli.doc](#).

## 6.114 Plugin Commands: OTA Simple Storage EEPROM

These commands are specific to the OTA Simple Storage EEPROM plugin.

## 6.115 Plugin Commands: OTA Storage Common

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_P-LUGIN\_OTA\_STORAGE\_COMMON\_PRINT\_IMAGES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_P-LUGIN\_OTA\_STORAGE\_COMMON\_DELETE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_P-LUGIN\_OTA\_STORAGE\_COMMON\_RELOAD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_P-LUGIN\_OTA\_STORAGE\_COMMON\_STORAGE\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_P-LUGIN\_OTA\_STORAGE\_COMMON\_DATA\_PRINT

### 6.115.1 Detailed Description

The OTA Storage Common plugin provides Over-the-air commands for upgrading firmware and downloading specific files common to both server and client.

### 6.115.2 Macro Definition Documentation

#### 6.115.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OT-A\_STORAGE\_COMMON\_PRINT\_IMAGES

##### **plugin ota-storage-common printImages**

- Prints the images.

Definition at line 3428 of file [cli.doc](#).

#### 6.115.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OT-A\_STORAGE\_COMMON\_DELETE

##### **plugin ota-storage-common delete [index:1]**

- Deletes the image at the specified index.
  - index - INT8U - The index at which to begin bootloading the image

Definition at line 3434 of file [cli.doc](#).

#### 6.115.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OT-A\_STORAGE\_COMMON\_RELOAD

##### **plugin ota-storage-common reload**

- Reload the storage device.

Definition at line 3439 of file [cli.doc](#).

6.115.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_STORAGE\_INFO

**plugin ota-storage-common storage-info**

- *Print information about the storage device.*

Definition at line 3444 of file [cli.doc](#).

6.115.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_DATA\_PRINT

**plugin ota-storage-common data-print [index:1] [offset:4]**

- *Print arbitray bytes of the OTA image on disk.*
  - index - INT8U - The index of the image to print its data.
  - offset - INT32U - The offset into the OTA image that will be printed.

Definition at line 3451 of file [cli.doc](#).

## 6.116 Plugin Commands: Partner Link Key Exchange

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PARTNER
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_ALLOW\_PARTNER

#### 6.116.1 Detailed Description

The partner link key exchange plugin contributes CLI commands to the application framework to be used for controlling facets of link key exchanges among partners.

#### 6.116.2 Macro Definition Documentation

6.116.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PARTNER

**plugin partner-link-key-exchange partner [nodeId:2] [endpoint:1]**

- *Initiate partner link key exchange.*
  - nodeId - INT16U - The 2 byte short address of the node
  - endpoint - INT8U - The endpoint of the device with whom ot start cbke.

Definition at line 3469 of file [cli.doc](#).

6.116.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_ALLOW\_PARTNER

**plugin partner-link-key-exchange allow-partner [allowPartner:1]**

- *Set the allow partner flag within the device for Certificate Based Key Exchange*
  - allowPartner - INT8U - Boolean value to allow or disallow partner based key exchange

Definition at line 3475 of file [cli.doc](#).

## 6.117 Plugin Commands: Poll Control Client

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_MODE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_TIMEOUT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_RESPOND
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PRINT

#### 6.117.1 Detailed Description

The poll-control-client plugin contributes CLI commands to the application framework to be used for setting poll control parameters in a local, client context.

#### 6.117.2 Macro Definition Documentation

##### 6.117.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_MODE

###### **plugin poll-control-client mode [mode:1]**

- Set the fast polling mode.
  - mode - BOOLEAN - The fast polling mode.

Definition at line 3492 of file [cli.doc](#).

##### 6.117.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_TIMEOUT

###### **plugin poll-control-client timeout [timeout:2]**

- Set the fast polling timeout.
  - timeout - INT16U - The fast polling timeout.

Definition at line 3498 of file [cli.doc](#).

##### 6.117.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_RESPOND

###### **plugin poll-control-client respond [mode:1]**

- Set the response mode.
  - mode - BOOLEAN - The response mode.

Definition at line 3504 of file [cli.doc](#).

6.117.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POL-L\_CONTROL\_CLIENT\_PRINT

**plugin poll-control-client print**

- *Print the fast polling mode and timeout.*

Definition at line [3509](#) of file [cli.doc](#).

## 6.118 Plugin Commands: Prepayment Server

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_WRITE\_ATTRIBUTE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_VERIFY\_PAYMENT\_MODE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_VERIFY\_ATTRIBUTE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_PUBLISH\_PREPAY\_SNAPSHOT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_INIT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_ADD\_SNAPSHOT\_EVENT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_READ\_DEBT\_LOG
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_READ\_DEBT\_ATTRIBS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_GET\_TOP\_UP\_PERCENT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_CHECK\_CALENDAR
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_GET\_WEEKDAY\_FROM\_UTC
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_SCHED\_DEBT\_REPAY

### 6.118.1 Detailed Description

The prepayment server handles all implemented commands of the prepayment cluster server.

### 6.118.2 Macro Definition Documentation

#### 6.118.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_WRITE\_ATTRIBUTE

**plugin prepayment-server writeAttribute [endpoint:1] [attributeId:2] [attributeType:1] [numBytes:1] [value:4]**

- Write the value of a local prepayment attribute (1-4 byte attribute value supported).
  - endpoint - INT8U - Endpoint whose prepayment attribute is being written.
  - attributeId - INT16U - The attribute ID that should be written.
  - attributeType - INT8U - The attribute type (eg 0x23=U32)
  - numBytes - INT8U - The number of bytes (1-4) of data to write.
  - value - INT32U - The data that should be written to the attribute.

Definition at line 3529 of file [cli.doc](#).

**6.118.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_VERIFY\_PAYMENT\_MODE**

**plugin prepayment-server verifyPaymentMode [endpoint:1] [expectedPaymentModeValue:2]**

- *Verify the payment mode matches an expected payment mode value.*
  - endpoint - INT8U - Metering endpoint whose payment mode value is being queried.
  - expectedPaymentModeValue - INT16U - Expected payment mode value.

Definition at line 3536 of file [cli.doc](#).

**6.118.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_VERIFY\_ATTRIBUTE**

**plugin prepayment-server verifyAttribute [endpoint:1] [attributeId:2] [attributeSize:1] [expectedAttributeValue:4]**

- *Verify the prepayment attribute value matches an expected value.*
  - endpoint - INT8U - Metering endpoint whose payment mode value is being queried.
  - attributeId - INT16U - Attribute ID of the attribute that will be verified.
  - attributeSize - INT8U - Size of the attribute in bytes.
  - expectedAttributeValue - INT32U - Expected payment mode value.

Definition at line 3545 of file [cli.doc](#).

**6.118.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_PUBLISH\_PREPAY\_SNAPSHOT**

**plugin prepayment-server publishPrepaySnapshot [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [snapshotTableIndex:4]**

- *Send the publish prepay snapshot command.*
  - nodeId - INT16U - NodeId of the destination device
  - srcEndpoint - INT8U - The source endpoint of the sending device
  - dstEndpoint - INT8U - The destination endpoint of the receiving device
  - snapshotTableIndex - INT32U - A unique identifier assigned by the device creating the snapshot

Definition at line 3554 of file [cli.doc](#).

**6.118.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_INIT**

**plugin prepayment-server init [endpoint:1]**

- *Initialize the prepayment server and snapshot table.*
  - endpoint - INT8U - Endpoint of the prepayment server.

Definition at line 3560 of file [cli.doc](#).

6.118.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_ADD\_SNAPSHOT\_EVENT

**plugin prepayment-server addSnapshotEvent [endpoint:1] [snapshotCause:4]**

- *Add a snapshot event to the prepayment server.*
  - endpoint - INT8U - Endpoint of the device from which the snapshot will be taken
  - snapshotCause - INT32U - A bitmask indicating the cause of the snapshot

Definition at line [3567](#) of file [cli.doc](#).

6.118.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_READ\_DEBT\_LOG

**plugin prepayment-server readDebtLog [index:1]**

- *Read the values from the debt log from a specified index.*
  - index - INT8U - The index of the debt log to read.

Definition at line [3573](#) of file [cli.doc](#).

6.118.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_READ\_DEBT\_ATTRIBS

**plugin prepayment-server readDebtAttrs [endpoint:1] [index:1]**

- *Read the values from the debt attribute set for a given index (1,2,3).*
  - endpoint - INT8U - The endpoint from which the debt attribute set will be read.
  - index - INT8U - The index of the debt attribute set to read - 1, 2, or 3.

Definition at line [3580](#) of file [cli.doc](#).

6.118.2.9 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_GET\_TOP\_UP\_PERCENT

**plugin prepayment-server getTopUpPercent [endpoint:1] [topUpValue:4]**

- *Determine the total top up percentage required for debt reduction.*
  - endpoint - INT8U - The endpoint from which the debt attribute set will be read.
  - topUpValue - INT32U - The current top up value from which a percentage may be required for debt reduction

Definition at line [3587](#) of file [cli.doc](#).

6.118.2.10 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_CHECK\_CALENDAR

**plugin prepayment-server checkCalendar [utcTime:4]**

- *Check that UTC time and calendar dates can be interchanged correctly.*

- utcTime - INT32U - The UTC time that should be tested.

Definition at line [3593](#) of file [cli.doc](#).

6.118.2.11 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_GET\_WEEKDAY\_FROM\_UTC

**plugin prepayment-server getWeekdayFromUtc [utcTime:4]**

- *Read the day of the week for a given UTC time.*

- utcTime - INT32U - The UTC time that should be converted.

Definition at line [3599](#) of file [cli.doc](#).

6.118.2.12 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_SCHED\_DEBT\_REPAY

**plugin prepayment-server schedDebtRepay [endpoint:1] [issuerEvtId:4] [debtType:1] [collectTime:2] [startTime:4] [collectFreq:1]**

- *Check that debt repayment handling correctly calculates and schedules various attributes.*

- endpoint - INT8U - The endpoint of the prepayment server.
- issuerEvtId - INT32U - The issuer event ID for the debt.
- debtType - INT8U - The type of debt (0,1,2) that will be set.
- collectTime - INT16U - The time in mins from midnight when the debt should be collected.
- startTime - INT32U - The starting UTC time when debt should be collected.
- collectFreq - INT8U - The frequency at which debt should be collected. 0=hourly, 1=daily, 2=weekly, 3=monthly, 4=quarterly.

Definition at line [3610](#) of file [cli.doc](#).

## 6.119 Plugin Commands: Price Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONV\_FACTOR\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CALF\_VALUE\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CO2\_VALUE\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_BILL\_PERIOD\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_PERIOD\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABEL\_PRINT\_TARIFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_TABLE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CPP\_EVENT\_SET\_AUTH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CPP\_EVENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PMT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PMT\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERS\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERS\_PRINT\_CURRENT

### 6.119.1 Detailed Description

The identify plugin contributes a CLI command to the application framework to be used for printing information related to identification.

## 6.119.2 Macro Definition Documentation

6.119.2.1 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_CLIENT_PLUGIN_PRICE_CLIENT_INIT`

**plugin price-client init [endpoint:1]**

- *Initialize the price info for the provided endpoint.*
  - endpoint - INT8U - The relevant endpoint

Definition at line 3626 of file [cli.doc](#).

6.119.2.2 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_CLIENT_PLUGIN_PRICE_CLIENT_PRINT`

**plugin price-client print [endpoint:1]**

- *Print the price info for the provided endpoint.*
  - endpoint - INT8U - The relevant endpoint

Definition at line 3632 of file [cli.doc](#).

6.119.2.3 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_CLIENT_PLUGIN_PRICE_CLIENT_PRINT_EVENT`

**plugin price-client printEvent [endpoint:1] [issuerEventId:4]**

- *Print the price info for the provided endpoint and event ID.*
  - endpoint - INT8U - The relevant endpoint
  - issuerEventId - INT32U - The event ID that should be printed if found in the price table

Definition at line 3639 of file [cli.doc](#).

6.119.2.4 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_CLIENT_PLUGIN_PRICE_CLIENT_CONV_FACTOR_PRINT_EVENT`

**plugin price-client conv-factor printEvent [endpoint:1] [issuerEventId:4]**

- *Prints the conversion factor table entry with a matching event ID.*
  - endpoint - INT8U - The relevant endpoint
  - issuerEventId - INT32U - The event ID that should be printed if found in the conversion factor table

Definition at line 3646 of file [cli.doc](#).

6.119.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CALF\_VALUE\_PRINT\_EVENT

**plugin price-client calf-value printEvent [endpoint:1] [issuerEventId:4]**

- Prints the calorific value table entry with a matching event ID.
  - endpoint - INT8U - The relevant endpoint
  - issuerEventId - INT32U - The event ID that should be printed if found in the calorific value table

Definition at line 3653 of file [cli.doc](#).

6.119.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CO2\_VALUE\_PRINT\_CURRENT

**plugin price-client co2-value printCurrent [endpoint:1]**

- Prints the active CO2 value.
  - endpoint - INT8U - The relevant endpoint

Definition at line 3659 of file [cli.doc](#).

6.119.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_BILL\_PERIOD\_PRINT\_CURRENT

**plugin price-client bill-period printCurrent [endpoint:1]**

- Prints the billing period table entry that is currently active.
  - endpoint - INT8U - The relevant endpoint

Definition at line 3665 of file [cli.doc](#).

6.119.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_PERIOD\_PRINT\_EVENT

**plugin price-client block-period printEvent [endpoint:1] [issuerEventId:4]**

- Prints the entry of the Block Period table with a matching event ID.
  - endpoint - INT8U - The relevant endpoint.
  - issuerEventId - INT32U - The event ID whose information in the block period table should be printed.

Definition at line 3672 of file [cli.doc](#).

6.119.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABEL\_PRINT\_TARIFF

**plugin price-client tier-label printTariff [endpoint:1] [issuerTariffId:4]**

- Prints the tier label table entry with a matching tariff ID.
  - endpoint - INT8U - The relevant endpoint.
  - issuerTariffId - INT32U - The issuer tariff ID that should be looked for in the tier label table

Definition at line 3679 of file [cli.doc](#).

6.119.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_TABLE\_CLEAR

**plugin price-client table-clear [endpoint:1]**

- Clears out the currently set price for the supplied endpoint.
  - endpoint - INT8U - The relevant endpoint

Definition at line 3685 of file [cli.doc](#).

6.119.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT

**plugin price-client consol-bill print [endpoint:1] [index:1]**

- Prints the entry of the consolidated bill table.
  - endpoint - INT8U - The relevant endpoint.
  - index - INT8U - The index of the consolidated bill table that should be printed.

Definition at line 3692 of file [cli.doc](#).

6.119.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT\_CURRENT

**plugin price-client consol-bill printCurrent [endpoint:1]**

- Prints the entry of the active consolidated bill in the consolidated bills table.
  - endpoint - INT8U - The relevant endpoint.

Definition at line 3698 of file [cli.doc](#).

6.119.2.13 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOLE\_BILL\_PRINT\_EVENT

**plugin price-client consol-bill printEvent [endpoint:1] [issuerEventId:4]**

- Prints the entry of the consolidated bill table with a matching event ID.
  - endpoint - INT8U - The relevant endpoint.
  - issuerEventId - INT32U - The event ID whose information in the consolidated bill table should be printed.

Definition at line 3705 of file [cli.doc](#).

6.119.2.14 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CPP\_EVENT\_SET\_AUTH

**plugin price-client cpp-event setAuth [cppEventAuth:1]**

- Sets the authorization status for future CPP events.
  - cppEventAuth - INT8U - The authorization status for future CPP events.

Definition at line 3711 of file [cli.doc](#).

6.119.2.15 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CPP\_EVENT\_PRINT

**plugin price-client cpp-event print [endpoint:1]**

- Prints the entry of the cpp event table.
  - endpoint - INT8U

Definition at line 3717 of file [cli.doc](#).

6.119.2.16 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PMT\_PRINT

**plugin price-client credit-pmt print [endpoint:1] [index:1]**

- Prints the entry of the credit payment table.
  - endpoint - INT8U - The relevant endpoint.
  - index - INT8U - The index of the credit payment table entry that should be printed.

Definition at line 3724 of file [cli.doc](#).

6.119.2.17 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PMT\_PRINT\_EVENT

**plugin price-client credit-pmt printEvent [endpoint:1] [issuerEventId:4]**

- Prints the entry of the credit payment table with a matching issuer event ID.
  - endpoint - INT8U - The relevant endpoint.
  - issuerEventId - INT32U - The issuerEventId of the credit payment table entry that should be printed.

Definition at line 3731 of file [cli.doc](#).

6.119.2.18 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERS\_PRINT\_EVENT

**plugin price-client currency-convers printEvent [endpoint:1] [issuerEventId:4]**

- Prints the entry of the currency conversion table with a matching issuer event ID.
  - endpoint - INT8U - The relevant endpoint.
  - issuerEventId - INT32U - The issuerEventId of the currency conversion table entry that should be printed.

Definition at line 3738 of file [cli.doc](#).

6.119.2.19 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERS\_PRINT\_CURRENT

**plugin price-client currency-convers printCurrent [endpoint:1]**

- Prints the active entry of the currency conversion table.
  - endpoint - INT8U - The relevant endpoint.

Definition at line 3744 of file [cli.doc](#).

## 6.120 Plugin Commands: Price Common

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_COMMON\_PLUGIN\_PRICE\_COMMON\_ADJ\_ST\_T
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_COMMON\_PLUGIN\_PRICE\_COMMON\_CNVRT\_DURN\_TO\_SEC

#### 6.120.1 Detailed Description

Utility functions common to both Price Client / Server.

#### 6.120.2 Macro Definition Documentation

6.120.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_COMMON\_PLUGIN\_PRICE\_COMMON\_ADJ\_ST\_T

**plugin price-common adj-st-t [startTimeUtc:4] [durationType:1]**

- *Calculates a new UTC start time value based on the duration type parameter.*
  - startTimeUtc - INT32U
  - durationType - INT8U

Definition at line 3760 of file [cli.doc](#).

6.120.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_COMMON\_PLUGIN\_PRICE\_COMMON\_CNVRT\_DURN\_TO\_SEC

**plugin price-common cnvrt-durn-to-sec [startTimeUtc:4] [duration:4] [durationType:1]**

- *Converts the duration to a number of seconds based on the duration type parameter.*
  - startTimeUtc - INT32U
  - duration - INT32U
  - durationType - INT8U

Definition at line 3768 of file [cli.doc](#).

## 6.121 Plugin Commands: Price Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHEN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PRICE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_ALTERNATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_ACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_VALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_INVALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_SPRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PUBLISH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PUB\_TARIFF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_PUB

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_ADD\_LABEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_REPEAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PMT\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PMT\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CURRENCY\_CONV\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CURRENCY\_CONV\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TARIFF\_CANCEL\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TARIFF\_CANCEL\_PUB

### 6.121.1 Detailed Description

The identify plugin contributes a CLI command to the application framework to be used for printing information related to identification.

### 6.121.2 Macro Definition Documentation

6.121.2.1 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_SERVER_PLUGIN_PRICE_SERVER_INIT`

#### **plugin price-server init [endpoint:1]**

- *Initialize the price info for the provided endpoint.*
  - endpoint - INT8U - The relevant endpoint

Definition at line [3784](#) of file [cli.doc](#).

6.121.2.2 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_SERVER_PLUGIN_PRICE_SERVER_PRINT`

#### **plugin price-server print [endpoint:1]**

- *Print the price info for the provided endpoint.*
  - endpoint - INT8U - The relevant endpoint

Definition at line [3790](#) of file [cli.doc](#).

6.121.2.3 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_SERVER_PLUGIN_PRICE_SERVER_CLEAR`

#### **plugin price-server clear [endpoint:1]**

- *Clears out the currently set price for the supplied endpoint.*
  - endpoint - INT8U - The relevant endpoint

Definition at line [3820](#) of file [cli.doc](#).

6.121.2.4 `#define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_PRICE_SERVER_PLUGIN_PRICE_SERVER_WHO`

#### **plugin price-server who [provId:4] [label:-1] [eventId:4]**

- *Sets identifying information about the price.*
  - provId - INT32U - provider id
  - label - OCTET\_STRING - rate label
  - eventId - INT32U - issuer event id

Definition at line [3852](#) of file [cli.doc](#).

6.121.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHAT

**plugin price-server what [unitOfMeas:1] [curr:2] [ptd:1] [prt:1] [bt:1]**

- *Indicates what units the price is presented in.*

- unitOfMeas - INT8U - unit of measure
- curr - INT16U - currency
- ptd - INT8U - price trailing digit and tier
- prt - INT8U - number of price tiers and tier
- bt - INT8U - number of block thresholds

Definition at line 3873 of file [cli.doc](#).

6.121.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHEN

**plugin price-server when [startTime:4] [duration:2]**

- *Sets start time and duration for the price.*

- startTime - UTC\_TIME
- duration - INT16U

Definition at line 3894 of file [cli.doc](#).

6.121.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PRICE

**plugin price-server price [price:4] [ratio:1] [genPrice:4] [genRatio:1]**

- *Set the single price held within the price plugin server*

- price - INT32U - price
- ratio - INT8U - ratio
- genPrice - INT32U - generation price
- genRatio - INT8U - generation price ratio

Definition at line 3911 of file [cli.doc](#).

6.121.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_ALTERNATE

**plugin price-server alternate [alternateCostDelivered:4] [alternateCostUnit:1] [alternateCostTrailing-Digit:1]**

- *Set the alternate values for the price.*

- alternateCostDelivered - INT32U - alternate cost delivered
- alternateCostUnit - INT8U - alternate cost unit
- alternateCostTrailingDigit - INT8U - alternate cost trailing digit

Definition at line [3929](#) of file [cli.doc](#).

**6.121.2.9 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_ACK**

#### **plugin price-server ack [req:1]**

- *Turn price acknowledgement on or off depending on passed bool value.*
  - req - INT8U - bool acknowledgement required

Definition at line [3935](#) of file [cli.doc](#).

**6.121.2.10 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_VALID**

#### **plugin price-server valid [endpoint:1] [index:1]**

- *Make a price at a given index valid.*
  - endpoint - INT8U - the relevant endpoint
  - index - INT8U - index in the price table

Definition at line [3942](#) of file [cli.doc](#).

**6.121.2.11 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_INVALID**

#### **plugin price-server invalid [endpoint:1] [index:1]**

- *Make a price at a given index invalid.*
  - endpoint - INT8U - the relevant endpoint
  - index - INT8U - index in the price table

Definition at line [3949](#) of file [cli.doc](#).

**6.121.2.12 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_GET**

#### **plugin price-server get [endpoint:1] [index:1]**

- *Retrieve a price from a given index into the price buffer for editing.*
  - endpoint - INT8U - the relevant endpoint
  - index - INT8U - index of the price to retrieve

Definition at line [3984](#) of file [cli.doc](#).

6.121.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_SPRINT

**plugin price-server sprint [endpoint:1]**

- Print the contents of the price buffer for the provided endpoint.

- endpoint - INT8U - the relevant endpoint

Definition at line 3999 of file [cli.doc](#).

6.121.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PUBLISH

**plugin price-server publish [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [priceIndex:1]**

- Publish the current price.

- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- priceIndex - INT8U - index of the price to publish

Definition at line 4015 of file [cli.doc](#).

6.121.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PUB\_TARIFF\_INFO

**plugin price-server pub-tariff-info [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [tariffIndex:1]**

- Publish the tariff info.

- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- tariffIndex - INT8U - index of the tariff to publish

Definition at line 4024 of file [cli.doc](#).

6.121.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_ADD

**plugin price-server conversion-factor add [endpoint:1] [issuerEventId:4] [startTime:4] [conversionFactor:4] [conversionFactorTrailingDigit:1]**

- Set the conversion factor information in the conversion factor table.

- endpoint - INT8U
- issuerEventId - INT32U

- startTime - UTC\_TIME
- conversionFactor - INT32U
- conversionFactorTrailingDigit - INT8U

Definition at line 4217 of file [cli.doc](#).

**6.121.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_CLEAR**

**plugin price-server conversion-factor clear [endpoint:1]**

- *Clear conversion factor table.*
  - endpoint - INT8U

Definition at line 4223 of file [cli.doc](#).

**6.121.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_PRINT**

**plugin price-server conversion-factor print [endpoint:1]**

- *Print out conversion factor table.*
  - endpoint - INT8U

Definition at line 4229 of file [cli.doc](#).

**6.121.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_PUB**

**plugin price-server conversion-factor pub [tableIndex:1] [server:2] [clientEndpoint:1] [serverEndpoint:1]**

- *publish specified conversion factor entry*
  - tableIndex - INT8U - The network address of the server to which the request will be sent.
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.

Definition at line 4238 of file [cli.doc](#).

**6.121.2.20 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_ADD**

**plugin price-server calorific-value add [endpoint:1] [issuerEventId:4] [startTime:4] [calorificValue:4] [calorificValueUnit:1] [calorificValueTrailingDigit:1]**

- Set the calorific value in table.

- endpoint - INT8U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- calorificValue - INT32U
- calorificValueUnit - INT8U
- calorificValueTrailingDigit - INT8U

Definition at line 4249 of file [cli.doc](#).

**6.121.2.21 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_CLEAR**

**plugin price-server calorific-value clear [endpoint:1]**

- Clear the table.

- endpoint - INT8U

Definition at line 4255 of file [cli.doc](#).

**6.121.2.22 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_PRINT**

**plugin price-server block-period print [endpoint:1] [index:1]**

- Print the block period table.

- endpoint - INT8U
- index - INT8U

Definition at line 4262 of file [cli.doc](#).

**6.121.2.23 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_ADD**

**plugin price-server block-period add [endpoint:1] [providerId:4] [issuerEventId:4] [blockPeriodStartTime:4] [blockPeriodDuration:4] [blockPeriodControl:1] [blockPeriodDurationType:1] [thresholdMultiplier:4] [thresholdDivisor:4] [tariffType:1] [tariffResolutionPeriod:1]**

- Set the block period value in the table.

- endpoint - INT8U
- providerId - INT32U
- issuerEventId - INT32U
- blockPeriodStartTime - INT32U
- blockPeriodDuration - INT32U

- blockPeriodControl - INT8U
- blockPeriodDurationType - INT8U
- thresholdMultiplier - INT32U
- thresholdDivisor - INT32U
- tariffType - INT8U
- tariffResolutionPeriod - INT8U

Definition at line 4278 of file [cli.doc](#).

**6.121.2.24 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_PUB**

**plugin price-server block-period pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [index:1]**

- Sends a Publish Block Period command.

  - nodeId - INT16U
  - srcEndpoint - INT8U
  - dstEndpoint - INT8U
  - index - INT8U

Definition at line 4287 of file [cli.doc](#).

**6.121.2.25 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_CLEAR**

**plugin price-server block-period clear [endpoint:1]**

- Clears the local Block Period table.

  - endpoint - INT8U

Definition at line 4293 of file [cli.doc](#).

**6.121.2.26 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_PRINT**

**plugin price-server calorific-value print [endpoint:1]**

- Print out the table.

  - endpoint - INT8U

Definition at line 4299 of file [cli.doc](#).

6.121.2.27 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_ADD

**plugin price-server co2-val add [endpoint:1] [issuerEventId:4] [startTime:4] [providerId:4] [tariffType:1] [co2Value:4] [co2ValueUnit:1] [co2ValueTrailingDigit:1]**

- Set the CO2 value in table.

- endpoint - INT8U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- providerId - INT32U
- tariffType - INT8U
- co2Value - INT32U
- co2ValueUnit - INT8U
- co2ValueTrailingDigit - INT8U

Definition at line 4312 of file [cli.doc](#).

6.121.2.28 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_CLEAR

**plugin price-server co2-val clear [endpoint:1]**

- Clear the table.

- endpoint - INT8U

Definition at line 4318 of file [cli.doc](#).

6.121.2.29 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_PRINT

**plugin price-server co2-val print [endpoint:1]**

- Print out the table.

- endpoint - INT8U

Definition at line 4324 of file [cli.doc](#).

6.121.2.30 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_PUB

**plugin price-server co2-val pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [tariffIndex:1]**

- Publish table entry.

- nodeId - INT16U - the destination node id

- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- tariffIndex - INT8U - index of the tariff to publish

Definition at line 4333 of file [cli.doc](#).

**6.121.2.31 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_SET**

**plugin price-server tier-label set [endpoint:1] [index:1] [valid:1] [providerId:4] [issuerEventId:4] [issuerTariffId:4] [tierId:1] [tierLabel:-1]**

- *Set specific info for tier label*
  - endpoint - INT8U
  - index - INT8U
  - valid - INT8U
  - providerId - INT32U
  - issuerEventId - INT32U
  - issuerTariffId - INT32U
  - tierId - INT8U
  - tierLabel - OCTET\_STRING

Definition at line 4346 of file [cli.doc](#).

**6.121.2.32 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_ADD\_LABEL**

**plugin price-server tier-label add-label [endpoint:1] [issuerTariffId:4] [tierId:1] [tierLabel:-1]**

- *Add additional tier labels to a given tier.*
  - endpoint - INT8U
  - issuerTariffId - INT32U
  - tierId - INT8U
  - tierLabel - OCTET\_STRING

Definition at line 4355 of file [cli.doc](#).

**6.121.2.33 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_PRINT**

**plugin price-server tier-label print [endpoint:1]**

- *Print out the table.*
  - endpoint - INT8U

Definition at line 4361 of file [cli.doc](#).

6.121.2.34 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_PUB

**plugin price-server tier-label pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [tariffIndex:1]**

- *Publish the table.*

- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- tariffIndex - INT8U - index of the tariff to publish

Definition at line 4370 of file [cli.doc](#).

6.121.2.35 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_ADD

**plugin price-server billing-period add [endpoint:1] [startTime:4] [issuerEventId:4] [providerId:4] [billingPeriodDuration:4] [billingPeriodDurationType:1] [tariffType :1]**

- *Set specific info for billing period*
- endpoint - INT8U
- startTime - UTC\_TIME
- issuerEventId - INT32U
- providerId - INT32U
- billingPeriodDuration - INT32U
- billingPeriodDurationType - INT8U
- tariffType - INT8U

Definition at line 4382 of file [cli.doc](#).

6.121.2.36 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_PRINT

**plugin price-server billing-period print [endpoint:1]**

- *Print out the table.*
- endpoint - INT8U

Definition at line 4388 of file [cli.doc](#).

6.121.2.37 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_PUB

**plugin price-server billing-period pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [index:1]**

- *Publish billing period entry.*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - index - INT8U - index of the billing period entry to publish

Definition at line 4397 of file [cli.doc](#).

6.121.2.38 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_REPEAT

**plugin price-server billing-period repeat [repeat:1]**

- *Set whether or not a billing period should repeat after it finishes. Per the SE spec, the billing period is supposed to repeat, but this command can be used to turn that feature off for debugging.*
  - repeat - INT8U - Whether or not a billing period should repeat. 0 can be passed to stop all billing periods from repeating.

Definition at line 4403 of file [cli.doc](#).

6.121.2.39 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_ADD

**plugin price-server consol-bill add [endpoint:1] [startTime:4] [issuerEventId:4] [providerId:4] [billingPeriodDuration:4] [billingPeriodDurationType:1] [tariffType :1] [consolidatedBill:4] [currency:2] [billTrailingDigit:1]**

- *Set specific info for consolidated bill*
  - endpoint - INT8U
  - startTime - UTC\_TIME
  - issuerEventId - INT32U
  - providerId - INT32U
  - billingPeriodDuration - INT32U
  - billingPeriodDurationType - INT8U
  - tariffType - INT8U
  - consolidatedBill - INT32U
  - currency - INT16U
  - billTrailingDigit - INT8U

Definition at line 4418 of file [cli.doc](#).

6.121.2.40 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_PRINT

**plugin price-server consol-bill print [endpoint:1] [index:1]**

- Print out the consolidated bills table.

- endpoint - INT8U
- index - INT8U

Definition at line 4425 of file [cli.doc](#).

6.121.2.41 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_PUB

**plugin price-server consol-bill pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [index:1]**

- Publish billing period entry.

- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- index - INT8U - index of the consolidated bill entry to publish

Definition at line 4434 of file [cli.doc](#).

6.121.2.42 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_SET

**plugin price-server cpp-event set [endpoint:1] [valid:1] [providerId:4] [issuerEventId:4] [startTime:4] [durationInMins:2] [tariffType:1] [cppPriceTier:1] [cppAuth:1]**

- Configure values for a CPP event.

- endpoint - INT8U
- valid - INT8U
- providerId - INT32U
- issuerEventId - INT32U
- startTime - INT32U
- durationInMins - INT16U
- tariffType - INT8U
- cppPriceTier - INT8U
- cppAuth - INT8U

Definition at line 4448 of file [cli.doc](#).

6.121.2.43 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_PUB

**plugin price-server cpp-event pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1]**

- Publish a CPP event command using the configured values for the CPP event.

- nodeId - INT16U
- srcEndpoint - INT8U
- dstEndpoint - INT8U

Definition at line 4456 of file [cli.doc](#).

6.121.2.44 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_PRINT

**plugin price-server cpp-event print [endpoint:1]**

- Print the current CPP event values.
- endpoint - INT8U

Definition at line 4462 of file [cli.doc](#).

6.121.2.45 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PMT\_PUB

**plugin price-server credit-pmt pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [index:1]**

- Publish Credit Payment command.
- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint
- index - INT8U - index of the credit payment table entry to publish

Definition at line 4471 of file [cli.doc](#).

6.121.2.46 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PMT\_SET

**plugin price-server credit-pmt set [endpoint:1] [index:1] [valid:1] [providerId:4] [issuerEventId:4] [creditPaymentDueDate:4] [creditPaymentOverdueAmount:4] [creditPaymentStatus:1] [creditPayment:4] [creditPaymentDate:4] [creditPaymentRef:-1]**

- Set specific info for credit payment
- endpoint - INT8U
- index - INT8U

- valid - INT8U
- providerId - INT32U
- issuerEventId - INT32U
- creditPaymentDueDate - UTC\_TIME
- creditPaymentOverdueAmount - INT32U
- creditPaymentStatus - INT8U
- creditPayment - INT32U
- creditPaymentDate - UTC\_TIME
- creditPaymentRef - OCTET\_STRING

Definition at line 4487 of file [cli.doc](#).

**6.121.2.47 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CURRENCY\_CONV\_PUB**

**plugin price-server currency-conv pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1]**

- Publish the currency conversion command.

- nodeId - INT16U - the destination node id
- srcEndpoint - INT8U - the source endpoint
- dstEndpoint - INT8U - the destination endpoint

Definition at line 4495 of file [cli.doc](#).

**6.121.2.48 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CURRENCY\_CONV\_SET**

**plugin price-server currency-conv set [endpoint:1] [valid:1] [providerId:4] [issuerEventId:4] [startTime:4] [oldCurrency:2] [newCurrency:2] [conversionFactor:4] [conversionFactorTrailingDigit:1] [currencyChangeControlFlags:4]**

- Configure the currency conversion settings.

- endpoint - INT8U
- valid - INT8U
- providerId - INT32U
- issuerEventId - INT32U
- startTime - UTC\_TIME
- oldCurrency - INT16U
- newCurrency - INT16U
- conversionFactor - INT32U
- conversionFactorTrailingDigit - INT8U
- currencyChangeControlFlags - INT32U

Definition at line 4510 of file [cli.doc](#).

**6.121.2.49 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TARIFF\_CANCEL\_SET**

**plugin price-server tariff-cancel set [endpoint:1] [valid:1] [providerId:4] [issuerTariffId:4] [tariffType:1]**

- Set the values of the Tariff Cancellation structure.
  - endpoint - INT8U
  - valid - INT8U
  - providerId - INT32U
  - issuerTariffId - INT32U
  - tariffType - INT8U

Definition at line 4520 of file [cli.doc](#).

**6.121.2.50 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TARIFF\_CANCEL\_PUB**

**plugin price-server tariff-cancel pub [nodeId:2] [srcEndpoint:1] [dstEndpoint:1]**

- Send a Tariff Cancellation command using the values of the Tariff Cancellation structure.
  - nodeId - INT16U
  - srcEndpoint - INT8U
  - dstEndpoint - INT8U

Definition at line 4528 of file [cli.doc](#).

## 6.122 Plugin Commands: RF4CE Multiple System Operators IR-RF Database Originator

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_PRESSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_REPEATED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_RELEASED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_CLEAR\_ALL

### 6.122.1 Detailed Description

The RF4CE MSO IR-RF Database Originator plugin contributes several commands to the application framework's CLI.

### 6.122.2 Macro Definition Documentation

#### 6.122.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_FLAGS

**plugin rf4ce-mso-ir-rf-database-originator set-flags [flags:1]**

- Set the flags of the IR-RF database element.
  - flags - INT8U - The flags.

Definition at line 4544 of file [cli.doc](#).

#### 6.122.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_PRESSED

**plugin rf4ce-mso-ir-rf-database-originator set-pressed [rfConfig:1] [txOptions:1] [payload:-1]**

- Set the RF pressed descriptor of the IR-RF database element.

- rfConfig - INT8U - The RF config.
- txOptions - INT8U - The TX options.
- payload - OCTET\_STRING - The payload.

Definition at line 4552 of file [cli.doc](#).

**6.122.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_REPEATED**

**plugin rf4ce-mso-ir-rf-database-originator set-repeated [rfConfig:1] [txOptions:1] [payload:-1]**

- Set the RF repeated descriptor of the IR-RF database element.
  - rfConfig - INT8U - The RF config.
  - txOptions - INT8U - The TX options.
  - payload - OCTET\_STRING - The payload.

Definition at line 4560 of file [cli.doc](#).

**6.122.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_RELEASED**

**plugin rf4ce-mso-ir-rf-database-originator set-released [rfConfig:1] [txOptions:1] [payload:-1]**

- Set the RF released descriptor of the IR-RF database element.
  - rfConfig - INT8U - The RF config.
  - txOptions - INT8U - The TX options.
  - payload - OCTET\_STRING - The payload.

Definition at line 4568 of file [cli.doc](#).

**6.122.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_IR**

**plugin rf4ce-mso-ir-rf-database-originator set-ir [irConfig:1] [irCode:-1]**

- Set the IR descriptor of the IR-RF database element.
  - irConfig - INT8U - The IR config.
  - irCode - OCTET\_STRING - The IR code.

Definition at line 4575 of file [cli.doc](#).

```
6.122.2.6 #define EMBER_AF_DDOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_ORIGINATOR_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_ORIGINATOR_SET
```

**plugin rf4ce-mso-ir-rf-database-originator set [keyCode:1]**

- Set the IR-RF database element.
  - keyCode - INT8U - The key code.

Definition at line [4581](#) of file [cli.doc](#).

```
6.122.2.7 #define EMBER_AF_DDOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_ORIGINATOR_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_ORIGINATOR_CLEAR
```

**plugin rf4ce-mso-ir-rf-database-originator clear [keyCode:1]**

- Clear the IR-RF database element.
  - keyCode - INT8U - The key code.

Definition at line [4587](#) of file [cli.doc](#).

```
6.122.2.8 #define EMBER_AF_DDOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_ORIGINATOR_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_ORIGINATOR_CLEAR_ALL
```

**plugin rf4ce-mso-ir-rf-database-originator clear-all**

- Clear all IR-RF database elements.

Definition at line [4592](#) of file [cli.doc](#).

## 6.123 Plugin Commands: RF4CE Multiple System Operators IR-RF Database Recipient

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_FLAGS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_PRESSED
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_REPEATED
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_RELEASED
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_IR
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_REMOVE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_REMOVE\_ALL
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_GET\_CALLBACK

### 6.123.1 Detailed Description

The RF4CE MSO IR-RF Database Recipient plugin contributes several commands to the application framework's CLI.

### 6.123.2 Macro Definition Documentation

#### 6.123.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_FLAGS

**plugin rf4ce-mso-ir-rf-database-recipient add-flags [flags:1]**

- Add the flags of the IR-RF database element.
  - flags - INT8U - The flags.

Definition at line 4608 of file [cli.doc](#).

#### 6.123.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_PRESSED

**plugin rf4ce-mso-ir-rf-database-recipient add-pressed [rfConfig:1] [txOptions:1] [payload:-1]**

- Add the RF pressed descriptor of the IR-RF database element.
  - rfConfig - INT8U - The RF config.

- txOptions - INT8U - The TX options.
- payload - OCTET\_STRING - The payload.

Definition at line 4616 of file [cli.doc](#).

**6.123.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_REPEATED**

**plugin rf4ce-mso-ir-rf-database-recipient add-repeated [rfConfig:1] [txOptions:1] [payload:-1]**

- Add the RF repeated descriptor of the IR-RF database element.
  - rfConfig - INT8U - The RF config.
  - txOptions - INT8U - The TX options.
  - payload - OCTET\_STRING - The payload.

Definition at line 4624 of file [cli.doc](#).

**6.123.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_RELEASED**

**plugin rf4ce-mso-ir-rf-database-recipient add-released [rfConfig:1] [txOptions:1] [payload:-1]**

- Add the RF released descriptor of the IR-RF database element.
  - rfConfig - INT8U - The RF config.
  - txOptions - INT8U - The TX options.
  - payload - OCTET\_STRING - The payload.

Definition at line 4632 of file [cli.doc](#).

**6.123.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD\_IR**

**plugin rf4ce-mso-ir-rf-database-recipient add-ir [irConfig:1] [irCode:-1]**

- Add the IR descriptor of the IR-RF database element.
  - irConfig - INT8U - The IR config.
  - irCode - OCTET\_STRING - The IR code.

Definition at line 4639 of file [cli.doc](#).

**6.123.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RECIPIENT\_ADD**

**plugin rf4ce-mso-ir-rf-database-recipient add [keyCode:1]**

- Add the IR-RF database element.
  - keyCode - INT8U - The key code.

Definition at line 4645 of file [cli.doc](#).

```
6.123.2.7 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_REMOVE
```

**plugin rf4ce-mso-ir-rf-database-recipient remove [keyCode:1]**

- Remove the IR-RF database element.

- keyCode - INT8U - The key code.

Definition at line [4651](#) of file [cli.doc](#).

```
6.123.2.8 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_REMOVE_ALL
```

**plugin rf4ce-mso-ir-rf-database-recipient remove-all**

- Remove all IR-RF database elements.

Definition at line [4656](#) of file [cli.doc](#).

```
6.123.2.9 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_PLUGIN_RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_GET_CALLBACK
```

**plugin rf4ce-mso-ir-rf-database-recipient get-callback [keyCode:1]**

- Call the Get Callback and print out IR-RF database element.

- keyCode - INT8U - The key code.

Definition at line [4662](#) of file [cli.doc](#).

## 6.124 Plugin Commands: RF4CE Multiple System Operators Profile

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_VALIDATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_TERMINATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_ABORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_PRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_RELEASE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_GET

### 6.124.1 Detailed Description

The RF4CE MSO plugin contributes several commands to the application framework's CLI. These commands are used for sending HDMI UI commands.

### 6.124.2 Macro Definition Documentation

#### 6.124.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_BIND

##### plugin rf4ce-mso bind

- Start the MSO binding procedure.

Definition at line 4677 of file [cli.doc](#).

#### 6.124.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_VALIDATE

##### plugin rf4ce-mso validate

- Validate a controller.

Definition at line 4682 of file [cli.doc](#).

6.124.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_TERMINATE

**plugin rf4ce-mso terminate**

- *Terminate the validation procedure.*

Definition at line 4687 of file [cli.doc](#).

6.124.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_ABORT

**plugin rf4ce-mso abort [full:1]**

- *Abort the validation procedure.*
  - full - BOOLEAN - TRUE for a full abort or FALSE otherwise.

Definition at line 4693 of file [cli.doc](#).

6.124.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_PRESS

**plugin rf4ce-mso press [pairingIndex:1] [rcCommandCode:1] [rcCommandPayload:-1] [atomic:1]**

- *Send User Control Pressed command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - rcCommandCode - INT8U - The HDMI CEC operand [UI Command].
  - rcCommandPayload - OCTET\_STRING - The additional operands, if any, required by the HDMI CEC command.
  - atomic - BOOLEAN - TRUE if the user control is atomic or FALSE if it should repeat.

Definition at line 4702 of file [cli.doc](#).

6.124.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_RELEASE

**plugin rf4ce-mso release [pairingIndex:1] [rcCommandCode:1]**

- *Send User Control Released command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - rcCommandCode - INT8U - The HDMI CEC operand [UI Command].

Definition at line 4709 of file [cli.doc](#).

6.124.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_SET  
plugin rf4ce-mso set [pairingIndex:1] [attributeId:1] [index:1] [value:-1]

- *Send Set Attribute Request command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - attributeId - INT8U - The attribute id to store.
  - index - INT8U - The index of the element to store.
  - value - OCTET\_STRING - The value of the attribute element to store.

Definition at line 4718 of file [cli.doc](#).

6.124.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_GET  
plugin rf4ce-mso get [pairingIndex:1] [attributeId:1] [index:1] [valueLen:1]

- *Send Get Attribute Request command.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - attributeId - INT8U - The attribute id to retrieve.
  - index - INT8U - The index of the element to retrieve.
  - valueLen - INT8U - The length of the attribute element to retrieve.

Definition at line 4727 of file [cli.doc](#).

## 6.125 Plugin Commands: RF4CE Profile

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_PAIR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_VENDOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_UNPAIR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_RX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_AGILITY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_LQI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_PRINT

### 6.125.1 Detailed Description

The RF4CE Profile plugin contributes several commands to the application framework's CLI. These commands are used for sending and receiving RF4CE profile message.

### 6.125.2 Macro Definition Documentation

#### 6.125.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_START

##### **plugin rf4ce-profile start**

- Start an RF4CE network.

Definition at line 4743 of file [cli.doc](#).

#### 6.125.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_STOP

##### **plugin rf4ce-profile stop**

- Stop the network operations of an RF4CE network.

Definition at line 4748 of file [cli.doc](#).

6.125.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_PAIR

**plugin rf4ce-profile pair [channel:1] [panId:2] [eui64:8] [keyExchangeTransferCount:1]**

- *Initiate the pairing process.*
  - channel - INT8U - The logical channel of the device with which to pair.
  - panId - INT16U - The PAN identifier of the device with which to pair.
  - eui64 - IEEE\_ADDRESS - The IEEE address of the device with which to pair.
  - keyExchangeTransferCount - INT8U - The number of transfers the target should use to exchange the link key with the pairing originator.

Definition at line [4757](#) of file [cli.doc](#).

6.125.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_SEND

**plugin rf4ce-profile send [pairingIndex:1] [profileId:1] [message:-1]**

- *Send an RF4CE profile message.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - profileId - INT8U - The profile ID to be included in the RF4CE network header of the outgoing RF4CE network DATA frame.
  - message - OCTET\_STRING - The message to be sent.

Definition at line [4765](#) of file [cli.doc](#).

6.125.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_VENDOR

**plugin rf4ce-profile vendor [pairingIndex:1] [profileId:1] [vendorId:2] [message:-1]**

- *Send a vendor-specific RF4CE profile message.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
  - profileId - INT8U - The profile ID to be included in the RF4CE network header of the outgoing RF4CE network DATA frame.
  - vendorId - INT16U - The vendor ID to be included in the RF4CE network header of the outgoing RF4CE network DATA frame.
  - message - OCTET\_STRING - The message to be sent.

Definition at line [4774](#) of file [cli.doc](#).

6.125.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_UNPAIR

**plugin rf4ce-profile unpair [pairingIndex:1]**

- *Initiate the unpairing process.*
  - pairingIndex - INT8U - The index of the entry in the pairing table with which to unpair.

Definition at line 4780 of file [cli.doc](#).

6.125.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_POWER

**plugin rf4ce-profile power [dutyCycle:4] [activePeriod:4]**

- *Set the power saving parameters.*
  - dutyCycle - INT32U - The duty cycle of a device in milliseconds.
  - activePeriod - INT32U - The active period of a device in milliseconds.

Definition at line 4787 of file [cli.doc](#).

6.125.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_RX

**plugin rf4ce-profile rx [profileId:1] [enable:1]**

- *Set the RX-enabled state of a profile.*
  - profileId - INT8U - The profile id to enable or disable.
  - enable - INT8U - 0 to disable or 1 to enable.

Definition at line 4794 of file [cli.doc](#).

6.125.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_AGILITY

**plugin rf4ce-profile agility [rssWindowSize:1] [channelChangeReads:1] [rssThreshold:1] [readInterval:2] [readDuration:1]**

- *Set the frequency agility parameters.*
  - rssWindowSize - INT8U - The number of the most recent RSSI reads that are taken into consideration to decide whether a channel switch is required or not.
  - channelChangeReads - INT8U - The number of RSSI reads above the RSSI threshold that will trigger a channel switch.
  - rssThreshold - INT8S - The RSSI threshold above which a channel will be considered congested.
  - readInterval - INT16U - The interval length in seconds between two consecutive RSSI reads.
  - readDuration - INT8U - The exponent of the number of scan periods of the RSSI read process.

Definition at line 4804 of file [cli.doc](#).

6.125.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PR-  
OFILE\_LQI

**plugin rf4ce-profile lqi [threshold:1]**

- Set the discovery LQI threshold parameter.
  - threshold - INT8U - The LQI threshold below which discovery requests will be rejected.

Definition at line 4810 of file [cli.doc](#).

6.125.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PR-  
OFILE\_PRINT

**plugin rf4ce-profile print**

- Print the pairing table.

Definition at line 4815 of file [cli.doc](#).

## 6.126 Plugin Commands: RGB control for PWM

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_LED\_RGB\_PWM\_PLUGIN\_LED\_RGB\_PWM\_XY\_Y

#### 6.126.1 Detailed Description

RGB-PWM is a plugin to control color for a 3 LED system with red, blue, and green.

#### 6.126.2 Macro Definition Documentation

##### 6.126.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_LED\_RGB\_PWM\_PLUGIN\_LED\_RGB\_PWM\_XY\_Y

**plugin led-rgb-pwm xyY [currentX:2] [currentY:2]**

- *Value of white LED.*
  - currentX - INT16U - CIE attribute X.
  - currentY - INT16U - CIE attribute Y.

Definition at line 4832 of file [cli.doc](#).

## 6.127 Plugin Commands: Relay Control Server

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RELAY\_CONTROL\_SERVER\_PLUGIN\_RELAY\_CONTROL\_SERVER\_GET
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RELAY\_CONTROL\_SERVER\_PLUGIN\_RELAY\_CONTROL\_SERVER\_SET

#### 6.127.1 Detailed Description

The relay control plugin provides the functionality to enable or disable the stack's relay capabilities, and also to view the relay state.

#### 6.127.2 Macro Definition Documentation

##### 6.127.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RELAY\_CONTROL\_SERVER\_PLUGIN\_RELAY\_CONTROL\_SERVER\_GET

**plugin relay-control-server get [nodeId:2] [srcEndpoint:1] [dstEndpoint:1]**

- *Get the relay state*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint

Definition at line 4850 of file [cli.doc](#).

##### 6.127.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RELAY\_CONTROL\_SERVER\_PLUGIN\_RELAY\_CONTROL\_SERVER\_SET

**plugin relay-control-server set [nodeId:2] [srcEndpoint:1] [dstEndpoint:1] [isEnabled:1]**

- *Set the relay state*
  - nodeId - INT16U - the destination node id
  - srcEndpoint - INT8U - the source endpoint
  - dstEndpoint - INT8U - the destination endpoint
  - isEnabled - INT8U - state value to be set

Definition at line 4859 of file [cli.doc](#).

## 6.128 Plugin Commands: Reporting

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_CLEAR\_LAST\_REPORT\_TIME

### 6.128.1 Detailed Description

The reporting plugin contributes several CLI commands to the application framework to be used in creating and managing reporting table entries directly on the device.

### 6.128.2 Macro Definition Documentation

#### 6.128.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_PRINTER

##### **plugin reporting print**

- *Print the report table.*

Definition at line 4875 of file [cli.doc](#).

#### 6.128.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_CLEAR

##### **plugin reporting clear**

- *Clear all entries from the report table.*

Definition at line 4880 of file [cli.doc](#).

#### 6.128.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_REMOVE

##### **plugin reporting remove [index:1]**

- *Remove an entry from the report table.*
  - index - INT8U - The index of the report to be removed.

Definition at line 4886 of file [cli.doc](#).

6.128.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_ADD

**plugin reporting add [endpoint:1] [clusterId:2] [attributeId:2] [mask:1] [minInterval:2] [maxInterval:2] [reportableChange:4]**

- *Add a new entry to the report table.*

- endpoint - INT8U - The local endpoint from which the attribute is reported.
- clusterId - INT16U - The cluster where the attribute is located.
- attributeId - INT16U - The id of the attribute being reported.
- mask - INT8U - 0 for client-side attributes or 1 for server-side attributes.
- minInterval - INT16U - The minimum reporting interval, measured in seconds.
- maxInterval - INT16U - The maximum reporting interval, measured in seconds.
- reportableChange - INT32U - The minimum change to the attribute that will result in a report being sent.

Definition at line 4898 of file [cli.doc](#).

6.128.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_CLEAR\_LAST\_REPORT\_TIME

**plugin reporting clear-last-report-time**

- *Clear last report time of attributes.*

Definition at line 4903 of file [cli.doc](#).

## 6.129 Plugin Commands: SB1 Gesture Sensor

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_MSG\_READY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_READ\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_SEND\_GEST

### 6.129.1 Detailed Description

Diagnostic commands for the SB1 Gesture Sensor.

### 6.129.2 Macro Definition Documentation

6.129.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_MSG\_READY

**plugin sb1-gesture-sensor msg-ready**

- Will print "msg ready" or "no msg ready" based on the state of the SB1's IRQ pin

Definition at line 4917 of file [cli.doc](#).

6.129.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_READ\_MSG

**plugin sb1-gesture-sensor read-msg**

- Will generate an i2c read of the sb1 gesture sensor, printing the resulting message (or i2c bus state in case of error)

Definition at line 4922 of file [cli.doc](#).

6.129.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_SEND\_GEST

**plugin sb1-gesture-sensor send-gest [gesture:1] [button:1]**

- Will simulate receiving a gesture of type specified by the argument
  - gesture - INT8U - Gesture to simulate.
  - button - INT8U - Button to simulate gesture on.

Definition at line 4929 of file [cli.doc](#).

## 6.130 Plugin Commands: Scenes Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SCENES\_PLUGIN\_SCENES\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SCENES\_PLUGIN\_SCENES\_CLEAR

#### 6.130.1 Detailed Description

The Scenes server plugin contributes a CLI command to the application framework to be used for printing information related to scenes.

#### 6.130.2 Macro Definition Documentation

##### 6.130.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SCENES\_PLUGIN\_SCENES\_PRINT

###### **plugin scenes print**

- *Print information about the contents of the scenes table.*

Definition at line 4944 of file [cli.doc](#).

##### 6.130.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SCENES\_PLUGIN\_SCENES\_CLEAR

###### **plugin scenes clear**

- *Clear the scenes table on every endpoint.*

Definition at line 4949 of file [cli.doc](#).

## 6.131 Plugin Commands: Simple Metering Client

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_SCH\_SNAPSHOT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_START\_SAMPLING
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_LOCAL\_CHANGE\_SUPPLY

### 6.131.1 Detailed Description

The simple-metering-client plugin contributes CLI commands to the application framework to be used in conjunction with the Simple Metering cluster in a client context.

### 6.131.2 Macro Definition Documentation

#### 6.131.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_SCH\_SNAPSHOT

**plugin simple-metering-client sch-snapshot [server:2] [clientEndpoint:1] [serverEndpoint:1] [issuerId:4] [commandIndex:1] [numberOfCommands:1] [snapshotScheduleId:1] [snapshotStartDate:4] [snapshotSchedule:4] [snapshotType:1] [snapshotCause:4]**

- *Schedule a snapshot.*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.
  - issuerId - INT32U - The issuerId.
  - commandIndex - INT8U - The commandIndex.
  - numberOfCommands - INT8U - The total number of commands
  - snapshotScheduleId - INT8U - The snapshot schedule Id.
  - snapshotStartDate - INT32U - The start time.
  - snapshotSchedule - INT32U - The snapshot schedule. 3 bytes
  - snapshotType - INT8U - The snapshot Type.
  - snapshotCause - INT32U - The snapshot schedule cause.

Definition at line 4976 of file [cli.doc](#).

#### 6.131.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_START\_SAMPLING

**plugin simple-metering-client start-sampling [server:2] [clientEndpoint:1] [serverEndpoint:1] [issuerId:4] [startTime:4] [sampleType:1] [SampleRequestInterval:2] [maxNumberOfSamples:2]**

- *Send a start sampling command to a metering server.*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.
  - issuerId - INT32U - The issuerId.
  - startTime - INT32U - The time to start sampling
  - sampleType - INT8U - An 8 bit enumeration that identifies the type of data being sampled
  - SampleRequestInterval - INT16U - An unsigned 16-bit field representing the interval or time in seconds between samples.
  - maxNumberOfSamples - INT16U - A 16 bit unsigned integer that represents the number of samples to be taken.

Definition at line [4989](#) of file [cli.doc](#).

#### **6.131.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_S- IMPLE\_METERING\_CLIENT\_GET\_SAMPLED\_DATA**

**plugin simple-metering-client get-sampled-data [server:2] [clientEndpoint:1] [serverEndpoint:1] [sample-  
Id:2] [startTime:4] [sampleType:1] [numberOfSamples:2]**

- *Send a start sampling command to a metering server.*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.
  - sampleId - INT16U - The sample id as received in a previous startSamplingResponse
  - startTime - INT32U - The earliest start time sampling
  - sampleType - INT8U - An 8 bit enumeration that identifies the required type of sampled data
  - numberOfSamples - INT16U - The total number of samples.

Definition at line [5001](#) of file [cli.doc](#).

#### **6.131.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_S- IMPLE\_METERING\_CLIENT\_LOCAL\_CHANGE\_SUPPLY**

**plugin simple-metering-client local-change-supply [server:2] [clientEndpoint:1] [serverEndpoint:1]  
[proposedSupplyStatus:1]**

- *Send a start sampling command to a metering server.*
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.
  - proposedSupplyStatus - INT8U - The proposed supply status: either ON(2) or OFF/ARME-  
D(1)

Definition at line [5010](#) of file [cli.doc](#).

## 6.132 Plugin Commands: Simple Metering Server

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_SERVER\_PLUGIN\_SIMPLE\_METERING\_SERVER\_CONFIGURE\_MIRROR
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_SERVER\_PLUGIN\_SIMPLE\_METERING\_SERVER\_TOGGLE\_FAST\_POLL\_MODE

### 6.132.1 Detailed Description

The simple-metering-server plugin contributes CLI commands to the application framework to be used in conjunction with the Simple Metering cluster in a server context

### 6.132.2 Macro Definition Documentation

#### 6.132.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_SERVER\_PLUGIN\_SIMPLE\_METERING\_SERVER\_CONFIGURE\_MIRROR

**plugin simple-metering-server configure-mirror [client:2] [serverEndpoint:1] [clientEndpoint:1] [IssuerEventId:4] [ReportingInterval:4] [mirrorNotificationReporting:1] [NotificationScheme:1]**

- *Send configure mirror command to Metering client.*
  - client - INT16U - The network address of the server to which the request will be sent.
  - serverEndpoint - INT8U - The local endpoint from which the request will be sent.
  - clientEndpoint - INT8U - The remote endpoint to which the request will be sent.
  - IssuerEventId - INT32U - The issuer event Id as specified by the device.
  - ReportingInterval - INT32U - 3 bytes of Reporting Interval value.
  - mirrorNotificationReporting - INT8U - Mirror Notification Reporting value
  - NotificationScheme - INT8U - Mirror Notification Reporting value

Definition at line 5114 of file [cli.doc](#).

#### 6.132.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_SERVER\_PLUGIN\_SIMPLE\_METERING\_SERVER\_TOGGLE\_FAST\_POLL\_MODE

**plugin simple-metering-server toggle-fast-poll-mode [enableFastPolling:1]**

- *Disable fast polling mode for testing.*
  - enableFastPolling - INT8U - 1 to enable, 0 to disable fast polling mode.

Definition at line 5120 of file [cli.doc](#).

## 6.133 Plugin Commands: Sleepy Message Queue

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_INIT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_STORE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_PENDING\_MSG\_ID
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_PENDING\_MSG
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_NUM\_MSG
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMOVE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMOVE\_ALL
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_UNUSED\_CNT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMAIN\_TIME
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_TIMESTAMP

### 6.133.1 Detailed Description

The sleepy-message-queue plugin provides a means to store packets up to a specified period of time.

### 6.133.2 Macro Definition Documentation

#### 6.133.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_INIT

##### **plugin sleepy-message-queue init**

- Initialize the sleepy message queue.

Definition at line 5135 of file [cli.doc](#).

#### 6.133.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_STORE

##### **plugin sleepy-message-queue store [timeoutSec:4] [payloadPtr:4] [payloadLength:2] [payloadId:2] [dstEui64:-1]**

- Store a message into the sleepy message queue.
  - timeoutSec - INT32U - Message timeout, in seconds

- payloadPtr - INT32U - Pointer to (address of) the message payload
- payloadLength - INT16U - The length of the message payload
- payloadId - INT16U - The payload ID of this message
- dstEui64 - OCTET\_STRING - The EUI64 of the device to which the message is being sent

Definition at line [5145](#) of file [cli.doc](#).

#### **6.133.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_PENDING\_MSG\_ID**

##### **plugin sleepy-message-queue getPendingMsgId [dstEui64:-1]**

- *Get the first pending message ID for a given destination EUI64.*
  - dstEui64 - OCTET\_STRING - The EUI64 of the device for which the first pending message ID is being queried

Definition at line [5151](#) of file [cli.doc](#).

#### **6.133.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_PENDING\_MSG**

##### **plugin sleepy-message-queue getPendingMsg [msgId:1]**

- *Get the first pending message ID for a given destination EUI64.*
  - msgId - INT8U - The messageID of the message to be retrieved.

Definition at line [5157](#) of file [cli.doc](#).

#### **6.133.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_NUM\_MSG**

##### **plugin sleepy-message-queue getNumMsg [dstEui64:-1]**

- *Get the number of pending messages for a given destination EUI64.*
  - dstEui64 - OCTET\_STRING - The EUI64 of the device for which the number of pending messages is being queried

Definition at line [5163](#) of file [cli.doc](#).

#### **6.133.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMOVE**

##### **plugin sleepy-message-queue remove [msgId:1]**

- *Remove the message from the queue with the given messageID.*
  - msgId - INT8U - The messageID of the message to be removed.

Definition at line [5169](#) of file [cli.doc](#).

6.133.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_S-  
LEEPY\_MESSAGE\_QUEUE\_REMOVE\_ALL

**plugin sleepy-message-queue removeAll [dstEui64:-1]**

- Remove all messages from the queue with the given EUI64.
  - dstEui64 - OCTET\_STRING - The EUI64 of the device whose messages should be removed.

Definition at line [5175](#) of file [cli.doc](#).

6.133.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_S-  
LEEPY\_MESSAGE\_QUEUE\_UNUSED\_CNT

**plugin sleepy-message-queue unusedCnt**

- Reads the number of unused queue entries.

Definition at line [5180](#) of file [cli.doc](#).

6.133.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_S-  
LEEPY\_MESSAGE\_QUEUE\_REMAIN\_TIME

**plugin sleepy-message-queue remainTime [msgId:1]**

- Report the remaining timeout on the message specified by the message ID.
  - msgId - INT8U - The messageID of the message whose remaining time will be reported.

Definition at line [5186](#) of file [cli.doc](#).

6.133.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_S-  
LEEPY\_MESSAGE\_QUEUE\_TIMESTAMP

**plugin sleepy-message-queue timestamp**

- Retrieve the current value of `halCommonGetInt32uMillisecondTick()`.

Definition at line [5191](#) of file [cli.doc](#).

## 6.134 Plugin Commands: Smart Energy Registration

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_SET\_PERIOD

#### 6.134.1 Detailed Description

The Smart Energy Registration plugin contributes several CLI commands to the application framework to be used in managing registration.

#### 6.134.2 Macro Definition Documentation

##### 6.134.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_SET\_PERIOD

**plugin smart-energy-registration set-period [discoveryPeriod:4]**

- Sets the discovery period (in seconds)
  - discoveryPeriod - INT32U - The discovery period (in seconds).

Definition at line 5207 of file [cli.doc](#).

## 6.135 Plugin Commands: Stack Diagnostics

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_CHILD\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_NEIGHBOR\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_ROUTE\_TABLE

### 6.135.1 Detailed Description

These commands give more information about the status of the stack, such as routing tables, neighbor tables, and child tables.

### 6.135.2 Macro Definition Documentation

#### 6.135.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_INFO

##### **plugin stack-diagnostics info**

- Prints out general information about the state of the stack.

Definition at line 5222 of file [cli.doc](#).

#### 6.135.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_CHILD\_TABLE

##### **plugin stack-diagnostics child-table**

- Prints out the entries in the stack's child table.

Definition at line 5227 of file [cli.doc](#).

#### 6.135.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_NEIGHBOR\_TABLE

##### **plugin stack-diagnostics neighbor-table**

- Prints out the entries in the stack's neighbor table.

Definition at line 5232 of file [cli.doc](#).

6.135.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_ROUTE\_TABLE

**plugin stack-diagnostics route-table**

- Prints out the entries in the stack's route table.

Definition at line [5237](#) of file [cli.doc](#).

## 6.136 Plugin Commands: Standalone Bootloader Client

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_CLIENT\_PLUGIN\_STANDALONE\_BOOTLOADER\_CLIENT\_STATUS

#### 6.136.1 Detailed Description

The Standalone Bootloader Client contributes commands about its current status.

#### 6.136.2 Macro Definition Documentation

##### 6.136.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_CLIENT\_PLUGIN\_STANDALONE\_BOOTLOADER\_CLIENT\_STATUS

**plugin standalone-bootloader-client status**

- *Print the standalone bootload client's current status.*

Definition at line 5252 of file [cli.doc](#).

## 6.137 Plugin Commands: Standalone Bootloader Server

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_STATUS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_QUERY
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PRINT\_TARGET
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_BOOTLOAD\_TARGET
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_BOOTLOAD\_EUI

### 6.137.1 Detailed Description

The Standalone Bootloader Server contributes commands to tell client's to launch their standalone bootloader and send them a new application image.

### 6.137.2 Macro Definition Documentation

#### 6.137.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_STATUS

##### **plugin standalone-bootloader-server status**

- Print the standalone bootload server's current status.

Definition at line 5267 of file [cli.doc](#).

#### 6.137.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_QUERY

##### **plugin standalone-bootloader-server query**

- n  
Send a broadcast standalone bootloader query to all nearby nodes.

Definition at line 5274 of file [cli.doc](#).

#### 6.137.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PRINT\_TARGET

##### **plugin standalone-bootloader-server print-target**

- Print the cached info about the current bootload target.

Definition at line 5279 of file [cli.doc](#).

6.137.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_BOOTLOAD\_TARGET

**plugin standalone-bootloader-server bootload target [index:1] [tag:1]**

- Starts the process for bootloading a device using the currently cached target info.
  - index - INT8U - The index of the image being sent to the target
  - tag - INT8U - The tag ID within the image, which will be sent to the target.

Definition at line [5286](#) of file [cli.doc](#).

6.137.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_BOOTLOAD\_EUI

**plugin standalone-bootloader-server bootload eui [eui64:8] [index:1] [tag:1]**

- Starts the process for bootloading a device using the passed EUI64.
  - eui64 - IEEE\_ADDRESS - The EUI64 of the target of the bootload.
  - index - INT8U - The index of the image being sent to the target
  - tag - INT8U - The tag ID within the image, which will be sent to the target.

Definition at line [5294](#) of file [cli.doc](#).

## 6.138 Plugin Commands: Temperature Measurement Server commands

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEMPERATURE\_MEASUREMENT\_SERVER\_PLUGIN\_TEMPERATURE\_MEASUREMENT\_SERVER\_READ

#### 6.138.1 Detailed Description

Example sensor code for reading the temperature sensor. Currently reads it from the EM357 dev kit board.

#### 6.138.2 Macro Definition Documentation

- 6.138.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEMPERATURE\_MEASUREMENT\_SERVER\_PLUGIN\_TEMPERATURE\_MEASUREMENT\_SERVER\_READ

**plugin temperature-measurement-server read**

- *Read the temperature sensor.*

Definition at line [5309](#) of file [cli.doc](#).

## 6.139 Plugin Commands: Test Harness

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_STATUS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_APSSEC\_FOR\_CLUSTER\_ON
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_APSSEC\_FOR\_CLUSTER\_OFF
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_OPTIONS
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_SET\_DEST
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_START\_TEST
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_HASH\_THE\_FLASH
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_REGISTRATION\_ON
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_REGISTRATION\_OFF
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_NORMAL\_MODE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_NO\_RESOURCES
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_OUT\_OF\_SEQUENCE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_TIMEOUT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_DELAY\_CBKE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_DEFAULT\_RESP
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_NEW\_KEY\_POLICY
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_RESET\_APSSFC
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_ADV\_APSSFC
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_LENGTH
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_ISSUER
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_CORRUPT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_CHANGE\_BYTE
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_SUBJECT
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_SUITE

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_SET\_AVAILABLE\_SUITE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_KEY\_MANGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_PRICE\_SEND\_NEW\_FIELDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_PRICE\_SEND\_SE10\_FIELDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_TC\_KEEPALIVE\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_TC\_KEEPALIVE\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_TC\_KEEPALIVE\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_OTA\_IMAGE\_MANGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_CONCENTRATOR\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_CONCENTRATOR\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_UPDATE\_UNICAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_UPDATE\_BROADCAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_UPDATE\_NOW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_STACK\_LIMIT\_BEACONS\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_STACK\_LIMIT\_BEACONS\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_CLUSTER\_ENDPOINT\_INDEX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_RADIO\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_RADIO\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ADD\_CHILD

### 6.139.1 Detailed Description

The test harness commands are used to test various unusual functionality or behavior of a remote device.

## 6.139.2 Macro Definition Documentation

6.139.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_STATUS

### **plugin test-harness status**

- *Display the current status of the test harness.*

Definition at line 5324 of file [cli.doc](#).

6.139.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_AP\_SSEC\_FOR\_CLUSTER\_ON

### **plugin test-harness aps-sec-for-cluster on [clusterId:2]**

- *Turns on automatic APS security for the specified cluster.*
  - clusterId - INT16U - The cluster ID to add APS security to automatically.

Definition at line 5330 of file [cli.doc](#).

6.139.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_AP\_SSEC\_FOR\_CLUSTER\_OFF

### **plugin test-harness aps-sec-for-cluster off**

- *Turns off automatic APS security for the previously specified cluster.*

Definition at line 5335 of file [cli.doc](#).

6.139.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_OPTIONS

### **plugin test-harness attr options [type:1] [timeout:2]**

- *Set the options for the attributes tests.*
  - type - INT8U
  - timeout - INT16U

Definition at line 5342 of file [cli.doc](#).

6.139.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_SET\_DEST

### **plugin test-harness attr set-dest [addr:2] [endpoint:1]**

- *Set the destination for the attributes tests.*

- addr - INT16U
- endpoint - INT8U

Definition at line [5349](#) of file [cli.doc](#).

**6.139.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_START\_TEST**

**plugin test-harness attr start-test [clusterId:2] [attrStartId:2] [attrEndId:2] [clientToServer:1]**

- *Start the attributes test.*
  - clusterId - INT16U
  - attrStartId - INT16U
  - attrEndId - INT16U
  - clientToServer - BOOLEAN

Definition at line [5358](#) of file [cli.doc](#).

**6.139.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_HASH\_THE\_FLASH**

**plugin test-harness hash-the-flash**

- *Runs the AES-CCM algorithm over the contents of the software image to calculate the image stamp.*

Definition at line [5363](#) of file [cli.doc](#).

**6.139.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_REGISTRATION\_ON**

**plugin test-harness registration on**

- *Turns on automatic SE registration.*

Definition at line [5368](#) of file [cli.doc](#).

**6.139.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_REGISTRATION\_OFF**

**plugin test-harness registration off**

- *Turns off automatic SE registration.*

Definition at line [5373](#) of file [cli.doc](#).

6.139.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_NORMAL\_MODE

#### **plugin test-harness key-establishment normal-mode**

- Sets the key establishment mode to normal.

Definition at line 5378 of file [cli.doc](#).

6.139.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_NO\_RESOURCES

#### **plugin test-harness key-establishment no-resources**

- All received KE requests will be responded with 'no resources'.

Definition at line 5383 of file [cli.doc](#).

6.139.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_OUT\_OF\_SEQUENCE

#### **plugin test-harness key-establishment out-of-sequence [commandId:1]**

- All received KE requests will be responded with 'no resources'.
  - commandId - INT8U - The out-of-sequence command ID to send.

Definition at line 5389 of file [cli.doc](#).

6.139.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_TIMEOUT

#### **plugin test-harness key-establishment timeout**

- Artificially creates a timeout by delaying an outgoing message.

Definition at line 5394 of file [cli.doc](#).

6.139.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_DELAY\_CBKE

#### **plugin test-harness key-establishment delay-cbke [actualDelay:2] [advertisedDelay:2]**

- Changes the advertised delays by the local device for CBKE.
  - actualDelay - INT16U - Set the actual delay that occurs.
  - advertisedDelay - INT16U - Sets the advertised delay sent to the partner of key establishment

Definition at line 5401 of file [cli.doc](#).

6.139.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_DEFAULT\_RESP

**plugin test-harness key-establishment default-resp**

- Sends a default response error message in response to initiate KE.

Definition at line 5406 of file [cli.doc](#).

6.139.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_NEW\_KEY\_POLICY

**plugin test-harness key-establishment new-key-policy [allowKeyEstablishmentPolicy:1]**

- Sets the policy of whether the TC allows new KE requests.
  - allowKeyEstablishmentPolicy - INT8U - Allows / disallows new key establishment requests.

Definition at line 5412 of file [cli.doc](#).

6.139.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_RESET\_AP\_S\_FC

**plugin test-harness key-establishment reset-aps-fc**

- Forces the local device to reset its outgoing APS FC.

Definition at line 5417 of file [cli.doc](#).

6.139.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_ADV\_AP\_S\_FC

**plugin test-harness key-establishment adv-aps-fc**

- Advances the local device's outgoing APS FC by 4096.

Definition at line 5422 of file [cli.doc](#).

6.139.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_LENGTH

**plugin test-harness key-establishment cert-mangle length [lengthModifier:1]**

- Mangles the length of the certificate
  - lengthModifier - INT8S - The positive or negative change in length.

Definition at line 5428 of file [cli.doc](#).

6.139.2.20 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_ISSUER

**plugin test-harness key-establishment cert-mangle issuer [issuer:-1]**

- *Changes the issuer in the certificate.*
  - issuer - OCTET\_STRING - The EUI64 of the issuer (big endian).

Definition at line [5434](#) of file [cli.doc](#).

6.139.2.21 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_CORRUPT

**plugin test-harness key-establishment cert-mangle corrupt [corruptionIndex:1]**

- *Corrupts a single byte in the cert*
  - corruptionIndex - INT8U - The index of the certificate byte to corrupt

Definition at line [5440](#) of file [cli.doc](#).

6.139.2.22 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_CHANGE\_BYTE

**plugin test-harness key-establishment cert-mangle change-byte [byteIndex:1] [byteValue:1]**

- *Changes a single byte in the cert*
  - byteIndex - INT8U - The index of the certificate byte to change
  - byteValue - INT8U - The new value of the certificate byte

Definition at line [5447](#) of file [cli.doc](#).

6.139.2.23 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE SUBJECT

**plugin test-harness key-establishment cert-mangle subject [subject:-1]**

- *Changes the subject (EUI64) of the cert*
  - subject - OCTET\_STRING - The EUI64 of the subject (big endian).

Definition at line [5453](#) of file [cli.doc](#).

6.139.2.24 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_SUITE

**plugin test-harness key-establishment suite [suite:2]**

- *Selects between the CBKE 163k1 and 283k1 suites.*

- suite - INT16U - This field holds the type of key establishment suite. It can be EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_163K1, EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_283K1, or EMBER\_AF\_INVALID\_KEY\_ESTABLISHMENT\_SUITE

Definition at line 5459 of file [cli.doc](#).

6.139.2.25 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_SET\_AVAILABLE\_SUITE

**plugin test-harness key-establishment set-available-suite [suite:2]**

- *Selects between the CBKE 163k1 and 283k1 suites.*

- suite - INT16U - This field holds the type of key establishment suite. It can be EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_163K1, EMBER\_AF\_CBKE\_KEY\_ESTABLISHMENT\_SUITE\_283K1, or EMBER\_AF\_INVALID\_KEY\_ESTABLISHMENT\_SUITE

Definition at line 5465 of file [cli.doc](#).

6.139.2.26 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_ESTABLISHMENT\_KEY\_MANGLE

**plugin test-harness key-establishment key-mangle [lengthModifier:1]**

- *Mangles the length of the empheral key.*
  - lengthModifier - INT8S - The positive or negative change in length.

Definition at line 5471 of file [cli.doc](#).

6.139.2.27 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_PRICE\_SEND\_NEW\_FIELDS

**plugin test-harness price send-new-fields [sendNewFields:1]**

- *Controls whether the new SE 1.1 price fields are included.*
  - sendNewFields - INT8U - Boolean indicating whether to send new fields.

Definition at line 5477 of file [cli.doc](#).

6.139.2.28 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_PRICE\_SEND\_SE10\_FIELDS

**plugin test-harness price send-se10-fields [sendNewFields:1]**

- *Controls whether the new SE 1.1 price fields are included.*
  - sendNewFields - INT8U - Boolean indicating whether to send new fields.

Definition at line 5483 of file [cli.doc](#).

6.139.2.29 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_TC\_KEEPALIVE\_SEND

**plugin test-harness tc-keepalive send**

- *Sends a Trust Center Keepalive.*

Definition at line 5488 of file [cli.doc](#).

6.139.2.30 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_TC\_KEEPALIVE\_START

**plugin test-harness tc-keepalive start**

- *Starts the TC keepalive state machine.*

Definition at line 5493 of file [cli.doc](#).

6.139.2.31 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_TC\_KEEPALIVE\_STOP

**plugin test-harness tc-keepalive stop**

- *Stops the TC keepalive state machine.*

Definition at line 5498 of file [cli.doc](#).

6.139.2.32 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_OTA\_IMAGE\_MANGLE

**plugin test-harness ota image-mangle [index:2]**

- *Mangles the Simple Storage RAM OTA image.*
  - index - INT16U - The byte index into the OTA image that will be mangled.

Definition at line 5504 of file [cli.doc](#).

6.139.2.33 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_CONCENTRATOR\_START

### **plugin test-harness concentrator start**

- Starts the concentrator's periodic broadcasts.

Definition at line 5509 of file [cli.doc](#).

6.139.2.34 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_CONCENTRATOR\_STOP

### **plugin test-harness concentrator stop**

- Starts the concentrator's periodic broadcasts.

Definition at line 5514 of file [cli.doc](#).

6.139.2.35 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_UPDATE\_UNICAST

### **plugin test-harness key-update unicast**

- Changes TC NWK key update mechanism to unicast with APS security.

Definition at line 5519 of file [cli.doc](#).

6.139.2.36 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_UPDATE\_BROADCAST

### **plugin test-harness key-update broadcast**

- Changes TC NWK key update mechanism to broadcast.

Definition at line 5524 of file [cli.doc](#).

6.139.2.37 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_KEY\_UPDATE\_NOW

### **plugin test-harness key-update now**

- Starts a TC NWK key update now

Definition at line 5529 of file [cli.doc](#).

6.139.2.38 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_STACK\_LIMIT\_BEACONS\_ON

**plugin test-harness stack limit-beacons on**

- Enables a limit to the max number of outgoing beacons.

Definition at line 5534 of file [cli.doc](#).

6.139.2.39 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_STACK\_LIMIT\_BEACONS\_OFF

**plugin test-harness stack limit-beacons off**

- Disables a limit to the max number of outgoing beacons.

Definition at line 5539 of file [cli.doc](#).

6.139.2.40 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ENDPOINT\_ENABLE

**plugin test-harness endpoint enable [endpoint:1]**

- Enables the endpoint to receive messages and be discovered
  - endpoint - INT8U - The endpoint number.

Definition at line 5582 of file [cli.doc](#).

6.139.2.41 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ENDPOINT\_DISABLE

**plugin test-harness endpoint disable [endpoint:1]**

- Disables the endpoint to receive messages and be discovered
  - endpoint - INT8U - The endpoint number.

Definition at line 5588 of file [cli.doc](#).

6.139.2.42 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ENDPOINT\_STATUS

**plugin test-harness endpoint status**

- Disables the endpoint to receive messages and be discovered

Definition at line 5593 of file [cli.doc](#).

6.139.2.43 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ENDPOINT\_CLUSTER\_ENDPOINT\_INDEX

**plugin test-harness endpoint cluster-endpoint-index [endpoint:1] [clusterId:2] [mask:1]**

- *Get cluster endpoint index*

- endpoint - INT8U - The local endpoint of the cluster.
- clusterId - INT16U - The cluster whose index is needed.
- mask - INT8U - 0 for client-side attributes or 1 for server-side attributes.

Definition at line 5601 of file [cli.doc](#).

6.139.2.44 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_RADIO\_ON

**plugin test-harness radio on**

- *Turns on the radio if it was previously turned off*

Definition at line 5606 of file [cli.doc](#).

6.139.2.45 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_RADIO\_OFF

**plugin test-harness radio off**

- *Turns off the radio so that no messages are sent.*

Definition at line 5611 of file [cli.doc](#).

6.139.2.46 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ADD\_CHILD

**plugin test-harness add-child [ShortId:2] [EUI:-1] [nodeType:1]**

- *Adds a child to the child table.*

- ShortId - INT16U - The shortId of the child device.
- EUI - OCTET\_STRING - The EUI64 of the child (big endian).
- nodeType - INT8U - The node type of the child device.

Definition at line 5619 of file [cli.doc](#).

## 6.140 Plugin Commands: Throughput

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_INFLIGHT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_DURATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_END
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_RESULT

### 6.140.1 Detailed Description

The throughput commands allow you to test your application's network throughput by measuring how many packets are able to be sent.

### 6.140.2 Macro Definition Documentation

#### 6.140.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_INFLIGHT

##### plugin throughput inflight [Count:1]

- Set the number of packets in flight during the test.
  - Count - INT8U - Number of packets

Definition at line 5635 of file [cli.doc](#).

#### 6.140.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_DURATION

##### plugin throughput duration [Time:2]

- Set the duration in ms for the test.
  - Time - INT16U - Duration in ms

Definition at line 5641 of file [cli.doc](#).

#### 6.140.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT\_START

##### plugin throughput start

- Start the throughput test.

Definition at line 5646 of file [cli.doc](#).

6.140.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT-END

**plugin throughput end**

- *Abort the test while running.*

Definition at line 5651 of file [cli.doc](#).

6.140.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THROUGHPUT-RESULT

**plugin throughput result**

- *Show the results of the last test.*

Definition at line 5656 of file [cli.doc](#).

## 6.141 Plugin Commands: Trust Center Backup

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PRINT\_EXPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_IMPORT\_KEY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_SET\_EXT\_PAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PRINT\_IMPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_CLEAR\_IMPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_RESTORE

### 6.141.1 Detailed Description

The Trust Center Backup plugin contributes several CLI commands to the application framework to be used in creating and managing reporting table entries directly on the device.

### 6.141.2 Macro Definition Documentation

#### 6.141.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PRINT\_EXPORT

##### **plugin trust-center-backup print-export**

- Print the set of export data that a TC must backup.

Definition at line 5672 of file [cli.doc](#).

#### 6.141.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_IMPORT\_KEY

##### **plugin trust-center-backup import-key [index:1] [partnerEUI64:8] [newKey:-1]**

- Set a key in the import data set.
  - index - INT8U
  - partnerEUI64 - IEEE\_ADDRESS
  - newKey - OCTET\_STRING

Definition at line 5680 of file [cli.doc](#).

6.141.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_SET\_EXT\_PAN

**plugin trust-center-backup set-ext-pan [extendedPanId:8]**

- Set the extended PAN ID in the import data set.

– extendedPanId - IEEE\_ADDRESS

Definition at line [5686](#) of file [cli.doc](#).

6.141.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PRINT\_IMPORT

**plugin trust-center-backup print-import**

- Print the import data set.

Definition at line [5691](#) of file [cli.doc](#).

6.141.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_CLEAR\_IMPORT

**plugin trust-center-backup clear-import**

- Clear the import data set.

Definition at line [5696](#) of file [cli.doc](#).

6.141.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_PLUGIN\_TRUST\_CENTER\_BACKUP\_RESTORE

**plugin trust-center-backup restore**

- Use the import data set in a restore operation to bring the TC back online.

Definition at line [5701](#) of file [cli.doc](#).

## 6.142 Plugin Commands: Tunneling Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_TRANSFER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_CLOSE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_PRINT

### 6.142.1 Detailed Description

The Tunneling Client Plugin contributes several commands to the application framework's CLI. These commands may be used to create messages related to opening and closing a tunnel between two devices.

### 6.142.2 Macro Definition Documentation

#### 6.142.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_REQUEST

**plugin tunneling-client request [server:2] [clientEndpoint:1] [serverEndpoint:1] [protocolId:1] [manufacturerCode:2] [flowControlSupport:1]**

- Request a Tunneling cluster tunnel with a server.
  - server - INT16U - The network address of the server to which the request will be sent.
  - clientEndpoint - INT8U - The local endpoint from which the request will be sent.
  - serverEndpoint - INT8U - The remote endpoint to which the request will be sent.
  - protocolId - INT8U - The protocol id of the requested tunnel.
  - manufacturerCode - INT16U - The manufacturer code of the requested tunnel.
  - flowControlSupport - BOOLEAN - 1 if flow control support is requested or 0 if not.

Definition at line 5739 of file [cli.doc](#).

#### 6.142.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_TRANSFER

**plugin tunneling-client transfer [tunnelIndex:1] [data:-1]**

- Transfer data to a server through a Tunneling cluster tunnel.
  - tunnelIndex - INT8U - The index of the tunnel through which to send the data.
  - data - OCTET\_STRING - The data to send through the tunnel.

Definition at line 5746 of file [cli.doc](#).

6.142.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_CLOSE

**plugin tunneling-client close [tunnelIndex:1]**

- *Close a Tunneling cluster tunnel.*
  - tunnelIndex - INT8U - The index of the tunnel to close.

Definition at line [5752](#) of file [cli.doc](#).

6.142.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_PRINT

**plugin tunneling-client print**

- *Print out the status of active tunnels.*

Definition at line [5757](#) of file [cli.doc](#).

## 6.143 Plugin Commands: Tunneling Server

### Macros

- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_TRANSFER
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_BUSY
- #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_PRINT

### 6.143.1 Detailed Description

The Tunneling Server Plugin contributes several commands to the application framework CLI. These commands are used for the transfer of data over an opened tunnel.

### 6.143.2 Macro Definition Documentation

#### 6.143.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_TRANSFER

**plugin tunneling-server transfer [tunnelIndex:2] [data:-1]**

- *Transfer data to a client through a Tunneling cluster tunnel.*
  - tunnelIndex - INT16U - The identifier of the tunnel through which to send the data.
  - data - OCTET\_STRING - The data to send through the tunnel.

Definition at line [5775](#) of file [cli.doc](#).

#### 6.143.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_BUSY

**plugin tunneling-server busy**

- *This command can be used as a test harness for testing a client's handling of a server that returns busy.*

Definition at line [5780](#) of file [cli.doc](#).

#### 6.143.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_PRINT

**plugin tunneling-server print**

- *Print out the status of active tunnels.*

Definition at line [5785](#) of file [cli.doc](#).

## 6.144 Plugin Commands: ZigBee 3.0 Test Harness

### Macros

- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_BEACON\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_BEACON\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_ZDO\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_ZDO\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_NWK\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_NWK\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_APS\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_PACKET\_PRINTING\_APS\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_BEACON\_BEACON\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_BEACON\_BEACONS\_CONFIG
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_REJOIN\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_REJOIN\_RESPONSE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE\_SUPPRESSION\_ON
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE\_SUPPRESSION\_OFF
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_KEY\_SUPRESSION\_ON
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_NWK\_KEY\_SUPRESSION\_OFF
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_APSS\_APSS\_REMOVE\_DEVICE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_APSS\_APSS\_REQUEST\_KEY
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_SCAN\_REQUEST\_PROCESS
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_START\_AS\_ROUTER
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_IS\_SCANNING
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_DEVICE\_INFORMATION\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_IDENTIFY\_REQUEST

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_TOUCHLINK\_RESET\_TO\_FACTORY\_NEW\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_START\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_JOIN\_ROUTER\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_JOIN\_END\_DEVICE\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_UPDATE\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_MGMT\_PERMIT\_JOINING\_REQ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_MGMT\_LEAVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_MGMT\_NWK\_UPDATE\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_ZDO\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_ZDO\_NODE\_DESC\_RSP\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_ACTIVE\_ENDPOINT\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_MATCH\_DESC\_REQ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_MATCH\_DESC\_RSP\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_SIMPLE\_DESC\_REQ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_SIMPLE\_DESC\_RSP\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_UNBIND\_UNICAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_UNBIND\_GROUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_IN\_CL\_LIST\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_IN\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_OUT\_CL\_LIST\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_OUT\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_NODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_LEAVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_ROUTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN-\_TEST\_HARNESS\_Z3\_ZDO\_BIND

- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_BIND\_GROUP
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_NWK\_ADDR\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_IEEE\_ADDR\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_MGMT\_BIND
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_MGMT\_LQI
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_RESET
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_ISSUER\_NWK\_ADDRESS\_REMOTE\_DEV
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_STATUS\_DEVICE\_NOT\_FOUND
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZCL\_READ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_RESET
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_PLATFORM
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_SET\_PAN\_ID
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_SET\_SHORT\_ADDRESS
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_LEGACY\_PROFILE\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_LEGACY\_PROFILE\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_SET\_DEVICE\_MODE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_INSTALL\_CODE\_CLEAR
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_INSTALL\_CODE\_SET

### 6.144.1 Detailed Description

The test harness commands are used to test various unusual functionality or behavior of a remote device.

### 6.144.2 Macro Definition Documentation

#### 6.144.2.1 #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_BEACON\_PRINTING\_ENABLE

**plugin test-harness packet-printing beacon-printing enable**

- *Enable the printing of beacon requests and received beacons.*

Definition at line 5800 of file [cli.doc](#).

6.144.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HA-RNESS\_PACKET\_PRINTING\_BEACON\_PRINTING\_DISABLE

**plugin test-harness packet-printing beacon-printing disable**

- *Disable the printing of beacon requests and received beacons.*

Definition at line 5805 of file [cli.doc](#).

6.144.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HA-RNESS\_PACKET\_PRINTING\_ZDO\_PRINTING\_ENABLE

**plugin test-harness packet-printing zdo-printing enable**

- *Enable the printing of ZDO commands.*

Definition at line 5810 of file [cli.doc](#).

6.144.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HA-RNESS\_PACKET\_PRINTING\_ZDO\_PRINTING\_DISABLE

**plugin test-harness packet-printing zdo-printing disable**

- *Disable the printing of ZDO commands.*

Definition at line 5815 of file [cli.doc](#).

6.144.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HA-RNESS\_PACKET\_PRINTING\_NWK\_PRINTING\_ENABLE

**plugin test-harness packet-printing nwk-printing enable**

- *Enable the printing of network commands.*

Definition at line 5820 of file [cli.doc](#).

6.144.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HA-RNESS\_PACKET\_PRINTING\_NWK\_PRINTING\_DISABLE

**plugin test-harness packet-printing nwk-printing disable**

- *Disable the printing of network commands.*

Definition at line 5825 of file [cli.doc](#).

6.144.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTINGAPS\_PRINTING\_ENABLE

**plugin test-harness packet-printing aps-printing enable**

- *Enable the printing of APS commands.*

Definition at line 5830 of file [cli.doc](#).

6.144.2.8 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTINGAPS\_PRINTING\_DISABLE

**plugin test-harness packet-printing aps-printing disable**

- *Disable the printing of APS commands.*

Definition at line 5835 of file [cli.doc](#).

6.144.2.9 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_BEACON\_BEACON\_REQ

**plugin test-harness z3 beacon beacon-req**

- *Send a beacon request.*

Definition at line 5840 of file [cli.doc](#).

6.144.2.10 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_BEACON\_BEACONS\_CONFIG

**plugin test-harness z3 beacon beacons-config [options:4]**

- *Send a beacon.*
  - options - INT32U - The negative behavior options for this command.

Definition at line 5846 of file [cli.doc](#).

6.144.2.11 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_REJOIN\_REQUEST

**plugin test-harness z3 nwk nwk-rejoin-request [destination:2]**

- *Send a Rejoin Request command.*
  - destination - INT16U - The destination address of the command.

Definition at line 5852 of file [cli.doc](#).

**6.144.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_REJOIN\_RESPONSE**

**plugin test-harness z3 nwk nwk-rejoin-response [newAddress:2] [status:1] [destination:2]**

- *Send a Rejoin Response command.*
  - newAddress - INT16U - The new short address of the destination node.
  - status - INT8U - The status of the rejoin.
  - destination - INT16U - The destination address of the command.

Definition at line 5860 of file [cli.doc](#).

**6.144.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE**

**plugin test-harness z3 nwk nwk-leave [rejoin:1] [request:1] [removeChildren:1] [destination:2] [options:4]**

- *Send a Network Leave command.*
  - rejoin - BOOLEAN - Whether or not the device should rejoin.
  - request - BOOLEAN - Whether or not this command is a request.
  - removeChildren - BOOLEAN - Whether or not the leaving device should remove its children.
  - destination - INT16U - The destination address of the command.
  - options - INT32U - The negative behavior options for this command.

Definition at line 5870 of file [cli.doc](#).

**6.144.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE\_SUPPRESSION\_ON**

**plugin test-harness z3 nwk nwk-leave-supression on**

- *Supress network leave commands.*

Definition at line 5875 of file [cli.doc](#).

**6.144.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE\_SUPPRESSION\_OFF**

**plugin test-harness z3 nwk nwk-leave-supression off**

- *Do not supress network leave commands.*

Definition at line 5880 of file [cli.doc](#).

6.144.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_H-  
ARNESS\_Z3\_NWK\_NWK\_KEY\_SUPRESSION\_ON

**plugin test-harness z3 nwk nwk-key-supression on**

- *Supress network leave commands.*

Definition at line 5885 of file [cli.doc](#).

6.144.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_H-  
ARNESS\_Z3\_NWK\_NWK\_KEY\_SUPRESSION\_OFF

**plugin test-harness z3 nwk nwk-key-supression off**

- *Do not supress network leave commands.*

Definition at line 5890 of file [cli.doc](#).

6.144.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_H-  
ARNESS\_Z3APS\_APSS\_REMOVE\_DEVICE

**plugin test-harness z3 aps aps-remove-device [parentLongAddress:-1] [destinationLongAddress:-1]**

- *Send an APS remove device command.*
  - parentLongAddress - OCTET\_STRING - The long address of the parent whose child will be removed.
  - destinationLongAddress - OCTET\_STRING - The long address of the node which will be removed.

Definition at line 5897 of file [cli.doc](#).

6.144.2.19 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_H-  
ARNESS\_Z3APS\_APSS\_REQUEST\_KEY

**plugin test-harness z3 aps aps-request-key [destination:2] [keyType:1] [partnerAddress:-1] [options:-4]**

- *Send an APS request key command.*
  - destination - INT16U - The short address destination of the command.
  - keyType - INT8U - The key type in the command payload.
  - partnerAddress - OCTET\_STRING - The partner address for the requested link key.
  - options - INT32U - The negative behavior options for this command.

Definition at line 5906 of file [cli.doc](#).

6.144.2.20 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_SCAN\_REQUEST\_PROCESS

**plugin test-harness z3 touchlink scan-request-process [linkInitiator:1] [unused:2] [options:4]**

- *Start the scan request process.*
  - linkInitiator - INT8U - The link initiator bit in scan requests.
  - unused - INT16U - This argument is unused.
  - options - INT32U - The negative behavior options for this command.

Definition at line 5914 of file [cli.doc](#).

6.144.2.21 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_START\_AS\_ROUTER

**plugin test-harness z3 touchlink start-as-router [panId:2] [options:4]**

- *Start a distributed network on which to perform ZLL operations.*
  - panId - INT16U - The PAN ID that will be used.
  - options - INT32U - The negative behavior options for this command.

Definition at line 5921 of file [cli.doc](#).

6.144.2.22 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_IS\_SCANNING

**plugin test-harness z3 touchlink is-scanning**

- *Print out whether or not the device is currently performing the scan process for touchlinking.*

Definition at line 5926 of file [cli.doc](#).

6.144.2.23 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_DEVICE\_INFORMATION\_REQUEST

**plugin test-harness z3 touchlink device-information-request [startIndex:1] [options:4]**

- *Send an device information request to the target found in the scan request process.*
  - startIndex - INT8U - The start index in the device information request command
  - options - INT32U - The negative behavior options for this command.

Definition at line 5933 of file [cli.doc](#).

**6.144.2.24 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_IDENTIFY\_REQUEST**

**plugin test-harness z3 touchlink identify-request [duration:2] [options:4]**

- *Send an identify request to the target found in the scan request process.*
  - duration - INT16U - The duration length of the identify state.
  - options - INT32U - The negative behavior options for this command.

Definition at line [5940](#) of file [cli.doc](#).

**6.144.2.25 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_RESET\_TO\_FACTORY\_NEW\_REQUEST**

**plugin test-harness z3 touchlink reset-to-factory-new-request [options:4]**

- *Send a reset to factory new request to the target found in the scan request process.*
  - options - INT32U - The negative behavior options for this command.

Definition at line [5946](#) of file [cli.doc](#).

**6.144.2.26 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_START\_REQUEST**

**plugin test-harness z3 touchlink network-start-request [networkAddress:2] [freeAddrBegin:2] [freeAddrEnd:2] [freeGroupBegin:2] [freeGroupEnd:2] [options:4]**

- *Send a network start request to the target found in the scan request process.*
  - networkAddress - INT16U - The designated node ID for the target node.
  - freeAddrBegin - INT16U - The free address range begin.
  - freeAddrEnd - INT16U - The free address range end.
  - freeGroupBegin - INT16U - The free group range begin.
  - freeGroupEnd - INT16U - The free group range end.
  - options - INT32U - The negative behavior options for this command.

Definition at line [5957](#) of file [cli.doc](#).

**6.144.2.27 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_JOIN\_ROUTER\_REQUEST**

**plugin test-harness z3 touchlink network-join-router-request [networkAddress:2] [freeAddrBegin:2] [freeAddrEnd:2] [freeGroupBegin:2] [freeGroupEnd:2] [options:4]**

- *Send a network router join request to the target found in the scan request process.*
  - networkAddress - INT16U - The designated node ID for the target node.

- freeAddrBegin - INT16U - The free address range begin.
- freeAddrEnd - INT16U - The free address range end.
- freeGroupBegin - INT16U - The free group range begin.
- freeGroupEnd - INT16U - The free group range end.
- options - INT32U - The negative behavior options for this command.

Definition at line 5968 of file [cli.doc](#).

```
6.144.2.28 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_TEST_HARNESS_Z3_PLUGIN_TEST_H-
ARNESS_Z3_TOUCHLINK_NETWORK_JOIN_END_DEVICE_REQUEST
```

**plugin test-harness z3 touchlink network-join-end-device-request [networkAddress:2] [freeAddrBegin:2] [freeAddrEnd:2] [freeGroupBegin:2] [freeGroupEnd:2] [options:4]**

- *Send a network end device join request to the target found in the scan request process.*
  - networkAddress - INT16U - The designated node ID for the target node.
  - freeAddrBegin - INT16U - The free address range begin.
  - freeAddrEnd - INT16U - The free address range end.
  - freeGroupBegin - INT16U - The free group range begin.
  - freeGroupEnd - INT16U - The free group range end.
  - options - INT32U - The negative behavior options for this command.

Definition at line 5979 of file [cli.doc](#).

```
6.144.2.29 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_TEST_HARNESS_Z3_PLUGIN_TEST_H-
ARNESS_Z3_TOUCHLINK_NETWORK_UPDATE_REQUEST
```

**plugin test-harness z3 touchlink network-update-request [options:4]**

- *Send a network update request.*
  - options - INT32U - The negative behavior options for this command.

Definition at line 5985 of file [cli.doc](#).

```
6.144.2.30 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_TEST_HARNESS_Z3_PLUGIN_TEST_H-
ARNESS_Z3_MGMT_PERMIT_JOINING_REQ
```

**plugin test-harness z3 mgmt permit-joining-req [permitDurationS:2] [destination:2] [options:4]**

- *Unicast a permit joining command.*
  - permitDurationS - INT16U - The permit duration, in seconds.
  - destination - INT16U - The destination address of the command.
  - options - INT32U - The negative behavior options for this command.

Definition at line 5993 of file [cli.doc](#).

6.144.2.31 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_MGMT\_LEAVE

**plugin test-harness z3 mgmt leave [destination:2] [removeChildren:1] [rejoin:1] [options:4]**

- *Unicast a permit joining command.*
  - destination - INT16U - The destination address of the command.
  - removeChildren - BOOLEAN - Whether or not the leaving device should remove its children.
  - rejoin - BOOLEAN - Whether or not the destination node should rejoin the network.
  - options - INT32U - The negative behavior options for this command.

Definition at line 6002 of file [cli.doc](#).

6.144.2.32 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_MGMT\_NWK\_UPDATE\_REQUEST

**plugin test-harness z3 mgmt nwk-update-request [scanChannel:2] [scanDuration:2] [scanCount:1] [destination:2] [options:4]**

- *Unicast a network update command.*
  - scanChannel - INT16U - The scan channel for the command.
  - scanDuration - INT16U - The scan duration for the command.
  - scanCount - INT8U - The scan count for the command.
  - destination - INT16U - The scan destination.
  - options - INT32U - The negative behavior options for this command.

Definition at line 6012 of file [cli.doc](#).

6.144.2.33 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_ZDO\_RESET

**plugin test-harness z3 zdo zdo-reset**

- *Reset any pending negative ZDO behavior.*

Definition at line 6017 of file [cli.doc](#).

6.144.2.34 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_ZDO\_NODE\_DESC\_RSP\_CONFIG

**plugin test-harness z3 zdo zdo-node-desc-rsp-config [options:4]**

- *Configure the next outgoing node descriptor response.*
  - options - INT32U - The negative behavior options for this command.

Definition at line 6023 of file [cli.doc](#).

6.144.2.35 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_ACTIVE\_ENDPOINT\_REQUEST

**plugin test-harness z3 zdo active-endpoint-request [destination:2] [networkAddressOfInterest:2] [options:4]**

- *Unicast an active endpoint request.*
  - destination - INT16U - The destination address of the command.
  - networkAddressOfInterest - INT16U - The network address of interest.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6031](#) of file [cli.doc](#).

6.144.2.36 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_MATCH\_DESC\_REQ

**plugin test-harness z3 zdo match-desc-req [destination:2] [networkAddressOfInterest:2] [profileId:2] [options:4]**

- *Unicast a match descriptor request.*
  - destination - INT16U - The destination address of the command.
  - networkAddressOfInterest - INT16U - The network address of interest.
  - profileId - INT16U - The profile id in the APS header of the command.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6040](#) of file [cli.doc](#).

6.144.2.37 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_MATCH\_DESC\_RSP\_CONFIG

**plugin test-harness z3 zdo match-desc-rsp-config [networkAddressOfInterest:2] [status:1] [options:4]**

- *Configure the next outgoing match descriptor response.*
  - networkAddressOfInterest - INT16U - The network address of interest.
  - status - INT8U - The status for the response command.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6048](#) of file [cli.doc](#).

6.144.2.38 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_SIMPLE\_DESC\_REQ

**plugin test-harness z3 zdo simple-desc-req [destination:2] [endpoint:1] [networkAddressOfInterest:2] [options:4]**

- *Unicast a simple descriptor request.*
  - destination - INT16U - The destination address of the command.
  - endpoint - INT8U - The endpoint for the simple descriptor request.
  - networkAddressOfInterest - INT16U - The network address of interest.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6057](#) of file `cli.doc`.

```
6.144.2.39 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_TEST_HARNESS_Z3_PLUGIN_TEST_H-
ARNESS_Z3_ZDO_SIMPLE_DESC_RSP_CONFIG
```

```
plugin test-harness z3 zdo simple-desc-rsp-config [networkAddressOfInterest:2] [status:1] [length:1]
[options:4]
```

- *Configure the next outgoing simple descriptor response.*
  - networkAddressOfInterest - INT16U - The network address of interest.
  - status - INT8U - The status for the response command.
  - length - INT8U - The trimmed length of the command.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6066](#) of file `cli.doc`.

```
6.144.2.40 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_TEST_HARNESS_Z3_PLUGIN_TEST_H-
ARNESS_Z3_ZDO_UNBIND_UNICAST
```

```
plugin test-harness z3 zdo unbind unicast [target:2] [source eui64:8] [source endpoint:1] [clusterID-
:2] [destinationEUI64:8] [destEndpoint:1]
```

- *Sends an unbind request for a unicast binding to the target device.*
  - target - INT16U - Target node ID
  - source eui64 - IEEE\_ADDRESS - The source EUI64 of the binding (the remote device's EU-
I64)
  - source endpoint - INT8U - The source endpoint of the binding.
  - clusterID - INT16U - The cluster ID to unbind.
  - destinationEUI64 - IEEE\_ADDRESS - The destination EUI64 in the binding (usually the local
node's EUI64)
  - destEndpoint - INT8U - The destination endpoint of the binding

Definition at line [6077](#) of file `cli.doc`.

6.144.2.41 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_UNBIND\_GROUP

**plugin test-harness z3 zdo unbind group [target:2] [source eui64:8] [source endpoint:1] [clusterID:2] [groupAddress:2]**

- Sends an unbind request for a multicast binding to the target device.
  - target - INT16U - Target node ID
  - source eui64 - IEEE\_ADDRESS - The source EUI64 of the binding (the remote device's EU-I64)
  - source endpoint - INT8U - The source endpoint of the binding.
  - clusterID - INT16U - The cluster ID to unbind.
  - groupAddress - INT16U - The group address in the binding

Definition at line [6087](#) of file [cli.doc](#).

6.144.2.42 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_IN\_CL\_LIST\_ADD

**plugin test-harness z3 zdo in-cl-list add [clusterId:2]**

- Add clusters to the known server (in) clusters on this device.
  - clusterId - INT16U - Server cluster id

Definition at line [6093](#) of file [cli.doc](#).

6.144.2.43 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_IN\_CL\_LIST\_CLEAR

**plugin test-harness z3 zdo in-cl-list clear**

- Clear the ZDO list of server (in) clusters.

Definition at line [6098](#) of file [cli.doc](#).

6.144.2.44 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_OUT\_CL\_LIST\_ADD

**plugin test-harness z3 zdo out-cl-list add [clusterId:2]**

- Add clusters to the known client (out) clusters on this device.
  - clusterId - INT16U - Client cluster ids

Definition at line [6104](#) of file [cli.doc](#).

6.144.2.45 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_OUT\_CL\_LIST\_CLEAR

**plugin test-harness z3 zdo out-cl-list clear**

- Clear the ZDO list of client (out) clusters.

Definition at line 6109 of file [cli.doc](#).

6.144.2.46 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_NODE

**plugin test-harness z3 zdo node [target:2]**

- Sends a node descriptor request to a given target device
  - target - INT16U - Two byte address for the target device.

Definition at line 6115 of file [cli.doc](#).

6.144.2.47 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_LEAVE

**plugin test-harness z3 zdo leave [target:2] [removeChildren:1] [rejoin:1]**

- Send a ZDO Management Leave command to the target device.
  - target - INT16U - Target node ID
  - removeChildren - BOOLEAN - Remove children
  - rejoin - BOOLEAN - Rejoin after leave

Definition at line 6123 of file [cli.doc](#).

6.144.2.48 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_ROUTE

**plugin test-harness z3 zdo route [target:2] [index:1]**

- Send a ZDO route request command to the target.
  - target - INT16U - Target node ID
  - index - INT8U - The index of the remote node's routing table to request.

Definition at line 6130 of file [cli.doc](#).

6.144.2.49 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_POWER

**plugin test-harness z3 zdo power [target:2]**

- *Send a ZDO Power Descriptor Request to the target device.*

- target - INT16U - Target node ID

Definition at line [6136](#) of file [cli.doc](#).

6.144.2.50 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_BIND

**plugin test-harness z3 zdo bind [destination:2] [source Endpoint:1] [destEndpoint:1] [cluster:2] [remote-EUI64:8] [destEUI64:8]**

- *Send a ZDO Bind command to a device specified in the command arguments.*

- destination - INT16U - Two byte destination node id
- source Endpoint - INT8U - Remote device's source endpoint to bind
- destEndpoint - INT8U - Remote endpoint to bind
- cluster - INT16U - Cluster on which to bind
- remoteEUI64 - IEEE\_ADDRESS - Remote node EUI64
- destEUI64 - IEEE\_ADDRESS - Binding's dest EUI64. Usually the local node's EUI64

Definition at line [6147](#) of file [cli.doc](#).

6.144.2.51 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_BIND\_GROUP

**plugin test-harness z3 zdo bind-group [shortAddress:2] [sourceEndpoint:1] [destEndpoint:1] [destination:2] [cluster:2] [srcAddress:8]**

- *Send a ZDO bind command to a device specified to create a groupcast binding.*

- shortAddress - INT16U - The destination of the ZDO command
- sourceEndpoint - INT8U - Remote device's source endpoint to bind
- destEndpoint - INT8U - Remote endpoint to bind
- destination - INT16U - Two byte destination address for the binding
- cluster - INT16U - Cluster on which to bind
- srcAddress - IEEE\_ADDRESS - The source IEEE address for the binding

Definition at line [6158](#) of file [cli.doc](#).

**6.144.2.52 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_NWK\_ADDR\_REQ**

**plugin test-harness z3 zdo nwk-addr-req [ieeeAddress:8] [type:1] [startIndex:1] [destination:2] [options:4]**

- *Send a ZDO address request.*
  - ieeeAddress - IEEE\_ADDRESS - The long address of the destination.
  - type - INT8U - The type of the rejoin request.
  - startIndex - INT8U - The start index for the requested elements of the associated devices list if the type of this command is Extended response.
  - destination - INT16U - The destination address of the command.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6168](#) of file [cli.doc](#).

**6.144.2.53 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_IEEE\_ADDR\_REQ**

**plugin test-harness z3 zdo ieee-addr-req [addrOfInterest:2] [type:1] [startIndex:1] [destination:2] [options:4]**

- *Send an IEEE address request.*
  - addrOfInterest - INT16U - The short address of interest
  - type - INT8U - The request type.
  - startIndex - INT8U - The start index for the requested elements of the associated devices list if the type of this command is Extended response.
  - destination - INT16U - The destination address of the command.
  - options - INT32U - The negative behavior options for this command.

Definition at line [6178](#) of file [cli.doc](#).

**6.144.2.54 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_MGMT\_BIND**

**plugin test-harness z3 zdo mgmt-bind [target:2] [startIndex:1]**

- *Send a ZDO MGMT-Bind (Binding Table) Request to the target device.*
  - target - INT16U - Target node ID
  - startIndex - INT8U - Starting index into table query

Definition at line [6185](#) of file [cli.doc](#).

6.144.2.55 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZDO\_MGMT\_LQI

**plugin test-harness z3 zdo mgmt-lqi [target:2] [startIndex:1]**

- *Send a ZDO MGMT-LQI (LQI Table) Request to the target device.*

- target - INT16U - Target node ID
- startIndex - INT8U - Starting index into table query

Definition at line [6192](#) of file [cli.doc](#).

6.144.2.56 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_RESET

**plugin test-harness z3 nwk ieee-addr-rsp-config reset**

- *Configure the next outgoing IEEE address request.*

Definition at line [6197](#) of file [cli.doc](#).

6.144.2.57 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_ISSUER\_NWK\_ADDRESS\_REMOTE\_DEV

**plugin test-harness z3 nwk ieee-addr-rsp-config issuer-nwk-address-remote-dev**

- *Configure the next outgoing IEEE address request.*

Definition at line [6202](#) of file [cli.doc](#).

6.144.2.58 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_STATUS\_DEVICE\_NOT\_FOUND

**plugin test-harness z3 nwk ieee-addr-rsp-config status-device-not-found**

- *Configure the next outgoing IEEE address request.*

Definition at line [6207](#) of file [cli.doc](#).

6.144.2.59 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_ZCL\_READ

**plugin test-harness z3 zcl read [clusterId:2] [attributeId:2] [destination:2] [srcEndpoint:1] [dstEndpoint:1] [profileId:2]**

- *Send a ZCL ReadAttribute command.*

- clusterId - INT16U - The cluster ID in the command.
- attributeId - INT16U - The attribute ID in the command.

- destination - INT16U - The destination of the command.
- srcEndpoint - INT8U - The source endpoint of the command.
- dstEndpoint - INT8U - The destination endpoint of the command.
- profileId - INT16U - The profile ID in the command.

Definition at line [6218](#) of file [cli.doc](#).

**6.144.2.60 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_RESET**

#### **plugin test-harness z3 reset**

- Resets the device to a factory new state (empty tables, attributes at default values, no events queued etc) without resetting the any of the physical hardware that could cause the device to not operate on the same serial connection.

Definition at line [6223](#) of file [cli.doc](#).

**6.144.2.61 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_PLATFORM**

#### **plugin test-harness z3 platform**

- Print the platform information for this device.

Definition at line [6228](#) of file [cli.doc](#).

**6.144.2.62 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_SET\_PAN\_ID**

#### **plugin test-harness z3 set-pan-id [panId:2]**

- Set the PAN ID to be used by the Network Creator plugin.
  - panId - INT16U - The PAN ID for the Network Creator plugin to use.

Definition at line [6234](#) of file [cli.doc](#).

**6.144.2.63 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_SET\_SHORT\_ADDRESS**

#### **plugin test-harness z3 set-short-address [nodeId:2]**

- Set the node ID to be used on the device.
  - nodeId - INT16U - The node ID to use as this device's short ID.

Definition at line [6240](#) of file [cli.doc](#).

6.144.2.64 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_LEGACY\_PROFILE\_ENABLE

**plugin test-harness z3 legacy-profile enable**

- Enable using the legacy profile of 0xC05E for ZLL commands.

Definition at line [6245](#) of file [cli.doc](#).

6.144.2.65 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_LEGACY\_PROFILE\_DISABLE

**plugin test-harness z3 legacy-profile disable**

- Disable using the legacy profile of 0xC05E for ZLL commands.

Definition at line [6250](#) of file [cli.doc](#).

6.144.2.66 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_SET\_DEVICE\_MODE

**plugin test-harness z3 set-device-mode [mode:1]**

- Set the node ID to be used on the device.
  - mode - INT8U - The device mode.

Definition at line [6256](#) of file [cli.doc](#).

6.144.2.67 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_INSTALL\_CODE\_CLEAR

**plugin test-harness z3 install-code clear**

- Clear the install code from the device.

Definition at line [6261](#) of file [cli.doc](#).

6.144.2.68 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_INSTALL\_CODE\_SET

**plugin test-harness z3 install-code set [installCode:-1]**

- Clear the install code from the device.
  - installCode - OCTET\_STRING - The install code for this device to use.

Definition at line [6267](#) of file [cli.doc](#).

## 6.145 Plugin Commands: ZigBee Light Link (ZLL) Commissioning

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_FORM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_DEVICE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_IDENTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_ABORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_LINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_IDENTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_GROUPS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_ENDPOINTS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_TOKENS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_MASK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_JOINABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_UNUSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_NOTOUCHLINK\_NFN

### 6.145.1 Detailed Description

The ZigBee Light Link (ZLL) Commissioning Plugin contributes several commands to the application framework's CLI. These commands are used for forming and managing a ZLL network.

### 6.145.2 Macro Definition Documentation

6.145.2.1 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_FORM

### **plugin zll-commissioning form [channel:1] [power:1] [panId:2]**

- *Form a ZLL network.*
  - channel - INT8U - The channel on which to form the network.
  - power - INT8S - The power setting for network transmissions.
  - panId - INT16U - The PAN identifier for the network.

Definition at line 6388 of file [cli.doc](#).

6.145.2.2 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_SCAN\_DEVICE

### **plugin zll-commissioning scan device**

- *Initiate a touch link for the purpose of retrieving information about a target device.*

Definition at line 6393 of file [cli.doc](#).

6.145.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_SCAN\_IDENTIFY

### **plugin zll-commissioning scan identify**

- *Initiate a touch link for the purpose of causing a target device to identify itself.*

Definition at line 6398 of file [cli.doc](#).

6.145.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_SCAN\_RESET

### **plugin zll-commissioning scan reset**

- *Initiate a touch link for the purpose of resetting a target device.*

Definition at line 6403 of file [cli.doc](#).

6.145.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_ABORT

### **plugin zll-commissioning abort**

- *Abort the touch link procedure.*

Definition at line 6408 of file [cli.doc](#).

6.145.2.6 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_LINK

### **plugin zll-commissioning link**

- *Initiate the touch link procedure.*

Definition at line [6413](#) of file [cli.doc](#).

6.145.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_IDENTIFY

### **plugin zll-commissioning identify [identifyDurationDs:2]**

- *Set the duration that a target device should remain in identify mode during touch linking.*
  - identifyDurationDs - INT16U - The duration (in tenths of a second) of identify mode or 0xFFFF to indicate that the target should use its own application-specific duration.

Definition at line [6419](#) of file [cli.doc](#).

6.145.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_INFO

### **plugin zll-commissioning info [destination:2] [sourceEndpoint:1] [destinationEndpoint:1]**

- *Send an EndpointInformationRequest to a client.*
  - destination - INT16U - The network address of the device to which the request will be sent.
  - sourceEndpoint - INT8U - The source endpoint from which the request will be sent.
  - destinationEndpoint - INT8U - The destination endpoint to which the request will be sent.

Definition at line [6427](#) of file [cli.doc](#).

6.145.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_GROUPS

### **plugin zll-commissioning groups [destination:2] [sourceEndpoint:1] [destinationEndpoint:1] [startIndex:1]**

- *Send a GroupIdentifiersRequest to a server.*
  - destination - INT16U - The network address of the device to which the request will be sent.
  - sourceEndpoint - INT8U - The source endpoint from which the request will be sent.
  - destinationEndpoint - INT8U - The destination endpoint to which the request will be sent.
  - startIndex - INT8U - The group table index at which to start retrieving data.

Definition at line [6436](#) of file [cli.doc](#).

**6.145.2.10 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-OMMISSIONING\_ENDPOINTS**

**plugin zll-commissioning endpoints [destination:2] [sourceEndpoint:1] [destinationEndpoint:1] [startIndex:1]**

- *Send a GetEndpointListRequest to a server.*
  - destination - INT16U - The network address of the device to which the request will be sent.
  - sourceEndpoint - INT8U - The source endpoint from which the request will be sent.
  - destinationEndpoint - INT8U - The destination endpoint to which the request will be sent.
  - startIndex - INT8U - The endpoint index at which to start retrieving data.

Definition at line [6445](#) of file [cli.doc](#).

**6.145.2.11 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-OMMISSIONING\_TOKENS**

**plugin zll-commissioning tokens**

- *Print the ZLL tokens.*

Definition at line [6450](#) of file [cli.doc](#).

**6.145.2.12 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-OMMISSIONING\_CHANNEL**

**plugin zll-commissioning channel [channel:1]**

- *Set the scan channel used by the ZLL Commissioning plugin.*
  - channel - INT8U - The channel to be used.

Definition at line [6456](#) of file [cli.doc](#).

**6.145.2.13 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-OMMISSIONING\_MASK**

**plugin zll-commissioning mask [index:1]**

- *Set the scan channel set used by the ZLL Commissioning plugin. An index of 0 sets the primary ZLL channel set, 1 is the +1 channel set, 2 is the +2 channel set, 3 is the +3 channel set, and 4 is all ZigBee channels.*
  - index - INT8U - The index of the channel mask to be used.

Definition at line [6462](#) of file [cli.doc](#).

6.145.2.14 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_STATUS

#### **plugin zll-commissioning status**

- Print the ZLL channel set and tokens.

Definition at line 6467 of file [cli.doc](#).

6.145.2.15 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_JOINABLE

#### **plugin zll-commissioning joinable**

- Scan for joinable networks and attempt to join if a network is found.

Definition at line 6472 of file [cli.doc](#).

6.145.2.16 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_UNUSED

#### **plugin zll-commissioning unused**

- Scan for an unused PAN identifier and form a new ZLL network.

Definition at line 6477 of file [cli.doc](#).

6.145.2.17 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_RESET

#### **plugin zll-commissioning reset**

- Reset the local device to factory new.

Definition at line 6482 of file [cli.doc](#).

6.145.2.18 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_C-  
OMMISSIONING\_NOTOUCHLINK\_NFN

#### **plugin zll-commissioning notouchlink-nfn**

- Disable touchlinking for NFN.

Definition at line 6487 of file [cli.doc](#).

## 6.146 Plugin Commands: ZigBee Remote Control 1.1 Profile

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_PAIR\_ORIGINATOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_PAIR\_RECIPIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_PRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_RELEASE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_DISCOVERY

### 6.146.1 Detailed Description

The RF4CE ZRC 1.1 plugin contributes several commands to the application framework's CLI. These commands are used for initiating the push-button pairing operation and for sending HDMI UI commands.

### 6.146.2 Macro Definition Documentation

#### 6.146.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11 - PAIR\_ORIGINATOR

**plugin rf4ce-zrc11 pair originator [panId:2] [nodeId:2] [searchDevType:1]**

- *Initiate the push-button pairing operation as an originator.*
  - panId - INT16U - The PAN ID of the destination device for the discovery.
  - nodeId - INT16U - The network address of the destination device for the discovery.
  - searchDevType - INT8U - The device type to discovery.

Definition at line 6506 of file [cli.doc](#).

#### 6.146.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11 - PAIR\_RECIPIENT

**plugin rf4ce-zrc11 pair recipient**

- *Initiate the push-button pairing operation as a recipient.*

Definition at line 6511 of file [cli.doc](#).

#### 6.146.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11 - PRESS

**plugin rf4ce-zrc11 press [pairingIndex:1] [rcCommandCode:1] [rcCommandPayload:-1] [atomic:1]**

- *Send User Control Pressed command.*

- pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
- rcCommandCode - INT8U - The HDMI CEC operand [UI Command].
- rcCommandPayload - OCTET\_STRING - The additional operands, if any, required by the H-DMI CEC command.
- atomic - BOOLEAN - TRUE if the user control is atomic or FALSE if it should repeat.

Definition at line 6520 of file [cli.doc](#).

#### **6.146.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11 - RELEASE**

##### **plugin rf4ce-zrc11 release [pairingIndex:1] [rcCommandCode:1]**

- *Send User Control Released command.*

- pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.
- rcCommandCode - INT8U - The HDMI CEC operand [UI Command].

Definition at line 6527 of file [cli.doc](#).

#### **6.146.2.5 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11 - DISCOVERY**

##### **plugin rf4ce-zrc11 discovery [pairingIndex:1]**

- *Send Command Discovery Request command.*

- pairingIndex - INT8U - The index of the entry in the pairing table to which to send the command.

Definition at line 6533 of file [cli.doc](#).

## 6.147 Plugin Commands: ZigBee Remote Control 2.0 Action Mapping Client

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_CLEAR\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_RF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET

### 6.147.1 Detailed Description

The RF4CE ZRC 2.0 Action Mapping Client plugin contributes several commands to the application framework's CLI.

### 6.147.2 Macro Definition Documentation

#### 6.147.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_CLEAR\_ALL

**plugin rf4ce-zrc20-action-mapping-client clear-all**

- *Clear all action mapping entries.*

Definition at line 6548 of file [cli.doc](#).

#### 6.147.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_CLEAR

**plugin rf4ce-zrc20-action-mapping-client clear [pairingIndex:1] [actionDeviceType:1] [actionBank:1] [actionCode:1]**

- *Clear action mapping entry.*
  - pairingIndex - INT8U - Pairing Index.
  - actionDeviceType - INT8U - Action Device Type.
  - actionBank - INT8U - Action Bank.
  - actionCode - INT8U - Action Code.

Definition at line 6557 of file [cli.doc](#).

6.147.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_GET

**plugin rf4ce-zrc20-action-mapping-client get [pairingIndex:1] [actionDeviceType:1] [actionBank:1] [actionCode:1]**

- Get an action mapping entry.

- pairingIndex - INT8U - Pairing Index.
- actionDeviceType - INT8U - Action Device Type.
- actionBank - INT8U - Action Bank.
- actionCode - INT8U - Action Code.

Definition at line [6566](#) of file [cli.doc](#).

6.147.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_FLAGS

**plugin rf4ce-zrc20-action-mapping-client set-flags [mappingFlags:1]**

- All members of the action mapping structure have to be transferred before an entry can be added to the client. This command transfers the mappingFlags field and stores it temporarily. This command shall be followed by the set-rf command.
- mappingFlags - INT8U - Mapping Flags.

Definition at line [6575](#) of file [cli.doc](#).

6.147.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_RF

**plugin rf4ce-zrc20-action-mapping-client set-rf [rfConfig:1] [rf4ceTxOptions:1] [actionData:-1]**

- All members of the action mapping structure have to be transferred before an entry can be added to the client. This command transfers the following fields: rfConfig, rf4ceTxOptions and actionData and stores them temporarily. This command shall be followed by the set-ir command.
- rfConfig - INT8U - The RF config.
- rf4ceTxOptions - INT8U - The RF4CE TX options.
- actionData - OCTET\_STRING - The action data.

Definition at line [6587](#) of file [cli.doc](#).

6.147.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_IR

**plugin rf4ce-zrc20-action-mapping-client set-ir [irConfig:1] [irVendorId:2] [irCode:-1]**

- All members of the action mapping structure have to be transferred before an entry can be added to the client. This command transfers the following fields: irConfig, irVendorId and irCode and stores them temporarily. This command shall be followed by the set command.

- irConfig - INT8U - The IR config.
- irVendorId - INT16U - The IR vendor ID.
- irCode - OCTET\_STRING - The IR code.

Definition at line 6598 of file [cli.doc](#).

**6.147.2.7 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET**

**plugin rf4ce-zrc20-action-mapping-client set [pairingIndex:1] [actionDeviceType:1] [actionBank:1] [actionCode:1]**

- All members of the action mapping structure have to be transferred before an entry can be added to the client. This command takes all temporarily stored fields transferred by set-flags, set-rf and set-ir commands, looks up the mappable action entry specified by the pairing index, action device type, action bank and action code and sets its action mapping entry on the client.
  - pairingIndex - INT8U - Pairing Index.
  - actionDeviceType - INT8U - Action Device Type.
  - actionBank - INT8U - Action Bank.
  - actionCode - INT8U - Action Code.

Definition at line 6612 of file [cli.doc](#).

## 6.148 Plugin Commands: ZigBee Remote Control 2.0 Action Mapping Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_RF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_RESET\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_GET

### 6.148.1 Detailed Description

The RF4CE ZRC 2.0 Action Mapping Server plugin contributes several commands to the application framework's CLI.

### 6.148.2 Macro Definition Documentation

#### 6.148.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_FLAGS

**plugin rf4ce-zrc20-action-mapping-server set-flags [mappingFlags:1]**

- This command transfers the mappingFlags member of the action mapping structure and stores it temporarily.
  - mappingFlags - INT8U - Mapping Flags.

Definition at line 6629 of file [cli.doc](#).

#### 6.148.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_RF

**plugin rf4ce-zrc20-action-mapping-server set-rf [rfConfig:1] [rf4ceTxOptions:1] [actionData:-1]**

- This command transfers the rfConfig, rf4ceTxOptions and actionData members of the action mapping structure and stores them temporarily.
  - rfConfig - INT8U - The RF config.
  - rf4ceTxOptions - INT8U - The RF4CE TX options.
  - actionData - OCTET\_STRING - The action data.

Definition at line 6638 of file [cli.doc](#).

**6.148.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_IR**

**plugin rf4ce-zrc20-action-mapping-server set-ir [irConfig:1] [irVendorId:2] [irCode:-1]**

- This command transfers the irConfig, irVendorId and irCode members of the action mapping structure and stores them temporarily.

- irConfig - INT8U - The IR config.
- irVendorId - INT16U - The IR vendor ID.
- irCode - OCTET\_STRING - The IR code.

Definition at line 6647 of file [cli.doc](#).

**6.148.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET**

**plugin rf4ce-zrc20-action-mapping-server set [actionDeviceType:1] [actionBank:1] [actionCode:1]**

- This command takes the temporarily stored members of the action mapping structure transferred by set-flags, set-rf and set-ir commands and remaps the action specified by actionDeviceType, actionBank and actionCode on the server.

- actionDeviceType - INT8U - Action Device Type.
- actionBank - INT8U - Action Bank.
- actionCode - INT8U - Action Code.

Definition at line 6658 of file [cli.doc](#).

**6.148.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_RESET**

**plugin rf4ce-zrc20-action-mapping-server reset [actionDeviceType:1] [actionBank:1] [actionCode:1]**

- Restore default action of the mappable action on the server.

- actionDeviceType - INT8U - Action Device Type.
- actionBank - INT8U - Action Bank.
- actionCode - INT8U - Action Code.

Definition at line 6666 of file [cli.doc](#).

**6.148.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_RESET\_ALL**

**plugin rf4ce-zrc20-action-mapping-server reset-all**

- Restore all actions to default on the server.

Definition at line 6671 of file [cli.doc](#).

```
6.148.2.7 #define EMBER_AF_DOXYGEN_CLI_COMMAND_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SERVER_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SERVER_GET
```

```
plugin rf4ce-zrc20-action-mapping-server get [actionDeviceType:1] [actionBank:1] [actionCode:1]
```

- *Get action mapping from the action mapping server.*
  - actionDeviceType - INT8U - Action Device Type.
  - actionBank - INT8U - Action Bank.
  - actionCode - INT8U - Action Code.

Definition at line [6679](#) of file [cli.doc](#).

## 6.149 Plugin Commands: ZigBee Remote Control 2.0 HA Server

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_CLEARALLHAATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_GETHAATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_SETHAATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGCLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGREMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGGET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGPRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_-  
PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGPRINTALL

### 6.149.1 Detailed Description

The RF4CE ZRC 2.0 HA Server plugin contributes several commands to the application framework's CLI.

### 6.149.2 Macro Definition Documentation

**6.149.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_CLEARALLHAATTR**

**plugin rf4ce-zrc20-ha-server clearallhaattr**

- *Clear all HA attribute values.*

Definition at line [6694](#) of file [cli.doc](#).

**6.149.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_GETHAATTR**

**plugin rf4ce-zrc20-ha-server gethaattr [pairingIndex:1] [haInstanceId:1] [haAttributeId:1]**

- *Get HA attribute.*
  - pairingIndex - INT8U - Pairing Index.
  - haInstanceId - INT8U - HA Instance ID.
  - haAttributeId - INT8U - HA Attribute ID.

Definition at line [6702](#) of file [cli.doc](#).

**6.149.2.3 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_SETHAATTR**

**plugin rf4ce-zrc20-ha-server sethaattr [pairingIndex:1] [haInstanceId:1] [haAttributeId:1] [haAttributeContents:-1]**

- *Set HA attribute.*
  - pairingIndex - INT8U - Pairing Index.
  - haInstanceId - INT8U - HA Instance ID.
  - haAttributeId - INT8U - HA Attribute ID.
  - haAttributeContents - OCTET\_STRING - HA Attribute contents.

Definition at line [6711](#) of file [cli.doc](#).

**6.149.2.4 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGCLEAR**

**plugin rf4ce-zrc20-ha-server ldandmappingclear**

- *Clear logicalDevices table and instanceToLogicalDevice table.*

Definition at line [6716](#) of file [cli.doc](#).

**6.149.2.5 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGADD**

**plugin rf4ce-zrc20-ha-server ldandmappingadd [pairingIndex:1] [haInstanceId:1] [type:1] [indexOrDestination:2] [sourceEndpoint:1] [destinationEndpoint:1]**

- *Add logical device and map it to instance.*
  - pairingIndex - INT8U - Pairing Index.
  - haInstanceId - INT8U - HA Instance ID.
  - type - INT8U - Outgoing Message Type.
  - indexOrDestination - INT16U - Index or Destination.
  - sourceEndpoint - INT8U - Source Endpoint.
  - destinationEndpoint - INT8U - Destination Endpoint.

Definition at line [6727](#) of file [cli.doc](#).

**6.149.2.6 #define EMBER\_AF\_DDOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGREMOVE**

**plugin rf4ce-zrc20-ha-server ldandmappingremove [type:1] [indexOrDestination:2] [sourceEndpoint:1] [destinationEndpoint:1]**

- *Remove logical device and all instances mapped to it.*

- type - INT8U - Outgoing Message Type.
- indexOrDestination - INT16U - Index or Destination.
- sourceEndpoint - INT8U - Source Endpoint.
- destinationEndpoint - INT8U - Destination Endpoint.

Definition at line [6736](#) of file [cli.doc](#).

**6.149.2.7 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGGET**

**plugin rf4ce-zrc20-ha-server ldandmappingget [pairingIndex:1] [haInstanceId:1]**

- *Get logical device mapped to an instance.*
  - pairingIndex - INT8U - Pairing Index.
  - haInstanceId - INT8U - HA Instance ID.

Definition at line [6743](#) of file [cli.doc](#).

**6.149.2.8 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGPRINT**

**plugin rf4ce-zrc20-ha-server ldandmappingprint [type:1] [indexOrDestination:2] [sourceEndpoint:1] [destinationEndpoint:1]**

- *Print logical device and all HA instances mapped to it.*
  - type - INT8U - Outgoing Message Type.
  - indexOrDestination - INT16U - Index or Destination.
  - sourceEndpoint - INT8U - Source Endpoint.
  - destinationEndpoint - INT8U - Destination Endpoint.

Definition at line [6752](#) of file [cli.doc](#).

**6.149.2.9 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGPRINTALL**

**plugin rf4ce-zrc20-ha-server ldandmappingprintall**

- *Print logicalDevices table and instanceToLogicalDevice table.*

Definition at line [6757](#) of file [cli.doc](#).

## 6.150 Plugin Commands: ZigBee Remote Control 2.0 Profile

### Macros

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_PROXY\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_STOP

#### 6.150.1 Detailed Description

The RF4CE ZRC 2.0 plugin contributes several commands to the application framework's CLI.

#### 6.150.2 Macro Definition Documentation

##### 6.150.2.1 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_BIND

**plugin rf4ce-zrc20 bind [searchDevType:1]**

- *Initiate the binding procedure.*
  - searchDevType - INT8U - The device type to discovery.

Definition at line [6773](#) of file [cli.doc](#).

##### 6.150.2.2 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_PROXY\_BIND

**plugin rf4ce-zrc20 proxy-bind [panId:2] [ieee:8]**

- *Initiate the proxy binding procedure.*
  - panId - INT16U - The pan id of the recipient.
  - ieee - IEEE\_ADDRESS - The IEEE address of the recipient.

Definition at line [6780](#) of file [cli.doc](#).

##### 6.150.2.3 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_START

**plugin rf4ce-zrc20 start [pairingIndex:1] [actionBank:1] [actionCode:1] [actionModifier:1] [actionVendorId:2] [actionData:-1] [atomic:1]**

- *Start an action.*

- pairingIndex - INT8U - The index of the entry in the pairing table to which to send the action.
- actionBank - INT8U - The action bank.
- actionCode - INT8U - The action code
- actionModifier - INT8U - The action modifier bits.
- actionVendorId - INT16U - The action vendor id.
- actionData - OCTET\_STRING - The action data.
- atomic - BOOLEAN - 0 for an atomic action or 1 for a repeating action.

Definition at line 6792 of file [cli.doc](#).

#### **6.150.2.4 #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20 - STOP**

**plugin rf4ce-zrc20 stop [pairingIndex:1] [actionBank:1] [actionCode:1] [actionModifier:1] [actionVendorId:2]**

- *Stop an action.*
  - pairingIndex - INT8U - The index of the entry in the pairing table to which the action was sent.
  - actionBank - INT8U - The action bank.
  - actionCode - INT8U - The action code.
  - actionModifier - INT8U - The action modifier bits.
  - actionVendorId - INT16U - The action vendor id.

Definition at line 6802 of file [cli.doc](#).

## 6.151 Plugin Commands: RGB control for PWM

Bulb Config is a plugin that implements a HAL layer for the light bulb. It includes a bulb-specific PWM driver, as well as CIB token space for configuring the PWM driver as well as the TX Power.

## 6.152 Scan Dispatch

### Data Structures

- struct [EmberAfPluginScanDispatchScanResults](#)  
*Information regarding scan results.*
- struct [EmberAfPluginScanDispatchScanData](#)  
*A structure containing data for scheduling a scan.*

### Macros

- #define [EMBER\\_AF\\_PLUGIN\\_SCAN\\_DISPATCH\\_SCAN\\_QUEUE\\_SIZE](#)

### Typedefs

- typedef void(\* [EmberAfPluginScanDispatchScanResultsHandler](#))([EmberAfPluginScanDispatchScanResults](#) \*results)

### Functions

- [EmberNetworkScanType](#) [emberAfPluginScanDispatchScanResultsGetScanType](#) ([EmberAfPluginScanDispatchScanResults](#) \*results)
- bool [emberAfPluginScanDispatchScanResultsAreComplete](#) ([EmberAfPluginScanDispatchScanResults](#) \*results)
- bool [emberAfPluginScanDispatchScanResultsAreFailure](#) ([EmberAfPluginScanDispatchScanResults](#) \*results)
- [EmberStatus](#) [emberAfPluginScanDispatchScheduleScan](#) ([EmberAfPluginScanDispatchScanData](#) \*data)
- void [emberAfPluginScanDispatchClear](#) (void)

#### 6.152.1 Detailed Description

This plugin allows for there to be multiple consumers of stack 802.15.4 scan callbacks.

#### 6.152.2 Macro Definition Documentation

##### 6.152.2.1 #define EMBER\_AF\_PLUGIN\_SCAN\_DISPATCH\_SCAN\_QUEUE\_SIZE

The size of the dispatch queue.

Definition at line 26 of file [scan-dispatch.h](#).

#### 6.152.3 Typedef Documentation

##### 6.152.3.1 typedef void(\* EmberAfPluginScanDispatchScanResultsHandler)(EmberAfPluginScanDispatchScanResults \*results)

A function type that handles scan results.

Definition at line 122 of file [scan-dispatch.h](#).

## 6.152.4 Function Documentation

### 6.152.4.1 EmberNetworkScanType emberAfPluginScanDispatchScanResultsGetScanType ( EmberAfPluginScanDispatchScanResults \* *results* )

Get Scan Type.

Gets the scan type from an [EmberAfPluginScanDispatchScanResults](#). This value will either be [EMBER\\_ENERGY\\_SCAN](#) or [EMBER\\_ACTIVE\\_SCAN](#).

#### Parameters

<i>results</i>	The <a href="#">EmberAfPluginScanDispatchScanResults</a> for which the scan type will be found.
----------------	---

#### Returns

The [EmberNetworkScanType](#) of the scan results.

### 6.152.4.2 bool emberAfPluginScanDispatchScanResultsAreComplete ( EmberAfPluginScanDispatchScanResults \* *results* )

Results Are Complete.

Get whether or not the scan that was originally requested by the consumer has completed. This can happen either when the dispatcher asks the stack for a scan (see `::emberStartScan`) or after all of the scan results have been delivered to the consumer (see [emberAfScanCompleteCallback](#)).

#### Parameters

<i>results</i>	The <a href="#">EmberAfPluginScanDispatchScanResults</a> that belong to a potentially complete scan.
----------------	--

#### Returns

Whether or not the scan for the scan results is complete.

### 6.152.4.3 bool emberAfPluginScanDispatchScanResultsAreFailure ( EmberAfPluginScanDispatchScanResults \* *results* )

Results Are Failure.

Get whether or not the scan results are from a failed call to `::emberStartScan`.

#### Parameters

<i>results</i>	The <a href="#">EmberAfPluginScanDispatchScanResults</a> for which the call to <code>::emberStartScan</code> may have failed.
----------------	---

#### Returns

Whether or not the call to `::emberStartScan` failed for these results.

#### 6.152.4.4 EmberStatus emberAfPluginScanDispatchScheduleScan ( EmberAfPluginScanDispatchScanData \* *data* )

Schedule Scan.

This API will schedule an 802.15.4 scan. The results will be delivered to the consumer via a handler in the passed [EmberAfPluginScanDispatchScanData](#).

##### Parameters

<i>data</i>	An <a href="#">EmberAfPluginScanDispatchScanData</a> that holds the scanType, channelMask, duration, and <a href="#">EmberAfPluginScanDispatchScanResultsHandler</a> for the scan.
-------------	--

##### Returns

An [EmberStatus](#) value describing the result of the scheduling of a scan.

#### 6.152.4.5 void emberAfPluginScanDispatchClear ( void )

Clear.

A call to this function will remove all consumers in the queue for scan results. It will also cancel any 802.15.4 scan that the stack is currently performing.

## 6.153 Framework Callbacks

### Functions

- int `main` (MAIN\_FUNCTION\_PARAMETERS)

#### 6.153.1 Detailed Description

These callbacks are contributed by the framework.

#### 6.153.2 Function Documentation

##### 6.153.2.1 int main ( MAIN\_FUNCTION\_PARAMETERS )

Main Application Entry Point.

This callback provides the main application entry point for an NCP application.

## 6.154 Button Callbacks

### Functions

- void `halButtonIsr` (uint8\_t button, uint8\_t state)

#### 6.154.1 Detailed Description

These callbacks are contributed by the Button plugin.

#### 6.154.2 Function Documentation

##### 6.154.2.1 void `halButtonIsr` ( uint8\_t *button*, uint8\_t *state* )

A callback called in interrupt context whenever a button changes its state.

#### Application Usage:

Must be implemented by the application. This function should contain the functionality to be executed in response to changes of state in each of the buttons, or callbacks to the appropriate functionality.

#### Parameters

<i>button</i>	The button which has changed state, either BUTTON0 or BUTTON1 as defined in the appropriate BOARD_HEADER.
<i>state</i>	The new state of the button referenced by the button parameter, either ::BUTTON_PRESSED if the button has been pressed or ::BUTTON_RELEASED if the button has been released.

Definition at line 46 of file [ncp/doc/callback.doc](#).

## 6.155 Debug Basic Library Callbacks

### Functions

- void `emberDebugHandler (EmberMessageBuffer message)`

#### 6.155.1 Detailed Description

These callbacks are contributed by the Debug Basic Library plugin.

#### 6.155.2 Function Documentation

##### 6.155.2.1 void `emberDebugHandler ( EmberMessageBuffer message )`

Definition at line [61](#) of file [ncp/doc/callback.doc](#).

## 6.156 ZigBee PRO Core Security Library EZSP Command Handlers Call-backs

### Functions

- `EmberJoinDecision emberAfPluginEzspSecurityTrustCenterJoinCallback (EmberNodeId newNodeId, const EmberEUI64 newNodeEui64, EmberDeviceUpdate status, EmberNodeId parentOfNewNode, EzspDecisionId decisionId, EmberJoinDecision joinDecision)`

#### 6.156.1 Detailed Description

These callbacks are contributed by the ZigBee PRO Core Security Library EZSP Command Handlers plugin.

#### 6.156.2 Function Documentation

##### 6.156.2.1 `EmberJoinDecision emberAfPluginEzspSecurityTrustCenterJoinCallback ( EmberNodeId newNodeId, const EmberEUI64 newNodeEui64, EmberDeviceUpdate status, EmberNodeId parentOfNewNode, EzspDecisionId decisionId, EmberJoinDecision joinDecision )`

Trust Center Join.

This callback is called on the NCP when emberTrustCenterJoinHandler is called from the stack. The NCP will perform initial processing based on the current ::EZSP\_TRUST\_CENTER\_POLICY value, and then it will pass this callback to the NCP application. Implementations of this callback should return the `EmberJoinDecision` value that will dictate the behavior of the trust center in response to the new device joining or rejoining to the network.

Please see documentation on the stack emberTrustCenterJoinHandler callback for more information.

#### Parameters

<code>newNodeId</code>	The node id of the device wishing to join.
<code>newNodeEui64</code>	The EUI64 of the device wishing to join.
<code>status</code>	The ::EmberUpdateDevice status indicating whether the device is joining/rejoining or leaving, and whether the join/rejoin is secure (using network encryption) or a trust center rejoin.
<code>parentOfNewNode</code>	The node id of the parent of device wishing to join.
<code>decisionId</code>	The ::EzspDecisionId that the NCP is currently using as set by the HOST application.
<code>joinDecision</code>	The current <code>EmberJoinDecision</code> that the NCP has chosen based on the ::EzspDecisionId for the ::EZSP_TRUST_CENTER_POLICY as set by the HOST application. Implementations of this callback may want to return a different value based on their desired security.

#### Returns

An `EmberJoinDecision` value that will dictate the behavior of the trust center in response to the new device joining or rejoining to the network.

Definition at line 106 of file `ncp/doc/callback.doc`.

## 6.157 ZigBee PRO Library EZSP Command Handlers Callbacks

### Functions

- `EmberStatus emberAfPluginEzspZigbeeProSetConcentratorCommandCallback (bool on, uint16_t concentratorType, uint16_t minTime, uint16_t maxTime, uint8_t routeErrorThreshold, uint8_t deliveryFailureThreshold, uint8_t maxHops)`

#### 6.157.1 Detailed Description

These callbacks are contributed by the ZigBee PRO Library EZSP Command Handlers plugin.

#### 6.157.2 Function Documentation

##### 6.157.2.1 `EmberStatus emberAfPluginEzspZigbeeProSetConcentratorCommandCallback ( bool on, uint16_t concentratorType, uint16_t minTime, uint16_t maxTime, uint8_t routeErrorThreshold, uint8_t deliveryFailureThreshold, uint8_t maxHops )`

Definition at line 128 of file [ncp/doc/callback.doc](#).

References [EMBER\\_INVALID\\_CALL](#).

## 6.158 HAL Library Callbacks

### Functions

- void [halRadioPowerUpHandler](#) (void)
- void [halRadioPowerDownHandler](#) (void)

#### 6.158.1 Detailed Description

These callbacks are contributed by the HAL Library plugin.

#### 6.158.2 Function Documentation

##### 6.158.2.1 void halRadioPowerUpHandler ( void )

Handler called whenever the radio is powered on.

Definition at line [152](#) of file [ncp/doc/callback.doc](#).

##### 6.158.2.2 void halRadioPowerDownHandler ( void )

Handler called whenever the radio is powered off.

Definition at line [159](#) of file [ncp/doc/callback.doc](#).

## 6.159 Microphone Codec MSADPCM Callbacks

### Functions

- void [halMicrophoneCodecMsadpcmDataReadyCallback](#) (int8u \*data, int8u length)

#### 6.159.1 Detailed Description

These callbacks are contributed by the Microphone Codec MSADPCM plugin.

#### 6.159.2 Function Documentation

##### 6.159.2.1 void [halMicrophoneCodecMsadpcmDataReadyCallback](#) ( int8u \* *data*, int8u *length* )

A callback called when new microphone data is ready.

#### Application Usage:

This function is called by the plugin when new data has been processed and is ready to be processed by other parts of the system.

#### Parameters

<i>data</i>	Pointer to the data that is ready
<i>length</i>	Length of the data

Definition at line 183 of file [ncp/doc/callback.doc](#).

## 6.160 Microphone IMAADPCM Callbacks

### Functions

- void [halMicrophoneImaadpcmDataReadyCallback](#) (int8u \*data, int8u length)

#### 6.160.1 Detailed Description

These callbacks are contributed by the Microphone IMAADPCM plugin.

#### 6.160.2 Function Documentation

##### 6.160.2.1 void halMicrophonelmaadpcmDataReadyCallback ( int8u \* *data*, int8u *length* )

A callback called when new microphone data is ready.

#### Application Usage:

This function is called by the plugin when new data has been processed and is ready to be processed by other parts of the system.

#### Parameters

<i>data</i>	Pointer to the data that is ready
<i>length</i>	Length of the data

Definition at line 207 of file [ncp/doc/callback.doc](#).

## 6.161 Multi-Network Stub Library Callbacks

### Functions

- void `emberZigbeeKeyEstablishmentHandler (EmberEUI64 partner, EmberKeyStatus status)`

#### 6.161.1 Detailed Description

These callbacks are contributed by the Multi-Network Stub Library plugin.

#### 6.161.2 Function Documentation

##### 6.161.2.1 void `emberZigbeeKeyEstablishmentHandler ( EmberEUI64 partner, EmberKeyStatus status )`

A callback to the application to notify it of the status of the request for a Link Key. The application should define EMBER\_APPLICATION\_HAS\_ZIGBEE\_KEY\_ESTABLISHMENT\_HANDLER in order to implement its own handler.

#### Parameters

<code>partner</code>	The IEEE address of the partner device. Or all zeros if the Key establishment failed.
<code>status</code>	The status of the key establishment.

Definition at line 231 of file [ncp/doc/callback.doc](#).

## 6.162 STM32F103RET Library Callbacks

### Functions

- void [halNcpIsAwakeIsr](#) (bool *isAwake*)

#### 6.162.1 Detailed Description

These callbacks are contributed by the STM32F103RET Library plugin.

#### 6.162.2 Function Documentation

##### 6.162.2.1 void halNcpIsAwakeIsr ( bool *isAwake* )

The SPI Protocol calls [halNcpIsAwakeIsr\(\)](#) once the wakeup handshaking is complete and the NCP is ready to accept a command.

#### Parameters

<i>isAwake</i>	true if the wake handshake completed and the NCP is awake. false is the wake handshake failed and the NCP is unresponsive.
----------------	--

Definition at line 254 of file [ncp/doc/callback.doc](#).

## 6.163 XNCP Library Callbacks

### Functions

- `EmberStatus emberAfPluginXncpIncomingCustomFrameCallback (uint8_t messageLength, uint8_t *messagePayload, uint8_t *replyPayloadLength, uint8_t *replyPayload)`
- `bool emberAfIncomingMessageCallback (EmberIncomingMessageType type, EmberApsFrame *apsFrame, EmberMessageBuffer message)`
- `bool emberAfPluginCommandHandlerPermitNcpToHostFrameCallback (uint8_t frameId, uint8_t payloadLength, uint8_t *payload)`
- `bool emberAfPluginCommandHandlerPermitHostToNcpFrameCallback (uint8_t frameId, uint8_t payloadLength, uint8_t *payload)`
- `void emberAfPluginXncpGetXncpInformation (uint16_t *manufacturerId, uint16_t *versionNumber)`

#### 6.163.1 Detailed Description

These callbacks are contributed by the XNCP Library plugin.

#### 6.163.2 Function Documentation

##### 6.163.2.1 `EmberStatus emberAfPluginXncpIncomingCustomFrameCallback ( uint8_t messageLength, uint8_t * messagePayload, uint8_t * replyPayloadLength, uint8_t * replyPayload )`

Incoming Custom EZSP Message Callback.

This function is called when the NCP receives a custom EZSP message from the HOST. The message length and payload is passed to the callback in the first two arguments. The implementation can then fill in the replyPayload and set the replyPayloadLength to the number of bytes in the replyPayload. See documentation for the function ezspCustomFrame on sending these messages from the HOST.

#### Parameters

<code>messageLength</code>	The length of the messagePayload.
<code>message- Payload</code>	The custom message that was sent from the HOST. Ver.: always
<code>replyPayload- Length</code>	The length of the replyPayload. This needs to be set by the implementation in order for a properly formed response to be sent back to the HOST. Ver.: always
<code>replyPayload</code>	The custom message to send back to the HOST in response to the custom message. Ver.: always

#### Returns

An `EmberStatus` indicating the result of the custom message handling. This returned status is always the first byte of the EZSP response.

Definition at line 291 of file `ncp/doc/callback.doc`.

References `EMBER_LIBRARY_NOT_PRESENT`.

### 6.163.2.2 bool emberAfIncomingMessageCallback ( EmberIncomingMessageType *type*, EmberApsFrame \* *apsFrame*, EmberMessageBuffer *message* )

Incoming Message Callback.

This function is called when the NCP receives an incoming ZigBee PRO message. This handling is done before any other action is taken by the NCP on the callback. If the function returns true, that indicates that the incoming message is done being handled, and the NCP does not need to record the callback or report it to the HOST.

#### Parameters

<i>type</i>	The <a href="#">EmberIncomingMessageType</a> of the incoming message. Ver.: always
<i>apsFrame</i>	The <a href="#">EmberApsFrame</a> received in the incoming message. Ver.: always
<i>message</i>	The payload of the incoming message, in the form of an <a href="#">EmberMessageBuffer</a> . Ver.: always

#### Returns

A ::bool value. If this value is true, the NCP will not handle the incoming message any further and it will not report the incoming message to the HOST. If the returned value is false, then the NCP will continue to process the incoming message and the callback will also be passed to the HOST.

Definition at line 320 of file [ncp/doc/callback.doc](#).

### 6.163.2.3 bool emberAfPluginCommandHandlerPermitNcpToHostFrameCallback ( uint8\_t *frameId*, uint8\_t *payloadLength*, uint8\_t \* *payload* )

Outgoing EZSP Stack Handler.

This function is called when the NCP wants to inform the HOST of a callback that has been called on the NCP. If this function returns false, the NCP will not notify the HOST of the callback. If the function returns true, then the NCP will continue scheduling the notification of the HOST regarding the callback.

#### Parameters

<i>frameId</i>	The frameId of the callback. Ver.: always
<i>payloadLength</i>	The length of the payload carried in the callback. Ver.: always
<i>payload</i>	The actual payload carried by the callback. Ver.: always

#### Returns

A ::bool value. If the value is false, then the NCP will not notify the HOST of the callback. If the return value is true, then the NCP will continue scheduling the notification of the HOST regarding the callback.

Definition at line 345 of file [ncp/doc/callback.doc](#).

### 6.163.2.4 bool emberAfPluginCommandHandlerPermitHostToNcpFrameCallback ( uint8\_t *frameId*, uint8\_t *payloadLength*, uint8\_t \* *payload* )

Incoming EZSP Message.

The application can use this callback to enable or disable the processing of EZSP commands on the NCP. If this function returns true, that indicates that the frame should be handled by the NCP in a normal manner. If this function returns false, then the NCP will disregard this command and respond to the HOST that it is an invalid frame.

#### Parameters

<i>frameId</i>	The EZSP frame ID of the message. Ver.: always
<i>payloadLength</i>	The length of the payload of the EZSP message. Ver.: always
<i>payload</i>	The EZSP message payload. Ver.: always

#### Returns

A ::bool value indicating whether or not the frame should continue to be handled. If this function returns true, that indicates that the frame should be handled by the NCP in a normal manner. If this function returns false, then the NCP will disregard this command and respond to the HOST that it is an invalid frame.

Definition at line 371 of file [ncp/doc/callback.doc](#).

**6.163.2.5 void emberAfPluginXncpGetXncpInformation ( uint16\_t \* manufacturerId, uint16\_t \* versionNumber )**

Get XNCP Information.

This callback enables users to communicate the version number and manufacturer ID of their NCP application to the framework. This information is needed for the EZSP command frame called `getXncpInfo`. This callback will be called when that frame is received so that the application can report its version number and manufacturer ID to be sent back to the HOST.

#### Parameters

<i>versionNumber</i>	The version number of the NCP application.
<i>manufacturerId</i>	The manufacturer ID of the NCP application.

Definition at line 389 of file [ncp/doc/callback.doc](#).

## 6.164 ZigBee PRO Stack Library Callbacks

### Functions

- void `emberOrphanNotificationHandler (EmberEUI64 longId)`
- bool `emberMacPassthroughFilterHandler (uint8_t *macHeader)`
- void `emberIncomingCommandHandler (EmberZigbeeCommandType commandType, EmberMessageBuffer commandBuffer, uint8_t indexOfCommand, void *data)`

#### 6.164.1 Detailed Description

These callbacks are contributed by the ZigBee PRO Stack Library plugin.

#### 6.164.2 Function Documentation

##### 6.164.2.1 void `emberOrphanNotificationHandler ( EmberEUI64 longId )`

Definition at line 406 of file [ncp/doc/callback.doc](#).

##### 6.164.2.2 bool `emberMacPassthroughFilterHandler ( uint8_t * macHeader )`

A callback invoked by the EmberZNet stack to filter out incoming application MAC passthrough messages. If this returns true for a message the complete message will be passed to `emberMacPassthroughMessageHandler()` with a type of `EMBER_MAC_PASSTHROUGH_APPLICATION`.

Note that this callback may be invoked in ISR context and should execute as quickly as possible.

Note that this callback may be called more than once per incoming message. Therefore the callback code should not depend on being called only once, and should return the same value each time it is called with a given header.

If the application includes this callback, it must define `EMBER_APPLICATION_HAS_MAC_PASSTHROUGH_FILTER_HANDLER` in its `CONFIGURATION_HEADER`.

#### Parameters

<code>macHeader</code>	A pointer to the initial portion of the incoming MAC header. This contains the MAC frame control and addressing fields. Subsequent MAC fields, and the MAC payload, may not be present.
------------------------	---

#### Returns

true if the message is an application MAC passthrough message.

Definition at line 433 of file [ncp/doc/callback.doc](#).

##### 6.164.2.3 void `emberIncomingCommandHandler ( EmberZigbeeCommandType commandType, EmberMessageBuffer commandBuffer, uint8_t indexOfCommand, void * data )`

A protocol layer command has been received by the stack.

This is called when the stack receives a command that is meant for one of the protocol layers specified in [EmberZigbeeCommandType](#). The implementation can get a flat buffer of bytes representing the command byte plus the command payload by calling `::emberCopyFromLinkedBuffers()` with a contents array big enough to hold the command payload.

The `commandType` argument is one of the values of the [EmberZigbeeCommandType](#) enum. If the stack receives an 802.15.4 MAC beacon, it will call this function with the `commandType` argument set to [EMBER\\_ZIGBEE\\_COMMAND\\_TYPE\\_BEACON](#).

The implementation of this callback should **not** alter the data contained in the [EmberMessageBuffer](#), since the stack will still be processing the command at the time that this is called.

#### Parameters

<code>commandType</code>	The type of command received. See <a href="#">EmberZigbeeCommandType</a> .
<code>command-Buffer</code>	The <a href="#">EmberMessageBuffer</a> for the command payload.
<code>indexOf-Command</code>	The starting index in the <a href="#">EmberMessageBuffer</a> for the command. This means the first byte at this index will be the command byte itself, and the reset will be the command payload.
<code>data</code>	This is a pointer to auxillary data for the command. ZDO commands pass the <a href="#">EmberApsFrame</a> associated with the packet here. Otherwise, this value is NULL.

Definition at line 467 of file [ncp/doc/callback.doc](#).

## 6.165 main API Callbacks

### Functions

- void [emberAfMainInitCallback](#) (void)
- void [emberAfMainTickCallback](#) (void)

#### 6.165.1 Detailed Description

These callbacks were contributed by the main API.

#### 6.165.2 Function Documentation

##### 6.165.2.1 void [emberAfMainInitCallback](#) ( void )

Main Init.

This function is called when the application starts and can be used to perform any additional initialization required at system startup.

Definition at line [490](#) of file [ncp/doc/callback.doc](#).

##### 6.165.2.2 void [emberAfMainTickCallback](#) ( void )

Main Tick.

This function is called in each iteration of the main application loop and can be used to perform periodic functions. The frequency with which this function is called depends on how quickly the main loop runs. If the application blocks at any time during the main loop, this function will not be called until execution resumes.

Definition at line [502](#) of file [ncp/doc/callback.doc](#).

## 6.166 ncp API Callbacks

### Functions

- void [emberSetOrGetEzspTokenCommandHandler](#) (bool *isSet*)
- bool [emberAfPluginEzspAddEndpointCommandCallback](#) ([EmberMessageBuffer](#) *buffer*)

#### 6.166.1 Detailed Description

These callbacks were contributed by the ncp API.

#### 6.166.2 Function Documentation

##### 6.166.2.1 void [emberSetOrGetEzspTokenCommandHandler](#) ( bool *isSet* )

Definition at line [517](#) of file [ncp/doc/callback.doc](#).

References [EMBER\\_INVALID\\_CALL](#).

##### 6.166.2.2 bool [emberAfPluginEzspAddEndpointCommandCallback](#) ( [EmberMessageBuffer](#) *buffer* )

Definition at line [522](#) of file [ncp/doc/callback.doc](#).

## 6.167 sim-eeprom API Callbacks

### Functions

- void `halSimEepromCallback (EmberStatus status)`

#### 6.167.1 Detailed Description

These callbacks were contributed by the sim-eeprom API.

#### 6.167.2 Function Documentation

##### 6.167.2.1 void `halSimEepromCallback ( EmberStatus status )`

The Simulated EEPROM callback function, implemented by the application.

#### Parameters

<code>status</code>	An <code>EmberStatus</code> error code indicating one of the conditions described below.
---------------------	--

This callback will report an EmberStatus of `EMBER_SIM_EEPROM_ERASE_PAGE_GREEN` whenever a token is set and a page needs to be erased. If the main application loop does not periodically call `halSimEepromErasePage()`, it is best to then erase a page in response to `EMBER_SIM_EEPROM_ERASE_PAGE_GREEN`.

This callback will report an EmberStatus of `EMBER_SIM_EEPROM_ERASE_PAGE_RED` when the pages *must* be erased to prevent data loss. `halSimEepromErasePage()` needs to be called until it returns 0 to indicate there are no more pages that need to be erased. Ignoring this indication and not erasing the pages will cause dropping the new data trying to be written.

This callback will report an EmberStatus of `EMBER_SIM_EEPROM_FULL` when the new data cannot be written due to unerased pages. **Not erasing pages regularly, not erasing in response to `EMBER_SIM_EEPROM_ERASE_PAGE_GREEN`, or not erasing in response to `EMBER_SIM_EEPROM_ERASE_PAGE_RED` will cause `EMBER_SIM_EEPROM_FULL` and the new data will be lost!.** Any future write attempts will be lost as well.

This callback will report an EmberStatus of `EMBER_SIM_EEPROM_REPAIRING` when the Simulated EEPROM needs to repair itself. While there's nothing for an app to do when the SimEE is going to repair itself (SimEE has to be fully functional for the rest of the system to work), alert the application to the fact that repairing is occurring. There are debugging scenarios where an app might want to know that repairing is happening; such as monitoring frequency.

#### Note

Common situations will trigger an expected repair, such as using a new chip or changing token definitions.

If the callback ever reports the status `EMBER_ERR_FLASH_WRITE_INHIBITED` or `EMBER_ERR_FLASH_VERIFY_FAILED`, this indicates a catastrophic failure in flash writing, meaning either the address being written is not empty or the write itself has failed. If `EMBER_ERR_FLASH_WRITE_INHIBITED` is encountered, the function `:halInternalSimEeRepair(false)` should be called and the chip should then be reset to allow proper initialization to recover. If `EMBER_ERR_FLASH_VERIFY_FAILED` is encountered the Simulated EEPROM (and tokens) on the specific chip with this error should not be trusted anymore.

Definition at line 585 of file ncp/doc/callback.doc.

References EMBER\_ERR\_FLASH\_VERIFY\_FAILED, EMBER\_ERR\_FLASH\_WRITE\_INHIBITED, EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_GREEN, EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_RED, EMBER\_SIM\_EEPROM\_FULL, and EMBER\_SIM\_EEPROM\_REPAIRING.

## 6.168 stack API Callbacks

### Functions

- void `emberCounterHandler` (`EmberCounterType type, uint8_t data`)
- void `emberStackStatusHandler` (`EmberStatus status`)
- void `emberEnergyScanResultHandler` (`uint8_t channel, int8_t maxRssiValue`)
- void `emberRadioNeedsCalibratingHandler` (`void`)

#### 6.168.1 Detailed Description

These callbacks were contributed by the stack API.

#### 6.168.2 Function Documentation

##### 6.168.2.1 void `emberCounterHandler` ( `EmberCounterType type, uint8_t data` )

A callback invoked to inform the application of the occurrence of an event defined by `EmberCounterType`, for example, transmissions and receptions at different layers of the stack.

The application must define `::EMBER_APPLICATION_HAS_COUNTER_HANDLER` in its `CONFIGURATION_HEADER` to use this. This function may be called in ISR context, so processing should be kept to a minimum.

#### Parameters

<code>type</code>	The type of the event.
<code>data</code>	For transmission events, the number of retries used. For other events, this parameter is unused and is set to zero.

Definition at line 700 of file [ncp/doc/callback.doc](#).

##### 6.168.2.2 void `emberStackStatusHandler` ( `EmberStatus status` )

A callback invoked when the status of the stack changes. If the status parameter equals `EMBER_NETWORK_UP`, then the `::emberGetNetworkParameters()` function can be called to obtain the new network parameters. If any of the parameters are being stored in nonvolatile memory by the application, the stored values should be updated.

The application is free to begin messaging once it receives the `EMBER_NETWORK_UP` status. However, routes discovered immediately after the stack comes up may be suboptimal. This is because the routes are based on the neighbor table's information about two-way links with neighboring nodes, which is obtained from periodic ZigBee Link Status messages. It can take two or three link status exchange periods (of 16 seconds each) before the neighbor table has a good estimate of link quality to neighboring nodes. Therefore, the application may improve the quality of initially discovered routes by waiting after startup to give the neighbor table time to be populated.

**Parameters**

<i>status</i>	Stack status. One of the following: <ul style="list-style-type: none"><li>• EMBER_NETWORK_UP</li><li>• EMBER_NETWORK_DOWN</li><li>• EMBER_JOIN_FAILED</li><li>• EMBER_MOVE_FAILED</li><li>• EMBER_CANNOT_JOIN_AS_ROUTER</li><li>• EMBER_NODE_ID_CHANGED</li><li>• EMBER_PAN_ID_CHANGED</li><li>• EMBER_CHANNEL_CHANGED</li><li>• EMBER_NO_BEACONS</li><li>• EMBER RECEIVED KEY IN THE CLEAR</li><li>• EMBER_NO_NETWORK_KEY RECEIVED</li><li>• EMBER_NO_LINK_KEY RECEIVED</li><li>• EMBER_PRECONFIGURED_KEY REQUIRED</li></ul>
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Definition at line 738 of file [ncp/doc/callback.doc](#).

**6.168.2.3 void emberEnergyScanResultHandler ( uint8\_t channel, int8\_t maxRssiValue )**

Reports the maximum RSSI value measured on the channel.

**Parameters**

<i>channel</i>	The 802.15.4 channel number on which the RSSI value was measured.
<i>maxRssiValue</i>	The maximum RSSI value measured (in units of dBm).

Definition at line 750 of file [ncp/doc/callback.doc](#).

**6.168.2.4 void emberRadioNeedsCalibratingHandler ( void )**

The radio calibration callback function.

The Voltage Controlled Oscillator (VCO) can drift with temperature changes. During every call to ::emberTick(), the stack will check to see if the VCO has drifted. If the VCO has drifted, the stack will call [emberRadioNeedsCalibratingHandler\(\)](#) to inform the application that it should perform calibration of the current channel as soon as possible. Calibration can take up to 150ms. The default callback function implementation provided here performs calibration immediately. If the application wishes, it can define its own callback by defining ::EMBER\_APPLICATION\_HAS\_CUSTOM\_RADIO\_CALIBRATION\_CALLBACK in its CONFIGURATION\_HEADER. It can then failsafe any critical processes or peripherals before calling ::emberCalibrateCurrentChannel(). The application must call ::emberCalibrateCurrentChannel() in response to this callback to maintain expected radio performance.

Definition at line 770 of file [ncp/doc/callback.doc](#).

## Chapter 7

# Data Structure Documentation

### 7.1 CryptoTimingInfo Struct Reference

```
#include <green-power-crypto.h>
```

#### Data Fields

- `uint32_t micTimingMicroSeconds`
- `uint8_t micPacketSize`
- `uint32_t encryptDecryptTimingMicroSeconds`
- `uint8_t encryptDecryptPacketSize`
- `uint32_t frameCounter`

#### 7.1.1 Detailed Description

Definition at line [67](#) of file `green-power-crypto.h`.

#### 7.1.2 Field Documentation

##### 7.1.2.1 `uint32_t CryptoTimingInfo::micTimingMicroSeconds`

Definition at line [68](#) of file `green-power-crypto.h`.

##### 7.1.2.2 `uint8_t CryptoTimingInfo::micPacketSize`

Definition at line [69](#) of file `green-power-crypto.h`.

##### 7.1.2.3 `uint32_t CryptoTimingInfo::encryptDecryptTimingMicroSeconds`

Definition at line [70](#) of file `green-power-crypto.h`.

#### 7.1.2.4 `uint8_t CryptoTimingInfo::encryptDecryptPacketSize`

Definition at line 71 of file [green-power-crypto.h](#).

#### 7.1.2.5 `uint32_t CryptoTimingInfo::frameCounter`

Definition at line 72 of file [green-power-crypto.h](#).

The documentation for this struct was generated from the following file:

- [green-power-crypto.h](#)

## 7.2 DestStruct Struct Reference

```
#include <rf4ce-zrc20-ha-server.h>
```

### Data Fields

- `EmberOutgoingMessageType type`
- `uint16_t indexOrDestination`
- `uint8_t sourceEndpoint`
- `uint8_t destinationEndpoint`

#### 7.2.1 Detailed Description

Definition at line 191 of file [rf4ce-zrc20-ha-server.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-ha-server.h](#)

## 7.3 EmAfBindingInfo Struct Reference

```
#include <rf4ce-gdp-internal.h>
```

### Data Fields

- `uint8_t localConfigurationStatus`
- `uint8_t candidateIndex`

#### 7.3.1 Detailed Description

Definition at line 447 of file [rf4ce-gdp-internal.h](#).

### 7.3.2 Field Documentation

#### 7.3.2.1 uint8\_t EmAfBindingInfo::localConfigurationStatus

Definition at line 448 of file [rf4ce-gdp-internal.h](#).

#### 7.3.2.2 uint8\_t EmAfBindingInfo::candidateIndex

Definition at line 449 of file [rf4ce-gdp-internal.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-internal.h](#)

## 7.4 EmAfDiscoveryOrPairRequestData Struct Reference

```
#include <rf4ce-gdp-internal.h>
```

### Data Fields

- [EmberEUI64 srcIEEEAddr](#)
- [uint8\\_t nodeCapabilities](#)
- [EmberRf4ceVendorInfo vendorInfo](#)
- [EmberRf4ceApplicationInfo appInfo](#)
- [uint8\\_t searchDevType](#)

### 7.4.1 Detailed Description

Definition at line 439 of file [rf4ce-gdp-internal.h](#).

### 7.4.2 Field Documentation

#### 7.4.2.1 EmberEUI64 EmAfDiscoveryOrPairRequestData::srcIEEEAddr

Definition at line 440 of file [rf4ce-gdp-internal.h](#).

#### 7.4.2.2 uint8\_t EmAfDiscoveryOrPairRequestData::nodeCapabilities

Definition at line 441 of file [rf4ce-gdp-internal.h](#).

#### 7.4.2.3 EmberRf4ceVendorInfo EmAfDiscoveryOrPairRequestData::vendorInfo

Definition at line 442 of file [rf4ce-gdp-internal.h](#).

#### 7.4.2.4 EmberRf4ceApplicationInfo EmAfDiscoveryOrPairRequestData::appInfo

Definition at line 443 of file [rf4ce-gdp-internal.h](#).

#### 7.4.2.5 `uint8_t EmAfDiscoveryOrPairrequestData::searchDevType`

Definition at line 444 of file [rf4ce-gdp-internal.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-internal.h](#)

## 7.5 EmAfGbzPayloadHeader Struct Reference

```
#include <gbz-message-controller.h>
```

### Data Fields

- `uint8_t * payload`
- `uint8_t payloadLength`

#### 7.5.1 Detailed Description

Definition at line 126 of file [gbz-message-controller.h](#).

#### 7.5.2 Field Documentation

##### 7.5.2.1 `uint8_t* EmAfGbzPayloadHeader::payload`

Definition at line 127 of file [gbz-message-controller.h](#).

##### 7.5.2.2 `uint8_t EmAfGbzPayloadHeader::payloadLength`

Definition at line 128 of file [gbz-message-controller.h](#).

The documentation for this struct was generated from the following file:

- [gbz-message-controller.h](#)

## 7.6 EmAfGbzUseCaseSpecificComponent Struct Reference

```
#include <gbz-message-controller.h>
```

### Data Fields

- `uint8_t * payload`
- `uint16_t payloadLength`
- `struct EmAfGbzUseCaseSpecificComponent * next`

### 7.6.1 Detailed Description

Definition at line 137 of file [gbz-message-controller.h](#).

### 7.6.2 Field Documentation

#### 7.6.2.1 `uint8_t* EmAfGbzUseCaseSpecificComponent::payload`

Definition at line 138 of file [gbz-message-controller.h](#).

#### 7.6.2.2 `uint16_t EmAfGbzUseCaseSpecificComponent::payloadLength`

Definition at line 139 of file [gbz-message-controller.h](#).

#### 7.6.2.3 `struct EmAfGbzUseCaseSpecificComponent* EmAfGbzUseCaseSpecificComponent::next`

Definition at line 140 of file [gbz-message-controller.h](#).

The documentation for this struct was generated from the following file:

- [gbz-message-controller.h](#)

## 7.7 EmAfGdpPairingCandidat Struct Reference

```
#include <rf4ce-gdp-internal.h>
```

### Data Fields

- `EmberEUI64 ieeeAddr`
- `EmberPanId panId`
- `uint8_t supportedProfiles [EMBER_RF4CE_APPLICATION_PROFILE_ID_LIST_MAX_LENGTH]`
- `uint8_t supportedProfilesLength`
- `uint8_t channel`
- `uint8_t primaryClassDescriptor`
- `uint8_t secondaryClassDescriptor`
- `uint8_t tertiaryClassDescriptor`
- `uint8_t rxLqi`
- `uint8_t info`

### 7.7.1 Detailed Description

Definition at line 426 of file [rf4ce-gdp-internal.h](#).

## 7.7.2 Field Documentation

### 7.7.2.1 EmberEUI64 EmAfGdpPairingCandidat::ieeeAddr

Definition at line 427 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.2 EmberPanId EmAfGdpPairingCandidat::panId

Definition at line 428 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.3 uint8\_t EmAfGdpPairingCandidat::supportedProfiles[EMBER\_RF4CE\_APPLICATION\_PROFILE\_ID\_LIST\_MAX\_LENGTH]

Definition at line 429 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.4 uint8\_t EmAfGdpPairingCandidat::supportedProfilesLength

Definition at line 430 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.5 uint8\_t EmAfGdpPairingCandidat::channel

Definition at line 431 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.6 uint8\_t EmAfGdpPairingCandidat::primaryClassDescriptor

Definition at line 432 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.7 uint8\_t EmAfGdpPairingCandidat::secondaryClassDescriptor

Definition at line 433 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.8 uint8\_t EmAfGdpPairingCandidat::tertiaryClassDescriptor

Definition at line 434 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.9 uint8\_t EmAfGdpPairingCandidat::rxLqi

Definition at line 435 of file [rf4ce-gdp-internal.h](#).

### 7.7.2.10 uint8\_t EmAfGdpPairingCandidat::info

Definition at line 436 of file [rf4ce-gdp-internal.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-internal.h](#)

## 7.8 EmAfMsoPairingCandidat Struct Reference

```
#include <rf4ce-mso-internal.h>
```

### Data Fields

- `uint8_t channel`
- `EmberPanId panId`
- `EmberEUI64 ieeeAddr`
- `uint8_t primaryClassDescriptor`
- `uint8_t secondaryClassDescriptor`
- `uint8_t tertiaryClassDescriptor`
- `uint8_t basicLqiThreshold`
- `uint8_t strictLqiThreshold`
- `uint8_t rxLqi`
- `uint8_t control`

### 7.8.1 Detailed Description

Definition at line 256 of file [rf4ce-mso-internal.h](#).

### 7.8.2 Field Documentation

#### 7.8.2.1 `uint8_t EmAfMsoPairingCandidat::channel`

Definition at line 257 of file [rf4ce-mso-internal.h](#).

#### 7.8.2.2 `EmberPanId EmAfMsoPairingCandidat::panId`

Definition at line 258 of file [rf4ce-mso-internal.h](#).

#### 7.8.2.3 `EmberEUI64 EmAfMsoPairingCandidat::ieeeAddr`

Definition at line 259 of file [rf4ce-mso-internal.h](#).

#### 7.8.2.4 `uint8_t EmAfMsoPairingCandidat::primaryClassDescriptor`

Definition at line 260 of file [rf4ce-mso-internal.h](#).

#### 7.8.2.5 `uint8_t EmAfMsoPairingCandidat::secondaryClassDescriptor`

Definition at line 261 of file [rf4ce-mso-internal.h](#).

#### 7.8.2.6 `uint8_t EmAfMsoPairingCandidat::tertiaryClassDescriptor`

Definition at line 262 of file [rf4ce-mso-internal.h](#).

### 7.8.2.7 `uint8_t EmAfMsoPairingCandidat::basicLqiThreshold`

Definition at line 263 of file [rf4ce-mso-internal.h](#).

### 7.8.2.8 `uint8_t EmAfMsoPairingCandidat::strictLqiThreshold`

Definition at line 264 of file [rf4ce-mso-internal.h](#).

### 7.8.2.9 `uint8_t EmAfMsoPairingCandidat::rxLqi`

Definition at line 265 of file [rf4ce-mso-internal.h](#).

### 7.8.2.10 `uint8_t EmAfMsoPairingCandidat::control`

Definition at line 266 of file [rf4ce-mso-internal.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-internal.h](#)

## 7.9 `EmAfOtaStorageLinuxConfig` Struct Reference

```
#include <ota-storage-linux.h>
```

### Data Fields

- `bool memoryDebug`
- `bool fileDebug`
- `bool fieldDebug`
- `bool ignoreFilesWithUnderscorePrefix`
- `bool printFileDiscoveryOrRemoval`
- `EmAfOtaStorageFileAddedHandler * fileAddedHandler`

### 7.9.1 Detailed Description

Definition at line 5 of file [ota-storage-linux.h](#).

### 7.9.2 Field Documentation

#### 7.9.2.1 `bool EmAfOtaStorageLinuxConfig::memoryDebug`

Definition at line 6 of file [ota-storage-linux.h](#).

#### 7.9.2.2 `bool EmAfOtaStorageLinuxConfig::fileDebug`

Definition at line 7 of file [ota-storage-linux.h](#).

### 7.9.2.3 bool EmAfOtaStorageLinuxConfig::fieldDebug

Definition at line 8 of file [ota-storage-linux.h](#).

### 7.9.2.4 bool EmAfOtaStorageLinuxConfig::ignoreFilesWithUnderscorePrefix

Definition at line 9 of file [ota-storage-linux.h](#).

### 7.9.2.5 bool EmAfOtaStorageLinuxConfig::printFileDiscoveryOrRemoval

Definition at line 10 of file [ota-storage-linux.h](#).

### 7.9.2.6 EmAfOtaStorageFileAddedHandler\* EmAfOtaStorageLinuxConfig::fileAddedHandler

Definition at line 11 of file [ota-storage-linux.h](#).

The documentation for this struct was generated from the following file:

- [ota-storage-linux.h](#)

## 7.10 EmAfPartialWriteStruct Struct Reference

```
#include <eprom.h>
```

### Data Fields

- `uint32_t address`
- `uint8_t data`

### 7.10.1 Detailed Description

Definition at line 42 of file [eprom.h](#).

### 7.10.2 Field Documentation

#### 7.10.2.1 uint32\_t EmAfPartialWriteStruct::address

Definition at line 43 of file [eprom.h](#).

#### 7.10.2.2 uint8\_t EmAfPartialWriteStruct::data

Definition at line 44 of file [eprom.h](#).

The documentation for this struct was generated from the following file:

- [eprom.h](#)

## 7.11 EmAfPluginNetworkCreatorChannelComposite Struct Reference

```
#include <network-creator-composite.h>
```

### Data Fields

- `uint8_t beaconsHeard`
- `int8_t maxRssiHeard`

#### 7.11.1 Detailed Description

Definition at line 11 of file [network-creator-composite.h](#).

#### 7.11.2 Field Documentation

##### 7.11.2.1 `uint8_t EmAfPluginNetworkCreatorChannelComposite::beaconsHeard`

Definition at line 12 of file [network-creator-composite.h](#).

##### 7.11.2.2 `int8_t EmAfPluginNetworkCreatorChannelComposite::maxRssiHeard`

Definition at line 13 of file [network-creator-composite.h](#).

The documentation for this struct was generated from the following file:

- [network-creator-composite.h](#)

## 7.12 EmAfPluginReportVolatileData Struct Reference

```
#include <reporting.h>
```

### Data Fields

- `uint32_t lastReportTimeMs`
- `uint32_t lastReportValue`
- `bool reportableChange`

#### 7.12.1 Detailed Description

Definition at line 8 of file [reporting.h](#).

#### 7.12.2 Field Documentation

##### 7.12.2.1 `uint32_t EmAfPluginReportVolatileData::lastReportTimeMs`

Definition at line 9 of file [reporting.h](#).

### 7.12.2.2 `uint32_t EmAfPluginReportVolatileData::lastReportValue`

Definition at line 10 of file [reporting.h](#).

### 7.12.2.3 `bool EmAfPluginReportVolatileData::reportableChange`

Definition at line 11 of file [reporting.h](#).

The documentation for this struct was generated from the following file:

- [reporting.h](#)

## 7.13 EmAfPollingState Struct Reference

```
#include <end-device-support.h>
```

### Data Fields

- `uint32_t pollIntervalMs`
- `uint8_t numPollsFailing`

### 7.13.1 Detailed Description

Definition at line 5 of file [end-device-support.h](#).

### 7.13.2 Field Documentation

#### 7.13.2.1 `uint32_t EmAfPollingState::pollIntervalMs`

Definition at line 6 of file [end-device-support.h](#).

#### 7.13.2.2 `uint8_t EmAfPollingState::numPollsFailing`

Definition at line 7 of file [end-device-support.h](#).

The documentation for this struct was generated from the following file:

- [end-device-support.h](#)

## 7.14 EmAfRf4ceGdpAttributeDescriptor Struct Reference

```
#include <rf4ce-gdp-attributes.h>
```

## Data Fields

- `uint8_t id`
- `uint8_t size`
- `uint8_t bitmask`
- `uint16_t dimension`

### 7.14.1 Detailed Description

Definition at line 131 of file `rf4ce-gdp-attributes.h`.

### 7.14.2 Field Documentation

#### 7.14.2.1 `uint8_t EmAfRf4ceGdpAttributeDescriptor::id`

Definition at line 132 of file `rf4ce-gdp-attributes.h`.

#### 7.14.2.2 `uint8_t EmAfRf4ceGdpAttributeDescriptor::size`

Definition at line 133 of file `rf4ce-gdp-attributes.h`.

#### 7.14.2.3 `uint8_t EmAfRf4ceGdpAttributeDescriptor::bitmask`

Definition at line 134 of file `rf4ce-gdp-attributes.h`.

#### 7.14.2.4 `uint16_t EmAfRf4ceGdpAttributeDescriptor::dimension`

Definition at line 135 of file `rf4ce-gdp-attributes.h`.

The documentation for this struct was generated from the following file:

- `rf4ce-gdp-attributes.h`

## 7.15 EmAfRf4ceGdpAttributes Struct Reference

```
#include <rf4ce-gdp-attributes.h>
```

## Data Fields

- `uint16_t gdpVersion`
- `uint32_t gdpCapabilities`
- `uint8_t powerStatus`
- `uint8_t pollConstraints [APL_GDP_POLL_CONSTRAINTS_SIZE]`
- `uint8_t pollConfiguration [APL_GDP_POLL_CONFIGURATION_SIZE]`
- `uint16_t autoCheckValidationPeriod`
- `uint16_t linkLostWaitTime`
- `uint8_t identificationCapabilities`

### 7.15.1 Detailed Description

Definition at line 168 of file [rf4ce-gdp-attributes.h](#).

### 7.15.2 Field Documentation

#### 7.15.2.1 `uint16_t EmAfRf4ceGdpAttributes::gdpVersion`

Definition at line 169 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.2 `uint32_t EmAfRf4ceGdpAttributes::gdpCapabilities`

Definition at line 170 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.3 `uint8_t EmAfRf4ceGdpAttributes::powerStatus`

Definition at line 171 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.4 `uint8_t EmAfRf4ceGdpAttributes::pollConstraints[APL_GDP_POLL_CONSTRAINTS_SIZE]`

Definition at line 172 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.5 `uint8_t EmAfRf4ceGdpAttributes::pollConfiguration[APL_GDP_POLL_CONFIGURATION_SIZE]`

Definition at line 173 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.6 `uint16_t EmAfRf4ceGdpAttributes::autoCheckValidationPeriod`

Definition at line 174 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.7 `uint16_t EmAfRf4ceGdpAttributes::linkLostWaitTime`

Definition at line 175 of file [rf4ce-gdp-attributes.h](#).

#### 7.15.2.8 `uint8_t EmAfRf4ceGdpAttributes::identificationCapabilities`

Definition at line 176 of file [rf4ce-gdp-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-attributes.h](#)

## 7.16 EmAfRf4ceMsoAttributeDescriptor Struct Reference

```
#include <rf4ce-mso-attributes.h>
```

## Data Fields

- `EmberAfRf4ceMsoAttributeId id`
- `uint8_t size`
- `uint8_t bitmask`
- `uint8_t dimension`

### 7.16.1 Detailed Description

Definition at line 29 of file `rf4ce-mso-attributes.h`.

### 7.16.2 Field Documentation

#### 7.16.2.1 `EmberAfRf4ceMsoAttributeId EmAfRf4ceMsoAttributeDescriptor::id`

Definition at line 30 of file `rf4ce-mso-attributes.h`.

#### 7.16.2.2 `uint8_t EmAfRf4ceMsoAttributeDescriptor::size`

Definition at line 31 of file `rf4ce-mso-attributes.h`.

#### 7.16.2.3 `uint8_t EmAfRf4ceMsoAttributeDescriptor::bitmask`

Definition at line 32 of file `rf4ce-mso-attributes.h`.

#### 7.16.2.4 `uint8_t EmAfRf4ceMsoAttributeDescriptor::dimension`

Definition at line 33 of file `rf4ce-mso-attributes.h`.

The documentation for this struct was generated from the following file:

- `rf4ce-mso-attributes.h`

## 7.17 `EmAfRf4ceMsoPeripheralIdEntry` Struct Reference

```
#include <rf4ce-mso-attributes.h>
```

## Data Fields

- `uint8_t deviceType`
- `uint8_t peripheralId [MSO_RIB_ATTRIBUTE_PERIPHERAL_IDS_LENGTH]`

### 7.17.1 Detailed Description

Definition at line 36 of file `rf4ce-mso-attributes.h`.

### 7.17.2 Field Documentation

#### 7.17.2.1 uint8\_t EmAfRf4ceMsoPeripheralEntry::deviceType

Definition at line 37 of file [rf4ce-mso-attributes.h](#).

#### 7.17.2.2 uint8\_t EmAfRf4ceMsoPeripheralEntry::peripheralId[MSO\_RIB\_ATTRIBUTE\_PERIPHERAL\_IDS\_LENGTH]

Definition at line 38 of file [rf4ce-mso-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-attributes.h](#)

## 7.18 EmAfRf4ceMsoRibAttributes Struct Reference

```
#include <rf4ce-mso-attributes.h>
```

### Data Fields

- [EmAfRf4ceMsoPeripheralEntry peripheralIds \[EMBER\\_AF\\_PLUGIN\\_RF4CE\\_MSO\\_PERIPHERAL\\_ID\\_ENTRIES\]](#)
- [uint8\\_t rfStatistics \[MSO\\_RIB\\_ATTRIBUTE\\_RF\\_STATISTICS\\_LENGTH\]](#)
- [uint8\\_t versioning \[MSO\\_ATTRIBUTE\\_VERSIONING\\_ENTRIES\]\[MSO\\_RIB\\_ATTRIBUTE\\_VERSIONING\\_LENGTH\]](#)
- [uint8\\_t batteryStatus \[MSO\\_RIB\\_ATTRIBUTE\\_BATTERY\\_STATUS\\_LENGTH\]](#)
- [uint8\\_t shortRfRetryPeriod \[MSO\\_RIB\\_ATTRIBUTE\\_SHORT\\_RF\\_RETRY\\_PERIOD\\_LENGTH\]](#)
- [uint8\\_t validationConfiguration \[MSO\\_RIB\\_ATTRIBUTE\\_VALIDATION\\_CONFIGURATION\\_LENGTH\]](#)
- [uint8\\_t generalPurpose \[EMBER\\_AF\\_PLUGIN\\_RF4CE\\_MSO\\_GENERAL\\_PURPOSE\\_ENTRIES\]\[MSO\\_RIB\\_ATTRIBUTE\\_GENERAL\\_PURPOSE\\_LENGTH\]](#)

### 7.18.1 Detailed Description

Definition at line 41 of file [rf4ce-mso-attributes.h](#).

### 7.18.2 Field Documentation

#### 7.18.2.1 EmAfRf4ceMsoPeripheralEntry EmAfRf4ceMsoRibAttributes::peripheralIds[EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_PERIPHERAL\_ID\_ENTRIES]

Definition at line 42 of file [rf4ce-mso-attributes.h](#).

#### 7.18.2.2 uint8\_t EmAfRf4ceMsoRibAttributes::rfStatistics[MSO\_RIB\_ATTRIBUTE\_RF\_STATISTICS\_LENGTH]

Definition at line 43 of file [rf4ce-mso-attributes.h](#).

**7.18.2.3 uint8\_t EmAfRf4ceMsoRibAttributes::versioning[MSO\_ATTRIBUTE\_VERSIONING\_ENTRIES][MSO\_RIB\_ATTRIBUTE\_VERSIONING\_LENGTH]**

Definition at line 44 of file [rf4ce-mso-attributes.h](#).

**7.18.2.4 uint8\_t EmAfRf4ceMsoRibAttributes::batteryStatus[MSO\_RIB\_ATTRIBUTE\_BATTERY\_STATUS\_LENGTH]**

Definition at line 45 of file [rf4ce-mso-attributes.h](#).

**7.18.2.5 uint8\_t EmAfRf4ceMsoRibAttributes::shortRfRetryPeriod[MSO\_RIB\_ATTRIBUTE\_SHORT\_RF\_RETRY\_PERIOD\_LENGTH]**

Definition at line 46 of file [rf4ce-mso-attributes.h](#).

**7.18.2.6 uint8\_t EmAfRf4ceMsoRibAttributes::validationConfiguration[MSO\_RIB\_ATTRIBUTE\_VALIDATION\_CONFIGURATION\_LENGTH]**

Definition at line 48 of file [rf4ce-mso-attributes.h](#).

**7.18.2.7 uint8\_t EmAfRf4ceMsoRibAttributes::generalPurpose[EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_GENERAL\_PURPOSE\_ENTRIES][MSO\_RIB\_ATTRIBUTE\_GENERAL\_PURPOSE\_LENGTH]**

Definition at line 49 of file [rf4ce-mso-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-attributes.h](#)

## 7.19 EmAfRf4cePowerSavingState Struct Reference

```
#include <rf4ce-profile-internal.h>
```

### Data Fields

- `uint32_t dutyCycleMs`
- `uint32_t activePeriodMs`

#### 7.19.1 Detailed Description

Definition at line 108 of file [rf4ce-profile-internal.h](#).

#### 7.19.2 Field Documentation

**7.19.2.1 uint32\_t EmAfRf4cePowerSavingState::dutyCycleMs**

Definition at line 109 of file [rf4ce-profile-internal.h](#).

### 7.19.2.2 uint32\_t EmAfRf4cePowerSavingState::activePeriodMs

Definition at line 110 of file [rf4ce-profile-internal.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-profile-internal.h](#)

## 7.20 EmAfRf4ceZrcAttributeDescriptor Struct Reference

```
#include <rf4ce-zrc20-attributes.h>
```

### Data Fields

- `uint8_t id`
- `uint8_t size`
- `uint8_t bitmask`

### 7.20.1 Detailed Description

Definition at line 68 of file [rf4ce-zrc20-attributes.h](#).

### 7.20.2 Field Documentation

#### 7.20.2.1 uint8\_t EmAfRf4ceZrcAttributeDescriptor::id

Definition at line 69 of file [rf4ce-zrc20-attributes.h](#).

#### 7.20.2.2 uint8\_t EmAfRf4ceZrcAttributeDescriptor::size

Definition at line 70 of file [rf4ce-zrc20-attributes.h](#).

#### 7.20.2.3 uint8\_t EmAfRf4ceZrcAttributeDescriptor::bitmask

Definition at line 71 of file [rf4ce-zrc20-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-attributes.h](#)

## 7.21 EmAfRf4ceZrcAttributes Struct Reference

```
#include <rf4ce-zrc20-attributes.h>
```

## Data Fields

- uint16\_t `zrcProfileVersion`
- uint16\_t `zrcActionBanksVersion`
- `EmAfZrcBitmask` \* `actionBanksSupportedRx`
- `EmAfZrcBitmask` \* `actionBanksSupportedTx`
- `EmAfZrcArrayedBitmask` \* `actionCodesSupportedRx`
- `EmAfZrcArrayedBitmask` \* `actionCodesSupportedTx`

### 7.21.1 Detailed Description

Definition at line 84 of file [rf4ce-zrc20-attributes.h](#).

### 7.21.2 Field Documentation

#### 7.21.2.1 uint16\_t `EmAfRf4ceZrcAttributes::zrcProfileVersion`

Definition at line 86 of file [rf4ce-zrc20-attributes.h](#).

#### 7.21.2.2 uint16\_t `EmAfRf4ceZrcAttributes::zrcActionBanksVersion`

Definition at line 87 of file [rf4ce-zrc20-attributes.h](#).

#### 7.21.2.3 `EmAfZrcBitmask*` `EmAfRf4ceZrcAttributes::actionBanksSupportedRx`

Definition at line 88 of file [rf4ce-zrc20-attributes.h](#).

#### 7.21.2.4 `EmAfZrcBitmask*` `EmAfRf4ceZrcAttributes::actionBanksSupportedTx`

Definition at line 89 of file [rf4ce-zrc20-attributes.h](#).

#### 7.21.2.5 `EmAfZrcArrayedBitmask*` `EmAfRf4ceZrcAttributes::actionCodesSupportedRx`

Definition at line 97 of file [rf4ce-zrc20-attributes.h](#).

#### 7.21.2.6 `EmAfZrcArrayedBitmask*` `EmAfRf4ceZrcAttributes::actionCodesSupportedTx`

Definition at line 98 of file [rf4ce-zrc20-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-attributes.h](#)

## 7.22 EmAfZrcArrayedBitmask Struct Reference

```
#include <rf4ce-zrc20-attributes.h>
```

## Data Fields

- bool `inUse`
- uint8\_t `entryId`
- uint8\_t `contents` [ZRC\_BITMASK\_SIZE]

### 7.22.1 Detailed Description

Definition at line 78 of file [rf4ce-zrc20-attributes.h](#).

### 7.22.2 Field Documentation

#### 7.22.2.1 bool EmAfZrcArrayedBitmask::inUse

Definition at line 79 of file [rf4ce-zrc20-attributes.h](#).

#### 7.22.2.2 uint8\_t EmAfZrcArrayedBitmask::entryId

Definition at line 80 of file [rf4ce-zrc20-attributes.h](#).

#### 7.22.2.3 uint8\_t EmAfZrcArrayedBitmask::contents[ZRC\_BITMASK\_SIZE]

Definition at line 81 of file [rf4ce-zrc20-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-attributes.h](#)

## 7.23 EmAfZrcBitmask Struct Reference

```
#include <rf4ce-zrc20-attributes.h>
```

## Data Fields

- uint8\_t `contents` [ZRC\_BITMASK\_SIZE]

### 7.23.1 Detailed Description

Definition at line 74 of file [rf4ce-zrc20-attributes.h](#).

### 7.23.2 Field Documentation

#### 7.23.2.1 uint8\_t EmAfZrcBitmask::contents[ZRC\_BITMASK\_SIZE]

Definition at line 75 of file [rf4ce-zrc20-attributes.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-attributes.h](#)

## 7.24 EmberAesMmoHashContext Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint8_t result [EMBER_AES_HASH_BLOCK_SIZE]`
- `uint32_t length`

#### 7.24.1 Detailed Description

This data structure contains the context data when calculating an AES MMO hash (message digest).

Definition at line [1537](#) of file [ember-types.h](#).

#### 7.24.2 Field Documentation

##### 7.24.2.1 `uint8_t EmberAesMmoHashContext::result[EMBER_AES_HASH_BLOCK_SIZE]`

Definition at line [1538](#) of file [ember-types.h](#).

##### 7.24.2.2 `uint32_t EmberAesMmoHashContext::length`

Definition at line [1539](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.25 EmberAfAllowedInterPanMessage Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfProfileId profileId](#)
- [EmberAfClusterId clusterId](#)
- `uint8_t commandId`
- [EmberAfAllowedInterpanOptions options](#)

#### 7.25.1 Detailed Description

This structure is used define an interpan message that will be accepted by the interpan filters.

Definition at line [377](#) of file [af-types.h](#).

## 7.25.2 Field Documentation

### 7.25.2.1 EmberAfProfileId EmberAfAllowedInterPanMessage::profileId

Definition at line 378 of file [af-types.h](#).

### 7.25.2.2 EmberAfClusterId EmberAfAllowedInterPanMessage::clusterId

Definition at line 379 of file [af-types.h](#).

### 7.25.2.3 uint8\_t EmberAfAllowedInterPanMessage::commandId

Definition at line 380 of file [af-types.h](#).

### 7.25.2.4 EmberAfAllowedInterpanOptions EmberAfAllowedInterPanMessage::options

Definition at line 381 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.26 EmberAfAttributeMetadata Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfAttributeId attributeId](#)
- [EmberAfAttributeType attributeType](#)
- [uint8\\_t size](#)
- [EmberAfAttributeMask mask](#)
- [EmberAfDefaultOrMinMaxAttributeValue defaultValue](#)

### 7.26.1 Detailed Description

Each attribute has it's metadata stored in such struct.

There is only one of these per attribute across all endpoints.

Definition at line 138 of file [af-types.h](#).

## 7.26.2 Field Documentation

### 7.26.2.1 EmberAfAttributeId EmberAfAttributeMetadata::attributeId

Attribute ID, according to ZCL specs.

Definition at line 142 of file [af-types.h](#).

### 7.26.2.2 EmberAfAttributeType EmberAfAttributeMetadata::attributeType

Attribute type, according to ZCL specs.

Definition at line 146 of file [af-types.h](#).

### 7.26.2.3 uint8\_t EmberAfAttributeMetadata::size

Size of this attribute in bytes.

Definition at line 150 of file [af-types.h](#).

### 7.26.2.4 EmberAfAttributeMask EmberAfAttributeMetadata::mask

Attribute mask, tagging attribute with specific functionality. See ATTRIBUTE\_MASK\_ macros defined in att-storage.h.

Definition at line 156 of file [af-types.h](#).

### 7.26.2.5 EmberAfDefaultOrMinMaxAttributeValue EmberAfAttributeMetadata::defaultValue

Pointer to the default value union. Actual value stored depends on the mask.

Definition at line 161 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.27 EmberAfAttributeMinMaxValue Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfDefaultAttributeValue defaultValue](#)
- [EmberAfDefaultAttributeValue minValue](#)
- [EmberAfDefaultAttributeValue maxValue](#)

### 7.27.1 Detailed Description

Type describing the attribute default, min and max values.

This struct is required if the attribute mask specifies that this attribute has a known min and max values.

Definition at line 96 of file [af-types.h](#).

### 7.27.2 Field Documentation

### 7.27.2.1 EmberAfDefaultAttributeValue EmberAfAttributeMinMaxValue::defaultValue

Default value of the attribute.

Definition at line 100 of file [af-types.h](#).

### 7.27.2.2 EmberAfDefaultAttributeValue EmberAfAttributeMinMaxValue::minValue

Minimum allowed value

Definition at line 104 of file [af-types.h](#).

### 7.27.2.3 EmberAfDefaultAttributeValue EmberAfAttributeMinMaxValue::maxValue

Maximum allowed value.

Definition at line 108 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.28 EmberAfAttributeSearchRecord Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t endpoint`
- `EmberAfClusterId clusterId`
- `EmberAfClusterMask clusterMask`
- `EmberAfAttributeId attributeId`
- `uint16_t manufacturerCode`

### 7.28.1 Detailed Description

Struct used to find an attribute in storage. Together the elements in this search record constitute the "primary key" used to identify a unique attribute value in attribute storage.

Definition at line 204 of file [af-types.h](#).

### 7.28.2 Field Documentation

#### 7.28.2.1 `uint8_t EmberAfAttributeSearchRecord::endpoint`

Endpoint that the attribute is located on

Definition at line 209 of file [af-types.h](#).

#### 7.28.2.2 EmberAfClusterId EmberAfAttributeSearchRecord::clusterId

Cluster that the attribute is located on. If the cluster id is inside the manufacturer specific range, 0xfc00 - 0xffff, The manufacturer code should also be set to the code associated with the manufacturer specific cluster.

Definition at line 217 of file [af-types.h](#).

#### 7.28.2.3 EmberAfClusterMask EmberAfAttributeSearchRecord::clusterMask

Cluster mask for the cluster, used to determine if it is the server or client version of the cluster. See CLUSTER\_MASK\_ macros defined in att-storage.h

Definition at line 224 of file [af-types.h](#).

#### 7.28.2.4 EmberAfAttributeId EmberAfAttributeSearchRecord::attributeId

The two byte identifier for the attribute. If the cluster id is inside the manufacturer specific range 0xfc00 - 0xffff, or the manufacturer code is NOT 0, the attribute is assumed to be manufacturer specific.

Definition at line 231 of file [af-types.h](#).

#### 7.28.2.5 uint16\_t EmberAfAttributeSearchRecord::manufacturerCode

Manufacturer Code associated with the cluster and or attribute. If the cluster id is inside the manufacturer specific range, this value should indicate the manufacturer code for the manufacturer specific cluster. Otherwise if this value is non zero, and the cluster id is a standard ZCL cluster, it is assumed that the attribute being sought is a manufacturer specific extension to the standard ZCL cluster indicated by the cluster id.

Definition at line 242 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.29 EmberAfCalendar Struct Reference

```
#include <calendar-client.h>
```

### Data Fields

- bool [inUse](#)
- uint32\_t [providerId](#)
- uint32\_t [issuerEventId](#)
- uint32\_t [issuerCalendarId](#)
- uint32\_t [startTimeUtc](#)
- [EmberAfCalendarType](#) [calendarType](#)
- uint8\_t [calendarName](#) [EMBER\_AF\_CALENDAR\_MAXIMUM\_CALENDAR\_NAME\_LENGTH\_H+1]
- uint8\_t [numberOfSeasons](#)
- uint8\_t [receivedSeasons](#)

- `uint8_t numberOfWeekProfiles`
- `uint8_t numberOfDayProfiles`
- `EmberAfCalendarSeason seasons [EMBER_AF_PLUGIN_CALENDAR_CLIENT_SEASONS]`
- `EmberAfCalendarWeekProfile weekProfiles [EMBER_AF_PLUGIN_CALENDAR_CLIENT_WEEK_PROFILES]`
- `EmberAfCalendarDayProfile dayProfiles [EMBER_AF_PLUGIN_CALENDAR_CLIENT_DAY_PROFILES]`
- `EmberAfCalendarSpecialDayProfile specialDayProfile`

### 7.29.1 Detailed Description

Definition at line 63 of file `calendar-client.h`.

### 7.29.2 Field Documentation

#### 7.29.2.1 `bool EmberAfCalendar::inUse`

Definition at line 64 of file `calendar-client.h`.

#### 7.29.2.2 `uint32_t EmberAfCalendar::providerId`

Definition at line 65 of file `calendar-client.h`.

#### 7.29.2.3 `uint32_t EmberAfCalendar::issuerEventId`

Definition at line 66 of file `calendar-client.h`.

#### 7.29.2.4 `uint32_t EmberAfCalendar::issuerCalendarId`

Definition at line 67 of file `calendar-client.h`.

#### 7.29.2.5 `uint32_t EmberAfCalendar::startTimeUtc`

Definition at line 68 of file `calendar-client.h`.

#### 7.29.2.6 `EmberAfCalendarType EmberAfCalendar::calendarType`

Definition at line 69 of file `calendar-client.h`.

#### 7.29.2.7 `uint8_t EmberAfCalendar::calendarName[EMBER_AF_CALENDAR_MAXIMUM_CALENDAR_NAME_LENGTH+1]`

Definition at line 70 of file `calendar-client.h`.

#### 7.29.2.8 `uint8_t EmberAfCalendar::numberOfSeasons`

Definition at line 71 of file `calendar-client.h`.

### 7.29.2.9 uint8\_t EmberAfCalendar::receivedSeasons

Definition at line 72 of file [calendar-client.h](#).

### 7.29.2.10 uint8\_t EmberAfCalendar::numberOfWeekProfiles

Definition at line 73 of file [calendar-client.h](#).

### 7.29.2.11 uint8\_t EmberAfCalendar::numberOfDayProfiles

Definition at line 74 of file [calendar-client.h](#).

### 7.29.2.12 EmberAfCalendarSeason EmberAfCalendar::seasons[EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_SEASONS]

Definition at line 75 of file [calendar-client.h](#).

### 7.29.2.13 EmberAfCalendarWeekProfile EmberAfCalendar::weekProfiles[EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_WEEK\_PROFILES]

Definition at line 76 of file [calendar-client.h](#).

### 7.29.2.14 EmberAfCalendarDayProfile EmberAfCalendar::dayProfiles[EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_DAY\_PROFILES]

Definition at line 77 of file [calendar-client.h](#).

### 7.29.2.15 EmberAfCalendarSpecialDayProfile EmberAfCalendar::specialDayProfile

Definition at line 78 of file [calendar-client.h](#).

The documentation for this struct was generated from the following file:

- [calendar-client.h](#)

## 7.30 EmberAfCalendarDayProfile Struct Reference

```
#include <calendar-client.h>
```

### Data Fields

- bool [inUse](#)
- uint8\_t [numberOfScheduleEntries](#)
- uint8\_t [receivedScheduleEntries](#)
- EmberAfCalendarScheduleEntry [scheduleEntries](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_SCHEDULE\_ENTRIES]

### 7.30.1 Detailed Description

Definition at line 43 of file [calendar-client.h](#).

### 7.30.2 Field Documentation

#### 7.30.2.1 bool EmberAfCalendarDayProfile::inUse

Definition at line 44 of file [calendar-client.h](#).

#### 7.30.2.2 uint8\_t EmberAfCalendarDayProfile::numberOfScheduleEntries

Definition at line 45 of file [calendar-client.h](#).

#### 7.30.2.3 uint8\_t EmberAfCalendarDayProfile::receivedScheduleEntries

Definition at line 46 of file [calendar-client.h](#).

#### 7.30.2.4 EmberAfCalendarScheduleEntry EmberAfCalendarDayProfile::scheduleEntries[EMBER\_AF\_P-LUGIN\_CALENDAR\_CLIENT\_SCHEDULE\_ENTRIES]

Definition at line 47 of file [calendar-client.h](#).

The documentation for this struct was generated from the following file:

- [calendar-client.h](#)

## 7.31 EmberAfCalendarDayScheduleEntryStruct Struct Reference

```
#include <calendar-common.h>
```

### Data Fields

- `uint16_t minutesFromMidnight`
- `uint8_t data`

### 7.31.1 Detailed Description

Definition at line 10 of file [calendar-common.h](#).

### 7.31.2 Field Documentation

#### 7.31.2.1 uint16\_t EmberAfCalendarDayScheduleEntryStruct::minutesFromMidnight

Definition at line 11 of file [calendar-common.h](#).

### 7.31.2.2 uint8\_t EmberAfCalendarDayScheduleEntryStruct::data

Definition at line 20 of file [calendar-common.h](#).

The documentation for this struct was generated from the following file:

- [calendar-common.h](#)

## 7.32 EmberAfCalendarDayStruct Struct Reference

```
#include <calendar-common.h>
```

### Data Fields

- [EmberAfCalendarDayScheduleEntryStruct scheduleEntries](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SCHEDULE\_ENTRIES\_MAX]
- [uint8\\_t id](#)
- [uint8\\_t numberOfScheduleEntries](#)

### 7.32.1 Detailed Description

Definition at line 26 of file [calendar-common.h](#).

### 7.32.2 Field Documentation

#### 7.32.2.1 EmberAfCalendarDayScheduleEntryStruct EmberAfCalendarDayStruct::scheduleEntries[EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SCHEDULE\_ENTRIES\_MAX]

Definition at line 27 of file [calendar-common.h](#).

#### 7.32.2.2 uint8\_t EmberAfCalendarDayStruct::id

Definition at line 28 of file [calendar-common.h](#).

#### 7.32.2.3 uint8\_t EmberAfCalendarDayStruct::numberOfScheduleEntries

Definition at line 29 of file [calendar-common.h](#).

The documentation for this struct was generated from the following file:

- [calendar-common.h](#)

## 7.33 EmberAfCalendarScheduleEntry Union Reference

```
#include <calendar-client.h>
```

## Data Fields

- struct {
   
    uint16\_t startTimeM
   
    uint8\_t priceTier
   
} rateSwitchTime
  
- struct {
   
    uint16\_t startTimeM
   
    bool friendlyCreditEnable
   
} friendlyCreditSwitchTime
  
- struct {
   
    uint16\_t startTimeM
   
    uint8\_t auxiliaryLoadSwitchState
   
} auxilliaryLoadSwitchTime

### 7.33.1 Detailed Description

Definition at line 28 of file [calendar-client.h](#).

### 7.33.2 Field Documentation

#### 7.33.2.1 uint16\_t EmberAfCalendarScheduleEntry::startTimeM

Definition at line 30 of file [calendar-client.h](#).

#### 7.33.2.2 uint8\_t EmberAfCalendarScheduleEntry::priceTier

Definition at line 31 of file [calendar-client.h](#).

#### 7.33.2.3 struct { ... } EmberAfCalendarScheduleEntry::rateSwitchTime

#### 7.33.2.4 bool EmberAfCalendarScheduleEntry::friendlyCreditEnable

Definition at line 35 of file [calendar-client.h](#).

#### 7.33.2.5 struct { ... } EmberAfCalendarScheduleEntry::friendlyCreditSwitchTime

#### 7.33.2.6 uint8\_t EmberAfCalendarScheduleEntry::auxiliaryLoadSwitchState

Definition at line 39 of file [calendar-client.h](#).

#### 7.33.2.7 struct { ... } EmberAfCalendarScheduleEntry::auxilliaryLoadSwitchTime

The documentation for this union was generated from the following file:

- [calendar-client.h](#)

## 7.34 EmberAfCalendarSeason Struct Reference

```
#include <calendar-client.h>
```

### Data Fields

- [EmberAfDate seasonStartDate](#)
- [uint8\\_t weekIdRef](#)

#### 7.34.1 Detailed Description

Definition at line [7](#) of file [calendar-client.h](#).

#### 7.34.2 Field Documentation

##### 7.34.2.1 EmberAfDate EmberAfCalendarSeason::seasonStartDate

Definition at line [8](#) of file [calendar-client.h](#).

##### 7.34.2.2 uint8\_t EmberAfCalendarSeason::weekIdRef

Definition at line [9](#) of file [calendar-client.h](#).

The documentation for this struct was generated from the following file:

- [calendar-client.h](#)

## 7.35 EmberAfCalendarSeasonStruct Struct Reference

```
#include <calendar-common.h>
```

### Data Fields

- [EmberAfDate startDate](#)
- [uint8\\_t weekIndex](#)

#### 7.35.1 Detailed Description

Definition at line [49](#) of file [calendar-common.h](#).

#### 7.35.2 Field Documentation

##### 7.35.2.1 EmberAfDate EmberAfCalendarSeasonStruct::startDate

Definition at line [50](#) of file [calendar-common.h](#).

### 7.35.2.2 uint8\_t EmberAfCalendarSeasonStruct::weekIndex

Definition at line 51 of file [calendar-common.h](#).

The documentation for this struct was generated from the following file:

- [calendar-common.h](#)

## 7.36 EmberAfCalendarSpecialDayEntry Struct Reference

```
#include <calendar-client.h>
```

### Data Fields

- [EmberAfDate specialDayDate](#)
- [uint8\\_t dayIdRef](#)

### 7.36.1 Detailed Description

Definition at line 50 of file [calendar-client.h](#).

### 7.36.2 Field Documentation

#### 7.36.2.1 EmberAfDate EmberAfCalendarSpecialDayEntry::specialDayDate

Definition at line 51 of file [calendar-client.h](#).

#### 7.36.2.2 uint8\_t EmberAfCalendarSpecialDayEntry::dayIdRef

Definition at line 52 of file [calendar-client.h](#).

The documentation for this struct was generated from the following file:

- [calendar-client.h](#)

## 7.37 EmberAfCalendarSpecialDayProfile Struct Reference

```
#include <calendar-client.h>
```

### Data Fields

- [bool inUse](#)
- [uint32\\_t startTimeUtc](#)
- [uint8\\_t numberOfSpecialDayEntries](#)
- [uint8\\_t receivedSpecialDayEntries](#)
- [EmberAfCalendarSpecialDayEntry specialDayEntries](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_SPECIAL\_DAY\_ENTRIES]

### 7.37.1 Detailed Description

Definition at line 55 of file [calendar-client.h](#).

### 7.37.2 Field Documentation

#### 7.37.2.1 bool EmberAfCalendarSpecialDayProfile::inUse

Definition at line 56 of file [calendar-client.h](#).

#### 7.37.2.2 uint32\_t EmberAfCalendarSpecialDayProfile::startTimeUtc

Definition at line 57 of file [calendar-client.h](#).

#### 7.37.2.3 uint8\_t EmberAfCalendarSpecialDayProfile::numberOfSpecialDayEntries

Definition at line 58 of file [calendar-client.h](#).

#### 7.37.2.4 uint8\_t EmberAfCalendarSpecialDayProfile::receivedSpecialDayEntries

Definition at line 59 of file [calendar-client.h](#).

#### 7.37.2.5 EmberAfCalendarSpecialDayEntry EmberAfCalendarSpecialDayProfile::specialDayEntries[EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_SPECIAL\_DAY\_ENTRIES]

Definition at line 60 of file [calendar-client.h](#).

The documentation for this struct was generated from the following file:

- [calendar-client.h](#)

## 7.38 EmberAfCalendarSpecialDayStruct Struct Reference

```
#include <calendar-common.h>
```

### Data Fields

- [EmberAfDate startDate](#)
- [uint8\\_t normalDayIndex](#)
- [uint8\\_t flags](#)

### 7.38.1 Detailed Description

Definition at line 34 of file [calendar-common.h](#).

## 7.38.2 Field Documentation

### 7.38.2.1 EmberAfDate EmberAfCalendarSpecialDayStruct::startDate

Definition at line 35 of file [calendar-common.h](#).

### 7.38.2.2 uint8\_t EmberAfCalendarSpecialDayStruct::normalDayIndex

Definition at line 36 of file [calendar-common.h](#).

### 7.38.2.3 uint8\_t EmberAfCalendarSpecialDayStruct::flags

Definition at line 37 of file [calendar-common.h](#).

The documentation for this struct was generated from the following file:

- [calendar-common.h](#)

## 7.39 EmberAfCalendarStruct Struct Reference

```
#include <calendar-common.h>
```

### Data Fields

- [EmberAfCalendarWeekStruct weeks](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_WEEK\_PROFILE\_MAX]
- [EmberAfCalendarDayStruct normalDays](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_DAY\_PROFILE\_MAX]
- [EmberAfCalendarSpecialDayStruct specialDays](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SPECIAL\_DAY\_PROFILE\_MAX]
- [EmberAfCalendarSeasonStruct seasons](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SEASON\_PROFILE\_MAX]
- [uint32\\_t providerId](#)
- [uint32\\_t issuerEventId](#)
- [uint32\\_t calendarId](#)
- [uint32\\_t startTimeUtc](#)
- [uint8\\_t name](#) [EMBER\_AF\_PLUGIN\_CALENDAR\_MAX\_CALENDAR\_NAME\_LENGTH+1]
- [uint8\\_t calendarType](#)
- [uint8\\_t numberOfSeasons](#)
- [uint8\\_t numberOfWeekProfiles](#)
- [uint8\\_t numberOfDayProfiles](#)
- [uint8\\_t numberOfSpecialDayProfiles](#)
- [uint8\\_t numberOfReceivedSeasons](#)
- [uint8\\_t numberOfReceivedWeekProfiles](#)
- [uint8\\_t numberOfReceivedDayProfiles](#)
- [uint8\\_t flags](#)

### 7.39.1 Detailed Description

Definition at line [64](#) of file [calendar-common.h](#).

### 7.39.2 Field Documentation

#### 7.39.2.1 EmberAfCalendarWeekStruct EmberAfCalendarStruct::weeks[EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_WEEK\_PROFILE\_MAX]

Definition at line [65](#) of file [calendar-common.h](#).

#### 7.39.2.2 EmberAfCalendarDayStruct EmberAfCalendarStruct::normalDays[EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_DAY\_PROFILE\_MAX]

Definition at line [66](#) of file [calendar-common.h](#).

#### 7.39.2.3 EmberAfCalendarSpecialDayStruct EmberAfCalendarStruct::specialDays[EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SPECIAL\_DAY\_PROFILE\_MAX]

Definition at line [67](#) of file [calendar-common.h](#).

#### 7.39.2.4 EmberAfCalendarSeasonStruct EmberAfCalendarStruct::seasons[EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SEASON\_PROFILE\_MAX]

Definition at line [68](#) of file [calendar-common.h](#).

#### 7.39.2.5 uint32\_t EmberAfCalendarStruct::providerId

Definition at line [69](#) of file [calendar-common.h](#).

#### 7.39.2.6 uint32\_t EmberAfCalendarStruct::issuerEventId

Definition at line [70](#) of file [calendar-common.h](#).

#### 7.39.2.7 uint32\_t EmberAfCalendarStruct::calendarId

Definition at line [71](#) of file [calendar-common.h](#).

#### 7.39.2.8 uint32\_t EmberAfCalendarStruct::startTimeUtc

Definition at line [72](#) of file [calendar-common.h](#).

#### 7.39.2.9 uint8\_t EmberAfCalendarStruct::name[EMBER\_AF\_PLUGIN\_CALENDAR\_MAX\_CALENDAR\_NAME\_LENGTH+1]

Definition at line [73](#) of file [calendar-common.h](#).

**7.39.2.10 uint8\_t EmberAfCalendarStruct::calendarType**

Definition at line 74 of file [calendar-common.h](#).

**7.39.2.11 uint8\_t EmberAfCalendarStruct::numberOfSeasons**

Definition at line 75 of file [calendar-common.h](#).

**7.39.2.12 uint8\_t EmberAfCalendarStruct::numberOfWeekProfiles**

Definition at line 76 of file [calendar-common.h](#).

**7.39.2.13 uint8\_t EmberAfCalendarStruct::numberOfDayProfiles**

Definition at line 77 of file [calendar-common.h](#).

**7.39.2.14 uint8\_t EmberAfCalendarStruct::numberOfSpecialDayProfiles**

Definition at line 78 of file [calendar-common.h](#).

**7.39.2.15 uint8\_t EmberAfCalendarStruct::numberOfReceivedSeasons**

Definition at line 84 of file [calendar-common.h](#).

**7.39.2.16 uint8\_t EmberAfCalendarStruct::numberOfReceivedWeekProfiles**

Definition at line 85 of file [calendar-common.h](#).

**7.39.2.17 uint8\_t EmberAfCalendarStruct::numberOfReceivedDayProfiles**

Definition at line 86 of file [calendar-common.h](#).

**7.39.2.18 uint8\_t EmberAfCalendarStruct::flags**

Definition at line 87 of file [calendar-common.h](#).

The documentation for this struct was generated from the following file:

- [calendar-common.h](#)

## 7.40 EmberAfCalendarWeekProfile Struct Reference

```
#include <calendar-client.h>
```

## Data Fields

- bool `inUse`
- uint8\_t `dayIdRefMonday`
- uint8\_t `dayIdRefTuesday`
- uint8\_t `dayIdRefWednesday`
- uint8\_t `dayIdRefThursday`
- uint8\_t `dayIdRefFriday`
- uint8\_t `dayIdRefSaturday`
- uint8\_t `dayIdRefSunday`

### 7.40.1 Detailed Description

Definition at line 12 of file [calendar-client.h](#).

### 7.40.2 Field Documentation

#### 7.40.2.1 bool EmberAfCalendarWeekProfile::inUse

Definition at line 13 of file [calendar-client.h](#).

#### 7.40.2.2 uint8\_t EmberAfCalendarWeekProfile::dayIdRefMonday

Definition at line 14 of file [calendar-client.h](#).

#### 7.40.2.3 uint8\_t EmberAfCalendarWeekProfile::dayIdRefTuesday

Definition at line 15 of file [calendar-client.h](#).

#### 7.40.2.4 uint8\_t EmberAfCalendarWeekProfile::dayIdRefWednesday

Definition at line 16 of file [calendar-client.h](#).

#### 7.40.2.5 uint8\_t EmberAfCalendarWeekProfile::dayIdRefThursday

Definition at line 17 of file [calendar-client.h](#).

#### 7.40.2.6 uint8\_t EmberAfCalendarWeekProfile::dayIdRefFriday

Definition at line 18 of file [calendar-client.h](#).

#### 7.40.2.7 uint8\_t EmberAfCalendarWeekProfile::dayIdRefSaturday

Definition at line 19 of file [calendar-client.h](#).

#### 7.40.2.8 uint8\_t EmberAfCalendarWeekProfile::dayIdRefSunday

Definition at line 20 of file [calendar-client.h](#).

The documentation for this struct was generated from the following file:

- [calendar-client.h](#)

### 7.41 EmberAfCalendarWeekStruct Struct Reference

```
#include <calendar-common.h>
```

#### Data Fields

- uint8\_t [normalDayIndexes \[EMBER\\_AF\\_DAYS\\_IN\\_THE\\_WEEK\]](#)
- uint8\_t [id](#)

#### 7.41.1 Detailed Description

Definition at line 44 of file [calendar-common.h](#).

#### 7.41.2 Field Documentation

##### 7.41.2.1 uint8\_t EmberAfCalendarWeekStruct::normalDayIndexes[EMBER\_AF\_DAYS\_IN\_THE\_WEEK]

Definition at line 45 of file [calendar-common.h](#).

##### 7.41.2.2 uint8\_t EmberAfCalendarWeekStruct::id

Definition at line 46 of file [calendar-common.h](#).

The documentation for this struct was generated from the following file:

- [calendar-common.h](#)

### 7.42 EmberAfCluster Struct Reference

```
#include <af-types.h>
```

#### Data Fields

- [EmberAfClusterId clusterId](#)
- [EmberAfAttributeMetadata \\* attributes](#)
- uint16\_t [attributeCount](#)
- uint16\_t [clusterSize](#)
- [EmberAfClusterMask mask](#)

- const  
**EmberAfGenericClusterFunction \* functions**

### 7.42.1 Detailed Description

Struct describing cluster.

Definition at line 167 of file [af-types.h](#).

### 7.42.2 Field Documentation

#### 7.42.2.1 EmberAfClusterId EmberAfCluster::clusterId

ID of cluster according to ZCL spec

Definition at line 171 of file [af-types.h](#).

#### 7.42.2.2 EmberAfAttributeMetadata\* EmberAfCluster::attributes

Pointer to attribute metadata array for this cluster.

Definition at line 175 of file [af-types.h](#).

#### 7.42.2.3 uint16\_t EmberAfCluster::attributeCount

Total number of attributes

Definition at line 179 of file [af-types.h](#).

#### 7.42.2.4 uint16\_t EmberAfCluster::clusterSize

Total size of non-external, non-singleton attribute for this cluster.

Definition at line 183 of file [af-types.h](#).

#### 7.42.2.5 EmberAfClusterMask EmberAfCluster::mask

Mask with additional functionality for cluster. See CLUSTER\_MASK macros.

Definition at line 188 of file [af-types.h](#).

#### 7.42.2.6 const EmberAfGenericClusterFunction\* EmberAfCluster::functions

An array into the cluster functions. The length of the array is determined by the function bits in mask. This may be null if this cluster has no functions.

Definition at line 195 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.43 EmberAfClusterCommand Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `EmberApsFrame * apsFrame`
- `EmberIncomingMessageType type`
- `EmberNodeId source`
- `uint8_t * buffer`
- `uint16_t buffLen`
- `bool clusterSpecific`
- `bool mfgSpecific`
- `uint16_t mfgCode`
- `uint8_t seqNum`
- `uint8_t commandId`
- `uint8_t payloadStartIndex`
- `uint8_t direction`
- `EmberAfInterpanHeader * interPanHeader`
- `uint8_t networkIndex`

### 7.43.1 Detailed Description

The EmberAFClusterCommand is a struct wrapper for all the data pertaining to a command which comes in over the air. This enables struct is used to encapsulate a command in a single place on the stack and pass a pointer to that location around during command processing.

Definition at line 393 of file [af-types.h](#).

### 7.43.2 Field Documentation

#### 7.43.2.1 EmberApsFrame\* EmberAfClusterCommand::apsFrame

Aps frame for the incoming message

Definition at line 397 of file [af-types.h](#).

#### 7.43.2.2 EmberIncomingMessageType EmberAfClusterCommand::type

Definition at line 398 of file [af-types.h](#).

#### 7.43.2.3 EmberNodeId EmberAfClusterCommand::source

Definition at line 399 of file [af-types.h](#).

#### 7.43.2.4 uint8\_t\* EmberAfClusterCommand::buffer

Definition at line 400 of file [af-types.h](#).

**7.43.2.5 uint16\_t EmberAfClusterCommand::bufLen**

Definition at line 401 of file [af-types.h](#).

**7.43.2.6 bool EmberAfClusterCommand::clusterSpecific**

Definition at line 402 of file [af-types.h](#).

**7.43.2.7 bool EmberAfClusterCommand::mfgSpecific**

Definition at line 403 of file [af-types.h](#).

**7.43.2.8 uint16\_t EmberAfClusterCommand::mfgCode**

Definition at line 404 of file [af-types.h](#).

**7.43.2.9 uint8\_t EmberAfClusterCommand::seqNum**

Definition at line 405 of file [af-types.h](#).

**7.43.2.10 uint8\_t EmberAfClusterCommand::commandId**

Definition at line 406 of file [af-types.h](#).

**7.43.2.11 uint8\_t EmberAfClusterCommand::payloadstartIndex**

Definition at line 407 of file [af-types.h](#).

**7.43.2.12 uint8\_t EmberAfClusterCommand::direction**

Definition at line 408 of file [af-types.h](#).

**7.43.2.13 EmberAfInterpanHeader\* EmberAfClusterCommand::interPanHeader**

Definition at line 409 of file [af-types.h](#).

**7.43.2.14 uint8\_t EmberAfClusterCommand::networkIndex**

Definition at line 410 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.44 EmberAfClusterInfo Struct Reference

```
#include <af-types.h>
```

## Data Fields

- [EmberAfClusterId clusterId](#)
- [bool server](#)

### 7.44.1 Detailed Description

Definition at line [1797](#) of file [af-types.h](#).

### 7.44.2 Field Documentation

#### 7.44.2.1 EmberAfClusterId EmberAfClusterInfo::clusterId

Definition at line [1798](#) of file [af-types.h](#).

#### 7.44.2.2 bool EmberAfClusterInfo::server

Definition at line [1799](#) of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.45 EmberAfClusterList Struct Reference

```
#include <af-types.h>
```

## Data Fields

- [uint8\\_t inClusterCount](#)
- [const uint16\\_t \\* inClusterList](#)
- [uint8\\_t outClusterCount](#)
- [const uint16\\_t \\* outClusterList](#)
- [EmberAfProfileId profileId](#)
- [uint16\\_t deviceId](#)
- [uint8\\_t endpoint](#)

### 7.45.1 Detailed Description

A list of clusters received during a service discovery attempt. This will be returned for a simple descriptor request.

Definition at line [664](#) of file [af-types.h](#).

### 7.45.2 Field Documentation

#### 7.45.2.1 uint8\_t EmberAfClusterList::inClusterCount

Definition at line [665](#) of file [af-types.h](#).

#### 7.45.2.2 const uint16\_t\* EmberAfClusterList::inClusterList

Definition at line [666](#) of file [af-types.h](#).

#### 7.45.2.3 uint8\_t EmberAfClusterList::outClusterCount

Definition at line [667](#) of file [af-types.h](#).

#### 7.45.2.4 const uint16\_t\* EmberAfClusterList::outClusterList

Definition at line [668](#) of file [af-types.h](#).

#### 7.45.2.5 EmberAfProfileId EmberAfClusterList::profileId

Definition at line [669](#) of file [af-types.h](#).

#### 7.45.2.6 uint16\_t EmberAfClusterList::deviceId

Definition at line [670](#) of file [af-types.h](#).

#### 7.45.2.7 uint8\_t EmberAfClusterList::endpoint

Definition at line [671](#) of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.46 EmberAfCommandMetadata Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint16\_t [clusterId](#)
- uint8\_t [commandId](#)
- uint8\_t [mask](#)

#### 7.46.1 Detailed Description

A data struct used to keep track of incoming and outgoing commands for command discovery.

Definition at line [1485](#) of file [af-types.h](#).

## 7.46.2 Field Documentation

### 7.46.2.1 `uint16_t EmberAfCommandMetadata::clusterId`

Definition at line 1486 of file [af-types.h](#).

### 7.46.2.2 `uint8_t EmberAfCommandMetadata::commandId`

Definition at line 1487 of file [af-types.h](#).

### 7.46.2.3 `uint8_t EmberAfCommandMetadata::mask`

Definition at line 1488 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.47 EmberAfDate Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t year`
- `uint8_t month`
- `uint8_t dayOfMonth`
- `uint8_t dayOfWeek`

### 7.47.1 Detailed Description

A data structure used to describe the ZCL Date data type.

Definition at line 1509 of file [af-types.h](#).

## 7.47.2 Field Documentation

### 7.47.2.1 `uint8_t EmberAfDate::year`

Definition at line 1510 of file [af-types.h](#).

### 7.47.2.2 `uint8_t EmberAfDate::month`

Definition at line 1511 of file [af-types.h](#).

### 7.47.2.3 `uint8_t EmberAfDate::dayOfMonth`

Definition at line 1512 of file [af-types.h](#).

#### 7.47.2.4 uint8\_t EmberAfDate::dayOfWeek

Definition at line 1513 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.48 EmberAfDefaultAttributeValue Union Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t * ptrToDefaultValue`
- `uint16_t defaultValue`

#### 7.48.1 Detailed Description

Type for default values.

Default value is either a value itself, if it is 2 bytes or less, or a pointer to the value itself, if attribute type is longer than 2 bytes.

Definition at line 77 of file [af-types.h](#).

#### 7.48.2 Field Documentation

##### 7.48.2.1 uint8\_t\* EmberAfDefaultAttributeValue::ptrToDefaultValue

Points to data if size is more than 2 bytes. If size is more than 2 bytes, and this value is NULL, then the default value is all zeroes.

Definition at line 83 of file [af-types.h](#).

##### 7.48.2.2 uint16\_t EmberAfDefaultAttributeValue::defaultValue

Actual default value if the attribute size is 2 bytes or less.

Definition at line 87 of file [af-types.h](#).

The documentation for this union was generated from the following file:

- [af-types.h](#)

## 7.49 EmberAfDefaultOrMinMaxAttributeValue Union Reference

```
#include <af-types.h>
```

## Data Fields

- `uint8_t * ptrToDefaultValue`
- `uint16_t defaultValue`
- `EmberAfAttributeMinMaxValue * ptrToMinMaxValue`

### 7.49.1 Detailed Description

Union describing the attribute default/min/max values.

Definition at line 114 of file `af-types.h`.

### 7.49.2 Field Documentation

#### 7.49.2.1 `uint8_t* EmberAfDefaultOrMinMaxAttributeValue::ptrToDefaultValue`

Points to data if size is more than 2 bytes. If size is more than 2 bytes, and this value is NULL, then the default value is all zeroes.

Definition at line 120 of file `af-types.h`.

#### 7.49.2.2 `uint16_t EmberAfDefaultOrMinMaxAttributeValue::defaultValue`

Actual default value if the attribute size is 2 bytes or less.

Definition at line 124 of file `af-types.h`.

#### 7.49.2.3 `EmberAfAttributeMinMaxValue* EmberAfDefaultOrMinMaxAttributeValue::ptrToMinMaxValue`

Points to the min max attribute value structure, if min/max is supported for this attribute.

Definition at line 129 of file `af-types.h`.

The documentation for this union was generated from the following file:

- `af-types.h`

## 7.50 EmberAfDefinedEndpoint Struct Reference

```
#include <af-types.h>
```

## Data Fields

- `uint8_t endpoint`
- `EmberAfProfileId profileId`
- `uint16_t deviceId`
- `uint8_t deviceVersion`
- `EmberAfEndpointType * endpointType`
- `uint8_t networkIndex`
- `EmberAfEndpointBitmask bitmask`

### 7.50.1 Detailed Description

Struct that maps actual endpoint type, onto a specific endpoint.

Definition at line 501 of file [af-types.h](#).

### 7.50.2 Field Documentation

#### 7.50.2.1 `uint8_t EmberAfDefinedEndpoint::endpoint`

Actual ZigBee endpoint number.

Definition at line 505 of file [af-types.h](#).

#### 7.50.2.2 `EmberAfProfileId EmberAfDefinedEndpoint::profileId`

Profile ID of the device on this endpoint.

Definition at line 509 of file [af-types.h](#).

#### 7.50.2.3 `uint16_t EmberAfDefinedEndpoint::deviceId`

Device ID of the device on this endpoint.

Definition at line 513 of file [af-types.h](#).

#### 7.50.2.4 `uint8_t EmberAfDefinedEndpoint::deviceVersion`

Version of the device.

Definition at line 517 of file [af-types.h](#).

#### 7.50.2.5 `EmberAfEndpointType* EmberAfDefinedEndpoint::endpointType`

Endpoint type for this endpoint.

Definition at line 521 of file [af-types.h](#).

#### 7.50.2.6 `uint8_t EmberAfDefinedEndpoint::networkIndex`

Network index for this endpoint.

Definition at line 525 of file [af-types.h](#).

#### 7.50.2.7 `EmberAfEndpointBitmask EmberAfDefinedEndpoint::bitmask`

Meta-data about the endpoint

Definition at line 529 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.51 EmberAfDeviceDatabaseIterator Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint16\_t [deviceIndex](#)

#### 7.51.1 Detailed Description

Definition at line [1848](#) of file [af-types.h](#).

#### 7.51.2 Field Documentation

##### 7.51.2.1 uint16\_t EmberAfDeviceDatabaseIterator::deviceIndex

Definition at line [1849](#) of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.52 EmberAfDeviceInfo Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberEUI64 eui64](#)
- [EmberAfEndpointInfoStruct endpoints](#) [[EMBER\\_AF\\_MAX\\_ENDPOINTS\\_PER\\_DEVICE](#)]
- [EmberAfDeviceDiscoveryStatus status](#)
- uint8\_t [discoveryFailures](#)
- uint8\_t [capabilities](#)
- uint8\_t [endpointCount](#)

#### 7.52.1 Detailed Description

A struct containing endpoint information about a device.

Definition at line [1839](#) of file [af-types.h](#).

#### 7.52.2 Field Documentation

##### 7.52.2.1 EmberEUI64 EmberAfDeviceInfo::eui64

Definition at line [1840](#) of file [af-types.h](#).

### **7.52.2.2 EmberAfEndpointInfoStruct EmberAfDeviceInfo::endpoints[EMBER\_AF\_MAX\_ENDPOINTS\_PER\_DEVICE]**

Definition at line 1841 of file [af-types.h](#).

### **7.52.2.3 EmberAfDeviceDiscoveryStatus EmberAfDeviceInfo::status**

Definition at line 1842 of file [af-types.h](#).

### **7.52.2.4 uint8\_t EmberAfDeviceInfo::discoveryFailures**

Definition at line 1843 of file [af-types.h](#).

### **7.52.2.5 uint8\_t EmberAfDeviceInfo::capabilities**

Definition at line 1844 of file [af-types.h](#).

### **7.52.2.6 uint8\_t EmberAfDeviceInfo::endpointCount**

Definition at line 1845 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## **7.53 EmberAfDeviceManagementAttributeRange Struct Reference**

```
#include <af-types.h>
```

### **Data Fields**

- `uint8_t startIndex`
- `uint8_t endIndex`

### **7.53.1 Detailed Description**

Definition at line 1729 of file [af-types.h](#).

### **7.53.2 Field Documentation**

#### **7.53.2.1 uint8\_t EmberAfDeviceManagementAttributeRange::startIndex**

Definition at line 1730 of file [af-types.h](#).

### 7.53.2.2 `uint8_t EmberAfDeviceManagementAttributeRange::endIndex`

Definition at line 1731 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.54 `EmberAfDeviceManagementAttributeTable` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t attributeSetId`
- `EmberAfDeviceManagementAttributeRange attributeRange [7]`

### 7.54.1 Detailed Description

Definition at line 1740 of file [af-types.h](#).

### 7.54.2 Field Documentation

#### 7.54.2.1 `uint8_t EmberAfDeviceManagementAttributeTable::attributeSetId`

Definition at line 1741 of file [af-types.h](#).

#### 7.54.2.2 `EmberAfDeviceManagementAttributeRange EmberAfDeviceManagementAttributeTable-::attributeRange[7]`

Definition at line 1742 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.55 `EmberAfDeviceManagementCIN` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t cin [EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_CIN_LENGTH+1]`
- `uint32_t implementationDateTime`
- `uint32_t issuerEventId`

### 7.55.1 Detailed Description

Definition at line 1675 of file [af-types.h](#).

### 7.55.2 Field Documentation

**7.55.2.1 `uint8_t EmberAfDeviceManagementCIN::cin[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_CIN_LENGTH+1]`**

Definition at line 1676 of file [af-types.h](#).

**7.55.2.2 `uint32_t EmberAfDeviceManagementCIN::implementationDateTime`**

Definition at line 1677 of file [af-types.h](#).

**7.55.2.3 `uint32_t EmberAfDeviceManagementCIN::issuerEventId`**

Definition at line 1678 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.56 EmberAfDeviceManagementInfo Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfDeviceManagementTenancy tenancy](#)
- [EmberAfDeviceManagementSupplier supplier](#)
- [EmberAfDeviceManagementSupply supply](#)
- [EmberAfDeviceManagementSiteId siteId](#)
- [EmberAfDeviceManagementCIN cin](#)
- [EmberAfDeviceManagementSupplyStatusFlags supplyStatusFlags](#)
- [EmberAfDeviceManagementSupplyStatus supplyStatus](#)
- [EmberAfDeviceManagementPassword servicePassword](#)
- [EmberAfDeviceManagementPassword consumerPassword](#)
- [EmberAfDeviceManagementUncontrolledFlowThreshold threshold](#)
- [uint32\\_t providerId](#)
- [uint32\\_t issuerEventId](#)
- [uint8\\_t proposedLocalSupplyStatus](#)
- [EmberAfTariffType tariffType](#)
- [EmberAfDeviceManagementChangePendingFlags pendingUpdates](#)

### 7.56.1 Detailed Description

Definition at line 1710 of file [af-types.h](#).

## 7.56.2 Field Documentation

### 7.56.2.1 EmberAfDeviceManagementTenancy EmberAfDeviceManagementInfo::tenancy

Definition at line 1711 of file [af-types.h](#).

### 7.56.2.2 EmberAfDeviceManagementSupplier EmberAfDeviceManagementInfo::supplier

Definition at line 1712 of file [af-types.h](#).

### 7.56.2.3 EmberAfDeviceManagementSupply EmberAfDeviceManagementInfo::supply

Definition at line 1713 of file [af-types.h](#).

### 7.56.2.4 EmberAfDeviceManagementSiteId EmberAfDeviceManagementInfo::siteId

Definition at line 1714 of file [af-types.h](#).

### 7.56.2.5 EmberAfDeviceManagementCIN EmberAfDeviceManagementInfo::cin

Definition at line 1715 of file [af-types.h](#).

### 7.56.2.6 EmberAfDeviceManagementSupplyStatusFlags EmberAfDeviceManagementInfo::supply- StatusFlags

Definition at line 1716 of file [af-types.h](#).

### 7.56.2.7 EmberAfDeviceManagementSupplyStatus EmberAfDeviceManagementInfo::supplyStatus

Definition at line 1717 of file [af-types.h](#).

### 7.56.2.8 EmberAfDeviceManagementPassword EmberAfDeviceManagementInfo::servicePassword

Definition at line 1719 of file [af-types.h](#).

### 7.56.2.9 EmberAfDeviceManagementPassword EmberAfDeviceManagementInfo::consumerPassword

Definition at line 1720 of file [af-types.h](#).

### 7.56.2.10 EmberAfDeviceManagementUncontrolledFlowThreshold EmberAfDeviceManagementInfo- ::threshold

Definition at line 1721 of file [af-types.h](#).

### 7.56.2.11 uint32\_t EmberAfDeviceManagementInfo::providerId

Definition at line 1722 of file [af-types.h](#).

### 7.56.2.12 `uint32_t EmberAfDeviceManagementInfo::issuerEventId`

Definition at line 1723 of file [af-types.h](#).

### 7.56.2.13 `uint8_t EmberAfDeviceManagementInfo::proposedLocalSupplyStatus`

Definition at line 1724 of file [af-types.h](#).

### 7.56.2.14 `EmberAfTariffType EmberAfDeviceManagementInfo::tariffType`

Definition at line 1725 of file [af-types.h](#).

### 7.56.2.15 `EmberAfDeviceManagementChangePendingFlags EmberAfDeviceManagementInfo::pendingUpdates`

Definition at line 1726 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.57 `EmberAfDeviceManagementPassword` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t password [EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PASSWORD_LENGTH+1]`
- `uint32_t implementationDateTime`
- `uint16_t durationInMinutes`
- `EmberAfDeviceManagementPasswordType passwordType`

### 7.57.1 Detailed Description

Definition at line 1703 of file [af-types.h](#).

### 7.57.2 Field Documentation

#### 7.57.2.1 `uint8_t EmberAfDeviceManagementPassword::password[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PASSWORD_LENGTH+1]`

Definition at line 1704 of file [af-types.h](#).

#### 7.57.2.2 `uint32_t EmberAfDeviceManagementPassword::implementationDateTime`

Definition at line 1705 of file [af-types.h](#).

### 7.57.2.3 `uint16_t EmberAfDeviceManagementPassword::durationInMinutes`

Definition at line 1706 of file [af-types.h](#).

### 7.57.2.4 `EmberAfDeviceManagementPasswordType EmberAfDeviceManagementPassword::passwordType`

Definition at line 1707 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.58 `EmberAfDeviceManagementSiteId` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t siteId [EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_SITE_ID_LENGTH+1]`
- `uint32_t implementationDateTime`
- `uint32_t issuerEventId`

### 7.58.1 Detailed Description

Definition at line 1669 of file [af-types.h](#).

### 7.58.2 Field Documentation

#### 7.58.2.1 `uint8_t EmberAfDeviceManagementSiteId::siteId[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_SITE_ID_LENGTH+1]`

Definition at line 1670 of file [af-types.h](#).

#### 7.58.2.2 `uint32_t EmberAfDeviceManagementSiteId::implementationDateTime`

Definition at line 1671 of file [af-types.h](#).

#### 7.58.2.3 `uint32_t EmberAfDeviceManagementSiteId::issuerEventId`

Definition at line 1672 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.59 EmberAfDeviceManagementSupplier Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint32\_t proposedProviderId
- uint32\_t implementationDateTime
- uint32\_t providerChangeControl
- uint8\_t proposedProviderName [EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_NAME\_LENGTH+1]
- uint8\_t proposedProviderContactDetails [EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_CONTACT\_DETAILS\_LENGTH+1]

#### 7.59.1 Detailed Description

Definition at line 1654 of file [af-types.h](#).

#### 7.59.2 Field Documentation

##### 7.59.2.1 uint32\_t EmberAfDeviceManagementSupplier::proposedProviderId

Definition at line 1655 of file [af-types.h](#).

##### 7.59.2.2 uint32\_t EmberAfDeviceManagementSupplier::implementationDateTime

Definition at line 1656 of file [af-types.h](#).

##### 7.59.2.3 uint32\_t EmberAfDeviceManagementSupplier::providerChangeControl

Definition at line 1657 of file [af-types.h](#).

##### 7.59.2.4 uint8\_t EmberAfDeviceManagementSupplier::proposedProviderName[EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_NAME\_LENGTH+1]

Definition at line 1658 of file [af-types.h](#).

##### 7.59.2.5 uint8\_t EmberAfDeviceManagementSupplier::proposedProviderContactDetails[EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_CONTACT\_DETAILS\_LENGTH+1]

Definition at line 1659 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.60 EmberAfDeviceManagementSupply Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint32\_t `requestDateTime`
- uint32\_t `implementationDateTime`
- uint8\_t `supplyStatus`
- uint8\_t `originatorIdSupplyControlBits`

### 7.60.1 Detailed Description

Definition at line 1662 of file `af-types.h`.

### 7.60.2 Field Documentation

#### 7.60.2.1 uint32\_t EmberAfDeviceManagementSupply::requestDateTime

Definition at line 1663 of file `af-types.h`.

#### 7.60.2.2 uint32\_t EmberAfDeviceManagementSupply::implementationDateTime

Definition at line 1664 of file `af-types.h`.

#### 7.60.2.3 uint8\_t EmberAfDeviceManagementSupply::supplyStatus

Definition at line 1665 of file `af-types.h`.

#### 7.60.2.4 uint8\_t EmberAfDeviceManagementSupply::originatorIdSupplyControlBits

Definition at line 1666 of file `af-types.h`.

The documentation for this struct was generated from the following file:

- `af-types.h`

## 7.61 EmberAfDeviceManagementSupplyStatus Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint32\_t `implementationDateTime`
- uint8\_t `supplyStatus`

### 7.61.1 Detailed Description

Definition at line 1698 of file [af-types.h](#).

### 7.61.2 Field Documentation

#### 7.61.2.1 uint32\_t EmberAfDeviceManagementSupplyStatus::implementationDateTime

Definition at line 1699 of file [af-types.h](#).

#### 7.61.2.2 uint8\_t EmberAfDeviceManagementSupplyStatus::supplyStatus

Definition at line 1700 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.62 EmberAfDeviceManagementSupplyStatusFlags Struct Reference

```
#include <af-types.h>
```

### Data Fields

- bool [supplyTamperState](#)
- bool [supplyDepletionState](#)
- bool [supplyUncontrolledFlowState](#)
- bool [loadLimitSupplyState](#)

### 7.62.1 Detailed Description

Definition at line 1681 of file [af-types.h](#).

### 7.62.2 Field Documentation

#### 7.62.2.1 bool EmberAfDeviceManagementSupplyStatusFlags::supplyTamperState

Definition at line 1682 of file [af-types.h](#).

#### 7.62.2.2 bool EmberAfDeviceManagementSupplyStatusFlags::supplyDepletionState

Definition at line 1683 of file [af-types.h](#).

#### 7.62.2.3 bool EmberAfDeviceManagementSupplyStatusFlags::supplyUncontrolledFlowState

Definition at line 1684 of file [af-types.h](#).

#### 7.62.2.4 bool EmberAfDeviceManagementSupplyStatusFlags::loadLimitSupplyState

Definition at line 1685 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.63 EmberAfDeviceManagementTenancy Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint32_t providerId`
- `uint32_t issuerEventId`
- `uint8_t tariffType`
- `uint32_t implementationDateTime`
- `uint32_t tenancy`

### 7.63.1 Detailed Description

Definition at line 1643 of file [af-types.h](#).

### 7.63.2 Field Documentation

#### 7.63.2.1 `uint32_t EmberAfDeviceManagementTenancy::providerId`

Definition at line 1645 of file [af-types.h](#).

#### 7.63.2.2 `uint32_t EmberAfDeviceManagementTenancy::issuerEventId`

Definition at line 1646 of file [af-types.h](#).

#### 7.63.2.3 `uint8_t EmberAfDeviceManagementTenancy::tariffType`

Definition at line 1647 of file [af-types.h](#).

#### 7.63.2.4 `uint32_t EmberAfDeviceManagementTenancy::implementationDateTime`

Definition at line 1650 of file [af-types.h](#).

#### 7.63.2.5 `uint32_t EmberAfDeviceManagementTenancy::tenancy`

Definition at line 1651 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- af-types.h

## 7.64 EmberAfDeviceManagementUncontrolledFlowThreshold Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint16\_t uncontrolledFlowThreshold
- uint16\_t multiplier
- uint16\_t divisor
- uint16\_t measurementPeriod
- uint8\_t unitOfMeasure
- uint8\_t stabilisationPeriod

#### 7.64.1 Detailed Description

Definition at line 1688 of file af-types.h.

#### 7.64.2 Field Documentation

##### 7.64.2.1 uint16\_t EmberAfDeviceManagementUncontrolledFlowThreshold::uncontrolledFlowThreshold

Definition at line 1689 of file af-types.h.

##### 7.64.2.2 uint16\_t EmberAfDeviceManagementUncontrolledFlowThreshold::multiplier

Definition at line 1690 of file af-types.h.

##### 7.64.2.3 uint16\_t EmberAfDeviceManagementUncontrolledFlowThreshold::divisor

Definition at line 1691 of file af-types.h.

##### 7.64.2.4 uint16\_t EmberAfDeviceManagementUncontrolledFlowThreshold::measurementPeriod

Definition at line 1692 of file af-types.h.

##### 7.64.2.5 uint8\_t EmberAfDeviceManagementUncontrolledFlowThreshold::unitOfMeasure

Definition at line 1693 of file af-types.h.

### 7.64.2.6 uint8\_t EmberAfDeviceManagementUncontrolledFlowThreshold::stabilisationPeriod

Definition at line 1694 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.65 EmberAfDoorLockScheduleEntry Struct Reference

```
#include <door-lock-server.h>
```

### Data Fields

- `uint16_t userID`
- `uint8_t daysMask`
- `uint8_t startHour`
- `uint8_t startMinute`
- `uint8_t stopHour`
- `uint8_t stopMinute`

### 7.65.1 Detailed Description

Definition at line 33 of file [door-lock-server.h](#).

### 7.65.2 Field Documentation

#### 7.65.2.1 uint16\_t EmberAfDoorLockScheduleEntry::userID

Definition at line 34 of file [door-lock-server.h](#).

#### 7.65.2.2 uint8\_t EmberAfDoorLockScheduleEntry::daysMask

Definition at line 35 of file [door-lock-server.h](#).

#### 7.65.2.3 uint8\_t EmberAfDoorLockScheduleEntry::startHour

Definition at line 36 of file [door-lock-server.h](#).

#### 7.65.2.4 uint8\_t EmberAfDoorLockScheduleEntry::startMinute

Definition at line 37 of file [door-lock-server.h](#).

#### 7.65.2.5 uint8\_t EmberAfDoorLockScheduleEntry::stopHour

Definition at line 38 of file [door-lock-server.h](#).

### 7.65.2.6 `uint8_t EmberAfDoorLockScheduleEntry::stopMinute`

Definition at line 39 of file [door-lock-server.h](#).

The documentation for this struct was generated from the following file:

- [door-lock-server.h](#)

## 7.66 EmberAfDoorLockUser Struct Reference

```
#include <door-lock-server.h>
```

### Data Fields

- [EmberAfDoorLockUserStatus status](#)
- [EmberAfDoorLockUserType type](#)
- [uint8\\_t pinLength](#)
- [uint8\\_t pin \[DOOR\\_LOCK\\_MAX\\_PIN\\_LENGTH\]](#)

### 7.66.1 Detailed Description

Definition at line 26 of file [door-lock-server.h](#).

### 7.66.2 Field Documentation

#### 7.66.2.1 EmberAfDoorLockUserStatus `EmberAfDoorLockUser::status`

Definition at line 27 of file [door-lock-server.h](#).

#### 7.66.2.2 EmberAfDoorLockUserType `EmberAfDoorLockUser::type`

Definition at line 28 of file [door-lock-server.h](#).

#### 7.66.2.3 `uint8_t EmberAfDoorLockUser::pinLength`

Definition at line 29 of file [door-lock-server.h](#).

#### 7.66.2.4 `uint8_t EmberAfDoorLockUser::pin[DOOR_LOCK_MAX_PIN_LENGTH]`

Definition at line 30 of file [door-lock-server.h](#).

The documentation for this struct was generated from the following file:

- [door-lock-server.h](#)

## 7.67 EmberAfEndpointInfoStruct Struct Reference

```
#include <af-types.h>
```

### Data Fields

- EmberAfClusterInfo clusters [EMBER\_AF\_MAX\_CLUSTERS\_PER\_ENDPOINT]
- EmberAfProfileId profileId
- uint16\_t deviceId
- uint8\_t endpoint
- uint8\_t clusterCount

#### 7.67.1 Detailed Description

A struct containing basic information about an endpoint.

Definition at line 1810 of file [af-types.h](#).

#### 7.67.2 Field Documentation

##### 7.67.2.1 EmberAfClusterInfo EmberAfEndpointInfoStruct::clusters[EMBER\_AF\_MAX\_CLUSTERS\_PER\_ENDPOINT]

Definition at line 1811 of file [af-types.h](#).

##### 7.67.2.2 EmberAfProfileId EmberAfEndpointInfoStruct::profileId

Definition at line 1812 of file [af-types.h](#).

##### 7.67.2.3 uint16\_t EmberAfEndpointInfoStruct::deviceId

Definition at line 1813 of file [af-types.h](#).

##### 7.67.2.4 uint8\_t EmberAfEndpointInfoStruct::endpoint

Definition at line 1814 of file [af-types.h](#).

##### 7.67.2.5 uint8\_t EmberAfEndpointInfoStruct::clusterCount

Definition at line 1815 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.68 EmberAfEndpointList Struct Reference

```
#include <af-types.h>
```

## Data Fields

- `uint8_t count`
- `const uint8_t * list`

### 7.68.1 Detailed Description

A list of endpoints received during a service discovery attempt. This will be returned for a match descriptor request and a active endpoint request.

Definition at line [655](#) of file `af-types.h`.

### 7.68.2 Field Documentation

#### 7.68.2.1 `uint8_t EmberAfEndpointList::count`

Definition at line [656](#) of file `af-types.h`.

#### 7.68.2.2 `const uint8_t* EmberAfEndpointList::list`

Definition at line [657](#) of file `af-types.h`.

The documentation for this struct was generated from the following file:

- `af-types.h`

## 7.69 EmberAfEndpointType Struct Reference

```
#include <af-types.h>
```

## Data Fields

- `EmberAfCluster * cluster`
- `uint8_t clusterCount`
- `uint16_t endpointSize`

### 7.69.1 Detailed Description

Endpoint type struct describes clusters that are on the endpoint.

Definition at line [416](#) of file `af-types.h`.

### 7.69.2 Field Documentation

#### 7.69.2.1 `EmberAfCluster* EmberAfEndpointType::cluster`

Pointer to the cluster structs, describing clusters on this endpoint type.

Definition at line [421](#) of file `af-types.h`.

### 7.69.2.2 `uint8_t EmberAfEndpointType::clusterCount`

Number of clusters in this endpoint type.

Definition at line 425 of file [af-types.h](#).

### 7.69.2.3 `uint16_t EmberAfEndpointType::endpointSize`

Size of all non-external, non-singlet attribute in this endpoint type.

Definition at line 429 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.70 EmberAfEvent Struct Reference

```
#include <events-server.h>
```

### Data Fields

- `uint16_t eventId`
- `uint32_t eventTime`
- `uint8_t eventData [EMBER_AF_PLUGIN_EVENTS_SERVER_EVENT_DATA_LENGTH+1]`

### 7.70.1 Detailed Description

Definition at line 8 of file [events-server.h](#).

### 7.70.2 Field Documentation

#### 7.70.2.1 `uint16_t EmberAfEvent::eventId`

Definition at line 9 of file [events-server.h](#).

#### 7.70.2.2 `uint32_t EmberAfEvent::eventTime`

Definition at line 10 of file [events-server.h](#).

#### 7.70.2.3 `uint8_t EmberAfEvent::eventData[EMBER_AF_PLUGIN_EVENTS_SERVER_EVENT_DATA_LENGTH+1]`

Definition at line 11 of file [events-server.h](#).

The documentation for this struct was generated from the following file:

- [events-server.h](#)

## 7.71 EmberAfEventContext Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint8\_t `endpoint`
- `EmberAfClusterId` `clusterId`
- bool `isClient`
- `EmberAfEventPollControl` `pollControl`
- `EmberAfEventSleepControl` `sleepControl`
- `EmberEventControl *` `eventControl`

### 7.71.1 Detailed Description

a structure used to keep track of cluster related events and their sleep control values. The cluster code will not know at runtime all of the events that it has access to in the event table. This structure is stored by the application framework in an event context table which along with helper functions allows the cluster code to schedule and deactivate its associated events.

Definition at line [785](#) of file `af-types.h`.

### 7.71.2 Field Documentation

#### 7.71.2.1 uint8\_t EmberAfEventContext::endpoint

The endpoint of the associated cluster event.

Definition at line [789](#) of file `af-types.h`.

#### 7.71.2.2 EmberAfClusterId EmberAfEventContext::clusterId

The cluster id of the associated cluster event.

Definition at line [793](#) of file `af-types.h`.

#### 7.71.2.3 bool EmberAfEventContext::isClient

The server/client identity of the associated cluster event.

Definition at line [797](#) of file `af-types.h`.

#### 7.71.2.4 EmberAfEventPollControl EmberAfEventContext::pollControl

A poll control value used to control the network polling behavior while the event is active.

Definition at line [802](#) of file `af-types.h`.

### 7.71.2.5 EmberAfEventSleepControl EmberAfEventContext::sleepControl

A sleep control value used to control the processor's sleep behavior while the event is active.

Definition at line 807 of file [af-types.h](#).

### 7.71.2.6 EmberEventControl\* EmberAfEventContext::eventControl

A pointer to the event control value which is stored in the event table and is used to actually schedule the event.

Definition at line 812 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.72 EmberAfFileDescriptorDispatchStruct Struct Reference

```
#include <file-descriptor-dispatch.h>
```

### Data Fields

- [EmberAfFileDescriptorReadyCallback](#) callback
- void \* [dataPassedToCallback](#)
- [EmberAfFileDescriptorOperation](#) operation
- int [fileDescriptor](#)

### 7.72.1 Detailed Description

Definition at line 10 of file [file-descriptor-dispatch.h](#).

### 7.72.2 Field Documentation

#### 7.72.2.1 EmberAfFileDescriptorReadyCallback EmberAfFileDescriptorDispatchStruct::callback

Definition at line 11 of file [file-descriptor-dispatch.h](#).

#### 7.72.2.2 void\* EmberAfFileDescriptorDispatchStruct::dataPassedToCallback

Definition at line 12 of file [file-descriptor-dispatch.h](#).

#### 7.72.2.3 EmberAfFileDescriptorOperation EmberAfFileDescriptorDispatchStruct::operation

Definition at line 13 of file [file-descriptor-dispatch.h](#).

#### 7.72.2.4 int EmberAfFileDescriptorDispatchStruct::fileDescriptor

Definition at line 14 of file [file-descriptor-dispatch.h](#).

The documentation for this struct was generated from the following file:

- [file-descriptor-dispatch.h](#)

### 7.73 EmberAfGBCSDeviceLogInfo Struct Reference

```
#include <gbcs-device-log.h>
```

#### Data Fields

- [EmberAfGBCSDeviceType deviceType](#)

#### 7.73.1 Detailed Description

Definition at line 26 of file [gbcs-device-log.h](#).

#### 7.73.2 Field Documentation

##### 7.73.2.1 EmberAfGBCSDeviceType EmberAfGBCSDeviceLogInfo::deviceType

Definition at line 27 of file [gbcs-device-log.h](#).

The documentation for this struct was generated from the following file:

- [gbcs-device-log.h](#)

### 7.74 EmberAfGbzMessengerCreatorResult Struct Reference

```
#include <gbz-message-controller.h>
```

#### Data Fields

- [uint8\\_t \\* payload](#)
- [uint16\\_t payloadLength](#)
- [bool freeRequired](#)

#### 7.74.1 Detailed Description

Definition at line 145 of file [gbz-message-controller.h](#).

## 7.74.2 Field Documentation

### 7.74.2.1 `uint8_t* EmberAfGbzMessagCreatorResult::payload`

Definition at line 146 of file [gbz-message-controller.h](#).

### 7.74.2.2 `uint16_t EmberAfGbzMessagCreatorResult::payloadLength`

Definition at line 147 of file [gbz-message-controller.h](#).

### 7.74.2.3 `bool EmberAfGbzMessagCreatorResult::freeRequired`

Definition at line 148 of file [gbz-message-controller.h](#).

The documentation for this struct was generated from the following file:

- [gbz-message-controller.h](#)

## 7.75 EmberAfGbzMessagCreatorState Struct Reference

```
#include <gbz-message-controller.h>
```

### Data Fields

- `bool allocateMemoryForResponses`
- `uint8_t * command`
- `uint16_t commandIndex`
- `uint16_t commandLength`
- `EmAfGbzUseCaseSpecificComponent * responses`
- `EmAfGbzUseCaseSpecificComponent * lastResponse`
- `EmAfGbzPayloadHeader * header`
- `uint8_t nextEncryptedComponentZclSequenceNumber`
- `uint8_t nextComponentZclSequenceNumber`
- `uint8_t nextAdditionalHeaderFrameCounter`
- `uint8_t * componentsCount`
- `uint8_t * lastExtHeaderControlField`
- `uint16_t messageCode`
- `EmberAfGbzMessagCreatorResult result`

## 7.75.1 Detailed Description

Definition at line 151 of file [gbz-message-controller.h](#).

## 7.75.2 Field Documentation

### 7.75.2.1 `bool EmberAfGbzMessagCreatorState::allocateMemoryForResponses`

Definition at line 152 of file [gbz-message-controller.h](#).

**7.75.2.2 uint8\_t\* EmberAfGbzMessageCreatorState::command**

Definition at line 155 of file [gbz-message-controller.h](#).

**7.75.2.3 uint16\_t EmberAfGbzMessageCreatorState::commandIndex**

Definition at line 156 of file [gbz-message-controller.h](#).

**7.75.2.4 uint16\_t EmberAfGbzMessageCreatorState::commandLength**

Definition at line 157 of file [gbz-message-controller.h](#).

**7.75.2.5 EmAfGbzUseCaseSpecificComponent\* EmberAfGbzMessageCreatorState::responses**

Definition at line 160 of file [gbz-message-controller.h](#).

**7.75.2.6 EmAfGbzUseCaseSpecificComponent\* EmberAfGbzMessageCreatorState::lastResponse**

Definition at line 161 of file [gbz-message-controller.h](#).

**7.75.2.7 EmAfGbzPayloadHeader\* EmberAfGbzMessageCreatorState::header**

Definition at line 162 of file [gbz-message-controller.h](#).

**7.75.2.8 uint8\_t EmberAfGbzMessageCreatorState::nextEncryptedComponentZclSequenceNumber**

Definition at line 165 of file [gbz-message-controller.h](#).

**7.75.2.9 uint8\_t EmberAfGbzMessageCreatorState::nextComponentZclSequenceNumber**

Definition at line 166 of file [gbz-message-controller.h](#).

**7.75.2.10 uint8\_t EmberAfGbzMessageCreatorState::nextAdditionalHeaderFrameCounter**

Definition at line 167 of file [gbz-message-controller.h](#).

**7.75.2.11 uint8\_t\* EmberAfGbzMessageCreatorState::componentsCount**

Definition at line 168 of file [gbz-message-controller.h](#).

**7.75.2.12 uint8\_t\* EmberAfGbzMessageCreatorState::lastExtHeaderControlField**

Definition at line 169 of file [gbz-message-controller.h](#).

### 7.75.2.13 `uint16_t EmberAfGbzMessagCreatorState::messageCode`

Definition at line 170 of file [gbz-message-controller.h](#).

### 7.75.2.14 `EmberAfGbzMessagCreatorResult EmberAfGbzMessagCreatorState::result`

Definition at line 173 of file [gbz-message-controller.h](#).

The documentation for this struct was generated from the following file:

- [gbz-message-controller.h](#)

## 7.76 `EmberAfGbzMessagData` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `bool encryption`
- `uint8_t * plainPayload`
- `uint16_t plainPayloadLength`
- `uint8_t * encryptedPayload`
- `uint16_t encryptedPayloadLength`

### 7.76.1 Detailed Description

Definition at line 1745 of file [af-types.h](#).

### 7.76.2 Field Documentation

#### 7.76.2.1 `bool EmberAfGbzMessagData::encryption`

Definition at line 1746 of file [af-types.h](#).

#### 7.76.2.2 `uint8_t* EmberAfGbzMessagData::plainPayload`

Definition at line 1748 of file [af-types.h](#).

#### 7.76.2.3 `uint16_t EmberAfGbzMessagData::plainPayloadLength`

Definition at line 1749 of file [af-types.h](#).

#### 7.76.2.4 `uint8_t* EmberAfGbzMessagData::encryptedPayload`

Definition at line 1751 of file [af-types.h](#).

### 7.76.2.5 uint16\_t EmberAfGbzMessa gedata::encryptedPayloadLength

Definition at line 1752 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.77 EmberAfGbzMessa gedParserState Struct Reference

```
#include <gbz-message-controller.h>
```

### Data Fields

- bool [freeRequired](#)
- uint8\_t \* [command](#)
- [EmberAfGbzMessa gedType](#) [type](#)
- uint16\_t [alertCode](#)
- uint32\_t [alertTimestamp](#)
- uint16\_t [profileId](#)
- uint8\_t [nextComponentZclSequenceNumber](#)
- uint8\_t [componentsSize](#)
- uint8\_t [componentsParsed](#)
- uint16\_t [parseIndex](#)
- uint16\_t [length](#)
- uint16\_t [messageCode](#)

### 7.77.1 Detailed Description

Definition at line 111 of file [gbz-message-controller.h](#).

### 7.77.2 Field Documentation

#### 7.77.2.1 bool EmberAfGbzMessa gedParserState::[freeRequired](#)

Definition at line 112 of file [gbz-message-controller.h](#).

#### 7.77.2.2 uint8\_t\* EmberAfGbzMessa gedParserState::[command](#)

Definition at line 113 of file [gbz-message-controller.h](#).

#### 7.77.2.3 EmberAfGbzMessa gedType EmberAfGbzMessa gedParserState::[type](#)

Definition at line 114 of file [gbz-message-controller.h](#).

#### 7.77.2.4 uint16\_t EmberAfGbzMessa gedParserState::[alertCode](#)

Definition at line 115 of file [gbz-message-controller.h](#).

**7.77.2.5 uint32\_t EmberAfGbzMessageParserState::alertTimestamp**

Definition at line 116 of file [gbz-message-controller.h](#).

**7.77.2.6 uint16\_t EmberAfGbzMessageParserState::profileId**

Definition at line 117 of file [gbz-message-controller.h](#).

**7.77.2.7 uint8\_t EmberAfGbzMessageParserState::nextComponentZclSequenceNumber**

Definition at line 118 of file [gbz-message-controller.h](#).

**7.77.2.8 uint8\_t EmberAfGbzMessageParserState::componentsSize**

Definition at line 119 of file [gbz-message-controller.h](#).

**7.77.2.9 uint8\_t EmberAfGbzMessageParserState::componentsParsed**

Definition at line 120 of file [gbz-message-controller.h](#).

**7.77.2.10 uint16\_t EmberAfGbzMessageParserState::parseIndex**

Definition at line 121 of file [gbz-message-controller.h](#).

**7.77.2.11 uint16\_t EmberAfGbzMessageParserState::length**

Definition at line 122 of file [gbz-message-controller.h](#).

**7.77.2.12 uint16\_t EmberAfGbzMessageParserState::messageCode**

Definition at line 123 of file [gbz-message-controller.h](#).

The documentation for this struct was generated from the following file:

- [gbz-message-controller.h](#)

## 7.78 EmberAfGbzZclCommand Struct Reference

```
#include <gbz-message-controller.h>
```

### Data Fields

- [EmberAfClusterId clusterId](#)
- [uint8\\_t frameControl](#)
- [uint8\\_t transactionSequenceNumber](#)
- [uint8\\_t commandId](#)

- `uint8_t * payload`
- `uint16_t payloadLength`
- `uint8_t direction`
- `bool clusterSpecific`
- `bool mfgSpecific`
- `uint32_t fromDateTime`
- `bool hasFromDateTime`
- `bool encryption`

### 7.78.1 Detailed Description

Definition at line 94 of file [gbz-message-controller.h](#).

### 7.78.2 Field Documentation

#### 7.78.2.1 EmberAfClusterId EmberAfGbzZclCommand::clusterId

Definition at line 95 of file [gbz-message-controller.h](#).

#### 7.78.2.2 uint8\_t EmberAfGbzZclCommand::frameControl

Definition at line 96 of file [gbz-message-controller.h](#).

#### 7.78.2.3 uint8\_t EmberAfGbzZclCommand::transactionSequenceNumber

Definition at line 97 of file [gbz-message-controller.h](#).

#### 7.78.2.4 uint8\_t EmberAfGbzZclCommand::commandId

Definition at line 98 of file [gbz-message-controller.h](#).

#### 7.78.2.5 uint8\_t\* EmberAfGbzZclCommand::payload

Definition at line 99 of file [gbz-message-controller.h](#).

#### 7.78.2.6 uint16\_t EmberAfGbzZclCommand::payloadLength

Definition at line 100 of file [gbz-message-controller.h](#).

#### 7.78.2.7 uint8\_t EmberAfGbzZclCommand::direction

Definition at line 101 of file [gbz-message-controller.h](#).

#### 7.78.2.8 bool EmberAfGbzZclCommand::clusterSpecific

Definition at line 102 of file [gbz-message-controller.h](#).

### 7.78.2.9 bool EmberAfGbzZclCommand::mfgSpecific

Definition at line 103 of file [gbz-message-controller.h](#).

### 7.78.2.10 uint32\_t EmberAfGbzZclCommand::fromDateTime

Definition at line 106 of file [gbz-message-controller.h](#).

### 7.78.2.11 bool EmberAfGbzZclCommand::hasFromDateTime

Definition at line 107 of file [gbz-message-controller.h](#).

### 7.78.2.12 bool EmberAfGbzZclCommand::encryption

Definition at line 108 of file [gbz-message-controller.h](#).

The documentation for this struct was generated from the following file:

- [gbz-message-controller.h](#)

## 7.79 EmberAfGpfMessage Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint8\_t \* [gbzCommands](#)
- uint16\_t [gbzCommandsLength](#)
- uint8\_t \* [gbzCommandsResponse](#)
- uint16\_t [gbzCommandsResponseLength](#)
- uint16\_t [messageCode](#)

### 7.79.1 Detailed Description

Definition at line 1756 of file [af-types.h](#).

### 7.79.2 Field Documentation

#### 7.79.2.1 uint8\_t\* EmberAfGpfMessage::gbzCommands

Definition at line 1757 of file [af-types.h](#).

#### 7.79.2.2 uint16\_t EmberAfGpfMessage::gbzCommandsLength

Definition at line 1758 of file [af-types.h](#).

### 7.79.2.3 `uint8_t* EmberAfGpfMessage::gbzCommandsResponse`

Definition at line 1759 of file [af-types.h](#).

### 7.79.2.4 `uint16_t EmberAfGpfMessage::gbzCommandsResponseLength`

Definition at line 1760 of file [af-types.h](#).

### 7.79.2.5 `uint16_t EmberAfGpfMessage::messageCode`

Definition at line 1761 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.80 EmberAfGreenPowerClientCommissioningState Struct Reference

```
#include <green-power-client.h>
```

### Data Fields

- `bool inCommissioningMode`
- `EmberAfGreenPowerClientCommissioningExitMode exitMode`
- `uint16_t gppCommissioningWindow`
- `uint8_t channel`
- `bool unicastCommunication`
- `EmberNodeId commissioningSink`
- `uint8_t onTransmitChannel`

### 7.80.1 Detailed Description

Definition at line 22 of file [green-power-client.h](#).

### 7.80.2 Field Documentation

#### 7.80.2.1 `bool EmberAfGreenPowerClientCommissioningState::inCommissioningMode`

Definition at line 23 of file [green-power-client.h](#).

#### 7.80.2.2 `EmberAfGreenPowerClientCommissioningExitMode EmberAfGreenPowerClientCommissioningState::exitMode`

Definition at line 24 of file [green-power-client.h](#).

### 7.80.2.3 `uint16_t EmberAfGreenPowerClientCommissioningState::gppCommissioningWindow`

Definition at line 25 of file [green-power-client.h](#).

### 7.80.2.4 `uint8_t EmberAfGreenPowerClientCommissioningState::channel`

Definition at line 26 of file [green-power-client.h](#).

### 7.80.2.5 `bool EmberAfGreenPowerClientCommissioningState::unicastCommunication`

Definition at line 27 of file [green-power-client.h](#).

### 7.80.2.6 `EmberNodeId EmberAfGreenPowerClientCommissioningState::commissioningSink`

Definition at line 28 of file [green-power-client.h](#).

### 7.80.2.7 `uint8_t EmberAfGreenPowerClientCommissioningState::onTransmitChannel`

Definition at line 29 of file [green-power-client.h](#).

The documentation for this struct was generated from the following file:

- [green-power-client.h](#)

## 7.81 `EmberAfGreenPowerDuplicateFilter` Struct Reference

```
#include <green-power-client.h>
```

### Data Fields

- `EmberGpAddress addrs` [EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_ADDR\_ENTRIES]
- `uint8_t randomSeqNums` [EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_ADDR\_ENTRIES][EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_SEQ\_NUM\_ENTRIES\_PER\_ADDR]
- `uint32_t expirationTimes` [EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_ADDR\_ENTRIES][EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_SEQ\_NUM\_ENTRIES\_PER\_ADDR]

### 7.81.1 Detailed Description

Definition at line 32 of file [green-power-client.h](#).

### 7.81.2 Field Documentation

**7.81.2.1 EmberGpAddress EmberAfGreenPowerDuplicateFilter::addrs[EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_ADDR\_ENTRIES]**

Definition at line 33 of file [green-power-client.h](#).

**7.81.2.2 uint8\_t EmberAfGreenPowerDuplicateFilter::randomSeqNums[EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_ADDR\_ENTRIES][EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_SEQ\_NUM\_ENTRIES\_PER\_ADDR]**

Definition at line 34 of file [green-power-client.h](#).

**7.81.2.3 uint32\_t EmberAfGreenPowerDuplicateFilter::expirationTimes[EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_ADDR\_ENTRIES][EMBER\_AF\_PLUGIN\_GREEN\_POWER\_CLIENT\_MAX\_SEQ\_NUM\_ENTRIES\_PER\_ADDR]**

Definition at line 35 of file [green-power-client.h](#).

The documentation for this struct was generated from the following file:

- [green-power-client.h](#)

## 7.82 EmberAfGreenPowerServerCommissioningState Struct Reference

```
#include <green-power-server.h>
```

### Data Fields

- bool [inCommissioningMode](#)
- bool [proxiesInvolved](#)

### 7.82.1 Detailed Description

Definition at line 15 of file [green-power-server.h](#).

### 7.82.2 Field Documentation

**7.82.2.1 bool EmberAfGreenPowerServerCommissioningState::inCommissioningMode**

Definition at line 16 of file [green-power-server.h](#).

**7.82.2.2 bool EmberAfGreenPowerServerCommissioningState::proxiesInvolved**

Definition at line 17 of file [green-power-server.h](#).

The documentation for this struct was generated from the following file:

- [green-power-server.h](#)

## 7.83 EmberAfGreenPowerServerGpdCommandTranslation Struct Reference

```
#include <green-power-server.h>
```

### Data Fields

- bool `validEntry`
- uint8\_t `options`
- EmberGpAddress `gpAddr`
- uint8\_t `endpoint`
- uint8\_t `gpdCommand`
- uint16\_t `zigbeeProfile`
- uint16\_t `zigbeeCluster`
- uint8\_t `zigbeeCommandId`
- EmberAfGreenPowerServerGpdToZclCmdMappingPayloadSrc `payloadSrc`
- uint8\_t `zclPayloadDefault` [EMBER\_AF\_GREEN\_POWER\_SERVER\_TRANSLATION\_TABLE\_ENTRY\_ZCL\_PAYLOAD\_LEN]

### 7.83.1 Detailed Description

Definition at line 31 of file [green-power-server.h](#).

### 7.83.2 Field Documentation

#### 7.83.2.1 bool EmberAfGreenPowerServerGpdCommandTranslation::validEntry

Definition at line 32 of file [green-power-server.h](#).

#### 7.83.2.2 uint8\_t EmberAfGreenPowerServerGpdCommandTranslation::options

Definition at line 33 of file [green-power-server.h](#).

#### 7.83.2.3 EmberGpAddress EmberAfGreenPowerServerGpdCommandTranslation::gpAddr

Definition at line 34 of file [green-power-server.h](#).

#### 7.83.2.4 uint8\_t EmberAfGreenPowerServerGpdCommandTranslation::endpoint

Definition at line 39 of file [green-power-server.h](#).

#### 7.83.2.5 uint8\_t EmberAfGreenPowerServerGpdCommandTranslation::gpdCommand

Definition at line 44 of file [green-power-server.h](#).

#### 7.83.2.6 uint16\_t EmberAfGreenPowerServerGpdCommandTranslation::zigbeeProfile

Definition at line 45 of file [green-power-server.h](#).

### 7.83.2.7 uint16\_t EmberAfGreenPowerServerGpdCommandTranslation::zigbeeCluster

Definition at line 46 of file [green-power-server.h](#).

### 7.83.2.8 uint8\_t EmberAfGreenPowerServerGpdCommandTranslation::zigbeeCommandId

Definition at line 47 of file [green-power-server.h](#).

### 7.83.2.9 EmberAfGreenPowerServerGpdToZclCmdMappingPayloadSrc EmberAfGreenPowerServerGpdCommandTranslation::payloadSrc

Definition at line 48 of file [green-power-server.h](#).

### 7.83.2.10 uint8\_t EmberAfGreenPowerServerGpdCommandTranslation::zclPayloadDefault[EMBER\_AF\_\_ GREEN\_POWER\_SERVER\_TRANSLATION\_TABLE\_ENTRY\_ZCL\_PAYLOAD\_L- EN]

Definition at line 57 of file [green-power-server.h](#).

The documentation for this struct was generated from the following file:

- [green-power-server.h](#)

## 7.84 EmberAfImageBlockRequestCallbackStruct Struct Reference

```
#include <af-types.h>
```

### Data Fields

- const [EmberAfOtaImageId](#) \* id
- uint32\_t offset
- uint32\_t waitTimeMinutesResponse
- [EmberNodeId](#) source
- uint16\_t minBlockRequestPeriod
- uint8\_t maxDataSize
- uint8\_t clientEndpoint
- [EmberAfImageBlockRequestOptions](#) bitmask

### 7.84.1 Detailed Description

This is the data structure that is passed to the `emberAfImageBlockRequestCallback()` to let the application decide what to do.

Definition at line 1151 of file [af-types.h](#).

## 7.84.2 Field Documentation

**7.84.2.1 const EmberAfOtaImageId\* EmberAfImageBlockRequestCallbackStruct::id**

Definition at line 1152 of file [af-types.h](#).

**7.84.2.2 uint32\_t EmberAfImageBlockRequestCallbackStruct::offset**

Definition at line 1153 of file [af-types.h](#).

**7.84.2.3 uint32\_t EmberAfImageBlockRequestCallbackStruct::waitTimeMinutesResponse**

Definition at line 1154 of file [af-types.h](#).

**7.84.2.4 EmberNodeId EmberAfImageBlockRequestCallbackStruct::source**

Definition at line 1155 of file [af-types.h](#).

**7.84.2.5 uint16\_t EmberAfImageBlockRequestCallbackStruct::minBlockRequestPeriod**

This value is in milliseconds.

Definition at line 1157 of file [af-types.h](#).

**7.84.2.6 uint8\_t EmberAfImageBlockRequestCallbackStruct::maxDataSize**

Definition at line 1158 of file [af-types.h](#).

**7.84.2.7 uint8\_t EmberAfImageBlockRequestCallbackStruct::clientEndpoint**

Definition at line 1159 of file [af-types.h](#).

**7.84.2.8 EmberAfImageBlockRequestOptions EmberAfImageBlockRequestCallbackStruct::bitmask**

Definition at line 1160 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.85 EmberAflIncomingMessage Struct Reference

```
#include <af-types.h>
```

## Data Fields

- `EmberIncomingMessageType type`
- `EmberApsFrame * apsFrame`
- `uint8_t * message`
- `uint16_t msgLen`
- `uint16_t source`
- `uint8_t lastHopLqi`
- `int8_t lastHopRssi`
- `uint8_t bindingTableIndex`
- `uint8_t addressTableIndex`
- `uint8_t networkIndex`

### 7.85.1 Detailed Description

a struct containing the superset of values passed to both emberIncomingMessageHandler on the SOC and ezspIncomingMessageHandler on the host.

Definition at line [259](#) of file `af-types.h`.

### 7.85.2 Field Documentation

#### 7.85.2.1 `EmberIncomingMessageType EmberAfIncomingMessage::type`

The type of the incoming message

Definition at line [263](#) of file `af-types.h`.

#### 7.85.2.2 `EmberApsFrame* EmberAfIncomingMessage::apsFrame`

Aps frame for the incoming message

Definition at line [267](#) of file `af-types.h`.

#### 7.85.2.3 `uint8_t* EmberAfIncomingMessage::message`

The message copied into a flat buffer

Definition at line [271](#) of file `af-types.h`.

#### 7.85.2.4 `uint16_t EmberAfIncomingMessage::msgLen`

Length of the incoming message

Definition at line [275](#) of file `af-types.h`.

#### 7.85.2.5 `uint16_t EmberAfIncomingMessage::source`

Two byte node id of the sending node.

Definition at line [279](#) of file `af-types.h`.

**7.85.2.6 uint8\_t EmberAfIncomingMessage::lastHopLqi**

Link quality from the node that last relayed the message.

Definition at line 284 of file [af-types.h](#).

**7.85.2.7 int8\_t EmberAfIncomingMessage::lastHopRssi**

The energy level (in units of dBm) observed during the reception.

Definition at line 288 of file [af-types.h](#).

**7.85.2.8 uint8\_t EmberAfIncomingMessage::bindingTableIndex**

The index of a binding that matches the message or 0xFF if there is no matching binding.

Definition at line 293 of file [af-types.h](#).

**7.85.2.9 uint8\_t EmberAfIncomingMessage::addressTableIndex**

The index of the entry in the address table that matches the sender of the message or 0xFF if there is no matching entry.

Definition at line 299 of file [af-types.h](#).

**7.85.2.10 uint8\_t EmberAfIncomingMessage::networkIndex**

The index of the network on which this message was received.

Definition at line 303 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.86 EmberAfInterpanHeader Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfInterpanMessageType messageType](#)
- [EmberEUI64 longAddress](#)
- [EmberNodeId shortAddress](#)
- [EmberPanId panId](#)
- [EmberAfProfileId profileId](#)
- [EmberAfClusterId clusterId](#)
- [EmberMulticastId groupId](#)
- [EmberAfInterpanOptions options](#)

### 7.86.1 Detailed Description

Interpan header used for sending and receiving interpan messages.

Definition at line 334 of file [af-types.h](#).

### 7.86.2 Field Documentation

#### 7.86.2.1 EmberAfInterpanMessageType EmberAfInterpanHeader::messageType

Definition at line 335 of file [af-types.h](#).

#### 7.86.2.2 EmberEUI64 EmberAfInterpanHeader::longAddress

MAC addressing For outgoing messages this is the destination. For incoming messages it is the source, which always has a long address.

Definition at line 342 of file [af-types.h](#).

#### 7.86.2.3 EmberNodeId EmberAfInterpanHeader::shortAddress

Definition at line 343 of file [af-types.h](#).

#### 7.86.2.4 EmberPanId EmberAfInterpanHeader::panId

Definition at line 344 of file [af-types.h](#).

#### 7.86.2.5 EmberAfProfileId EmberAfInterpanHeader::profileId

APS data

Definition at line 349 of file [af-types.h](#).

#### 7.86.2.6 EmberAfClusterId EmberAfInterpanHeader::clusterId

Definition at line 350 of file [af-types.h](#).

#### 7.86.2.7 EmberMulticastId EmberAfInterpanHeader::groupId

The groupId is only used for EMBER\_AF\_INTERPAN\_MULTICAST

Definition at line 355 of file [af-types.h](#).

#### 7.86.2.8 EmberAfInterpanOptions EmberAfInterpanHeader::options

Definition at line 356 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.87 EmberAfJoiningDevice Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberNodeId](#) emberNodeId
- [uint32\\_t](#) timeStamp

#### 7.87.1 Detailed Description

Definition at line [1852](#) of file [af-types.h](#).

#### 7.87.2 Field Documentation

##### 7.87.2.1 EmberNodeId EmberAfJoiningDevice::emberNodeId

Definition at line [1853](#) of file [af-types.h](#).

##### 7.87.2.2 uint32\_t EmberAfJoiningDevice::timeStamp

Definition at line [1854](#) of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.88 EmberAfLinkKeyBackupData Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberEUI64](#) deviceId
- [EmberKeyData](#) key

#### 7.88.1 Detailed Description

A data struct for a link key backup.

Each entry notes the EUI64 of the device it is paired to and the key data. This key may be hashed and not the actual link key currently in use.

Definition at line [1436](#) of file [af-types.h](#).

## 7.88.2 Field Documentation

### 7.88.2.1 EmberEUI64 EmberAfLinkKeyBackupData::deviceId

Definition at line 1437 of file [af-types.h](#).

### 7.88.2.2 EmberKeyData EmberAfLinkKeyBackupData::key

Definition at line 1438 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.89 EmberAfLoadControlEvent Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint32\_t `eventId`
- uint8\_t `destinationEndpoint`
- uint16\_t `deviceClass`
- uint8\_t `utilityEnrollmentGroup`
- uint32\_t `startTime`
- uint16\_t `duration`
- uint8\_t `criticalityLevel`
- uint8\_t `coolingTempOffset`
- uint8\_t `heatingTempOffset`
- int16\_t `coolingTempSetPoint`
- int16\_t `heatingTempSetPoint`
- int8\_t `avgLoadPercentage`
- uint8\_t `dutyCycle`
- uint8\_t `eventControl`
- uint32\_t `startRand`
- uint32\_t `durationRand`
- uint8\_t `optionControl`

### 7.89.1 Detailed Description

Struct that describes a load control event.

This is used in the load control event callback and within the demand response load control cluster code.

Definition at line 556 of file [af-types.h](#).

## 7.89.2 Field Documentation

### 7.89.2.1 uint32\_t EmberAfLoadControlEvent::eventId

Definition at line 557 of file [af-types.h](#).

**7.89.2.2 uint8\_t EmberAfLoadControlEvent::destinationEndpoint**

Definition at line [567](#) of file [af-types.h](#).

**7.89.2.3 uint16\_t EmberAfLoadControlEvent::deviceClass**

Definition at line [568](#) of file [af-types.h](#).

**7.89.2.4 uint8\_t EmberAfLoadControlEvent::utilityEnrollmentGroup**

Definition at line [569](#) of file [af-types.h](#).

**7.89.2.5 uint32\_t EmberAfLoadControlEvent::startTime**

Start time in seconds

Definition at line [573](#) of file [af-types.h](#).

**7.89.2.6 uint16\_t EmberAfLoadControlEvent::duration**

Duration in minutes

Definition at line [577](#) of file [af-types.h](#).

**7.89.2.7 uint8\_t EmberAfLoadControlEvent::criticalityLevel**

Definition at line [578](#) of file [af-types.h](#).

**7.89.2.8 uint8\_t EmberAfLoadControlEvent::coolingTempOffset**

Definition at line [579](#) of file [af-types.h](#).

**7.89.2.9 uint8\_t EmberAfLoadControlEvent::heatingTempOffset**

Definition at line [580](#) of file [af-types.h](#).

**7.89.2.10 int16\_t EmberAfLoadControlEvent::coolingTempSetPoint**

Definition at line [581](#) of file [af-types.h](#).

**7.89.2.11 int16\_t EmberAfLoadControlEvent::heatingTempSetPoint**

Definition at line [582](#) of file [af-types.h](#).

**7.89.2.12 int8\_t EmberAfLoadControlEvent::avgLoadPercentage**

Definition at line [583](#) of file [af-types.h](#).

**7.89.2.13 uint8\_t EmberAfLoadControlEvent::dutyCycle**

Definition at line [584](#) of file [af-types.h](#).

**7.89.2.14 uint8\_t EmberAfLoadControlEvent::eventControl**

Definition at line [585](#) of file [af-types.h](#).

**7.89.2.15 uint32\_t EmberAfLoadControlEvent::startRand**

Definition at line [586](#) of file [af-types.h](#).

**7.89.2.16 uint32\_t EmberAfLoadControlEvent::durationRand**

Definition at line [587](#) of file [af-types.h](#).

**7.89.2.17 uint8\_t EmberAfLoadControlEvent::optionControl**

Definition at line [588](#) of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## **7.90 EmberAfManufacturerCodeEntry Struct Reference**

```
#include <af-types.h>
```

### **Data Fields**

- [uint16\\_t index](#)
- [uint16\\_t manufacturerCode](#)

### **7.90.1 Detailed Description**

A struct used to construct a table of manufacturer codes for manufacturer specific attributes and clusters.

Definition at line [249](#) of file [af-types.h](#).

### **7.90.2 Field Documentation**

#### **7.90.2.1 uint16\_t EmberAfManufacturerCodeEntry::index**

Definition at line [250](#) of file [af-types.h](#).

### 7.90.2.2 `uint16_t EmberAfManufacturerCodeEntry::manufacturerCode`

Definition at line 251 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.91 `EmberAfMessageStruct` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `EmberAfMessageSentFunction` callback
- `EmberApsFrame * apsFrame`
- `uint8_t * message`
- `uint16_t indexOrDestination`
- `uint16_t messageLength`
- `EmberOutgoingMessageType type`
- `bool broadcast`

### 7.91.1 Detailed Description

The `EmberAfMessageStruct` is a struct wrapper that contains all the data about a low-level message to be sent (it may be ZCL or may be some other protocol).

Definition at line 1418 of file [af-types.h](#).

### 7.91.2 Field Documentation

#### 7.91.2.1 `EmberAfMessageSentFunction` `EmberAfMessageStruct::callback`

Definition at line 1419 of file [af-types.h](#).

#### 7.91.2.2 `EmberApsFrame*` `EmberAfMessageStruct::apsFrame`

Definition at line 1420 of file [af-types.h](#).

#### 7.91.2.3 `uint8_t*` `EmberAfMessageStruct::message`

Definition at line 1421 of file [af-types.h](#).

#### 7.91.2.4 `uint16_t` `EmberAfMessageStruct::indexOrDestination`

Definition at line 1422 of file [af-types.h](#).

### 7.91.2.5 `uint16_t EmberAfMessageStruct::messageLength`

Definition at line 1423 of file [af-types.h](#).

### 7.91.2.6 `EmberOutgoingMessageType EmberAfMessageStruct::type`

Definition at line 1424 of file [af-types.h](#).

### 7.91.2.7 `bool EmberAfMessageStruct::broadcast`

Definition at line 1425 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.92 EmberAfOtaHeader Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint16_t headerVersion`
- `uint16_t headerLength`
- `uint16_t fieldControl`
- `uint16_t manufacturerId`
- `uint16_t imageTypeId`
- `uint32_t firmwareVersion`
- `uint16_t zigbeeStackVersion`
- `uint8_t headerString [EMBER_AF_OTA_MAX_HEADER_STRING_LENGTH+1]`
- `uint32_t imageSize`
- `uint8_t securityCredentials`
- `uint8_t upgradeFileDestination [EUI64_SIZE]`
- `uint16_t minimumHardwareVersion`
- `uint16_t maximumHardwareVersion`

### 7.92.1 Detailed Description

This structure is an in-memory representation of the Over-the-air header data that resides on disk. It is not a byte-for-byte copy.

Definition at line 1201 of file [af-types.h](#).

### 7.92.2 Field Documentation

#### 7.92.2.1 `uint16_t EmberAfOtaHeader::headerVersion`

Definition at line 1203 of file [af-types.h](#).

**7.92.2.2 uint16\_t EmberAfOtaHeader::headerLength**

Definition at line [1204](#) of file [af-types.h](#).

**7.92.2.3 uint16\_t EmberAfOtaHeader::fieldControl**

Definition at line [1205](#) of file [af-types.h](#).

**7.92.2.4 uint16\_t EmberAfOtaHeader::manufacturerId**

Definition at line [1206](#) of file [af-types.h](#).

**7.92.2.5 uint16\_t EmberAfOtaHeader::imageTypeId**

Definition at line [1207](#) of file [af-types.h](#).

**7.92.2.6 uint32\_t EmberAfOtaHeader::firmwareVersion**

Definition at line [1208](#) of file [af-types.h](#).

**7.92.2.7 uint16\_t EmberAfOtaHeader::zigbeeStackVersion**

Definition at line [1209](#) of file [af-types.h](#).

**7.92.2.8 uint8\_t EmberAfOtaHeader::headerString[EMBER\_AF\_OTA\_MAX\_HEADER\_STRING\_LENGTH+1]**

The spec. does NOT require that the string be NULL terminated in the header stored on disk. Therefore we make sure we can support a 32-character string without a NULL terminator by adding +1 in the data structure.

Definition at line [1217](#) of file [af-types.h](#).

**7.92.2.9 uint32\_t EmberAfOtaHeader::imageSize**

When reading the header this will be the complete length of the file. When writing the header, this must be set to the length of the MFG image data portion including all tags.

Definition at line [1224](#) of file [af-types.h](#).

**7.92.2.10 uint8\_t EmberAfOtaHeader::securityCredentials**

The remaining four fields are optional. The field control should be checked to determine if their values are valid.

Definition at line [1230](#) of file [af-types.h](#).

### 7.92.2.11 `uint8_t EmberAfOtaHeader::upgradeFileDestination[EUI64_SIZE]`

Definition at line 1231 of file [af-types.h](#).

### 7.92.2.12 `uint16_t EmberAfOtaHeader::minimumHardwareVersion`

Definition at line 1232 of file [af-types.h](#).

### 7.92.2.13 `uint16_t EmberAfOtaHeader::maximumHardwareVersion`

Definition at line 1233 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.93 EmberAfOtalmagId Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint16_t manufacturerId`
- `uint16_t imageTypeId`
- `uint32_t firmwareVersion`
- `uint8_t deviceSpecificFileEui64 [EUI64_SIZE]`

### 7.93.1 Detailed Description

This is a unique identifier for referencing ZigBee Over-the-air upgrade images. It is used by the OTA plugins when passing around information about an upgrade file.

Definition at line 1122 of file [af-types.h](#).

### 7.93.2 Field Documentation

#### 7.93.2.1 `uint16_t EmberAfOtalmagId::manufacturerId`

Definition at line 1123 of file [af-types.h](#).

#### 7.93.2.2 `uint16_t EmberAfOtalmagId::imageTypeld`

Definition at line 1124 of file [af-types.h](#).

#### 7.93.2.3 `uint32_t EmberAfOtalmagId::firmwareVersion`

Definition at line 1125 of file [af-types.h](#).

#### 7.93.2.4 `uint8_t EmberAfOtaImageId::deviceSpecificFileEui64[EUI64_SIZE]`

This is only used for device specific files. It will be set to all 0's when the image does not have an upgrade destination field in it. Little endian format.

Definition at line 1133 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.94 EmberAfPluginEsiManagementEsiEntry Struct Reference

```
#include <esi-management.h>
```

### Data Fields

- [EmberEUI64 eui64](#)
- [EmberNodeId nodeId](#)
- [uint8\\_t networkIndex](#)
- [uint8\\_t endpoint](#)
- [uint8\\_t age](#)

### 7.94.1 Detailed Description

Definition at line 22 of file [esi-management.h](#).

### 7.94.2 Field Documentation

#### 7.94.2.1 `EmberEUI64 EmberAfPluginEsiManagementEsiEntry::eui64`

Definition at line 23 of file [esi-management.h](#).

#### 7.94.2.2 `EmberNodeId EmberAfPluginEsiManagementEsiEntry::nodeId`

Definition at line 24 of file [esi-management.h](#).

#### 7.94.2.3 `uint8_t EmberAfPluginEsiManagementEsiEntry::networkIndex`

Definition at line 25 of file [esi-management.h](#).

#### 7.94.2.4 `uint8_t EmberAfPluginEsiManagementEsiEntry::endpoint`

Definition at line 26 of file [esi-management.h](#).

### 7.94.2.5 uint8\_t EmberAfPluginEsiManagementEsiEntry::age

Definition at line 27 of file [esi-management.h](#).

The documentation for this struct was generated from the following file:

- [esi-management.h](#)

## 7.95 EmberAfPluginMessagingClientMessage Struct Reference

```
#include <af-types.h>
```

### Data Fields

- bool valid
- bool active
- [EmberAfPluginEsiManagementBitmask](#) esiBitmask
- uint8\_t clientEndpoint
- uint32\_t messageId
- uint8\_t messageControl
- uint32\_t startTime
- uint32\_t endTime
- uint16\_t durationInMinutes
- uint8\_t message [EMBER\_AF\_PLUGIN\_MESSAGING\_CLIENT\_MESSAGE\_SIZE+1]

### 7.95.1 Detailed Description

Definition at line 940 of file [af-types.h](#).

### 7.95.2 Field Documentation

#### 7.95.2.1 bool EmberAfPluginMessagingClientMessage::valid

Definition at line 941 of file [af-types.h](#).

#### 7.95.2.2 bool EmberAfPluginMessagingClientMessage::active

Definition at line 942 of file [af-types.h](#).

#### 7.95.2.3 EmberAfPluginEsiManagementBitmask EmberAfPluginMessagingClientMessage::esiBitmask

Definition at line 943 of file [af-types.h](#).

#### 7.95.2.4 uint8\_t EmberAfPluginMessagingClientMessage::clientEndpoint

Definition at line 944 of file [af-types.h](#).

### 7.95.2.5 `uint32_t EmberAfPluginMessagingClientMessage::messageId`

Definition at line 945 of file [af-types.h](#).

### 7.95.2.6 `uint8_t EmberAfPluginMessagingClientMessage::messageControl`

Definition at line 946 of file [af-types.h](#).

### 7.95.2.7 `uint32_t EmberAfPluginMessagingClientMessage::startTime`

Definition at line 947 of file [af-types.h](#).

### 7.95.2.8 `uint32_t EmberAfPluginMessagingClientMessage::endTime`

Definition at line 948 of file [af-types.h](#).

### 7.95.2.9 `uint16_t EmberAfPluginMessagingClientMessage::durationInMinutes`

Definition at line 949 of file [af-types.h](#).

### 7.95.2.10 `uint8_t EmberAfPluginMessagingClientMessage::message[EMBER_AF_PLUGIN_MESSAGING_CLIENT_MESSAGE_SIZE+1]`

Definition at line 950 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.96 EmberAfPluginMessagingServerMessage Struct Reference

```
#include <messaging-server.h>
```

### Data Fields

- `uint32_t messageId`
- `uint8_t messageControl`
- `uint32_t startTime`
- `uint16_t durationInMinutes`
- `uint8_t message [EMBER_AF_PLUGIN_MESSAGING_SERVER_MESSAGE_SIZE+1]`
- `uint8_t extendedMessageControl`

### 7.96.1 Detailed Description

The message and metadata used by the Messaging server plugin.

The application can get and set the message used by the plugin by calling [emberAfPluginMessagingServerGetMessage](#) and [emberAfPluginMessagingServerSetMessage](#).

Definition at line 28 of file [messaging-server.h](#).

## 7.96.2 Field Documentation

### 7.96.2.1 `uint32_t EmberAfPluginMessagingServerMessage::messageId`

The unique unsigned 32-bit number identifier for this message.

Definition at line 30 of file [messaging-server.h](#).

### 7.96.2.2 `uint8_t EmberAfPluginMessagingServerMessage::messageControl`

The control bitmask for this message.

Definition at line 32 of file [messaging-server.h](#).

### 7.96.2.3 `uint32_t EmberAfPluginMessagingServerMessage::startTime`

The time at which the message becomes valid.

Definition at line 34 of file [messaging-server.h](#).

### 7.96.2.4 `uint16_t EmberAfPluginMessagingServerMessage::durationInMinutes`

The amount of time in minutes after the start time during which the message is displayed.

Definition at line 38 of file [messaging-server.h](#).

### 7.96.2.5 `uint8_t EmberAfPluginMessagingServerMessage::message[EMBER_AF_PLUGIN_MESSAGING_SERVER_MESSAGE_SIZE+1]`

The string containing the message to be delivered.

Definition at line 40 of file [messaging-server.h](#).

### 7.96.2.6 `uint8_t EmberAfPluginMessagingServerMessage::extendedMessageControl`

additional control and status information for a given message

Definition at line 42 of file [messaging-server.h](#).

The documentation for this struct was generated from the following file:

- [messaging-server.h](#)

## 7.97 EmberAfPluginPriceClientPrice Struct Reference

```
#include <af-types.h>
```

## Data Fields

- bool `valid`
- bool `active`
- uint8\_t `clientEndpoint`
- uint32\_t `providerId`
- uint8\_t `rateLabel` [ZCL\_PRICE\_CLUSTER\_MAXIMUM\_RATE\_LABEL\_LENGTH+1]
- uint32\_t `issuerEventId`
- uint32\_t `currentTime`
- uint8\_t `unitOfMeasure`
- uint16\_t `currency`
- uint8\_t `priceTrailingDigitAndPriceTier`
- uint8\_t `numberOfPriceTiersAndRegisterTier`
- uint32\_t `startTime`
- uint32\_t `endTime`
- uint16\_t `durationInMinutes`
- uint32\_t `price`
- uint8\_t `priceRatio`
- uint32\_t `generationPrice`
- uint8\_t `generationPriceRatio`
- uint32\_t `alternateCostDelivered`
- uint8\_t `alternateCostUnit`
- uint8\_t `alternateCostTrailingDigit`
- uint8\_t `numberOfBlockThresholds`
- uint8\_t `priceControl`

### 7.97.1 Detailed Description

Definition at line 954 of file `af-types.h`.

### 7.97.2 Field Documentation

#### 7.97.2.1 bool EmberAfPluginPriceClientPrice::valid

Definition at line 955 of file `af-types.h`.

#### 7.97.2.2 bool EmberAfPluginPriceClientPrice::active

Definition at line 956 of file `af-types.h`.

#### 7.97.2.3 uint8\_t EmberAfPluginPriceClientPrice::clientEndpoint

Definition at line 957 of file `af-types.h`.

#### 7.97.2.4 uint32\_t EmberAfPluginPriceClientPrice::providerId

Definition at line 958 of file `af-types.h`.

**7.97.2.5 uint8\_t EmberAfPluginPriceClientPrice::rateLabel[ZCL\_PRICE\_CLUSTER\_MAXIMUM\_RATE\_LABEL\_LENGTH+1]**

Definition at line [959](#) of file [af-types.h](#).

**7.97.2.6 uint32\_t EmberAfPluginPriceClientPrice::issuerEventId**

Definition at line [960](#) of file [af-types.h](#).

**7.97.2.7 uint32\_t EmberAfPluginPriceClientPrice::currentTime**

Definition at line [961](#) of file [af-types.h](#).

**7.97.2.8 uint8\_t EmberAfPluginPriceClientPrice::unitOfMeasure**

Definition at line [962](#) of file [af-types.h](#).

**7.97.2.9 uint16\_t EmberAfPluginPriceClientPrice::currency**

Definition at line [963](#) of file [af-types.h](#).

**7.97.2.10 uint8\_t EmberAfPluginPriceClientPrice::priceTrailingDigitAndPriceTier**

Definition at line [964](#) of file [af-types.h](#).

**7.97.2.11 uint8\_t EmberAfPluginPriceClientPrice::numberOfPriceTiersAndRegisterTier**

Definition at line [965](#) of file [af-types.h](#).

**7.97.2.12 uint32\_t EmberAfPluginPriceClientPrice::startTime**

Definition at line [966](#) of file [af-types.h](#).

**7.97.2.13 uint32\_t EmberAfPluginPriceClientPrice::endTime**

Definition at line [967](#) of file [af-types.h](#).

**7.97.2.14 uint16\_t EmberAfPluginPriceClientPrice::durationInMinutes**

Definition at line [968](#) of file [af-types.h](#).

**7.97.2.15 uint32\_t EmberAfPluginPriceClientPrice::price**

Definition at line [969](#) of file [af-types.h](#).

**7.97.2.16 uint8\_t EmberAfPluginPriceClientPrice::priceRatio**

Definition at line [970](#) of file [af-types.h](#).

**7.97.2.17 uint32\_t EmberAfPluginPriceClientPrice::generationPrice**

Definition at line [971](#) of file [af-types.h](#).

**7.97.2.18 uint8\_t EmberAfPluginPriceClientPrice::generationPriceRatio**

Definition at line [972](#) of file [af-types.h](#).

**7.97.2.19 uint32\_t EmberAfPluginPriceClientPrice::alternateCostDelivered**

Definition at line [973](#) of file [af-types.h](#).

**7.97.2.20 uint8\_t EmberAfPluginPriceClientPrice::alternateCostUnit**

Definition at line [974](#) of file [af-types.h](#).

**7.97.2.21 uint8\_t EmberAfPluginPriceClientPrice::alternateCostTrailingDigit**

Definition at line [975](#) of file [af-types.h](#).

**7.97.2.22 uint8\_t EmberAfPluginPriceClientPrice::numberOfBlockThresholds**

Definition at line [976](#) of file [af-types.h](#).

**7.97.2.23 uint8\_t EmberAfPluginPriceClientPrice::priceControl**

Definition at line [977](#) of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## **7.98 EmberAfPluginReportingEntry Struct Reference**

```
#include <af-types.h>
```

### **Data Fields**

- [EmberAfReportingDirection direction](#)
- [uint8\\_t endpoint](#)
- [EmberAfClusterId clusterId](#)
- [EmberAfAttributeId attributeId](#)

```

• uint8_t mask
• uint16_t manufacturerCode
• union {
    struct {
        uint16_t minInterval
        uint16_t maxInterval
        uint32_t reportableChange
    } reported
    struct {
        EmberNodeId source
        uint8_t endpoint
        uint16_t timeout
    } received
} data

```

### 7.98.1 Detailed Description

A structure used to store reporting configurations. If endpoint field is [EMBER\\_AF\\_PLUGIN\\_REPORTING\\_UNUSED\\_ENDPOINT\\_ID](#), the entry is unused.

Definition at line [1009](#) of file [af-types.h](#).

### 7.98.2 Field Documentation

#### 7.98.2.1 EmberAfReportingDirection EmberAfPluginReportingEntry::direction

`EMBER_ZCL_REPORTING_DIRECTION_REPORTED` for reports sent from the local device or `EMBER_ZCL_REPORTING_DIRECTION_RECEIVED` for reports received from a remote device.

Definition at line [1014](#) of file [af-types.h](#).

#### 7.98.2.2 uint8\_t EmberAfPluginReportingEntry::endpoint

The local endpoint from which the attribute is reported or to which the report is received. If [EMBER\\_AF\\_PLUGIN\\_REPORTING\\_UNUSED\\_ENDPOINT\\_ID](#), the entry is unused.

The remote endpoint from which the attribute is reported.

Definition at line [1019](#) of file [af-types.h](#).

#### 7.98.2.3 EmberAfClusterId EmberAfPluginReportingEntry::clusterId

The cluster where the attribute is located.

Definition at line [1021](#) of file [af-types.h](#).

#### 7.98.2.4 EmberAfAttributeId EmberAfPluginReportingEntry::attributeId

The id of the attribute being reported or received.

Definition at line [1023](#) of file [af-types.h](#).

#### **7.98.2.5 uint8\_t EmberAfPluginReportingEntry::mask**

CLUSTER\_MASK\_SERVER for server-side attributes or CLUSTER\_MASK\_CLIENT for client-side attributes.

Definition at line 1027 of file [af-types.h](#).

#### **7.98.2.6 uint16\_t EmberAfPluginReportingEntry::manufacturerCode**

Manufacturer code associated with the cluster and/or attribute. If the cluster id is inside the manufacturer-specific range, this value indicates the manufacturer code for the cluster. Otherwise, if this value is non-zero and the cluster id is a standard ZCL cluster, it indicates the manufacturer code for attribute.

Definition at line 1034 of file [af-types.h](#).

#### **7.98.2.7 uint16\_t EmberAfPluginReportingEntry::minInterval**

The minimum reporting interval, measured in seconds.

Definition at line 1038 of file [af-types.h](#).

#### **7.98.2.8 uint16\_t EmberAfPluginReportingEntry::maxInterval**

The maximum reporting interval, measured in seconds.

Definition at line 1040 of file [af-types.h](#).

#### **7.98.2.9 uint32\_t EmberAfPluginReportingEntry::reportableChange**

The minimum change to the attribute that will result in a report being sent.

Definition at line 1044 of file [af-types.h](#).

#### **7.98.2.10 struct { ... } EmberAfPluginReportingEntry::reported**

#### **7.98.2.11 EmberNodeId EmberAfPluginReportingEntry::source**

The node id of the source of the received reports.

Definition at line 1048 of file [af-types.h](#).

#### **7.98.2.12 uint16\_t EmberAfPluginReportingEntry::timeout**

The maximum expected time between reports, measured in seconds.

Definition at line 1052 of file [af-types.h](#).

#### **7.98.2.13 struct { ... } EmberAfPluginReportingEntry::received**

#### **7.98.2.14 union { ... } EmberAfPluginReportingEntry::data**

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.99 EmberAfPluginScanDispatchScanData Struct Reference

```
#include <scan-dispatch.h>
```

### Data Fields

- [EmberNetworkScanType](#) `scanType`
- [uint32\\_t](#) `channelMask`
- [uint8\\_t](#) `duration`
- [EmberAfPluginScanDispatchScanResultsHandler](#) `handler`

### 7.99.1 Detailed Description

A structure containing data for scheduling a scan.

Definition at line [127](#) of file [scan-dispatch.h](#).

### 7.99.2 Field Documentation

#### 7.99.2.1 [EmberNetworkScanType](#) `EmberAfPluginScanDispatchScanData::scanType`

The 802.15.4 scan type to be scheduled.

Definition at line [129](#) of file [scan-dispatch.h](#).

#### 7.99.2.2 [uint32\\_t](#) `EmberAfPluginScanDispatchScanData::channelMask`

The channel mask to be scanned.

Definition at line [131](#) of file [scan-dispatch.h](#).

#### 7.99.2.3 [uint8\\_t](#) `EmberAfPluginScanDispatchScanData::duration`

The duration of the scan period, as an exponent.

Definition at line [133](#) of file [scan-dispatch.h](#).

#### 7.99.2.4 [EmberAfPluginScanDispatchScanResultsHandler](#) `EmberAfPluginScanDispatchScanData::handler`

The handler to be called with the scan results.

Definition at line [135](#) of file [scan-dispatch.h](#).

The documentation for this struct was generated from the following file:

- [scan-dispatch.h](#)

## 7.100 EmberAfPluginScanDispatchScanResults Struct Reference

```
#include <scan-dispatch.h>
```

### Data Fields

- union {
 EmberStatus status
 int8\_t rssi
 };
- union {
 uint8\_t channel
 uint8\_t lqi
 };
- EmberZigbeeNetwork \* network
- uint16\_t mask

#### 7.100.1 Detailed Description

Information regarding scan results.

Definition at line 32 of file [scan-dispatch.h](#).

#### 7.100.2 Field Documentation

##### 7.100.2.1 EmberStatus EmberAfPluginScanDispatchScanResults::status

Definition at line 35 of file [scan-dispatch.h](#).

##### 7.100.2.2 int8\_t EmberAfPluginScanDispatchScanResults::rssi

Definition at line 36 of file [scan-dispatch.h](#).

##### 7.100.2.3 union { ... }

##### 7.100.2.4 uint8\_t EmberAfPluginScanDispatchScanResults::channel

Definition at line 41 of file [scan-dispatch.h](#).

##### 7.100.2.5 uint8\_t EmberAfPluginScanDispatchScanResults::lqi

Definition at line 42 of file [scan-dispatch.h](#).

### 7.100.2.6 union { ... }

#### 7.100.2.7 EmberZigbeeNetwork\* EmberAfPluginScanDispatchScanResults::network

The ZigBee network found in the scan.

Definition at line 46 of file [scan-dispatch.h](#).

#### 7.100.2.8 uint16\_t EmberAfPluginScanDispatchScanResults::mask

A mask containing information about the scan.

Definition at line 49 of file [scan-dispatch.h](#).

The documentation for this struct was generated from the following file:

- [scan-dispatch.h](#)

## 7.101 EmberAfPrepaymentSnapshotPayload Struct Reference

```
#include <prepayment-snapshot-storage.h>
```

### Data Fields

- `uint32_t snapshotId`
- `uint32_t snapshotCauseBitmap`
- `uint32_t snapshotTime`
- `uint8_t snapshotType`
- `int32_t accumulatedDebt`
- `uint32_t type1DebtRemaining`
- `uint32_t type2DebtRemaining`
- `uint32_t type3DebtRemaining`
- `int32_t emergencyCreditRemaining`
- `int32_t creditRemaining`

### 7.101.1 Detailed Description

Definition at line 39 of file [prepayment-snapshot-storage.h](#).

### 7.101.2 Field Documentation

#### 7.101.2.1 uint32\_t EmberAfPrepaymentSnapshotPayload::snapshotId

Definition at line 40 of file [prepayment-snapshot-storage.h](#).

#### 7.101.2.2 uint32\_t EmberAfPrepaymentSnapshotPayload::snapshotCauseBitmap

Definition at line 41 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.3 uint32\_t EmberAfPrepaymentSnapshotPayload::snapshotTime

Definition at line 42 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.4 uint8\_t EmberAfPrepaymentSnapshotPayload::snapshotType

Definition at line 43 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.5 int32\_t EmberAfPrepaymentSnapshotPayload::accumulatedDebt

Definition at line 47 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.6 uint32\_t EmberAfPrepaymentSnapshotPayload::type1DebtRemaining

Definition at line 48 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.7 uint32\_t EmberAfPrepaymentSnapshotPayload::type2DebtRemaining

Definition at line 49 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.8 uint32\_t EmberAfPrepaymentSnapshotPayload::type3DebtRemaining

Definition at line 50 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.9 int32\_t EmberAfPrepaymentSnapshotPayload::emergencyCreditRemaining

Definition at line 51 of file [prepayment-snapshot-storage.h](#).

### 7.101.2.10 int32\_t EmberAfPrepaymentSnapshotPayload::creditRemaining

Definition at line 52 of file [prepayment-snapshot-storage.h](#).

The documentation for this struct was generated from the following file:

- [prepayment-snapshot-storage.h](#)

## 7.102 EmberAfPrepaymentSnapshotSchedulePayload Struct Reference

```
#include <prepayment-snapshot-storage.h>
```

### Data Fields

- uint32\_t [snapshotScheduleId](#)
- uint32\_t [snapshotStartTime](#)
- uint32\_t [snapshotCauseBitmap](#)
- EmberNodeId [requestingId](#)

- `uint8_t srcEndpoint`
- `uint8_t dstEndpoint`
- `uint8_t snapshotPayloadType`

### 7.102.1 Detailed Description

Definition at line [57](#) of file `prepayment-snapshot-storage.h`.

### 7.102.2 Field Documentation

#### 7.102.2.1 `uint32_t EmberAfPrepaymentSnapshotSchedulePayload::snapshotScheduleId`

Definition at line [59](#) of file `prepayment-snapshot-storage.h`.

#### 7.102.2.2 `uint32_t EmberAfPrepaymentSnapshotSchedulePayload::snapshotStartTime`

Definition at line [60](#) of file `prepayment-snapshot-storage.h`.

#### 7.102.2.3 `uint32_t EmberAfPrepaymentSnapshotSchedulePayload::snapshotCauseBitmap`

Definition at line [61](#) of file `prepayment-snapshot-storage.h`.

#### 7.102.2.4 `EmberNodeId EmberAfPrepaymentSnapshotSchedulePayload::requestingId`

Definition at line [62](#) of file `prepayment-snapshot-storage.h`.

#### 7.102.2.5 `uint8_t EmberAfPrepaymentSnapshotSchedulePayload::srcEndpoint`

Definition at line [63](#) of file `prepayment-snapshot-storage.h`.

#### 7.102.2.6 `uint8_t EmberAfPrepaymentSnapshotSchedulePayload::dstEndpoint`

Definition at line [64](#) of file `prepayment-snapshot-storage.h`.

#### 7.102.2.7 `uint8_t EmberAfPrepaymentSnapshotSchedulePayload::snapshotPayloadType`

Definition at line [65](#) of file `prepayment-snapshot-storage.h`.

The documentation for this struct was generated from the following file:

- `prepayment-snapshot-storage.h`

## 7.103 EmberAfPriceBillingPeriod Struct Reference

```
#include <price-server.h>
```

## Data Fields

- `uint32_t providerId`
- `uint32_t rawBillingPeriodStartTime`
- `uint32_t billingPeriodDuration`
- `uint8_t billingPeriodDurationType`
- `uint8_t tariffType`

### 7.103.1 Detailed Description

Definition at line 117 of file `price-server.h`.

### 7.103.2 Field Documentation

#### 7.103.2.1 `uint32_t EmberAfPriceBillingPeriod::providerId`

Definition at line 118 of file `price-server.h`.

#### 7.103.2.2 `uint32_t EmberAfPriceBillingPeriod::rawBillingPeriodStartTime`

Definition at line 119 of file `price-server.h`.

#### 7.103.2.3 `uint32_t EmberAfPriceBillingPeriod::billingPeriodDuration`

Definition at line 120 of file `price-server.h`.

#### 7.103.2.4 `uint8_t EmberAfPriceBillingPeriod::billingPeriodDurationType`

Definition at line 121 of file `price-server.h`.

#### 7.103.2.5 `uint8_t EmberAfPriceBillingPeriod::tariffType`

Definition at line 122 of file `price-server.h`.

The documentation for this struct was generated from the following file:

- `price-server.h`

## 7.104 EmberAfPriceBillingPeriodTable Struct Reference

```
#include <price-server.h>
```

## Data Fields

- `EmberAfPriceCommonInfo commonInfos [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE]`
- `EmberAfPriceBillingPeriod billingPeriods [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE]`

### 7.104.1 Detailed Description

Definition at line 216 of file [price-server.h](#).

### 7.104.2 Field Documentation

**7.104.2.1 EmberAfPriceCommonInfo** `EmberAfPriceBillingPeriodTable::commonInfos[EMBER_AF_P-RICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_S-ERVER_BILLING_PERIOD_TABLE_SIZE]`

Definition at line 217 of file [price-server.h](#).

**7.104.2.2 EmberAfPriceBillingPeriod** `EmberAfPriceBillingPeriodTable::billingPeriods[EMBER_AF_P-RICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_S-ERVER_BILLING_PERIOD_TABLE_SIZE]`

Definition at line 218 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.105 EmberAfPriceBlockPeriod Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t providerId`
- `uint32_t rawBlockPeriodStartTime`
- `uint32_t blockPeriodDuration`
- `uint32_t thresholdMultiplier`
- `uint32_t thresholdDivisor`
- `uint8_t blockPeriodControl`
- `uint8_t blockPeriodDurationType`
- `uint8_t tariffType`
- `uint8_t tariffResolutionPeriod`

### 7.105.1 Detailed Description

The price and metadata used by the Price server plugin.

The application can get and set the prices used by the plugin by calling [emberAfPriceGetPriceTableEntry](#) and [emberAfPriceSetPriceTableEntry](#). conversion factor infos by the Price server plugin.

Definition at line 101 of file [price-server.h](#).

## 7.105.2 Field Documentation

### 7.105.2.1 `uint32_t EmberAfPriceBlockPeriod::providerId`

Definition at line 102 of file [price-server.h](#).

### 7.105.2.2 `uint32_t EmberAfPriceBlockPeriod::rawBlockPeriodStartTime`

Definition at line 103 of file [price-server.h](#).

### 7.105.2.3 `uint32_t EmberAfPriceBlockPeriod::blockPeriodDuration`

Definition at line 104 of file [price-server.h](#).

### 7.105.2.4 `uint32_t EmberAfPriceBlockPeriod::thresholdMultiplier`

Definition at line 109 of file [price-server.h](#).

### 7.105.2.5 `uint32_t EmberAfPriceBlockPeriod::thresholdDivisor`

Definition at line 110 of file [price-server.h](#).

### 7.105.2.6 `uint8_t EmberAfPriceBlockPeriod::blockPeriodControl`

Definition at line 111 of file [price-server.h](#).

### 7.105.2.7 `uint8_t EmberAfPriceBlockPeriod::blockPeriodDurationType`

Definition at line 112 of file [price-server.h](#).

### 7.105.2.8 `uint8_t EmberAfPriceBlockPeriod::tariffType`

Definition at line 113 of file [price-server.h](#).

### 7.105.2.9 `uint8_t EmberAfPriceBlockPeriod::tariffResolutionPeriod`

Definition at line 114 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.106 EmberAfPriceBlockPeriodTable Struct Reference

```
#include <price-server.h>
```

## Data Fields

- EmberAfPriceCommonInfo commonInfos [EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_TABLE\_SIZE]
- EmberAfPriceBlockPeriod blockPeriods [EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_TABLE\_SIZE]

### 7.106.1 Detailed Description

Definition at line 211 of file [price-server.h](#).

### 7.106.2 Field Documentation

- 7.106.2.1 EmberAfPriceCommonInfo EmberAfPriceBlockPeriodTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_TABLE\_SIZE]

Definition at line 212 of file [price-server.h](#).

- 7.106.2.2 EmberAfPriceBlockPeriod EmberAfPriceBlockPeriodTable::blockPeriods[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_TABLE\_SIZE]

Definition at line 213 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.107 EmberAfPriceCalorificValue Struct Reference

```
#include <price-server.h>
```

## Data Fields

- uint32\_t calorificValue
- uint8\_t calorificValueUnit
- uint8\_t calorificValueTrailingDigit

### 7.107.1 Detailed Description

Definition at line 160 of file [price-server.h](#).

### 7.107.2 Field Documentation

- 7.107.2.1 uint32\_t EmberAfPriceCalorificValue::calorificValue

Definition at line 161 of file [price-server.h](#).

### 7.107.2.2 uint8\_t EmberAfPriceCalorificValue::calorificValueUnit

Definition at line 162 of file [price-server.h](#).

### 7.107.2.3 uint8\_t EmberAfPriceCalorificValue::calorificValueTrailingDigit

Definition at line 163 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.108 EmberAfPriceCalorificValueTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- [EmberAfPriceCommonInfo commonInfos \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CALORIFIC\\_VALUE\\_TABLE\\_SIZE\]](#)
- [EmberAfPriceCalorificValue calorificValues \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CALORIFIC\\_VALUE\\_TABLE\\_SIZE\]](#)

### 7.108.1 Detailed Description

Definition at line 243 of file [price-server.h](#).

### 7.108.2 Field Documentation

#### 7.108.2.1 EmberAfPriceCommonInfo EmberAfPriceCalorificValueTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_TABLE\_SIZE]

Definition at line 244 of file [price-server.h](#).

#### 7.108.2.2 EmberAfPriceCalorificValue EmberAfPriceCalorificValueTable::calorificValues[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_TABLE\_SIZE]

Definition at line 245 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.109 EmberAfPriceCancelTariff Struct Reference

```
#include <price-server.h>
```

## Data Fields

- `uint32_t providerId`
- `uint32_t issuerTariffId`
- `uint8_t tariffType`
- `bool valid`

### 7.109.1 Detailed Description

Definition at line 166 of file `price-server.h`.

### 7.109.2 Field Documentation

#### 7.109.2.1 `uint32_t EmberAfPriceCancelTariff::providerId`

Definition at line 167 of file `price-server.h`.

#### 7.109.2.2 `uint32_t EmberAfPriceCancelTariff::issuerTariffId`

Definition at line 168 of file `price-server.h`.

#### 7.109.2.3 `uint8_t EmberAfPriceCancelTariff::tariffType`

Definition at line 169 of file `price-server.h`.

#### 7.109.2.4 `bool EmberAfPriceCancelTariff::valid`

Definition at line 170 of file `price-server.h`.

The documentation for this struct was generated from the following file:

- `price-server.h`

## 7.110 EmberAfPriceCancelTariffTable Struct Reference

```
#include <price-server.h>
```

## Data Fields

- `EmberAfPriceCancelTariff cancelTariff [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT]`

### 7.110.1 Detailed Description

Definition at line 258 of file `price-server.h`.

## 7.110.2 Field Documentation

### 7.110.2.1 EmberAfPriceCancelTariff EmberAfPriceCancelTariffTable::cancelTariff[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT]

Definition at line 259 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.111 EmberAfPriceClientBillingPeriod Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `uint32_t billingPeriodStartTime`
- `uint32_t billingPeriodDuration`
- `uint8_t billingPeriodDurationType`
- `uint8_t tariffType`

### 7.111.1 Detailed Description

Definition at line 54 of file [price-client.h](#).

## 7.111.2 Field Documentation

### 7.111.2.1 `uint32_t EmberAfPriceClientBillingPeriod::billingPeriodStartTime`

Definition at line 55 of file [price-client.h](#).

### 7.111.2.2 `uint32_t EmberAfPriceClientBillingPeriod::billingPeriodDuration`

Definition at line 56 of file [price-client.h](#).

### 7.111.2.3 `uint8_t EmberAfPriceClientBillingPeriod::billingPeriodDurationType`

Definition at line 57 of file [price-client.h](#).

### 7.111.2.4 `uint8_t EmberAfPriceClientBillingPeriod::tariffType`

Definition at line 58 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.112 EmberAfPriceClientBillingPeriodTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BILLING\_PERIOD\_TABLE\_SIZE]
- [EmberAfPriceClientBillingPeriod billingPeriod](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BILLING\_PERIOD\_TABLE\_SIZE]

### 7.112.1 Detailed Description

Definition at line 131 of file [price-client.h](#).

### 7.112.2 Field Documentation

**7.112.2.1** [EmberAfPriceClientCommonInfo EmberAfPriceClientBillingPeriodTable::commonInfos](#)[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BILLING\_PERIOD\_TABLE\_SIZE]

Definition at line 132 of file [price-client.h](#).

**7.112.2.2** [EmberAfPriceClientBillingPeriod EmberAfPriceClientBillingPeriodTable::billingPeriod](#)[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BILLING\_PERIOD\_TABLE\_SIZE]

Definition at line 133 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.113 EmberAfPriceClientBlockPeriod Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [uint32\\_t blockPeriodStartTime](#)
- [uint32\\_t blockPeriodDuration](#)
- [uint8\\_t blockPeriodControl](#)
- [uint8\\_t blockPeriodDurationType](#)
- [uint8\\_t tariffType](#)
- [uint8\\_t tariffResolutionPeriod](#)

### 7.113.1 Detailed Description

Definition at line 61 of file [price-client.h](#).

### 7.113.2 Field Documentation

#### 7.113.2.1 uint32\_t EmberAfPriceClientBlockPeriod::blockPeriodStartTime

Definition at line 62 of file [price-client.h](#).

#### 7.113.2.2 uint32\_t EmberAfPriceClientBlockPeriod::blockPeriodDuration

Definition at line 63 of file [price-client.h](#).

#### 7.113.2.3 uint8\_t EmberAfPriceClientBlockPeriod::blockPeriodControl

Definition at line 64 of file [price-client.h](#).

#### 7.113.2.4 uint8\_t EmberAfPriceClientBlockPeriod::blockPeriodDurationType

Definition at line 65 of file [price-client.h](#).

#### 7.113.2.5 uint8\_t EmberAfPriceClientBlockPeriod::tariffType

Definition at line 66 of file [price-client.h](#).

#### 7.113.2.6 uint8\_t EmberAfPriceClientBlockPeriod::tariffResolutionPeriod

Definition at line 67 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.114 EmberAfPriceClientBlockPeriodTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_PERIOD\_TABLE\_SIZE]
- [EmberAfPriceClientBlockPeriod blockPeriod](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_PERIOD\_TABLE\_SIZE]

### 7.114.1 Detailed Description

Definition at line 136 of file [price-client.h](#).

### 7.114.2 Field Documentation

**7.114.2.1 EmberAfPriceClientCommonInfo** `EmberAfPriceClientBlockPeriodTable::commonInfos[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_PERIOD_TABLE_SIZE]`

Definition at line 137 of file [price-client.h](#).

**7.114.2.2 EmberAfPriceClientBlockPeriod** `EmberAfPriceClientBlockPeriodTable::blockPeriod[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_PERIOD_TABLE_SIZE]`

Definition at line 138 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.115 EmberAfPriceClientBlockThreshold Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `uint32_t issuerTariffId`
- `uint8_t subPayloadControl`
- `uint8_t tierNumberOfBlockThresholds [EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_BLOCK_THRESHOLDS]`
- `uint8_t blockThreshold [EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_TIERS+1][6 *(EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_BLOCK_THRESHOLDS+1)]`

### 7.115.1 Detailed Description

Definition at line 71 of file [price-client.h](#).

### 7.115.2 Field Documentation

**7.115.2.1 uint32\_t EmberAfPriceClientBlockThreshold::issuerTariffId**

Definition at line 72 of file [price-client.h](#).

**7.115.2.2 uint8\_t EmberAfPriceClientBlockThreshold::subPayloadControl**

Definition at line 73 of file [price-client.h](#).

7.115.2.3 `uint8_t EmberAfPriceClientBlockThreshold::tierNumberofBlockThresholds[EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_BLOCK_THRESHOLDS]`

Definition at line 74 of file [price-client.h](#).

7.115.2.4 `uint8_t EmberAfPriceClientBlockThreshold::blockThreshold[EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_TIERS+1][6 *(EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_BLOCK_THRESHOLDS+1)]`

Definition at line 75 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.116 EmberAfPriceClientBlockThresholdTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_THRESHOLD\_TABLE\_SIZE]
- [EmberAfPriceClientBlockThreshold blockThreshold](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_THRESHOLD\_TABLE\_SIZE]

### 7.116.1 Detailed Description

Definition at line 141 of file [price-client.h](#).

### 7.116.2 Field Documentation

7.116.2.1 `EmberAfPriceClientCommonInfo EmberAfPriceClientBlockThresholdTable::commonInfos[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_THRESHOLD_TABLE_SIZE]`

Definition at line 142 of file [price-client.h](#).

7.116.2.2 `EmberAfPriceClientBlockThreshold EmberAfPriceClientBlockThresholdTable::blockThreshold[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_THRESHOLD_TABLE_SIZE]`

Definition at line 143 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.117 EmberAfPriceClientCalorificValue Struct Reference

```
#include <price-client.h>
```

### Data Fields

- uint32\_t [calorificValue](#)
- uint8\_t [calorificValueUnit](#)
- uint8\_t [calorificValueTrailingDigit](#)

#### 7.117.1 Detailed Description

Definition at line [78](#) of file [price-client.h](#).

#### 7.117.2 Field Documentation

##### 7.117.2.1 uint32\_t EmberAfPriceClientCalorificValue::calorificValue

Definition at line [79](#) of file [price-client.h](#).

##### 7.117.2.2 uint8\_t EmberAfPriceClientCalorificValue::calorificValueUnit

Definition at line [80](#) of file [price-client.h](#).

##### 7.117.2.3 uint8\_t EmberAfPriceClientCalorificValue::calorificValueTrailingDigit

Definition at line [81](#) of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.118 EmberAfPriceClientCalorificValueTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDIANPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CALORIFIC\_VALUE\_TABLE\_SIZE]
- [EmberAfPriceClientCalorificValue calorificValue](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDIANPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CALORIFIC\_VALUE\_TABLE\_SIZE]

### 7.118.1 Detailed Description

Definition at line 146 of file [price-client.h](#).

### 7.118.2 Field Documentation

**7.118.2.1 EmberAfPriceClientCommonInfo** `EmberAfPriceClientCalorificValueTable::commonInfos[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CALORIFIC_VALUE_TABLE_SIZE]`

Definition at line 147 of file [price-client.h](#).

**7.118.2.2 EmberAfPriceClientCalorificValue** `EmberAfPriceClientCalorificValueTable::calorificValue[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CALORIFIC_VALUE_TABLE_SIZE]`

Definition at line 148 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.119 EmberAfPriceClientCo2Value Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `uint8_t tariffType`
- `uint32_t cO2Value`
- `uint8_t cO2ValueUnit`
- `uint8_t cO2ValueTrailingDigit`

### 7.119.1 Detailed Description

Definition at line 84 of file [price-client.h](#).

### 7.119.2 Field Documentation

**7.119.2.1 uint8\_t EmberAfPriceClientCo2Value::tariffType**

Definition at line 85 of file [price-client.h](#).

**7.119.2.2 uint32\_t EmberAfPriceClientCo2Value::cO2Value**

Definition at line 86 of file [price-client.h](#).

### 7.119.2.3 `uint8_t EmberAfPriceClientCo2Value::cO2ValueUnit`

Definition at line 87 of file [price-client.h](#).

### 7.119.2.4 `uint8_t EmberAfPriceClientCo2Value::cO2ValueTrailingDigit`

Definition at line 88 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.120 EmberAfPriceClientCo2ValueTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CO2\_TABLE\_SIZE]
- [EmberAfPriceClientCo2Value co2Value](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CO2\_TABLE\_SIZE]

### 7.120.1 Detailed Description

Definition at line 151 of file [price-client.h](#).

### 7.120.2 Field Documentation

#### 7.120.2.1 `EmberAfPriceClientCommonInfo EmberAfPriceClientCo2ValueTable::commonInfos[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CO2_TABLE_SIZE]`

Definition at line 152 of file [price-client.h](#).

#### 7.120.2.2 `EmberAfPriceClientCo2Value EmberAfPriceClientCo2ValueTable::co2Value[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CO2_TABLE_SIZE]`

Definition at line 153 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.121 EmberAfPriceClientCommonInfo Struct Reference

```
#include <price-client.h>
```

## Data Fields

- `uint32_t providerId`
- `uint32_t issuerEventId`
- `uint32_t startTime`
- `uint32_t durationSec`
- `bool valid`

### 7.121.1 Detailed Description

Definition at line [33](#) of file `price-client.h`.

### 7.121.2 Field Documentation

#### 7.121.2.1 `uint32_t EmberAfPriceClientCommonInfo::providerId`

Definition at line [34](#) of file `price-client.h`.

#### 7.121.2.2 `uint32_t EmberAfPriceClientCommonInfo::issuerEventId`

Definition at line [35](#) of file `price-client.h`.

#### 7.121.2.3 `uint32_t EmberAfPriceClientCommonInfo::startTime`

Definition at line [36](#) of file `price-client.h`.

#### 7.121.2.4 `uint32_t EmberAfPriceClientCommonInfo::durationSec`

Definition at line [37](#) of file `price-client.h`.

#### 7.121.2.5 `bool EmberAfPriceClientCommonInfo::valid`

Definition at line [38](#) of file `price-client.h`.

The documentation for this struct was generated from the following file:

- `price-client.h`

## 7.122 EmberAfPriceClientConversionFactor Struct Reference

```
#include <price-client.h>
```

## Data Fields

- `uint32_t conversionFactor`
- `uint8_t conversionFactorTrailingDigit`

### 7.122.1 Detailed Description

Definition at line 91 of file [price-client.h](#).

### 7.122.2 Field Documentation

#### 7.122.2.1 `uint32_t EmberAfPriceClientConversionFactor::conversionFactor`

Definition at line 92 of file [price-client.h](#).

#### 7.122.2.2 `uint8_t EmberAfPriceClientConversionFactor::conversionFactorTrailingDigit`

Definition at line 93 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.123 EmberAfPriceClientConversionFactorTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `EmberAfPriceClientCommonInfo commonInfos [EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CONVERSION_FACTOR_TABLE_SIZE]`
- `EmberAfPriceClientConversionFactor conversionFactor [EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CONVERSION_FACTOR_TABLE_SIZE]`

### 7.123.1 Detailed Description

Definition at line 156 of file [price-client.h](#).

### 7.123.2 Field Documentation

#### 7.123.2.1 `EmberAfPriceClientCommonInfo EmberAfPriceClientConversionFactorTable::commonInfos[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CONVERSION_FACTOR_TABLE_SIZE]`

Definition at line 157 of file [price-client.h](#).

#### 7.123.2.2 `EmberAfPriceClientConversionFactor EmberAfPriceClientConversionFactorTable::conversionFactor[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CONVERSION_FACTOR_TABLE_SIZE]`

Definition at line 158 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.124 EmberAfPriceClientCppEvent Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `uint16_t durationInMinutes`
- `uint8_t tariffType`
- `uint8_t cppPriceTier`
- `uint8_t cppAuth`

#### 7.124.1 Detailed Description

Definition at line [96](#) of file [price-client.h](#).

#### 7.124.2 Field Documentation

##### 7.124.2.1 `uint16_t EmberAfPriceClientCppEvent::durationInMinutes`

Definition at line [97](#) of file [price-client.h](#).

##### 7.124.2.2 `uint8_t EmberAfPriceClientCppEvent::tariffType`

Definition at line [98](#) of file [price-client.h](#).

##### 7.124.2.3 `uint8_t EmberAfPriceClientCppEvent::cppPriceTier`

Definition at line [99](#) of file [price-client.h](#).

##### 7.124.2.4 `uint8_t EmberAfPriceClientCppEvent::cppAuth`

Definition at line [100](#) of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.125 EmberAfPriceClientCppEventTable Struct Reference

```
#include <price-client.h>
```

## Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT]
- [EmberAfPriceClientCppEvent cppEvent](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT]

### 7.125.1 Detailed Description

Definition at line 161 of file [price-client.h](#).

### 7.125.2 Field Documentation

#### 7.125.2.1 EmberAfPriceClientCommonInfo EmberAfPriceClientCppEventTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT]

Definition at line 162 of file [price-client.h](#).

#### 7.125.2.2 EmberAfPriceClientCppEvent EmberAfPriceClientCppEventTable::cppEvent[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT]

Definition at line 163 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.126 EmberAfPriceClientCreditPayment Struct Reference

```
#include <price-client.h>
```

## Data Fields

- [uint32\\_t creditPaymentDueDate](#)
- [uint32\\_t creditPaymentOverDueAmount](#)
- [uint8\\_t creditPaymentStatus](#)
- [uint32\\_t creditPayment](#)
- [uint32\\_t creditPaymentDate](#)
- [uint8\\_t creditPaymentRef](#) [EMBER\_AF\_PLUGIN\_PRICE\_CLUSTER\_MAX\_CREDIT\_PAYMENT\_REF\_LENGTH+1]

### 7.126.1 Detailed Description

Definition at line 104 of file [price-client.h](#).

## 7.126.2 Field Documentation

### 7.126.2.1 uint32\_t EmberAfPriceClientCreditPayment::creditPaymentDueDate

Definition at line 105 of file [price-client.h](#).

### 7.126.2.2 uint32\_t EmberAfPriceClientCreditPayment::creditPaymentOverDueAmount

Definition at line 106 of file [price-client.h](#).

### 7.126.2.3 uint8\_t EmberAfPriceClientCreditPayment::creditPaymentStatus

Definition at line 107 of file [price-client.h](#).

### 7.126.2.4 uint32\_t EmberAfPriceClientCreditPayment::creditPayment

Definition at line 108 of file [price-client.h](#).

### 7.126.2.5 uint32\_t EmberAfPriceClientCreditPayment::creditPaymentDate

Definition at line 109 of file [price-client.h](#).

### 7.126.2.6 uint8\_t EmberAfPriceClientCreditPayment::creditPaymentRef[EMBER\_AF\_PLUGIN\_PRICE\_CLUSTER\_MAX\_CREDIT\_PAYMENT\_REF\_LENGTH+1]

Definition at line 110 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.127 EmberAfPriceClientCreditPaymentTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PAYMENT\_TABLE\_SIZE]
- [EmberAfPriceClientCreditPayment creditPayment](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PAYMENT\_TABLE\_SIZE]

### 7.127.1 Detailed Description

Definition at line 166 of file [price-client.h](#).

## 7.127.2 Field Documentation

7.127.2.1 `EmberAfPriceClientCommonInfo` `EmberAfPriceClientCreditPaymentTable::commonInfos[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CREDIT_PAYMENT_TABLE_SIZE]`

Definition at line 167 of file [price-client.h](#).

7.127.2.2 `EmberAfPriceClientCreditPayment` `EmberAfPriceClientCreditPaymentTable::creditPayment[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CREDIT_PAYMENT_TABLE_SIZE]`

Definition at line 168 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.128 EmberAfPriceClientCurrencyConversion Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `uint32_t conversionFactor`
- `uint32_t currencyChangeControlFlags`
- `uint16_t newCurrency`
- `uint8_t conversionFactorTrailingDigit`

## 7.128.1 Detailed Description

Definition at line 113 of file [price-client.h](#).

## 7.128.2 Field Documentation

7.128.2.1 `uint32_t` `EmberAfPriceClientCurrencyConversion::conversionFactor`

Definition at line 114 of file [price-client.h](#).

7.128.2.2 `uint32_t` `EmberAfPriceClientCurrencyConversion::currencyChangeControlFlags`

Definition at line 115 of file [price-client.h](#).

7.128.2.3 `uint16_t` `EmberAfPriceClientCurrencyConversion::newCurrency`

Definition at line 116 of file [price-client.h](#).

#### 7.128.2.4 uint8\_t EmberAfPriceClientCurrencyConversion::conversionFactorTrailingDigit

Definition at line 117 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

### 7.129 EmberAfPriceClientCurrencyConversionTable Struct Reference

```
#include <price-client.h>
```

#### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERSION\_TABLE\_SIZE]
- [EmberAfPriceClientCurrencyConversion currencyConversion](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERSION\_TABLE\_SIZE]

#### 7.129.1 Detailed Description

Definition at line 171 of file [price-client.h](#).

#### 7.129.2 Field Documentation

##### 7.129.2.1 EmberAfPriceClientCommonInfo EmberAfPriceClientCurrencyConversionTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERSION\_TABLE\_SIZE]

Definition at line 172 of file [price-client.h](#).

##### 7.129.2.2 EmberAfPriceClientCurrencyConversion EmberAfPriceClientCurrencyConversionTable::currencyConversion[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERSION\_TABLE\_SIZE]

Definition at line 173 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

### 7.130 EmberAfPriceClientInfo Struct Reference

```
#include <price-client.h>
```

## Data Fields

- [EmberAfPriceClientBillingPeriodTable](#) billingPeriodTable
- [EmberAfPriceClientBlockPeriodTable](#) blockPeriodTable
- [EmberAfPriceClientBlockThresholdTable](#) blockThresholdTable
- [EmberAfPriceClientCalorificValueTable](#) calorificValueTable
- [EmberAfPriceClientCo2ValueTable](#) co2ValueTable
- [EmberAfPriceClientConversionFactorTable](#) conversionFactorTable
- [EmberAfPriceClientCppEventTable](#) cppEventTable
- [EmberAfPriceClientCreditPaymentTable](#) creditPaymentTable
- [EmberAfPriceClientCurrencyConversionTable](#) currencyConversionTable
- [EmberAfPriceClientTierLabelsTable](#) tierLabelsTable

### 7.130.1 Detailed Description

Definition at line [183](#) of file [price-client.h](#).

### 7.130.2 Field Documentation

#### 7.130.2.1 EmberAfPriceClientBillingPeriodTable EmberAfPriceClientInfo::billingPeriodTable

Definition at line [184](#) of file [price-client.h](#).

#### 7.130.2.2 EmberAfPriceClientBlockPeriodTable EmberAfPriceClientInfo::blockPeriodTable

Definition at line [185](#) of file [price-client.h](#).

#### 7.130.2.3 EmberAfPriceClientBlockThresholdTable EmberAfPriceClientInfo::blockThresholdTable

Definition at line [186](#) of file [price-client.h](#).

#### 7.130.2.4 EmberAfPriceClientCalorificValueTable EmberAfPriceClientInfo::calorificValueTable

Definition at line [187](#) of file [price-client.h](#).

#### 7.130.2.5 EmberAfPriceClientCo2ValueTable EmberAfPriceClientInfo::co2ValueTable

Definition at line [188](#) of file [price-client.h](#).

#### 7.130.2.6 EmberAfPriceClientConversionFactorTable EmberAfPriceClientInfo::conversionFactorTable

Definition at line [189](#) of file [price-client.h](#).

#### 7.130.2.7 EmberAfPriceClientCppEventTable EmberAfPriceClientInfo::cppEventTable

Definition at line [190](#) of file [price-client.h](#).

### 7.130.2.8 EmberAfPriceClientCreditPaymentTable EmberAfPriceClientInfo::creditPaymentTable

Definition at line 191 of file [price-client.h](#).

### 7.130.2.9 EmberAfPriceClientCurrencyConversionTable EmberAfPriceClientInfo::currencyConversionTable

Definition at line 192 of file [price-client.h](#).

### 7.130.2.10 EmberAfPriceClientTierLabelsTable EmberAfPriceClientInfo::tierLabelsTable

Definition at line 193 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.131 EmberAfPriceClientTierLabels Struct Reference

```
#include <price-client.h>
```

### Data Fields

- `uint32_t issuerTariffId`
- `uint8_t numberOfLabels`
- `uint8_t tierIds [EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_TIERS_PER_TARIFF]`
- `uint8_t tierLabels [EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_TIERS_PER_TARIFF][13]`

### 7.131.1 Detailed Description

Definition at line 120 of file [price-client.h](#).

### 7.131.2 Field Documentation

#### 7.131.2.1 uint32\_t EmberAfPriceClientTierLabels::issuerTariffId

Definition at line 121 of file [price-client.h](#).

#### 7.131.2.2 uint8\_t EmberAfPriceClientTierLabels::numberOfLabels

Definition at line 122 of file [price-client.h](#).

#### 7.131.2.3 uint8\_t EmberAfPriceClientTierLabels::tierIds[EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_MAX\_TIERS\_PER\_TARIFF]

Definition at line 123 of file [price-client.h](#).

**7.131.2.4 uint8\_t EmberAfPriceClientTierLabels::tierLabels[EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_MAX\_TIER\_RS\_PER\_TARIFF][13]**

Definition at line 124 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.132 EmberAfPriceClientTierLabelsTable Struct Reference

```
#include <price-client.h>
```

### Data Fields

- [EmberAfPriceClientCommonInfo commonInfos](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABELS\_TABLE\_SIZE]
- [EmberAfPriceClientTierLabels tierLabels](#) [EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABELS\_TABLE\_SIZE]

### 7.132.1 Detailed Description

Definition at line 176 of file [price-client.h](#).

### 7.132.2 Field Documentation

**7.132.2.1 EmberAfPriceClientCommonInfo EmberAfPriceClientTierLabelsTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABELS\_TABLE\_SIZE]**

Definition at line 177 of file [price-client.h](#).

**7.132.2.2 EmberAfPriceClientTierLabels EmberAfPriceClientTierLabelsTable::tierLabels[EMBER\_AF\_PRICE\_CLUSTER\_CLIENT\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABELS\_TABLE\_SIZE]**

Definition at line 178 of file [price-client.h](#).

The documentation for this struct was generated from the following file:

- [price-client.h](#)

## 7.133 EmberAfPriceCO2Table Struct Reference

```
#include <price-server.h>
```

## Data Fields

- EmberAfPriceCommonInfo commonInfos [EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CO2\_VALUE\_TABLE\_SIZE]
- EmberAfPriceCo2Value co2Values [EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CO2\_VALUE\_TABLE\_SIZE]

### 7.133.1 Detailed Description

Definition at line 248 of file [price-server.h](#).

### 7.133.2 Field Documentation

#### 7.133.2.1 EmberAfPriceCommonInfo EmberAfPriceCO2Table::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CO2\_VALUE\_TABLE\_SIZE]

Definition at line 249 of file [price-server.h](#).

#### 7.133.2.2 EmberAfPriceCo2Value EmberAfPriceCO2Table::co2Values[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CO2\_VALUE\_TABLE\_SIZE]

Definition at line 250 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.134 EmberAfPriceCo2Value Struct Reference

```
#include <price-server.h>
```

## Data Fields

- uint32\_t [providerId](#)
- uint32\_t [co2Value](#)
- uint8\_t [tariffType](#)
- uint8\_t [co2ValueUnit](#)
- uint8\_t [co2ValueTrailingDigit](#)

### 7.134.1 Detailed Description

Definition at line 173 of file [price-server.h](#).

## 7.134.2 Field Documentation

### 7.134.2.1 `uint32_t EmberAfPriceCo2Value::providerId`

Definition at line 174 of file [price-server.h](#).

### 7.134.2.2 `uint32_t EmberAfPriceCo2Value::co2Value`

Definition at line 175 of file [price-server.h](#).

### 7.134.2.3 `uint8_t EmberAfPriceCo2Value::tariffType`

Definition at line 176 of file [price-server.h](#).

### 7.134.2.4 `uint8_t EmberAfPriceCo2Value::co2ValueUnit`

Definition at line 177 of file [price-server.h](#).

### 7.134.2.5 `uint8_t EmberAfPriceCo2Value::co2ValueTrailingDigit`

Definition at line 178 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.135 EmberAfPriceCommonInfo Struct Reference

```
#include <price-common.h>
```

### Data Fields

- `uint32_t startTime`
- `uint32_t durationSec`
- `uint32_t issuerEventId`
- `bool valid`
- `bool actionsPending`

### 7.135.1 Detailed Description

Definition at line 21 of file [price-common.h](#).

## 7.135.2 Field Documentation

### 7.135.2.1 `uint32_t EmberAfPriceCommonInfo::startTime`

Definition at line 22 of file [price-common.h](#).

### 7.135.2.2 `uint32_t EmberAfPriceCommonInfo::durationSec`

Definition at line 28 of file [price-common.h](#).

### 7.135.2.3 `uint32_t EmberAfPriceCommonInfo::issuerEventId`

Definition at line 30 of file [price-common.h](#).

### 7.135.2.4 `bool EmberAfPriceCommonInfo::valid`

Definition at line 31 of file [price-common.h](#).

### 7.135.2.5 `bool EmberAfPriceCommonInfo::actionsPending`

Definition at line 37 of file [price-common.h](#).

The documentation for this struct was generated from the following file:

- [price-common.h](#)

## 7.136 EmberAfPriceConsolidatedBills Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t providerId`
- `uint32_t rawStartTimeUtc`
- `uint32_t billingPeriodDuration`
- `uint32_t consolidatedBill`
- `uint16_t currency`
- `uint8_t billingPeriodDurationType`
- `uint8_t tariffType`
- `uint8_t billTrailingDigit`

### 7.136.1 Detailed Description

Definition at line 133 of file [price-server.h](#).

### 7.136.2 Field Documentation

#### 7.136.2.1 `uint32_t EmberAfPriceConsolidatedBills::providerId`

Definition at line 134 of file [price-server.h](#).

### 7.136.2.2 uint32\_t EmberAfPriceConsolidatedBills::rawStartTimeUtc

Definition at line 135 of file [price-server.h](#).

### 7.136.2.3 uint32\_t EmberAfPriceConsolidatedBills::billingPeriodDuration

Definition at line 136 of file [price-server.h](#).

### 7.136.2.4 uint32\_t EmberAfPriceConsolidatedBills::consolidatedBill

Definition at line 137 of file [price-server.h](#).

### 7.136.2.5 uint16\_t EmberAfPriceConsolidatedBills::currency

Definition at line 138 of file [price-server.h](#).

### 7.136.2.6 uint8\_t EmberAfPriceConsolidatedBills::billingPeriodDurationType

Definition at line 139 of file [price-server.h](#).

### 7.136.2.7 uint8\_t EmberAfPriceConsolidatedBills::tariffType

Definition at line 140 of file [price-server.h](#).

### 7.136.2.8 uint8\_t EmberAfPriceConsolidatedBills::billTrailingDigit

Definition at line 141 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.137 EmberAfPriceConsolidatedBillsTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- [EmberAfPriceCommonInfo commonInfos \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CONSOLIDATED\\_BILL\\_TABLE\\_SIZE\]](#)
- [EmberAfPriceConsolidatedBills consolidatedBills \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CONSOLIDATED\\_BILL\\_TABLE\\_SIZE\]](#)

### 7.137.1 Detailed Description

Definition at line 228 of file [price-server.h](#).

### 7.137.2 Field Documentation

**7.137.2.1 EmberAfPriceCommonInfo** `EmberAfPriceConsolidatedBillsTable::commonInfos[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE]`

Definition at line 229 of file [price-server.h](#).

**7.137.2.2 EmberAfPriceConsolidatedBills** `EmberAfPriceConsolidatedBillsTable::consolidatedBills[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE]`

Definition at line 230 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.138 EmberAfPriceConversionFactor Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t conversionFactor`
- `uint8_t conversionFactorTrailingDigit`

### 7.138.1 Detailed Description

Definition at line 155 of file [price-server.h](#).

### 7.138.2 Field Documentation

**7.138.2.1 uint32\_t** `EmberAfPriceConversionFactor::conversionFactor`

Definition at line 156 of file [price-server.h](#).

**7.138.2.2 uint8\_t** `EmberAfPriceConversionFactor::conversionFactorTrailingDigit`

Definition at line 157 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.139 EmberAfPriceConversionFactorTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `EmberAfPriceCommonInfo commonInfos [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE]`
- `EmberAfPriceConversionFactor priceConversionFactors [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE]`

#### 7.139.1 Detailed Description

Definition at line 238 of file [price-server.h](#).

#### 7.139.2 Field Documentation

**7.139.2.1** `EmberAfPriceCommonInfo EmberAfPriceConversionFactorTable::commonInfos[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE]`

Definition at line 239 of file [price-server.h](#).

**7.139.2.2** `EmberAfPriceConversionFactor EmberAfPriceConversionFactorTable::priceConversionFactors[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE]`

Definition at line 240 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.140 EmberAfPriceCppEvent Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t providerId`
- `uint32_t durationInMinutes`
- `uint8_t tariffType`
- `uint8_t cppPriceTier`
- `uint8_t cppAuth`

### 7.140.1 Detailed Description

Definition at line 125 of file [price-server.h](#).

### 7.140.2 Field Documentation

#### 7.140.2.1 uint32\_t EmberAfPriceCppEvent::providerId

Definition at line 126 of file [price-server.h](#).

#### 7.140.2.2 uint32\_t EmberAfPriceCppEvent::durationInMinutes

Definition at line 127 of file [price-server.h](#).

#### 7.140.2.3 uint8\_t EmberAfPriceCppEvent::tariffType

Definition at line 128 of file [price-server.h](#).

#### 7.140.2.4 uint8\_t EmberAfPriceCppEvent::cppPriceTier

Definition at line 129 of file [price-server.h](#).

#### 7.140.2.5 uint8\_t EmberAfPriceCppEvent::cppAuth

Definition at line 130 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.141 EmberAfPriceCppTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- [EmberAfPriceCommonInfo commonInfos \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]](#)
- [EmberAfPriceCppEvent cppEvent \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]](#)

### 7.141.1 Detailed Description

Definition at line 222 of file [price-server.h](#).

### 7.141.2 Field Documentation

#### 7.141.2.1 EmberAfPriceCommonInfo EmberAfPriceCppTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT]

Definition at line 223 of file [price-server.h](#).

#### 7.141.2.2 EmberAfPriceCppEvent EmberAfPriceCppTable::cppEvent[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT]

Definition at line 224 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.142 EmberAfPriceCreditPayment Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t providerId`
- `uint32_t creditPaymentDueDate`
- `uint32_t creditPaymentAmountOverdue`
- `uint32_t creditPayment`
- `uint32_t creditPaymentDate`
- `uint8_t creditPaymentStatus`
- `uint8_t creditPaymentRef [CREDIT_PAYMENT_REF_STRING_LEN+1]`

### 7.142.1 Detailed Description

Definition at line 145 of file [price-server.h](#).

### 7.142.2 Field Documentation

#### 7.142.2.1 `uint32_t EmberAfPriceCreditPayment::providerId`

Definition at line 146 of file [price-server.h](#).

#### 7.142.2.2 `uint32_t EmberAfPriceCreditPayment::creditPaymentDueDate`

Definition at line 147 of file [price-server.h](#).

#### 7.142.2.3 `uint32_t EmberAfPriceCreditPayment::creditPaymentAmountOverdue`

Definition at line 148 of file [price-server.h](#).

#### 7.142.2.4 `uint32_t EmberAfPriceCreditPayment::creditPayment`

Definition at line 149 of file [price-server.h](#).

#### 7.142.2.5 `uint32_t EmberAfPriceCreditPayment::creditPaymentDate`

Definition at line 150 of file [price-server.h](#).

#### 7.142.2.6 `uint8_t EmberAfPriceCreditPayment::creditPaymentStatus`

Definition at line 151 of file [price-server.h](#).

#### 7.142.2.7 `uint8_t EmberAfPriceCreditPayment::creditPaymentRef[CREDIT_PAYMENT_REF_STRING_LEN+1]`

Definition at line 152 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.143 EmberAfPriceCreditPaymentTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- [EmberAfPriceCommonInfo commonInfos \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CREDIT\\_PAYMENT\\_TABLE\\_SIZE\]](#)
- [EmberAfPriceCreditPayment creditPayment \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CREDIT\\_PAYMENT\\_TABLE\\_SIZE\]](#)

#### 7.143.1 Detailed Description

Definition at line 233 of file [price-server.h](#).

#### 7.143.2 Field Documentation

##### 7.143.2.1 `EmberAfPriceCommonInfo EmberAfPriceCreditPaymentTable::commonInfos[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_CREDIT_PAYMENT_TABLE_SIZE]`

Definition at line 234 of file [price-server.h](#).

### 7.143.2.2 EmberAfPriceCreditPayment EmberAfPriceCreditPaymentTable::creditPayment[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICER\_SERVER\_CREDIT\_PAYMENT\_TABLE\_SIZE]

Definition at line 235 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.144 EmberAfPriceCurrencyConversion Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t providerId`
- `uint16_t oldCurrency`
- `uint16_t newCurrency`
- `uint32_t conversionFactor`
- `uint8_t conversionFactorTrailingDigit`
- `uint32_t currencyChangeControlFlags`

### 7.144.1 Detailed Description

Definition at line 181 of file [price-server.h](#).

### 7.144.2 Field Documentation

#### 7.144.2.1 `uint32_t EmberAfPriceCurrencyConversion::providerId`

Definition at line 182 of file [price-server.h](#).

#### 7.144.2.2 `uint16_t EmberAfPriceCurrencyConversion::oldCurrency`

Definition at line 183 of file [price-server.h](#).

#### 7.144.2.3 `uint16_t EmberAfPriceCurrencyConversion::newCurrency`

Definition at line 184 of file [price-server.h](#).

#### 7.144.2.4 `uint32_t EmberAfPriceCurrencyConversion::conversionFactor`

Definition at line 185 of file [price-server.h](#).

### 7.144.2.5 uint8\_t EmberAfPriceCurrencyConversion::conversionFactorTrailingDigit

Definition at line 186 of file [price-server.h](#).

### 7.144.2.6 uint32\_t EmberAfPriceCurrencyConversion::currencyChangeControlFlags

Definition at line 187 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.145 EmberAfPriceCurrencyConversionTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- [EmberAfPriceCommonInfo commonInfos \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]](#)
- [EmberAfPriceCurrencyConversion currencyConversion \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]](#)

### 7.145.1 Detailed Description

Definition at line 253 of file [price-server.h](#).

### 7.145.2 Field Documentation

#### 7.145.2.1 EmberAfPriceCommonInfo EmberAfPriceCurrencyConversionTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT]

Definition at line 254 of file [price-server.h](#).

#### 7.145.2.2 EmberAfPriceCurrencyConversion EmberAfPriceCurrencyConversionTable::currencyConversion[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT]

Definition at line 255 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.146 EmberAfPriceServerInfo Struct Reference

```
#include <price-server.h>
```

## Data Fields

- [EmberAfPriceBlockPeriodTable](#) blockPeriodTable
- [EmberAfPriceConversionFactorTable](#) conversionFactorTable
- [EmberAfPriceCalorificValueTable](#) calorificValueTable
- [EmberAfPriceCO2Table](#) co2ValueTable
- [EmberAfPriceTierLabelTable](#) tierLabelTable
- [EmberAfPriceBillingPeriodTable](#) billingPeriodTable
- [EmberAfPriceConsolidatedBillsTable](#) consolidatedBillsTable
- [EmberAfPriceCppTable](#) cppTable
- [EmberAfPriceCreditPaymentTable](#) creditPaymentTable
- [EmberAfPriceCurrencyConversionTable](#) currencyConversionTable
- [EmberAfPriceCancelTariffTable](#) cancelTariffTable
- [EmberAfScheduledTariffTable](#) scheduledTariffTable
- [EmberAfScheduledBlockThresholdsTable](#) scheduledBlockThresholdsTable
- [EmberAfScheduledPriceMatrixTable](#) scheduledPriceMatrixTable

### 7.146.1 Detailed Description

Definition at line [340](#) of file [price-server.h](#).

### 7.146.2 Field Documentation

#### 7.146.2.1 EmberAfPriceBlockPeriodTable [EmberAfPriceServerInfo::blockPeriodTable](#)

Definition at line [341](#) of file [price-server.h](#).

#### 7.146.2.2 EmberAfPriceConversionFactorTable [EmberAfPriceServerInfo::conversionFactorTable](#)

Definition at line [342](#) of file [price-server.h](#).

#### 7.146.2.3 EmberAfPriceCalorificValueTable [EmberAfPriceServerInfo::calorificValueTable](#)

Definition at line [343](#) of file [price-server.h](#).

#### 7.146.2.4 EmberAfPriceCO2Table [EmberAfPriceServerInfo::co2ValueTable](#)

Definition at line [344](#) of file [price-server.h](#).

#### 7.146.2.5 EmberAfPriceTierLabelTable [EmberAfPriceServerInfo::tierLabelTable](#)

Definition at line [345](#) of file [price-server.h](#).

#### 7.146.2.6 EmberAfPriceBillingPeriodTable [EmberAfPriceServerInfo::billingPeriodTable](#)

Definition at line [346](#) of file [price-server.h](#).

**7.146.2.7 EmberAfPriceConsolidatedBillsTable EmberAfPriceServerInfo::consolidatedBillsTable**

Definition at line [347](#) of file [price-server.h](#).

**7.146.2.8 EmberAfPriceCppTable EmberAfPriceServerInfo::cppTable**

Definition at line [348](#) of file [price-server.h](#).

**7.146.2.9 EmberAfPriceCreditPaymentTable EmberAfPriceServerInfo::creditPaymentTable**

Definition at line [349](#) of file [price-server.h](#).

**7.146.2.10 EmberAfPriceCurrencyConversionTable EmberAfPriceServerInfo::currencyConversionTable**

Definition at line [350](#) of file [price-server.h](#).

**7.146.2.11 EmberAfPriceCancelTariffTable EmberAfPriceServerInfo::cancelTariffTable**

Definition at line [351](#) of file [price-server.h](#).

**7.146.2.12 EmberAfScheduledTariffTable EmberAfPriceServerInfo::scheduledTariffTable**

Definition at line [352](#) of file [price-server.h](#).

**7.146.2.13 EmberAfScheduledBlockThresholdsTable EmberAfPriceServerInfo::scheduledBlockThresholdsTable**

Definition at line [353](#) of file [price-server.h](#).

**7.146.2.14 EmberAfScheduledPriceMatrixTable EmberAfPriceServerInfo::scheduledPriceMatrixTable**

Definition at line [354](#) of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

**7.147 EmberAfPriceTierLabelTable Struct Reference**

```
#include <price-server.h>
```

**Data Fields**

- [EmberAfPriceTierLabelValue entry \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_TIER\\_LABELS\\_TABLE\\_SIZE\]](#)

### 7.147.1 Detailed Description

Definition at line 201 of file [price-server.h](#).

### 7.147.2 Field Documentation

#### 7.147.2.1 EmberAfPriceTierLabelValue EmberAfPriceTierLabelTable::entry[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TIER\_LABELS\_TABLE\_SIZE]

Definition at line 202 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.148 EmberAfPriceTierLabelValue Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `uint32_t providerId`
- `uint32_t issuerEventId`
- `uint32_t issuerTariffId`
- `uint8_t valid`
- `uint8_t numberOfWorkers`
- `uint8_t tierIds [EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF]`
- `uint8_t tierLabels [EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF][TIER_LABEL_SIZE+1]`

### 7.148.1 Detailed Description

Definition at line 191 of file [price-server.h](#).

### 7.148.2 Field Documentation

#### 7.148.2.1 `uint32_t EmberAfPriceTierLabelValue::providerId`

Definition at line 192 of file [price-server.h](#).

#### 7.148.2.2 `uint32_t EmberAfPriceTierLabelValue::issuerEventId`

Definition at line 193 of file [price-server.h](#).

#### 7.148.2.3 `uint32_t EmberAfPriceTierLabelValue::issuerTariffId`

Definition at line 194 of file [price-server.h](#).

#### 7.148.2.4 `uint8_t EmberAfPriceTierLabelValue::valid`

Definition at line 195 of file [price-server.h](#).

#### 7.148.2.5 `uint8_t EmberAfPriceTierLabelValue::numberOfTiers`

Definition at line 196 of file [price-server.h](#).

#### 7.148.2.6 `uint8_t EmberAfPriceTierLabelValue::tierIds[EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF]`

Definition at line 197 of file [price-server.h](#).

#### 7.148.2.7 `uint8_t EmberAfPriceTierLabelValue::tierLabels[EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF][TIER_LABEL_SIZE+1]`

Definition at line 198 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.149 EmberAfRemoteBindingStruct Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberEUI64 targetEUI64](#)
- [uint8\\_t sourceEndpoint](#)
- [uint8\\_t destEndpoint](#)
- [uint16\\_t clusterId](#)
- [EmberEUI64 destEUI64](#)
- [EmberEUI64 sourceEUI64](#)

### 7.149.1 Detailed Description

Zigbee Internet Client/Server Remote Binding struct.

Definition at line 1788 of file [af-types.h](#).

### 7.149.2 Field Documentation

#### 7.149.2.1 `EmberEUI64 EmberAfRemoteBindingStruct::targetEUI64`

Definition at line 1789 of file [af-types.h](#).

### 7.149.2.2 `uint8_t EmberAfRemoteBindingStruct::sourceEndpoint`

Definition at line 1790 of file [af-types.h](#).

### 7.149.2.3 `uint8_t EmberAfRemoteBindingStruct::destEndpoint`

Definition at line 1791 of file [af-types.h](#).

### 7.149.2.4 `uint16_t EmberAfRemoteBindingStruct::clusterId`

Definition at line 1792 of file [af-types.h](#).

### 7.149.2.5 `EmberEUI64 EmberAfRemoteBindingStruct::destEUI64`

Definition at line 1793 of file [af-types.h](#).

### 7.149.2.6 `EmberEUI64 EmberAfRemoteBindingStruct::sourceEUI64`

Definition at line 1794 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.150 `EmberAfRemoteClusterStruct` Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `EmberAfClusterId clusterId`
- `EmberAfProfileId profileId`
- `uint16_t deviceId`
- `uint8_t endpoint`
- `EmberAfRemoteClusterType type`

### 7.150.1 Detailed Description

Zigbee Internet Client/Server remote cluster struct.

Definition at line 1777 of file [af-types.h](#).

### 7.150.2 Field Documentation

#### 7.150.2.1 `EmberAfClusterId EmberAfRemoteClusterStruct::clusterId`

Definition at line 1778 of file [af-types.h](#).

### 7.150.2.2 EmberAfProfileId EmberAfRemoteClusterStruct::profileId

Definition at line 1779 of file [af-types.h](#).

### 7.150.2.3 uint16\_t EmberAfRemoteClusterStruct::deviceId

Definition at line 1780 of file [af-types.h](#).

### 7.150.2.4 uint8\_t EmberAfRemoteClusterStruct::endpoint

Definition at line 1781 of file [af-types.h](#).

### 7.150.2.5 EmberAfRemoteClusterType EmberAfRemoteClusterStruct::type

Definition at line 1782 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.151 EmberAfRf4ceGdpAttributelidentificationRecord Struct Reference

```
#include <rf4ce-gdp-types.h>
```

### Data Fields

- [EmberAfRf4ceGdpAttributeId attributeId](#)
- [uint16\\_t entryId](#)

### 7.151.1 Detailed Description

RF4CE GDP attribute identification record for Get Attributes and Pull Attributes messages.

Definition at line 135 of file [rf4ce-gdp-types.h](#).

### 7.151.2 Field Documentation

#### 7.151.2.1 EmberAfRf4ceGdpAttributeId EmberAfRf4ceGdpAttributelidentificationRecord::attributeld

Definition at line 136 of file [rf4ce-gdp-types.h](#).

#### 7.151.2.2 uint16\_t EmberAfRf4ceGdpAttributelidentificationRecord::entryId

Definition at line 137 of file [rf4ce-gdp-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-types.h](#)

## 7.152 EmberAfRf4ceGdpAttributeRecord Struct Reference

```
#include <rf4ce-gdp-types.h>
```

### Data Fields

- `EmberAfRf4ceGdpAttributeId attributeId`
- `uint16_t entryId`
- `uint8_t valueLength`
- `const uint8_t * value`

#### 7.152.1 Detailed Description

RF4CE GDP attribute identification record for Set Attributes and Push Attributes messages.

Definition at line 156 of file `rf4ce-gdp-types.h`.

#### 7.152.2 Field Documentation

##### 7.152.2.1 EmberAfRf4ceGdpAttributeId EmberAfRf4ceGdpAttributeRecord::attributeId

Definition at line 157 of file `rf4ce-gdp-types.h`.

##### 7.152.2.2 uint16\_t EmberAfRf4ceGdpAttributeRecord::entryId

Definition at line 158 of file `rf4ce-gdp-types.h`.

##### 7.152.2.3 uint8\_t EmberAfRf4ceGdpAttributeRecord::valueLength

Definition at line 159 of file `rf4ce-gdp-types.h`.

##### 7.152.2.4 const uint8\_t\* EmberAfRf4ceGdpAttributeRecord::value

Definition at line 160 of file `rf4ce-gdp-types.h`.

The documentation for this struct was generated from the following file:

- `rf4ce-gdp-types.h`

## 7.153 EmberAfRf4ceGdpAttributeStatusRecord Struct Reference

```
#include <rf4ce-gdp-types.h>
```

### Data Fields

- `EmberAfRf4ceGdpAttributeId attributeId`
- `uint16_t entryId`

- `EmberAfRf4ceGdpAttributeStatus status`
- `uint8_t valueLength`
- `const uint8_t * value`

### 7.153.1 Detailed Description

RF4CE GDP attribute identification record for Get Attributes Response and Pull Attributes Response messages.

Definition at line 144 of file `rf4ce-gdp-types.h`.

### 7.153.2 Field Documentation

#### 7.153.2.1 `EmberAfRf4ceGdpAttributeId EmberAfRf4ceGdpAttributeStatusRecord::attributedId`

Definition at line 145 of file `rf4ce-gdp-types.h`.

#### 7.153.2.2 `uint16_t EmberAfRf4ceGdpAttributeStatusRecord::entryId`

Definition at line 146 of file `rf4ce-gdp-types.h`.

#### 7.153.2.3 `EmberAfRf4ceGdpAttributeStatus EmberAfRf4ceGdpAttributeStatusRecord::status`

Definition at line 147 of file `rf4ce-gdp-types.h`.

#### 7.153.2.4 `uint8_t EmberAfRf4ceGdpAttributeStatusRecord::valueLength`

Definition at line 148 of file `rf4ce-gdp-types.h`.

#### 7.153.2.5 `const uint8_t* EmberAfRf4ceGdpAttributeStatusRecord::value`

Definition at line 149 of file `rf4ce-gdp-types.h`.

The documentation for this struct was generated from the following file:

- `rf4ce-gdp-types.h`

## 7.154 `EmberAfRf4ceGdpRand` Struct Reference

```
#include <rf4ce-gdp-types.h>
```

### Data Fields

- `uint8_t contents [EMBER_AF_RF4CE_GDP_RAND_SIZE]`

### 7.154.1 Detailed Description

This data structure contains the GDP random byte string that is passed into various other functions.

Definition at line 265 of file [rf4ce-gdp-types.h](#).

### 7.154.2 Field Documentation

#### 7.154.2.1 `uint8_t EmberAfRf4ceGdpRand::contents[EMBER_AF_RF4CE_GDP_RAND_SIZE]`

This is the random byte string.

Definition at line 267 of file [rf4ce-gdp-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-types.h](#)

## 7.155 EmberAfRf4ceGdpTag Struct Reference

```
#include <rf4ce-gdp-types.h>
```

### Data Fields

- `uint8_t contents [EMBER_AF_RF4CE_GDP_TAG_SIZE]`

### 7.155.1 Detailed Description

This data structure contains the GDP tag value that is passed into various other functions.

Definition at line 279 of file [rf4ce-gdp-types.h](#).

### 7.155.2 Field Documentation

#### 7.155.2.1 `uint8_t EmberAfRf4ceGdpTag::contents[EMBER_AF_RF4CE_GDP_TAG_SIZE]`

This is the tag value.

Definition at line 281 of file [rf4ce-gdp-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-gdp-types.h](#)

## 7.156 EmberAfRf4ceMsolrRfDatabaseEntry Struct Reference

```
#include <rf4ce-mso-types.h>
```

## Data Fields

- [EmberAfRf4ceMsoIrRfDatabaseFlags](#) flags
- [EmberAfRf4ceMsoIrRfDatabaseRfDescriptor](#) rfPressedDescriptor
- [EmberAfRf4ceMsoIrRfDatabaseRfDescriptor](#) rfRepeatedDescriptor
- [EmberAfRf4ceMsoIrRfDatabaseRfDescriptor](#) rfReleasedDescriptor
- [EmberAfRf4ceMsoIrRfDatabaseIrDescriptor](#) irDescriptor

### 7.156.1 Detailed Description

RF4CE MSO IR-RF database entry.

Definition at line [472](#) of file [rf4ce-mso-types.h](#).

### 7.156.2 Field Documentation

#### 7.156.2.1 EmberAfRf4ceMsoIrRfDatabaseFlags EmberAfRf4ceMsolrRfDatabaseEntry::flags

Definition at line [473](#) of file [rf4ce-mso-types.h](#).

#### 7.156.2.2 EmberAfRf4ceMsoIrRfDatabaseRfDescriptor EmberAfRf4ceMsolrRfDatabaseEntry::rf-PressedDescriptor

Definition at line [474](#) of file [rf4ce-mso-types.h](#).

#### 7.156.2.3 EmberAfRf4ceMsoIrRfDatabaseRfDescriptor EmberAfRf4ceMsolrRfDatabaseEntry::rf-RepeatedDescriptor

Definition at line [475](#) of file [rf4ce-mso-types.h](#).

#### 7.156.2.4 EmberAfRf4ceMsoIrRfDatabaseRfDescriptor EmberAfRf4ceMsolrRfDatabaseEntry::rf-ReleasedDescriptor

Definition at line [476](#) of file [rf4ce-mso-types.h](#).

#### 7.156.2.5 EmberAfRf4ceMsoIrRfDatabaseIrDescriptor EmberAfRf4ceMsolrRfDatabaseEntry::ir-Descriptor

Definition at line [477](#) of file [rf4ce-mso-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-types.h](#)

## 7.157 EmberAfRf4ceMsolrRfDatabaseIrDescriptor Struct Reference

```
#include <rf4ce-mso-types.h>
```

## Data Fields

- [EmberAfRf4ceMsoIrRfDatabaseIrConfig](#) irConfig
- [uint8\\_t](#) irCodeLength
- [const uint8\\_t \\*](#) irCode

### 7.157.1 Detailed Description

RF4CE MSO IR-RF database IR descriptor.

Definition at line [463](#) of file [rf4ce-mso-types.h](#).

### 7.157.2 Field Documentation

#### 7.157.2.1 EmberAfRf4ceMsoIrRfDatabaseIrConfig EmberAfRf4ceMsoIrRfDatabaseIrDescriptor::ir-Config

Definition at line [464](#) of file [rf4ce-mso-types.h](#).

#### 7.157.2.2 uint8\_t EmberAfRf4ceMsoIrRfDatabaseIrDescriptor::irCodeLength

Definition at line [465](#) of file [rf4ce-mso-types.h](#).

#### 7.157.2.3 const uint8\_t\* EmberAfRf4ceMsoIrRfDatabaseIrDescriptor::irCode

Definition at line [466](#) of file [rf4ce-mso-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-types.h](#)

## 7.158 EmberAfRf4ceMsoIrRfDatabaseRfDescriptor Struct Reference

```
#include <rf4ce-mso-types.h>
```

## Data Fields

- [EmberAfRf4ceMsoIrRfDatabaseRfConfig](#) rfConfig
- [EmberRf4ceTxOption](#) txOptions
- [uint8\\_t](#) payloadLength
- [const uint8\\_t \\*](#) payload

### 7.158.1 Detailed Description

RF4CE MSO IR-RF database RF descriptor.

Definition at line [423](#) of file [rf4ce-mso-types.h](#).

## 7.158.2 Field Documentation

### 7.158.2.1 EmberAfRf4ceMsoIrRfDatabaseRfConfig EmberAfRf4ceMsolrRfDatabaseRfDescriptor::rfConfig

Definition at line 424 of file [rf4ce-mso-types.h](#).

### 7.158.2.2 EmberRf4ceTxOption EmberAfRf4ceMsolrRfDatabaseRfDescriptor::txOptions

Definition at line 425 of file [rf4ce-mso-types.h](#).

### 7.158.2.3 uint8\_t EmberAfRf4ceMsolrRfDatabaseRfDescriptor::payloadLength

Definition at line 426 of file [rf4ce-mso-types.h](#).

### 7.158.2.4 const uint8\_t\* EmberAfRf4ceMsolrRfDatabaseRfDescriptor::payload

Definition at line 427 of file [rf4ce-mso-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-types.h](#)

## 7.159 EmberAfRf4ceMsoUserControlRecord Struct Reference

```
#include <rf4ce-mso-types.h>
```

### Data Fields

- `uint8_t pairingIndex`
- `EmberAfRf4ceMsoCommandCode commandCode`
- `EmberAfRf4ceMsoKeyCode rcCommandCode`
- `const uint8_t * rcCommandPayload`
- `uint8_t rcCommandPayloadLength`
- `uint16_t timeMs`

### 7.159.1 Detailed Description

This data structure contains the MSO user control record.

Definition at line 320 of file [rf4ce-mso-types.h](#).

## 7.159.2 Field Documentation

### 7.159.2.1 uint8\_t EmberAfRf4ceMsoUserControlRecord::pairingIndex

Definition at line 321 of file [rf4ce-mso-types.h](#).

### 7.159.2.2 EmberAfRf4ceMsoCommandCode EmberAfRf4ceMsoUserControlRecord::commandCode

Definition at line 322 of file [rf4ce-mso-types.h](#).

### 7.159.2.3 EmberAfRf4ceMsoKeyCode EmberAfRf4ceMsoUserControlRecord::rcCommandCode

Definition at line 323 of file [rf4ce-mso-types.h](#).

### 7.159.2.4 const uint8\_t\* EmberAfRf4ceMsoUserControlRecord::rcCommandPayload

Definition at line 324 of file [rf4ce-mso-types.h](#).

### 7.159.2.5 uint8\_t EmberAfRf4ceMsoUserControlRecord::rcCommandPayloadLength

Definition at line 325 of file [rf4ce-mso-types.h](#).

### 7.159.2.6 uint16\_t EmberAfRf4ceMsoUserControlRecord::timeMs

Definition at line 326 of file [rf4ce-mso-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-mso-types.h](#)

## 7.160 EmberAfRf4ceZrcActionMapping Struct Reference

```
#include <rf4ce-zrc20-types.h>
```

### Data Fields

- `uint8_t mappingFlags`
- `uint8_t rfConfig`
- `uint8_t rf4ceTxOptions`
- `uint8_t actionDataLength`
- `uint8_t * actionData`
- `uint8_t irConfig`
- `uint16_t irVendorId`
- `uint8_t irCodeLength`
- `uint8_t * irCode`

### 7.160.1 Detailed Description

RF4CE ZRC Action Mapping.

Definition at line 403 of file [rf4ce-zrc20-types.h](#).

## 7.160.2 Field Documentation

### 7.160.2.1 `uint8_t EmberAfRf4ceZrcActionMapping::mappingFlags`

Definition at line 404 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.2 `uint8_t EmberAfRf4ceZrcActionMapping::rfConfig`

Definition at line 406 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.3 `uint8_t EmberAfRf4ceZrcActionMapping::rf4ceTxOptions`

Definition at line 407 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.4 `uint8_t EmberAfRf4ceZrcActionMapping::actionDataLength`

Definition at line 408 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.5 `uint8_t* EmberAfRf4ceZrcActionMapping::actionData`

Definition at line 409 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.6 `uint8_t EmberAfRf4ceZrcActionMapping::irConfig`

Definition at line 411 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.7 `uint16_t EmberAfRf4ceZrcActionMapping::irVendorId`

Definition at line 412 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.8 `uint8_t EmberAfRf4ceZrcActionMapping::irCodeLength`

Definition at line 413 of file [rf4ce-zrc20-types.h](#).

### 7.160.2.9 `uint8_t* EmberAfRf4ceZrcActionMapping::irCode`

Definition at line 414 of file [rf4ce-zrc20-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-types.h](#)

## 7.161 EmberAfRf4ceZrcActionRecord Struct Reference

```
#include <rf4ce-zrc20-types.h>
```

## Data Fields

- `uint8_t pairingIndex`
- `EmberAfRf4ceZrcActionType actionType`
- `EmberAfRf4ceZrcModifierBit modifierBits`
- `uint8_t actionPayloadLength`
- `EmberAfRf4ceZrcActionBank actionBank`
- `EmberAfRf4ceZrcActionCode actionCode`
- `uint16_t actionVendorId`
- `const uint8_t * actionPayload`
- `uint16_t timeMs`

### 7.161.1 Detailed Description

This data structure contains the ZRC action record.

Definition at line 353 of file [rf4ce-zrc20-types.h](#).

### 7.161.2 Field Documentation

#### 7.161.2.1 `uint8_t EmberAfRf4ceZrcActionRecord::pairingIndex`

Definition at line 354 of file [rf4ce-zrc20-types.h](#).

#### 7.161.2.2 `EmberAfRf4ceZrcActionType EmberAfRf4ceZrcActionRecord::actionType`

Definition at line 355 of file [rf4ce-zrc20-types.h](#).

#### 7.161.2.3 `EmberAfRf4ceZrcModifierBit EmberAfRf4ceZrcActionRecord::modifierBits`

Definition at line 356 of file [rf4ce-zrc20-types.h](#).

#### 7.161.2.4 `uint8_t EmberAfRf4ceZrcActionRecord::actionPayloadLength`

Definition at line 357 of file [rf4ce-zrc20-types.h](#).

#### 7.161.2.5 `EmberAfRf4ceZrcActionBank EmberAfRf4ceZrcActionRecord::actionBank`

Definition at line 358 of file [rf4ce-zrc20-types.h](#).

#### 7.161.2.6 `EmberAfRf4ceZrcActionCode EmberAfRf4ceZrcActionRecord::actionCode`

Definition at line 359 of file [rf4ce-zrc20-types.h](#).

#### 7.161.2.7 `uint16_t EmberAfRf4ceZrcActionRecord::actionVendorId`

Definition at line 360 of file [rf4ce-zrc20-types.h](#).

### 7.161.2.8 const uint8\_t\* EmberAfRf4ceZrcActionRecord::actionPayload

Definition at line 361 of file [rf4ce-zrc20-types.h](#).

### 7.161.2.9 uint16\_t EmberAfRf4ceZrcActionRecord::timeMs

Definition at line 362 of file [rf4ce-zrc20-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-types.h](#)

## 7.162 EmberAfRf4ceZrcCommandsSupported Struct Reference

```
#include <rf4ce-zrc11-types.h>
```

### Data Fields

- `uint8_t contents [EMBER_AF_RF4CE_ZRC_COMMANDS_SUPPORTED_SIZE]`

### 7.162.1 Detailed Description

This data structure contains the ZRC 1.x command discovery data.

Definition at line 133 of file [rf4ce-zrc11-types.h](#).

### 7.162.2 Field Documentation

#### 7.162.2.1 uint8\_t EmberAfRf4ceZrcCommandsSupported::contents

This is the command discovery data.

Definition at line 135 of file [rf4ce-zrc11-types.h](#).

The documentation for this struct was generated from the following files:

- [rf4ce-zrc11-types.h](#)
- [rf4ce-zrc20-types.h](#)

## 7.163 EmberAfRf4ceZrcHomeAutomationAttribute Struct Reference

```
#include <rf4ce-zrc20-types.h>
```

### Data Fields

- `uint8_t * contents`
- `uint8_t contentsLength`
- `uint8_t instanceId`
- `uint8_t attributeId`

### 7.163.1 Detailed Description

RF4CE ZRC Home Automation attribute.

Definition at line 427 of file [rf4ce-zrc20-types.h](#).

### 7.163.2 Field Documentation

#### 7.163.2.1 `uint8_t* EmberAfRf4ceZrcHomeAutomationAttribute::contents`

Definition at line 428 of file [rf4ce-zrc20-types.h](#).

#### 7.163.2.2 `uint8_t EmberAfRf4ceZrcHomeAutomationAttribute::contentsLength`

Definition at line 429 of file [rf4ce-zrc20-types.h](#).

#### 7.163.2.3 `uint8_t EmberAfRf4ceZrcHomeAutomationAttribute::instanceId`

Definition at line 430 of file [rf4ce-zrc20-types.h](#).

#### 7.163.2.4 `uint8_t EmberAfRf4ceZrcHomeAutomationAttribute::attributeId`

Definition at line 431 of file [rf4ce-zrc20-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-types.h](#)

## 7.164 EmberAfRf4ceZrcHomeAutomationSupported Struct Reference

```
#include <rf4ce-zrc20-types.h>
```

### Data Fields

- `uint8_t contents [32]`

### 7.164.1 Detailed Description

RF4CE ZRC Home Automation supported.

Definition at line 420 of file [rf4ce-zrc20-types.h](#).

### 7.164.2 Field Documentation

#### 7.164.2.1 `uint8_t EmberAfRf4ceZrcHomeAutomationSupported::contents[32]`

Definition at line 421 of file [rf4ce-zrc20-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-types.h](#)

## 7.165 EmberAfRf4ceZrcMappableAction Struct Reference

```
#include <rf4ce-zrc20-types.h>
```

### Data Fields

- [EmberAfRf4ceDeviceType actionDeviceType](#)
- [EmberAfRf4ceZrcActionBank actionBank](#)
- [EmberAfRf4ceZrcActionCode actionCode](#)

### 7.165.1 Detailed Description

RF4CE ZRC Mappable Action.

Definition at line [368](#) of file [rf4ce-zrc20-types.h](#).

### 7.165.2 Field Documentation

#### 7.165.2.1 EmberAfRf4ceDeviceType EmberAfRf4ceZrcMappableAction::actionDeviceType

Definition at line [370](#) of file [rf4ce-zrc20-types.h](#).

#### 7.165.2.2 EmberAfRf4ceZrcActionBank EmberAfRf4ceZrcMappableAction::actionBank

Definition at line [371](#) of file [rf4ce-zrc20-types.h](#).

#### 7.165.2.3 EmberAfRf4ceZrcActionCode EmberAfRf4ceZrcMappableAction::actionCode

Definition at line [372](#) of file [rf4ce-zrc20-types.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-types.h](#)

## 7.166 EmberAfRf4ceZrcUserControlRecord Struct Reference

```
#include <rf4ce-zrc11-types.h>
```

### Data Fields

- [uint8\\_t pairingIndex](#)
- [EmberAfRf4ceZrcCommandCode commandCode](#)
- [EmberAfRf4ceUserControlCode rcCommandCode](#)
- [const uint8\\_t \\* rcCommandPayload](#)

- `uint8_t rcCommandPayloadLength`
- `uint16_t timeMs`

### 7.166.1 Detailed Description

This data structure contains the ZRC 1.x user control record.

Definition at line 116 of file `rf4ce-zrc11-types.h`.

### 7.166.2 Field Documentation

#### 7.166.2.1 `uint8_t EmberAfRf4ceZrcUserControlRecord::pairingIndex`

Definition at line 117 of file `rf4ce-zrc11-types.h`.

#### 7.166.2.2 `EmberAfRf4ceZrcCommandCode EmberAfRf4ceZrcUserControlRecord::commandCode`

Definition at line 118 of file `rf4ce-zrc11-types.h`.

#### 7.166.2.3 `EmberAfRf4ceUserControlCode EmberAfRf4ceZrcUserControlRecord::rcCommandCode`

Definition at line 119 of file `rf4ce-zrc11-types.h`.

#### 7.166.2.4 `const uint8_t* EmberAfRf4ceZrcUserControlRecord::rcCommandPayload`

Definition at line 120 of file `rf4ce-zrc11-types.h`.

#### 7.166.2.5 `uint8_t EmberAfRf4ceZrcUserControlRecord::rcCommandPayloadLength`

Definition at line 121 of file `rf4ce-zrc11-types.h`.

#### 7.166.2.6 `uint16_t EmberAfRf4ceZrcUserControlRecord::timeMs`

Definition at line 122 of file `rf4ce-zrc11-types.h`.

The documentation for this struct was generated from the following file:

- `rf4ce-zrc11-types.h`

## 7.167 EmberAfSceneTableEntry Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint8_t endpoint`
- `uint16_t groupId`

- `uint8_t sceneId`
- `uint16_t transitionTime`
- `uint8_t transitionTime100ms`

### 7.167.1 Detailed Description

A structure used to store scene table entries in RAM or in tokens, depending on a plugin setting. If endpoint field is `EMBER_AF_SCENE_TABLE_UNUSED_ENDPOINT_ID`, the entry is unused.

Definition at line 880 of file `af-types.h`.

### 7.167.2 Field Documentation

#### 7.167.2.1 `uint8_t EmberAfSceneTableEntry::endpoint`

Definition at line 881 of file `af-types.h`.

#### 7.167.2.2 `uint16_t EmberAfSceneTableEntry::groupId`

Definition at line 882 of file `af-types.h`.

#### 7.167.2.3 `uint8_t EmberAfSceneTableEntry::sceneId`

Definition at line 883 of file `af-types.h`.

#### 7.167.2.4 `uint16_t EmberAfSceneTableEntry::transitionTime`

Definition at line 887 of file `af-types.h`.

#### 7.167.2.5 `uint8_t EmberAfSceneTableEntry::transitionTime100ms`

Definition at line 888 of file `af-types.h`.

The documentation for this struct was generated from the following file:

- `af-types.h`

## 7.168 EmberAfScheduledBlockThresholds Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `union {`
  - `emAfPriceBlockThreshold blockAndTier [ZCL_PRICE_CLUSTER_MAX_TOU_BLOCK_TIERS][ZCL_PRICE_CLUS`
  - `emAfPriceBlockThreshold block [ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS-1]``}` `thresholds`

- `uint32_t providerId`
- `uint32_t issuerTariffId`
- `uint8_t status`

### 7.168.1 Detailed Description

Definition at line 284 of file [price-server.h](#).

### 7.168.2 Field Documentation

**7.168.2.1 `emAfPriceBlockThreshold EmberAfScheduledBlockThresholds::blockAndTier[ZCL_PRICE_CLUSTER_MAX_TOU_BLOCK_TIERS][ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS-1]`**

Definition at line 286 of file [price-server.h](#).

**7.168.2.2 `emAfPriceBlockThreshold EmberAfScheduledBlockThresholds::block[ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS-1]`**

Definition at line 287 of file [price-server.h](#).

**7.168.2.3 `union { ... } EmberAfScheduledBlockThresholds::thresholds`**

**7.168.2.4 `uint32_t EmberAfScheduledBlockThresholds::providerId`**

Definition at line 289 of file [price-server.h](#).

**7.168.2.5 `uint32_t EmberAfScheduledBlockThresholds::issuerTariffId`**

Definition at line 290 of file [price-server.h](#).

**7.168.2.6 `uint8_t EmberAfScheduledBlockThresholds::status`**

Definition at line 291 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.169 EmberAfScheduledBlockThresholdsTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `EmberAfPriceCommonInfo commonInfos [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE]`

- EmberAfScheduledBlockThresholds scheduledBlockThresholds [EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TARIFF\_TABLE\_SIZE]

### 7.169.1 Detailed Description

Definition at line 294 of file [price-server.h](#).

### 7.169.2 Field Documentation

- 7.169.2.1 EmberAfPriceCommonInfo EmberAfScheduledBlockThresholdsTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TARIFF\_TABLE\_SIZE]

Definition at line 295 of file [price-server.h](#).

- 7.169.2.2 EmberAfScheduledBlockThresholds EmberAfScheduledBlockThresholdsTable::scheduledBlockThresholds[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TARIFF\_TABLE\_SIZE]

Definition at line 296 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.170 EmberAfScheduledPrice Struct Reference

```
#include <mn-price-passthrough.h>
```

### Data Fields

- uint32\_t providerId
- uint8\_t rateLabel [ZCL\_PRICE\_CLUSTER\_MAXIMUM\_RATE\_LABEL\_LENGTH+1]
- uint32\_t issuerEventID
- uint8\_t unitOfMeasure
- uint16\_t currency
- uint8\_t priceTrailingDigitAndTier
- uint8\_t numberOfPriceTiersAndTier
- uint32\_t startTime
- uint16\_t duration
- uint32\_t price
- uint8\_t priceRatio
- uint32\_t generationPrice
- uint8\_t generationPriceRatio
- uint32\_t alternateCostDelivered
- uint8\_t alternateCostUnit
- uint8\_t alternateCostTrailingDigit
- uint8\_t numberOfBlockThresholds
- uint8\_t priceControl

### 7.170.1 Detailed Description

The price and metadata used by the MnPricePassthrough plugin.

Definition at line 20 of file [mn-price-passthrough.h](#).

### 7.170.2 Field Documentation

#### 7.170.2.1 `uint32_t EmberAfScheduledPrice::providerId`

Definition at line 21 of file [mn-price-passthrough.h](#).

#### 7.170.2.2 `uint8_t EmberAfScheduledPrice::rateLabel`

Definition at line 22 of file [mn-price-passthrough.h](#).

#### 7.170.2.3 `uint32_t EmberAfScheduledPrice::issuerEventID`

Definition at line 23 of file [mn-price-passthrough.h](#).

#### 7.170.2.4 `uint8_t EmberAfScheduledPrice::unitOfMeasure`

Definition at line 24 of file [mn-price-passthrough.h](#).

#### 7.170.2.5 `uint16_t EmberAfScheduledPrice::currency`

Definition at line 25 of file [mn-price-passthrough.h](#).

#### 7.170.2.6 `uint8_t EmberAfScheduledPrice::priceTrailingDigitAndTier`

Definition at line 26 of file [mn-price-passthrough.h](#).

#### 7.170.2.7 `uint8_t EmberAfScheduledPrice::numberOfPriceTiersAndTier`

Definition at line 27 of file [mn-price-passthrough.h](#).

#### 7.170.2.8 `uint32_t EmberAfScheduledPrice::startTime`

Definition at line 28 of file [mn-price-passthrough.h](#).

#### 7.170.2.9 `uint16_t EmberAfScheduledPrice::duration`

Definition at line 29 of file [mn-price-passthrough.h](#).

#### 7.170.2.10 `uint32_t EmberAfScheduledPrice::price`

Definition at line 30 of file [mn-price-passthrough.h](#).

### 7.170.2.11 `uint8_t EmberAfScheduledPrice::priceRatio`

Definition at line 31 of file [mn-price-passthrough.h](#).

### 7.170.2.12 `uint32_t EmberAfScheduledPrice::generationPrice`

Definition at line 32 of file [mn-price-passthrough.h](#).

### 7.170.2.13 `uint8_t EmberAfScheduledPrice::generationPriceRatio`

Definition at line 33 of file [mn-price-passthrough.h](#).

### 7.170.2.14 `uint32_t EmberAfScheduledPrice::alternateCostDelivered`

Definition at line 34 of file [mn-price-passthrough.h](#).

### 7.170.2.15 `uint8_t EmberAfScheduledPrice::alternateCostUnit`

Definition at line 35 of file [mn-price-passthrough.h](#).

### 7.170.2.16 `uint8_t EmberAfScheduledPrice::alternateCostTrailingDigit`

Definition at line 36 of file [mn-price-passthrough.h](#).

### 7.170.2.17 `uint8_t EmberAfScheduledPrice::numberOfBlockThresholds`

Definition at line 37 of file [mn-price-passthrough.h](#).

### 7.170.2.18 `uint8_t EmberAfScheduledPrice::priceControl`

Definition at line 38 of file [mn-price-passthrough.h](#).

The documentation for this struct was generated from the following files:

- [mn-price-passthrough.h](#)
- [price-server.h](#)

## 7.171 EmberAfScheduledPriceMatrix Struct Reference

```
#include <price-server.h>
```

### Data Fields

- union {
 uint32\_t [blockAndTier](#) [[ZCL\\_PRICE\\_CLUSTER\\_MAX\\_TOU\\_BLOCK\\_TIERS](#)][[ZCL\\_PRICE\\_CLUSTER\\_MAX\\_TOU\\_BLOCK\\_TIERS](#)];
 uint32\_t [tier](#) [[ZCL\\_PRICE\\_CLUSTER\\_MAX\\_TOU\\_TIERS](#)];
 }

```

    } matrix

    • uint32_t providerId
    • uint32_t issuerTariffId
    • uint8_t status

```

### 7.171.1 Detailed Description

Definition at line 324 of file [price-server.h](#).

### 7.171.2 Field Documentation

**7.171.2.1 uint32\_t EmberAfScheduledPriceMatrix::blockAndTier[ZCL\_PRICE\_CLUSTER\_MAX\_TOU\_BLOCK\_TIERS][ZCL\_PRICE\_CLUSTER\_MAX\_TOU\_BLOCKS]**

Definition at line 326 of file [price-server.h](#).

**7.171.2.2 uint32\_t EmberAfScheduledPriceMatrix::tier[ZCL\_PRICE\_CLUSTER\_MAX\_TOU\_TIERS]**

Definition at line 327 of file [price-server.h](#).

**7.171.2.3 union { ... } EmberAfScheduledPriceMatrix::matrix**

**7.171.2.4 uint32\_t EmberAfScheduledPriceMatrix::providerId**

Definition at line 329 of file [price-server.h](#).

**7.171.2.5 uint32\_t EmberAfScheduledPriceMatrix::issuerTariffId**

Definition at line 330 of file [price-server.h](#).

**7.171.2.6 uint8\_t EmberAfScheduledPriceMatrix::status**

Definition at line 331 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.172 EmberAfScheduledPriceMatrixTable Struct Reference

```
#include <price-server.h>
```

### Data Fields

- [EmberAfPriceCommonInfo commonInfos \[EMBER\\_AF\\_PRICE\\_CLUSTER\\_SERVER\\_ENDPOINT\\_COUNT\]\[EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_TARIFF\\_TABLE\\_SIZE\]](#)

- EmberAfScheduledPriceMatrix scheduledPriceMatrix [EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TARIFF\_TABLE\_SIZE]

### 7.172.1 Detailed Description

Definition at line 334 of file [price-server.h](#).

### 7.172.2 Field Documentation

- 7.172.2.1 EmberAfPriceCommonInfo EmberAfScheduledPriceMatrixTable::commonInfos[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TARIFF\_TABLE\_SIZE]

Definition at line 335 of file [price-server.h](#).

- 7.172.2.2 EmberAfScheduledPriceMatrix EmberAfScheduledPriceMatrixTable::scheduledPriceMatrix[EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT][EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_TARIFF\_TABLE\_SIZE]

Definition at line 336 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.173 EmberAfScheduledTariff Struct Reference

```
#include <price-server.h>
```

### Data Fields

- uint32\_t providerId
- uint32\_t issuerTariffId
- uint8\_t status
- uint8\_t tariffTypeChargingScheme
- uint8\_t tariffLabel [ZCL\_PRICE\_CLUSTER\_MAXIMUM\_RATE\_LABEL\_LENGTH+1]
- uint8\_t numberofPriceTiersInUse
- uint8\_t numberofBlockThresholdsInUse
- uint8\_t tierBlockMode
- uint8\_t unitOfMeasure
- uint16\_t currency
- uint8\_t priceTrailingDigit
- uint32\_t standingCharge
- uint32\_t blockThresholdMultiplier
- uint32\_t blockThresholdDivisor

### 7.173.1 Detailed Description

Definition at line 299 of file [price-server.h](#).

### 7.173.2 Field Documentation

#### 7.173.2.1 `uint32_t EmberAfScheduledTariff::providerId`

Definition at line 300 of file [price-server.h](#).

#### 7.173.2.2 `uint32_t EmberAfScheduledTariff::issuerTariffId`

Definition at line 301 of file [price-server.h](#).

#### 7.173.2.3 `uint8_t EmberAfScheduledTariff::status`

Definition at line 302 of file [price-server.h](#).

#### 7.173.2.4 `uint8_t EmberAfScheduledTariff::tariffTypeChargingScheme`

Definition at line 303 of file [price-server.h](#).

#### 7.173.2.5 `uint8_t EmberAfScheduledTariff::tariffLabel[ZCL_PRICE_CLUSTER_MAXIMUM_RATE_ - LABEL_LENGTH+1]`

Definition at line 306 of file [price-server.h](#).

#### 7.173.2.6 `uint8_t EmberAfScheduledTariff::numberOfPriceTiersInUse`

Definition at line 307 of file [price-server.h](#).

#### 7.173.2.7 `uint8_t EmberAfScheduledTariff::numberOfBlockThresholdsInUse`

Definition at line 308 of file [price-server.h](#).

#### 7.173.2.8 `uint8_t EmberAfScheduledTariff::tierBlockMode`

Definition at line 309 of file [price-server.h](#).

#### 7.173.2.9 `uint8_t EmberAfScheduledTariff::unitOfMeasure`

Definition at line 310 of file [price-server.h](#).

#### 7.173.2.10 `uint16_t EmberAfScheduledTariff::currency`

Definition at line 311 of file [price-server.h](#).

### 7.173.2.11 `uint8_t EmberAfScheduledTariff::priceTrailingDigit`

Definition at line 312 of file [price-server.h](#).

### 7.173.2.12 `uint32_t EmberAfScheduledTariff::standingCharge`

Definition at line 313 of file [price-server.h](#).

### 7.173.2.13 `uint32_t EmberAfScheduledTariff::blockThresholdMultiplier`

Definition at line 314 of file [price-server.h](#).

### 7.173.2.14 `uint32_t EmberAfScheduledTariff::blockThresholdDivisor`

Definition at line 315 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.174 `EmberAfScheduledTariffTable` Struct Reference

```
#include <price-server.h>
```

### Data Fields

- `EmberAfPriceCommonInfo commonInfos [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE]`
- `EmberAfScheduledTariff scheduledTariffs [EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE]`

### 7.174.1 Detailed Description

Definition at line 319 of file [price-server.h](#).

### 7.174.2 Field Documentation

#### 7.174.2.1 `EmberAfPriceCommonInfo EmberAfScheduledTariffTable::commonInfos[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE]`

Definition at line 320 of file [price-server.h](#).

#### 7.174.2.2 `EmberAfScheduledTariff EmberAfScheduledTariffTable::scheduledTariffs[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE]`

Definition at line 321 of file [price-server.h](#).

The documentation for this struct was generated from the following file:

- [price-server.h](#)

## 7.175 EmberAfSecurityProfileData Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfSecurityProfile securityProfile](#)
- [uint16\\_t tcBitmask](#)
- [EmberExtendedSecurityBitmask tcExtendedBitmask](#)
- [uint16\\_t nodeBitmask](#)
- [EmberExtendedSecurityBitmask nodeExtendedBitmask](#)
- [EmberAfLinkKeyRequestPolicy tcLinkKeyRequestPolicy](#)
- [EmberAfLinkKeyRequestPolicy appLinkKeyRequestPolicy](#)
- [EmberKeyData preconfiguredKey](#)

### 7.175.1 Detailed Description

Definition at line [462](#) of file [af-types.h](#).

### 7.175.2 Field Documentation

#### 7.175.2.1 EmberAfSecurityProfile EmberAfSecurityProfileData::securityProfile

Definition at line [463](#) of file [af-types.h](#).

#### 7.175.2.2 uint16\_t EmberAfSecurityProfileData::tcBitmask

Definition at line [464](#) of file [af-types.h](#).

#### 7.175.2.3 EmberExtendedSecurityBitmask EmberAfSecurityProfileData::tcExtendedBitmask

Definition at line [465](#) of file [af-types.h](#).

#### 7.175.2.4 uint16\_t EmberAfSecurityProfileData::nodeBitmask

Definition at line [466](#) of file [af-types.h](#).

#### 7.175.2.5 EmberExtendedSecurityBitmask EmberAfSecurityProfileData::nodeExtendedBitmask

Definition at line [467](#) of file [af-types.h](#).

### 7.175.2.6 EmberAfLinkKeyRequestPolicy EmberAfSecurityProfileData::tcLinkKeyRequestPolicy

Definition at line 468 of file [af-types.h](#).

### 7.175.2.7 EmberAfLinkKeyRequestPolicy EmberAfSecurityProfileData::appLinkKeyRequestPolicy

Definition at line 469 of file [af-types.h](#).

### 7.175.2.8 EmberKeyData EmberAfSecurityProfileData::preconfiguredKey

Definition at line 470 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.176 EmberAfServiceDiscoveryResult Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberAfServiceDiscoveryStatus status](#)
- [uint16\\_t zdoRequestClusterId](#)
- [EmberNodeId matchAddress](#)
- [const void \\* responseData](#)

### 7.176.1 Detailed Description

A structure containing general information about the service discovery.

Definition at line 616 of file [af-types.h](#).

### 7.176.2 Field Documentation

#### 7.176.2.1 EmberAfServiceDiscoveryStatus EmberAfServiceDiscoveryResult::status

The status indicates both the type of request (broadcast or unicast) and whether a response has been received.

Definition at line 621 of file [af-types.h](#).

#### 7.176.2.2 uint16\_t EmberAfServiceDiscoveryResult::zdoRequestClusterId

This indicates what ZDO request cluster was associated with the request. It is helpful for a callback that may be used for multiple ZDO request types to determine the type of data returned. This will be based on the ZDO cluster values defined in [ember-types.h](#).

Definition at line 629 of file [af-types.h](#).

### 7.176.2.3 EmberNodeId EmberAfServiceDiscoveryResult::matchAddress

This is the address of the device that matched the request, which may be different than the device that *actually* is responding. This occurs when parents respond on behalf of their children.

Definition at line 636 of file [af-types.h](#).

### 7.176.2.4 const void\* EmberAfServiceDiscoveryResult::responseData

Only if the status code indicates a response will this data be non-NULL. When there is data, the type is according to the ZDO cluster ID sent out. For NETWORK\_ADDRESS\_REQUEST or IEEE\_ADDRESS\_REQUEST, the long ID will be contained in the responseData, so it will be a value of type [EmberEUI64](#). The short ID will be in the matchAddress parameter field. For the MATCH\_DESCRIPTORS\_REQUEST the responseData will point to an [EmberAfEndpointList](#) structure.

Definition at line 647 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.177 EmberAfSleepyMessage Struct Reference

```
#include <sleepy-message-queue.h>
```

### Data Fields

- [uint8\\_t \\* payload](#)
- [uint16\\_t length](#)
- [uint16\\_t payloadId](#)
- [EmberEUI64 dstEui64](#)

### 7.177.1 Detailed Description

Definition at line 13 of file [sleepy-message-queue.h](#).

### 7.177.2 Field Documentation

#### 7.177.2.1 uint8\_t\* EmberAfSleepyMessage::payload

Definition at line 15 of file [sleepy-message-queue.h](#).

#### 7.177.2.2 uint16\_t EmberAfSleepyMessage::length

Definition at line 16 of file [sleepy-message-queue.h](#).

#### 7.177.2.3 uint16\_t EmberAfSleepyMessage::payloadId

Definition at line 17 of file [sleepy-message-queue.h](#).

#### 7.177.2.4 EmberEUI64 EmberAfSleepyMessage::dstEui64

Definition at line 18 of file [sleepy-message-queue.h](#).

The documentation for this struct was generated from the following file:

- [sleepy-message-queue.h](#)

### 7.178 EmberAfSnapshotPayload Struct Reference

```
#include <meter-snapshot-storage.h>
```

#### Data Fields

- `uint8_t tierSummation [SUMMATION_TIERS *6]`
- `uint8_t tierBlockSummation [BLOCK_TIERS *6]`
- `uint8_t currentSummation [6]`
- `uint32_t billToDate`
- `uint32_t billToDateTimeStamp`
- `uint32_t projectedBill`
- `uint32_t projectedBillTimeStamp`
- `uint32_t snapshotId`
- `uint32_t snapshotTime`
- `uint32_t snapshotCause`
- `EmberNodeId requestingId`
- `uint8_t tiersInUse`
- `uint8_t tiersAndBlocksInUse`
- `uint8_t srcEndpoint`
- `uint8_t dstEndpoint`
- `uint8_t billTrailingDigit`
- `uint8_t payloadType`

#### 7.178.1 Detailed Description

Definition at line 14 of file [meter-snapshot-storage.h](#).

#### 7.178.2 Field Documentation

##### 7.178.2.1 `uint8_t EmberAfSnapshotPayload::tierSummation[SUMMATION_TIERS *6]`

Definition at line 15 of file [meter-snapshot-storage.h](#).

##### 7.178.2.2 `uint8_t EmberAfSnapshotPayload::tierBlockSummation[BLOCK_TIERS *6]`

Definition at line 16 of file [meter-snapshot-storage.h](#).

**7.178.2.3 uint8\_t EmberAfSnapshotPayload::currentSummation[6]**

Definition at line [17](#) of file [meter-snapshot-storage.h](#).

**7.178.2.4 uint32\_t EmberAfSnapshotPayload::billToDate**

Definition at line [18](#) of file [meter-snapshot-storage.h](#).

**7.178.2.5 uint32\_t EmberAfSnapshotPayload::billToDateTimeStamp**

Definition at line [19](#) of file [meter-snapshot-storage.h](#).

**7.178.2.6 uint32\_t EmberAfSnapshotPayload::projectedBill**

Definition at line [20](#) of file [meter-snapshot-storage.h](#).

**7.178.2.7 uint32\_t EmberAfSnapshotPayload::projectedBillTimeStamp**

Definition at line [21](#) of file [meter-snapshot-storage.h](#).

**7.178.2.8 uint32\_t EmberAfSnapshotPayload::snapshotId**

Definition at line [22](#) of file [meter-snapshot-storage.h](#).

**7.178.2.9 uint32\_t EmberAfSnapshotPayload::snapshotTime**

Definition at line [23](#) of file [meter-snapshot-storage.h](#).

**7.178.2.10 uint32\_t EmberAfSnapshotPayload::snapshotCause**

Definition at line [24](#) of file [meter-snapshot-storage.h](#).

**7.178.2.11 EmberNodeId EmberAfSnapshotPayload::requestingId**

Definition at line [25](#) of file [meter-snapshot-storage.h](#).

**7.178.2.12 uint8\_t EmberAfSnapshotPayload::tiersInUse**

Definition at line [26](#) of file [meter-snapshot-storage.h](#).

**7.178.2.13 uint8\_t EmberAfSnapshotPayload::tiersAndBlocksInUse**

Definition at line [27](#) of file [meter-snapshot-storage.h](#).

### 7.178.2.14 uint8\_t EmberAfSnapshotPayload::srcEndpoint

Definition at line 28 of file [meter-snapshot-storage.h](#).

### 7.178.2.15 uint8\_t EmberAfSnapshotPayload::dstEndpoint

Definition at line 29 of file [meter-snapshot-storage.h](#).

### 7.178.2.16 uint8\_t EmberAfSnapshotPayload::billTrailingDigit

Definition at line 30 of file [meter-snapshot-storage.h](#).

### 7.178.2.17 uint8\_t EmberAfSnapshotPayload::payloadType

Definition at line 31 of file [meter-snapshot-storage.h](#).

The documentation for this struct was generated from the following file:

- [meter-snapshot-storage.h](#)

## 7.179 EmberAfSnapshotSchedulePayload Struct Reference

```
#include <meter-snapshot-storage.h>
```

### Data Fields

- uint32\_t [snapshotStartDate](#)
- uint32\_t [snapshotSchedule](#)
- uint32\_t [snapshotCause](#)
- [EmberNodeId](#) [requestingId](#)
- uint8\_t [srcEndpoint](#)
- uint8\_t [dstEndpoint](#)
- uint8\_t [snapshotPayloadType](#)
- uint8\_t [snapshotScheduleId](#)

### 7.179.1 Detailed Description

Definition at line 34 of file [meter-snapshot-storage.h](#).

### 7.179.2 Field Documentation

#### 7.179.2.1 uint32\_t EmberAfSnapshotSchedulePayload::snapshotStartDate

Definition at line 35 of file [meter-snapshot-storage.h](#).

### 7.179.2.2 uint32\_t EmberAfSnapshotSchedulePayload::snapshotSchedule

Definition at line 36 of file [meter-snapshot-storage.h](#).

### 7.179.2.3 uint32\_t EmberAfSnapshotSchedulePayload::snapshotCause

Definition at line 37 of file [meter-snapshot-storage.h](#).

### 7.179.2.4 EmberNodeId EmberAfSnapshotSchedulePayload::requestingId

Definition at line 38 of file [meter-snapshot-storage.h](#).

### 7.179.2.5 uint8\_t EmberAfSnapshotSchedulePayload::srcEndpoint

Definition at line 39 of file [meter-snapshot-storage.h](#).

### 7.179.2.6 uint8\_t EmberAfSnapshotSchedulePayload::dstEndpoint

Definition at line 40 of file [meter-snapshot-storage.h](#).

### 7.179.2.7 uint8\_t EmberAfSnapshotSchedulePayload::snapshotPayloadType

Definition at line 41 of file [meter-snapshot-storage.h](#).

### 7.179.2.8 uint8\_t EmberAfSnapshotSchedulePayload::snapshotScheduleId

Definition at line 42 of file [meter-snapshot-storage.h](#).

The documentation for this struct was generated from the following file:

- [meter-snapshot-storage.h](#)

## 7.180 EmberAfStandaloneBootloaderQueryResponseData Struct Reference

```
#include <af-types.h>
```

### Data Fields

- uint8\_t **hardwareTag** [EMBER\_AF\_STANDALONE\_BOOTLOADER\_HARDWARE\_TAG\_LENGTH]
- uint8\_t **eui64** [[EUI64\\_SIZE](#)]
- uint16\_t **mfgId**
- uint16\_t **bootloaderVersion**
- uint8\_t **capabilities**
- uint8\_t **platform**
- uint8\_t **micro**
- uint8\_t **phy**
- bool **bootloaderActive**

### 7.180.1 Detailed Description

A data struct for the information retrieved during a response to an Ember Bootloader over-the-air query.

Definition at line 1469 of file [af-types.h](#).

### 7.180.2 Field Documentation

**7.180.2.1 uint8\_t EmberAfStandaloneBootloaderQueryResponseData::hardwareTag[EMBER\_AF\_STANDALONE\_BOOTLOADER\_HARDWARE\_TAG\_LENGTH]**

Definition at line 1470 of file [af-types.h](#).

**7.180.2.2 uint8\_t EmberAfStandaloneBootloaderQueryResponseData::eui64[EUI64\_SIZE]**

Definition at line 1471 of file [af-types.h](#).

**7.180.2.3 uint16\_t EmberAfStandaloneBootloaderQueryResponseData::mfqid**

Definition at line 1472 of file [af-types.h](#).

**7.180.2.4 uint16\_t EmberAfStandaloneBootloaderQueryResponseData::bootloaderVersion**

Definition at line 1473 of file [af-types.h](#).

**7.180.2.5 uint8\_t EmberAfStandaloneBootloaderQueryResponseData::capabilities**

Definition at line 1474 of file [af-types.h](#).

**7.180.2.6 uint8\_t EmberAfStandaloneBootloaderQueryResponseData::platform**

Definition at line 1475 of file [af-types.h](#).

**7.180.2.7 uint8\_t EmberAfStandaloneBootloaderQueryResponseData::micro**

Definition at line 1476 of file [af-types.h](#).

**7.180.2.8 uint8\_t EmberAfStandaloneBootloaderQueryResponseData::phy**

Definition at line 1477 of file [af-types.h](#).

**7.180.2.9 bool EmberAfStandaloneBootloaderQueryResponseData::bootloaderActive**

Definition at line 1478 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.181 EmberAfTagData Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint16_t id`
- `uint32_t length`

#### 7.181.1 Detailed Description

This structure contains information about a tag that resides within an Over-the-air bootload file.

Definition at line 1240 of file [af-types.h](#).

#### 7.181.2 Field Documentation

##### 7.181.2.1 `uint16_t EmberAfTagData::id`

Definition at line 1241 of file [af-types.h](#).

##### 7.181.2.2 `uint32_t EmberAfTagData::length`

Definition at line 1242 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.182 EmberAfTimeStruct Struct Reference

```
#include <af-types.h>
```

### Data Fields

- `uint16_t year`
- `uint8_t month`
- `uint8_t day`
- `uint8_t hours`
- `uint8_t minutes`
- `uint8_t seconds`

#### 7.182.1 Detailed Description

A data structure used to describe the time in a human understandable format (as opposed to 32-bit UTC)

Definition at line 1496 of file [af-types.h](#).

## 7.182.2 Field Documentation

### 7.182.2.1 uint16\_t EmberAfTimeStruct::year

Definition at line 1497 of file [af-types.h](#).

### 7.182.2.2 uint8\_t EmberAfTimeStruct::month

Definition at line 1498 of file [af-types.h](#).

### 7.182.2.3 uint8\_t EmberAfTimeStruct::day

Definition at line 1499 of file [af-types.h](#).

### 7.182.2.4 uint8\_t EmberAfTimeStruct::hours

Definition at line 1500 of file [af-types.h](#).

### 7.182.2.5 uint8\_t EmberAfTimeStruct::minutes

Definition at line 1501 of file [af-types.h](#).

### 7.182.2.6 uint8\_t EmberAfTimeStruct::seconds

Definition at line 1502 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.183 EmberAfTrustCenterBackupData Struct Reference

```
#include <af-types.h>
```

### Data Fields

- [EmberEUI64 extendedPanId](#)
- [uint8\\_t keyListLength](#)
- [uint8\\_t maxKeyListLength](#)
- [EmberAfLinkKeyBackupData \\* keyList](#)

### 7.183.1 Detailed Description

A data struct for all the trust center backup data.

The 'keyList' pointer must point to an array and 'maxKeyListLength' must be populated with the maximum number of entries the array can hold.

Functions that modify this data structure will populate 'keyListLength' indicating how many keys were actually written into 'keyList'.

Definition at line 1451 of file [af-types.h](#).

### 7.183.2 Field Documentation

#### 7.183.2.1 EmberEUI64 EmberAfTrustCenterBackupData::extendedPanId

Definition at line 1452 of file [af-types.h](#).

#### 7.183.2.2 uint8\_t EmberAfTrustCenterBackupData::keyListLength

Definition at line 1453 of file [af-types.h](#).

#### 7.183.2.3 uint8\_t EmberAfTrustCenterBackupData::maxKeyListLength

Definition at line 1454 of file [af-types.h](#).

#### 7.183.2.4 EmberAfLinkKeyBackupData\* EmberAfTrustCenterBackupData::keyList

Definition at line 1455 of file [af-types.h](#).

The documentation for this struct was generated from the following file:

- [af-types.h](#)

## 7.184 EmberApsFrame Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint16_t profileId`
- `uint16_t clusterId`
- `uint8_t sourceEndpoint`
- `uint8_t destinationEndpoint`
- `EmberApsOption options`
- `uint16_t groupId`
- `uint8_t sequence`

### 7.184.1 Detailed Description

An in-memory representation of a ZigBee APS frame of an incoming or outgoing message.

Definition at line 960 of file [ember-types.h](#).

## 7.184.2 Field Documentation

### 7.184.2.1 `uint16_t EmberApsFrame::profileId`

The application profile ID that describes the format of the message.

Definition at line 962 of file [ember-types.h](#).

### 7.184.2.2 `uint16_t EmberApsFrame::clusterId`

The cluster ID for this message.

Definition at line 964 of file [ember-types.h](#).

### 7.184.2.3 `uint8_t EmberApsFrame::sourceEndpoint`

The source endpoint.

Definition at line 966 of file [ember-types.h](#).

### 7.184.2.4 `uint8_t EmberApsFrame::destinationEndpoint`

The destination endpoint.

Definition at line 968 of file [ember-types.h](#).

### 7.184.2.5 `EmberApsOption EmberApsFrame::options`

A bitmask of options from the enumeration above.

Definition at line 970 of file [ember-types.h](#).

### 7.184.2.6 `uint16_t EmberApsFrame::groupId`

The group ID for this message, if it is multicast mode.

Definition at line 972 of file [ember-types.h](#).

### 7.184.2.7 `uint8_t EmberApsFrame::sequence`

The sequence number.

Definition at line 974 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.185 EmberBindingTableEntry Struct Reference

```
#include <ember-types.h>
```

## Data Fields

- [EmberBindingType](#) type
- [uint8\\_t](#) local
- [uint16\\_t](#) clusterId
- [uint8\\_t](#) remote
- [EmberEUI64](#) identifier
- [uint8\\_t](#) networkIndex

### 7.185.1 Detailed Description

Defines an entry in the binding table.

A binding entry specifies a local endpoint, a remote endpoint, a cluster ID and either the destination EUI64 (for unicast bindings) or the 64-bit group address (for multicast bindings).

Definition at line [984](#) of file [ember-types.h](#).

### 7.185.2 Field Documentation

#### 7.185.2.1 [EmberBindingType](#) EmberBindingTableEntry::type

The type of binding.

Definition at line [986](#) of file [ember-types.h](#).

#### 7.185.2.2 [uint8\\_t](#) EmberBindingTableEntry::local

The endpoint on the local node.

Definition at line [988](#) of file [ember-types.h](#).

#### 7.185.2.3 [uint16\\_t](#) EmberBindingTableEntry::clusterId

A cluster ID that matches one from the local endpoint's simple descriptor. This cluster ID is set by the provisioning application to indicate which part an endpoint's functionality is bound to this particular remote node and is used to distinguish between unicast and multicast bindings. Note that a binding can be used to send messages with any cluster ID, not just that listed in the binding.

Definition at line [996](#) of file [ember-types.h](#).

#### 7.185.2.4 [uint8\\_t](#) EmberBindingTableEntry::remote

The endpoint on the remote node (specified by `identifier`).

Definition at line [998](#) of file [ember-types.h](#).

#### 7.185.2.5 [EmberEUI64](#) EmberBindingTableEntry::identifier

A 64-bit identifier. This is either:

- The destination EUI64, for unicasts

- A 16-bit multicast group address, for multicasts

Definition at line 1003 of file [ember-types.h](#).

#### **7.185.2.6 uint8\_t EmberBindingTableEntry::networkIndex**

The index of the network the binding belongs to.

Definition at line 1005 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## **7.186 EmberCertificate283k1Data Struct Reference**

```
#include <ember-types.h>
```

### **Data Fields**

- `uint8_t contents [EMBER_CERTIFICATE_283K1_SIZE]`

#### **7.186.1 Detailed Description**

This data structure contains the certificate data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.

Definition at line 1544 of file [ember-types.h](#).

#### **7.186.2 Field Documentation**

##### **7.186.2.1 uint8\_t EmberCertificate283k1Data::contents[EMBER\_CERTIFICATE\_283K1\_SIZE]**

Definition at line 1546 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## **7.187 EmberCertificateData Struct Reference**

```
#include <ember-types.h>
```

### **Data Fields**

- `uint8_t contents [EMBER_CERTIFICATE_SIZE]`

### 7.187.1 Detailed Description

This data structure contains the certificate data that is used for Certificate Based Key Exchange (CBKE).

Definition at line 1499 of file [ember-types.h](#).

### 7.187.2 Field Documentation

#### 7.187.2.1 `uint8_t EmberCertificateData::contents[EMBER_CERTIFICATE_SIZE]`

Definition at line 1500 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.188 EmberCurrentSecurityState Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [EmberCurrentSecurityBitmask bitmask](#)
- [EmberEUI64 trustCenterLongAddress](#)

### 7.188.1 Detailed Description

This describes the security features used by the stack for a joined device.

Definition at line 1828 of file [ember-types.h](#).

### 7.188.2 Field Documentation

#### 7.188.2.1 `EmberCurrentSecurityBitmask EmberCurrentSecurityState::bitmask`

This bitmask indicates the security features currently in use on this node.

Definition at line 1831 of file [ember-types.h](#).

#### 7.188.2.2 `EmberEUI64 EmberCurrentSecurityState::trustCenterLongAddress`

This indicates the EUI64 of the Trust Center. It will be all zeroes if the Trust Center Address is not known (i.e. the device is in a Distributed Trust Center network).

Definition at line 1835 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.189 EmberEventControl Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [EmberEventUnits status](#)
- [EmberTaskId taskid](#)
- [uint32\\_t timeToExecute](#)

### 7.189.1 Detailed Description

Control structure for events.

This structure should not be accessed directly. This holds the event status (one of the *EMBER\_EVENT\_* values) and the time left before the event fires.

Definition at line [1272](#) of file [ember-types.h](#).

### 7.189.2 Field Documentation

#### 7.189.2.1 EmberEventUnits EmberEventControl::status

The event's status, either inactive or the units for timeToExecute.

Definition at line [1274](#) of file [ember-types.h](#).

#### 7.189.2.2 EmberTaskId EmberEventControl::taskid

The id of the task this event belongs to.

Definition at line [1276](#) of file [ember-types.h](#).

#### 7.189.2.3 uint32\_t EmberEventControl::timeToExecute

How long before the event fires. Units are always in milliseconds

Definition at line [1280](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.190 EmberEventData\_S Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [EmberEventControl \\* control](#)
- [void\(\\* handler \)\(void\)](#)

### 7.190.1 Detailed Description

Complete events with a control and a handler procedure.

An application typically creates an array of events along with their handlers. The main loop passes the array to `::emberRunEvents()` in order to call the handlers of any events whose time has arrived.

Definition at line 1290 of file [ember-types.h](#).

### 7.190.2 Field Documentation

#### 7.190.2.1 EmberEventControl\* EmberEventData\_S::control

The control structure for the event.

Definition at line 1292 of file [ember-types.h](#).

#### 7.190.2.2 void(\* EmberEventData\_S::handler)(void)

The procedure to call when the event fires.

Definition at line 1294 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.191 EmberInitialSecurityState Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint16_t bitmask`
- `EmberKeyData preconfiguredKey`
- `EmberKeyData networkKey`
- `uint8_t networkKeySequenceNumber`
- `EmberEUI64 preconfiguredTrustCenterEui64`

### 7.191.1 Detailed Description

This describes the Initial Security features and requirements that will be used when forming or joining the network.

Definition at line 1748 of file [ember-types.h](#).

### 7.191.2 Field Documentation

#### 7.191.2.1 `uint16_t EmberInitialSecurityState::bitmask`

This bitmask enumerates which security features should be used, as well as the presence of valid data within other elements of the `EmberInitialSecurityState` data structure. For more details see the `EmberInitialSecurityBitmask`.

Definition at line 1753 of file `ember-types.h`.

#### 7.191.2.2 `EmberKeyData EmberInitialSecurityState::preconfiguredKey`

This is the pre-configured key that can be used by devices when joining the network if the Trust Center does not send the initial security data in-the-clear. For the Trust Center, it will be the global link key and **must** be set regardless of whether joining devices are expected to have a pre-configured Link Key. This parameter will only be used if the `EmberInitialSecurityState::bitmask` sets the bit indicating `EMBER_HAVE_PRECONFIGURED_KEY`.

Definition at line 1762 of file `ember-types.h`.

#### 7.191.2.3 `EmberKeyData EmberInitialSecurityState::networkKey`

This is the Network Key used when initially forming the network. This must be set on the Trust Center. It is not needed for devices joining the network. This parameter will only be used if the `EmberInitialSecurityState::bitmask` sets the bit indicating `EMBER_HAVE_NETWORK_KEY`.

Definition at line 1768 of file `ember-types.h`.

#### 7.191.2.4 `uint8_t EmberInitialSecurityState::networkKeySequenceNumber`

This is the sequence number associated with the network key. It must be set if the Network Key is set. It is used to indicate a particular of the network key for updating and switching. This parameter will only be used if the `EMBER_HAVE_NETWORK_KEY` is set. Generally it should be set to 0 when forming the network; joining devices can ignore this value.

Definition at line 1775 of file `ember-types.h`.

#### 7.191.2.5 `EmberEUI64 EmberInitialSecurityState::preconfiguredTrustCenterEui64`

This is the long address of the trust center on the network that will be joined. It is usually NOT set prior to joining the network and instead it is learned during the joining message exchange. This field is only examined if `EMBER_HAVE_TRUST_CENTER_EUI64` is set in the `EmberInitialSecurityState::bitmask`. Most devices should clear that bit and leave this field alone. This field must be set when using commissioning mode. It is required to be in little-endian format.

Definition at line 1783 of file `ember-types.h`.

The documentation for this struct was generated from the following file:

- `ember-types.h`

## 7.192 EmberKeyData Struct Reference

```
#include <ember-types.h>
```

## Data Fields

- `uint8_t contents [EMBER_ENCRYPTION_KEY_SIZE]`

### 7.192.1 Detailed Description

This data structure contains the key data that is passed into various other functions.

Definition at line 1492 of file `ember-types.h`.

### 7.192.2 Field Documentation

#### 7.192.2.1 `uint8_t EmberKeyData::contents[EMBER_ENCRYPTION_KEY_SIZE]`

This is the key byte data.

Definition at line 1494 of file `ember-types.h`.

The documentation for this struct was generated from the following file:

- `ember-types.h`

## 7.193 EmberKeyStruct Struct Reference

```
#include <ember-types.h>
```

## Data Fields

- `EmberKeyStructBitmask bitmask`
- `EmberKeyType type`
- `EmberKeyData key`
- `uint32_t outgoingFrameCounter`
- `uint32_t incomingFrameCounter`
- `uint8_t sequenceNumber`
- `EmberEUI64 partnerEUI64`

### 7.193.1 Detailed Description

This describes a one of several different types of keys and its associated data.

Definition at line 1901 of file `ember-types.h`.

### 7.193.2 Field Documentation

#### 7.193.2.1 `EmberKeyStructBitmask EmberKeyStruct::bitmask`

This bitmask indicates whether various fields in the structure contain valid data. It also contains the index of the network the key belongs to.

Definition at line 1905 of file `ember-types.h`.

### 7.193.2.2 EmberKeyType EmberKeyStruct::type

This indicates the type of the security key.

Definition at line 1907 of file [ember-types.h](#).

### 7.193.2.3 EmberKeyData EmberKeyStruct::key

This is the actual key data.

Definition at line 1909 of file [ember-types.h](#).

### 7.193.2.4 uint32\_t EmberKeyStruct::outgoingFrameCounter

This is the outgoing frame counter associated with the key. It will contain valid data based on the [EmberKeyStructBitmask](#).

Definition at line 1912 of file [ember-types.h](#).

### 7.193.2.5 uint32\_t EmberKeyStruct::incomingFrameCounter

This is the incoming frame counter associated with the key. It will contain valid data based on the [EmberKeyStructBitmask](#).

Definition at line 1915 of file [ember-types.h](#).

### 7.193.2.6 uint8\_t EmberKeyStruct::sequenceNumber

This is the sequence number associated with the key. It will contain valid data based on the [EmberKeyStructBitmask](#).

Definition at line 1918 of file [ember-types.h](#).

### 7.193.2.7 EmberEUI64 EmberKeyStruct::partnerEUI64

This is the Partner EUI64 associated with the key. It will contain valid data based on the [EmberKeyStructBitmask](#).

Definition at line 1921 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.194 EmberMacFilterMatchStruct Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [uint8\\_t filterIndexMatch](#)

- `EmberMacPassthroughType legacyPassthroughType`
- `EmberMessageBuffer message`

### 7.194.1 Detailed Description

This structure indicates a matching raw MAC message has been received by the application configured MAC filters.

Definition at line 2214 of file `ember-types.h`.

### 7.194.2 Field Documentation

#### 7.194.2.1 `uint8_t EmberMacFilterMatchStruct::filterIndexMatch`

Definition at line 2215 of file `ember-types.h`.

#### 7.194.2.2 `EmberMacPassthroughType EmberMacFilterMatchStruct::legacyPassthroughType`

Definition at line 2216 of file `ember-types.h`.

#### 7.194.2.3 `EmberMessageBuffer EmberMacFilterMatchStruct::message`

Definition at line 2217 of file `ember-types.h`.

The documentation for this struct was generated from the following file:

- `ember-types.h`

## 7.195 EmberMessageDigest Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint8_t contents [EMBER_AES_HASH_BLOCK_SIZE]`

### 7.195.1 Detailed Description

This data structure contains an AES-MMO Hash (the message digest).

Definition at line 1530 of file `ember-types.h`.

### 7.195.2 Field Documentation

#### 7.195.2.1 `uint8_t EmberMessageDigest::contents[EMBER_AES_HASH_BLOCK_SIZE]`

Definition at line 1531 of file `ember-types.h`.

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.196 EmberMfgSecurityStruct Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [EmberKeySettings keySettings](#)

#### 7.196.1 Detailed Description

This structure is used to get/set the security config that is stored in manufacturing tokens.

Definition at line [2129](#) of file [ember-types.h](#).

#### 7.196.2 Field Documentation

##### 7.196.2.1 EmberKeySettings EmberMfgSecurityStruct::keySettings

Definition at line [2130](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.197 EmberMulticastTableEntry Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [EmberMulticastId multicastId](#)
- [uint8\\_t endpoint](#)
- [uint8\\_t networkIndex](#)

#### 7.197.1 Detailed Description

Defines an entry in the multicast table.

A multicast table entry indicates that a particular endpoint is a member of a particular multicast group. Only devices with an endpoint in a multicast group will receive messages sent to that multicast group.

Definition at line [1073](#) of file [ember-types.h](#).

## 7.197.2 Field Documentation

### 7.197.2.1 EmberMulticastId EmberMulticastTableEntry::multicastId

The multicast group ID.

Definition at line 1075 of file [ember-types.h](#).

### 7.197.2.2 uint8\_t EmberMulticastTableEntry::endpoint

The endpoint that is a member, or 0 if this entry is not in use (the ZDO is not a member of any multicast groups).

Definition at line 1079 of file [ember-types.h](#).

### 7.197.2.3 uint8\_t EmberMulticastTableEntry::networkIndex

The network index of the network the entry is related to.

Definition at line 1081 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.198 EmberNeighborTableEntry Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint16_t shortId`
- `uint8_t averageLqi`
- `uint8_t inCost`
- `uint8_t outCost`
- `uint8_t age`
- `EmberEUI64 longId`

### 7.198.1 Detailed Description

Defines an entry in the neighbor table.

A neighbor table entry stores information about the reliability of RF links to and from neighboring nodes.

Definition at line 1014 of file [ember-types.h](#).

## 7.198.2 Field Documentation

### 7.198.2.1 uint16\_t EmberNeighborTableEntry::shortId

The neighbor's two byte network id.

Definition at line 1016 of file [ember-types.h](#).

#### **7.198.2.2 uint8\_t EmberNeighborTableEntry::averageLqi**

An exponentially weighted moving average of the link quality values of incoming packets from this neighbor as reported by the PHY.

Definition at line 1019 of file [ember-types.h](#).

#### **7.198.2.3 uint8\_t EmberNeighborTableEntry::inCost**

The incoming cost for this neighbor, computed from the average LQI. Values range from 1 for a good link to 7 for a bad link.

Definition at line 1022 of file [ember-types.h](#).

#### **7.198.2.4 uint8\_t EmberNeighborTableEntry::outCost**

The outgoing cost for this neighbor, obtained from the most recently received neighbor exchange message from the neighbor. A value of zero means that a neighbor exchange message from the neighbor has not been received recently enough, or that our id was not present in the most recently received one. EmberZNet Pro only.

Definition at line 1029 of file [ember-types.h](#).

#### **7.198.2.5 uint8\_t EmberNeighborTableEntry::age**

In EmberZNet Pro, the number of aging periods elapsed since a neighbor exchange message was last received from this neighbor. In stack profile 1, the number of aging periods since any packet was received. An entry with an age greater than 3 is considered stale and may be reclaimed. The aging period is 16 seconds.

Definition at line 1035 of file [ember-types.h](#).

#### **7.198.2.6 EmberEUI64 EmberNeighborTableEntry::longId**

The 8 byte EUI64 of the neighbor.

Definition at line 1037 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## **7.199 EmberNetworkInitStruct Struct Reference**

```
#include <ember-types.h>
```

### **Data Fields**

- [EmberNetworkInitBitmask bitmask](#)

### 7.199.1 Detailed Description

Defines the network initialization configuration that should be used when ::emberNetworkInitExtended() is called by the application.

Definition at line 474 of file [ember-types.h](#).

### 7.199.2 Field Documentation

#### 7.199.2.1 EmberNetworkInitBitmask EmberNetworkInitStruct::bitmask

Definition at line 475 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.200 EmberNetworkParameters Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [uint8\\_t extendedPanId \[8\]](#)
- [uint16\\_t panId](#)
- [int8\\_t radioTxPower](#)
- [uint8\\_t radioChannel](#)
- [EmberJoinMethod joinMethod](#)
- [EmberNodeId nwkManagerId](#)
- [uint8\\_t nwkUpdateId](#)
- [uint32\\_t channels](#)

### 7.200.1 Detailed Description

Holds network parameters.

For information about power settings and radio channels, see the technical specification for the RF communication module in your Developer Kit.

Definition at line 915 of file [ember-types.h](#).

### 7.200.2 Field Documentation

#### 7.200.2.1 [uint8\\_t EmberNetworkParameters::extendedPanId\[8\]](#)

The network's extended PAN identifier.

Definition at line 917 of file [ember-types.h](#).

**7.200.2.2 uint16\_t EmberNetworkParameters::panId**

The network's PAN identifier.

Definition at line 919 of file [ember-types.h](#).

**7.200.2.3 int8\_t EmberNetworkParameters::radioTxPower**

A power setting, in dBm.

Definition at line 921 of file [ember-types.h](#).

**7.200.2.4 uint8\_t EmberNetworkParameters::radioChannel**

A radio channel. Be sure to specify a channel supported by the radio.

Definition at line 923 of file [ember-types.h](#).

**7.200.2.5 EmberJoinMethod EmberNetworkParameters::joinMethod**

Join method: The protocol messages used to establish an initial parent. It is ignored when forming a ZigBee network, or when querying the stack for its network parameters.

Definition at line 928 of file [ember-types.h](#).

**7.200.2.6 EmberNodeId EmberNetworkParameters::nwkManagerId**

NWK Manager ID. The ID of the network manager in the current network. This may only be set at joining when using EMBER\_USE\_NWK\_COMMISSIONING as the join method.

Definition at line 934 of file [ember-types.h](#).

**7.200.2.7 uint8\_t EmberNetworkParameters::nwkUpdateId**

NWK Update ID. The value of the ZigBee nwkUpdateId known by the stack. This is used to determine the newest instance of the network after a PAN ID or channel change. This may only be set at joining when using EMBER\_USE\_NWK\_COMMISSIONING as the join method.

Definition at line 940 of file [ember-types.h](#).

**7.200.2.8 uint32\_t EmberNetworkParameters::channels**

NWK channel mask. The list of preferred channels that the NWK manager has told this device to use when searching for the network. This may only be set at joining when using EMBER\_USE\_NWK\_COMMISSIONING as the join method.

Definition at line 946 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.201 EmberPrivateKey283k1Data Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- uint8\_t [contents \[EMBER\\_PRIVATE\\_KEY\\_283K1\\_SIZE\]](#)

#### 7.201.1 Detailed Description

This data structure contains the private key data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.

Definition at line [1557](#) of file [ember-types.h](#).

#### 7.201.2 Field Documentation

##### 7.201.2.1 uint8\_t EmberPrivateKey283k1Data::contents[EMBER\_PRIVATE\_KEY\_283K1\_SIZE]

Definition at line [1558](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.202 EmberPrivateKeyData Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- uint8\_t [contents \[EMBER\\_PRIVATE\\_KEY\\_SIZE\]](#)

#### 7.202.1 Detailed Description

This data structure contains the private key data that is used for Certificate Based Key Exchange (CBKE).

Definition at line [1511](#) of file [ember-types.h](#).

#### 7.202.2 Field Documentation

##### 7.202.2.1 uint8\_t EmberPrivateKeyData::contents[EMBER\_PRIVATE\_KEY\_SIZE]

Definition at line [1512](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.203 EmberPublicKey283k1Data Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- uint8\_t [contents \[EMBER\\_PUBLIC\\_KEY\\_283K1\\_SIZE\]](#)

### 7.203.1 Detailed Description

This data structure contains the public key data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.

Definition at line [1551](#) of file [ember-types.h](#).

### 7.203.2 Field Documentation

#### 7.203.2.1 uint8\_t EmberPublicKey283k1Data::contents[EMBER\_PUBLIC\_KEY\_283K1\_SIZE]

Definition at line [1552](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.204 EmberPublicKeyData Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- uint8\_t [contents \[EMBER\\_PUBLIC\\_KEY\\_SIZE\]](#)

### 7.204.1 Detailed Description

This data structure contains the public key data that is used for Certificate Based Key Exchange (CBKE).

Definition at line [1505](#) of file [ember-types.h](#).

### 7.204.2 Field Documentation

#### 7.204.2.1 uint8\_t EmberPublicKeyData::contents[EMBER\_PUBLIC\_KEY\_SIZE]

Definition at line [1506](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.205 EmberReleaseTypeStruct Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [EmberVersionType typeNum](#)
- [PGM\\_P typeString](#)

#### 7.205.1 Detailed Description

A structure relating version types to human readable strings.

Definition at line [67](#) of file [ember-types.h](#).

#### 7.205.2 Field Documentation

##### 7.205.2.1 EmberVersionType EmberReleaseTypeStruct::typeNum

Definition at line [68](#) of file [ember-types.h](#).

##### 7.205.2.2 PGM\_P EmberReleaseTypeStruct::typeString

Definition at line [69](#) of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.206 EmberRouteTableEntry Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [uint16\\_t destination](#)
- [uint16\\_t nextHop](#)
- [uint8\\_t status](#)
- [uint8\\_t age](#)
- [uint8\\_t concentratorType](#)
- [uint8\\_t routeRecordState](#)

#### 7.206.1 Detailed Description

Defines an entry in the route table.

A route table entry stores information about the next hop along the route to the destination.

Definition at line [1045](#) of file [ember-types.h](#).

## 7.206.2 Field Documentation

### 7.206.2.1 uint16\_t EmberRouteTableEntry::destination

The short id of the destination.

Definition at line 1047 of file [ember-types.h](#).

### 7.206.2.2 uint16\_t EmberRouteTableEntry::nextHop

The short id of the next hop to this destination.

Definition at line 1049 of file [ember-types.h](#).

### 7.206.2.3 uint8\_t EmberRouteTableEntry::status

Indicates whether this entry is active (0), being discovered (1), or unused (3).

Definition at line 1052 of file [ember-types.h](#).

### 7.206.2.4 uint8\_t EmberRouteTableEntry::age

The number of seconds since this route entry was last used to send a packet.

Definition at line 1055 of file [ember-types.h](#).

### 7.206.2.5 uint8\_t EmberRouteTableEntry::concentratorType

Indicates whether this destination is a High RAM Concentrator (2), a Low RAM Concentrator (1), or not a concentrator (0).

Definition at line 1058 of file [ember-types.h](#).

### 7.206.2.6 uint8\_t EmberRouteTableEntry::routeRecordState

For a High RAM Concentrator, indicates whether a route record is needed (2), has been sent (1), or is no long needed (0) because a source routed message from the concentrator has been received.

Definition at line 1063 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.207 EmberSignature283k1Data Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint8_t contents [EMBER_SIGNATURE_283K1_SIZE]`

### 7.207.1 Detailed Description

This data structure contains a DSA signature used in SECT283k1 Elliptical Cryptography. It is the bit concatenation of the 'r' and 's' components of the signature.

Definition at line 1565 of file [ember-types.h](#).

### 7.207.2 Field Documentation

#### 7.207.2.1 uint8\_t EmberSignature283k1Data::contents[EMBER\_SIGNATURE\_283K1\_SIZE]

Definition at line 1566 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.208 EmberSignatureData Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [uint8\\_t contents \[EMBER\\_SIGNATURE\\_SIZE\]](#)

### 7.208.1 Detailed Description

This data structure contains a DSA signature. It is the bit concatenation of the 'r' and 's' components of the signature.

Definition at line 1524 of file [ember-types.h](#).

### 7.208.2 Field Documentation

#### 7.208.2.1 uint8\_t EmberSignatureData::contents[EMBER\_SIGNATURE\_SIZE]

Definition at line 1525 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.209 EmberSmacData Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- [uint8\\_t contents \[EMBER\\_SMAC\\_SIZE\]](#)

### 7.209.1 Detailed Description

This data structure contains the Shared Message Authentication Code (SMAC) data that is used for Certificate Based Key Exchange (CBKE).

Definition at line 1517 of file [ember-types.h](#).

### 7.209.2 Field Documentation

#### 7.209.2.1 `uint8_t EmberSmacData::contents[EMBER_SMAC_SIZE]`

Definition at line 1518 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.210 EmberTaskControl Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint32_t nextEventTime`
- `EmberEventData * events`
- `bool busy`

### 7.210.1 Detailed Description

Control structure for tasks.

This structure should not be accessed directly.

Definition at line 1301 of file [ember-types.h](#).

### 7.210.2 Field Documentation

#### 7.210.2.1 `uint32_t EmberTaskControl::nextEventTime`

Definition at line 1303 of file [ember-types.h](#).

#### 7.210.2.2 `EmberEventData* EmberTaskControl::events`

Definition at line 1305 of file [ember-types.h](#).

#### 7.210.2.3 `bool EmberTaskControl::busy`

Definition at line 1307 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.211 EmberVersion Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint16_t build`
- `uint8_t major`
- `uint8_t minor`
- `uint8_t patch`
- `uint8_t special`
- `EmberVersionType type`

### 7.211.1 Detailed Description

Version struct containing all version information.

Definition at line [90](#) of file [ember-types.h](#).

### 7.211.2 Field Documentation

#### 7.211.2.1 `uint16_t EmberVersion::build`

Definition at line [91](#) of file [ember-types.h](#).

#### 7.211.2.2 `uint8_t EmberVersion::major`

Definition at line [92](#) of file [ember-types.h](#).

#### 7.211.2.3 `uint8_t EmberVersion::minor`

Definition at line [93](#) of file [ember-types.h](#).

#### 7.211.2.4 `uint8_t EmberVersion::patch`

Definition at line [94](#) of file [ember-types.h](#).

#### 7.211.2.5 `uint8_t EmberVersion::special`

Definition at line [95](#) of file [ember-types.h](#).

### 7.211.2.6 EmberVersionType EmberVersion::type

Definition at line 96 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.212 EmberZigbeeNetwork Struct Reference

```
#include <ember-types.h>
```

### Data Fields

- `uint16_t panId`
- `uint8_t channel`
- `bool allowingJoin`
- `uint8_t extendedPanId [8]`
- `uint8_t stackProfile`
- `uint8_t nwkUpdateId`

### 7.212.1 Detailed Description

Defines a ZigBee network and the associated parameters.

Definition at line 441 of file [ember-types.h](#).

### 7.212.2 Field Documentation

#### 7.212.2.1 uint16\_t EmberZigbeeNetwork::panId

Definition at line 442 of file [ember-types.h](#).

#### 7.212.2.2 uint8\_t EmberZigbeeNetwork::channel

Definition at line 443 of file [ember-types.h](#).

#### 7.212.2.3 bool EmberZigbeeNetwork::allowingJoin

Definition at line 444 of file [ember-types.h](#).

#### 7.212.2.4 uint8\_t EmberZigbeeNetwork::extendedPanId[8]

Definition at line 445 of file [ember-types.h](#).

#### 7.212.2.5 uint8\_t EmberZigbeeNetwork::stackProfile

Definition at line 446 of file [ember-types.h](#).

### 7.212.2.6 uint8\_t EmberZigbeeNetwork::nwkUpdatedId

Definition at line 447 of file [ember-types.h](#).

The documentation for this struct was generated from the following file:

- [ember-types.h](#)

## 7.213 emDebtScheduleEntry Struct Reference

```
#include <prepayment-debt-schedule.h>
```

### Data Fields

- uint32\_t [issuerEventId](#)
- uint16\_t [collectionTime](#)
- uint32\_t [nextCollectionTimeUtc](#)
- uint32\_t [firstCollectionTimeSec](#)
- uint8\_t [collectionFrequency](#)
- uint8\_t [debtType](#)
- uint8\_t [endpoint](#)

### 7.213.1 Detailed Description

Definition at line 5 of file [prepayment-debt-schedule.h](#).

### 7.213.2 Field Documentation

#### 7.213.2.1 uint32\_t emDebtScheduleEntry::issuerEventId

Definition at line 6 of file [prepayment-debt-schedule.h](#).

#### 7.213.2.2 uint16\_t emDebtScheduleEntry::collectionTime

Definition at line 7 of file [prepayment-debt-schedule.h](#).

#### 7.213.2.3 uint32\_t emDebtScheduleEntry::nextCollectionTimeUtc

Definition at line 8 of file [prepayment-debt-schedule.h](#).

#### 7.213.2.4 uint32\_t emDebtScheduleEntry::firstCollectionTimeSec

Definition at line 9 of file [prepayment-debt-schedule.h](#).

#### 7.213.2.5 uint8\_t emDebtScheduleEntry::collectionFrequency

Definition at line 10 of file [prepayment-debt-schedule.h](#).

### 7.213.2.6 `uint8_t emDebtScheduleEntry::debtType`

Definition at line 11 of file [prepayment-debt-schedule.h](#).

### 7.213.2.7 `uint8_t emDebtScheduleEntry::endpoint`

Definition at line 12 of file [prepayment-debt-schedule.h](#).

The documentation for this struct was generated from the following file:

- [prepayment-debt-schedule.h](#)

## 7.214 `HaAttributesInfo` Struct Reference

```
#include <rf4ce-zrc20-ha-server.h>
```

### Data Fields

- `uint8_t id`
- `uint8_t length`

### 7.214.1 Detailed Description

Definition at line 199 of file [rf4ce-zrc20-ha-server.h](#).

The documentation for this struct was generated from the following file:

- [rf4ce-zrc20-ha-server.h](#)

## 7.215 `iasZoneDevice` Struct Reference

```
#include <ias-zone-client.h>
```

### Data Fields

- `EmberEUI64 ieeeAddress`
- `uint16_t zoneType`
- `uint16_t zoneStatus`
- `uint8_t zoneState`
- `uint8_t endpoint`
- `uint8_t zoneId`

### 7.215.1 Detailed Description

Definition at line 2 of file [ias-zone-client.h](#).

## 7.215.2 Field Documentation

### 7.215.2.1 EmberEUI64 lasZoneDevice::ieeeAddress

Definition at line 3 of file [ias-zone-client.h](#).

### 7.215.2.2 uint16\_t lasZoneDevice::zoneType

Definition at line 4 of file [ias-zone-client.h](#).

### 7.215.2.3 uint16\_t lasZoneDevice::zoneStatus

Definition at line 5 of file [ias-zone-client.h](#).

### 7.215.2.4 uint8\_t lasZoneDevice::zoneState

Definition at line 6 of file [ias-zone-client.h](#).

### 7.215.2.5 uint8\_t lasZoneDevice::endpoint

Definition at line 7 of file [ias-zone-client.h](#).

### 7.215.2.6 uint8\_t lasZoneDevice::zonId

Definition at line 8 of file [ias-zone-client.h](#).

The documentation for this struct was generated from the following file:

- [ias-zone-client.h](#)

## 7.216 rxFragmentedPacket Struct Reference

```
#include <fragmentation.h>
```

### Data Fields

- `rxPacketStatus status`
- `uint8_t ackedPacketAge`
- `uint8_t buffer [EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE]`
- `EmberNodeId fragmentSource`
- `uint8_t fragmentSequenceNumber`
- `uint8_t fragmentBase`
- `uint16_t windowFinger`
- `uint8_t fragmentsExpected`
- `uint8_t fragmentsReceived`
- `uint8_t fragmentMask`
- `uint8_t lastfragmentLen`
- `uint8_t fragmentLen`
- `EmberEventControl * fragmentEventControl`

### 7.216.1 Detailed Description

Definition at line 107 of file [fragmentation.h](#).

### 7.216.2 Field Documentation

#### 7.216.2.1 rxPacketStatus rxFragmentedPacket::status

Definition at line 108 of file [fragmentation.h](#).

#### 7.216.2.2 uint8\_t rxFragmentedPacket::ackedPacketAge

Definition at line 109 of file [fragmentation.h](#).

#### 7.216.2.3 uint8\_t rxFragmentedPacket::buffer[EMBER\_AF\_PLUGIN\_FRAGMENTATION\_BUFFER\_SIZE]

Definition at line 110 of file [fragmentation.h](#).

#### 7.216.2.4 EmberNodeId rxFragmentedPacket::fragmentSource

Definition at line 111 of file [fragmentation.h](#).

#### 7.216.2.5 uint8\_t rxFragmentedPacket::fragmentSequenceNumber

Definition at line 112 of file [fragmentation.h](#).

#### 7.216.2.6 uint8\_t rxFragmentedPacket::fragmentBase

Definition at line 113 of file [fragmentation.h](#).

#### 7.216.2.7 uint16\_t rxFragmentedPacket::windowFinger

Definition at line 114 of file [fragmentation.h](#).

#### 7.216.2.8 uint8\_t rxFragmentedPacket::fragmentsExpected

Definition at line 115 of file [fragmentation.h](#).

#### 7.216.2.9 uint8\_t rxFragmentedPacket::fragmentsReceived

Definition at line 116 of file [fragmentation.h](#).

#### 7.216.2.10 uint8\_t rxFragmentedPacket::fragmentMask

Definition at line 117 of file [fragmentation.h](#).

**7.216.2.11 uint8\_t rxFragmentedPacket::lastfragmentLen**

Definition at line 118 of file [fragmentation.h](#).

**7.216.2.12 uint8\_t rxFragmentedPacket::fragmentLen**

Definition at line 119 of file [fragmentation.h](#).

**7.216.2.13 EmberEventControl\* rxFragmentedPacket::fragmentEventControl**

Definition at line 122 of file [fragmentation.h](#).

The documentation for this struct was generated from the following file:

- [fragmentation.h](#)

## **7.217 txFragmentedPacket Struct Reference**

```
#include <fragmentation.h>
```

### **Data Fields**

- [EmberOutgoingMessageType messageType](#)
- [uint16\\_t indexOrDestination](#)
- [uint8\\_t sequence](#)
- [EmberApsFrame apsFrame](#)
- [uint8\\_t \\* bufferPtr](#)
- [uint16\\_t buffLen](#)
- [uint8\\_t fragmentLen](#)
- [uint8\\_t fragmentCount](#)
- [uint8\\_t fragmentBase](#)
- [uint8\\_t fragmentsInTransit](#)

### **7.217.1 Detailed Description**

Definition at line 61 of file [fragmentation.h](#).

### **7.217.2 Field Documentation**

**7.217.2.1 EmberOutgoingMessageType txFragmentedPacket::messageType**

Definition at line 62 of file [fragmentation.h](#).

**7.217.2.2 uint16\_t txFragmentedPacket::indexOrDestination**

Definition at line 63 of file [fragmentation.h](#).

**7.217.2.3 uint8\_t txFragmentedPacket::sequence**

Definition at line 64 of file [fragmentation.h](#).

**7.217.2.4 EmberApsFrame txFragmentedPacket::apsFrame**

Definition at line 65 of file [fragmentation.h](#).

**7.217.2.5 uint8\_t\* txFragmentedPacket::bufferPtr**

Definition at line 71 of file [fragmentation.h](#).

**7.217.2.6 uint16\_t txFragmentedPacket::bufLen**

Definition at line 72 of file [fragmentation.h](#).

**7.217.2.7 uint8\_t txFragmentedPacket::fragmentLen**

Definition at line 73 of file [fragmentation.h](#).

**7.217.2.8 uint8\_t txFragmentedPacket::fragmentCount**

Definition at line 74 of file [fragmentation.h](#).

**7.217.2.9 uint8\_t txFragmentedPacket::fragmentBase**

Definition at line 75 of file [fragmentation.h](#).

**7.217.2.10 uint8\_t txFragmentedPacket::fragmentsInTransit**

Definition at line 76 of file [fragmentation.h](#).

The documentation for this struct was generated from the following file:

- [fragmentation.h](#)

## Chapter 8

# File Documentation

### 8.1 11073-tunnel.h File Reference

#### Macros

- #define CLUSTER\_ID\_11073\_TUNNEL
- #define ATTRIBUTE\_11073\_TUNNEL\_MANAGER\_TARGET
- #define ATTRIBUTE\_11073\_TUNNEL\_MANAGER\_ENDPOINT
- #define ATTRIBUTE\_11073\_TUNNEL\_CONNECTED
- #define ATTRIBUTE\_11073\_TUNNEL\_PREEMPTIBLE
- #define ATTRIBUTE\_11073\_TUNNEL\_IDLE\_TIMEOUT

#### 8.1.1 Macro Definition Documentation

##### 8.1.1.1 #define CLUSTER\_ID\_11073\_TUNNEL

Definition at line 10 of file [11073-tunnel.h](#).

##### 8.1.1.2 #define ATTRIBUTE\_11073\_TUNNEL\_MANAGER\_TARGET

Definition at line 11 of file [11073-tunnel.h](#).

##### 8.1.1.3 #define ATTRIBUTE\_11073\_TUNNEL\_MANAGER\_ENDPOINT

Definition at line 12 of file [11073-tunnel.h](#).

##### 8.1.1.4 #define ATTRIBUTE\_11073\_TUNNEL\_CONNECTED

Definition at line 13 of file [11073-tunnel.h](#).

##### 8.1.1.5 #define ATTRIBUTE\_11073\_TUNNEL\_PREEMPTIBLE

Definition at line 14 of file [11073-tunnel.h](#).

### 8.1.1.6 #define ATTRIBUTE\_11073\_TUNNEL\_IDLE\_TIMEOUT

Definition at line 15 of file [11073-tunnel.h](#).

## 8.2 11073-tunnel.h

```

00001 // ****
00002 // * 11073-tunnel.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 // These are statically defined by the spec. Defines provided here
00009 // to improve plugin readability.
00010 #define CLUSTER_ID_11073_TUNNEL 0x0614
00011 #define ATTRIBUTE_11073_TUNNEL_MANAGER_TARGET 0x0001
00012 #define ATTRIBUTE_11073_TUNNEL_MANAGER_ENDPOINT 0x0002
00013 #define ATTRIBUTE_11073_TUNNEL_CONNECTED 0x0003
00014 #define ATTRIBUTE_11073_TUNNEL_PREEMPTIBLE 0x0004
00015 #define ATTRIBUTE_11073_TUNNEL_IDLE_TIMEOUT 0x0005
00016
00017 // These are variable and should be defined by the application using
00018 // this plugin.
00019 #ifndef HC_11073_TUNNEL_ENDPOINT
00020     #define HC_11073_TUNNEL_ENDPOINT 1
00021 #endif
00022

```

## 8.3 \_AF\_API.top File Reference

### 8.4 \_AF\_API.top

00001

## 8.5 address-table.h File Reference

### Macros

- `#define emberAfPluginAddressTableAddEntry(longId)`
- `#define emberAfPluginAddressTableRemoveEntryByIndex(index)`
- `#define emberAfPluginAddressTableLookupByEui64(longId)`

### Functions

- `EmberStatus emberAfPluginAddressTableRemoveEntry (EmberEUI64 entry)`
- `uint8_t emberAfLookupAddressTableEntryByEui64 (EmberEUI64 longId)`
- `EmberStatus emberAfPluginAddressTableLookupByIndex (uint8_t index, EmberEUI64 entry)`
- `EmberNodeId emberAfPluginAddressTableLookupNodeIdByIndex (uint8_t index)`
- `EmberStatus emberAfSendUnicastToEui64 (EmberEUI64 destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendCommandUnicastToEui64 (EmberEUI64 destination)`
- `EmberStatus emberAfGetCurrentSenderEui64 (EmberEUI64 address)`

### 8.5.1 Macro Definition Documentation

#### 8.5.1.1 #define emberAfPluginAddressTableAddEntry( *longId* )

Definition at line 16 of file [address-table.h](#).

#### 8.5.1.2 #define emberAfPluginAddressTableRemoveEntryByIndex( *index* )

Definition at line 31 of file [address-table.h](#).

#### 8.5.1.3 #define emberAfPluginAddressTableLookupByEui64( *longId* )

Definition at line 39 of file [address-table.h](#).

### 8.5.2 Function Documentation

#### 8.5.2.1 EmberStatus emberAfPluginAddressTableRemoveEntry ( EmberEUI64 *entry* )

#### 8.5.2.2 uint8\_t emberAfLookupAddressTableEntryByEui64 ( EmberEUI64 *longId* )

#### 8.5.2.3 EmberStatus emberAfPluginAddressTableLookupByIndex ( uint8\_t *index*, EmberEUI64 *entry* )

#### 8.5.2.4 EmberNodeId emberAfPluginAddressTableLookupNodeIdByIndex ( uint8\_t *index* )

#### 8.5.2.5 EmberStatus emberAfSendUnicastToEui64 ( EmberEUI64 *destination*, EmberApsFrame \* *apsFrame*, uint16\_t *messageLength*, uint8\_t \* *message* )

Allows to send a unicast message specifying the EUI64 of the destination node. Note: the specified EUI64 must be present in the address table, otherwise the status EMBER\_INVALID\_CALL is returned.

#### 8.5.2.6 EmberStatus emberAfSendCommandUnicastToEui64 ( EmberEUI64 *destination* )

Sends the command prepared with emberAfFill.... macro.

This function is used to send a command that was previously prepared using the emberAfFill... macros from the client command API. It will be sent as unicast to the node that corresponds in the address table to the passed EUI64.

#### 8.5.2.7 EmberStatus emberAfGetCurrentSenderEui64 ( EmberEUI64 *address* )

If the sender EUI64 is available it copies it in the passed variable and returns EMBER\_SUCCESS. Otherwise, it returns EMBER\_INVALID\_CALL.

## 8.6 address-table.h

```
00001 //
*****  
00002 // * address-table.h  
00003 // *  
00004 // * This code provides support for managing the address table.
```

```

00005 // *
00006 // * Copyright 2012 by Ember Corporation. All rights reserved.
00007 // *+80*
00008 /**
00009 */
00010 * @brief Adds a new entry to the address table. If the entry already exists,
00011 * no
00012 * new entry is created and the index of the entry already in the table is
00013 * returned. If a free entry is found, the entry is added to the table and the
00014 * corresponding index is returned. If no free entry is available in the
00015 * address
00016 #define emberAfPluginAddressTableAddEntry(longId) \
00017     emberAfAddAddressTableEntry((longId), EMBER_UNKNOWN_NODE_ID);
00018 /**
00019 */
00020 * @brief Removes an entry from the address table. If the entry exists, the
00021 * entry is cleared and the EMBER_SUCCESS status is returned. Otherwise, the
00022 * status EMBER_INVALID_CALL is returned.
00023 */
00024 EmberStatus emberAfPluginAddressTableRemoveEntry
00025     (EmberEUI64 entry);
00026 /**
00027 * @brief Removes an entry from the address table by index. If index is valid,
00028 * the entry is cleared and the EMBER_SUCCESS status is returned. Otherwise,
00029 * the
00030 * status EMBER_INVALID_CALL is returned.
00031 #define emberAfPluginAddressTableRemoveEntryByIndex(index) \
00032     emberAfRemoveAddressTableEntry((index))
00033 /**
00034 */
00035 * @brief Searches for an EUI64 in the address table. If an entry with a
00036 * matching EUI64 is found, the function returns the corresponding index.
00037 * Otherwise the value EMBER_NULL_ADDRESS_TABLE_INDEX is returned.
00038 */
00039 #define emberAfPluginAddressTableLookupByEui64(longId) \
00040     emberAfLookupAddressTableEntryByEui64((longId))
00041 uint8_t emberAfLookupAddressTableEntryByEui64
00042     (EmberEUI64 longId);
00043 /**
00044 * @brief If the passed index is valid it copies the entry stored at the passed
00045 * index to the passed variable and returns EMBER_SUCCESS. Otherwise the status
00046 * EMBER_INVALID_CALL is returned.
00047 */
00048 EmberStatus emberAfPluginAddressTableLookupByIndex
00049     (uint8_t index,
00050      EmberEUI64 entry);
00051 /**
00052 * @brief If the passed index is valid it copies the entry stored at the passed
00053 * index to the passed variable and returns EMBER_SUCCESS. Otherwise the status
00054 * EMBER_INVALID_CALL is returned.
00055 */
00056 EmberNodeId emberAfPluginAddressTableLookupNodeIdByIndex
00057     (uint8_t index);
00058 EmberStatus emberAfSendUnicastToEui64(
00059     EmberEUI64 destination,
00060             EmberApsFrame *apsFrame,
00061             uint16_t messageLength,
00062             uint8_t *message);
00063 EmberStatus emberAfSendCommandUnicastToEui64
00064     (EmberEUI64 destination);
00065 EmberStatus emberAfGetCurrentSenderEui64
00066     (EmberEUI64 address);
00067
00068
00069
00070
00071
00072
00073
00074
00075
00076
00077
00078
00079
00080
00081
00082
00083

```

## 8.7 aes-cmac.h File Reference

## Macros

- #define **MSB(x)**
- #define **initToConstZero(x)**
- #define **initToConstRb(x)**

## Functions

- void **emberAfPluginAesMacAuthenticate** (const uint8\_t \*key, const uint8\_t \*message, uint8\_t messageLength, uint8\_t \*out)

### 8.7.1 Macro Definition Documentation

#### 8.7.1.1 #define MSB( x )

Definition at line 7 of file [aes-cmac.h](#).

#### 8.7.1.2 #define initToConstZero( x )

Definition at line 9 of file [aes-cmac.h](#).

#### 8.7.1.3 #define initToConstRb( x )

Definition at line 12 of file [aes-cmac.h](#).

### 8.7.2 Function Documentation

#### 8.7.2.1 void emberAfPluginAesMacAuthenticate ( const uint8\_t \* key, const uint8\_t \* message, uint8\_t messageLength, uint8\_t \* out )

Computes the Cipher-based Message Authentication Code (CMAC) corresponding to the passed message and the passed key.

#### Parameters

<i>key</i>	The key to be used to produce the cipher-based authentication code.
<i>message</i>	A pointer to the message for which a cipher-based authentication code should be computed.
<i>messageLength</i>	The length in bytes of the message to be authenticated.

A pointer to a 4-byte area memory in which the resulting cipher-based authentication code will be stored.

## 8.8 aes-cmac.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002 //
00003 // Implementation of the Cipher-based Message Authentication Code (CMAC)
00004 // specified in the IETF memo "The AES-CMAC Algorithm".
00005
00006 // Returns the most significant bit of a bit string.
```

```

00007 #define MSB(x)  (x[0] >> 7)
00008
00009 #define initToConstZero(x)
00010   \
00011     do { MEMSET(x, 0x00, 16); } while(0)
00012 #define initToConstRb(x)
00013   \
00014     do { MEMSET(x, 0x00, 15); x[15]=0x87; } while(0)
00015
00016 void emberAfPluginAesMacAuthenticate(const
00017   uint8_t *key,
00018           const uint8_t *message,
00019           uint8_t messageLength,
00020           uint8_t *out);
00021
00022
00023
00024
00025
00026
00027
00028
00029
00030
00031
00032

```

## 8.9 af-types.h File Reference

```
#include "enums.h"
```

### Data Structures

- union [EmberAfDefaultAttributeValue](#)  
*Type for default values.*
- struct [EmberAfAttributeMinMaxValue](#)  
*Type describing the attribute default, min and max values.*
- union [EmberAfDefaultOrMinMaxAttributeValue](#)  
*Union describing the attribute default/min/max values.*
- struct [EmberAfAttributeMetadata](#)  
*Each attribute has it's metadata stored in such struct.*
- struct [EmberAfCluster](#)  
*Struct describing cluster.*
- struct [EmberAfAttributeSearchRecord](#)  
*Struct used to find an attribute in storage. Together the elements in this search record constitute the "primary key" used to identify a unique attribute value in attribute storage.*
- struct [EmberAfManufacturerCodeEntry](#)
- struct [EmberAfIncomingMessage](#)  
*a struct containing the superset of values passed to both emberIncomingMessageHandler on the SOC and ezspIncomingMessageHandler on the host.*
- struct [EmberAfInterpanHeader](#)  
*Interpan header used for sending and receiving interpan messages.*
- struct [EmberAfAllowedInterPanMessage](#)  
*This structure is used define an interpan message that will be accepted by the interpan filters.*
- struct [EmberAfClusterCommand](#)  
*The EmberAFClusterCommand is a struct wrapper for all the data pertaining to a command which comes in over the air. This enables struct is used to encapsulate a command in a single place on the stack and pass a pointer to that location around during command processing.*
- struct [EmberAfEndpointType](#)  
*Endpoint type struct describes clusters that are on the endpoint.*
- struct [EmberAfSecurityProfileData](#)
- struct [EmberAfDefinedEndpoint](#)

- struct [EmberAfLoadControlEvent](#)

*Struct that maps actual endpoint type, onto a specific endpoint.*
- struct [EmberAfServiceDiscoveryResult](#)

*A structure containing general information about the service discovery.*
- struct [EmberAfEndpointList](#)

*A list of endpoints received during a service discovery attempt. This will be returned for a match descriptor request and a active endpoint request.*
- struct [EmberAfClusterList](#)

*A list of clusters received during a service discovery attempt. This will be returned for a simple descriptor request.*
- struct [EmberAfEventContext](#)

*a structure used to keep track of cluster related events and their sleep control values. The cluster code will not know at runtime all of the events that it has access to in the event table. This structure is stored by the application framework in an event context table which along with helper functions allows the cluster code to schedule and deactivate its associated events.*
- struct [EmberAfSceneTableEntry](#)

*A structure used to store scene table entries in RAM or in tokens, depending on a plugin setting. If endpoint field is `EMBER_AF_SCENE_TABLE_UNUSED_ENDPOINT_ID`, the entry is unused.*
- struct [EmberAfPluginMessagingClientMessage](#)
- struct [EmberAfPluginPriceClientPrice](#)
- struct [EmberAfPluginReportingEntry](#)

*A structure used to store reporting configurations. If endpoint field is `EMBER_AF_PLUGIN_REPORTING_UNUSED_ENDPOINT_ID`, the entry is unused.*
- struct [EmberAfOtaImageId](#)

*This is a unique identifier for referencing ZigBee Over-the-air upgrade images. It is used by the OTA plugins when passing around information about an upgrade file.*
- struct [EmberAfImageBlockRequestCallbackStruct](#)

*This is the data structure that is passed to the `emberAfImageBlockRequestCallback()` to let the application decide what to do.*
- struct [EmberAfOtaHeader](#)

*This structure is an in-memory representation of the Over-the-air header data that resides on disk. It is not a byte-for-byte copy.*
- struct [EmberAfTagData](#)

*This structure contains information about a tag that resides within an Over-the-air bootload file.*
- struct [EmberAfMessageStruct](#)

*The `EmberAfMessageStruct` is a struct wrapper that contains all the data about a low-level message to be sent (it may be ZCL or may be some other protocol).*
- struct [EmberAfLinkKeyBackupData](#)

*A data struct for a link key backup.*
- struct [EmberAfTrustCenterBackupData](#)

*A data struct for all the trust center backup data.*
- struct [EmberAfStandaloneBootloaderQueryResponseData](#)

*A data struct for the information retrieved during a response to an Ember Bootloader over-the-air query.*
- struct [EmberAfCommandMetadata](#)

*A data struct used to keep track of incoming and outgoing commands for command discovery.*
- struct [EmberAfTimeStruct](#)

*A data structure used to describe the time in a human understandable format (as opposed to 32-bit UTC)*
- struct [EmberAfDate](#)

*A data structure used to describe the ZCL Date data type.*

- struct [EmberAfDeviceManagementTenancy](#)
- struct [EmberAfDeviceManagementSupplier](#)
- struct [EmberAfDeviceManagementSupply](#)
- struct [EmberAfDeviceManagementSiteId](#)
- struct [EmberAfDeviceManagementCIN](#)
- struct [EmberAfDeviceManagementSupplyStatusFlags](#)
- struct [EmberAfDeviceManagementUncontrolledFlowThreshold](#)
- struct [EmberAfDeviceManagementSupplyStatus](#)
- struct [EmberAfDeviceManagementPassword](#)
- struct [EmberAfDeviceManagementInfo](#)
- struct [EmberAfDeviceManagementAttributeRange](#)
- struct [EmberAfDeviceManagementAttributeTable](#)
- struct [EmberAfGbzMessageData](#)
- struct [EmberAfGpfMessage](#)
- struct [EmberAfRemoteClusterStruct](#)

*Zigbee Internet Client/Server remote cluster struct.*

- struct [EmberAfRemoteBindingStruct](#)

*Zigbee Internet Client/Server Remote Binding struct.*

- struct [EmberAfClusterInfo](#)
- struct [EmberAfEndpointInfoStruct](#)

*A struct containing basic information about an endpoint.*

- struct [EmberAfDeviceInfo](#)

*A struct containing endpoint information about a device.*

- struct [EmberAfDeviceDatabaseIterator](#)
- struct [EmberAfJoiningDevice](#)

## Macros

- #define [EMBER\\_AF\\_NULL\\_MANUFACTURER\\_CODE](#)
- #define [EMBER\\_AF\\_INVALID\\_PROFILE\\_ID](#)
- #define [EMBER\\_AF\\_INTER\\_PAN\\_UNICAST](#)
- #define [EMBER\\_AF\\_INTER\\_PAN\\_BROADCAST](#)
- #define [EMBER\\_AF\\_INTER\\_PAN\\_MULTICAST](#)
- #define [INTER\\_PAN\\_UNICAST](#)
- #define [INTER\\_PAN\\_BROADCAST](#)
- #define [INTER\\_PAN\\_MULTICAST](#)
- #define [EMBER\\_AF\\_INTERPAN\\_OPTION\\_NONE](#)
- #define [EMBER\\_AF\\_INTERPAN\\_OPTION\\_APS\\_ENCRYPT](#)
- #define [EMBER\\_AF\\_INTERPAN\\_OPTION\\_MAC\\_HAS\\_LONG\\_ADDRESS](#)
- #define [InterPanHeader](#)
- #define [EMBER\\_AF\\_INTERPAN\\_DIRECTION\\_CLIENT\\_TO\\_SERVER](#)
- #define [EMBER\\_AF\\_INTERPAN\\_DIRECTION\\_SERVER\\_TO\\_CLIENT](#)
- #define [EMBER\\_AF\\_INTERPAN\\_DIRECTION\\_BOTH](#)
- #define [EMBER\\_AF\\_INTERPAN\\_GLOBAL\\_COMMAND](#)
- #define [EMBER\\_AF\\_INTERPAN\\_MANUFACTURER\\_SPECIFIC](#)
- #define [EMBER\\_AF\\_ALLOW\\_TC\\_KEY\\_REQUESTS](#)
- #define [EMBER\\_AF\\_DENY\\_TC\\_KEY\\_REQUESTS](#)
- #define [EMBER\\_AF\\_ALLOW\\_APP\\_KEY\\_REQUESTS](#)

- #define EMBER\_AF\_DENY\_APP\_KEY\_REQUESTS
- #define EM\_AF\_DISCOVERY\_RESPONSE\_MASK
- #define emberAfHaveDiscoveryResponseStatus(status)
- #define EMBER\_AF\_SCENE\_TABLE\_NULL\_INDEX
- #define EMBER\_AF\_SCENE\_TABLE\_UNUSED\_ENDPOINT\_ID
- #define ZCL\_SCENES\_CLUSTER\_MAXIMUM\_NAME\_LENGTH
- #define ZCL\_SCENES\_GLOBAL\_SCENE\_GROUP\_ID
- #define ZCL\_SCENES\_GLOBAL\_SCENE\_SCENE\_ID
- #define EMBER\_AF\_PLUGIN\_MESSAGING\_CLIENT\_MESSAGE\_SIZE
- #define ZCL\_PRICE\_CLUSTER\_MAXIMUM\_RATE\_LABEL\_LENGTH
- #define EMBER\_AF\_PLUGIN\_REPORTING\_UNUSED\_ENDPOINT\_ID
- #define EMBER\_AF\_OTA\_MAX\_HEADER\_STRING\_LENGTH
- #define APP\_NOTIFY\_ERROR\_CODE\_START
- #define APP\_NOTIFY\_MESSAGE\_TEXT
- #define EMBER\_AF\_STANDALONE\_BOOTLOADER\_HARDWARE\_TAG\_LENGTH
- #define EMBER\_AF\_PLUGIN\_SIMPLE\_METERING\_SERVER\_ELECTRIC\_METER
- #define EMBER\_AF\_PLUGIN\_SIMPLE\_METERING\_SERVER\_GAS\_METER
- #define EMBER\_AF\_METERING\_FNF\_NEW\_OTA\_FIRMWARE
- #define EMBER\_AF\_METERING\_FNF\_CBKE\_UPDATE\_REQUEST
- #define EMBER\_AF\_METERING\_FNF\_TIME\_SYNC
- #define EMBER\_AF\_METERING\_FNF\_STAY\_AWAKE\_REQUEST\_HAN
- #define EMBER\_AF\_METERING\_FNF\_STAY\_AWAKE\_REQUEST\_WAN
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER
- #define EMBER\_AF\_METERING\_FNF\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER
- #define EMBER\_AF\_METERING\_FNF\_NETWORK\_KEY\_ACTIVE
- #define EMBER\_AF\_METERING\_FNF\_DISPLAY\_MESSAGE
- #define EMBER\_AF\_METERING\_FNF\_CANCEL\_ALL\_MESSAGES
- #define EMBER\_AF\_METERING\_FNF\_CHANGE\_SUPPLY
- #define EMBER\_AF\_METERING\_FNF\_LOCAL\_CHANGE\_SUPPLY
- #define EMBER\_AF\_METERING\_FNF\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD
- #define EMBER\_AF\_METERING\_FNF\_TUNNEL\_MESSAGE\_PENDING
- #define EMBER\_AF\_METERING\_FNF\_GET\_SNAPSHOT
- #define EMBER\_AF\_METERING\_FNF\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_PRICE
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BLOCK\_PERIOD
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_TARIFF\_INFORMATION
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CONVERSION\_FACTOR
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CALORIFIC\_VALUE
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CO2\_VALUE
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BILLING\_PERIOD
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH.ConsOLIDATED\_BILL
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_PRICE\_MATRIX
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_BLOCK\_THRESHOLDS
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CURRENCY\_CONVERSION

- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CREDIT\_PAYMENT\_INFO
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_CPP\_EVENT
- #define EMBER\_AF\_METERING\_NF2\_PUBLISH\_TIER\_LABELS
- #define EMBER\_AF\_METERING\_NF2\_CANCEL\_TARIFF
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_CALENDAR
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_SPECIAL\_DAYS
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_SEASONS
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_WEEK
- #define EMBER\_AF\_METERING\_NF3\_PUBLISH\_DAY
- #define EMBER\_AF\_METERING\_NF3\_CANCEL\_CALENDAR
- #define EMBER\_AF\_METERING\_NF4\_SELECT\_AVAILABLE\_EMERGENCY\_CREDIT
- #define EMBER\_AF\_METERING\_NF4\_CHANGE\_DEBT
- #define EMBER\_AF\_METERING\_NF4\_EMERGENCY\_CREDIT\_SETUP
- #define EMBER\_AF\_METERING\_NF4\_CONSUMER\_TOP\_UP
- #define EMBER\_AF\_METERING\_NF4\_CREDIT\_ADJUSTMENT
- #define EMBER\_AF\_METERING\_NF4\_CHANGE\_PAYMENT\_MODE
- #define EMBER\_AF\_METERING\_NF4\_GET\_PREPAY\_SNAPSHOT
- #define EMBER\_AF\_METERING\_NF4\_GET\_TOP\_UP\_LOG
- #define EMBER\_AF\_METERING\_NF4\_SET\_LOW\_CREDIT\_WARNING\_LEVEL
- #define EMBER\_AF\_METERING\_NF4\_GET\_DEBT\_REPAYMENT\_LOG
- #define EMBER\_AF\_METERING\_NF4\_SET\_MAXIMUM\_CREDIT\_LIMIT
- #define EMBER\_AF\_METERING\_NF4\_SET\_OVERALL\_DEBT\_CAP
- #define EMBER\_AF\_METERING\_NF5\_PUBLISH\_CHANGE\_OF\_TENANCY
- #define EMBER\_AF\_METERING\_NF5\_PUBLISH\_CHANGE\_OF\_SUPPLIER
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_1\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_2\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_3\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_REQUEST\_NEW\_PASSWORD\_4\_RESPONSE
- #define EMBER\_AF\_METERING\_NF5\_UPDATE\_SITE\_ID
- #define EMBER\_AF\_METERING\_NF5\_RESET\_BATTERY\_COUNTER
- #define EMBER\_AF\_METERING\_NF5\_UPDATE\_CIN
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_NAME\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PROPOSED\_PROVIDER\_CONTACT\_DETAILS\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_SITE\_ID\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_CIN\_LENGTH
- #define EMBER\_AF\_DEVICE\_MANAGEMENT\_MAXIMUM\_PASSWORD\_LENGTH
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_NONE
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_SERVER
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_CLIENT
- #define EMBER\_AF\_REMOTE\_CLUSTER\_TYPE\_INVALID
- #define EMBER\_AF\_MAX\_CLUSTERS\_PER\_ENDPOINT
- #define EMBER\_AF\_MAX\_ENDPOINTS\_PER\_DEVICE
- #define EMBER\_AF\_INVALID\_CLUSTER\_ID
- #define EMBER\_AF\_INVALID\_ENDPOINT
- #define EMBER\_AF\_INVALID\_PAN\_ID
- #define EMBER\_AF\_PERMIT\_JOIN\_FOREVER
- #define EMBER\_AF\_PERMIT\_JOIN\_MAX\_TIMEOUT
- #define EMBER\_AF\_ZDO\_RESPONSE\_OVERHEAD

## Typedefs

- `typedef uint16_t EmberAfProfileId`
- `typedef uint16_t EmberAfAttributeId`
- `typedef uint16_t EmberAfClusterId`
- `typedef uint8_t EmberAfAttributeType`
- `typedef uint8_t EmberAfClusterMask`
- `typedef uint8_t EmberAfAttributeMask`
- `typedef void(* EmberAfGenericClusterFunction )(void)`
- `typedef uint8_t EmberAfInterpanMessageType`
- `typedef uint16_t EmberAfInterpanOptions`
- `typedef uint8_t EmberAfAllowedInterpanOptions`
- `typedef EmberLinkKeyRequestPolicy EmberAfLinkKeyRequestPolicy`
- `typedef uint8_t EmberAfPluginEsiManagementBitmask`
- `typedef void( EmberAfServiceDiscoveryCallback )(const EmberAfServiceDiscoveryResult *result)`
- `typedef void( EmberAfPartnerLinkKeyExchangeCallback )(bool success)`
- `typedef void(* EmberAfNetworkEventHandler )(void)`
- `typedef void(* EmberAfEndpointEventHandler )(uint8_t endpoint)`
- `typedef uint8_t EmberAfImageBlockRequestOptions`
- `typedef uint8_t EmberAfOtaDownloadResult`
- `typedef void(* EmberAfTickFunction )(uint8_t endpoint)`
- `typedef void(* EmberAfInitFunction )(uint8_t endpoint)`
- `typedef void(* EmberAfClusterAttributeChangedCallback )(uint8_t endpoint, EmberAfAttributeId attributeId)`
- `typedef void(* EmberAfManufacturerSpecificClusterAttributeChangedCallback )(uint8_t endpoint, EmberAfAttributeId attributeId, uint16_t manufacturerCode)`
- `typedef EmberAfStatus(* EmberAfClusterPreAttributeChangedCallback )(uint8_t endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, uint8_t size, uint8_t *value)`
- `typedef void(* EmberAfDefaultResponseFunction )(uint8_t endpoint, uint8_t commandId, EmberAfStatus status)`
- `typedef void(* EmberAfMessageSentFunction )(EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t msgLen, uint8_t *message, EmberStatus status)`
- `typedef uint16_t EmberAfRemoteClusterType`

## Enumerations

- `enum EmberAfSecurityProfile {  
EMBER_AF_SECURITY_PROFILE_NONE, EMBER_AF_SECURITY_PROFILE_HA, EMBER_AF_SECURITY_PROFILE_HA12, EMBER_AF_SECURITY_PROFILE_SE_TEST,  
EMBER_AF_SECURITY_PROFILE_SE_FULL, EMBER_AF_SECURITY_PROFILE_Z3, EMBER_AF_SECURITY_PROFILE_CUSTOM }`
- `enum EmberAfServiceDiscoveryStatus {  
EMBER_AF_BROADCAST_SERVICE_DISCOVERY_COMPLETE, EMBER_AF_BROADCAST_SERVICE_DISCOVERY_RESPONSE RECEIVED, EMBER_AF_UNICAST_SERVICE_DISCOVERY_TIMEOUT, EMBER_AF_UNICAST_SERVICE_DISCOVERY_COMPLETE_WITH_RESPONSE,  
EMBER_AF_BROADCAST_SERVICE_DISCOVERY_COMPLETE_WITH_RESPONSE }`
- `enum EmberAfEventPollControl { EMBER_AF_LONG_POLL, EMBER_AF_SHORT_POLL }`
- `enum EmberAfEventSleepControl { EMBER_AF_OK_TO_SLEEP, EMBER_AF_OK_TO_HIBERNATE, EMBER_AF_OK_TO_NAP, EMBER_AF_STAY_AWAKE }`

- enum `EmberAfApplicationTask` {
 `EMBER_AF_WAITING_FOR_DATA_ACK`, `EMBER_AF_LAST_POLL_GOT_DATA`, `EMBER_AF_WAITING_FOR_SERVICE_DISCOVERY`, `EMBER_AF_WAITING_FOR_ZDO_RESPONSE`,  
`EMBER_AF_WAITING_FOR_ZCL_RESPONSE`, `EMBER_AF_WAITING_FOR_REGISTRATION`, `EMBER_AF_WAITING_FOR_PARTNER_LINK_KEY_EXCHANGE`, `EMBER_AF_FORCE_SHORT_POLL`,  
`EMBER_AF_FRAGMENTATION_IN_PROGRESS` }
- enum `EmberAfPluginPriceCppAuth` {
 `EMBER_AF_PLUGIN_PRICE_CPP_AUTH_PENDING`, `EMBER_AF_PLUGIN_PRICE_CPP_AUTH_ACCEPTED`, `EMBER_AF_PLUGIN_PRICE_CPP_AUTH_REJECTED`, `EMBER_AF_PLUGIN_PRICE_CPP_AUTH_FORCED`,  
`EMBER_AF_PLUGIN_PRICE_CPP_AUTH_RESERVED` }
- enum `EmberAfPluginTunnelingClientStatus` {
 `EMBER_AF_PLUGIN_TUNNELING_CLIENT_SUCCESS`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_BUSY`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_NO_MORE_TUNNEL_IDS`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_PROTOCOL_NOT_SUPPORTED`,  
`EMBER_AF_PLUGIN_TUNNELING_CLIENT_FLOW_CONTROL_NOT_SUPPORTED`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_IEEE_ADDRESS_REQUEST_FAILED`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_IEEE_ADDRESS_NOT_FOUND`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_ADDRESS_TABLE_FULL`,  
`EMBER_AF_PLUGIN_TUNNELING_CLIENT_LINK_KEY_EXCHANGE_REQUEST_FAILED`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_LINK_KEY_EXCHANGE_FAILED`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_REQUEST_TUNNEL_FAILED`, `EMBER_AF_PLUGIN_TUNNELING_CLIENT_REQUEST_TUNNEL_TIMEOUT` }
- enum { `EMBER_AF_IMAGE_BLOCK_REQUEST_OPTIONS_NONE`, `EMBER_AF_IMAGE_BLOCK_REQUEST_MIN_BLOCK_REQUEST_SUPPORTED_BY_CLIENT`, `EMBER_AF_IMAGE_BLOCK_REQUEST_MIN_BLOCK_REQUEST_SUPPORTED_BY_SERVER` }
- enum `EmberAfOtaStorageStatus` {
 `EMBER_AF_OTA_STORAGE_SUCCESS`, `EMBER_AF_OTA_STORAGE_ERROR`, `EMBER_AF_OTA_STORAGE_RETURN_DATA_TOO_LONG`, `EMBER_AF_OTA_STORAGE_PARTIAL_FILE_FOUND`,  
`EMBER_AF_OTA_STORAGE_OPERATION_IN_PROGRESS` }
- enum {
 `EMBER_AF_OTA_DOWNLOAD_AND_VERIFY_SUCCESS`, `EMBER_AF_OTA_DOWNLOAD_TIME_OUT`, `EMBER_AF_OTA_VERIFY_FAILED`, `EMBER_AF_OTA_SERVER_ABORTED`,  
`EMBER_AF_OTA_CLIENT_ABORTED`, `EMBER_AF_OTA_ERASE_FAILED` }
- enum `EmberAfKeyEstablishmentNotifyMessage` {
 `NO_APP_MESSAGE`, `RECEIVED_PARTNER_CERTIFICATE`, `GENERATING_EPHEMERAL_KEYS`, `GENERATING_SHARED_SECRET`,  
`KEY_GENERATION_DONE`, `GENERATE_SHARED_SECRET_DONE`, `LINK_KEY_ESTABLISHED`, `NO_LOCAL_RESOURCES`,  
`PARTNER_NO_RESOURCES`, `TIMEOUT_OCCURRED`, `INVALID_APP_COMMAND`, `MESSAGE_SEND_FAILURE`,  
`PARTNER_SENT_TERMINATE`, `INVALID_PARTNER_MESSAGE`, `PARTNER_SENT_DEFAULT_RESPONSE_ERROR`, `BAD_CERTIFICATE_ISSUER`,  
`KEY_CONFIRM_FAILURE`, `BAD_KEY_ESTABLISHMENT_SUITE`, `KEY_TABLE_FULL`, `NO_ESTABLISHMENT_ALLOWED`,  
`INVALID_CERTIFICATE_KEY_USAGE` }
- enum `EmberAfImageVerifyStatus` { `EMBER_AF_IMAGE_GOOD`, `EMBER_AF_IMAGE_BAD`, `EMBER_AF_IMAGE_VERIFY_IN_PROGRESS` }

- enum `EmberAfCbkeKeyEstablishmentSuite` { `EMBER_AF_INVALID_KEY_ESTABLISHMENT_SUITE`, `EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_163K1`, `EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_283K1` }
- enum `EmberAfDeviceManagementPasswordType` { `UNUSED_PASSWORD`, `SERVICE_PASSWORD`, `CONSUMER_PASSWORD` }
- enum `EmberAfDeviceManagementChangePendingFlags` {  
`EMBER_AF_DEVICE_MANAGEMENT_CHANGE_OF_TENANCY_PENDING_MASK`, `EMBER_AF_DEVICE_MANAGEMENT_CHANGE_OF_SUPPLIER_PENDING_MASK`, `EMBER_AF_DEVICE_MANAGEMENT_UPDATE_SITE_ID_PENDING_MASK`, `EMBER_AF_DEVICE_MANAGEMENT_UPDATE_CIN_PENDING_MASK`,  
`EMBER_AF_DEVICE_MANAGEMENT_UPDATE_SERVICE_PASSWORD_PENDING_MASK`, `EMBER_AF_DEVICE_MANAGEMENT_UPDATE_CONSUMER_PASSWORD_PENDING_MASK` }
- enum `EmberAfDeviceDiscoveryStatus` {  
`EMBER_AF_DEVICE_DISCOVERY_STATUS_NONE`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_NEW`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_FIND_ENDPOINTS`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_FIND_CLUSTERS`,  
`EMBER_AF_DEVICE_DISCOVERY_STATUS_DONE`, `EMBER_AF_DEVICE_DISCOVERY_STATUS_FAILED` }

### 8.9.1 Detailed Description

The include file for all the types for Ember ApplicationFramework.

Definition in file `af-types.h`.

## 8.10 af-types.h

```

00001
00015 #ifndef __AF_API_TYPES__
00016 #define __AF_API_TYPES__
00017
00018 #include "enums.h"
00019
00023 typedef uint16_t EmberAfProfileId;
00024
00028 typedef uint16_t EmberAfAttributeId;
00029
00033 typedef uint16_t EmberAfClusterId;
00034
00038 typedef uint8_t EmberAfAttributeType;
00039
00043 typedef uint8_t EmberAfClusterMask;
00044
00048 typedef uint8_t EmberAfAttributeMask;
00049
00056 typedef void (*EmberAfGenericClusterFunction) (void
);
00057
00062 #define EMBER_AF_NULL_MANUFACTURER_CODE 0x0000
00063
00068 #define EMBER_AF_INVALID_PROFILE_ID 0xFFFF
00069
00077 typedef union {
00083     uint8_t *ptrToDefaultValue;
00087     uint16_t defaultValue;
00088 } EmberAfDefaultAttributeValue;
00089
00096 typedef struct {
00100     EmberAfDefaultAttributeValue defaultValue
;
00104     EmberAfDefaultAttributeValue minValue;
00108     EmberAfDefaultAttributeValue maxValue;

```

```

00109 } EmberAfAttributeMinMaxValue;
00110
00114 typedef union {
00120     uint8_t *ptrToDefaultValue;
00124     uint16_t defaultValue;
00129     EmberAfAttributeMinMaxValue *ptrToMinMaxValue
00130 ;
00130 } EmberAfDefaultOrMinMaxAttributeValue;
00131
00132
00138 typedef struct {
00142     EmberAfAttributeId attributeId;
00146     EmberAfAttributeType attributeType;
00150     uint8_t size;
00156     EmberAfAttributeMask mask;
00161     EmberAfDefaultOrMinMaxAttributeValue
00161     defaultValue;
00162 } EmberAfAttributeMetadata;
00163
00167 typedef struct {
00171     EmberAfClusterId clusterId;
00175     EmberAfAttributeMetadata *attributes;
00179     uint16_t attributeCount;
00183     uint16_t clusterSize;
00188     EmberAfClusterMask mask;
00189
00195     const EmberAfGenericClusterFunction *functions
00196
00197 } EmberAfCluster;
00198
00204 typedef struct {
00205
00209     uint8_t endpoint;
00210
00217     EmberAfClusterId clusterId;
00218
00224     EmberAfClusterMask clusterMask;
00225
00231     EmberAfAttributeId attributeId;
00232
00242     uint16_t manufacturerCode;
00243 } EmberAfAttributeSearchRecord;
00244
00249 typedef struct {
00250     uint16_t index;
00251     uint16_t manufacturerCode;
00252 } EmberAfManufacturerCodeEntry;
00253
00259 typedef struct {
00263     EmberIncomingMessageType type;
00267     EmberApsFrame* apsFrame;
00271     uint8_t* message;
00275     uint16_t msgLen;
00279     uint16_t source;
00284     uint8_t lastHopLqi;
00288     int8_t lastHopRssi;
00293     uint8_t bindingTableIndex;
00299     uint8_t addressTableIndex;
00303     uint8_t networkIndex;
00304 } EmberAfIncomingMessage;
00305
00306
00310 typedef uint8_t EmberAfInterpanMessageType;
00311 #define EMBER_AF_INTER_PAN_UNICAST 0x00
00312 #define EMBER_AF_INTER_PAN_BROADCAST 0x08
00313 #define EMBER_AF_INTER_PAN_MULTICAST 0x0C
00314
00315 // Legacy names
00316 #define INTER_PAN_UNICAST EMBER_AF_INTER_PAN_UNICAST
00317 #define INTER_PAN_BROADCAST EMBER_AF_INTER_PAN_BROADCAST
00318 #define INTER_PAN_MULTICAST EMBER_AF_INTER_PAN_MULTICAST
00319
00320
00321 #define EMBER_AF_INTERPAN_OPTION_NONE 0x0000
00322 #define EMBER_AF_INTERPAN_OPTION_APS_ENCRYPT 0x0001
00323 #define EMBER_AF_INTERPAN_OPTION_MAC_HAS_LONG_ADDRESS 0x0002
00324
00328 typedef uint16_t EmberAfInterpanOptions;
00329

```

```

00334 typedef struct {
00335     EmberAfInterpanMessageType messageType;
00336
00342     EmberEUI64 longAddress;
00343     EmberNodeId shortAddress;
00344     EmberPanId panId;
00345
00349     EmberAfProfileId profileId;
00350     EmberAfClusterId clusterId;
00355     EmberMulticastId groupId;
00356     EmberAfInterpanOptions options;
00357 } EmberAfInterpanHeader;
00358
00359 // Legacy Name
00360 #define InterPanHeader EmberAfInterpanHeader
00361
00365 typedef uint8_t EmberAfAllowedInterpanOptions;
00366
00367 #define EMBER_AF_INTERPAN_DIRECTION_CLIENT_TO_SERVER 0x01
00368 #define EMBER_AF_INTERPAN_DIRECTION_SERVER_TO_CLIENT 0x02
00369 #define EMBER_AF_INTERPAN_DIRECTION_BOTH 0x03
00370 #define EMBER_AF_INTERPAN_GLOBAL_COMMAND 0x04
00371 #define EMBER_AF_INTERPAN_MANUFACTURER_SPECIFIC 0x08
00372
00377 typedef struct {
00378     EmberAfProfileId profileId;
00379     EmberAfClusterId clusterId;
00380     uint8_t commandId;
00381     EmberAfAllowedInterpanOptions options;
00382 } EmberAfAllowedInterPanMessage;
00383
00384
00393 typedef struct {
00397     EmberApsFrame *apsFrame;
00398     EmberIncomingMessageType type;
00399     EmberNodeId source;
00400     uint8_t *buffer;
00401     uint16_t bufLen;
00402     bool clusterSpecific;
00403     bool mfgSpecific;
00404     uint16_t mfgCode;
00405     uint8_t seqNum;
00406     uint8_t commandId;
00407     uint8_t payloadstartIndex;
00408     uint8_t direction;
00409     EmberAfInterpanHeader *interPanHeader;
00410     uint8_t networkIndex;
00411 } EmberAfClusterCommand;
00412
00416 typedef struct {
00421     EmberAfCluster *cluster;
00425     uint8_t clusterCount;
00429     uint16_t endpointSize;
00430 } EmberAfEndpointType;
00431
00432 #ifdef EZSP_HOST
00433     typedef EzspDecisionId EmberAfLinkKeyRequestPolicy
00434     ;
00435     #define EMBER_AF_ALLOW_TC_KEY_REQUESTS EZSP_ALLOW_TC_KEY_REQUESTS
00436     #define EMBER_AF_DENY_TC_KEY_REQUESTS EZSP_DENY_TC_KEY_REQUESTS
00437     #define EMBER_AF_ALLOW_APP_KEY_REQUESTS EZSP_ALLOW_APP_KEY_REQUESTS
00438     #define EMBER_AF_DENY_APP_KEY_REQUESTS EZSP_DENY_APP_KEY_REQUESTS
00439     #else
00440         typedef EmberLinkKeyRequestPolicy
00441             EmberAfLinkKeyRequestPolicy;
00442         #define EMBER_AF_ALLOW_TC_KEY_REQUESTS EMBER_ALLOW_KEY_REQUESTS
00443         #define EMBER_AF_DENY_TC_KEY_REQUESTS EMBER_DENY_KEY_REQUESTS
00444     #endif
00445
00446 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00447 enum EmberAfSecurityProfile
00448 #else
00449     typedef uint8_t EmberAfSecurityProfile;
00450     enum
00451 #endif
00452 {
00453     EMBER_AF_SECURITY_PROFILE_NONE = 0x00,
00454     EMBER_AF_SECURITY_PROFILE_HA = 0x01,

```

```

00455     EMBER_AF_SECURITY_PROFILE_HA12      = 0x02,
00456     EMBER_AF_SECURITY_PROFILE_SE_TEST   = 0x03,
00457     EMBER_AF_SECURITY_PROFILE_SE_FULL   = 0x04,
00458     EMBER_AF_SECURITY_PROFILE_Z3       = 0x05,
00459     EMBER_AF_SECURITY_PROFILE_CUSTOM    = 0xFF,
00460 };
00461
00462 typedef struct {
00463     EmberAfSecurityProfile           securityProfile
00464 ;
00465     uint16_t                         tcBitmask;
00466     EmberExtendedSecurityBitmask    tcExtendedBitmask
00467 ;
00468     uint16_t                         nodeBitmask;
00469     EmberExtendedSecurityBitmask    nodeExtendedBitmask
00470 ;
00471     EmberAfLinkKeyRequestPolicy    tcLinkKeyRequestPolicy;
00472     EmberAfLinkKeyRequestPolicy    appLinkKeyRequestPolicy;
00473     EmberKeyData                  preconfiguredKey;
00474 } EmberAfSecurityProfileData;
00475
00476 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00477 typedef uint8_t EmAfNetworkType;
00478 enum {
00479     EM_AF_NETWORK_TYPE_ZIGBEE_PRO,
00480     EM_AF_NETWORK_TYPE_ZIGBEE_RF4CE,
00481 };
00482
00483 typedef struct {
00484     EmberNodeType          nodeType;
00485     EmberAfSecurityProfile securityProfile;
00486 } EmAfZigbeeProNetwork;
00487
00488 #endif
00489
00490 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00491 enum EmberAfEndpointBitmask;
00492 #else
00493 typedef uint8_t EmberAfEndpointBitmask;
00494 enum
00495 #endif
00496 {
00497     EMBER_AF_ENDPOINT_DISABLED = 0x00,
00498     EMBER_AF_ENDPOINT_ENABLED  = 0x01,
00499 };
00500
00501 typedef struct {
00502     uint8_t endpoint;
00503     EmberAfProfileId profileId;
00504     uint16_t deviceId;
00505     uint8_t deviceVersion;
00506     EmberAfEndpointType *endpointType;
00507     uint8_t networkIndex;
00508     EmberAfEndpointBitmask bitmask;
00509 } EmberAfDefinedEndpoint;
00510
00511
00512
00513
00514 // Cluster specific types
00515
00516 #if (EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE <= 8)
00517     typedef uint8_t EmberAfPluginEsiManagementBitmask
00518 ;
00519 #elif (EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE <= 16)
00520     typedef uint16_t EmberAfPluginEsiManagementBitmask
00521 ;
00522 #elif (EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE <= 32)
00523     typedef uint32_t EmberAfPluginEsiManagementBitmask
00524 ;
00525 #else
00526     #error "EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE cannot exceed 32"
00527 #endif
00528
00529
00530 typedef struct {
00531     uint32_t eventId;
00532     #ifdef EMBER_AF_PLUGIN_DRLC_SERVER
00533         EmberEUI64 source;
00534     uint8_t sourceEndpoint;
00535 
```



```

00723     EMBER_AF_OK_TO_SLEEP,
00725     EMBER_AF_OK_TO_HIBERNATE = EMBER_AF_OK_TO_SLEEP
00727     EMBER_AF_OK_TO_NAP,
00728     EMBER_AF_STAY_AWAKE,
00729 } EmberAfEventSleepControl;
00730
00757 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00758 enum EmberAfApplicationTask
00759 #else
00760 typedef uint32_t EmberAfApplicationTask;
00761 enum
00762 #endif
00763 {
00764     // we may be able to remove these top two since they are
00765     // handled by the stack on the SOC.
00766     EMBER_AF_WAITING_FOR_DATA_ACK           =
00767     0x00000001, //not needed?
00768     EMBER_AF_LAST_POLL_GOT_DATA           =
00769     0x00000002, //not needed?
00770     EMBER_AF_WAITING_FOR_SERVICE_DISCOVERY =
00771     0x00000004,
00772     EMBER_AF_WAITING_FOR_ZDO_RESPONSE      =
00773     0x00000008,
00774     EMBER_AF_WAITING_FOR_ZCL_RESPONSE      =
00775     0x00000010,
00776     EMBER_AF_WAITING_FOR_REGISTRATION       =
00777     0x00000020,
00778     EMBER_AF_WAITING_FOR_PARTNER_LINK_KEY_EXCHANGE =
00779     0x00000040,
00780     EMBER_AF_FORCE_SHORT_POLL               =
00781     0x00000080,
00782     EMBER_AF_FRAGMENTATION_IN_PROGRESS      =
00783     0x00000100,
00784 };
00785 typedef struct {
00786     uint8_t endpoint;
00787     EmberAfClusterId clusterId;
00788     bool isClient;
00789     EmberAfEventPollControl pollControl;
00790     EmberAfEventSleepControl sleepControl;
00791     EmberEventControl *eventControl;
00792     EmberAfEventContext;
00793 } EmberAfEventContext;
00794
00795 typedef void (*EmberAfNetworkEventHandler)(void);
00796
00797 typedef void (*EmberAfEndpointEventHandler)(uint8_t
00798     endpoint);
00799
00800 #ifdef EMBER_AF_PLUGIN_GROUPS_SERVER
00801
00802 #define EMBER_AF_GROUP_TABLE_NULL_INDEX 0xFF
00803
00804 #define EMBER_AF_GROUP_TABLE_UNUSED_ENDPOINT_ID 0x00
00805
00806 #define ZCL_GROUPS_CLUSTER_MAXIMUM_NAME_LENGTH 16
00807
00808 typedef struct {
00809     uint8_t endpoint; // 0x00 when not in use
00810     uint16_t groupId;
00811     uint8_t bindingIndex;
00812     #ifdef EMBER_AF_PLUGIN_GROUPS_SERVER_NAME_SUPPORT
00813     uint8_t name[ZCL_GROUPS_CLUSTER_MAXIMUM_NAME_LENGTH + 1];
00814     #endif
00815 } EmberAfGroupTableEntry;
00816
00817 #endif //EMBER_AF_PLUGIN_GROUPS_SERVER
00818
00819 #define EMBER_AF_SCENE_TABLE_NULL_INDEX 0xFF
00820
00821 #define EMBER_AF_SCENE_TABLE_UNUSED_ENDPOINT_ID 0x00
00822
00823 #define ZCL_SCENES_CLUSTER_MAXIMUM_NAME_LENGTH 16
00824
00825 #define ZCL_SCENES_GLOBAL_SCENE_GROUP_ID 0x0000
00826
00827 #define ZCL_SCENES_GLOBAL_SCENE_SCENE_ID 0x00
00828
00829 typedef struct {
00830     uint8_t endpoint; // 0x00 when this record is not in

```

```

use
00882     uint16_t  groupId;           // 0x0000 if not associated with a
group
00883     uint8_t   sceneId;
00884 #ifdef EMBER_AF_PLUGIN_SCENES_NAME_SUPPORT
00885     uint8_t   name[ZCL_SCENES_CLUSTER_MAXIMUM_NAME_LENGTH
+ 1];
00886 #endif
00887     uint16_t  transitionTime;    // in seconds
00888     uint8_t   transitionTime100ms; // in tenths of a
seconds
00889 #ifdef ZCL_USING_ON_OFF_CLUSTER_SERVER
00890     bool hasOnOffValue;
00891     bool onOffValue;
00892 #endif
00893 #ifdef ZCL_USING_LEVEL_CONTROL_CLUSTER_SERVER
00894     bool hasCurrentLevelValue;
00895     uint8_t   currentLevelValue;
00896 #endif
00897 #ifdef ZCL_USING_THERMOSTAT_CLUSTER_SERVER
00898     bool hasOccupiedCoolingSetpointValue;
00899     int16_t   occupiedCoolingSetpointValue;
00900     bool hasOccupiedHeatingSetpointValue;
00901     int16_t   occupiedHeatingSetpointValue;
00902     bool hasSystemModeValue;
00903     uint8_t   systemModeValue;
00904 #endif
00905 #ifdef ZCL_USING_COLOR_CONTROL_CLUSTER_SERVER
00906     bool hasCurrentXValue;
00907     uint16_t  currentXValue;
00908     bool hasCurrentYValue;
00909     uint16_t  currentYValue;
00910     bool hasEnhancedCurrentHueValue;
00911     uint16_t  enhancedCurrentHueValue;
00912     bool hasCurrentSaturationValue;
00913     uint8_t   currentSaturationValue;
00914     bool hasColorLoopActiveValue;
00915     uint8_t   colorLoopActiveValue;
00916     bool hasColorLoopDirectionValue;
00917     uint8_t   colorLoopDirectionValue;
00918     bool hasColorLoopTimeValue;
00919     uint16_t  colorLoopTimeValue;
00920 #endif //ZCL_USING_COLOR_CONTROL_CLUSTER_SERVER
00921 #ifdef ZCL_USING_DOOR_LOCK_CLUSTER_SERVER
00922     bool hasLockStateValue;
00923     uint8_t   lockStateValue;
00924 #endif
00925 #ifdef ZCL_USING_WINDOW_COVERING_CLUSTER_SERVER
00926     bool hasCurrentPositionLiftPercentageValue;
00927     uint8_t   currentPositionLiftPercentageValue;
00928     bool hasCurrentPositionTiltPercentageValue;
00929     uint8_t   currentPositionTiltPercentageValue;
00930 #endif
00931 } EmberAfSceneTableEntry;
00932
00933 #if !defined(EMBER_AF_PLUGIN_MESSAGING_CLIENT)
00934     // In order to be able to forward declare callbacks regardless of whether the
plugin
00935     // is enabled, we need to define all data structures. In order to be able to
define
00936     // the messaging client data struct, we need to declare this variable.
00937     #define EMBER_AF_PLUGIN_MESSAGING_CLIENT_MESSAGE_SIZE 0
00938 #endif
00939
00940 typedef struct {
00941     bool      valid;
00942     bool      active;
00943     EmberAfPluginEsiManagementBitmask esiBitmask
;
00944     uint8_t   clientEndpoint;
00945     uint32_t  messageId;
00946     uint8_t   messageControl;
00947     uint32_t  startTime;
00948     uint32_t  endTime;
00949     uint16_t  durationInMinutes;
00950     uint8_t   message[EMBER_AF_PLUGIN_MESSAGING_CLIENT_MESSAGE_SIZE
+ 1];
00951 } EmberAfPluginMessagingClientMessage;
00952
00953 #define ZCL_PRICE_CLUSTER_MAXIMUM_RATE_LABEL_LENGTH 11

```

```

00954 typedef struct {
00955     bool valid;
00956     bool active;
00957     uint8_t clientEndpoint;
00958     uint32_t providerId;
00959     uint8_t rateLabel[ZCL_PRICE_CLUSTER_MAXIMUM_RATE_LABEL_LENGTH
+ 1];
00960     uint32_t issuerEventId;
00961     uint32_t currentTime;
00962     uint8_t unitOfMeasure;
00963     uint16_t currency;
00964     uint8_t priceTrailingDigitAndPriceTier;
00965     uint8_t numberOfTypeTiersAndRegisterTier;
00966     uint32_t startTime;
00967     uint32_t endTime;
00968     uint16_t durationInMinutes;
00969     uint32_t price;
00970     uint8_t priceRatio;
00971     uint32_t generationPrice;
00972     uint8_t generationPriceRatio;
00973     uint32_t alternateCostDelivered;
00974     uint8_t alternateCostUnit;
00975     uint8_t alternateCostTrailingDigit;
00976     uint8_t numberOfBlockThresholds;
00977     uint8_t priceControl;
00978 } EmberAfPluginPriceClientPrice;
00979
00980
00984 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00985 enum EmberAfPluginPriceCppAuth
00986 #else
00987 typedef uint8_t EmberAfPluginPriceCppAuth;
00988 enum
00989 #endif
00990 {
00991     EMBER_AF_PLUGIN_PRICE_CPP_AUTH_PENDING
00992     = 0,
00993     EMBER_AF_PLUGIN_PRICE_CPP_AUTH_ACCEPTED
00994     = 1,
00995     EMBER_AF_PLUGIN_PRICE_CPP_AUTH_REJECTED
00996     = 2,
00997     EMBER_AF_PLUGIN_PRICE_CPP_AUTH_FORCED
00998     = 3,
00999     EMBER_AF_PLUGIN_PRICE_CPP_AUTH_RESERVED
01000     = 4
01001 };
01002
01003 #define EMBER_AF_PLUGIN_REPORTING_UNUSED_ENDPOINT_ID 0x00
01004
01009 typedef struct {
01014     EmberAfReportingDirection direction;
01019     uint8_t endpoint;
01021     EmberAfClusterId clusterId;
01023     EmberAfAttributeId attributeId;
01027     uint8_t mask;
01034     uint16_t manufacturerCode;
01035     union {
01036         struct {
01038             uint16_t minInterval;
01040             uint16_t maxInterval;
01044             uint32_t reportableChange;
01045         } reported;
01046         struct {
01048             EmberNodeId source;
01050             uint8_t endpoint;
01052             uint16_t timeout;
01053         } received;
01054     } data;
01055 } EmberAfPluginReportingEntry;
01056
01057 typedef enum {
01058     EMBER_AF_PLUGIN_TUNNELING_CLIENT_SUCCESS
01059     = 0x00,
01060     EMBER_AF_PLUGIN_TUNNELING_CLIENT_BUSY
01061     = 0x01,
01062     EMBER_AF_PLUGIN_TUNNELING_CLIENT_NO_MORE_TUNNEL_IDS
01063     = 0x02,
01064     EMBER_AF_PLUGIN_TUNNELING_CLIENT_PROTOCOL_NOT_SUPPORTED
01065     = 0x03,

```

```

01062     EMBER_AF_PLUGIN_TUNNELING_CLIENT_FLOW_CONTROL_NOT_SUPPORTED
01063         = 0x04,
01064     EMBER_AF_PLUGIN_TUNNELING_CLIENT_IEEE_ADDRESS_REQUEST_FAILED
01065         = 0xF9,
01066     EMBER_AF_PLUGIN_TUNNELING_CLIENT_IEEE_ADDRESS_NOT_FOUND
01067         = 0xFA,
01068     EMBER_AF_PLUGIN_TUNNELING_CLIENT_ADDRESS_TABLE_FULL
01069         = 0xFB,
01070 } EmberAfPluginTunnelingClientStatus;
01071
01072 #ifdef EMBER_AF_PLUGIN_ZLL_COMMISSIONING
01073
01076 #ifndef DOXYGEN_SHOULD_SKIP_THIS
01077 enum EmberAfZllCommissioningStatus
01078#else
01079 typedef uint8_t EmberAfZllCommissioningStatus;
01080 enum
01081#endif
01082{
01083     EMBER_AF_ZLL_ABORTED_BY_APPLICATION             = 0x00,
01084     EMBER_AF_ZLL_CHANNEL_CHANGE_FAILED             = 0x01,
01085     EMBER_AF_ZLL_JOINING_FAILED                  = 0x02,
01086     EMBER_AF_ZLL_NO_NETWORKS_FOUND               = 0x03,
01087     EMBER_AF_ZLL_PREEMPTED_BY_STACK              = 0x04,
01088     EMBER_AF_ZLL_SENDING_START_JOIN_FAILED       = 0x05,
01089     EMBER_AF_ZLL_SENDING_DEVICE_INFORMATION_REQUEST_FAILED = 0x06,
01090     EMBER_AF_ZLL_SENDING_IDENTIFY_REQUEST_FAILED = 0x07,
01091     EMBER_AF_ZLL_SENDING_RESET_TO_FACTORY_NEW_REQUEST_FAILED = 0x08,
01092     EMBER_AF_ZLL_NETWORK_FORMATION_FAILED        = 0x09,
01093};
01094
01099 typedef struct {
01100     EmberMulticastId groupId;
01101     uint8_t           groupType;
01102 } EmberAfPluginZllCommissioningGroupInformationRecord;
01103
01108 typedef struct {
01109     EmberNodeId networkAddress;
01110     uint8_t       endpointId;
01111     uint16_t      profileId;
01112     uint16_t      deviceId;
01113     uint8_t       version;
01114 } EmberAfPluginZllCommissioningEndpointInformationRecord;
01115#endif
01116
01122 typedef struct {
01123     uint16_t      manufacturerId;
01124     uint16_t      imageTypeId;
01125     uint32_t      firmwareVersion;
01126
01133     uint8_t       deviceSpecificFileEui64[EUI64_SIZE];
01134 } EmberAfOtaImageId;
01135
01136
01140 enum {
01141     EMBER_AF_IMAGE_BLOCK_REQUEST_OPTIONS_NONE
01142         = 0,
01143     EMBER_AF_IMAGE_BLOCK_REQUEST_MIN_BLOCK_REQUEST_SUPPORTED_BY_CLIENT
01144         = 1,
01145     EMBER_AF_IMAGE_BLOCK_REQUEST_MIN_BLOCK_REQUEST_SUPPORTED_BY_SERVER
01146         = 2,
01147 };
01148 typedef uint8_t EmberAfImageBlockRequestOptions;
01149
01151 typedef struct {
01152     const EmberAfOtaImageId* id;
01153     uint32_t      offset;
01154     uint32_t      waitTimeMinutesResponse;
01155     EmberNodeId   source;
01156     uint16_t      minBlockRequestPeriod;
01157     uint8_t       maxDataSize;
01158     uint8_t       clientEndpoint;

```

```

01160     EmberAfImageBlockRequestOptions bitmask
01161     ;
01162 } EmberAfImageBlockRequestCallbackStruct;
01163
01168 typedef enum {
01169     EMBER_AF_OTA_STORAGE_SUCCESS = 0,
01170     EMBER_AF_OTA_STORAGE_ERROR = 1,
01171     EMBER_AF_OTA_STORAGE_RETURN_DATA_TOO_LONG
01172     = 2,
01173     EMBER_AF_OTA_STORAGE_PARTIAL_FILE_FOUND
01174     = 3,
01175     EMBER_AF_OTA_STORAGE_OPERATION_IN_PROGRESS
01176     = 4,
01177 } EmberAfOtaStorageStatus;
01178
01180 enum {
01181     EMBER_AF_OTA_DOWNLOAD_AND_VERIFY_SUCCESS
01182     = 0,
01183     EMBER_AF_OTA_DOWNLOAD_TIME_OUT = 1,
01184     EMBER_AF_OTA_VERIFY_FAILED = 2,
01185     EMBER_AF_OTA_SERVER_ABORTED = 3,
01186     EMBER_AF_OTA_CLIENT_ABORTED = 4,
01187     EMBER_AF_OTA_ERASE_FAILED = 5,
01188 };
01189 typedef uint8_t EmberAfOtaDownloadResult;
01190
01194 #define EMBER_AF_OTA_MAX_HEADER_STRING_LENGTH 32
01195
01201 typedef struct {
01202     // Magic Number omitted since it is always the same.
01203     uint16_t headerVersion;
01204     uint16_t headerLength;
01205     uint16_t fieldControl;
01206     uint16_t manufacturerId;
01207     uint16_t imageTypeId;           // a.k.a. Device ID
01208     uint32_t firmwareVersion;
01209     uint16_t zigbeeStackVersion;
01210
01217     uint8_t headerString[EMBER_AF_OTA_MAX_HEADER_STRING_LENGTH
01218     + 1];
01219
01224     uint32_t imageSize;
01225
01230     uint8_t securityCredentials;
01231     uint8_t upgradeFileDestination[EUI64_SIZE];
01232     uint16_t minimumHardwareVersion;
01233     uint16_t maximumHardwareVersion;
01234 } EmberAfOtaHeader;
01235
01240 typedef struct {
01241     uint16_t id;
01242     uint32_t length;
01243 } EmberAfTagData;
01244
01245 typedef enum {
01246     NO_APP_MESSAGE = 0,
01247     RECEIVED_PARTNER_CERTIFICATE = 1,
01248     GENERATING_EPHEMERAL_KEYS = 2,
01249     GENERATING_SHARED_SECRET = 3,
01250     KEY_GENERATION_DONE = 4,
01251     GENERATE_SHARED_SECRET_DONE = 5,
01256     LINK_KEY_ESTABLISHED = 6,
01257
01263     NO_LOCAL_RESOURCES = 7,
01264     PARTNER_NO_RESOURCES = 8,
01265     TIMEOUT_OCCURRED = 9,
01266     INVALID_APP_COMMAND = 10,
01267     MESSAGE_SEND_FAILURE = 11,
01268     PARTNER_SENT_TERMINATE = 12,
01269     INVALID_PARTNER_MESSAGE = 13,
01270     PARTNER_SENT_DEFAULT_RESPONSE_ERROR = 14,
01271
01277     BAD_CERTIFICATE_ISSUER = 15,
01278     KEY_CONFIRM_FAILURE = 16,
01279     BAD_KEY_ESTABLISHMENT_SUITE = 17,
01280
01281     KEY_TABLE_FULL = 18,
01282

```

```

01288     NO_ESTABLISHMENT_ALLOWED      = 19,
01289
01290     /* 283k1 certificates need to have valid key usage
01291     */
01292     INVALID_CERTIFICATE_KEY_USAGE = 20,
01293 } EmberAfKeyEstablishmentNotifyMessage;
01294
01295 #define APP_NOTIFY_ERROR_CODE_START NO_LOCAL_RESOURCES
01296 #define APP_NOTIFY_MESSAGE_TEXT {
01297     "None",
01298     "Received Cert",
01299     "Generate keys",
01300     "Generate secret",
01301     "Key generate done",
01302     "Generate secret done",
01303     "Link key verified",
01304
01305     /* Transient Error codes */
01306     "No local resources",
01307     "Partner no resources",
01308     "Timeout",
01309     "Invalid app. command",
01310     "Message send failure",
01311     "Partner sent terminate",
01312     "Bad message",
01313     "Partner sent Default Rsp",
01314
01315     /* Fatal errors */
01316     "Bad cert issuer",
01317     "Key confirm failure",
01318     "Bad key est. suite",
01319     "Key table full",
01320     "Not allowed",
01321     "Invalid Key Usage",
01322 }
01323
01324 typedef enum {
01325     EMBER_AF_IMAGE_GOOD           = 0,
01326     EMBER_AF_IMAGE_BAD            = 1,
01327     EMBER_AF_IMAGE_VERIFY_IN_PROGRESS = 2,
01328
01329 #ifndef DOXYGEN_SHOULD_SKIP_THIS
01330     // Internal use only.
01331     EMBER_AF_IMAGE_VERIFY_WAIT    = 3,
01332     EMBER_AF_IMAGE_VERIFY_ERROR   = 4,
01333     EMBER_AF_IMAGE_UNKNOWN        = 5,
01334     EMBER_AF_NO_IMAGE_VERIFY_SUPPORT = 6,
01335 #endif
01336 } EmberAfImageVerifyStatus;
01337
01338 typedef void (*EmberAfTickFunction)(uint8_t endpoint);
01339
01340 typedef void (*EmberAfInitFunction)(uint8_t endpoint);
01341
01342 typedef void (*EmberAfClusterAttributeChangedCallback
01343 ) (uint8_t endpoint,
01344          EmberAfAttributeId
01345          attributeId);
01346
01347 typedef void (*EmberAfManufacturerSpecificClusterAttributeChangedCallback
01348 ) (uint8_t endpoint,
01349          EmberAfAttributeId
01350          attributeId,
01351          uint16_t
01352          manufacturerCode);
01353
01354 typedef EmberAfStatus (*EmberAfClusterPreAttributeChangedCallback
01355 ) (uint8_t endpoint,
01356          EmberAfAttributeId attributeId,
01357          EmberAfAttributeType attributeType,
01358          uint8_t size
01359          ,
01360          uint8_t *
01361          value);
01362
01363 typedef void (*EmberAfDefaultResponseFunction) (
01364     uint8_t endpoint,

```

```

01397                               uint8_t commandId,
01398                               EmberAfStatus
01399                               status);
01400
01401     typedef void (*EmberAfMessageSentFunction) (
01402         EmberOutgoingMessageType type,
01403                               uint16_t indexOrDestination,
01404                               EmberApsFrame *apsFrame
01405     ,
01406                               uint16_t msgLen,
01407                               uint8_t *message,
01408                               EmberStatus status);
01409
01410
01411
01412
01413     typedef struct {
01414         EmberAfMessageSentFunction callback;
01415         EmberApsFrame* apsFrame;
01416         uint8_t* message;
01417         uint16_t indexOrDestination;
01418         uint16_t messageLength;
01419         EmberOutgoingMessageType type;
01420         bool broadcast;
01421     } EmberAfMessageStruct;
01422
01423
01424
01425
01426
01427
01428
01429     typedef struct {
01430         EmberEUI64 deviceId;
01431         EmberKeyData key;
01432     } EmberAfLinkKeyBackupData;
01433
01434
01435     typedef struct {
01436         EmberEUI64 extendedPanId;
01437         uint8_t keyListLength;
01438         uint8_t maxKeyListLength;
01439         EmberAfLinkKeyBackupData* keyList;
01440     } EmberAfTrustCenterBackupData;
01441
01442 #define EMBER_AF_STANDALONE_BOOTLOADER_HARDWARE_TAG_LENGTH 16
01443
01444
01445
01446     typedef struct {
01447         uint8_t hardwareTag[EMBER_AF_STANDALONE_BOOTLOADER_HARDWARE_TAG_LENGTH
01448 ];
01449         uint8_t eui64[EUI64_SIZE];
01450         uint16_t mfgId;
01451         uint16_t bootloaderVersion;
01452         uint8_t capabilities;
01453         uint8_t platform;
01454         uint8_t micro;
01455         uint8_t phy;
01456         bool bootloaderActive;
01457     } EmberAfStandaloneBootloaderQueryResponseData
01458 ;
01459
01460
01461     typedef struct {
01462         uint16_t clusterId;
01463         uint8_t commandId;
01464         uint8_t mask;
01465     } EmberAfCommandMetadata;
01466
01467
01468     typedef struct {
01469         uint16_t year;
01470         uint8_t month;
01471         uint8_t day;
01472         uint8_t hours;
01473         uint8_t minutes;
01474         uint8_t seconds;
01475     } EmberAfTimeStruct;
01476
01477
01478     typedef struct {
01479         uint8_t year;
01480         uint8_t month;
01481         uint8_t dayOfMonth;
01482         uint8_t dayOfWeek;
01483     } EmberAfDate;
01484
01485
01486 /* Simple Metering Server Test Code */
01487 #define EMBER_AF_PLUGIN_SIMPLE_METERING_SERVER_ELECTRIC_METER 0
01488 #define EMBER_AF_PLUGIN_SIMPLE_METERING_SERVER_GAS_METER 1
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01496
01497
01498
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01520 // Functional Notification Flags
01521 #define EMBER_AF_METERING_FNF_NEW_OTA_FIRMWARE
0x00000001
01522 #define EMBER_AF_METERING_FNF_CBKE_UPDATE_REQUEST
0x00000002
01523 #define EMBER_AF_METERING_FNF_TIME_SYNC
0x00000004
01524 #define EMBER_AF_METERING_FNF_STAY_AWAKE_REQUEST_HAN
0x00000010
01525 #define EMBER_AF_METERING_FNF_STAY_AWAKE_REQUEST_WAN
0x00000020
01526 #define EMBER_AF_METERING_FNF_PUSH_HISTORICAL_METERING_DATA_ATTRIBUTE_SET
0x000001C0
01527 #define EMBER_AF_METERING_FNF_PUSH_HISTORICAL_PREPAYMENT_DATA_ATTRIBUTE_SET
0x00000E00
01528 #define EMBER_AF_METERING_FNF_PUSH_ALL_STATIC_DATA_BASIC_CLUSTER
0x00001000
01529 #define EMBER_AF_METERING_FNF_PUSH_ALL_STATIC_DATA_METERING_CLUSTER
0x00002000
01530 #define EMBER_AF_METERING_FNF_PUSH_ALL_STATIC_DATA_PREPAYMENT_CLUSTER
0x00004000
01531 #define EMBER_AF_METERING_FNF_NETWORK_KEY_ACTIVE
0x00008000
01532 #define EMBER_AF_METERING_FNF_DISPLAY_MESSAGE
0x00010000
01533 #define EMBER_AF_METERING_FNF_CANCEL_ALL_MESSAGES
0x00020000
01534 #define EMBER_AF_METERING_FNF_CHANGE_SUPPLY
0x00040000
01535 #define EMBER_AF_METERING_FNF_LOCAL_CHANGE_SUPPLY
0x00080000
01536 #define EMBER_AF_METERING_FNF_SET_UNCONTROLLED_FLOW_THRESHOLD
0x00100000
01537 #define EMBER_AF_METERING_FNF_TUNNEL_MESSAGE_PENDING
0x00200000
01538 #define EMBER_AF_METERING_FNF_GET_SNAPSHOT
0x00400000
01539 #define EMBER_AF_METERING_FNF_GET_SAMPLED_DATA
0x00800000
01540
01541 // Notification Flags 2
01542 #define EMBER_AF_METERING_NF2_PUBLISH_PRICE
0x00000001
01543 #define EMBER_AF_METERING_NF2_PUBLISH_BLOCK_PERIOD
0x00000002
01544 #define EMBER_AF_METERING_NF2_PUBLISH_TARIFF_INFORMATION
0x00000004
01545 #define EMBER_AF_METERING_NF2_PUBLISH_CONVERSION_FACTOR
0x00000008
01546 #define EMBER_AF_METERING_NF2_PUBLISH_CALORIFIC_VALUE
0x00000010
01547 #define EMBER_AF_METERING_NF2_PUBLISH_CO2_VALUE
0x00000020
01548 #define EMBER_AF_METERING_NF2_PUBLISH_BILLING_PERIOD
0x00000040
01549 #define EMBER_AF_METERING_NF2_PUBLISH_CONSOLIDATED_BILL
0x00000080
01550 #define EMBER_AF_METERING_NF2_PUBLISH_PRICE_MATRIX
0x00000100
01551 #define EMBER_AF_METERING_NF2_PUBLISH_BLOCK_THRESHOLDS
0x00000200
01552 #define EMBER_AF_METERING_NF2_PUBLISH_CURRENCY_CONVERSION
0x00000400
01553 #define EMBER_AF_METERING_NF2_PUBLISH_CREDIT_PAYMENT_INFO
0x00001000
01554 #define EMBER_AF_METERING_NF2_PUBLISH_CPP_EVENT
0x00002000
01555 #define EMBER_AF_METERING_NF2_PUBLISH_TIER_LABELS
0x00004000
01556 #define EMBER_AF_METERING_NF2_CANCEL_TARIFF
0x00008000
01557
01558 // Notification Flags 3
01559 #define EMBER_AF_METERING_NF3_PUBLISH_CALENDAR
0x00000001
01560 #define EMBER_AF_METERING_NF3_PUBLISH_SPECIAL_DAYS
0x00000002
01561 #define EMBER_AF_METERING_NF3_PUBLISH_SEASONS
0x00000004
01562 #define EMBER_AF_METERING_NF3_PUBLISH_WEEK

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0x00000008
01563 #define EMBER_AF_METERING_NF3_PUBLISH_DAY
0x00000010
01564 #define EMBER_AF_METERING_NF3_CANCEL_CALENDAR
0x00000020
01565
01566 // Notification Flags 4
01567 #define EMBER_AF_METERING_NF4_SELECT_AVAILABLE_EMERGENCY_CREDIT
0x00000001
01568 #define EMBER_AF_METERING_NF4_CHANGE_DEBT
0x00000002
01569 #define EMBER_AF_METERING_NF4_EMERGENCY_CREDIT_SETUP
0x00000004
01570 #define EMBER_AF_METERING_NF4_CONSUMER_TOP_UP
0x00000008
01571 #define EMBER_AF_METERING_NF4_CREDIT_ADJUSTMENT
0x00000010
01572 #define EMBER_AF_METERING_NF4_CHANGE_PAYMENT_MODE
0x00000020
01573 #define EMBER_AF_METERING_NF4_GET_PREPAY_SNAPSHOT
0x00000040
01574 #define EMBER_AF_METERING_NF4_GET_TOP_UP_LOG
0x00000080
01575 #define EMBER_AF_METERING_NF4_SET_LOW_CREDIT_WARNING_LEVEL
0x00000100
01576 #define EMBER_AF_METERING_NF4_GET_DEBT_REPAYMENT_LOG
0x00000200
01577 #define EMBER_AF_METERING_NF4_SET_MAXIMUM_CREDIT_LIMIT
0x00000400
01578 #define EMBER_AF_METERING_NF4_SET_OVERALL_DEBT_CAP
0x00000800
01579
01580 // Notification Flags 5
01581 #define EMBER_AF_METERING_NF5_PUBLISH_CHANGE_OF_TENANCY
0x00000001
01582 #define EMBER_AF_METERING_NF5_PUBLISH_CHANGE_OF_SUPPLIER
0x00000002
01583 #define EMBER_AF_METERING_NF5_REQUEST_NEW_PASSWORD_1_RESPONSE
0x00000004
01584 #define EMBER_AF_METERING_NF5_REQUEST_NEW_PASSWORD_2_RESPONSE
0x00000008
01585 #define EMBER_AF_METERING_NF5_REQUEST_NEW_PASSWORD_3_RESPONSE
0x00000010
01586 #define EMBER_AF_METERING_NF5_REQUEST_NEW_PASSWORD_4_RESPONSE
0x00000020
01587 #define EMBER_AF_METERING_NF5_UPDATE_SITE_ID
0x00000040
01588 #define EMBER_AF_METERING_NF5_RESET_BATTERY_COUNTER
0x00000080
01589 #define EMBER_AF_METERING_NF5_UPDATE_CIN
0x00000100
01590
01594 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01595 enum EmberAfCbkeKeyEstablishmentSuite
01596 #else
01597 typedef uint16_t EmberAfCbkeKeyEstablishmentSuite
01598 ;
01599 #endif
01600 {
01601     EMBER_AF_INVALID_KEY_ESTABLISHMENT_SUITE
01602         = 0x0000,
01603     EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_163K1
01604         = 0x0001,
01605     EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_283K1
01606         = 0x0002,
01607 };
01608
01609 #define EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PROPOSED_PROVIDER_NAME_LENGTH (16)
01610 #define
01611     EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PROPOSED_PROVIDER_CONTACT_DETAILS_LENGTH (18)
01612 #define EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_SITE_ID_LENGTH (32)
01613 #define EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_CIN_LENGTH (24)
01614 #define EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PASSWORD_LENGTH (10)
01615
01616 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01617 enum EmberAfDeviceManagementPasswordType
01618 #else
01619 typedef uint16_t EmberAfDeviceManagementPasswordType
01620 ;

```

```

01620 enum
01621 #endif
01622 {
01623     UNUSED_PASSWORD      = 0x00,
01624     SERVICE_PASSWORD    = 0x01,
01625     CONSUMER_PASSWORD   = 0x02,
01626 };
01627 #ifndef DOXYGEN_SHOULD_SKIP_THIS
01628 enum EmberAfDeviceManagementChangePendingFlags
01629 #else
01630 #endif
01631 typedef uint8_t EmberAfDeviceManagementChangePendingFlags
01632 ;
01633 #endif
01634 {
01635     EMBER_AF_DEVICE_MANAGEMENT_CHANGE_OF_TENANCY_PENDING_MASK
01636         = 0x01,
01637     EMBER_AF_DEVICE_MANAGEMENT_CHANGE_OF_SUPPLIER_PENDING_MASK
01638         = 0x02,
01639     EMBER_AF_DEVICE_MANAGEMENT_UPDATE_SITE_ID_PENDING_MASK
01640         = 0x04,
01641     EMBER_AF_DEVICE_MANAGEMENT_UPDATE_CIN_PENDING_MASK
01642         = 0x08,
01643     EMBER_AF_DEVICE_MANAGEMENT_UPDATE_SERVICE_PASSWORD_PENDING_MASK
01644         = 0x10,
01645     EMBER_AF_DEVICE_MANAGEMENT_UPDATE_CONSUMER_PASSWORD_PENDING_MASK
01646         = 0x20,
01647 };
01648
01649 // Optional fields only used by Gas Proxy Function plugin.
01650 uint32_t providerId;
01651 uint32_t issuerEventId;
01652 uint8_t tariffType;
01653
01654 // always used fields
01655 uint32_t implementationDateTime;
01656 uint32_t tenancy;
01657 } EmberAfDeviceManagementTenancy;
01658
01659 typedef struct {
01660     uint32_t proposedProviderId;
01661     uint32_t implementationDateTime;
01662     uint32_t providerChangeControl;
01663     uint8_t proposedProviderName[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PROPOSED_PROVIDER_NAME_LENGTH
01664         + 1];
01665     uint8_t proposedProviderContactDetails[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PROPOSED_PROVIDER_CONTACT_DETAILS_LENGTH
01666         + 1];
01667 } EmberAfDeviceManagementSupplier;
01668
01669 typedef struct {
01670     uint8_t siteId[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_SITE_ID_LENGTH
01671         + 1];
01672     uint32_t implementationDateTime;
01673     uint32_t issuerEventId;
01674 } EmberAfDeviceManagementSiteId;
01675
01676 typedef struct {
01677     uint8_t cin[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_CIN_LENGTH
01678         + 1];
01679 } EmberAfDeviceManagementCIN;
01680
01681 typedef struct {
01682     bool supplyTamperState;
01683     bool supplyDepletionState;
01684     bool supplyUncontrolledFlowState;
01685     bool loadLimitSupplyState;
01686 } EmberAfDeviceManagementSupplyStatusFlags

```

```

;
01687 typedef struct {
01688     uint16_t uncontrolledFlowThreshold;
01689     uint16_t multiplier;
01690     uint16_t divisor;
01691     uint16_t measurementPeriod;
01692     uint8_t unitOfMeasure;
01693     uint8_t stabilisationPeriod;
01694 } EmberAfDeviceManagementUncontrolledFlowThreshold
01695 ;
01696
01697
01698 typedef struct {
01699     uint32_t implementationDateTime;
01700     uint8_t supplyStatus;
01701 } EmberAfDeviceManagementSupplyStatus;
01702
01703 typedef struct {
01704     uint8_t password[EMBER_AF_DEVICE_MANAGEMENT_MAXIMUM_PASSWORD_LENGTH
01705     + 1];
01705     uint32_t implementationDateTime;
01706     uint16_t durationInMinutes;
01707     EmberAfDeviceManagementPasswordType
01708     passwordType;
01709 } EmberAfDeviceManagementPassword;
01710
01710 typedef struct {
01711     EmberAfDeviceManagementTenancy tenancy;
01712     EmberAfDeviceManagementSupplier supplier
01713     ;
01713     EmberAfDeviceManagementSupply supply;
01714     EmberAfDeviceManagementSiteId siteId;
01715     EmberAfDeviceManagementCIN cin;
01716     EmberAfDeviceManagementSupplyStatusFlags
01717     supplyStatusFlags;
01718     EmberAfDeviceManagementSupplyStatus
01719     supplyStatus;
01720     //TODO: These passwords ought to be tokenized / hashed
01721     EmberAfDeviceManagementPassword
01722     servicePassword;
01723     EmberAfDeviceManagementPassword
01724     consumerPassword;
01725     EmberAfDeviceManagementUncontrolledFlowThreshold
01726     threshold;
01727     uint32_t providerId;
01728     uint32_t issuerEventId;
01729     uint8_t proposedLocalSupplyStatus;
01730     EmberAfTariffType tariffType;
01731     EmberAfDeviceManagementChangePendingFlags
01732     pendingUpdates;
01733 } EmberAfDeviceManagementInfo;
01734
01735 typedef struct {
01736     uint8_t startIndex;
01737     uint8_t endIndex;
01738 } EmberAfDeviceManagementAttributeRange;
01739
01740 // attrRange is a list of attributeId values in a cluster. It's needed to track
01741 // contiguous
01742 // segments of valid attributeId's with gaps in the middle.
01743 // attributeSetId is the value of the upper byte in the attributeId. It ranges
01744 // from 0x01(Price)
01745 // to 0x08(OTA Event Configuration)
01746 // Eg. {0x00,0x05} and {0x08,0xA}
01747 // We're betting that there isn't a list of cluster attributes that has more
01748 // than 5 gaps.
01749 typedef struct {
01750     uint8_t attributeSetId;
01751     EmberAfDeviceManagementAttributeRange
01752     attributeRange[7];
01753 } EmberAfDeviceManagementAttributeTable;
01754
01755 typedef struct {
01756     bool encryption;
01757
01758     uint8_t * plainPayload;
01759     uint16_t plainPayloadLength;
01760
01761     uint8_t * encryptedPayload;

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01752     uint16_t encryptedPayloadLength;
01753 } EmberAfGbzMessageData;
01755
01756 typedef struct {
01757     uint8_t * gbzCommands;
01758     uint16_t gbzCommandsLength;
01759     uint8_t * gbzCommandsResponse;
01760     uint16_t gbzCommandsResponseLength;
01761     uint16_t messageCode;
01762 } EmberAfGpfMessage;
01763
01764 typedef uint16_t EmberAfRemoteClusterType;
01765
01766 #define EMBER_AF_REMOTE_CLUSTER_TYPE_NONE      0x0000
01767 #define EMBER_AF_REMOTE_CLUSTER_TYPE_SERVER    0x0001
01768 #define EMBER_AF_REMOTE_CLUSTER_TYPE_CLIENT    0x0002
01769 #define EMBER_AF_REMOTE_CLUSTER_TYPE_INVALID   0xFFFF
01770
01771 typedef struct {
01772     EmberAfClusterId clusterId;
01773     EmberAfProfileId profileId;
01774     uint16_t deviceId;
01775     uint8_t endpoint;
01776     EmberAfRemoteClusterType type;
01777 } EmberAfRemoteClusterStruct;
01778
01779 typedef struct {
01780     EmberEUI64 targetEUI64;
01781     uint8_t sourceEndpoint;
01782     uint8_t destEndpoint;
01783     uint16_t clusterId;
01784     EmberEUI64 destEUI64;
01785     EmberEUI64 sourceEUI64;
01786     EmberAfRemoteBindingStruct;
01787
01788 typedef struct {
01789     EmberAfClusterId clusterId;
01790     bool server;
01791 } EmberAfClusterInfo;
01792
01793 #if !defined(EMBER_AF_MAX_CLUSTERS_PER_ENDPOINT)
01794     #define EMBER_AF_MAX_CLUSTERS_PER_ENDPOINT 3
01795 #endif
01796
01797 typedef struct {
01798     EmberAfClusterInfo clusters[EMBER_AF_MAX_CLUSTERS_PER_ENDPOINT];
01799     EmberAfProfileId profileId;
01800     uint16_t deviceId;
01801     uint8_t endpoint;
01802     uint8_t clusterCount;
01803 } EmberAfEndpointInfoStruct;
01804
01805 #if !defined(EMBER_AF_MAX_ENDPOINTS_PER_DEVICE)
01806     #define EMBER_AF_MAX_ENDPOINTS_PER_DEVICE 1
01807 #endif
01808
01809 // Although we treat this like a bitmap, only 1 bit is set at a time.
01810 // We use the bitmap feature to allow us to find all devices
01811 // with any in a set of status codes using
01812 // emberAfPluginDeviceDatabaseFindDeviceByStatus().
01813
01814 typedef enum {
01815     EMBER_AF_DEVICE_DISCOVERY_STATUS_NONE
01816         = 0x00,
01817     EMBER_AF_DEVICE_DISCOVERY_STATUS_NEW
01818         = 0x01,
01819     EMBER_AF_DEVICE_DISCOVERY_STATUS_FIND_ENDPOINTS
01820         = 0x02,
01821     EMBER_AF_DEVICE_DISCOVERY_STATUS_FIND_CLUSTERS
01822         = 0x04,
01823     EMBER_AF_DEVICE_DISCOVERY_STATUS_DONE
01824         = 0x40,
01825     EMBER_AF_DEVICE_DISCOVERY_STATUS_FAILED
01826         = 0x80,
01827 } EmberAfDeviceDiscoveryStatus;
01828
01829 typedef struct {
01830
01831
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01837
01838
01839
01840
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```

01840     EmberEUI64 eui64;
01841     EmberAfEndpointInfoStruct endpoints[EMBER_AF_MAX_ENDPOINTS_PER_DEVICE];
01842     EmberAfDeviceDiscoveryStatus status;
01843     uint8_t discoveryFailures;
01844     uint8_t capabilities;
01845     uint8_t endpointCount;
01846 } EmberAfDeviceInfo;
01847
01848 typedef struct {
01849     uint16_t deviceIndex;
01850 } EmberAfDeviceDatabaseIterator;
01851
01852 typedef struct {
01853     EmberNodeId emberNodeId;
01854     uint32_t timeStamp;
01855 } EmberAfJoiningDevice;
01856
01857 #define EMBER_AF_INVALID_CLUSTER_ID 0xFFFF
01858
01859 #define EMBER_AF_INVALID_ENDPOINT 0xFF
01860
01861 #define EMBER_AF_INVALID_PAN_ID 0xFFFF
01862
01863 #define EMBER_AF_PERMIT_JOIN_FOREVER 0xFF
01864 #define EMBER_AF_PERMIT_JOIN_MAX_TIMEOUT 0xFE
01865
01866 #define EMBER_AF_ZDO_RESPONSE_OVERHEAD 2
01867
01878 #endif // __AF_API_TYPES__

```

## 8.11 af.h File Reference

```

#include <PLATFORM_HEADER>
#include "app/framework/util/config.h"
#include "stack/include/ember.h"
#include "hal/hal.h"
#include "app/util/serial/serial.h"
#include "stack/include/event.h"
#include "stack/include/error.h"
#include "af-types.h"
#include "app/framework/util/print.h"
#include "app/framework/util/time-util.h"
#include "af-structs.h"
#include "attribute-id.h"
#include "att-storage.h"
#include "attribute-type.h"
#include "call-command-handler.h"
#include "callback.h"
#include "client-command-macro.h"
#include "cluster-id.h"
#include "command-id.h"
#include "debug-printing.h"
#include "enums.h"
#include "print-cluster.h"
#include "app/framework/util/client-api.h"
#include "app/util/serial/command-interpreter2.h"
#include "app/framework/cli/zcl-cli.h"

```

## Macros

- #define CONFIGURATION\_HEADER
- #define emberAfMaxPowerLevel()

## Attribute Storage

- #define emberAfClusterIsManufacturerSpecific(cluster)
- #define emberAfAttributeIsReadOnly(metadata)
- #define emberAfAttributeIsClient(metadata)
- #define emberAfAttributeIsTokenized(metadata)
- #define emberAfAttributeIsExternal(metadata)
- #define emberAfAttributeIsSingleton(metadata)
- #define emberAfAttributeIsManufacturerSpecific(metadata)
- #define emberAfAttributeSize(metadata)
- #define emAfProIsCurrentNetwork()
- #define emberAfProfileIdFromIndex(index)
- #define emberAfDeviceIdFromIndex(index)
- #define emberAfDeviceVersionFromIndex(index)
- #define emberAfNetworkIndexFromEndpointIndex(index)
- #define emberAfPrimaryProfileId()
- #define emberAfPrimaryEndpoint()
- #define emberAfGetInt8u(message, currentIndex, msgLen)
- #define emberAfCopyInt8u(data, index, x)
- enum { EMBER\_AF\_DATA\_TYPE\_ANALOG, EMBER\_AF\_DATA\_TYPE\_DISCRETE, EMBER\_AF\_DATA\_TYPE\_NONE }
- EmberAfDefinedEndpoint emAfEndpoints []
- PGM EmAfNetworkType emAfNetworkTypes []
- PGM EmAfNetworkType \* emAfCurrentNetworkType
- PGM EmAfZigbeeProNetwork emAfZigbeeProNetworks []
- PGM EmAfZigbeeProNetwork \* emAfCurrentZigbeeProNetwork
- EmberAfAttributeMetadata \* emberAfLocateAttributeMetadata (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attribute, uint8\_t mask, uint16\_t manufacturerCode)
- bool emberAfContainsAttribute (uint8\_t endpoint, EmberAfClusterId clusterId, EmberAfAttributeId attributeId, uint8\_t mask, uint16\_t manufacturerCode)
- bool emberAfContainsCluster (uint8\_t endpoint, EmberAfClusterId clusterId)
- bool emberAfContainsServer (uint8\_t endpoint, EmberAfClusterId clusterId)
- bool emberAfContainsClient (uint8\_t endpoint, EmberAfClusterId clusterId)
- EmberAfStatus emberAfWriteAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t mask, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteServerAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteClientAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteManufacturerSpecificServerAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t dataType)
- EmberAfStatus emberAfWriteManufacturerSpecificClientAttribute (uint8\_t endpoint, EmberAfClusterId cluster, EmberAfAttributeId attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t dataType)

- `EmberAfStatus emberAfVerifyAttributeWrite` (uint8\_t endpoint, `EmberAfClusterId` cluster, `EmberAfAttributeId` attributeID, uint8\_t mask, uint16\_t manufacturerCode, uint8\_t \*buffer, uint8\_t dataType)
- `EmberAfStatus emberAfReadAttribute` (uint8\_t endpoint, `EmberAfClusterId` cluster, `EmberAfAttributeId` attributeID, uint8\_t mask, uint8\_t \*dataPtr, uint8\_t readLength, uint8\_t \*dataType)
- `EmberAfStatus emberAfReadServerAttribute` (uint8\_t endpoint, `EmberAfClusterId` cluster, `EmberAfAttributeId` attributeID, uint8\_t \*dataPtr, uint8\_t readLength)
- `EmberAfStatus emberAfReadClientAttribute` (uint8\_t endpoint, `EmberAfClusterId` cluster, `EmberAfAttributeId` attributeID, uint8\_t \*dataPtr, uint8\_t readLength)
- `EmberAfStatus emberAfReadManufacturerSpecificServerAttribute` (uint8\_t endpoint, `EmberAfClusterId` cluster, `EmberAfAttributeId` attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t readLength)
- `EmberAfStatus emberAfReadManufacturerSpecificClientAttribute` (uint8\_t endpoint, `EmberAfClusterId` cluster, `EmberAfAttributeId` attributeID, uint16\_t manufacturerCode, uint8\_t \*dataPtr, uint8\_t readLength)
- `uint8_t emberAfGetDataSize` (uint8\_t dataType)
- `uint8_t emberAfEndpointFromIndex` (uint8\_t index)
- `uint8_t emberAfIndexFromEndpoint` (uint8\_t endpoint)
- `uint8_t emberAfIndexFromEndpointIncludingDisabledEndpoints` (uint8\_t endpoint)
- `uint8_t emberAfFindClusterClientEndpointIndex` (uint8\_t endpoint, `EmberAfClusterId` clusterId)
- `uint8_t emberAfFindClusterServerEndpointIndex` (uint8\_t endpoint, `EmberAfClusterId` clusterId)
- `uint8_t emberAfNetworkIndexFromEndpoint` (uint8\_t endpoint)
- `uint8_t emberAfEndpointCount` (void)
- `uint8_t emberAfFixedEndpointCount` (void)
- `uint8_t emberAfGetAttributeAnalogOrDiscreteType` (uint8\_t dataType)
- `bool emberAfIsTypeSigned` (uint8\_t dataType)
- `uint32_t emberAfGetInt32u` (const uint8\_t \*message, uint16\_t currentIndex, uint16\_t msgLen)
- `uint32_t emberAfGetInt24u` (const uint8\_t \*message, uint16\_t currentIndex, uint16\_t msgLen)
- `uint16_t emberAfGetInt16u` (const uint8\_t \*message, uint16\_t currentIndex, uint16\_t msgLen)
- `uint8_t * emberAfGetString` (uint8\_t \*message, uint16\_t currentIndex, uint16\_t msgLen)
- `uint8_t * emberAfGetLongString` (uint8\_t \*message, uint16\_t currentIndex, uint16\_t msgLen)
- `uint8_t emberAfGetDate` (uint8\_t \*message, uint16\_t currentIndex, uint16\_t msgLen, `EmberAfDate` \*dest)
- `void emberAfCopyInt16u` (uint8\_t \*data, uint16\_t index, uint16\_t x)
- `void emberAfCopyInt24u` (uint8\_t \*data, uint16\_t index, uint32\_t x)
- `void emberAfCopyInt32u` (uint8\_t \*data, uint16\_t index, uint32\_t x)
- `void emberAfCopyString` (uint8\_t \*dest, uint8\_t \*src, uint8\_t size)
- `void emberAfCopyLongString` (uint8\_t \*dest, uint8\_t \*src, uint16\_t size)
- `uint8_t emberAfStringLength` (const uint8\_t \*buffer)
- `uint16_t emberAfLongStringLength` (const uint8\_t \*buffer)

## Device Control

- `bool emberAfIsDeviceEnabled` (uint8\_t endpoint)
- `bool emberAfIsDeviceIdentifying` (uint8\_t endpoint)
- `void emberAfSetDeviceEnabled` (uint8\_t endpoint, bool enabled)

## Miscellaneous

- #define EMBER\_AF\_NEW\_IMAGE\_VERIFICATION
- #define EMBER\_AF\_CONTINUE\_IMAGE\_VERIFY
- #define EMBER\_AF\_ZCL\_SEQUENCE\_MASK
- #define EMBER\_AF\_MESSAGE\_TAG\_MASK
- #define EMBER\_AF\_REJOIN\_DUE\_TO\_END\_DEVICE\_MOVE
- #define EMBER\_AF\_REJOIN\_DUE\_TO\_TC\_KEEPALIVE\_FAILURE
- #define EMBER\_AF\_REJOIN\_DUE\_TO\_CLI\_COMMAND
- #define EMBER\_AF\_REJOIN\_FIRST\_REASON
- #define EMBER\_AF\_REJOIN\_LAST\_REASON
- PGM EmberAfOtaImageId emberAfInvalidImageId
- bool emberAfEndpointEnableDisable (uint8\_t endpoint, bool enable)
- bool emberAfEndpointIndexIsEnabled (uint8\_t index)
- bool emberAfIsThisDataTypeAStringType (uint8\_t dataType)
- bool emberAfIsStringAttributeType (EmberAfAttributeType attributeType)
- bool emberAfIsLongStringAttributeType (EmberAfAttributeType attributeType)
- uint8\_t emberAfNextSequence (void)
- uint8\_t emberAfGetLastSequenceNumber (void)
- int8\_t emberAfCompareValues (uint8\_t \*val1, uint8\_t \*val2, uint8\_t len, bool signedNumber)
- void emberAfGetEui64 (EmberEUI64 returnEui64)
- EmberNodeId emberAfGetNodeId (void)
- EmberStatus emberAfGenerateRandomKey (EmberKeyData \*result)
- EmberPanId emberAfGetPanId (void)
- uint8\_t emberAfGetChannel (void)
- uint8\_t emberAfGetBindingIndex (void)
- uint8\_t emberAfGetAddressIndex (void)
- EmberNetworkStatus emberAfNetworkState (void)
- EmberStatus emberAfGetNetworkParameters (EmberNodeType \*nodeType, EmberNetworkParameters \*parameters)
- EmberStatus emberAfGetNodeType (EmberNodeType \*nodeType)
- EmberStatus emberAfPermitJoin (uint8\_t duration, bool broadcastMgmtPermitJoin)
- EmberStatus emberAfBroadcastPermitJoin (uint8\_t duration)

## Printing

- #define emberAfGuaranteedPrint(...)
- #define emberAfGuaranteedPrintln(...)
- #define emberAfGuaranteedPrintBuffer(buffer, len, withSpace)
- #define emberAfGuaranteedPrintString(buffer)
- #define emberAfGuaranteedPrintLongString(buffer)
- #define emberAfGuaranteedFlush()
- bool emberAfPrintEnabled (uint16\_t functionality)
- void emberAfPrintBuffer (uint16\_t area, const uint8\_t \*buffer, uint16\_t bufferLen, bool withSpaces)
- void emberAfPrintString (uint16\_t area, const uint8\_t \*buffer)
- void emberAfPrintLongString (uint16\_t area, const uint8\_t \*buffer)
- void emberAfPrint (uint16\_t functionality, PGM\_P formatString,...)
- void emberAfPrintln (uint16\_t functionality, PGM\_P formatString,...)
- void emberAfFlush (uint16\_t functionality)
- void emberAfPrintOn (uint16\_t functionality)

- void `emberAfPrintOff` (uint16\_t functionality)
- void `emberAfPrintAllOn` (void)
- void `emberAfPrintAllOff` (void)
- void `emberAfPrintStatus` (void)
- void `emberAfPrintLittleEndianEui64` (const `EmberEUI64` eui64)
- void `emberAfPrintBigEndianEui64` (const `EmberEUI64` eui64)
- void `emberAfPrintMessageData` (uint8\_t \*data, uint16\_t length)

## Sleep Control

- #define `emberAfAddToCurrentAppTasks`(x)
- #define `emberAfRemoveFromCurrentAppTasks`(x)
- #define `emberAfCurrentAppTasks()`
- #define `EMBER_AF_CLIENT_CLUSTER_TICK`
- #define `EMBER_AF_SERVER_CLUSTER_TICK`
- #define `emberAfQSToNextEvent`(maxQS)
- #define `emberAfGetCurrentSleepControl()`
- #define `emberAfSetDefaultSleepControl`(x)
- #define `emberAfGetDefaultSleepControl()`
- void `emberAfRunEvents` (void)
- `EmberStatus` `emberAfScheduleTickExtended` (uint8\_t endpoint, `EmberAfClusterId` clusterId, bool isClient, uint32\_t delayMs, `EmberAfEventPollControl` pollControl, `EmberAfEventSleepControl` sleepControl)
- `EmberStatus` `emberAfScheduleClusterTick` (uint8\_t endpoint, `EmberAfClusterId` clusterId, bool isClient, uint32\_t delayMs, `EmberAfEventSleepControl` sleepControl)
- `EmberStatus` `emberAfScheduleClientTickExtended` (uint8\_t endpoint, `EmberAfClusterId` clusterId, uint32\_t delayMs, `EmberAfEventPollControl` pollControl, `EmberAfEventSleepControl` sleepControl)
- `EmberStatus` `emberAfScheduleClientTick` (uint8\_t endpoint, `EmberAfClusterId` clusterId, uint32\_t delayMs)
- `EmberStatus` `emberAfScheduleServerTickExtended` (uint8\_t endpoint, `EmberAfClusterId` clusterId, uint32\_t delayMs, `EmberAfEventPollControl` pollControl, `EmberAfEventSleepControl` sleepControl)
- `EmberStatus` `emberAfScheduleServerTick` (uint8\_t endpoint, `EmberAfClusterId` clusterId, uint32\_t delayMs)
- `EmberStatus` `emberAfDeactivateClusterTick` (uint8\_t endpoint, `EmberAfClusterId` clusterId, bool isClient)
- `EmberStatus` `emberAfDeactivateClientTick` (uint8\_t endpoint, `EmberAfClusterId` clusterId)
- `EmberStatus` `emberAfDeactivateServerTick` (uint8\_t endpoint, `EmberAfClusterId` clusterId)
- `EmberStatus` `emberAfEventControlSetDelayMS` (`EmberEventControl` \*control, uint32\_t delayMs)
- `EmberStatus` `emberAfEventControlSetDelay` (`EmberEventControl` \*eventControl, uint32\_t delayMs)
- `EmberStatus` `emberAfEventControlSetDelayQS` (`EmberEventControl` \*control, uint32\_t delayQs)
- `EmberStatus` `emberAfEventControlSetDelayMinutes` (`EmberEventControl` \*control, uint16\_t delayM)
- void `emberAfNetworkEventControlSetInactive` (`EmberEventControl` \*controls)
- bool `emberAfNetworkEventControlGetActive` (`EmberEventControl` \*controls)
- void `emberAfNetworkEventControlSetActive` (`EmberEventControl` \*controls)
- `EmberStatus` `emberAfNetworkEventControlSetDelayMS` (`EmberEventControl` \*controls, uint32\_t delayMs)
- `EmberStatus` `emberAfNetworkEventControlSetDelay` (`EmberEventControl` \*controls, uint32\_t delayMs)

- `EmberStatus emberAfNetworkEventControlSetDelayQS (EmberEventControl *controls, uint32_t delayQs)`
- `EmberStatus emberAfNetworkEventControlSetDelayMinutes (EmberEventControl *controls, uint16_t delayM)`
- `EmberStatus emberAfEndpointEventControlSetInactive (EmberEventControl *controls, uint8_t endpoint)`
- `bool emberAfEndpointEventControlGetActive (EmberEventControl *controls, uint8_t endpoint)`
- `EmberStatus emberAfEndpointEventControlSetActive (EmberEventControl *controls, uint8_t endpoint)`
- `EmberStatus emberAfEndpointEventControlSetDelayMS (EmberEventControl *controls, uint8_t endpoint, uint32_t delayMs)`
- `EmberStatus emberAfEndpointEventControlSetDelay (EmberEventControl *controls, uint8_t endpoint, uint32_t delayMs)`
- `EmberStatus emberAfEndpointEventControlSetDelayQS (EmberEventControl *controls, uint8_t endpoint, uint32_t delayQs)`
- `EmberStatus emberAfEndpointEventControlSetDelayMinutes (EmberEventControl *controls, uint8_t endpoint, uint16_t delayM)`
- `uint32_t emberAfMsToNextEvent (uint32_t maxMs)`
- `uint32_t emberAfMsToNextEventExtended (uint32_t maxMs, uint8_t *returnIndex)`

## Messaging

- `#define EMBER_AF_CLIENT_CLUSTER_DISCOVERY`
- `#define EMBER_AF_SERVER_CLUSTER_DISCOVERY`
- `#define emberAfCurrentCommand()`
- `#define emberAfCurrentEndpoint()`
- `EmberAfClusterCommand * emAfCurrentCommand`
- `EmberStatus emberAfSendResponse (void)`
- `EmberStatus emberAfSendResponseWithCallback (EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendMulticast (EmberMulticastId multicastId, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendMulticastWithAliasWithCallback (EmberMulticastId multicastId, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendMulticastWithCallback (EmberMulticastId multicastId, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendBroadcast (EmberNodeId destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendBroadcastWithCallback (EmberNodeId destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendBroadcastWithAliasWithCallback (EmberNodeId destination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendUnicast (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`
- `EmberStatus emberAfSendUnicastWithCallback (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendUnicastToBindings (EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message)`

- `EmberStatus emberAfSendUnicastToBindingsWithCallback (EmberApsFrame *apsFrame, uint16_t messageLength, uint8_t *message, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendInterPan (EmberPanId panId, const EmberEUI64 destinationLongId, EmberNodeId destinationShortId, EmberMulticastId multicastId, EmberAfClusterId clusterId, EmberAfProfileId profileId, uint16_t messageLength, uint8_t *messageBytes)`
- `EmberStatus emberAfSendEndDeviceBind (uint8_t endpoint)`
- `EmberStatus emberAfSendCommandUnicastToBindings (void)`
- `EmberStatus emberAfSendCommandUnicastToBindingsWithCallback (EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandMulticast (EmberMulticastId multicastId)`
- `EmberStatus emberAfSendCommandMulticastWithAlias (EmberMulticastId multicastId, EmberNodeId alias, uint8_t sequence)`
- `EmberStatus emberAfSendCommandMulticastWithCallback (EmberMulticastId multicastId, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandUnicast (EmberOutgoingMessageType type, uint16_t indexOrDestination)`
- `EmberStatus emberAfSendCommandUnicastWithCallback (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandBroadcast (EmberNodeId destination)`
- `EmberStatus emberAfSendCommandBroadcastWithCallback (EmberNodeId destination, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandBroadcastWithAlias (EmberNodeId destination, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandBroadcastWithAliasWithCallback (EmberNodeId destination, EmberNodeId alias, uint8_t sequence, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendCommandInterPan (EmberPanId panId, const EmberEUI64 destinationLongId, EmberNodeId destinationShortId, EmberMulticastId multicastId, EmberAfProfileId profileId)`
- `EmberStatus emberAfSendDefaultResponse (const EmberAfClusterCommand *cmd, EmberAfStatus status)`
- `EmberStatus emberAfSendDefaultResponseWithCallback (const EmberAfClusterCommand *cmd, EmberAfStatus status, EmberAfMessageSentFunction callback)`
- `EmberStatus emberAfSendImmediateDefaultResponse (EmberAfStatus status)`
- `EmberStatus emberAfSendImmediateDefaultResponseWithCallback (EmberAfStatus status, EmberAfMessageSentFunction callback)`
- `uint8_t emberAfMaximumApsPayloadLength (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame)`
- `EmberApsFrame * emberAfGetCommandApsFrame (void)`
- `void emberAfSetCommandEndpoints (uint8_t sourceEndpoint, uint8_t destinationEndpoint)`
- `EmberStatus emberAfFindDevicesByProfileAndCluster (EmberNodeId target, EmberAfProfileId profileId, EmberAfClusterId clusterId, bool serverCluster, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindClustersByDeviceAndEndpoint (EmberNodeId target, uint8_t targetEndpoint, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindIeeeAddress (EmberNodeId shortAddress, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindNodeId (EmberEUI64 longAddress, EmberAfServiceDiscoveryCallback *callback)`
- `EmberStatus emberAfFindActiveEndpoints (EmberNodeId target, EmberAfServiceDiscoveryCallback *callback)`
- `uint8_t emberAfAddAddressTableEntry (EmberEUI64 longId, EmberNodeId shortId)`
- `EmberStatus emberAfSetAddressTableEntry (uint8_t index, EmberEUI64 longId, EmberNodeId shortId)`

- `EmberStatus emberAfRemoveAddressTableEntry (uint8_t index)`
- `EmberStatus emberAfInitiateKeyEstablishment (EmberNodeId nodeId, uint8_t endpoint)`
- `EmberStatus emberAfInitiateInterPanKeyEstablishment (EmberPanId panId, const EmberEUI64 eui64)`
- `bool emberAfPerformingKeyEstablishment (void)`
- `EmberStatus emberAfInitiatePartnerLinkKeyExchange (EmberNodeId target, uint8_t endpoint, EmberAfPartnerLinkKeyExchangeCallback *callback)`
- `bool emberAfIsCurrentSecurityProfileSmartEnergy (void)`

## ZCL macros

- `#define ZCL_FRAME_CONTROL_FRAME_TYPE_MASK`
- `#define ZCL_CLUSTER_SPECIFIC_COMMAND`
- `#define ZCL_PROFILE_WIDE_COMMAND`
- `#define ZCL_GLOBAL_COMMAND`
- `#define ZCL_MANUFACTURER_SPECIFIC_MASK`
- `#define ZCL_FRAME_CONTROL_DIRECTION_MASK`
- `#define ZCL_FRAME_CONTROL_SERVER_TO_CLIENT`
- `#define ZCL_FRAME_CONTROL_CLIENT_TO_SERVER`
- `#define ZCL_DISABLE_DEFAULT_RESPONSE_MASK`
- `#define ZCL_DIRECTION_CLIENT_TO_SERVER`
- `#define ZCL_DIRECTION_SERVER_TO_CLIENT`
- `#define EMBER_AF_ZCL_OVERHEAD`
- `#define EMBER_AF_ZCL_MANUFACTURER_SPECIFIC_OVERHEAD`

## Network utility functions

- `EmberStatus emberAfFormNetwork (EmberNetworkParameters *parameters)`
- `EmberStatus emberAfJoinNetwork (EmberNetworkParameters *parameters)`
- `EmberStatus emberAfFindUnusedPanIdAndForm (void)`
- `EmberStatus emberAfStartSearchForJoinableNetwork (void)`
- `EmberStatus emberAfPushNetworkIndex (uint8_t networkIndex)`
- `EmberStatus emberAfPushCallbackNetworkIndex (void)`
- `EmberStatus emberAfPushEndpointNetworkIndex (uint8_t endpoint)`
- `EmberStatus emberAfPopNetworkIndex (void)`
- `uint8_t emberAfPrimaryEndpointForNetworkIndex (uint8_t networkIndex)`
- `uint8_t emberAfPrimaryEndpointForCurrentNetworkIndex (void)`
- `EmberStatus emAfInitializeNetworkIndexStack (void)`
- `void emAfAssertNetworkIndexStackIsEmpty (void)`
- `int emberAfMain (MAIN_FUNCTION_PARAMETERS)`

### 8.11.1 Detailed Description

The master include file for the Ember ApplicationFramework API.

Definition in file `af.h`.

## 8.11.2 Macro Definition Documentation

### 8.11.2.1 #define emberAfMaxPowerLevel( )

The maximum power level that can be used by the chip.

Definition at line 2065 of file af.h.

## 8.12 af.h

```

00001
00017 #ifndef __AF_API__
00018 #define __AF_API__
00019
00020 // Micro and compiler specific typedefs and macros
00021 #include PLATFORM_HEADER
00022
00023 #ifndef CONFIGURATION_HEADER
00024     #define CONFIGURATION_HEADER "app/framework/util/config.h"
00025 #endif
00026 #include CONFIGURATION_HEADER
00027
00028 #ifdef EZSP_HOST
00029     // Includes needed for ember related functions for the EZSP host
00030     #include "stack/include/error.h"
00031     #include "stack/include/ember-types.h"
00032     #include "app/util/ezsp/ezsp-protocol.h"
00033     #include "app/util/ezsp/ezsp.h"
00034     #include "app/util/ezsp/ezsp-utils.h"
00035     #include "app/util/ezsp/serial-interface.h"
00036 #else
00037     // Includes needed for ember related functions for the EM250
00038     #include "stack/include/ember.h"
00039 #endif // EZSP_HOST
00040
00041 // HAL - hardware abstraction layer
00042 #include "hal/hal.h"
00043 #include "app/util/serial/serial.h" // Serial utility APIs
00044
00045 #include "stack/include/event.h"
00046 #include "stack/include/error.h"
00047 #include "af-types.h"
00048 #include "app/framework/util/print.h"
00049 #include "app/framework/util/time-util.h"
00050 #include "af-structs.h"
00051 #include "attribute-id.h"
00052 #include "att-storage.h"
00053 #include "attribute-type.h"
00054 #include "call-command-handler.h"
00055 #include "callback.h"
00056 #include "client-command-macro.h"
00057 #include "cluster-id.h"
00058 #include "command-id.h"
00059 #include "debug-printing.h"
00060 #include "enums.h"
00061 #include "print-cluster.h"
00062 #include "app/framework/util/client-api.h"
00063 #include "app/util/serial/command-interpreter2.h"
00064 #include "app/framework/cli/zcl-cli.h"
00065
00067 // @{
00068
00082 EmberAfAttributeMetadata *
00083     emberAfLocateAttributeMetadata(uint8_t endpoint,
00084         cluster,
00085         attribute,
00086         manufacturerCode);
00087
00088 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00089
EmberAfClusterId
EmberAfAttributeId
uint8_t mask,
uint16_t

```

```

00090     bool emberAfContainsAttribute(uint8_t endpoint,
00091                                     EmberAfClusterId clusterId,
00092                                     EmberAfAttributeId
00093                                     attributeId,
00094                                     uint8_t mask,
00095                                     uint16_t manufacturerCode);
00096 #else
00097     #define emberAfContainsAttribute(endpoint, clusterId, attributeId, mask,
00098                                     manufacturerCode) \
00099         (emberAfLocateAttributeMetadata(endpoint, clusterId, attributeId, mask,
00100                                     manufacturerCode) != NULL)
00101 #endif
00102
00103 // Returns true if attribute exists
00104
00105
00106 bool emberAfContainsCluster(uint8_t endpoint,
00107                             EmberAfClusterId clusterId);
00108
00109 bool emberAfContainsServer(uint8_t endpoint,
00110                             EmberAfClusterId clusterId);
00111
00112 bool emberAfContainsClient(uint8_t endpoint,
00113                             EmberAfClusterId clusterId);
00114
00115 EmberAfStatus emberAfWriteAttribute(uint8_t
00116                                       endpoint,
00117                                       EmberAfClusterId cluster,
00118                                       EmberAfAttributeId
00119                                       attributeID,
00120                                       uint8_t mask,
00121                                       uint8_t* dataPtr,
00122                                       uint8_t dataType);
00123
00124 EmberAfStatus emberAfWriteServerAttribute
00125   (uint8_t endpoint,
00126    EmberAfClusterId
00127    cluster,
00128    EmberAfAttributeId
00129    attributeID,
00130    uint8_t* dataPtr,
00131    uint8_t dataType);
00132
00133 EmberAfStatus emberAfWriteClientAttribute
00134   (uint8_t endpoint,
00135    EmberAfClusterId
00136    cluster,
00137    EmberAfAttributeId
00138    attributeID,
00139    uint8_t* dataPtr,
00140    uint8_t dataType);
00141
00142 EmberAfStatus emberAfWriteManufacturerSpecificServerAttribute
00143   (uint8_t endpoint,
00144    EmberAfClusterId
00145    cluster,
00146    EmberAfAttributeId attributeID,
00147    uint16_t
00148    manufacturerCode,
00149    uint8_t* dataPtr,
00150    uint8_t dataType)
00151 ;
00152
00153 EmberAfStatus emberAfWriteManufacturerSpecificClientAttribute
00154   (uint8_t endpoint,
00155    EmberAfClusterId
00156    cluster,
00157    EmberAfAttributeId attributeID,
00158    uint16_t
00159    manufacturerCode,
00160    uint8_t* dataPtr,
00161    uint8_t dataType)
00162 ;
00163
00164 EmberAfStatus emberAfVerifyAttributeWrite
00165   (uint8_t endpoint,
00166    EmberAfClusterId

```

```

        cluster,
00242             EmberAfAttributeId
00243             uint8_t mask,
00244             uint16_t manufacturerCode,
00245             uint8_t* buffer,
00246             uint8_t dataType);
00247
00260 EmberAfStatus emberAfReadAttribute(uint8_t
00261     endpoint,
00262             EmberAfClusterId cluster,
00263             EmberAfAttributeId
00264             attributeID,
00265             uint8_t mask,
00266             uint8_t* dataPtr,
00267             uint8_t readLength,
00268             uint8_t* dataType);
00269
00280 EmberAfStatus emberAfReadServerAttribute
00281     (uint8_t endpoint,
00282             EmberAfClusterId
00283             cluster,
00284             EmberAfAttributeId
00285             attributeID,
00286             uint8_t* dataPtr,
00287             uint8_t readLength);
00288
00298 EmberAfStatus emberAfReadClientAttribute
00299     (uint8_t endpoint,
00300             EmberAfClusterId
00301             cluster,
00302             EmberAfAttributeId
00303             attributeID,
00304             uint8_t* dataPtr,
00305             uint8_t readLength);
00306
00315 EmberAfStatus emberAfReadManufacturerSpecificServerAttribute
00316     (uint8_t endpoint,
00317             EmberAfClusterId
00318             cluster,
00319             EmberAfAttributeId
00320             attributeID,
00321             uint16_t
00322             manufacturerCode,
00323             uint8_t* dataPtr,
00324             uint8_t readLength
00325         );
00326
00333 EmberAfStatus emberAfReadManufacturerSpecificClientAttribute
00334     (uint8_t endpoint,
00335             EmberAfClusterId
00336             cluster,
00337             EmberAfAttributeId
00338             attributeID,
00339             uint16_t
00340             manufacturerCode,
00341             uint8_t* dataPtr,
00342             uint8_t readLength
00343         );
00344
00347 uint8_t emberAfGetDataSize(uint8_t dataType);
00348
00354 #define emberAfClusterIsManufacturerSpecific(cluster) (((cluster)->clusterId >=
00355     0xFC00)
00356
00362 #define emberAfAttributeIsReadOnly(metadata) (((metadata)->mask &
00363     ATTRIBUTE_MASK_WRITABLE) == 0)
00364
00369 #define emberAfAttributeIsClient(metadata) (((metadata)->mask &
00370     ATTRIBUTE_MASK_CLIENT) != 0)
00371
00376 #define emberAfAttributeIsTokenized(metadata) (((metadata)->mask &
00377     ATTRIBUTE_MASK_TOKENIZE) != 0)
00378
00383 #define emberAfAttributeIsExternal(metadata) (((metadata)->mask &
00384     ATTRIBUTE_MASK_EXTERNAL_STORAGE) != 0)
00385
00390 #define emberAfAttributeIsSingleton(metadata) (((metadata)->mask &

```

```

        ATTRIBUTE_MASK_SINGLETON) != 0)
00391 #define emberAfAttributeIsManufacturerSpecific(metadata) (((metadata)->mask &
00392             ATTRIBUTE_MASK_MANUFACTURER_SPECIFIC) != 0)
00393
00394
00405 #define emberAfAttributeSize(metadata) ((metadata)->size)
00406
00407 // master array of all defined endpoints
00408 extern EmberAfDefinedEndpoint emAfEndpoints[
00409 ];
00410
00411 // Master array of all network types.
00412 extern PGM EmAfNetworkType emAfNetworkTypes[];
00413
00414 // The current network type.
00415 extern PGM EmAfNetworkType *emAfCurrentNetworkType;
00416
00417 // Master array of all ZigBee PRO networks.
00418 extern PGM EmAfZigbeeProNetwork emAfZigbeeProNetworks[];
00419
00420 // The current ZigBee PRO network or NULL.
00421 extern PGM EmAfZigbeeProNetwork *emAfCurrentZigbeeProNetwork
00422 ;
00423
00424 // true if the current network is a ZigBee PRO network.
00425 #define emAfProIsCurrentNetwork() (emAfCurrentZigbeeProNetwork != NULL)
00426
00427 uint8_t emberAfEndpointFromIndex(uint8_t index);
00428
00429 uint8_t emberAfIndexFromEndpoint(uint8_t endpoint);
00430
00431 uint8_t emberAfIndexFromEndpointIncludingDisabledEndpoints
00432     (uint8_t endpoint);
00433
00434 uint8_t emberAfFindClusterClientEndpointIndex
00435     (uint8_t endpoint, EmberAfClusterId clusterId);
00436
00437 uint8_t emberAfFindClusterServerEndpointIndex
00438     (uint8_t endpoint, EmberAfClusterId clusterId);
00439
00440 #define emberAfProfileIdFromIndex(index) (emAfEndpoints[(index)].profileId)
00441
00442 #define emberAfDeviceIdFromIndex(index) (emAfEndpoints[(index)].deviceId)
00443
00444 #define emberAfDeviceVersionFromIndex(index)
00445     (emAfEndpoints[(index)].deviceVersion)
00446
00447 #define emberAfNetworkIndexFromEndpointIndex(index)
00448     (emAfEndpoints[(index)].networkIndex)
00449
00450 uint8_t emberAfNetworkIndexFromEndpoint(uint8_t
00451     endpoint);
00452
00453 #define emberAfPrimaryProfileId()          emberAfProfileIdFromIndex(0)
00454
00455 #define emberAfPrimaryEndpoint() (emAfEndpoints[0].endpoint)
00456
00457
00458 uint8_t emberAfEndpointCount(void);
00459
00460 uint8_t emberAfFixedEndpointCount(void);
00461
00462 enum {
00463     EMBER_AF_DATA_TYPE_ANALOG      = 0,
00464     EMBER_AF_DATA_TYPE_DISCRETE    = 1,
00465     EMBER_AF_DATA_TYPE_NONE        = 2
00466 };
00467
00468 uint8_t emberAfGetAttributeAnalogOrDiscreteType
00469     (uint8_t dataType);
00470
00471 bool emberAfIsTypeSigned(uint8_t dataType);
00472
00473 uint32_t emberAfGetInt32u(const uint8_t* message, uint16_t
00474     currentIndex, uint16_t msgLen);
00475
00476 uint32_t emberAfGetInt24u(const uint8_t* message, uint16_t
00477     currentIndex, uint16_t msgLen);
00478
00479 uint16_t emberAfGetInt16u(const uint8_t* message, uint16_t

```

```

        currentIndex, uint16_t msgLen);
00533 uint8_t* emberAfGetString(uint8_t* message, uint16_t
        currentIndex, uint16_t msgLen);
00537 uint8_t* emberAfGetLongString(uint8_t* message, uint16_t
        currentIndex, uint16_t msgLen);
00538 /*
00539 * @brief Function that extracts a ZCL Date from the message buffer and returns
00540 it
00541 *
00542 uint8_t emberAfGetDate(uint8_t* message, uint16_t currentIndex,
00543 uint16_t msgLen, EmberAfDate *dest);
00543
00547 #define emberAfGetInt8u(message, currentIndex, msgLen) message[currentIndex]
00548
00552 #define emberAfCopyInt8u(data,index,x) (data[index] = (x))
00553
00556 void emberAfCopyInt16u(uint8_t *data, uint16_t index, uint16_t
        x);
00560 void emberAfCopyInt24u(uint8_t *data, uint16_t index, uint32_t
        x);
00564 void emberAfCopyInt32u(uint8_t *data, uint16_t index, uint32_t
        x);
00565 /*
00566 * @brief Function that copies a ZigBee string into a buffer. The size
00567 * parameter should indicate the maximum number of characters to copy to the
00568 * destination buffer not including the length byte.
00569 */
00570 void emberAfCopyString(uint8_t *dest, uint8_t *src, uint8_t
        size);
00571 /*
00572 * @brief Function that copies a ZigBee long string into a buffer. The size
00573 * parameter should indicate the maximum number of characters to copy to the
00574 * destination buffer not including the length bytes.
00575 */
00576 void emberAfCopyLongString(uint8_t *dest, uint8_t *src,
        uint16_t size);
00577 /*
00578 * @brief Function that determines the length of a ZigBee Cluster Library
        string
00579 * (where the first byte is assumed to be the length).
00580 */
00581 uint8_t emberAfStringLength(const uint8_t *buffer);
00582 /*
00583 * @brief Function that determines the length of a ZigBee Cluster Library long
        string.
00584 * (where the first two bytes are assumed to be the length).
00585 */
00586 uint16_t emberAfLongStringLength(const uint8_t *buffer);
00587
00588
00592 // @{
00593
00602 bool emberAfIsDeviceEnabled(uint8_t endpoint);
00603
00612 bool emberAfIsDeviceIdentifying(uint8_t endpoint);
00613
00622 void emberAfSetDeviceEnabled(uint8_t endpoint, bool
        enabled);
00623
00627 // @@
00628
00632 bool emberAfEndpointEnableDisable(uint8_t endpoint,
        bool enable);
00633
00634
00638 bool emberAfEndpointIndexisEnabled(uint8_t index);
00639
00640
00644 #define EMBER_AF_NEW_IMAGE_VERIFICATION true
00645
00650 #define EMBER_AF_CONTINUE_IMAGE_VERIFY false
00651
00652
00659 extern PGM EmberAfOtaImageId emberAfInvalidImageId
        ;
00660
00661
00672 bool emberAfIsThisDataTypeAStringType(uint8_t
        dataType);

```

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00673
00675 bool emberAfIsStringAttributeType(
00676     EmberAfAttributeType attributeType);
00676
00678 bool emberAfIsLongStringAttributeType(
00679     EmberAfAttributeType attributeType);
00679
00684 #define EMBER_AF_ZCL_SEQUENCE_MASK 0x7F
00685
00690 #define EMBER_AF_MESSAGE_TAG_MASK 0x7F
00691
00703 uint8_t emberAfNextSequence(void);
00704
00709 uint8_t emberAfGetLastSequenceNumber(void);
00710
00711
00724 int8_t emberAfCompareValues(uint8_t* val1, uint8_t* val2,
00725     uint8_t len, bool signedNumber);
00725
00729 void emberAfGetEui64(EmberEUI64 returnEui64);
00730
00731
00732 #ifdef EZSP_HOST
00733 // Normally this is provided by the stack code, but on the host
00734 // it is provided by the application code.
00735 void emberReverseMemcpy(uint8_t* dest, const uint8_t* src, uint16_t length);
00736 #endif
00737
00741 EmberNodeId emberAfGetNodeId(void);
00742
00743 #if defined(DOXYGEN_SHOULD_SKIP_THIS) || defined(EZSP_HOST)
00744
00747 EmberStatus emberAfGenerateRandomKey(
00748     EmberKeyData *result);
00748
00749 #define emberAfGenerateRandomKey(result) emberGenerateRandomKey(result)
00750 #endif
00751
00755 EmberPanId emberAfGetPanId(void);
00756
00760 uint8_t emberAfGetChannel(void);
00761
00762 /*
00763 * @brief Returns a binding index that matches the current incoming message, if
00764 * known.
00765 */
00766 uint8_t emberAfGetBindingIndex(void);
00767
00768 /*
00769 * @brief Returns an address index that matches the current incoming message,
00770 * if known.
00771 */
00772 uint8_t emberAfGetAddressIndex(void);
00773
00778 EmberNetworkStatus emberAfNetworkState(
00779     void);
00783 EmberStatus emberAfGetNetworkParameters(
00784     EmberNodeType *nodeType,
00785             EmberNetworkParameters
00786     *parameters);
00785
00789 EmberStatus emberAfGetNodeType(EmberNodeType
00790     *nodeType);
00790
00794 #define EMBER_AF_REJOIN_DUE_TO_END_DEVICE_MOVE      0xA0
00795 #define EMBER_AF_REJOIN_DUE_TO_TC_KEEPALIVE_FAILURE 0xA1
00796 #define EMBER_AF_REJOIN_DUE_TO_CLI_COMMAND           0xA2
00797
00798 #define EMBER_AF_REJOIN_FIRST_REASON
00799 #define EMBER_AF_REJOIN_DUE_TO_END_DEVICE_MOVE
00799 #define EMBER_AF_REJOIN_LAST_REASON
00800 #define EMBER_AF_REJOIN_DUE_TO_END_DEVICE_MOVE
00814 EmberStatus emberAfPermitJoin(uint8_t duration,
00815                                 bool broadcastMgmtPermitJoin);
00816
00817 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00818
00829 EmberStatus emberAfBroadcastPermitJoin(

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```

        uint8_t duration);
00830 #else
00831     #define emberAfBroadcastPermitJoin(duration) \
00832         emberAfPermitJoin((duration), true)
00833 #endif
00834
00838 // @{
00839
00840 // Guaranteed print
00845 #define emberAfGuaranteedPrint(...)    emberAfPrint(0xFFFF, __VA_ARGS__)
00846
00850 #define emberAfGuaranteedPrintln(...)   emberAfPrintln(0xFFFF, __VA_ARGS__)
00851
00855 #define emberAfGuaranteedPrintBuffer(buffer,len,withSpace)
00856     emberAfPrintBuffer(0xFFFF,(buffer),(len),(withSpace))
00856
00860 #define emberAfGuaranteedPrintString(buffer)
00861     emberAfPrintString(0xFFFF,(buffer))
00861
00865 #define emberAfGuaranteedPrintLongString(buffer)
00866     emberAfPrintLongString(0xFFFF,(buffer))
00866
00871 #define emberAfGuaranteedFlush()        emberAfFlush(0xFFFF)
00872
00876 bool emberAfPrintEnabled(uint16_t functionality);
00877
00881 void emberAfPrintBuffer(uint16_t area, const uint8_t *buffer,
00882     uint16_t bufferLen, bool withSpaces);
00882
00887 void emberAfPrintString(uint16_t area, const uint8_t *buffer)
00888 ;
00888
00893 void emberAfPrintLongString(uint16_t area, const uint8_t
00894     *buffer);
00894
00900 void emberAfPrint(uint16_t functionality, PGM_P formatString, ...);
00901
00908 void emberAfPrintln(uint16_t functionality, PGM_P formatString, .
00909 ..);
00909
00913 void emberAfFlush(uint16_t functionality);
00914
00918 void emberAfPrintOn(uint16_t functionality);
00919
00923 void emberAfPrintOff(uint16_t functionality);
00924
00925
00926 #if !defined(EMBER_AF_GENERATE_CLI)
00927
00929 void emberAfPrintAllOn(void);
00930
00934 void emberAfPrintAllOff(void);
00935
00939 void emberAfPrintStatus(void);
00940 #endif
00941
00945 void emberAfPrintLittleEndianEui64(const
00946     EmberEUI64 eui64);
00946
00947
00951 void emberAfPrintBigEndianEui64(const EmberEUI64
00952     eui64);
00952
00956 void emberAfPrintMessageData(uint8_t* data, uint16_t
00957     length);
00958
00965
00969 #define emberAfAddToCurrentAppTasks(x) \
00970     emberAfAddToCurrentAppTasksCallback(x)
00971
00975 #define emberAfRemoveFromCurrentAppTasks(x) \
00976     emberAfRemoveFromCurrentAppTasksCallback(x)
00977
00983 #define emberAfCurrentAppTasks() emberAfGetCurrentAppTasksCallback()
00984
00991 void emberAfRunEvents(void);
00992
00997 #define EMBER_AF_CLIENT_CLUSTER_TICK true
00998

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01003 #define EMBER_AF_SERVER_CLUSTER_TICK false
01004
01027 EmberStatus emberAfScheduleTickExtended(
01028     uint8_t endpoint,
01029                                         EmberAfClusterId
01030                                         clusterId,
01031                                         bool isClient,
01032                                         uint32_t delayMs,
01033                                         EmberAfEventPollControl
01034                                         pollControl,
01035                                         EmberAfEventSleepControl
01036                                         sleepControl);
01037
01053 EmberStatus emberAfScheduleClusterTick(
01054     uint8_t endpoint,
01055                                         EmberAfClusterId
01056                                         clusterId,
01057                                         bool isClient,
01058                                         uint32_t delayMs,
01059                                         EmberAfEventSleepControl
01060                                         sleepControl);
01061
01073 EmberStatus emberAfScheduleClientTickExtended
01074     (uint8_t endpoint,
01075                                         EmberAfClusterId
01076                                         clusterId,
01077                                         uint32_t delayMs,
01078                                         EmberAfEventPollControl
01079                                         pollControl,
01080                                         EmberAfEventSleepControl
01081                                         sleepControl);
01082
01090 EmberStatus emberAfScheduleClientTick(
01091     uint8_t endpoint,
01092                                         EmberAfClusterId
01093                                         clusterId,
01094                                         uint32_t delayMs);
01095
01098 EmberStatus emberAfScheduleServerTickExtended
01099     (uint8_t endpoint,
01100                                         EmberAfClusterId
01101                                         clusterId,
01102                                         uint32_t delayMs,
01103                                         EmberAfEventPollControl
01104                                         pollControl,
01105                                         EmberAfEventSleepControl
01106                                         sleepControl);
01107
01125 EmberStatus emberAfScheduleServerTick(
01126     uint8_t endpoint,
01127                                         EmberAfClusterId
01128                                         clusterId,
01129                                         uint32_t delayMs);
01130
01143 EmberStatus emberAfDeactivateClusterTick
01144     (uint8_t endpoint,
01145                                         EmberAfClusterId
01146                                         clusterId,
01147                                         bool isClient);
01148
01156 EmberStatus emberAfDeactivateClientTick(
01157     uint8_t endpoint,
01158                                         EmberAfClusterId
01159                                         clusterId);
01160
01168 EmberStatus emberAfDeactivateServerTick(
01169     uint8_t endpoint,
01170                                         EmberAfClusterId
01171                                         clusterId);
01184 EmberStatus emberAfEventControlSetDelayMS
01185     (EmberEventControl *control,
01186                                         uint32_t delayMs);
01187 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01188
01192 EmberStatus emberAfEventControlSetDelay(
01193     EmberEventControl *eventControl,
01194                                         uint32_t delayMs);
01195

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01195 #define emberAfEventControlSetDelay(control, delayMs) \
01196     emberAfEventControlSetDelayMS(control, delayMs)
01197 #endif
01198
01213 EmberStatus emberAfEventControlSetDelayQS
    (EmberEventControl *control,
01214                                     uint32_t delayQs);
01215
01230 EmberStatus emberAfEventControlSetDelayMinutes
    (EmberEventControl *control,
01231                                     uint16_t delayM);
01232
01237 void emberAfNetworkEventControlSetInactive
    (EmberEventControl *controls);
01242 bool emberAfNetworkEventControlGetActive(
    EmberEventControl *controls);
01248 void emberAfNetworkEventControlSetActive(
    EmberEventControl *controls);
01254 EmberStatus emberAfNetworkEventControlSetDelayMS
    (EmberEventControl *controls,
01255                                     uint32_t delayMs);
01256 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01257
01262 EmberStatus emberAfNetworkEventControlSetDelay
    (EmberEventControl *controls,
01263                                     uint32_t delayMs);
01264 #else
01265 #define emberAfNetworkEventControlSetDelay(controls, delayMs) \
01266     emberAfNetworkEventControlSetDelayMS(controls, delayMs);
01267 #endif
01268
01273 EmberStatus emberAfNetworkEventControlSetDelayQS
    (EmberEventControl *controls,
01274                                     uint32_t delayQs);
01280 EmberStatus emberAfNetworkEventControlSetDelayMinutes
    (EmberEventControl *controls,
01281                                     uint16_t delayM);
01282
01287 EmberStatus emberAfEndpointEventControlSetInactive
    (EmberEventControl *controls,
01288                                     uint8_t endpoint);
01293 bool emberAfEndpointEventControlGetActive(
    EmberEventControl *controls,
01294                                     uint8_t endpoint);
01299 EmberStatus emberAfEndpointEventControlSetActive
    (EmberEventControl *controls,
01300                                     uint8_t endpoint);
01305 EmberStatus emberAfEndpointEventControlSetDelayMS
    (EmberEventControl *controls,
01306                                     uint8_t endpoint,
01307                                     uint32_t delayMs);
01308 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01309
01313 EmberStatus emberAfEndpointEventControlSetDelay
    (EmberEventControl *controls,
01314                                     uint8_t endpoint,
01315                                     uint32_t delayMs);
01316 #else
01317 #define emberAfEndpointEventControlSetDelay(controls, endpoint, delayMs) \
01318     emberAfEndpointEventControlSetDelayMS(controls, endpoint, delayMs);
01319 #endif
01320
01325 EmberStatus emberAfEndpointEventControlSetDelayQS
    (EmberEventControl *controls,
01326                                     uint8_t endpoint,
01327                                     uint32_t delayQs);
01332 EmberStatus emberAfEndpointEventControlSetDelayMinutes
    (EmberEventControl *controls,
01333                                     uint8_t endpoint,
01334                                     uint16_t delayM);
01335
01345 uint32_t emberAfMsToNextEvent(uint32_t maxMs);
01346
01351 uint32_t emberAfMsToNextEventExtended(uint32_t
    maxMs, uint8_t* returnIndex);
01352
01353
01364 #define emberAfQSToNextEvent(maxQS) \
01365     (emberAfMsToNextEvent(maxQS * MILLISECOND_TICKS_PER_QUARTERSECOND) \
01366      / MILLISECOND_TICKS_PER_QUARTERSECOND) \

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01367
01382 #define emberAfGetCurrentSleepControl() \
01383     emberAfGetCurrentSleepControlCallback()
01384
01394 #define emberAfSetDefaultSleepControl(x) \
01395     emberAfSetDefaultSleepControlCallback(x)
01396
01405 #define emberAfGetDefaultSleepControl() \
01406     emberAfGetDefaultSleepControlCallback()
01407
01411 // @{
01412
01425 EmberStatus emberAfSendResponse(void);
01426
01430 EmberStatus emberAfSendResponseWithCallback
    (EmberAfMessageSentFunction callback);
01431
01435 EmberStatus emberAfSendMulticast(
    EmberMulticastId multicastId,
01436             EmberApsFrame *apsFrame,
01437             uint16_t messageLength,
01438             uint8_t* message);
01439
01443 EmberStatus emberAfSendMulticastWithAliasWithCallback
    (EmberMulticastId multicastId,
01444             EmberApsFrame
        *apsFrame,
01445             uint16_t messageLength,
01446             uint8_t *message,
01447             EmberNodeId
        alias,
01448             uint8_t sequence,
01449             EmberAfMessageSentFunction callback);
01450
01454 EmberStatus emberAfSendMulticastWithCallback
    (EmberMulticastId multicastId,
01455             EmberApsFrame *
        apsFrame,
01456             uint16_t messageLength,
01457             uint8_t* message,
01458             EmberAfMessageSentFunction
        callback);
01459
01463 EmberStatus emberAfSendBroadcast(EmberNodeId
    destination,
01464             EmberApsFrame *apsFrame,
01465             uint16_t messageLength,
01466             uint8_t* message);
01467
01471 EmberStatus emberAfSendBroadcastWithCallback
    (EmberNodeId destination,
01472             EmberApsFrame *
        apsFrame,
01473             uint16_t messageLength,
01474             uint8_t* message,
01475             EmberAfMessageSentFunction
        callback);
01476
01480 EmberStatus emberAfSendBroadcastWithAliasWithCallback
    (EmberNodeId destination,
01481             EmberApsFrame
        *apsFrame,
01482             uint16_t messageLength,
01483             uint8_t *message,
01484             EmberNodeId
        alias,
01485             uint8_t sequence,
01486             EmberAfMessageSentFunction callback);
01487
01491 EmberStatus emberAfSendUnicast(
    EmberOutgoingMessageType type,
01492             uint16_t indexOrDestination,
01493             EmberApsFrame *apsFrame,
01494             uint16_t messageLength,
01495             uint8_t* message);
01496
01500 EmberStatus emberAfSendUnicastWithCallback
    (EmberOutgoingMessageType type,

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01501                               uint16_t indexOrDestination,
01502                               EmberApsFrame *apsFrame
01503
01504                               uint16_t messageLength,
01505                               uint8_t* message,
01506                               EmberAfMessageSentFunction
01507                               callback);
01508
01509     EmberStatus emberAfSendUnicastToBindings
01510     (EmberApsFrame *apsFrame,
01511
01512                               uint16_t messageLength,
01513                               uint8_t* message);
01514
01515     EmberStatus emberAfSendUnicastToBindingsWithCallback
01516     (EmberApsFrame *apsFrame,
01517
01518                               uint16_t messageLength,
01519                               uint8_t* message,
01520                               EmberAfMessageSentFunction
01521                               callback);
01522
01523     EmberStatus emberAfSendInterPan(EmberPanId
01524     panId,
01525
01526                               const EmberEUI64 destinationLongId,
01527                               EmberNodeId destinationShortId,
01528                               EmberMulticastId multicastId,
01529                               EmberAfClusterId clusterId,
01530                               EmberAfProfileId profileId,
01531                               uint16_t messageLength,
01532                               uint8_t* messageBytes);
01533
01534     EmberStatus emberAfSendEndDeviceBind(uint8_t
01535     endpoint);
01536
01537     EmberStatus emberAfSendCommandUnicastToBindings
01538     (void);
01539
01540     EmberStatus emberAfSendCommandUnicastToBindingsWithCallback
01541     (EmberAfMessageSentFunction callback);
01542
01543     EmberStatus emberAfSendCommandMulticast(
01544     EmberMulticastId multicastId);
01545
01546     EmberStatus emberAfSendCommandMulticastWithAlias
01547     (EmberMulticastId multicastId, EmberNodeId alias,
01548     uint8_t sequence);
01549
01550     EmberStatus emberAfSendCommandMulticastWithCallback
01551     (EmberMulticastId multicastId,
01552
01553                               EmberAfMessageSentFunction
01554                               callback);
01555
01556     EmberStatus emberAfSendCommandUnicast(
01557     EmberOutgoingMessageType type,
01558
01559                               uint16_t indexOrDestination);
01560
01561     EmberStatus emberAfSendCommandUnicastWithCallback
01562     (EmberOutgoingMessageType type,
01563
01564                               uint16_t indexOrDestination,
01565                               EmberAfMessageSentFunction
01566                               callback);
01567
01568     EmberStatus emberAfSendCommandBroadcast(
01569     EmberNodeId destination);
01570
01571     EmberStatus emberAfSendCommandBroadcastWithCallback
01572     (EmberNodeId destination,
01573
01574                               EmberAfMessageSentFunction
01575                               callback);
01576
01577     EmberStatus emberAfSendCommandBroadcastWithAliasWithCallback
01578     (EmberNodeId destination,
01579
01580                               EmberNodeId
01581                               alias,
01582
01583                               uint8_t sequence,
01584                               EmberAfMessageSentFunction
01585                               callback);
01586
01587     EmberStatus emberAfSendCommandBroadcastWithAlias
01588     (EmberNodeId destination,
01589
01590                               EmberNode

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01630                                     EmberNodeId alias,
01631                                     uint8_t sequence);
01642 EmberStatus emberAfSendCommandInterPan(
01643     EmberPanId panId,
01644                                     const EmberEUI64
01645     destinationLongId,
01646                                     EmberNodeId
01647     destinationShortId,
01648                                     EmberMulticastId
01649     multicastId,
01650                                     EmberAfProfileId
01651     profileId);
01652
01653 EmberStatus emberAfSendDefaultResponse(
01654     const EmberAfClusterCommand *cmd,
01655                                     EmberAfStatus status);
01656
01657 EmberStatus emberAfSendDefaultResponseWithCallback
01658     (const EmberAfClusterCommand *cmd,
01659                                     EmberAfStatus
01660     status,
01661                                     EmberAfMessageSentFunction
01662     callback);
01663
01664 EmberStatus emberAfSendImmediateDefaultResponse
01665     (EmberAfStatus status);
01666
01667 EmberStatus emberAfSendImmediateDefaultResponseWithCallback
01668     (EmberAfStatus status,
01669     EmberAfMessageSentFunction
01670     callback);
01671
01672 uint8_t emberAfMaximumApsPayloadLength(
01673     EmberOutgoingMessageType type,
01674                                     uint16_t indexOrDestination,
01675     EmberApsFrame *apsFrame);
01676
01677 EmberApsFrame *emberAfGetCommandApsFrame(
01678     void);
01679
01680 void emberAfSetCommandEndpoints(uint8_t
01681     sourceEndpoint, uint8_t destinationEndpoint);
01682
01683 #define EMBER_AF_CLIENT_CLUSTER_DISCOVERY false
01684
01685 #define EMBER_AF_SERVER_CLUSTER_DISCOVERY true
01686
01687 EmberStatus emberAfFindDevicesByProfileAndCluster
01688     (EmberNodeId target,
01689                                     EmberAfProfileId
01690     profileId,
01691                                     EmberAfClusterId
01692     clusterId,
01693                                     bool serverCluster,
01694     EmberAfServiceDiscoveryCallback *callback);
01695
01696
01697 EmberStatus emberAfFindClustersByDeviceAndEndpoint
01698     (EmberNodeId target,
01699                                     uint8_t targetEndpoint,
01700     EmberAfServiceDiscoveryCallback *callback);
01701
01702 EmberStatus emberAfFindIeeeAddress(EmberNodeId
01703     shortAddress,
01704                                     EmberAfServiceDiscoveryCallback
01705     *callback);
01706
01707 EmberStatus emberAfFindNodeId(EmberEUI64
01708     longAddress,
01709                                     EmberAfServiceDiscoveryCallback
01710     *callback);
01711
01712 EmberStatus emberAfFindActiveEndpoints(
01713     EmberNodeId target,
01714                                     EmberAfServiceDiscoveryCallback
01715     *callback);
01716
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01821 uint8_t emberAfAddAddressTableEntry(EmberEUI64
01822     longId, EmberNodeId shortId);
01823 EmberStatus emberAfSetAddressTableEntry(
01824     uint8_t index,
01825                                     EmberEUI64 longId,
01826                                     EmberNodeId shortId);
01827
01828 EmberStatus emberAfRemoveAddressTableEntry
01829     (uint8_t index);
01830
01831 #define emberAfCurrentCommand() (emAfCurrentCommand)
01832 extern EmberAfClusterCommand *emAfCurrentCommand
01833 ;
01834
01835 #define emberAfCurrentEndpoint()
01836     (emberAfCurrentCommand()->apsFrame->destinationEndpoint)
01837
01838 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01839
01840 EmberStatus emberAfInitiateKeyEstablishment
01841     (EmberNodeId nodeId, uint8_t endpoint);
01842
01843 EmberStatus emberAfInitiateInterPanKeyEstablishment
01844     (EmberPanId panId,
01845                                     const EmberEUI64
01846     eui64);
01847
01848 bool emberAfPerformingKeyEstablishment(void);
01849
01850 EmberStatus emberAfInitiatePartnerLinkKeyExchange
01851     (EmberNodeId target,
01852                                     uint8_t endpoint,
01853
01854     EmberAfPartnerLinkKeyExchangeCallback *
01855     callback);
01856 #else
01857     #define emberAfInitiateKeyEstablishment(nodeId, endpoint) \
01858         emberAfInitiateKeyEstablishmentCallback(nodeId, endpoint)
01859     #define emberAfInitiateInterPanKeyEstablishment(panId, eui64) \
01860         emberAfInitiateInterPanKeyEstablishmentCallback(panId, eui64)
01861     #define emberAfPerformingKeyEstablishment() \
01862         emberAfPerformingKeyEstablishmentCallback()
01863     #define emberAfInitiatePartnerLinkKeyExchange(target, endpoint, callback) \
01864         emberAfInitiatePartnerLinkKeyExchangeCallback(target, endpoint, callback)
01865 #endif
01866
01867 bool emberAfIsCurrentSecurityProfileSmartEnergy
01868     (void);
01869
01870 // @{
01871 // Frame control fields (8 bits total)
01872 // Bits 0 and 1 are Frame Type Sub-field
01873 #define ZCL_FRAME_CONTROL_FRAME_TYPE_MASK      (BIT(0)|BIT(1))
01874 #define ZCL_CLUSTER_SPECIFIC_COMMAND            BIT(0)
01875 #define ZCL_PROFILE_WIDE_COMMAND                0
01876 #define ZCL_GLOBAL_COMMAND                      (ZCL_PROFILE_WIDE_COMMAND)
01877 // Bit 2 is Manufacturer Specific Sub-field
01878 #define ZCL_MANUFACTURER_SPECIFIC_MASK        BIT(2)
01879 // Bit 3 is Direction Sub-field
01880 #define ZCL_FRAMB_CONTROL_DIRECTION_MASK       BIT(3)
01881 #define ZCL_FRAME_CONTROL_SERVER_TO_CLIENT    BIT(3)
01882 #define ZCL_FRAMB_CONTROL_CLIENT_TO_SERVER    0
01883 // Bit 4 is Disable Default Response Sub-field
01884 #define ZCL_DISABLE_DEFAULT_RESPONSE_MASK      BIT(4)
01885 // Bits 5 to 7 are reserved
01886
01887 #define ZCL_DIRECTION_CLIENT_TO_SERVER 0
01888 #define ZCL_DIRECTION_SERVER_TO_CLIENT 1
01889
01890 // Packet must be at least 3 bytes for ZCL overhead.
01891 //   Frame Control (1-byte)
01892 //   Sequence Number (1-byte)
01893 //   Command Id (1-byte)
01894 #define EMBER_AF_ZCL_OVERHEAD                 3
01895 #define EMBER_AF_ZCL_MANUFACTURER_SPECIFIC_OVERHEAD 5
01896
01897 // ${
01898
01899 EmberStatus emberAfFormNetwork(

```

```

        EmberNetworkParameters *parameters);
01984
01993 EmberStatus emberAfJoinNetwork(
        EmberNetworkParameters *parameters);
01994
01995 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01996
02001 EmberStatus emberAfFindUnusedPanIdAndForm
        (void);
02007 EmberStatus emberAfStartSearchForJoinableNetwork
        (void);
02008 #else
02009     #define emberAfFindUnusedPanIdAndForm()
        emberAfFindUnusedPanIdAndFormCallback()
02010     #define emberAfStartSearchForJoinableNetwork()
        emberAfStartSearchForJoinableNetworkCallback()
02011 #endif
02012
02017 EmberStatus emberAfPushNetworkIndex(uint8_t
        networkIndex);
02022 EmberStatus emberAfPushCallbackNetworkIndex
        (void);
02027 EmberStatus emberAfPushEndpointNetworkIndex
        (uint8_t endpoint);
02034 EmberStatus emberAfPopNetworkIndex(void);
02038 uint8_t emberAfPrimaryEndpointForNetworkIndex
        (uint8_t networkIndex);
02042 uint8_t emberAfPrimaryEndpointForCurrentNetworkIndex
        (void);
02043 EmberStatus emAfInitializeNetworkIndexStack
        (void);
02044 void emAfAssertNetworkIndexStackIsEmpty(void)
        ;
02045
02048 int emberAfMain(MAIN_FUNCTION_PARAMETERS);
02049
02054 #if !defined(DOXYGEN_SHOULD_SKIP_THIS)
02055     #if defined(EMBER_TEST)
02056         #define EMBER_TEST_ASSERT(x) assert(x)
02057     #else
02058         #define EMBER_TEST_ASSERT(x)
02059     #endif
02060 #endif
02061
02064 // Note: This is a #define for now but could be a real function call in the
// future.
02065 #define emberAfMaxPowerLevel() (3)
02066
02067 #endif // __AF_API__

```

## 8.13 bootloader-protocol.h File Reference

### Macros

- #define BOOTLOAD\_OTA\_SIZE
- #define MAX\_BOOTLOAD\_MESSAGE\_SIZE
- #define BOOTLOAD\_PROTOCOL\_VERSION
- #define CHALLENGE\_REQUEST\_VERSION
- #define BOOTLOAD\_MESSAGE\_OVERHEAD
- #define OFFSET\_VERSION
- #define OFFSET\_MESSAGE\_TYPE
- #define OFFSET\_DEVICE\_TYPE
- #define OFFSET\_BLOCK\_NUMBER
- #define OFFSET\_ERROR\_TYPE
- #define OFFSET\_BLOCK\_NUMBER\_CHECK
- #define OFFSET\_ERROR\_BLOCK
- #define OFFSET\_IMAGE\_CONTENT

- #define QUERY\_RESPONSE\_LENGTH
- #define QRESP\_OFFSET\_BL\_ACTIVE
- #define QRESP\_OFFSET\_MFG\_ID
- #define QRESP\_OFFSET\_HARDWARE\_TAG
- #define QRESP\_OFFSET\_BL\_CAPS
- #define QRESP\_OFFSET\_PLATFORM
- #define QRESP\_OFFSET\_MICRO
- #define QRESP\_OFFSET\_PHY
- #define QRESP\_OFFSET\_BL\_VERSION
- #define OFFSET\_MFG\_ID
- #define OFFSET\_HARDWARE\_TAG
- #define OFFSET\_AUTH\_CHALLENGE
- #define OFFSET\_AUTH\_RESPONSE
- #define XMODEM\_QUERY
- #define XMODEM\_QRESP
- #define XMODEM\_CC
- #define XMODEM\_LAUNCH\_REQUEST
- #define XMODEM\_AUTH\_CHALLENGE
- #define XMODEM\_AUTH\_RESPONSE
- #define BOOTLOAD\_AUTH\_COMMON\_SIZE
- #define BOOTLOAD\_AUTH\_CHALLENGE\_SIZE
- #define BOOTLOAD\_AUTH\_RESPONSE\_SIZE
- #define QUERY\_REQUEST\_LENGTH
- #define LAUNCH\_REQUEST\_LENGTH
- #define XMODEM\_AUTH\_CHALLENGE\_LENGTH
- #define XMODEM\_AUTH\_CHALLENGE\_REQUEST\_INDEX
- #define XMODEM\_AUTH\_RESPONSE\_LENGTH
- #define bootloaderPrintln(...)
- #define bootloaderPrint(...)

## Functions

- EmberStatus emAfSendBootloadMessage (bool isBroadcast, EmberEUI64 destEui64, uint8\_t length, uint8\_t \*message)
- uint8\_t emberAfPluginStandaloneBootloaderCommonMakeHeader (uint8\_t \*message, uint8\_t type)
- EmberStatus emberAfPluginStandaloneBootloaderCommonSendMessage (bool isBroadcast, EmberEUI64 targetEui, uint8\_t length, uint8\_t \*message)
- bool emberAfPluginStandaloneBootloaderCommonCheckIncomingMessage (uint8\_t length, uint8\_t \*message)
- void emAfStandaloneBootloaderCommonPrintHardwareTag (uint8\_t \*text)
- void emAfStandaloneBootloaderClientEncrypt (uint8\_t \*block, uint8\_t \*key)

### 8.13.1 Macro Definition Documentation

#### 8.13.1.1 #define BOOTLOAD\_OTA\_SIZE

Definition at line 3 of file `bootloader-protocol.h`.

**8.13.1.2 #define MAX\_BOOTLOAD\_MESSAGE\_SIZE**

Definition at line 7 of file [bootloader-protocol.h](#).

**8.13.1.3 #define BOOTLOAD\_PROTOCOL\_VERSION**

Definition at line 10 of file [bootloader-protocol.h](#).

**8.13.1.4 #define CHALLENGE\_REQUEST\_VERSION**

Definition at line 13 of file [bootloader-protocol.h](#).

**8.13.1.5 #define BOOTLOAD\_MESSAGE\_OVERHEAD**

Definition at line 17 of file [bootloader-protocol.h](#).

**8.13.1.6 #define OFFSET\_VERSION**

Definition at line 20 of file [bootloader-protocol.h](#).

**8.13.1.7 #define OFFSET\_MESSAGE\_TYPE**

Definition at line 21 of file [bootloader-protocol.h](#).

**8.13.1.8 #define OFFSET\_DEVICE\_TYPE**

Definition at line 22 of file [bootloader-protocol.h](#).

**8.13.1.9 #define OFFSET\_BLOCK\_NUMBER**

Definition at line 23 of file [bootloader-protocol.h](#).

**8.13.1.10 #define OFFSET\_ERROR\_TYPE**

Definition at line 24 of file [bootloader-protocol.h](#).

**8.13.1.11 #define OFFSET\_BLOCK\_NUMBER\_CHECK**

Definition at line 25 of file [bootloader-protocol.h](#).

**8.13.1.12 #define OFFSET\_ERROR\_BLOCK**

Definition at line 26 of file [bootloader-protocol.h](#).

**8.13.1.13 #define OFFSET\_IMAGE\_CONTENT**

Definition at line [27](#) of file [bootloader-protocol.h](#).

**8.13.1.14 #define QUERY\_RESPONSE\_LENGTH**

Definition at line [39](#) of file [bootloader-protocol.h](#).

**8.13.1.15 #define QRESP\_OFFSET\_BL\_ACTIVE**

Definition at line [40](#) of file [bootloader-protocol.h](#).

**8.13.1.16 #define QRESP\_OFFSET\_MFG\_ID**

Definition at line [41](#) of file [bootloader-protocol.h](#).

**8.13.1.17 #define QRESP\_OFFSET\_HARDWARE\_TAG**

Definition at line [42](#) of file [bootloader-protocol.h](#).

**8.13.1.18 #define QRESP\_OFFSET\_BL\_CAPS**

Definition at line [43](#) of file [bootloader-protocol.h](#).

**8.13.1.19 #define QRESP\_OFFSET\_PLATFORM**

Definition at line [44](#) of file [bootloader-protocol.h](#).

**8.13.1.20 #define QRESP\_OFFSET\_MICRO**

Definition at line [45](#) of file [bootloader-protocol.h](#).

**8.13.1.21 #define QRESP\_OFFSET\_PHY**

Definition at line [46](#) of file [bootloader-protocol.h](#).

**8.13.1.22 #define QRESP\_OFFSET\_BL\_VERSION**

Definition at line [47](#) of file [bootloader-protocol.h](#).

**8.13.1.23 #define OFFSET\_MFG\_ID**

Definition at line [50](#) of file [bootloader-protocol.h](#).

**8.13.1.24 #define OFFSET\_HARDWARE\_TAG**

Definition at line 51 of file [bootloader-protocol.h](#).

**8.13.1.25 #define OFFSET\_AUTH\_CHALLENGE**

Definition at line 54 of file [bootloader-protocol.h](#).

**8.13.1.26 #define OFFSET\_AUTH\_RESPONSE**

Definition at line 57 of file [bootloader-protocol.h](#).

**8.13.1.27 #define XMODEM\_QUERY**

Definition at line 62 of file [bootloader-protocol.h](#).

**8.13.1.28 #define XMODEM\_QRESP**

Definition at line 63 of file [bootloader-protocol.h](#).

**8.13.1.29 #define XMODEM\_CC**

Definition at line 64 of file [bootloader-protocol.h](#).

**8.13.1.30 #define XMODEM\_LAUNCH\_REQUEST**

Definition at line 65 of file [bootloader-protocol.h](#).

**8.13.1.31 #define XMODEM\_AUTH\_CHALLENGE**

Definition at line 66 of file [bootloader-protocol.h](#).

**8.13.1.32 #define XMODEM\_AUTH\_RESPONSE**

Definition at line 67 of file [bootloader-protocol.h](#).

**8.13.1.33 #define BOOTLOAD\_AUTH\_COMMON\_SIZE**

Definition at line 70 of file [bootloader-protocol.h](#).

**8.13.1.34 #define BOOTLOAD\_AUTH\_CHALLENGE\_SIZE**

Definition at line 71 of file [bootloader-protocol.h](#).

**8.13.1.35 #define BOOTLOAD\_AUTH\_RESPONSE\_SIZE**

Definition at line 72 of file [bootloader-protocol.h](#).

**8.13.1.36 #define QUERY\_REQUEST\_LENGTH**

Definition at line 76 of file [bootloader-protocol.h](#).

**8.13.1.37 #define LAUNCH\_REQUEST\_LENGTH**

Definition at line 83 of file [bootloader-protocol.h](#).

**8.13.1.38 #define XMODEM\_AUTH\_CHALLENGE\_LENGTH**

Definition at line 95 of file [bootloader-protocol.h](#).

**8.13.1.39 #define XMODEM\_AUTH\_CHALLENGE\_REQUEST\_INDEX**

Definition at line 96 of file [bootloader-protocol.h](#).

**8.13.1.40 #define XMODEM\_AUTH\_RESPONSE\_LENGTH**

Definition at line 101 of file [bootloader-protocol.h](#).

**8.13.1.41 #define bootloadPrintln( ... )**

Definition at line 109 of file [bootloader-protocol.h](#).

**8.13.1.42 #define bootloadPrint( ... )**

Definition at line 110 of file [bootloader-protocol.h](#).

**8.13.2 Function Documentation****8.13.2.1 EmberStatus emAfSendBootloadMessage ( bool *isBroadcast*, EmberEUI64 *destEui64*, uint8\_t *length*, uint8\_t \* *message* )****8.13.2.2 uint8\_t emberAfPluginStandaloneBootloaderCommonMakeHeader ( uint8\_t \* *message*, uint8\_t *type* )****8.13.2.3 EmberStatus emberAfPluginStandaloneBootloaderCommonSendMessage ( bool *isBroadcast*, EmberEUI64 *targetEui*, uint8\_t *length*, uint8\_t \* *message* )****8.13.2.4 bool emberAfPluginStandaloneBootloaderCommonCheckIncomingMessage ( uint8\_t *length*, uint8\_t \* *message* )****8.13.2.5 void emAfStandaloneBootloaderCommonPrintHardwareTag ( uint8\_t \* *text* )**

### 8.13.2.6 void emAfStandaloneBootloaderClientEncrypt( uint8\_t \* block, uint8\_t \* key )

## 8.14 bootloader-protocol.h

```

00001
00002 // Maximum data size for bootload message that goes over the air.
00003 #define BOOTLOAD_OTA_SIZE           64      // bytes
00004
00005 // Maximum bootload data packet size which is SOH (data) message. The message
00006 // contains BOOTLOAD_OTA_SIZE bytes data and 6 bytes header.
00007 #define MAX_BOOTLOAD_MESSAGE_SIZE   (BOOTLOAD_OTA_SIZE + 6)
00008
00009 // Current bootloader protocol version
00010 #define BOOTLOAD_PROTOCOL_VERSION 1
00011
00012 // Version field defined in the challenge-request Xmodem Auth message
00013 #define CHALLENGE_REQUEST_VERSION 0x01
00014
00015 // version (1-byte)
00016 // command (1-byte)
00017 #define BOOTLOAD_MESSAGE_OVERHEAD 2
00018
00019 // offset into bootload header and bootloader payload
00020 #define OFFSET_VERSION             0
00021 #define OFFSET_MESSAGE_TYPE       1
00022 #define OFFSET_DEVICE_TYPE        2
00023 #define OFFSET_BLOCK_NUMBER       2
00024 #define OFFSET_ERROR_TYPE         2
00025 #define OFFSET_BLOCK_NUMBER_CHECK 3
00026 #define OFFSET_ERROR_BLOCK        3
00027 #define OFFSET_IMAGE_CONTENT       4
00028
00029 // Query Response Format
00030 // (Overhead)
00031 // Bootload active: 1-byte
00032 // MFG ID: 2-bytes
00033 // Board ID: 2-bytes
00034 // Bootloader Capabiliteis: 1-byte
00035 // Platform: 1-byte
00036 // Micro: 1-byte
00037 // PHY: 1-byte
00038 // Bootloader Version: 2-bytes
00039 #define QUERY_RESPONSE_LENGTH (BOOTLOAD_MESSAGE_OVERHEAD + 11)
00040 #define QRESP_OFFSET_BL_ACTIVE     2 // 1 byte long
00041 #define QRESP_OFFSET_MFG_ID       3 // 2 bytes long (little endian)
00042 #define QRESP_OFFSET_HARDWARE_TAG 5 // 16 bytes long
00043 #define QRESP_OFFSET_BL_CAPS      21 // 1 byte long
00044 #define QRESP_OFFSET_PLATFORM     22 // 1 byte long
00045 #define QRESP_OFFSET_MICRO       23 // 1 byte long
00046 #define QRESP_OFFSET_PHY          24 // 1 byte long
00047 #define QRESP_OFFSET_BL_VERSION   25 // 2 bytes long (big endian)
00048
00049 // offsets into bootloader payload for launch request message.
00050 #define OFFSET_MFG_ID            2 // 2 bytes long (little endian)
00051 #define OFFSET_HARDWARE_TAG      4 // 16 bytes long (little endian)
00052
00053 // offsets into bootloader payload for authentication challenge message.
00054 #define OFFSET_AUTH_CHALLENGE    2 // 16 bytes long
00055
00056 // offsets into bootloader payload for authentication response message.
00057 #define OFFSET_AUTH_RESPONSE     2 // 16 bytes long
00058
00059 // Ember Over the air bootload message types extended from XModem message
00060 // types.
00061 // When transmitting bootload messages over the air, we also follow basic
00062 // XModem protocol.
00063 #define XMODEM_QUERY 0x51 // ASCII 'Q'
00064 #define XMODEM_QRESP 0x52 // ASCII 'R'
00065 #define XMODEM_CC    0x03 // Cancel (from sender, user)
00066 #define XMODEM_LAUNCH_REQUEST 0x4c // ASCII 'L' (Launch Bootloader)
00067 #define XMODEM_AUTH_CHALLENGE 0x63 // ASCII 'c' (Authentication Challenge)
00068 #define XMODEM_AUTH_RESPONSE 0x72 // ASCII 'r' (Auth. Response to Challenge)
00069
00070 #define BOOTLOAD_AUTH_COMMON_SIZE 16
00071 #define BOOTLOAD_AUTH_CHALLENGE_SIZE BOOTLOAD_AUTH_COMMON_SIZE
00072 #define BOOTLOAD_AUTH_RESPONSE_SIZE BOOTLOAD_AUTH_COMMON_SIZE

```

```

00073
00074 // Query Format
00075 // (Overhead)
00076 #define QUERY_REQUEST_LENGTH (BOOTLOAD_MESSAGE_OVERHEAD)
00077
00078
00079 // Launch Request
00080 // (Overhead)
00081 // MFG ID: 2-bytes (little endian)
00082 // Hardware Tag: 16-bytes (a.k.a. Board name MFG token)
00083 #define LAUNCH_REQUEST_LENGTH (BOOTLOAD_MESSAGE_OVERHEAD + 18)
00084
00085 // Challenge Format
00086 // (Overhead)
00087 // Request Version: 1-byte
00088 // Bootloader Version: 2-bytes (big endian)
00089 // Platform ID: 1-byte
00090 // Micro ID: 1-byte
00091 // Phy ID: 1-byte
00092 // Local EUI64: 8-bytes
00093 // MAC Timer: 3-bytes (big endian)
00094 // Random Data: 0-bytes
00095 #define XMODEM_AUTH_CHALLENGE_LENGTH (BOOTLOAD_MESSAGE_OVERHEAD + 15)
00096 #define XMODEM_AUTH_CHALLENGE_REQUEST_INDEX (BOOTLOAD_MESSAGE_OVERHEAD)
00097
00098 // Response Format
00099 // (Overhead)
00100 // Response: 16-bytes
00101 #define XMODEM_AUTH_RESPONSE_LENGTH (BOOTLOAD_MESSAGE_OVERHEAD + 16)
00102
00103
00104 EmberStatus emAfSendBootloadMessage(bool
isBroadcast,
00105                                     EmberEUI64 destEui64,
00106                                     uint8_t length,
00107                                     uint8_t* message);
00108
00109 #define bootloadPrintln(...) emberAfCorePrintln(__VA_ARGS__)
00110 #define bootloadPrint(...)   emberAfCorePrint(__VA_ARGS__)
00111
00112
00113 uint8_t emberAfPluginStandaloneBootloaderCommonMakeHeader
(uint8_t *message, uint8_t type);
00114 EmberStatus emberAfPluginStandaloneBootloaderCommonSendMessage
(bool isBroadcast,
00115                                     EmberEUI64
targetEui,
00116                                     uint8_t length,
00117                                     uint8_t* message
);
00118 bool emberAfPluginStandaloneBootloaderCommonCheckIncomingMessage
(uint8_t length,
00119                                     uint8_t*
message);
00120
00121 void emAfStandaloneBootloaderCommonPrintHardwareTag
(uint8_t* text);
00122
00123 void emAfStandaloneBootloaderClientEncrypt
(uint8_t* block, uint8_t* key);

```

## 8.15 bulb-config.h File Reference

```

#include "../../include/af.h"
#include "hal/micro/micro.h"
#include <PLATFORM_HEADER>
#include "include/error.h"
#include "hal/micro/cortexm3/flash.h"

```

## Macros

- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_LOCATION\_TOP
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_MASK\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_TX\_POWER\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_FREQ\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_MIN\_ON\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_MAX\_ON\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_WHITE\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_RED\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_GREEN\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_BLUE\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HARDWARE\_VERSION\_LOCATION
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_TX\_POWER\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_FREQUENCY\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_MIN\_ON\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_MAX\_ON\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_WHITE\_PWM\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_RED\_PWM\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_GREEN\_PWM\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_BLUE\_PWM\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_HARDWARE\_VERSION\_BIT
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PORT\_A
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PORT\_B
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PORT\_C
- #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_UNDEFINED

## Functions

- uint16\_t `emberAfBulbConfigMask` (void)
- int8\_t `emberAfBulbConfigTxPower` (void)
- uint16\_t `emberAfBulbConfigFrequency` (void)
- uint16\_t `emberAfBulbConfigMinOnUs` (void)
- uint16\_t `emberAfBulbConfigMaxOnUs` (void)
- uint8\_t `emberAfBulbConfigPwmWhitePort` (void)
- uint8\_t `emberAfBulbConfigPwmRedPort` (void)
- uint8\_t `emberAfBulbConfigPwmGreenPort` (void)
- uint8\_t `emberAfBulbConfigPwmBluePort` (void)
- uint8\_t `emberAfBulbConfigHardwareVersion` (void)
- bool `emberAfBulbConfigHasTxPower` (void)
- bool `emberAfBulbConfigHasFrequency` (void)
- bool `emberAfBulbConfigHasMinOnUs` (void)
- bool `emberAfBulbConfigHasMaxOnUs` (void)
- bool `emberAfBulbConfigHasWhitePwm` (void)
- bool `emberAfBulbConfigHasRedPwm` (void)
- bool `emberAfBulbConfigHasGreenPwm` (void)
- bool `emberAfBulbConfigHasBluePwm` (void)
- bool `emberAfBulbConfigHasHardwareVersion` (void)
- uint8\_t `emberAfBulbConfigWhitePort` (void)
- uint8\_t `emberAfBulbConfigWhitePin` (void)

- `uint8_t emberAfBulbConfigRedPort (void)`
- `uint8_t emberAfBulbConfigRedPin (void)`
- `uint8_t emberAfBulbConfigGreenPort (void)`
- `uint8_t emberAfBulbConfigGreenPin (void)`
- `uint8_t emberAfBulbConfigBluePort (void)`
- `uint8_t emberAfBulbConfigBluePin (void)`
- `volatile uint32_t * emberAfPwmControlWhitePwm (void)`
- `volatile uint32_t * emberAfPwmControlRedPwm (void)`
- `volatile uint32_t * emberAfPwmControlGreenPwm (void)`
- `volatile uint32_t * emberAfPwmControlBluePwm (void)`
- `uint16_t emberAfPluginBulbConfigMinDriveValue (void)`
- `uint16_t emberAfPluginBulbConfigMaxDriveValue (void)`
- `uint16_t emberAfBulbConfigTicsPerPeriod (void)`
- `void emberAfPluginBulbConfigConfigurePwm (void)`
- `void emberAfPluginBulbConfigDriveWRGB (uint16_t white, uint16_t red, uint16_t green, uint16_t blue)`
- `void emberAfPluginBulbConfigDrivePwm (uint16_t value)`
- `void emberAfPluginBulbConfigLedOn (uint8_t time)`
- `void emberAfPluginBulbConfigLedOff (uint8_t time)`
- `void emberAfPluginBulbConfigLedBlink (uint8_t count, uint16_t blinkTime)`
- `void emberAfPluginBulbConfigLedBlinkPattern (uint8_t count, uint8_t length, uint16_t *pattern)`
- `void emberAfBulbConfigDimIndicate (uint8_t count, uint16_t timeMs)`

### 8.15.1 Macro Definition Documentation

#### 8.15.1.1 `#define EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP`

Definition at line 18 of file [bulb-config.h](#).

#### 8.15.1.2 `#define EMBER_AF_PLUGIN_BULB_CONFIG_MASK_LOCATION`

Definition at line 20 of file [bulb-config.h](#).

#### 8.15.1.3 `#define EMBER_AF_PLUGIN_BULB_CONFIG_TX_POWER_LOCATION`

Definition at line 22 of file [bulb-config.h](#).

#### 8.15.1.4 `#define EMBER_AF_PLUGIN_BULB_CONFIG_FREQ_LOCATION`

Definition at line 24 of file [bulb-config.h](#).

#### 8.15.1.5 `#define EMBER_AF_PLUGIN_BULB_CONFIG_MIN_ON_LOCATION`

Definition at line 26 of file [bulb-config.h](#).

#### 8.15.1.6 `#define EMBER_AF_PLUGIN_BULB_CONFIG_MAX_ON_LOCATION`

Definition at line 28 of file [bulb-config.h](#).

**8.15.1.7 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_WHITE\_LOCATION**

Definition at line 30 of file [bulb-config.h](#).

**8.15.1.8 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_RED\_LOCATION**

Definition at line 32 of file [bulb-config.h](#).

**8.15.1.9 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_GREEN\_LOCATION**

Definition at line 34 of file [bulb-config.h](#).

**8.15.1.10 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PWM\_BLUE\_LOCATION**

Definition at line 36 of file [bulb-config.h](#).

**8.15.1.11 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HARDWARE\_VERSION\_LOCATION**

Definition at line 38 of file [bulb-config.h](#).

**8.15.1.12 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_TX\_POWER\_BIT**

Definition at line 41 of file [bulb-config.h](#).

**8.15.1.13 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_FREQUENCY\_BIT**

Definition at line 42 of file [bulb-config.h](#).

**8.15.1.14 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_MIN\_ON\_BIT**

Definition at line 43 of file [bulb-config.h](#).

**8.15.1.15 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_MAX\_ON\_BIT**

Definition at line 44 of file [bulb-config.h](#).

**8.15.1.16 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_WHITE\_PWM\_BIT**

Definition at line 45 of file [bulb-config.h](#).

**8.15.1.17 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_RED\_PWM\_BIT**

Definition at line 46 of file [bulb-config.h](#).

**8.15.1.18 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_GREEN\_PWM\_BIT**

Definition at line 47 of file [bulb-config.h](#).

**8.15.1.19 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_BLUE\_PWM\_BIT**

Definition at line 48 of file [bulb-config.h](#).

**8.15.1.20 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_HAS\_HARDWARE\_VERSION\_BIT**

Definition at line 49 of file [bulb-config.h](#).

**8.15.1.21 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PORT\_A**

Definition at line 51 of file [bulb-config.h](#).

**8.15.1.22 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PORT\_B**

Definition at line 52 of file [bulb-config.h](#).

**8.15.1.23 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_PORT\_C**

Definition at line 53 of file [bulb-config.h](#).

**8.15.1.24 #define EMBER\_AF\_PLUGIN\_BULB\_CONFIG\_UNDEFINED**

Definition at line 55 of file [bulb-config.h](#).

## 8.15.2 Function Documentation

**8.15.2.1 uint16\_t emberAfBulbConfigMask( void )**

Returns the bitmask of which bulb configuration parameters have been set.

Function to return a bitmask that details which of the bulb configuration parameters have been set.

### Returns

An ::uint16\_t value bitmask that shows which parameters where set. A value of 1 means not set, and a value of 0 means set.

**8.15.2.2 int8\_t emberAfBulbConfigTxPower( void )**

Returns configured value for transmit power.

This function will read the CIB area specified by the bulb config plugin for the TX power required by this device. Note: this function does not check to see if the value was valid. The valid value must be checked from the function [emberAfBulbConfigHasTxPower\(\)](#).

**Returns**

An `:int8_t` value with the preferred transmit power for this hardware.

**8.15.2.3 `uint16_t emberAfBulbConfigFrequency( void )`**

PWM Frequency for the bulb drive PWMs.

This function will read the CIB area specified by the bulb config plugin for the PWM frequency, in HZ. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasFrequency\(\)](#).

**Returns**

An `:uint16_t` value that specifies the PWM frequency in Hz.

**8.15.2.4 `uint16_t emberAfBulbConfigMinOnUs( void )`**

Specify minimum on time in microseconds.

This function will read the CIB area specified by the bulb config plugin for the minimum on time in microseconds. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasMinOnUs\(\)](#).

**Returns**

An `:uint16_t` value that specifies the minimum on time in microseconds.

**8.15.2.5 `uint16_t emberAfBulbConfigMaxOnUs( void )`**

Specify maximum on time in microseconds.

This function will read the CIB area specified by the bulb config plugin for the maximum on time in microseconds. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasMaxOnUs\(\)](#).

**Returns**

An `:uint16_t` value that specifies the maximum on time in microseconds.

**8.15.2.6 `uint8_t emberAfBulbConfigPwmWhitePort( void )`**

Port and pin for the white PWM.

This function will read the CIB area specified by the bulb config plugin for the GPIO port and pin of the white PWM output. The port is specified by bits 3 and 4, while the pin is specified by bits 0 to 2. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasWhitePwm\(\)](#).

**Returns**

An `:uint8_t` value that specifies the port and pin of the white PWM.

### **8.15.2.7 uint8\_t emberAfBulbConfigPwmRedPort( void )**

Port and pin for the red PWM.

This function will read the CIB area specified by the bulb config plugin for the GPIO port and pin of the red PWM output. The port is specified by bits 3 and 4, while the pin is specified by bits 0 to 2. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasRedPwm\(\)](#).

#### **Returns**

An ::uint8\_t value that specifies the port and pin of the red PWM.

### **8.15.2.8 uint8\_t emberAfBulbConfigPwmGreenPort( void )**

Port and pin for the green PWM.

This function will read the CIB area specified by the bulb config plugin for the GPIO port and pin of the green PWM output. The port is specified by bits 3 and 4, while the pin is specified by bits 0 to 2. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasGreenPwm\(\)](#).

#### **Returns**

An ::uint8\_t value that specifies the port and pin of the green PWM.

### **8.15.2.9 uint8\_t emberAfBulbConfigPwmBluePort( void )**

Port and pin for the blue PWM.

This function will read the CIB area specified by the bulb config plugin for the GPIO port and pin of the blue PWM output. The port is specified by bits 3 and 4, while the pin is specified by bits 0 to 2. Note: this function does not check to see if the value was valid. The value must be checked with the function [emberAfBulbConfigHasBluePwm\(\)](#).

#### **Returns**

An ::uint8\_t value that specifies the port and pin of the blue PWM.

### **8.15.2.10 uint8\_t emberAfBulbConfigHardwareVersion( void )**

Returns the hardware version.

This function will read the CIB area specified by the bulb config plugin for the hardware version. Note: this function does not check to see if the value is valid. The value must be checked with the function [emberAfBulbconfigHasHardwareVersion\(\)](#);

#### **Returns**

An ::uint8\_t value that represents the hardware version.

**8.15.2.11 bool emberAfBulbConfigHasTxPower ( void )**

Function to return whether the TX power was configured.

This function returns true if the TX power was configured, and false if not.

**Returns**

A ::bool value stating whether the TX power was configured.

**8.15.2.12 bool emberAfBulbConfigHasFrequency ( void )**

Function to return whether the PWM frequency was configured.

This function returns true if the PWM frequency was configured, and false if not.

**Returns**

A ::bool value stating whether the PWM frequency was configured.

**8.15.2.13 bool emberAfBulbConfigHasMinOnUs ( void )**

Function to return whether the min on time was configured.

This function returns true if the min on time was configured, and false if not.

**Returns**

A ::bool value stating whether the min on time was configured.

**8.15.2.14 bool emberAfBulbConfigHasMaxOnUs ( void )**

Function to return whether the max on time was configured.

This function returns true if the max on time was configured, and false if not.

**Returns**

A ::bool value stating whether the max on time was configured.

**8.15.2.15 bool emberAfBulbConfigHasWhitePwm ( void )**

Function to return whether the white PWM was configured.

This function returns true if the white PWM was configured, and false if not.

**Returns**

A ::bool value stating whether the white PWM was configured.

**8.15.2.16 bool emberAfBulbConfigHasRedPwm ( void )**

Function to return whether the red PWM was configured.

This function returns true if the red PWM was configured, and false if not.

**Returns**

A ::bool value stating whether the red PWM was configured.

**8.15.2.17 bool emberAfBulbConfigHasGreenPwm ( void )**

Function to return whether the green PWM was configured.

This function returns true if the green PWM was configured, and false if not.

**Returns**

A ::bool value stating whether the green PWM was configured.

**8.15.2.18 bool emberAfBulbConfigHasBluePwm ( void )**

Function to return whether the blue PWM was configured.

This function returns true if the blue PWM was configured, and false if not.

**Returns**

A ::bool value stating whether the blue PWM was configured.

**8.15.2.19 bool emberAfBulbConfigHasHardwareVersion ( void )**

Function to return whether the hardware version was configured.

This function returns true if the hardware version was configured, and false if not.

**Returns**

A ::bool value stating whether the hardware version was configured.

**8.15.2.20 uint8\_t emberAfBulbConfigWhitePort ( void )**

Port number for the white PWM.

Function to return the white port number. It returns an enum 0, 1, or 2 for port a, b, or c respectively. It will return 0xff if the port has not been configured.

**Returns**

An ::uint8\_t value for the white port.

**8.15.2.21 uint8\_t emberAfBulbConfigWhitePin ( void )**

Pin number for the white PWM.

Function to return the white pin number. It returns a value between 0 and 7 inclusive corresponding to the pin number of the white PWM. It will return 0xff if the pin has not been configured.

**Returns**

An ::uint8\_t value for the white pin.

**8.15.2.22 uint8\_t emberAfBulbConfigRedPort ( void )**

Port number for the red PWM.

Function to return the red port number. It returns an enum 0, 1, or 2 for port a, b, or c respectively. It will return 0xff if the port has not been configured.

**Returns**

An ::uint8\_t value for the red port.

**8.15.2.23 uint8\_t emberAfBulbConfigRedPin ( void )**

Pin number for the red PWM.

Function to return the red pin number. It returns a value between 0 and 7 inclusive corresponding to the pin number of the red PWM. It will return 0xff if the pin has not been configured.

**Returns**

An ::uint8\_t value for the red pin.

**8.15.2.24 uint8\_t emberAfBulbConfigGreenPort ( void )**

Port number for the green PWM.

Function to return the green port number. It returns an enum 0, 1, or 2 for port a, b, or c respectively. It will return 0xff if the port has not been configured.

**Returns**

An ::uint8\_t value for the green port.

**8.15.2.25 uint8\_t emberAfBulbConfigGreenPin ( void )**

Pin number for the green PWM.

Function to return the green pin number. It returns a value between 0 and 7 inclusive corresponding to the pin number of the green PWM. It will return 0xff if the pin has not been configured.

**Returns**

An ::uint8\_t value for the green pin.

**8.15.2.26 uint8\_t emberAfBulbConfigBluePort( void )**

Port number for the blue PWM.

Function to return the blue port number. It returns an enum 0, 1, or 2 for port a, b, or c respectively. It will return 0xff if the port has not been configured.

**Returns**

An ::uint8\_t value for the blue port.

**8.15.2.27 uint8\_t emberAfBulbConfigBluePin( void )**

Pin number for the blue PWM.

Function to return the blue pin number. It returns a value between 0 and 7 inclusive corresponding to the pin number of the blue PWM. It will return 0xff if the pin has not been configured.

**Returns**

An ::uint8\_t value for the blue pin.

**8.15.2.28 volatile uint32\_t\* emberAfPwmControlWhitePwm( void )**

Pointer to the white compare register.

This function will examine the bulb configuration and return a pointer to the white compare register. It will return a pointer to the default register as specified in the board header file if none has been configured through the bulb config plugin.

**Returns**

An ::uint32\_t\* pointer to the white PWM compare register.

**8.15.2.29 volatile uint32\_t\* emberAfPwmControlRedPwm( void )**

Pointer to the red compare register.

This function will examine the bulb configuration and return a pointer to the red compare register. It will return a pointer to the default register as specified in the board header file if none has been configured through the bulb config plugin.

**Returns**

An ::uint32\_t\* pointer to the red PWM compare register.

**8.15.2.30 volatile uint32\_t\* emberAfPwmControlGreenPwm( void )**

Pointer to the green compare register.

This function will examine the bulb configuration and return a pointer to the green compare register. It will return a pointer to the default register as specified in the board header file if none has been configured through the bulb config plugin.

**Returns**

An ::uint32\_t\* pointer to the green PWM compare register.

**8.15.2.31 volatile uint32\_t\* emberAfPwmControlBluePwm ( void )**

Pointer to the white blue register.

This function will examine the bulb configuration and return a pointer to the blue compare register. It will return a pointer to the default register as specified in the board header file if none has been configured through the bulb config plugin.

**Returns**

An ::uint32\_t\* pointer to the blue PWM compare register.

**8.15.2.32 uint16\_t emberAfPluginBulbConfigMinDriveValue ( void )**

Return the minimum valid value for the PWM.

This function will examine the configuration values and return the minimum valid PWM value when it is on. Note: the PWM will still be set to zero for an off condition. However, values between zero and the minimum drive are invalid as they may damage hardware or yield unpredictable flashing behavior on the LED output.

**Returns**

An ::uint16\_t value that is the minimum drive level for the PWM when on.

**8.15.2.33 uint16\_t emberAfPluginBulbConfigMaxDriveValue ( void )**

Return the maximum valid value for the PWM.

This function will examine the configuration values and return the maximum valid PWM value when it is on. Note: if the max on microseconds is not configured, this value will be equal to the PWM tics per period value.

**Returns**

An ::uint16\_t value that is the maximum drive level for the PWM when on.

**8.15.2.34 uint16\_t emberAfBulbConfigTicsPerPeriod ( void )**

Return the tics per PWM period..

This function will examine the frequency configuration and determine the number of PWM ticks required to implement that frequency.

**Returns**

An ::uint16\_t value that is the number of PWM ticks per period.

### 8.15.2.35 void emberAfPluginBulbConfigConfigurePwm ( void )

Initialize PWM output hardware based on configuration.

This function will examine the bulb configuration values and configure the PWM hardware to match those settings.

### 8.15.2.36 void emberAfPluginBulbConfigDriveWRGB ( uint16\_t white, uint16\_t red, uint16\_t green, uint16\_t blue )

Function to drive the white, red, green, and blue PWM outputs.

This function will set the compare registers for the white, red, green, and blue PWM drivers.

#### Parameters

<i>white,:</i>	value for the white comparison register.
<i>red,:</i>	value for the red comparison register.
<i>green,:</i>	value for the green comparison register.
<i>blue,:</i>	value for the blue comparison register.

### 8.15.2.37 void emberAfPluginBulbConfigDrivePwm ( uint16\_t value )

Function to drive the white PWM output.

This function will set the compare registers for the white pwm output. It will automatically set the values for red, green, and blue to zero. It is intended for a simple, white dimmable bulb.

#### Parameters

<i>value,:</i>	value for the white comparison register.
----------------	--

### 8.15.2.38 void emberAfPluginBulbConfigLedOn ( uint8\_t time )

Function to turn on the LED output.

Function to turn the LED on full brightness as an indication to the user. After the time, the LED will be reset to the appropriate values as determined by the level, on/off, and color control cluster (if appropriate).

#### Parameters

<i>time,:</i>	Number of seconds to turn the LED on. 0 means forever.
---------------	--

### 8.15.2.39 void emberAfPluginBulbConfigLedOff ( uint8\_t time )

Function to turn off the LED output.

Function to turn the LED off as an indication to the user. After the time, the LED will be reset to the appropriate values as determined by the level, on/off, and color control cluster (if appropriate).

**Parameters**

<i>time,:</i>	Number of seconds to turn the LED off. 0 means forever.
---------------	---

**8.15.2.40 void emberAfPluginBulbConfigLedBlink ( uint8\_t count, uint16\_t blinkTime )**

Blink the LED.

Function to blink the LED as an indication to the user. Note: this will blink the LED symmetrically. If asymmetric blinking is required, please use the function [emberAfPluginBulbConfigLedBlinkPattern\(...\)](#).

**Parameters**

<i>count,:</i>	Number of times to blink. 0 means forever.
<i>blinkTime,:</i>	Amount of time the bulb will be on or off during the blink.

**8.15.2.41 void emberAfPluginBulbConfigLedBlinkPattern ( uint8\_t count, uint8\_t length, uint16\_t \* pattern )**

Blink a pattern on the LED.

Function to blink a pattern on the LED. User sets up a pattern of on/off events.

**Parameters**

<i>count,:</i>	Number of times to blink the pattern. 0 means forever
<i>length,:</i>	Length of the pattern. 20 is the maximum lenght.
<i>pattern[ ],:</i>	Series of on/off times for the blink pattern.

**8.15.2.42 void emberAfBulbConfigDimIndicate ( uint8\_t count, uint16\_t timeMs )**

Dim the bulb on/off.

Function to dim the bulb on and off. This is an option disabled by default but requested by several customers. Instead of transitioning from on to off immediately, this function creates a slower transition from on to off and back to on over the course of ::time milliseconds.

**Parameters**

<i>count,:</i>	Number of times to blink. 0 means forever
<i>timeMs,:</i>	Length time, in milliseconds, for the transition.

**8.16 bulb-config.h**

```

00001 // ****
00002 // * bulb-config.h
00003 // *
00004 // *
00005 // * Copyright 2015 by Silicon Laboratories. All rights reserved.
00006 // ****
00007
00008 #ifndef __BULB_CONFIG_H__
00009 #define __BULB_CONFIG_H__

```

```

00010
00011 #include "../../include/af.h"
00012 #include "hal/micro/micro.h"
00013
00014 #include PLATFORM_HEADER
00015 #include "include/error.h"
00016 #include "hal/micro/cortexm3/flash.h"
00017
00018 #define EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP CIB_TOP
00019
00020 #define EMBER_AF_PLUGIN_BULB_CONFIG_MASK_LOCATION \
00021     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 1) // 0xffe \
00022 #define EMBER_AF_PLUGIN_BULB_CONFIG_TX_POWER_LOCATION \
00023     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 3) // 0xfc \
00024 #define EMBER_AF_PLUGIN_BULB_CONFIG_FREQ_LOCATION \
00025     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 5) // 0xfa \
00026 #define EMBER_AF_PLUGIN_BULB_CONFIG_MIN_ON_LOCATION \
00027     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 7) // 0xf8 \
00028 #define EMBER_AF_PLUGIN_BULB_CONFIG_MAX_ON_LOCATION \
00029     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 9) // 0xf6 \
00030 #define EMBER_AF_PLUGIN_BULB_CONFIG_PWM_WHITE_LOCATION \
00031     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 11) // 0xf4 \
00032 #define EMBER_AF_PLUGIN_BULB_CONFIG_PWM_RED_LOCATION \
00033     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 13) // 0xf2 \
00034 #define EMBER_AF_PLUGIN_BULB_CONFIG_PWM_GREEN_LOCATION \
00035     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 15) // 0xf0 \
00036 #define EMBER_AF_PLUGIN_BULB_CONFIG_PWM_BLUE_LOCATION \
00037     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 17) // 0xee \
00038 #define EMBER_AF_PLUGIN_BULB_CONFIG_HARDWARE_VERSION_LOCATION \
00039     (EMBER_AF_PLUGIN_BULB_CONFIG_LOCATION_TOP - 19) // 0xec
00040
00041 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_TX_POWER_BIT BIT(0)
00042 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_FREQUENCY_BIT BIT(1)
00043 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_MIN_ON_BIT BIT(2)
00044 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_MAX_ON_BIT BIT(3)
00045 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_WHITE_PWM_BIT BIT(4)
00046 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_RED_PWM_BIT BIT(5)
00047 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_GREEN_PWM_BIT BIT(6)
00048 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_BLUE_PWM_BIT BIT(7)
00049 #define EMBER_AF_PLUGIN_BULB_CONFIG_HAS_HARDWARE_VERSION_BIT BIT(8)
00050
00051 #define EMBER_AF_PLUGIN_BULB_CONFIG_PORT_A 0
00052 #define EMBER_AF_PLUGIN_BULB_CONFIG_PORT_B 1
00053 #define EMBER_AF_PLUGIN_BULB_CONFIG_PORT_C 2
00054
00055 #define EMBER_AF_PLUGIN_BULB_CONFIG_UNDEFINED 0xFF
00056
00066 uint16_t emberAfBulbConfigMask( void );
00067
00078 int8_t emberAfBulbConfigTxPower( void );
00079
00089 uint16_t emberAfBulbConfigFrequency( void );
00090
00101 uint16_t emberAfBulbConfigMinOnUs( void );
00102
00113 uint16_t emberAfBulbConfigMaxOnUs( void );
00114
00125 uint8_t emberAfBulbConfigPwmWhitePort( void );
00126
00137 uint8_t emberAfBulbConfigPwmRedPort( void );
00138
00149 uint8_t emberAfBulbConfigPwmGreenPort( void );
00150
00161 uint8_t emberAfBulbConfigPwmBluePort( void );
00162
00172 uint8_t emberAfBulbConfigHardwareVersion( void
    );
00173
00181 bool emberAfBulbConfigHasTxPower( void );
00182
00190 bool emberAfBulbConfigHasFrequency( void );
00191
00199 bool emberAfBulbConfigHasMinOnUs( void );
00200
00208 bool emberAfBulbConfigHasMaxOnUs( void );
00209
00217 bool emberAfBulbConfigHasWhitePwm( void );
00218
00226 bool emberAfBulbConfigHasRedPwm( void );
00227

```

```

00235 bool emberAfBulbConfigHasGreenPwm( void );
00236
00244 bool emberAfBulbConfigHasBluePwm( void );
00245
00254 bool emberAfBulbConfigHasHardwareVersion(
    void );
00255
00264 uint8_t emberAfBulbConfigWhitePort( void );
00265
00274 uint8_t emberAfBulbConfigWhitePin( void );
00275
00284 uint8_t emberAfBulbConfigRedPort( void );
00285
00294 uint8_t emberAfBulbConfigRedPin( void );
00295
00304 uint8_t emberAfBulbConfigGreenPort( void );
00305
00314 uint8_t emberAfBulbConfigGreenPin( void );
00315
00324 uint8_t emberAfBulbConfigBluePort( void );
00325
00334 uint8_t emberAfBulbConfigBluePin( void );
00335
00345 volatile uint32_t *emberAfPwmControlWhitePwm( void );
00346
00356 volatile uint32_t *emberAfPwmControlRedPwm( void );
00357
00367 volatile uint32_t *emberAfPwmControlGreenPwm( void );
00368
00378 volatile uint32_t *emberAfPwmControlBluePwm( void );
00379
00391 uint16_t emberAfPluginBulbConfigMinDriveValue
    ( void );
00392
00402 uint16_t emberAfPluginBulbConfigMaxDriveValue
    ( void );
00403
00411 uint16_t emberAfBulbConfigTicsPerPeriod( void );
00412
00419 void emberAfPluginBulbConfigConfigurePwm(
    void );
00420
00435 void emberAfPluginBulbConfigDriveWRGB( uint16_t
    white,
00436                                uint16_t red,
00437                                uint16_t green,
00438                                uint16_t blue );
00439
00449 void emberAfPluginBulbConfigDrivePwm( uint16_t
    value );
00450
00460 void emberAfPluginBulbConfigLedOn( uint8_t time );
00461
00470 void emberAfPluginBulbConfigLedOff( uint8_t time )
    ;
00471
00483 void emberAfPluginBulbConfigLedBlink( uint8_t
    count, uint16_t blinkTime );
00484
00497 void emberAfPluginBulbConfigLedBlinkPattern
    ( uint8_t count, uint8_t length, uint16_t *pattern );
00498
00511 void emberAfBulbConfigDimIndicate(uint8_t count,
    uint16_t timeMs);
00512
00513 #endif

```

## 8.17 bulb-ui-tokens.h File Reference

### Macros

- #define CREATOR\_REBOOT\_MONITOR

### 8.17.1 Macro Definition Documentation

#### 8.17.1.1 #define CREATOR\_REBOOT\_MONITOR

Custom Application Tokens

Definition at line 4 of file [bulb-ui-tokens.h](#).

## 8.18 bulb-ui-tokens.h

```

00001
00004 #define CREATOR_REBOOT_MONITOR (0x000c)
00005
00006 #ifdef DEFINETYPES
00007 // Include or define any typedef for tokens here
00008 #endif //DEFINETYPES
00009 #ifdef DEFINETOKENS
00010 // Define the actual token storage information here
00011
00012 DEFINE_COUNTER_TOKEN(REBOOT_MONITOR, tokTypeStackBootCounter, 0)
00013 //DEFINE_BASIC_TOKEN(REBOOT_MONITOR, uint32_t, 0)
00014
00015 #endif //DEFINETOKENS
00016
00017

```

## 8.19 button-joining.h File Reference

### Functions

- void [emberAfPluginButtonJoiningPressButton](#) (uint8\_t button)

### 8.19.1 Function Documentation

#### 8.19.1.1 void emberAfPluginButtonJoiningPressButton ( uint8\_t button )

## 8.20 button-joining.h

```

00001
00002 void emberAfPluginButtonJoiningPressButton
    (uint8_t button);

```

## 8.21 calendar-client.h File Reference

### Data Structures

- struct [EmberAfCalendarSeason](#)
- struct [EmberAfCalendarWeekProfile](#)
- union [EmberAfCalendarScheduleEntry](#)
- struct [EmberAfCalendarDayProfile](#)
- struct [EmberAfCalendarSpecialDayEntry](#)
- struct [EmberAfCalendarSpecialDayProfile](#)
- struct [EmberAfCalendar](#)

## Macros

- #define EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_INVALID\_CALENDAR\_ID
- #define EMBER\_AF\_CALENDAR\_MAXIMUM\_CALENDAR\_NAME\_LENGTH

## Functions

- uint8\_t `emberAfPluginCalendarClientGetCalendarIndexByType` (uint8\_t endpoint, uint8\_t calendarType)
- uint32\_t `emberAfPluginCalendarClientGetCalendarId` (uint8\_t endpoint, uint8\_t index)

### 8.21.1 Macro Definition Documentation

#### 8.21.1.1 #define EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_INVALID\_CALENDAR\_ID

Definition at line 4 of file `calendar-client.h`.

#### 8.21.1.2 #define EMBER\_AF\_CALENDAR\_MAXIMUM\_CALENDAR\_NAME\_LENGTH

Definition at line 5 of file `calendar-client.h`.

### 8.21.2 Function Documentation

#### 8.21.2.1 uint8\_t `emberAfPluginCalendarClientGetCalendarIndexByType` ( *uint8\_t endpoint, uint8\_t calendarType* )

Gets the first calendar index based on the calendar type.

##### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>calendarType</i>	The type of calendar that should be searched for in the table.

##### Returns

The index of the first matching calendar, or EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_CALENDARS if a match cannot be found.

#### 8.21.2.2 uint32\_t `emberAfPluginCalendarClientGetCalendarId` ( *uint8\_t endpoint, uint8\_t index* )

Gets the calendar ID at the specified index.

##### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the calendar table whose calendar ID should be returned.

## Returns

The calendar ID of the calendar at the specified index. If index is out of bounds, EMBER\_AF\_PLUGIN\_CALENDAR\_CLIENT\_INVALID\_CALENDAR\_ID will be returned. If a match cannot be found.

## 8.22 calendar-client.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003
00004 #define EMBER_AF_PLUGIN_CALENDAR_CLIENT_INVALID_CALENDAR_ID 0xFFFFFFFF
00005 #define EMBER_AF_CALENDAR_MAXIMUM_CALENDAR_NAME_LENGTH 12
00006
00007 typedef struct {
00008     EmberAfDate seasonStartDate;
00009     uint8_t weekIdRef;
00010 } EmberAfCalendarSeason;
00011
00012 typedef struct {
00013     bool inUse;
00014     uint8_t dayIdRefMonday;
00015     uint8_t dayIdRefTuesday;
00016     uint8_t dayIdRefWednesday;
00017     uint8_t dayIdRefThursday;
00018     uint8_t dayIdRefFriday;
00019     uint8_t dayIdRefSaturday;
00020     uint8_t dayIdRefSunday;
00021 } EmberAfCalendarWeekProfile;
00022
00023 // All valid calendar types have the same general format for schedule entries:
00024 // a two-byte start time followed by a one-byte, type-specific value. The code
00025 // in this plugin takes advantage of this similarity to simplify the logic. If
00026 // new types are added, the code will need to change. See
00027 // emberAfCalendarClusterPublishDayProfileCallback.
00028 typedef union {
00029     struct {
00030         uint16_t startTimeM;
00031         uint8_t priceTier;
00032     } rateSwitchTime;
00033     struct {
00034         uint16_t startTimeM;
00035         bool friendlyCreditEnable;
00036     } friendlyCreditSwitchTime;
00037     struct {
00038         uint16_t startTimeM;
00039         uint8_t auxiliaryLoadSwitchState;
00040     } auxiliaryLoadSwitchTime;
00041 } EmberAfCalendarScheduleEntry;
00042
00043 typedef struct {
00044     bool inUse;
00045     uint8_t numberOfScheduleEntries;
00046     uint8_t receivedScheduleEntries;
00047     EmberAfCalendarScheduleEntry scheduleEntries[EMBER_AF_PLUGIN_CALENDAR_CLIENT_SCHEDULE_ENTRIES];
00048 } EmberAfCalendarDayProfile;
00049
00050 typedef struct {
00051     EmberAfDate specialDayDate;
00052     uint8_t dayIdRef;
00053 } EmberAfCalendarSpecialDayEntry;
00054
00055 typedef struct {
00056     bool inUse;
00057     uint32_t startTimeUtc;
00058     uint8_t numberOfSpecialDayEntries;
00059     uint8_t receivedSpecialDayEntries;
00060     EmberAfCalendarSpecialDayEntry specialDayEntries[EMBER_AF_PLUGIN_CALENDAR_CLIENT_SPECIAL_DAY_ENTRIES];
00061 } EmberAfCalendarSpecialDayProfile;
00062
00063 typedef struct {
00064     bool inUse;
00065     uint32_t providerId;

```

```

00066     uint32_t issuerEventId;
00067     uint32_t issuerCalendarId;
00068     uint32_t startTimeUtc;
00069     EmberAfCalendarType calendarType;
00070     uint8_t calendarName[EMBER_AF_CALENDAR_MAXIMUM_CALENDAR_NAME_LENGTH
+ 1];
00071     uint8_t numberOfSeasons;
00072     uint8_t receivedSeasons;
00073     uint8_t numberOfWeekProfiles;
00074     uint8_t numberOfDayProfiles;
00075     EmberAfCalendarSeason seasons[
EMBER_AF_PLUGIN_CALENDAR_CLIENT_SEASONS];
00076     EmberAfCalendarWeekProfile weekProfiles[
EMBER_AF_PLUGIN_CALENDAR_CLIENT_WEEK_PROFILES];
00077     EmberAfCalendarDayProfile dayProfiles[
EMBER_AF_PLUGIN_CALENDAR_CLIENT_DAY_PROFILES];
00078     EmberAfCalendarSpecialDayProfile
specialDayProfile;
00079 } EmberAfCalendar;
00080
00081
00091 uint8_t emberAfPluginCalendarClientGetCalendarIndexByType
( uint8_t endpoint, uint8_t calendarType );
00092
00093
00103 uint32_t emberAfPluginCalendarClientGetCalendarId
( uint8_t endpoint, uint8_t index );
00104
00105

```

## 8.23 calendar-common.h File Reference

### Data Structures

- struct [EmberAfCalendarDayScheduleEntryStruct](#)
- struct [EmberAfCalendarDayStruct](#)
- struct [EmberAfCalendarSpecialDayStruct](#)
- struct [EmberAfCalendarWeekStruct](#)
- struct [EmberAfCalendarSeasonStruct](#)
- struct [EmberAfCalendarStruct](#)

### Macros

- #define [fieldLength\(field\)](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_INVALID\\_SCHEDULE\\_ENTRY](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_INVALID\\_ID](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_MAX\\_CALENDAR\\_NAME\\_LENGTH](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_INVALID\\_INDEX](#)
- #define [SCHEDULE\\_ENTRY\\_SIZE](#)
- #define [SEASON\\_ENTRY\\_SIZE](#)
- #define [SPECIAL\\_DAY\\_ENTRY\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_MONDAY\\_INDEX](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_SUNDAY\\_INDEX](#)
- #define [EMBER\\_AF\\_DAYS\\_IN\\_THE\\_WEEK](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_INVALID\\_CALENDAR\\_ID](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_WILDCARD\\_CALENDAR\\_ID](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_WILDCARD\\_PROVIDER\\_ID](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_WILDCARD\\_ISSUER\\_ID](#)
- #define [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_WILDCARD\\_CALENDAR\\_TYPE](#)

## Enumerations

- enum { [EMBER\\_AF\\_PLUGIN\\_CALENDAR\\_COMMON\\_FLAGS\\_SENT](#) }

## Functions

- uint8\_t [emberAfPluginCalendarCommonGetCalendarById](#) (uint32\_t calendarId, uint32\_t providerId)
- uint32\_t [emberAfPluginCalendarCommonEndTimeUtc](#) (const [EmberAfCalendarStruct](#) \*calendar)
- bool [emberAfCalendarCommonSetCalInfo](#) (uint8\_t index, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t issuerCalendarId, uint32\_t startTimeUtc, uint8\_t calendarType, uint8\_t \*calendarName, uint8\_t numberOfSeasons, uint8\_t numberOfWeekProfiles, uint8\_t numberOfDayProfiles)
- bool [emberAfCalendarCommonAddCalInfo](#) (uint32\_t providerId, uint32\_t issuerEventId, uint32\_t issuerCalendarId, uint32\_t startTimeUtc, uint8\_t calendarType, uint8\_t \*calendarName, uint8\_t numberOfSeasons, uint8\_t numberOfWeekProfiles, uint8\_t numberOfDayProfiles)
- bool [emberAfCalendarServerSetSeasonsInfo](#) (uint8\_t index, uint8\_t seasonId, [EmberAfDate](#) startDate, uint8\_t weekIndex)
- bool [emberAfCalendarServerAddSeasonsInfo](#) (uint32\_t issuerCalendarId, uint8\_t \*seasonsEntries, uint8\_t seasonsEntriesLength, uint8\_t \*unknownWeekIdSeasonsMask)
- bool [emberAfCalendarCommonSetDayProfInfo](#) (uint8\_t index, uint8\_t dayId, uint8\_t entryId, uint16\_t minutesFromMidnight, uint8\_t data)
- bool [emberAfCalendarCommonAddDayProfInfo](#) (uint32\_t issuerCalendarId, uint8\_t dayId, uint8\_t \*dayScheduleEntries, uint16\_t dayScheduleEntriesLength)
- bool [emberAfCalendarServerSetWeekProfInfo](#) (uint8\_t index, uint8\_t weekId, uint8\_t dayIdRefMon, uint8\_t dayIdRefTue, uint8\_t dayIdRefWed, uint8\_t dayIdRefThu, uint8\_t dayIdRefFri, uint8\_t dayIdRefSat, uint8\_t dayIdRefSun)
- bool [emberAfCalendarServerAddWeekProfInfo](#) (uint32\_t issuerCalendarId, uint8\_t weekId, uint8\_t dayIdRefMon, uint8\_t dayIdRefTue, uint8\_t dayIdRefWed, uint8\_t dayIdRefThu, uint8\_t dayIdRefFri, uint8\_t dayIdRefSat, uint8\_t dayIdRefSun)
- bool [emberAfCalendarCommonAddSpecialDaysInfo](#) (uint32\_t issuerCalendarId, uint8\_t totalNumberOfSpecialDays, uint8\_t \*specialDaysEntries, uint16\_t specialDaysEntriesLength, uint8\_t \*unknownSpecialDaysMask)

## Variables

- [EmberAfCalendarStruct](#) calendars []

### 8.23.1 Macro Definition Documentation

#### 8.23.1.1 #define fieldLength( *field* )

Definition at line 1 of file [calendar-common.h](#).

#### 8.23.1.2 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_INVALID\_SCHEDULE\_ENTRY

Definition at line 4 of file [calendar-common.h](#).

#### 8.23.1.3 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_INVALID\_ID

Definition at line 5 of file [calendar-common.h](#).

**8.23.1.4 #define EMBER\_AF\_PLUGIN\_CALENDAR\_MAX\_CALENDAR\_NAME\_LENGTH**

Definition at line 6 of file [calendar-common.h](#).

**8.23.1.5 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_INVALID\_INDEX**

Definition at line 7 of file [calendar-common.h](#).

**8.23.1.6 #define SCHEDULE\_ENTRY\_SIZE**

Definition at line 9 of file [calendar-common.h](#).

**8.23.1.7 #define SEASON\_ENTRY\_SIZE**

Definition at line 24 of file [calendar-common.h](#).

**8.23.1.8 #define SPECIAL\_DAY\_ENTRY\_SIZE**

Definition at line 33 of file [calendar-common.h](#).

**8.23.1.9 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_MONDAY\_INDEX**

Definition at line 40 of file [calendar-common.h](#).

**8.23.1.10 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_SUNDAY\_INDEX**

Definition at line 41 of file [calendar-common.h](#).

**8.23.1.11 #define EMBER\_AF\_DAYS\_IN\_THE\_WEEK**

Definition at line 42 of file [calendar-common.h](#).

**8.23.1.12 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_INVALID\_CALENDAR\_ID**

Definition at line 54 of file [calendar-common.h](#).

**8.23.1.13 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_WILDCARD\_CALENDAR\_ID**

Definition at line 55 of file [calendar-common.h](#).

**8.23.1.14 #define EMBER\_AF\_PLUGIN\_CALENDAR\_COMMON\_WILDCARD\_PROVIDER\_ID**

Definition at line 56 of file [calendar-common.h](#).

8.23.1.15 `#define EMBER_AF_PLUGIN_CALENDAR_COMMON_WILDCARD_ISSUER_ID`

Definition at line 57 of file [calendar-common.h](#).

8.23.1.16 `#define EMBER_AF_PLUGIN_CALENDAR_COMMON_WILDCARD_CALENDAR_TYPE`

Definition at line 58 of file [calendar-common.h](#).

## 8.23.2 Enumeration Type Documentation

8.23.2.1 anonymous enum

Enumerator:

`EMBER_AF_PLUGIN_CALENDAR_COMMON_FLAGS_SENT`

Definition at line 60 of file [calendar-common.h](#).

## 8.23.3 Function Documentation

8.23.3.1 `uint8_t emberAfPluginCalendarCommonGetCalendarByld ( uint32_t calendarId, uint32_t providerId )`

8.23.3.2 `uint32_t emberAfPluginCalendarCommonEndTimeUtc ( const EmberAfCalendarStruct * calendar )`

8.23.3.3 `bool emberAfCalendarCommonSetCallInfo ( uint8_t index, uint32_t providerId, uint32_t issuerEventId, uint32_t issuerCalendarId, uint32_t startTimeUtc, uint8_t calendarType, uint8_t * calendarName, uint8_t numberOfSeasons, uint8_t numberOfWeekProfiles, uint8_t numberOfDayProfiles )`

8.23.3.4 `bool emberAfCalendarCommonAddCallInfo ( uint32_t providerId, uint32_t issuerEventId, uint32_t issuerCalendarId, uint32_t startTimeUtc, uint8_t calendarType, uint8_t * calendarName, uint8_t numberOfSeasons, uint8_t numberOfWeekProfiles, uint8_t numberOfDayProfiles )`

8.23.3.5 `bool emberAfCalendarServerSetSeasonsInfo ( uint8_t index, uint8_t seasonId, EmberAfDate startDate, uint8_t weekIndex )`

8.23.3.6 `bool emberAfCalendarServerAddSeasonsInfo ( uint32_t issuerCalendarId, uint8_t * seasonsEntries, uint8_t seasonsEntriesLength, uint8_t * unknownWeekIdSeasonsMask )`

8.23.3.7 `bool emberAfCalendarCommonSetDayProfInfo ( uint8_t index, uint8_t dayId, uint8_t entryId, uint16_t minutesFromMidnight, uint8_t data )`

8.23.3.8 `bool emberAfCalendarCommonAddDayProfInfo ( uint32_t issuerCalendarId, uint8_t dayId, uint8_t * dayScheduleEntries, uint16_t dayScheduleEntriesLength )`

8.23.3.9 `bool emberAfCalendarServerSetWeekProfInfo ( uint8_t index, uint8_t weekId, uint8_t dayIdRefMon, uint8_t dayIdRefTue, uint8_t dayIdRefWed, uint8_t dayIdRefThu, uint8_t dayIdRefFri, uint8_t dayIdRefSat, uint8_t dayIdRefSun )`

- 8.23.3.10 `bool emberAfCalendarServerAddWeekProfInfo ( uint32_t issuerCalendarId, uint8_t weekId,  
uint8_t dayIdRefMon, uint8_t dayIdRefTue, uint8_t dayIdRefWed, uint8_t dayIdRefThu, uint8_t  
dayIdRefFri, uint8_t dayIdRefSat, uint8_t dayIdRefSun )`
- 8.23.3.11 `bool emberAfCalendarCommonAddSpecialDaysInfo ( uint32_t issuerCalendarId, uint8_t  
totalNumberOfSpecialDays, uint8_t * specialDaysEntries, uint16_t specialDaysEntriesLength,  
uint8_t * unknownSpecialDaysMask )`

## 8.23.4 Variable Documentation

### 8.23.4.1 EmberAfCalendarStruct calendars[]

## 8.24 calendar-common.h

```

00001 #define fieldLength(field) \
00002     (emberAfCurrentCommand() ->bufLen - (field - \
00003         emberAfCurrentCommand() ->buffer));
00004 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_INVALID_SCHEDULE_ENTRY 0xFFFF
00005 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_INVALID_ID 0xFF
00006 #define EMBER_AF_PLUGIN_CALENDAR_MAX_CALENDAR_NAME_LENGTH 12
00007 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_INVALID_INDEX 0xFF
00008
00009 #define SCHEDULE_ENTRY_SIZE (3)
00010 typedef struct {
00011     uint16_t minutesFromMidnight;
00012
00013     // the format of the actual data in the entry depends on the calendar type
00014     // for calendar type 00 - 0x02, it is a rate switch time
00015     // the data is a price tier enum (8-bit)
00016     // for calendar type 0x03 it is friendly credit switch time
00017     // the data is a bool (8-bit) meaning friendly credit enabled
00018     // for calendar type 0x04 it is an auxilliary load switch time
00019     // the data is a bitmap (8-bit)
00020     uint8_t data;
00021 } EmberAfCalendarDayScheduleEntryStruct ;
00022
00023 // Season start date (4-bytes) and week ID ref (1-byte)
00024 #define SEASON_ENTRY_SIZE (5)
00025
00026 typedef struct {
00027     EmberAfCalendarDayScheduleEntryStruct
00028     scheduleEntries[EMBER_AF_PLUGIN_CALENDAR_COMMON_SCHEDULE_ENTRIES_MAX];
00029     uint8_t id;
00030     uint8_t numberOfScheduleEntries;
00031 } EmberAfCalendarDayStruct;
00032
00033 // Special day date (4 bytes) and Day ID ref (1-byte)
00034 #define SPECIAL_DAY_ENTRY_SIZE (5)
00035 typedef struct {
00036     EmberAfDate startDate;
00037     uint8_t normalDayIndex;
00038     uint8_t flags;
00039 } EmberAfCalendarSpecialDayStruct;
00040
00041 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_MONDAY_INDEX (0)
00042 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_SUNDAY_INDEX (6)
00043 #define EMBER_AF_DAYS_IN_THE_WEEK (7)
00044
00045 typedef struct {
00046     uint8_t normalDayIndexes[EMBER_AF_DAYS_IN_THE_WEEK];
00047     uint8_t id;
00048 } EmberAfCalendarWeekStruct;
00049
00050 typedef struct {
00051     EmberAfDate startDate;
00052     uint8_t weekIndex;
00053 } EmberAfCalendarSeasonStruct;
00054
00055 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_INVALID_CALENDAR_ID 0xFFFFFFFF
00056 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_WILDCARD_CALENDAR_ID 0x00000000
00057 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_WILDCARD_PROVIDER_ID 0xFFFFFFFF

```

```

00057 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_WILDCARD_ISSUER_ID 0xFFFFFFFF
00058 #define EMBER_AF_PLUGIN_CALENDAR_COMMON_WILDCARD_CALENDAR_TYPE 0xFF
00059
00060 enum {
00061     EMBER_AF_PLUGIN_CALENDAR_COMMON_FLAGS_SENT
00062         = 0x01,
00063 };
00064 typedef struct {
00065     EmberAfCalendarWeekStruct weeks[
00066         EMBER_AF_PLUGIN_CALENDAR_COMMON_WEEK_PROFILE_MAX];
00067     EmberAfCalendarDayStruct normalDays[
00068         EMBER_AF_PLUGIN_CALENDAR_COMMON_DAY_PROFILE_MAX];
00069     EmberAfCalendarSpecialDayStruct specialDays[
00070         EMBER_AF_PLUGIN_CALENDAR_COMMON_SPECIAL_DAY_PROFILE_MAX];
00071     EmberAfCalendarSeasonStruct seasons[
00072         EMBER_AF_PLUGIN_CALENDAR_COMMON_SEASON_PROFILE_MAX];
00073     uint32_t providerId;
00074     uint32_t issuerEventId;
00075     uint32_t calendarId;
00076     uint32_t startTimeUtc;
00077     uint8_t name[EMBER_AF_PLUGIN_CALENDAR_MAX_CALENDAR_NAME_LENGTH
00078         + 1];
00079     uint8_t calendarType;
00080     uint8_t numberOfSeasons;
00081     uint8_t numberOfWeekProfiles;
00082     uint8_t numberOfDayProfiles;
00083     uint8_t numberOfSpecialDayProfiles;
00084     uint8_t numberOfReceivedSeasons;
00085     uint8_t numberOfReceivedWeekProfiles;
00086     uint8_t numberOfReceivedDayProfiles;
00087     uint8_t flags;
00088 } EmberAfCalendarStruct;
00089
00090 extern EmberAfCalendarStruct calendars[];
00091 #if defined(EMBER_AF_PLUGIN_GAS_PROXY_FUNCTION)
00092 #define GBCS_TARIFF_SWITCHING_CALENDAR_ID 0xFFFFFFFF
00093 #define GBCS_NON_DISABLEMENT_CALENDAR_ID 0xFFFFFFFFFF
00094 extern uint32_t tariffSwitchingCalendarId;
00095 extern uint32_t nonDisablementCalendarId;
00096 #endif
00097
00098 uint8_t emberAfPluginCalendarCommonGetCalendarById
00099     (uint32_t calendarId,
00100         uint32_t providerId);
00101 uint32_t emberAfPluginCalendarCommonEndTimeUtc
00102     (const EmberAfCalendarStruct *calendar);
00103 bool emberAfCalendarCommonSetCalInfo(uint8_t
00104         index,
00105             uint32_t providerId,
00106             uint32_t issuerEventId,
00107             uint32_t issuerCalendarId,
00108             uint32_t startTimeUtc,
00109             uint8_t calendarType,
00110             uint8_t *calendarName,
00111             uint8_t numberOfSeasons,
00112             uint8_t numberOfWeekProfiles,
00113             uint8_t numberOfDayProfiles);
00114
00115 /* @brief add new entry corresponding to PublishCalendar command.
00116 *
00117 * This function will try to handle the new entry in following method:
00118 *
00119 * 1) Try to apply new data to a matching existing entry.
00120 *     Fields such as providerId, issuerEventId, and startTime, will be used.
00121 * 3) Overwrite the oldest entry (one with smallest event id) with new info.
00122 */
00123 bool emberAfCalendarCommonAddCalInfo(uint32_t
00124         providerId,
00125             uint32_t issuerEventId,
00126             uint32_t issuerCalendarId,
00127             uint32_t startTimeUtc,
00128             uint8_t calendarType,
00129             uint8_t *calendarName,

```

```

00127                               uint8_t numberOfSeasons,
00128                               uint8_t numberOfWeekProfiles,
00129                               uint8_t numberOfDayProfiles);
00130 bool emberAfCalendarServerSetSeasonsInfo(
00131     uint8_t index,
00132                               uint8_t seasonId,
00133                               EmberAfDate startDate,
00134                               uint8_t weekIndex);
00135 bool emberAfCalendarServerAddSeasonsInfo(
00136     uint32_t issuerCalendarId,
00137                               uint8_t * seasonsEntries,
00138                               uint8_t seasonsEntriesLength,
00139                               uint8_t * unknownWeekIdSeasonsMask)
00140 ;
00141 bool emberAfCalendarCommonSetDayProfInfo(
00142     uint8_t index,
00143                               uint8_t dayId,
00144                               uint8_t entryId,
00145                               uint16_t minutesFromMidnight,
00146                               uint8_t data);
00147 bool emberAfCalendarCommonAddDayProfInfo(
00148     uint32_t issuerCalendarId,
00149                               uint8_t dayId,
00150                               uint8_t * dayScheduleEntries,
00151                               uint16_t dayScheduleEntriesLength);
00152 bool emberAfCalendarServerSetWeekProfInfo(
00153     uint8_t index,
00154                               uint8_t weekId,
00155                               uint8_t dayIdRefMon,
00156                               uint8_t dayIdRefTue,
00157                               uint8_t dayIdRefWed,
00158                               uint8_t dayIdRefThu,
00159                               uint8_t dayIdRefFri,
00160                               uint8_t dayIdRefSat,
00161                               uint8_t dayIdRefSun);
00162 bool emberAfCalendarServerAddWeekProfInfo(
00163     uint32_t issuerCalendarId,
00164                               uint8_t weekId,
00165                               uint8_t dayIdRefMon,
00166                               uint8_t dayIdRefTue,
00167                               uint8_t dayIdRefWed,
00168                               uint8_t dayIdRefThu,
00169                               uint8_t dayIdRefFri,
00170                               uint8_t dayIdRefSat,
00171                               uint8_t dayIdRefSun);
00172 /* @brief Updating special days info of the specified calendar.
00173 */
00174 * This function assumes that the value of totalNumberOfSpecialDays will match
00175 * up with the info passed in between specialDaysEntries/
00176 * specialDaysEntriesLength.
00177 */
00178 bool emberAfCalendarCommonAddSpecialDaysInfo(
00179     uint32_t issuerCalendarId,
00180                               uint8_t
00181     totalNumberOfSpecialDays,
00182                               uint8_t * specialDaysEntries,
00183                               uint16_t
00184     specialDaysEntriesLength,
00185                               uint8_t *
00186     unknownSpecialDaysMask);

```

## 8.25 calendar-server.h File Reference

### Functions

- void **emberAfCalendarServerPublishCalendarMessage** (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t calendarIndex)
- void **emberAfCalendarServerPublishDayProfilesMessage** (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t calendarIndex, uint8\_t dayIndex)

- void `emberAfCalendarServerPublishWeekProfileMessage` (`EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex, uint8_t weekIndex`)
- void `emberAfCalendarServerPublishSeasonsMessage` (`EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex`)
- void `emberAfCalendarServerPublishSpecialDaysMessage` (`EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex`)
- void `emberAfCalendarServerCancelCalendarMessage` (`EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex`)

### 8.25.1 Function Documentation

#### 8.25.1.1 void `emberAfCalendarServerPublishCalendarMessage` ( `EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex` )

Publish an calendar.

This function will locate the calendar in the calendar table at the specified location and using the information from the calendar build and send a PublishCalendar command.

##### Parameters

<code>nodeId</code>	The destination nodeId
<code>srcEndpoint</code>	The source endpoint
<code>dstEndpoint</code>	The destination endpoint
<code>calendarIndex</code>	The index in the calendar table.

#### 8.25.1.2 void `emberAfCalendarServerPublishDayProfilesMessage` ( `EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex, uint8_t dayIndex` )

Publish the day profiles of the specified day in the specified calendar.

This function will locate the calendar in the calendar table at the specified location and using the information from the calendar build and send a PublishDayProfiles command.

##### Parameters

<code>nodeId</code>	The destination nodeId
<code>srcEndpoint</code>	The source endpoint
<code>dstEndpoint</code>	The destination endpoint
<code>calendarIndex</code>	The index in the calendar table.
<code>dayIndex</code>	The index of the day in the calendar.

#### 8.25.1.3 void `emberAfCalendarServerPublishWeekProfileMessage` ( `EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t calendarIndex, uint8_t weekIndex` )

Publish the week profile of the specified week in the specified calendar.

This function will locate the calendar in the calendar table at the specified location and using the information from the calendar build and send a PublishWeekProfile command.

**Parameters**

<i>nodeId</i>	The destination nodeId
<i>srcEndpoint</i>	The source endpoint
<i>dstEndpoint</i>	The destination endpoint
<i>calendarIndex</i>	The index in the calendar table.
<i>weekIndex</i>	The index of the week in the calendar.

**8.25.1.4 void emberAfCalendarServerPublishSeasonsMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *calendarIndex* )**

Publish the seasons in the specified calendar.

This function will locate the calendar in the calendar table at the specified location and using the information from the calendar build and send a PublishSeasons command.

**Parameters**

<i>nodeId</i>	The destination nodeId
<i>srcEndpoint</i>	The source endpoint
<i>dstEndpoint</i>	The destination endpoint
<i>calendarIndex</i>	The index in the calendar table.

**8.25.1.5 void emberAfCalendarServerPublishSpecialDaysMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *calendarIndex* )**

Publish the special days of the specified calendar.

This function will locate the calendar in the calendar table at the specified location and using the information from the calendar build and send a PublishSpecialDays command.

**Parameters**

<i>nodeId</i>	The destination nodeId
<i>srcEndpoint</i>	The source endpoint
<i>dstEndpoint</i>	The destination endpoint
<i>calendarIndex</i>	The index in the calendar table.

**8.25.1.6 void emberAfCalendarServerCancelCalendarMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *calendarIndex* )**

Publish the special days of the specified calendar.

This function will locate the calendar in the calendar table at the specified location and using the information from the calendar build and send a CancelCalendar command. Note: it's up to the caller to invalidate the local copy of the calendar.

**Parameters**

<i>nodeId</i>	The destination nodeId
<i>srcEndpoint</i>	The source endpoint
<i>dstEndpoint</i>	The destination endpoint
<i>calendarIndex</i>	The index in the calendar table.

## 8.26 calendar-server.h

```

00001 // ****
00002 // * calendar-server.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // ****
00007
00020 void emberAfCalendarServerPublishCalendarMessage
    (EmberNodeId nodeId,
00021                                uint8_t srcEndpoint,
00022                                uint8_t dstEndpoint,
00023                                uint8_t calendarIndex);
00024
00038 void emberAfCalendarServerPublishDayProfilesMessage
    (EmberNodeId nodeId,
00039                                uint8_t srcEndpoint,
00040                                uint8_t dstEndpoint,
00041                                uint8_t calendarIndex,
00042                                uint8_t dayIndex);
00043
00057 void emberAfCalendarServerPublishWeekProfileMessage
    (EmberNodeId nodeId,
00058                                uint8_t srcEndpoint,
00059                                uint8_t dstEndpoint,
00060                                uint8_t calendarIndex,
00061                                uint8_t weekIndex);
00062
00075 void emberAfCalendarServerPublishSeasonsMessage
    (EmberNodeId nodeId,
00076                                uint8_t srcEndpoint,
00077                                uint8_t dstEndpoint,
00078                                uint8_t calendarIndex);
00079
00092 void emberAfCalendarServerPublishSpecialDaysMessage
    (EmberNodeId nodeId,
00093                                uint8_t srcEndpoint,
00094                                uint8_t dstEndpoint,
00095                                uint8_t calendarIndex);
00096
00110 void emberAfCalendarServerCancelCalendarMessage
    (EmberNodeId nodeId,
00111                                uint8_t srcEndpoint,
00112                                uint8_t dstEndpoint,
00113                                uint8_t calendarIndex);
00114

```

## 8.27 callback.doc File Reference

### Macros

- #define [\\_\\_EMBER\\_AF\\_CALLBACK\\_PROTOTYPES\\_\\_](#)

### Non-Cluster Related Callbacks

- void [emberAfAddToCurrentAppTasksCallback](#) ([EmberAfApplicationTask](#) tasks)
- [EmberAfAttributeWritePermission](#) [emberAfAllowNetworkWriteAttributeCallback](#) (int8u endpoint, [EmberAfClusterId](#) clusterId, [EmberAfAttributeId](#) attributeId, int8u mask, int16u manufacturerCode, int8u \*value, int8u type)
- boolean [emberAfAttributeReadAccessCallback](#) (int8u endpoint, [EmberAfClusterId](#) clusterId, int16u manufacturerCode, int16u attributeId)
- boolean [emberAfAttributeWriteAccessCallback](#) (int8u endpoint, [EmberAfClusterId](#) clusterId, int16u manufacturerCode, int16u attributeId)
- [EmberStatus](#) [emberAfClearReportTableCallback](#) (void)

- void `emberAfClusterInitCallback` (int8u endpoint, `EmberAfClusterId` clusterId)
- boolean `emberAfClusterSecurityCustomCallback` (`EmberAfProfileId` profileId, `EmberAfClusterId` clusterId, boolean incoming, int8u commandId)
- boolean `emberAfConfigureReportingCommandCallback` (const `EmberAfClusterCommand` \*cmd)
- boolean `emberAfConfigureReportingResponseCallback` (`EmberAfClusterId` clusterId, int8u \*buffer, int16u bufLen)
- boolean `emberAfDefaultResponseCallback` (`EmberAfClusterId` clusterId, int8u commandId, `EmberAfStatus` status)
- boolean `emberAfDiscoverAttributesResponseCallback` (`EmberAfClusterId` clusterId, boolean discoveryComplete, int8u \*buffer, int16u bufLen, boolean extended)
- boolean `emberAfDiscoverCommandsGeneratedResponseCallback` (`EmberAfClusterId` clusterId, int16u manufacturerCode, boolean discoveryComplete, int8u \*commandIds, int16u commandIdCount)
- boolean `emberAfDiscoverCommandsReceivedResponseCallback` (`EmberAfClusterId` clusterId, int16u manufacturerCode, boolean discoveryComplete, int8u \*commandIds, int16u commandIdCount)
- void `emberAfEepromInitCallback` (void)
- void `emberAfEepromNoteInitializedStateCallback` (boolean state)
- void `emberAfEepromShutdownCallback` (void)
- void `emberAfEnergyScanResultCallback` (int8u channel, int8s rssi)
- `EmberAfStatus` `emberAfExternalAttributeReadCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeMetadata` \*attributeMetadata, int16u manufacturerCode, int8u \*buffer)
- `EmberAfStatus` `emberAfExternalAttributeWriteCallback` (int8u endpoint, `EmberAfClusterId` clusterId, `EmberAfAttributeMetadata` \*attributeMetadata, int16u manufacturerCode, int8u \*buffer)
- `EmberStatus` `emberAfFindUnusedPanIdAndFormCallback` (void)
- `EmberAfApplicationTask` `emberAfGetCurrentAppTasksCallback` (void)
- `EmberAfEventPollControl` `emberAfGetCurrentPollControlCallback` (void)
- int32u `emberAfGetCurrentPollIntervalMsCallback` (void)
- int32u `emberAfGetCurrentPollIntervalQsCallback` (void)
- `EmberAfEventSleepControl` `emberAfGetCurrentSleepControlCallback` (void)
- int32u `emberAfGetCurrentTimeCallback` (void)
- `EmberAfEventPollControl` `emberAfGetDefaultPollControlCallback` (void)
- `EmberAfEventSleepControl` `emberAfGetDefaultSleepControlCallback` (void)
- boolean `emberAfGetEndpointByIndexCallback` (int8u index, int8u \*endpointReturn)
- boolean `emberAfGetEndpointDescriptionCallback` (int8u endpoint, `EmberEndpointDescription` \*result)
- boolean `emberAfGetEndpointInfoCallback` (int8u endpoint, int8u \*returnNetworkIndex, `EmberAfEndpointInfoStruct` \*returnEndpointInfo)
- void `emberAfGetFormAndJoinExtendedPanIdCallback` (int8u \*resultLocation)
- int32u `emberAfGetLongPollIntervalMsCallback` (void)
- int32u `emberAfGetLongPollIntervalQsCallback` (void)
- int16u `emberAfGetShortPollIntervalMsCallback` (void)
- int16u `emberAfGetShortPollIntervalQsCallback` (void)
- int8u `emberAfGetSourceRouteOverheadCallback` (`EmberNodeId` destination)
- `EmberAfApplicationTask` `emberAfGetWakeTimeoutBitmaskCallback` (void)
- int16u `emberAfGetWakeTimeoutMsCallback` (void)
- int16u `emberAfGetWakeTimeoutQsCallback` (void)
- void `emberAfHalButtonIsrCallback` (int8u button, int8u state)
- `EmberStatus` `emberAfInitiateInterPanKeyEstablishmentCallback` (`EmberPanId` panId, const `EmberEUI64` eui64)
- `EmberStatus` `emberAfInitiateKeyEstablishmentCallback` (`EmberNodeId` nodeId, int8u endpoint)
- `EmberStatus` `emberAfInitiatePartnerLinkKeyExchangeCallback` (`EmberNodeId` target, int8u endpoint, `EmberAfPartnerLinkKeyExchangeCallback` \*callback)

- boolean `emberAfInterPanKeyEstablishmentCallback` (`EmberAfKeyEstablishmentNotifyMessage` status, boolean amInitiator, `EmberPanId` panId, const `EmberEUI64` eui64, int8u delayInSeconds)
- `EmberStatus emberAfInterpanSendMessageCallback` (`EmberAfInterpanHeader` \*header, int16u messageLength, int8u \*message)
- boolean `emberAfKeyEstablishmentCallback` (`EmberAfKeyEstablishmentNotifyMessage` status, boolean amInitiator, `EmberNodeId` partnerShortId, int8u delayInSeconds)
- void `emberAfMainInitCallback` (void)
- boolean `emberAfMainStartCallback` (int \*returnCode, int argc, char \*\*argv)
- void `emberAfMainTickCallback` (void)
- boolean `emberAfMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- void `emberAfNcpInitCallback` (boolean memoryAllocation)
- void `emberAfNcpIsAwakeIsrCallback` (void)
- void `emberAfNetworkFoundCallback` (`EmberZigbeeNetwork` \*networkFound, int8u lqi, int8s rssi)
- void `emberAfNetworkKeyUpdateCompleteCallback` (`EmberStatus` status)
- int8u `emberAfOtaBootloadCallback` (const `EmberAfOtaImageId` \*id, int16u ncpUpgradeTagId)
- void `emberAfOtaClientBootloadCallback` (const `EmberAfOtaImageId` \*id)
- `EmberAfImageVerifyStatus emberAfOtaClientCustomVerifyCallback` (boolean newVerification, const `EmberAfOtaImageId` \*id)
- boolean `emberAfOtaClientDownloadCompleteCallback` (`EmberAfOtaDownloadResult` success, const `EmberAfOtaImageId` \*id)
- boolean `emberAfOtaClientIncomingMessageRawCallback` (`EmberAfClusterCommand` \*message)
- void `emberAfOtaClientStartCallback` (void)
- void `emberAfOtaClientVersionInfoCallback` (`EmberAfOtaImageId` \*currentImageInfo, int16u \*hardwareVersion)
- int8u `emberAfOtaPageRequestServerPolicyCallback` (void)
- int8u `emberAfOtaServerBlockSizeCallback` (`EmberNodeId` clientNodeId)
- int8u `emberAfOtaServerImageBlockRequestCallback` (`EmberAfImageBlockRequestCallbackStruct` \*data)
- boolean `emberAfOtaServerIncomingMessageRawCallback` (`EmberAfClusterCommand` \*message)
- int8u `emberAfOtaServerQueryCallback` (const `EmberAfOtaImageId` \*currentImageId, int16u \*hardwareVersion, `EmberAfOtaImageId` \*nextUpgradeImageId)
- boolean `emberAfOtaServerSendImageNotifyCallback` (`EmberNodeId` dest, int8u endpoint, int8u payloadType, int8u queryJitter, const `EmberAfOtaImageId` \*id)
- boolean `emberAfOtaServerUpgradeEndRequestCallback` (`EmberNodeId` source, int8u status, int32u \*returnValue, const `EmberAfOtaImageId` \*imageId)
- `EmberAfOtaStorageStatus emberAfOtaStorageCheckTempDataCallback` (int32u \*currentOffset, int32u \*totalImageSize, `EmberAfOtaImageId` \*newFileInfo)
- `EmberAfOtaStorageStatus emberAfOtaStorageClearTempDataCallback` (void)
- void `emberAfOtaStorageCloseCallback` (void)
- void `emberAfOtaStorageDriverDownloadFinishCallback` (int32u offset)
- boolean `emberAfOtaStorageDriverInitCallback` (void)
- `EmberAfOtaStorageStatus emberAfOtaStorageDriverInvalidateImageCallback` (void)
- `EmberAfOtaStorageStatus emberAfOtaStorageDriverPrepareToResumeDownloadCallback` (void)
- boolean `emberAfOtaStorageDriverReadCallback` (int32u offset, int32u length, int8u \*returnData)
- int32u `emberAfOtaStorageDriverRetrieveLastStoredOffsetCallback` (void)
- boolean `emberAfOtaStorageDriverWriteCallback` (const int8u \*dataToWrite, int32u offset, int32u length)
- `EmberAfOtaStorageStatus emberAfOtaStorageFinishDownloadCallback` (int32u offset)
- int8u `emberAfOtaStorageGetCountCallback` (void)

- `EmberAfOtaStorageStatus emberAfOtaStorageGetFullHeaderCallback (const EmberAfOtaImageId *id, EmberAfOtaHeader *returnData)`
- `int32u emberAfOtaStorageGetTotalImageSizeCallback (const EmberAfOtaImageId *id)`
- `EmberAfOtaStorageStatus emberAfOtaStorageInitCallback (void)`
- `EmberAfOtaImageId emberAfOtaStorageIteratorFirstCallback (void)`
- `EmberAfOtaImageId emberAfOtaStorageIteratorNextCallback (void)`
- `EmberAfOtaStorageStatus emberAfOtaStorageReadImageDataCallback (const EmberAfOtaImageId *id, int32u offset, int32u length, int8u *returnData, int32u *returnedLength)`
- `EmberAfOtaImageId emberAfOtaStorageSearchCallback (int16u manufacturerId, int16u imageTypeId, const int16u *hardwareVersion)`
- `EmberAfOtaStorageStatus emberAfOtaStorageWriteTempDataCallback (int32u offset, int32u length, const int8u *data)`
- `EmberStatus emberAfPartnerLinkKeyExchangeRequestCallback (EmberEUI64 partner)`
- `void emberAfPartnerLinkKeyExchangeResponseCallback (EmberNodeId sender, EmberZdoStatus status)`
- `boolean emberAfPerformingKeyEstablishmentCallback (void)`
- `void emberAfPostAttributeChangeCallback (int8u endpoint, EmberAfClusterId clusterId, EmberAfAttributeId attributeId, int8u mask, int16u manufacturerCode, int8u type, int8u size, int8u *value)`
- `EmberAfStatus emberAfPreAttributeChangeCallback (int8u endpoint, EmberAfClusterId clusterId, EmberAfAttributeId attributeId, int8u mask, int16u manufacturerCode, int8u type, int8u size, int8u *value)`
- `boolean emberAfPreCliSendCallback (EmberApsFrame *apsFrame, EmberNodeId source, EmberNodeId destination, int8u *message, int16u messageLength)`
- `boolean emberAfPreCommandReceivedCallback (EmberAfClusterCommand *cmd)`
- `boolean emberAfPreMessageReceivedCallback (EmberAfIncomingMessage *incomingMessage)`
- `boolean emberAfPreMessageSendCallback (EmberAfMessageStruct *messageStruct, EmberStatus *status)`
- `void emberAfPreNcpResetCallback (void)`
- `boolean emberAfPreZDOMessageReceivedCallback (EmberNodeId emberNodeId, EmberApsFrame *apsFrame, int8u *message, int16u length)`
- `boolean emberAfReadAttributesResponseCallback (EmberAfClusterId clusterId, int8u *buffer, int16u bufLen)`
- `boolean emberAfReadReportingConfigurationCommandCallback (const EmberAfClusterCommand *cmd)`
- `boolean emberAfReadReportingConfigurationResponseCallback (EmberAfClusterId clusterId, int8u *buffer, int16u bufLen)`
- `void emberAfRegistrationAbortCallback (void)`
- `void emberAfRegistrationCallback (boolean success)`
- `EmberStatus emberAfRegistrationStartCallback (void)`
- `EmberStatus emberAfRemoteDeleteBindingPermissionCallback (int8u index)`
- `EmberStatus emberAfRemoteSetBindingPermissionCallback (const EmberBindingTableEntry *entry)`
- `void emberAfRemoveFromCurrentAppTasksCallback (EmberAfApplicationTask tasks)`
- `boolean emberAfReportAttributesCallback (EmberAfClusterId clusterId, int8u *buffer, int16u bufLen)`
- `void emberAfReportingAttributeChangeCallback (int8u endpoint, EmberAfClusterId clusterId, EmberAfAttributeId attributeId, int8u mask, int16u manufacturerCode, EmberAfAttributeType type, int8u *data)`
- `void emberAfScanCompleteCallback (int8u channel, EmberStatus status)`
- `void emberAfScanErrorCallback (EmberStatus status)`
- `void emberAfSecurityInitCallback (EmberInitialSecurityState *state, EmberExtendedSecurityBitmask *extended, boolean trustCenter)`

- void `emberAfSetDefaultPollControlCallback` (`EmberAfEventPollControl` control)
- void `emberAfSetDefaultSleepControlCallback` (`EmberAfEventSleepControl` control)
- void `emberAfSetFormAndJoinExtendedPanIdCallback` (const `int8u` \*extendedPanId)
- void `emberAfSetLongPollIntervalMsCallback` (`int32u` longPollIntervalMs)
- void `emberAfSetLongPollIntervalQsCallback` (`int32u` longPollIntervalQs)
- void `emberAfSetShortPollIntervalMsCallback` (`int16u` shortPollIntervalMs)
- void `emberAfSetShortPollIntervalQsCallback` (`int16u` shortPollIntervalQs)
- void `emberAfSetSourceRouteOverheadCallback` (`EmberNodeId` destination, `int8u` overhead)
- void `emberAfSetTimeCallback` (`int32u` utcTime)
- void `emberAfSetWakeTimeoutBitmaskCallback` (`EmberAfApplicationTask` tasks)
- void `emberAfSetWakeTimeoutMsCallback` (`int16u` wakeTimeoutMs)
- void `emberAfSetWakeTimeoutQsCallback` (`int16u` wakeTimeoutQs)
- boolean `emberAfStackStatusCallback` (`EmberStatus` status)
- boolean `emberAfStartMoveCallback` (void)
- `EmberStatus` `emberAfStartSearchForJoinableNetworkCallback` (void)
- void `emberAfStopMoveCallback` (void)
- void `emberAfTrustCenterJoinCallback` (`EmberNodeId` newNodeId, `EmberEUI64` newNodeEui64, `EmberNodeId` parentOfNewNode, `EmberDeviceUpdate` status, `EmberJoinDecision` decision)
- void `emberAfTrustCenterKeepaliveAbortCallback` (void)
- void `emberAfTrustCenterKeepaliveUpdateCallback` (boolean registrationComplete)
- void `emberAfUnusedPanIdFoundCallback` (`EmberPanId` panId, `int8u` channel)
- boolean `emberAfWriteAttributesResponseCallback` (`EmberAfClusterId` clusterId, `int8u` \*buffer, `int16u` bufLen)

## Basic Cluster Callbacks

- void `emberAfBasicClusterClientAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBasicClusterClientDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` status)
- void `emberAfBasicClusterClientInitCallback` (`int8u` endpoint)
- void `emberAfBasicClusterClientManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `int16u` manufacturerCode)
- void `emberAfBasicClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*apsFrame, `int16u` msgLen, `int8u` \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBasicClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, `int8u` size, `int8u` \*value)
- void `emberAfBasicClusterClientTickCallback` (`int8u` endpoint)
- boolean `emberAfBasicClusterResetToFactoryDefaultsCallback` (void)
- void `emberAfBasicClusterServerAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBasicClusterServerDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` status)
- void `emberAfBasicClusterServerInitCallback` (`int8u` endpoint)
- void `emberAfBasicClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `int16u` manufacturerCode)
- void `emberAfBasicClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*apsFrame, `int16u` msgLen, `int8u` \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBasicClusterServerPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, `int8u` size, `int8u` \*value)
- void `emberAfBasicClusterServerTickCallback` (`int8u` endpoint)

## Power Configuration Cluster Callbacks

- void `emberAfPowerConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerConfigClusterClientInitCallback` (int8u endpoint)
- void `emberAfPowerConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPowerConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPowerConfigClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerConfigClusterClientTickCallback` (int8u endpoint)
- void `emberAfPowerConfigClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerConfigClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerConfigClusterServerInitCallback` (int8u endpoint)
- void `emberAfPowerConfigClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPowerConfigClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPowerConfigClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerConfigClusterServerTickCallback` (int8u endpoint)

## Device Temperature Configuration Cluster Callbacks

- void `emberAfDeviceTempClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceTempClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceTempClusterClientInitCallback` (int8u endpoint)
- void `emberAfDeviceTempClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceTempClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDeviceTempClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceTempClusterClientTickCallback` (int8u endpoint)
- void `emberAfDeviceTempClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceTempClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceTempClusterServerInitCallback` (int8u endpoint)
- void `emberAfDeviceTempClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfDeviceTempClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDeviceTempClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceTempClusterServerTickCallback` (int8u endpoint)

## Identify Cluster Callbacks

- void `emberAfIdentifyClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIdentifyClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIdentifyClusterClientInitCallback` (int8u endpoint)
- void `emberAfIdentifyClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIdentifyClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfIdentifyClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIdentifyClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfIdentifyClusterEZModeInvokeCallback` (int8u action)
- boolean `emberAfIdentifyClusterIdentifyCallback` (int16u identifyTime)
- boolean `emberAfIdentifyClusterIdentifyQueryCallback` (void)
- boolean `emberAfIdentifyClusterIdentifyQueryResponseCallback` (int16u timeout)
- void `emberAfIdentifyClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIdentifyClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIdentifyClusterServerInitCallback` (int8u endpoint)
- void `emberAfIdentifyClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIdentifyClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfIdentifyClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIdentifyClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIdentifyClusterTriggerEffectCallback` (int8u effectId, int8u effectVariant)
- boolean `emberAfIdentifyClusterUpdateCommissionStateCallback` (int8u action, int8u commissionStateMask)

## Groups Cluster Callbacks

- void `emberAfGroupsClusterClearGroupTableCallback` (int8u endpoint)
- boolean `emberAfGroupsClusterEndpointInGroupCallback` (int8u endpoint, int16u groupId)
- boolean `emberAfGroupsClusterAddGroupCallback` (int16u groupId, int8u \*groupName)
- boolean `emberAfGroupsClusterAddGroupIfIdentifyingCallback` (int16u groupId, int8u \*groupName)
- boolean `emberAfGroupsClusterAddGroupResponseCallback` (int8u status, int16u groupId)

- void `emberAfGroupsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGroupsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGroupsClusterClientInitCallback` (int8u endpoint)
- void `emberAfGroupsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGroupsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGroupsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGroupsClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGroupsClusterGetGroupMembershipCallback` (int8u groupCount, int8u \*groupList)
- boolean `emberAfGroupsClusterGetGroupMembershipResponseCallback` (int8u capacity, int8u groupCount, int8u \*groupList)
- boolean `emberAfGroupsClusterRemoveAllGroupsCallback` (void)
- boolean `emberAfGroupsClusterRemoveGroupCallback` (int16u groupId)
- boolean `emberAfGroupsClusterRemoveGroupResponseCallback` (int8u status, int16u groupId)
- void `emberAfGroupsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGroupsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGroupsClusterServerInitCallback` (int8u endpoint)
- void `emberAfGroupsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGroupsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGroupsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGroupsClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfGroupsClusterViewGroupCallback` (int16u groupId)
- boolean `emberAfGroupsClusterViewGroupResponseCallback` (int8u status, int16u groupId, int8u \*groupName)

## Scenes Cluster Callbacks

- void `emberAfScenesClusterClearSceneTableCallback` (int8u endpoint)
- `EmberAfStatus` `emberAfScenesClusterMakeInvalidCallback` (int8u endpoint)
- `EmberAfStatus` `emberAfScenesClusterRecallSavedSceneCallback` (int8u endpoint, int16u groupId, int8u sceneId)
- void `emberAfScenesClusterRemoveScenesInGroupCallback` (int8u endpoint, int16u groupId)
- boolean `emberAfScenesClusterAddSceneCallback` (int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- boolean `emberAfScenesClusterAddSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- void `emberAfScenesClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfScenesClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfScenesClusterClientInitCallback` (int8u endpoint)
- void `emberAfScenesClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfScenesClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfScenesClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfScenesClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfScenesClusterCopySceneCallback` (int8u mode, int16u groupIdFrom, int8u sceneIdFrom, int16u groupIdTo, int8u sceneIdTo)
- boolean `emberAfScenesClusterCopySceneResponseCallback` (int8u status, int16u groupIdFrom, int8u sceneIdFrom)
- boolean `emberAfScenesClusterEnhancedAddSceneCallback` (int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- boolean `emberAfScenesClusterEnhancedAddSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterEnhancedViewSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterEnhancedViewSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- boolean `emberAfScenesClusterGetSceneMembershipCallback` (int16u groupId)
- boolean `emberAfScenesClusterGetSceneMembershipResponseCallback` (int8u status, int8u capacity, int16u groupId, int8u sceneCount, int8u \*sceneList)
- boolean `emberAfScenesClusterRecallSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterRemoveAllScenesCallback` (int16u groupId)
- boolean `emberAfScenesClusterRemoveAllScenesResponseCallback` (int8u status, int16u groupId)
- boolean `emberAfScenesClusterRemoveSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterRemoveSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- void `emberAfScenesClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfScenesClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfScenesClusterServerInitCallback` (int8u endpoint)
- void `emberAfScenesClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfScenesClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfScenesClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfScenesClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfScenesClusterStoreSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterStoreSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterViewSceneCallback` (int16u groupId, int8u sceneId)
- boolean `emberAfScenesClusterViewSceneResponseCallback` (int8u status, int16u groupId, int8u sceneId, int16u transitionTime, int8u \*sceneName, int8u \*extensionFieldSets)
- `EmberAfStatus` `emberAfScenesClusterStoreCurrentSceneCallback` (int8u endpoint, int16u groupId, int8u sceneId)

## On/off Cluster Callbacks

- void `emberAfOnOffClusterLevelControlEffectCallback` (int8u endpoint, boolean newValue)
- void `emberAfOnOffClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOnOffClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffClusterClientInitCallback` (int8u endpoint)
- void `emberAfOnOffClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfOnOffClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOnOffClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfOnOffClusterOffCallback` (void)
- boolean `emberAfOnOffClusterOffWithEffectCallback` (int8u effectId, int8u effectVariant)
- boolean `emberAfOnOffClusterOnCallback` (void)
- boolean `emberAfOnOffClusterOnWithRecallGlobalSceneCallback` (void)
- boolean `emberAfOnOffClusterOnWithTimedOffCallback` (int8u onOffControl, int16u onTime, int16u offWaitTime)
- boolean `emberAfOnOffClusterSampleMfgSpecificOffWithTransitionCallback` (void)
- boolean `emberAfOnOffClusterSampleMfgSpecificOnWithTransitionCallback` (void)
- boolean `emberAfOnOffClusterSampleMfgSpecificToggleWithTransitionCallback` (void)
- void `emberAfOnOffClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOnOffClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffClusterServerInitCallback` (int8u endpoint)
- void `emberAfOnOffClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfOnOffClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfOnOffClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfOnOffClusterToggleCallback` (void)
- `EmberAfStatus emberAfOnOffClusterSetValueCallback` (int8u endpoint, int8u command, boolean initiatedByLevelChange)

## On/off Switch Configuration Cluster Callbacks

- void `emberAfOnOffSwitchConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOnOffSwitchConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOnOffSwitchConfigClusterClientInitCallback` (int8u endpoint)
- void `emberAfOnOffSwitchConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfOnOffSwitchConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` msgLen, `int8u` \*`message`, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffSwitchConfigClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, `int8u` size, `int8u` \*`value`)
- void `emberAfOnOffSwitchConfigClusterClientTickCallback` (`int8u` endpoint)
- void `emberAfOnOffSwitchConfigClusterServerAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOnOffSwitchConfigClusterServerDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` status)
- void `emberAfOnOffSwitchConfigClusterServerInitCallback` (`int8u` endpoint)
- void `emberAfOnOffSwitchConfigClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `int16u` manufacturerCode)
- void `emberAfOnOffSwitchConfigClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` msgLen, `int8u` \*`message`, `EmberStatus` status)
- `EmberAfStatus emberAfOnOffSwitchConfigClusterServerPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, `int8u` size, `int8u` \*`value`)
- void `emberAfOnOffSwitchConfigClusterServerTickCallback` (`int8u` endpoint)

## Level Control Cluster Callbacks

- void `emberAfLevelControlClusterClientAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfLevelControlClusterClientDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` status)
- void `emberAfLevelControlClusterClientInitCallback` (`int8u` endpoint)
- void `emberAfLevelControlClusterClientManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `int16u` manufacturerCode)
- void `emberAfLevelControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` msgLen, `int8u` \*`message`, `EmberStatus` status)
- `EmberAfStatus emberAfLevelControlClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, `int8u` size, `int8u` \*`value`)
- void `emberAfLevelControlClusterClientTickCallback` (`int8u` endpoint)
- boolean `emberAfLevelControlClusterMoveCallback` (`int8u` moveMode, `int8u` rate)
- boolean `emberAfLevelControlClusterMoveToLevelCallback` (`int8u` level, `int16u` transitionTime)
- boolean `emberAfLevelControlClusterMoveToLevelWithOnOffCallback` (`int8u` level, `int16u` transitionTime)
- boolean `emberAfLevelControlClusterMoveWithOnOffCallback` (`int8u` moveMode, `int8u` rate)
- void `emberAfLevelControlClusterServerAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfLevelControlClusterServerDefaultResponseCallback` (`int8u` endpoint, `int8u` commandId, `EmberAfStatus` status)
- void `emberAfLevelControlClusterServerInitCallback` (`int8u` endpoint)
- void `emberAfLevelControlClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` attributeId, `int16u` manufacturerCode)
- void `emberAfLevelControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` msgLen, `int8u` \*`message`, `EmberStatus` status)

- EmberAfStatus `emberAfLevelControlClusterServerPreAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \*value)
- void `emberAfLevelControlClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfLevelControlClusterStepCallback` (int8u stepMode, int8u stepSize, int16u transitionTime)
- boolean `emberAfLevelControlClusterStepWithOnOffCallback` (int8u stepMode, int8u stepSize, int16u transitionTime)
- boolean `emberAfLevelControlClusterStopCallback` (void)
- boolean `emberAfLevelControlClusterStopWithOnOffCallback` (void)

## Alarms Cluster Callbacks

- boolean `emberAfAlarmClusterAlarmCallback` (int8u alarmCode, int16u clusterId)
- void `emberAfAlarmClusterClientAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId)
- void `emberAfAlarmClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, EmberAfStatus status)
- void `emberAfAlarmClusterClientInitCallback` (int8u endpoint)
- void `emberAfAlarmClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)
- void `emberAfAlarmClusterClientMessageSentCallback` (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \*apsFrame, int16u msgLen, int8u \*message, EmberStatus status)
- EmberAfStatus `emberAfAlarmClusterClientPreAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \*value)
- void `emberAfAlarmClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfAlarmClusterGetAlarmCallback` (void)
- boolean `emberAfAlarmClusterGetAlarmResponseCallback` (int8u status, int8u alarmCode, int16u clusterId, int32u timeStamp)
- boolean `emberAfAlarmClusterResetAlarmCallback` (int8u alarmCode, int16u clusterId)
- boolean `emberAfAlarmClusterResetAlarmLogCallback` (void)
- boolean `emberAfAlarmClusterResetAllAlarmsCallback` (void)
- void `emberAfAlarmClusterServerAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId)
- void `emberAfAlarmClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, EmberAfStatus status)
- void `emberAfAlarmClusterServerInitCallback` (int8u endpoint)
- void `emberAfAlarmClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)
- void `emberAfAlarmClusterServerMessageSentCallback` (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame \*apsFrame, int16u msgLen, int8u \*message, EmberStatus status)
- EmberAfStatus `emberAfAlarmClusterServerPreAttributeChangedCallback` (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u \*value)
- void `emberAfAlarmClusterServerTickCallback` (int8u endpoint)

## Time Cluster Callbacks

- void `emberAfTimeClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTimeClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTimeClusterClientInitCallback` (int8u endpoint)
- void `emberAfTimeClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTimeClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfTimeClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTimeClusterClientTickCallback` (int8u endpoint)
- void `emberAfTimeClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTimeClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTimeClusterServerInitCallback` (int8u endpoint)
- void `emberAfTimeClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTimeClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfTimeClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTimeClusterServerTickCallback` (int8u endpoint)

## RSSI Location Cluster Callbacks

- boolean `emberAfRssiLocationClusterAnchorNodeAnnounceCallback` (int8u \*anchorNodeIeeeAddress, int16s coordinate1, int16s coordinate2, int16s coordinate3)
- void `emberAfRssiLocationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRssiLocationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRssiLocationClusterClientInitCallback` (int8u endpoint)
- void `emberAfRssiLocationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRssiLocationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfRssiLocationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRssiLocationClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfRssiLocationClusterCompactLocationDataNotificationCallback` (int8u locationType, int16s coordinate1, int16s coordinate2, int16s coordinate3, int8u qualityMeasure, int16u locationAge)
- boolean `emberAfRssiLocationClusterDeviceConfigurationResponseCallback` (int8u status, int16s power, int16u pathLossExponent, int16u calculationPeriod, int8u numberRssiMeasurements, int16u reportingPeriod)

- boolean `emberAfRssiLocationClusterGetDeviceConfigurationCallback` (int8u \*targetAddress)
- boolean `emberAfRssiLocationClusterGetLocationDataCallback` (int8u flags, int8u numberResponses, int8u \*targetAddress)
- boolean `emberAfRssiLocationClusterLocationDataNotificationCallback` (int8u locationType, int16s coordinate1, int16s coordinate2, int16s coordinate3, int16s power, int16u pathLossExponent, int8u locationMethod, int8u qualityMeasure, int16u locationAge)
- boolean `emberAfRssiLocationClusterLocationDataResponseCallback` (int8u status, int8u locationType, int16s coordinate1, int16s coordinate2, int16s coordinate3, int16s power, int16u pathLossExponent, int8u locationMethod, int8u qualityMeasure, int16u locationAge)
- boolean `emberAfRssiLocationClusterReportRssiMeasurementsCallback` (int8u \*measuringDevice, int8u neighbors, int8u \*neighborsInfo)
- boolean `emberAfRssiLocationClusterRequestOwnLocationCallback` (int8u \*blindNode)
- boolean `emberAfRssiLocationClusterRssiPingCallback` (int8u locationType)
- boolean `emberAfRssiLocationClusterRssiRequestCallback` (void)
- boolean `emberAfRssiLocationClusterRssiResponseCallback` (int8u \*replyingDevice, int16s coordinate1, int16s coordinate2, int16s coordinate3, int8s rssi, int8u numberRssiMeasurements)
- boolean `emberAfRssiLocationClusterSendPingsCallback` (int8u \*targetAddress, int8u numberRssiMeasurements, int16u calculationPeriod)
- void `emberAfRssiLocationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRssiLocationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRssiLocationClusterServerInitCallback` (int8u endpoint)
- void `emberAfRssiLocationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRssiLocationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfRssiLocationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRssiLocationClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfRssiLocationClusterSetAbsoluteLocationCallback` (int16s coordinate1, int16s coordinate2, int16s coordinate3, int16s power, int16u pathLossExponent)
- boolean `emberAfRssiLocationClusterSetDeviceConfigurationCallback` (int16s power, int16u pathLossExponent, int16u calculationPeriod, int8u numberRssiMeasurements, int16u reportingPeriod)

## Binary Input (Basic) Cluster Callbacks

- void `emberAfBinaryInputBasicClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBinaryInputBasicClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBinaryInputBasicClusterClientInitCallback` (int8u endpoint)
- void `emberAfBinaryInputBasicClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBinaryInputBasicClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBinaryInputBasicClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBinaryInputBasicClusterClientTickCallback` (int8u endpoint)

- void `emberAfBinaryInputBasicClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBinaryInputBasicClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBinaryInputBasicClusterServerInitCallback` (int8u endpoint)
- void `emberAfBinaryInputBasicClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBinaryInputBasicClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBinaryInputBasicClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBinaryInputBasicClusterServerTickCallback` (int8u endpoint)

## Commissioning Cluster Callbacks

- void `emberAfCommissioningClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCommissioningClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCommissioningClusterClientInitCallback` (int8u endpoint)
- void `emberAfCommissioningClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCommissioningClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfCommissioningClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCommissioningClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfCommissioningClusterResetStartupParametersCallback` (int8u options, int8u index)
- boolean `emberAfCommissioningClusterResetStartupParametersResponseCallback` (int8u status)
- boolean `emberAfCommissioningClusterRestartDeviceCallback` (int8u options, int8u delay, int8u jitter)
- boolean `emberAfCommissioningClusterRestartDeviceResponseCallback` (int8u status)
- boolean `emberAfCommissioningClusterRestoreStartupParametersCallback` (int8u options, int8u index)
- boolean `emberAfCommissioningClusterRestoreStartupParametersResponseCallback` (int8u status)
- void `emberAfCommissioningClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCommissioningClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCommissioningClusterServerInitCallback` (int8u endpoint)
- void `emberAfCommissioningClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCommissioningClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfCommissioningClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCommissioningClusterServerTickCallback` (int8u endpoint)

## Partition Cluster Callbacks

- void `emberAfPartitionClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPartitionClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPartitionClusterClientInitCallback` (int8u endpoint)
- void `emberAfPartitionClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPartitionClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPartitionClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPartitionClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPartitionClusterMultipleAckCallback` (int8u ackOptions, int8u \*firstFrameIdAndNackList)
- boolean `emberAfPartitionClusterReadHandshakeParamCallback` (int16u partitionedClusterId, int8u \*attributeList)
- boolean `emberAfPartitionClusterReadHandshakeParamResponseCallback` (int16u partitionedClusterId, int8u \*readAttributeStatusRecords)
- void `emberAfPartitionClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPartitionClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPartitionClusterServerInitCallback` (int8u endpoint)
- void `emberAfPartitionClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPartitionClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPartitionClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPartitionClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfPartitionClusterTransferPartitionedFrameCallback` (int8u fragmentationOptions, int8u \*partitionedIndicatorAndFrame)
- boolean `emberAfPartitionClusterWriteHandshakeParamCallback` (int16u partitionedClusterId, int8u \*writeAttributeRecords)

## Over the Air Bootloading Cluster Callbacks

- void `emberAfOtaBootloadClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOtaBootloadClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOtaBootloadClusterClientInitCallback` (int8u endpoint)
- void `emberAfOtaBootloadClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfOtaBootloadClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfOtaBootloadClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfOtaBootloadClusterClientTickCallback (int8u endpoint)`
- `void emberAfOtaBootloadClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfOtaBootloadClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfOtaBootloadClusterServerInitCallback (int8u endpoint)`
- `void emberAfOtaBootloadClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfOtaBootloadClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfOtaBootloadClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfOtaBootloadClusterServerTickCallback (int8u endpoint)`

## Power Profile Cluster Callbacks

- `void emberAfPowerProfileClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfPowerProfileClusterClientDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfPowerProfileClusterClientInitCallback (int8u endpoint)`
- `void emberAfPowerProfileClusterClientManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfPowerProfileClusterClientMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfPowerProfileClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfPowerProfileClusterClientTickCallback (int8u endpoint)`
- `boolean emberAfPowerProfileClusterEnergyPhasesScheduleNotificationCallback (int8u powerProfileId, int8u numOfScheduledPhases, int8u *scheduledPhases)`
- `boolean emberAfPowerProfileClusterEnergyPhasesScheduleRequestCallback (int8u powerProfileId)`
- `boolean emberAfPowerProfileClusterEnergyPhasesScheduleResponseCallback (int8u powerProfileId, int8u numOfScheduledPhases, int8u *scheduledPhases)`
- `boolean emberAfPowerProfileClusterEnergyPhasesScheduleStateNotificationCallback (int8u powerProfileId, int8u numOfScheduledPhases, int8u *scheduledPhases)`
- `boolean emberAfPowerProfileClusterEnergyPhasesScheduleStateRequestCallback (int8u powerProfileId)`
- `boolean emberAfPowerProfileClusterEnergyPhasesScheduleStateResponseCallback (int8u powerProfileId, int8u numOfScheduledPhases, int8u *scheduledPhases)`
- `boolean emberAfPowerProfileClusterGetOverallSchedulePriceCallback (void)`
- `boolean emberAfPowerProfileClusterGetOverallSchedulePriceResponseCallback (int16u currency, int32u price, int8u priceTrailingDigit)`
- `boolean emberAfPowerProfileClusterGetPowerProfilePriceCallback (int8u powerProfileId)`
- `boolean emberAfPowerProfileClusterGetPowerProfilePriceExtendedCallback (int8u options, int8u powerProfileId, int16u powerProfileStartTime)`

- boolean `emberAfPowerProfileClusterGetPowerProfilePriceExtendedResponseCallback` (int8u powerProfileId, int16u currency, int32u price, int8u priceTrailingDigit)
- boolean `emberAfPowerProfileClusterGetPowerProfilePriceResponseCallback` (int8u powerProfileId, int16u currency, int32u price, int8u priceTrailingDigit)
- boolean `emberAfPowerProfileClusterPowerProfileNotificationCallback` (int8u totalProfileNum, int8u powerProfileId, int8u numOfTransferredPhases, int8u \*transferredPhases)
- boolean `emberAfPowerProfileClusterPowerProfileRequestCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterPowerProfileResponseCallback` (int8u totalProfileNum, int8u powerProfileId, int8u numOfTransferredPhases, int8u \*transferredPhases)
- boolean `emberAfPowerProfileClusterPowerProfileScheduleConstraintsNotificationCallback` (int8u powerProfileId, int16u startAfter, int16u stopBefore)
- boolean `emberAfPowerProfileClusterPowerProfileScheduleConstraintsRequestCallback` (int8u powerProfileId)
- boolean `emberAfPowerProfileClusterPowerProfileScheduleConstraintsResponseCallback` (int8u powerProfileId, int16u startAfter, int16u stopBefore)
- boolean `emberAfPowerProfileClusterPowerProfileStateRequestCallback` (void)
- boolean `emberAfPowerProfileClusterPowerProfileStateResponseCallback` (int8u powerProfileCount, int8u \*powerProfileRecords)
- boolean `emberAfPowerProfileClusterPowerProfilesStateNotificationCallback` (int8u powerProfileCount, int8u \*powerProfileRecords)
- void `emberAfPowerProfileClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPowerProfileClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPowerProfileClusterServerInitCallback` (int8u endpoint)
- void `emberAfPowerProfileClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPowerProfileClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPowerProfileClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPowerProfileClusterServerTickCallback` (int8u endpoint)

## Appliance Control Cluster Callbacks

- void `emberAfApplianceControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfApplianceControlClusterExecutionOfACommandCallback` (int8u commandId)
- boolean `emberAfApplianceControlClusterOverloadPauseCallback` (void)

- boolean `emberAfApplianceControlClusterOverloadPauseResumeCallback` (void)
- boolean `emberAfApplianceControlClusterOverloadWarningCallback` (int8u warningEvent)
- void `emberAfApplianceControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceControlClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfApplianceControlClusterSignalStateCallback` (void)
- boolean `emberAfApplianceControlClusterSignalStateNotificationCallback` (int8u applianceStatus, int8u remoteEnableFlagsAndDeviceStatus2, int32u applianceStatus2)
- boolean `emberAfApplianceControlClusterSignalStateResponseCallback` (int8u applianceStatus, int8u remoteEnableFlagsAndDeviceStatus2, int32u applianceStatus2)
- boolean `emberAfApplianceControlClusterWriteFunctionsCallback` (int16u functionId, int8u functionDataType, int8u \*functionData)

## Poll Control Cluster Callbacks

- boolean `emberAfPollControlClusterCheckInCallback` (void)
- boolean `emberAfPollControlClusterCheckInResponseCallback` (int8u startFastPolling, int16u fastPollTimeout)
- void `emberAfPollControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPollControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPollControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfPollControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPollControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPollControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPollControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPollControlClusterFastPollStopCallback` (void)
- void `emberAfPollControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPollControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPollControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfPollControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPollControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfPollControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- `void emberAfPollControlClusterServerTickCallback` (int8u endpoint)
- `boolean emberAfPollControlClusterSetLongPollIntervalCallback` (int32u newLongPollInterval)
- `boolean emberAfPollControlClusterSetShortPollIntervalCallback` (int16u newShortPollInterval)

## Green Power Cluster Callbacks

- `void emberAfGreenPowerClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- `void emberAfGreenPowerClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- `void emberAfGreenPowerClusterClientInitCallback` (int8u endpoint)
- `void emberAfGreenPowerClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- `void emberAfGreenPowerClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfGreenPowerClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- `void emberAfGreenPowerClusterClientTickCallback` (int8u endpoint)
- `boolean emberAfGreenPowerClusterGpCommissioningNotificationCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int32u gpdSecurityFrameCounter, int8u gpdCommandId, int8u \*gpdCommandPayload, int16u gppShortAddress, int8u gppLink, int32u mic)
- `boolean emberAfGreenPowerClusterGpNotificationCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u gpdEndpoint, int32u gpdSecurityFrameCounter, int8u gpdCommandId, int8u \*gpdCommandPayload, int16u gppShortAddress, int8u gppDistance)
- `boolean emberAfGreenPowerClusterGpNotificationResponseCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int32u gpdSecurityFrameCounter)
- `boolean emberAfGreenPowerClusterGpPairingCallback` (int32u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u \*sinkIeeeAddress, int16u sinkNwkAddress, int16u sinkGroupId, int8u deviceId, int32u gpdSecurityFrameCounter, int8u \*gpdKey, int16u assignedAlias, int8u forwardingRadius)
- `boolean emberAfGreenPowerClusterGpPairingConfigurationCallback` (int8u actions, int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u deviceId, int8u groupListCount, int8u \*groupList, int16u gpdAssignedAlias, int8u forwardingRadius, int8u securityOptions, int32u gpdSecurityFrameCounter, int8u \*gpdSecurityKey, int8u numberOfPairedEndpoints, int8u \*pairedEndpoints, int8u applicationInformation, int16u manufacturerId, int16u modeId, int8u numberOfGpdCommands, int8u \*gpdCommandIdList, int8u clusterIdListCount, int8u \*clusterListServer, int8u \*clusterListClient)
- `boolean emberAfGreenPowerClusterGpPairingSearchCallback` (int16u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint)
- `boolean emberAfGreenPowerClusterGpProxyCommissioningModeCallback` (int8u options, int16u commissioningWindow, int8u channel)
- `boolean emberAfGreenPowerClusterGpProxyTableRequestCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u index)
- `boolean emberAfGreenPowerClusterGpProxyTableResponseCallback` (int8u status, int8u totalNumberOfNonEmptyProxyTableEntries, int8u startIndex, int8u entriesCount, int8u \*proxyTableEntries)
- `boolean emberAfGreenPowerClusterGpResponseCallback` (int8u options, int16u tempMasterShortAddress, int8u tempMasterTxChannel, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u gpdCommandId, int8u \*gpdCommandPayload)

- boolean `emberAfGreenPowerClusterGpSinkCommissioningModeCallback` (int8u options, int16u gpm-AddrForSecurity, int16u gpmAddrForPairing, int8u sinkEndpoint)
- boolean `emberAfGreenPowerClusterGpSinkTableRequestCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int8u index)
- boolean `emberAfGreenPowerClusterGpSinkTableResponseCallback` (int8u status, int8u totalNumberof-NonEmptySinkTableEntries, int8u startIndex, int8u sinkTableEntriesCount, int8u \*sinkTableEntries)
- boolean `emberAfGreenPowerClusterGpTranslationTableRequestCallback` (int8u startIndex)
- boolean `emberAfGreenPowerClusterGpTranslationTableUpdateCallback` (int16u options, int32u gpd-SrcId, int8u \*gpdIeee, int8u endpoint, int8u \*translations)
- boolean `emberAfGreenPowerClusterGpTunnelingStopCallback` (int8u options, int32u gpdSrcId, int8u \*gpdIeee, int8u endpoint, int32u gpdSecurityFrameCounter, int16u gppShortAddress, int8s gpp-Distance)
- void `emberAfGreenPowerClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-Id` attributeId)
- void `emberAfGreenPowerClusterServerDefaultResponseCallback` (int8u endpoint, int8u command-Id, `EmberAfStatus` status)
- void `emberAfGreenPowerClusterServerInitCallback` (int8u endpoint)
- void `emberAfGreenPowerClusterServerManufacturerSpecificAttributeChangedCallback` (int8u end-point, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGreenPowerClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `Ember-Status` status)
- `EmberAfStatus` `emberAfGreenPowerClusterServerPreAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGreenPowerClusterServerTickCallback` (int8u endpoint)

## Keep-Alive Cluster Callbacks

- void `emberAfKeepaliveClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-Id` attributeId)
- void `emberAfKeepaliveClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfKeepaliveClusterClientInitCallback` (int8u endpoint)
- void `emberAfKeepaliveClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfKeepaliveClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-tus)
- `EmberAfStatus` `emberAfKeepaliveClusterClientPreAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfKeepaliveClusterClientTickCallback` (int8u endpoint)
- void `emberAfKeepaliveClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttribute-Id` attributeId)
- void `emberAfKeepaliveClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfKeepaliveClusterServerInitCallback` (int8u endpoint)
- void `emberAfKeepaliveClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfKeepaliveClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-tus)

- `EmberAfStatus emberAfKeepaliveClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfKeepaliveClusterServerTickCallback (int8u endpoint)`

## Shade Configuration Cluster Callbacks

- `void emberAfShadeConfigClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfShadeConfigClusterClientDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfShadeConfigClusterClientInitCallback (int8u endpoint)`
- `void emberAfShadeConfigClusterClientManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfShadeConfigClusterClientMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfShadeConfigClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfShadeConfigClusterClientTickCallback (int8u endpoint)`
- `void emberAfShadeConfigClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfShadeConfigClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfShadeConfigClusterServerInitCallback (int8u endpoint)`
- `void emberAfShadeConfigClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfShadeConfigClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfShadeConfigClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfShadeConfigClusterServerTickCallback (int8u endpoint)`

## Door Lock Cluster Callbacks

- `boolean emberAfDoorLockClusterClearAllPinsCallback (void)`
- `boolean emberAfDoorLockClusterClearAllPinsResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearAllRfidCallback (void)`
- `boolean emberAfDoorLockClusterClearAllRfidResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearHolidayScheduleCallback (int8u scheduleId)`
- `boolean emberAfDoorLockClusterClearHolidayScheduleResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearPinCallback (int16u userId)`
- `boolean emberAfDoorLockClusterClearPinResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearRfidCallback (int16u userId)`
- `boolean emberAfDoorLockClusterClearRfidResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearWeekdayScheduleCallback (int8u scheduleId, int16u userId)`
- `boolean emberAfDoorLockClusterClearWeekdayScheduleResponseCallback (int8u status)`
- `boolean emberAfDoorLockClusterClearYearDayScheduleCallback (int8u scheduleId, int16u userId)`
- `boolean emberAfDoorLockClusterClearYearDayScheduleResponseCallback (int8u status)`

- void `emberAfDoorLockClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDoorLockClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDoorLockClusterClientInitCallback` (int8u endpoint)
- void `emberAfDoorLockClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDoorLockClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfDoorLockClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDoorLockClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDoorLockClusterGetHolidayScheduleCallback` (int8u scheduleId)
- boolean `emberAfDoorLockClusterGetHolidayScheduleResponseCallback` (int8u scheduleId, int8u status, int32u localStartTime, int32u localEndTime, int8u operatingModeDuringHoliday)
- boolean `emberAfDoorLockClusterGetLogRecordCallback` (int16u logIndex)
- boolean `emberAfDoorLockClusterGetLogRecordResponseCallback` (int16u logEntryId, int32u timestamp, int8u eventType, int8u source, int8u eventIdOrAlarmCode, int16u userId, int8u \*pin)
- boolean `emberAfDoorLockClusterGetPinCallback` (int16u userId)
- boolean `emberAfDoorLockClusterGetPinResponseCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*pin)
- boolean `emberAfDoorLockClusterGetRfidCallback` (int16u userId)
- boolean `emberAfDoorLockClusterGetRfidResponseCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*rfid)
- boolean `emberAfDoorLockCluster GetUserStatusCallback` (int16u userId)
- boolean `emberAfDoorLockCluster GetUserStatusResponseCallback` (int16u userId, int8u status)
- boolean `emberAfDoorLockCluster GetUserTypeCallback` (int16u userId)
- boolean `emberAfDoorLockCluster GetUserTypeResponseCallback` (int16u userId, int8u userType)
- boolean `emberAfDoorLockClusterGetWeekdayScheduleCallback` (int8u scheduleId, int16u userId)
- boolean `emberAfDoorLockClusterGetWeekdayScheduleResponseCallback` (int8u scheduleId, int16u userId, int8u status, int8u daysMask, int8u startHour, int8u startMinute, int8u endHour, int8u endMinute)
- boolean `emberAfDoorLockClusterGetYearDayScheduleCallback` (int8u scheduleId, int16u userId)
- boolean `emberAfDoorLockClusterGetYearDayScheduleResponseCallback` (int8u scheduleId, int16u userId, int8u status, int32u localStartTime, int32u localEndTime)
- boolean `emberAfDoorLockClusterLockDoorCallback` (int8u \*PIN)
- boolean `emberAfDoorLockClusterLockDoorResponseCallback` (int8u status)
- boolean `emberAfDoorLockClusterOperationEventNotificationCallback` (int8u source, int8u eventCode, int16u userId, int8u \*pin, int32u timeStamp, int8u \*data)
- boolean `emberAfDoorLockClusterProgrammingEventNotificationCallback` (int8u source, int8u eventCode, int16u userId, int8u \*pin, int8u userType, int8u userStatus, int32u timeStamp, int8u \*data)
- void `emberAfDoorLockClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDoorLockClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDoorLockClusterServerInitCallback` (int8u endpoint)
- void `emberAfDoorLockClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDoorLockClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfDoorLockClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- `void emberAfDoorLockClusterServerTickCallback` (int8u endpoint)
- `boolean emberAfDoorLockClusterSetHolidayScheduleCallback` (int8u scheduleId, int32u localStartTime, int32u localEndTime, int8u operatingModeDuringHoliday)
- `boolean emberAfDoorLockClusterSetHolidayScheduleResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterSetPinCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*pin)
- `boolean emberAfDoorLockClusterSetPinResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterSetRfidCallback` (int16u userId, int8u userStatus, int8u userType, int8u \*id)
- `boolean emberAfDoorLockClusterSetRfidResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterSetUserStatusCallback` (int16u userId, int8u userStatus)
- `boolean emberAfDoorLockClusterSetUserStatusResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterSetUserTypeCallback` (int16u userId, int8u userType)
- `boolean emberAfDoorLockClusterSetUserTypeResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterSetWeekdayScheduleCallback` (int8u scheduleId, int16u userId, int8u daysMask, int8u startHour, int8u startMinute, int8u endHour, int8u endMinute)
- `boolean emberAfDoorLockClusterSetWeekdayScheduleResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterSetYeardayScheduleCallback` (int8u scheduleId, int16u userId, int32u localStartTime, int32u localEndTime)
- `boolean emberAfDoorLockClusterSetYeardayScheduleResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterToggleCallback` (int8u \*pin)
- `boolean emberAfDoorLockClusterToggleResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterUnlockDoorCallback` (int8u \*PIN)
- `boolean emberAfDoorLockClusterUnlockDoorResponseCallback` (int8u status)
- `boolean emberAfDoorLockClusterUnlockWithTimeoutCallback` (int16u timeoutInSeconds, int8u \*pin)
- `boolean emberAfDoorLockClusterUnlockWithTimeoutResponseCallback` (int8u status)

## Window Covering Cluster Callbacks

- `void emberAfWindowCoveringClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- `void emberAfWindowCoveringClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- `void emberAfWindowCoveringClusterClientInitCallback` (int8u endpoint)
- `void emberAfWindowCoveringClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- `void emberAfWindowCoveringClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfWindowCoveringClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- `void emberAfWindowCoveringClusterClientTickCallback` (int8u endpoint)
- `void emberAfWindowCoveringClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- `void emberAfWindowCoveringClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- `void emberAfWindowCoveringClusterServerInitCallback` (int8u endpoint)
- `void emberAfWindowCoveringClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfWindowCoveringClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfWindowCoveringClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfWindowCoveringClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfWindowCoveringClusterWindowCoveringDownCloseCallback` (void)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToLiftPercentageCallback` (int8u percentage-LiftValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToLiftValueCallback` (int16u liftValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToTiltPercentageCallback` (int8u percentage-TiltValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringGoToTiltValueCallback` (int16u tiltValue)
- boolean `emberAfWindowCoveringClusterWindowCoveringStopCallback` (void)
- boolean `emberAfWindowCoveringClusterWindowCoveringUpOpenCallback` (void)

## Pump Configuration and Control Cluster Callbacks

- void `emberAfPumpConfigControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPumpConfigControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u command-Id, `EmberAfStatus` status)
- void `emberAfPumpConfigControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfPumpConfigControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPumpConfigControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPumpConfigControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPumpConfigControlClusterClientTickCallback` (int8u endpoint)
- void `emberAfPumpConfigControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPumpConfigControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u command-Id, `EmberAfStatus` status)
- void `emberAfPumpConfigControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfPumpConfigControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPumpConfigControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPumpConfigControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPumpConfigControlClusterServerTickCallback` (int8u endpoint)

## Thermostat Cluster Callbacks

- boolean `emberAfThermostatClusterClearWeeklyScheduleCallback` (void)
- void `emberAfThermostatClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfThermostatClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatClusterClientInitCallback` (int8u endpoint)
- void `emberAfThermostatClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfThermostatClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfThermostatClusterCurrentWeeklyScheduleCallback` (int8u numberOfTransitionsForSequence, int8u dayOfWeekForSequence, int8u modeForSequence, int8u \*payload)
- boolean `emberAfThermostatClusterGetRelayStatusLogCallback` (void)
- boolean `emberAfThermostatClusterGetWeeklyScheduleCallback` (int8u daysToReturn, int8u modeToReturn)
- boolean `emberAfThermostatClusterRelayStatusLogCallback` (int16u timeOfDay, int16u relayStatus, int16s localTemperature, int8u humidityInPercentage, int16s setpoint, int16u unreadEntries)
- void `emberAfThermostatClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatClusterServerInitCallback` (int8u endpoint)
- void `emberAfThermostatClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfThermostatClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfThermostatClusterSetWeeklyScheduleCallback` (int8u numberOfTransitionsForSequence, int8u dayOfWeekForSequence, int8u modeForSequence, int8u \*payload)
- boolean `emberAfThermostatClusterSetpointRaiseLowerCallback` (int8u mode, int8s amount)

## Fan Control Cluster Callbacks

- void `emberAfFanControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFanControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFanControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfFanControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFanControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFanControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFanControlClusterClientTickCallback` (int8u endpoint)

- void `emberAfFanControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFanControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFanControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfFanControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFanControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFanControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFanControlClusterServerTickCallback` (int8u endpoint)

## Dehumidification Control Cluster Callbacks

- void `emberAfDehumidControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDehumidControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDehumidControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfDehumidControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDehumidControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDehumidControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDehumidControlClusterClientTickCallback` (int8u endpoint)
- void `emberAfDehumidControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDehumidControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDehumidControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfDehumidControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDehumidControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDehumidControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDehumidControlClusterServerTickCallback` (int8u endpoint)

## Thermostat User Interface Configuration Cluster Callbacks

- void `emberAfThermostatUiConfigClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatUiConfigClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatUiConfigClusterClientInitCallback` (int8u endpoint)

- void `emberAfThermostatUiConfigClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatUiConfigClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfThermostatUiConfigClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatUiConfigClusterClientTickCallback` (int8u endpoint)
- void `emberAfThermostatUiConfigClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfThermostatUiConfigClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfThermostatUiConfigClusterServerInitCallback` (int8u endpoint)
- void `emberAfThermostatUiConfigClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfThermostatUiConfigClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfThermostatUiConfigClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfThermostatUiConfigClusterServerTickCallback` (int8u endpoint)

## Color Control Cluster Callbacks

- void `emberAfColorControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfColorControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfColorControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfColorControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfColorControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfColorControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfColorControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfColorControlClusterColorLoopSetCallback` (int8u updateFlags, int8u action, int8u direction, int16u time, int16u startHue)
- boolean `emberAfColorControlClusterEnhancedMoveHueCallback` (int8u moveMode, int16u rate)
- boolean `emberAfColorControlClusterEnhancedMoveToHueAndSaturationCallback` (int16u enhancedHue, int8u saturation, int16u transitionTime)
- boolean `emberAfColorControlClusterEnhancedMoveToHueCallback` (int16u enhancedHue, int8u direction, int16u transitionTime)
- boolean `emberAfColorControlClusterEnhancedStepHueCallback` (int8u stepMode, int16u stepSize, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveColorCallback` (int16s rateX, int16s rateY)
- boolean `emberAfColorControlClusterMoveColorTemperatureCallback` (int8u moveMode, int16u rate, int16u colorTemperatureMinimum, int16u colorTemperatureMaximum)
- boolean `emberAfColorControlClusterMoveHueCallback` (int8u moveMode, int8u rate)
- boolean `emberAfColorControlClusterMoveSaturationCallback` (int8u moveMode, int8u rate)

- boolean `emberAfColorControlClusterMoveToColorCallback` (int16u colorX, int16u colorY, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToColorTemperatureCallback` (int16u colorTemperature, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToHueAndSaturationCallback` (int8u hue, int8u saturation, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToHueCallback` (int8u hue, int8u direction, int16u transitionTime)
- boolean `emberAfColorControlClusterMoveToSaturationCallback` (int8u saturation, int16u transitionTime)
- void `emberAfColorControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfColorControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfColorControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfColorControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfColorControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfColorControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfColorControlClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfColorControlClusterStepColorCallback` (int16s stepX, int16s stepY, int16u transitionTime)
- boolean `emberAfColorControlClusterStepColorTemperatureCallback` (int8u stepMode, int16u stepSize, int16u transitionTime, int16u colorTemperatureMinimum, int16u colorTemperatureMaximum)
- boolean `emberAfColorControlClusterStepHueCallback` (int8u stepMode, int8u stepSize, int8u transitionTime)
- boolean `emberAfColorControlClusterStepSaturationCallback` (int8u stepMode, int8u stepSize, int8u transitionTime)
- boolean `emberAfColorControlClusterStopMoveStepCallback` (void)

## Ballast Configuration Cluster Callbacks

- void `emberAfBallastConfigurationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBallastConfigurationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBallastConfigurationClusterClientInitCallback` (int8u endpoint)
- void `emberAfBallastConfigurationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBallastConfigurationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBallastConfigurationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBallastConfigurationClusterClientTickCallback` (int8u endpoint)
- void `emberAfBallastConfigurationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfBallastConfigurationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBallastConfigurationClusterServerInitCallback` (int8u endpoint)
- void `emberAfBallastConfigurationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBallastConfigurationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBallastConfigurationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBallastConfigurationClusterServerTickCallback` (int8u endpoint)

## Illuminance Measurement Cluster Callbacks

- void `emberAfIllumMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIllumMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIllumMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfIllumMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIllumMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIllumMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIllumMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfIllumMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIllumMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIllumMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfIllumMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIllumMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIllumMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIllumMeasurementClusterServerTickCallback` (int8u endpoint)

## Illuminance Level Sensing Cluster Callbacks

- void `emberAfIllumLevelSensingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIllumLevelSensingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIllumLevelSensingClusterClientInitCallback` (int8u endpoint)
- void `emberAfIllumLevelSensingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfIllumLevelSensingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfIllumLevelSensingClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` `size`, `int8u` \*`value`)
- void `emberAfIllumLevelSensingClusterClientTickCallback` (`int8u` endpoint)
- void `emberAfIllumLevelSensingClusterServerAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`)
- void `emberAfIllumLevelSensingClusterServerDefaultResponseCallback` (`int8u` endpoint, `int8u` command-`Id`, `EmberAfStatus` `status`)
- void `emberAfIllumLevelSensingClusterServerInitCallback` (`int8u` endpoint)
- void `emberAfIllumLevelSensingClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `int16u` manufacturerCode)
- void `emberAfIllumLevelSensingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfIllumLevelSensingClusterServerPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` `size`, `int8u` \*`value`)
- void `emberAfIllumLevelSensingClusterServerTickCallback` (`int8u` endpoint)

## Temperature Measurement Cluster Callbacks

- void `emberAfTempMeasurementClusterClientAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`)
- void `emberAfTempMeasurementClusterClientDefaultResponseCallback` (`int8u` endpoint, `int8u` command-`Id`, `EmberAfStatus` `status`)
- void `emberAfTempMeasurementClusterClientInitCallback` (`int8u` endpoint)
- void `emberAfTempMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `int16u` manufacturerCode)
- void `emberAfTempMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfTempMeasurementClusterClientPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` `size`, `int8u` \*`value`)
- void `emberAfTempMeasurementClusterClientTickCallback` (`int8u` endpoint)
- void `emberAfTempMeasurementClusterServerAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`)
- void `emberAfTempMeasurementClusterServerDefaultResponseCallback` (`int8u` endpoint, `int8u` command-`Id`, `EmberAfStatus` `status`)
- void `emberAfTempMeasurementClusterServerInitCallback` (`int8u` endpoint)
- void `emberAfTempMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `int16u` manufacturerCode)
- void `emberAfTempMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, `int16u` indexOrDestination, `EmberApsFrame` \*`apsFrame`, `int16u` `msgLen`, `int8u` \*`message`, `EmberStatus` `status`)
- `EmberAfStatus` `emberAfTempMeasurementClusterServerPreAttributeChangedCallback` (`int8u` endpoint, `EmberAfAttributeId` `attributeId`, `EmberAfAttributeType` `attributeType`, `int8u` `size`, `int8u` \*`value`)
- void `emberAfTempMeasurementClusterServerTickCallback` (`int8u` endpoint)

## Pressure Measurement Cluster Callbacks

- void `emberAfPressureMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPressureMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPressureMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfPressureMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPressureMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPressureMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPressureMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfPressureMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPressureMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPressureMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfPressureMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPressureMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPressureMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPressureMeasurementClusterServerTickCallback` (int8u endpoint)

## Flow Measurement Cluster Callbacks

- void `emberAfFlowMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFlowMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFlowMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfFlowMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfFlowMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfFlowMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFlowMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfFlowMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfFlowMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfFlowMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfFlowMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfFlowMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfFlowMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfFlowMeasurementClusterServerTickCallback` (int8u endpoint)

## Relative Humidity Measurement Cluster Callbacks

- void `emberAfRelativeHumidityMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRelativeHumidityMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRelativeHumidityMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfRelativeHumidityMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRelativeHumidityMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfRelativeHumidityMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRelativeHumidityMeasurementClusterClientTickCallback` (int8u endpoint)
- void `emberAfRelativeHumidityMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfRelativeHumidityMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfRelativeHumidityMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfRelativeHumidityMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfRelativeHumidityMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfRelativeHumidityMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfRelativeHumidityMeasurementClusterServerTickCallback` (int8u endpoint)

## Occupancy Sensing Cluster Callbacks

- void `emberAfOccupancySensingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfOccupancySensingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfOccupancySensingClusterClientInitCallback` (int8u endpoint)
- void `emberAfOccupancySensingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfOccupancySensingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfOccupancySensingClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfOccupancySensingClusterClientTickCallback (int8u endpoint)`
- `void emberAfOccupancySensingClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfOccupancySensingClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfOccupancySensingClusterServerInitCallback (int8u endpoint)`
- `void emberAfOccupancySensingClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfOccupancySensingClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfOccupancySensingClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfOccupancySensingClusterServerTickCallback (int8u endpoint)`

## IAS Zone Cluster Callbacks

- `void emberAfIasZoneClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfIasZoneClusterClientDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfIasZoneClusterClientInitCallback (int8u endpoint)`
- `void emberAfIasZoneClusterClientManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfIasZoneClusterClientMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfIasZoneClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfIasZoneClusterClientTickCallback (int8u endpoint)`
- `boolean emberAfIasZoneClusterInitiateNormalOperationModeCallback (void)`
- `boolean emberAfIasZoneClusterInitiateNormalOperationModeResponseCallback (void)`
- `boolean emberAfIasZoneClusterInitiateTestModeCallback (int8u testModeDuration, int8u currentZoneSensitivityLevel)`
- `boolean emberAfIasZoneClusterInitiateTestModeResponseCallback (void)`
- `void emberAfIasZoneClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfIasZoneClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfIasZoneClusterServerInitCallback (int8u endpoint)`
- `void emberAfIasZoneClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfIasZoneClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfIasZoneClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfIasZoneClusterServerTickCallback (int8u endpoint)`

- boolean `emberAfIasZoneClusterZoneEnrollRequestCallback` (int16u zoneType, int16u manufacturerCode)
- boolean `emberAfIasZoneClusterZoneEnrollResponseCallback` (int8u enrollResponseCode, int8u zoneId)
- boolean `emberAfIasZoneClusterZoneStatusChangeNotificationCallback` (int16u zoneStatus, int8u extendedStatus, int8u zoneId, int16u delay)

## IAS ACE Cluster Callbacks

- boolean `emberAfIasAceClusterArmCallback` (int8u armMode, int8u \*armDisarmCode, int8u zoneId)
- boolean `emberAfIasAceClusterArmResponseCallback` (int8u armNotification)
- boolean `emberAfIasAceClusterBypassCallback` (int8u numberOfZones, int8u \*zoneIds, int8u \*armDisarmCode)
- boolean `emberAfIasAceClusterBypassResponseCallback` (int8u numberOfZones, int8u \*bypassResult)
- void `emberAfIasAceClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasAceClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasAceClusterClientInitCallback` (int8u endpoint)
- void `emberAfIasAceClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasAceClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasAceClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasAceClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfIasAceClusterEmergencyCallback` (void)
- boolean `emberAfIasAceClusterFireCallback` (void)
- boolean `emberAfIasAceClusterGetBypassedZoneListCallback` (void)
- boolean `emberAfIasAceClusterGetPanelStatusCallback` (void)
- boolean `emberAfIasAceClusterGetPanelStatusResponseCallback` (int8u panelStatus, int8u secondsRemaining, int8u audibleNotification, int8u alarmStatus)
- boolean `emberAfIasAceClusterGetZoneIdMapCallback` (void)
- boolean `emberAfIasAceClusterGetZoneIdMapResponseCallback` (int16u section0, int16u section1, int16u section2, int16u section3, int16u section4, int16u section5, int16u section6, int16u section7, int16u section8, int16u section9, int16u section10, int16u section11, int16u section12, int16u section13, int16u section14, int16u section15)
- boolean `emberAfIasAceClusterGetZoneInformationCallback` (int8u zoneId)
- boolean `emberAfIasAceClusterGetZoneInformationResponseCallback` (int8u zoneId, int16u zoneType, int8u \*ieeeAddress, int8u \*zoneLabel)
- boolean `emberAfIasAceClusterGetZoneStatusCallback` (int8u startingZoneId, int8u maxNumberOfZoneIds, int8u zoneStatusMaskFlag, int16u zoneStatusMask)
- boolean `emberAfIasAceClusterGetZoneStatusResponseCallback` (int8u zoneStatusComplete, int8u numberOfZones, int8u \*zoneStatusResult)
- boolean `emberAfIasAceClusterPanelStatusChangedCallback` (int8u panelStatus, int8u secondsRemaining, int8u audibleNotification, int8u alarmStatus)
- boolean `emberAfIasAceClusterPanicCallback` (void)
- void `emberAfIasAceClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)

- void `emberAfIasAceClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasAceClusterServerInitCallback` (int8u endpoint)
- void `emberAfIasAceClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasAceClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasAceClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasAceClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIasAceClusterSetBypassedZoneListCallback` (int8u numberOfZones, int8u \*zoneIds)
- boolean `emberAfIasAceClusterZoneStatusChangedCallback` (int8u zoneId, int16u zoneStatus, int8u audibleNotification, int8u \*zoneLabel)

## IAS WD Cluster Callbacks

- void `emberAfIasWdClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasWdClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasWdClusterClientInitCallback` (int8u endpoint)
- void `emberAfIasWdClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasWdClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasWdClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasWdClusterClientTickCallback` (int8u endpoint)
- void `emberAfIasWdClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIasWdClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIasWdClusterServerInitCallback` (int8u endpoint)
- void `emberAfIasWdClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIasWdClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfIasWdClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIasWdClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIasWdClusterSquawkCallback` (int8u squawkInfo)
- boolean `emberAfIasWdClusterStartWarningCallback` (int8u warningInfo, int16u warningDuration, int8u strobeDutyCycle, int8u strobeLevel)

## Generic Tunnel Cluster Callbacks

- boolean `emberAfGenericTunnelClusterAdvertiseProtocolAddressCallback` (int8u \*protocolAddress)
- void `emberAfGenericTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGenericTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGenericTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAfGenericTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGenericTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGenericTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGenericTunnelClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGenericTunnelClusterMatchProtocolAddressCallback` (int8u \*protocolAddress)
- boolean `emberAfGenericTunnelClusterMatchProtocolAddressResponseCallback` (int8u \*deviceIeeeAddress, int8u \*protocolAddress)
- void `emberAfGenericTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGenericTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGenericTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAfGenericTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGenericTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfGenericTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGenericTunnelClusterServerTickCallback` (int8u endpoint)

## BACnet Protocol Tunnel Cluster Callbacks

- void `emberAfBacnetProtocolTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBacnetProtocolTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfBacnetProtocolTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAfBacnetProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBacnetProtocolTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBacnetProtocolTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBacnetProtocolTunnelClusterClientTickCallback` (int8u endpoint)
- void `emberAfBacnetProtocolTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfBacnetProtocolTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfBacnetProtocolTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAfBacnetProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfBacnetProtocolTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfBacnetProtocolTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfBacnetProtocolTunnelClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfBacnetProtocolTunnelClusterTransferNpduCallback` (int8u \*npdu)

## 11073 Protocol Tunnel Cluster Callbacks

- void `emberAf11073ProtocolTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAf11073ProtocolTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAf11073ProtocolTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAf11073ProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAf11073ProtocolTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAf11073ProtocolTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAf11073ProtocolTunnelClusterClientTickCallback` (int8u endpoint)
- boolean `emberAf11073ProtocolTunnelClusterConnectRequestCallback` (int8u connectControl, int16u idleTimeout, int8u \*managerTarget, int8u managerEndpoint)
- boolean `emberAf11073ProtocolTunnelClusterConnectStatusNotificationCallback` (int8u connectStatus)
- boolean `emberAf11073ProtocolTunnelClusterDisconnectRequestCallback` (int8u \*managerIEEEAddress)
- void `emberAf11073ProtocolTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAf11073ProtocolTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAf11073ProtocolTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAf11073ProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAf11073ProtocolTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAf11073ProtocolTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAf11073ProtocolTunnelClusterServerTickCallback` (int8u endpoint)
- boolean `emberAf11073ProtocolTunnelClusterTransferAPDUCallback` (int8u \*apdu)

## ISO 7816 Protocol Tunnel Cluster Callbacks

- void `emberAfIso7816ProtocolTunnelClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIso7816ProtocolTunnelClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfIso7816ProtocolTunnelClusterClientInitCallback` (int8u endpoint)
- void `emberAfIso7816ProtocolTunnelClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIso7816ProtocolTunnelClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfIso7816ProtocolTunnelClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIso7816ProtocolTunnelClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfIso7816ProtocolTunnelClusterExtractSmartCardCallback` (void)
- boolean `emberAfIso7816ProtocolTunnelClusterInsertSmartCardCallback` (void)
- void `emberAfIso7816ProtocolTunnelClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfIso7816ProtocolTunnelClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfIso7816ProtocolTunnelClusterServerInitCallback` (int8u endpoint)
- void `emberAfIso7816ProtocolTunnelClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfIso7816ProtocolTunnelClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfIso7816ProtocolTunnelClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfIso7816ProtocolTunnelClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfIso7816ProtocolTunnelClusterTransferApduCallback` (int8u \*apdu)

## Price Cluster Callbacks

- boolean `emberAfPriceClusterCancelTariffCallback` (int32u providerId, int32u issuerTariffId, int8u tariffType)
- void `emberAfPriceClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPriceClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPriceClusterClientInitCallback` (int8u endpoint)
- void `emberAfPriceClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPriceClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPriceClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPriceClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPriceClusterCppEventResponseCallback` (int32u issuerEventId, int8u cppAuth)
- boolean `emberAfPriceClusterGetBillingPeriodCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetBlockPeriodsCallback` (int32u startTime, int8u numberOfEvents, int8u tariffType)
- boolean `emberAfPriceClusterGetBlockThresholdsCallback` (int32u issuerTariffId)
- boolean `emberAfPriceClusterGetCO2ValueCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)

- boolean `emberAfPriceClusterGetCalorificValueCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands)
- boolean `emberAfPriceClusterGetConsolidatedBillCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetConversionFactorCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands)
- boolean `emberAfPriceClusterGetCreditPaymentCallback` (int32u latestEndTime, int8u numberOfRecords)
- boolean `emberAfPriceClusterGetCurrencyConversionCommandCallback` (void)
- boolean `emberAfPriceClusterGetCurrentPriceCallback` (int8u commandOptions)
- boolean `emberAfPriceClusterGetPriceMatrixCallback` (int32u issuerTariffId)
- boolean `emberAfPriceClusterGetScheduledPricesCallback` (int32u startTime, int8u numberOfEvents)
- boolean `emberAfPriceClusterGetTariffCancellationCallback` (void)
- boolean `emberAfPriceClusterGetTariffInformationCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberOfCommands, int8u tariffType)
- boolean `emberAfPriceClusterGetTierLabelsCallback` (int32u issuerTariffId)
- boolean `emberAfPriceClusterPriceAcknowledgementCallback` (int32u providerId, int32u issuerEventId, int32u priceAckTime, int8u control)
- boolean `emberAfPriceClusterPublishBillingPeriodCallback` (int32u providerId, int32u issuerEventId, int32u billingPeriodStartTime, int32u billingPeriodDuration, int8u billingPeriodDurationType, int8u tariffType)
- boolean `emberAfPriceClusterPublishBlockPeriodCallback` (int32u providerId, int32u issuerEventId, int32u blockPeriodStartTime, int32u blockPeriodDuration, int8u blockPeriodControl, int8u blockPeriodDurationType, int8u tariffType, int8u tariffResolutionPeriod)
- boolean `emberAfPriceClusterPublishBlockThresholdsCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int32u issuerTariffId, int8u commandIndex, int8u numberOfCommands, int8u subPayloadControl, int8u \*payload)
- boolean `emberAfPriceClusterPublishCO2ValueCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int8u tariffType, int32u cO2Value, int8u cO2ValueUnit, int8u cO2ValueTrailingDigit)
- boolean `emberAfPriceClusterPublishCalorificValueCallback` (int32u issuerEventId, int32u startTime, int32u calorificValue, int8u calorificValueUnit, int8u calorificValueTrailingDigit)
- boolean `emberAfPriceClusterPublishConsolidatedBillCallback` (int32u providerId, int32u issuerEventId, int32u billingPeriodStartTime, int32u billingPeriodDuration, int8u billingPeriodDurationType, int8u tariffType, int32u consolidatedBill, int16u currency, int8u billTrailingDigit)
- boolean `emberAfPriceClusterPublishConversionFactorCallback` (int32u issuerEventId, int32u startTime, int32u conversionFactor, int8u conversionFactorTrailingDigit)
- boolean `emberAfPriceClusterPublishCppEventCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int16u durationInMinutes, int8u tariffType, int8u cppPriceTier, int8u cppAuth)
- boolean `emberAfPriceClusterPublishCreditPaymentCallback` (int32u providerId, int32u issuerEventId, int32u creditPaymentDueDate, int32u creditPaymentOverDueAmount, int8u creditPaymentStatus, int32u creditPayment, int32u creditPaymentDate, int8u \*creditPaymentRef)
- boolean `emberAfPriceClusterPublishCurrencyConversionCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int16u oldCurrency, int16u newCurrency, int32u conversionFactor, int8u conversionFactorTrailingDigit, int32u currencyChangeControlFlags)
- boolean `emberAfPriceClusterPublishPriceCallback` (int32u providerId, int8u \*rateLabel, int32u issuerEventId, int32u currentTime, int8u unitOfMeasure, int16u currency, int8u priceTrailingDigitAndPriceTier, int8u numberOfPriceTiersAndRegisterTier, int32u startTime, int16u durationInMinutes, int32u price, int8u priceRatio, int32u generationPrice, int8u generationPriceRatio, int32u alternateCostDelivered, int8u alternateCostUnit, int8u alternateCostTrailingDigit, int8u numberOfBlockThresholds, int8u priceControl, int8u numberOfGenerationTiers, int8u generationTier, int8u extendedNumberOfPriceTiers, int8u extendedPriceTier, int8u extendedRegisterTier)

- boolean `emberAfPriceClusterPublishPriceMatrixCallback` (int32u providerId, int32u issuerEventId, int32u startTime, int32u issuerTariffId, int8u commandIndex, int8u numberOfCommands, int8u sub-PayloadControl, int8u \*payload)
- boolean `emberAfPriceClusterPublishTariffInformationCallback` (int32u providerId, int32u issuer-EventId, int32u issuerTariffId, int32u startTime, int8u tariffTypeChargingScheme, int8u \*tariffLabel, int8u numberOfPriceTiersInUse, int8u numberOfBlockThresholdsInUse, int8u unitOfMeasure, int16u currency, int8u priceTrailingDigit, int32u standingCharge, int8u tierBlockMode, int32u blockThreshold-Multiplier, int32u blockThresholdDivisor)
- boolean `emberAfPriceClusterPublishTierLabelsCallback` (int32u providerId, int32u issuerEventId, int32u issuerTariffId, int8u commandIndex, int8u numberOfCommands, int8u numberofLabels, int8u \*tierLabelsPayload)
- void `emberAfPriceClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attribute-Id)
- void `emberAfPriceClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `Ember-AfStatus` status)
- void `emberAfPriceClusterServerInitCallback` (int8u endpoint)
- void `emberAfPriceClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPriceClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` sta-tus)
- `EmberAfStatus` `emberAfPriceClusterServerPreAttributeChangedCallback` (int8u endpoint, `Ember-AfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPriceClusterServerTickCallback` (int8u endpoint)

## Demand Response and Load Control Cluster Callbacks

- boolean `emberAfDemandResponseLoadControlClusterCancelAllLoadControlEventsCallback` (int8u cancelControl)
- boolean `emberAfDemandResponseLoadControlClusterCancelLoadControlEventCallback` (int32u issuer-EventId, int16u deviceClass, int8u utilityEnrollmentGroup, int8u cancelControl, int32u effective-Time)
- void `emberAfDemandResponseLoadControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDemandResponseLoadControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDemandResponseLoadControlClusterClientInitCallback` (int8u endpoint)
- void `emberAfDemandResponseLoadControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDemandResponseLoadControlClusterClientMessageSentCallback` (`EmberOutgoingMessage-Type` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDemandResponseLoadControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDemandResponseLoadControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDemandResponseLoadControlClusterGetScheduledEventsCallback` (int32u start-Time, int8u numberofEvents, int32u issuerEventId)
- boolean `emberAfDemandResponseLoadControlClusterLoadControlEventCallback` (int32u issuerEvent-Id, int16u deviceClass, int8u utilityEnrollmentGroup, int32u startTime, int16u durationInMinutes, int8u criticalityLevel, int8u coolingTemperatureOffset, int8u heatingTemperatureOffset, int16s cooling-TemperatureSetPoint, int16s heatingTemperatureSetPoint, int8s averageLoadAdjustmentPercentage, int8u dutyCycle, int8u eventControl)

- boolean `emberAfDemandResponseLoadControlClusterReportEventStatusCallback` (int32u issuerEventId, int8u eventStatus, int32u eventStatusTime, int8u criticalityLevelApplied, int16u coolingTemperatureSetPointApplied, int16u heatingTemperatureSetPointApplied, int8s averageLoadAdjustmentPercentageApplied, int8u dutyCycleApplied, int8u eventControl, int8u signatureType, int8u \*signature)
- void `emberAfDemandResponseLoadControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDemandResponseLoadControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDemandResponseLoadControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfDemandResponseLoadControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDemandResponseLoadControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDemandResponseLoadControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDemandResponseLoadControlClusterServerTickCallback` (int8u endpoint)

## Simple Metering Cluster Callbacks

- boolean `emberAfSimpleMeteringClusterChangeSupplyCallback` (int32u providerId, int32u issuerEventId, int32u requestDateTime, int32u implementationDateTime, int8u proposedSupplyStatus, int8u supplyControlBits)
- void `emberAfSimpleMeteringClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSimpleMeteringClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSimpleMeteringClusterClientInitCallback` (int8u endpoint)
- void `emberAfSimpleMeteringClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSimpleMeteringClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfSimpleMeteringClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSimpleMeteringClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfSimpleMeteringClusterConfigureMirrorCallback` (int32u issuerEventId, int32u reportingInterval, int8u mirrorNotificationReporting, int8u notificationScheme)
- boolean `emberAfSimpleMeteringClusterConfigureNotificationFlagsCallback` (int32u issuerEventId, int8u notificationScheme, int16u notificationFlagAttributeId, int16u clusterId, int16u manufacturerCode, int8u numberOfCommands, int8u \*commandIds)
- boolean `emberAfSimpleMeteringClusterConfigureNotificationSchemeCallback` (int32u issuerEventId, int8u notificationScheme, int32u notificationFlagOrder)
- boolean `emberAfSimpleMeteringClusterGetNotifiedMessageCallback` (int8u notificationScheme, int16u notificationFlagAttributeId, int32u notificationFlagsN)
- boolean `emberAfSimpleMeteringClusterGetProfileCallback` (int8u intervalChannel, int32u endTime, int8u numberOfPeriods)
- boolean `emberAfSimpleMeteringClusterGetProfileResponseCallback` (int32u endTime, int8u status, int8u profileIntervalPeriod, int8u numberOfPeriodsDelivered, int8u \*intervals)
- boolean `emberAfSimpleMeteringClusterGetSampledDataCallback` (int16u sampleId, int32u earliestSampleTime, int8u sampleType, int16u numberOfSamples)

- boolean `emberAfSimpleMeteringClusterGetSampledDataResponseCallback` (int16u sampleId, int32u sampleStartTime, int8u sampleType, int16u sampleRequestInterval, int16u numberOfWorkSamples, int8u \*samples)
- boolean `emberAfSimpleMeteringClusterGetSnapshotCallback` (int32u earliestStartTime, int32u latestEndTime, int8u snapshotOffset, int32u snapshotCause)
- boolean `emberAfSimpleMeteringClusterLocalChangeSupplyCallback` (int8u proposedSupplyStatus)
- boolean `emberAfSimpleMeteringClusterMirrorRemovedCallback` (int16u endpointId)
- boolean `emberAfSimpleMeteringClusterMirrorReportAttributeResponseCallback` (int8u notificationScheme, int8u \*notificationFlags)
- boolean `emberAfSimpleMeteringClusterPublishSnapshotCallback` (int32u snapshotId, int32u snapshotTime, int8u totalSnapshotsFound, int8u commandIndex, int8u totalCommands, int32u snapshotCause, int8u snapshotPayloadType, int8u \*snapshotPayload)
- boolean `emberAfSimpleMeteringClusterRemoveMirrorCallback` (void)
- boolean `emberAfSimpleMeteringClusterRequestFastPollModeCallback` (int8u fastPollUpdatePeriod, int8u duration)
- boolean `emberAfSimpleMeteringClusterRequestFastPollModeResponseCallback` (int8u appliedUpdatePeriod, int32u fastPollModeEndtime)
- boolean `emberAfSimpleMeteringClusterRequestMirrorCallback` (void)
- boolean `emberAfSimpleMeteringClusterRequestMirrorResponseCallback` (int16u endpointId)
- boolean `emberAfSimpleMeteringClusterResetLoadLimitCounterCallback` (int32u providerId, int32u issuerEventId)
- boolean `emberAfSimpleMeteringClusterScheduleSnapshotCallback` (int32u issuerEventId, int8u commandIndex, int8u commandCount, int8u \*snapshotSchedulePayload)
- boolean `emberAfSimpleMeteringClusterScheduleSnapshotResponseCallback` (int32u issuerEventId, int8u \*snapshotResponsePayload)
- void `emberAfSimpleMeteringClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSimpleMeteringClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSimpleMeteringClusterServerInitCallback` (int8u endpoint)
- void `emberAfSimpleMeteringClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSimpleMeteringClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfSimpleMeteringClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSimpleMeteringClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfSimpleMeteringClusterSetSupplyStatusCallback` (int32u issuerEventId, int8u supplyTamperState, int8u supplyDepletionState, int8u supplyUncontrolledFlowState, int8u loadLimitSupplyState)
- boolean `emberAfSimpleMeteringClusterSetUncontrolledFlowThresholdCallback` (int32u providerId, int32u issuerEventId, int16u uncontrolledFlowThreshold, int8u unitOfMeasure, int16u multiplier, int16u divisor, int8u stabilisationPeriod, int16u measurementPeriod)
- boolean `emberAfSimpleMeteringClusterStartSamplingCallback` (int32u issuerEventId, int32u startSamplingTime, int8u sampleType, int16u sampleRequestInterval, int16u maxNumberOfSamples)
- boolean `emberAfSimpleMeteringClusterStartSamplingResponseCallback` (int16u sampleId)
- boolean `emberAfSimpleMeteringClusterSupplyStatusResponseCallback` (int32u providerId, int32u issuerEventId, int32u implementationDate, int8u supplyStatus)
- boolean `emberAfSimpleMeteringClusterTakeSnapshotCallback` (int32u snapshotCause)
- boolean `emberAfSimpleMeteringClusterTakeSnapshotResponseCallback` (int32u snapshotId, int8u snapshotConfirmation)

## Messaging Cluster Callbacks

- boolean `emberAfMessagingClusterCancelAllMessagesCallback` (int32u implementationDate)
- boolean `emberAfMessagingClusterCancelMessageCallback` (int32u messageId, int8u messageControl)
- void `emberAfMessagingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMessagingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMessagingClusterClientInitCallback` (int8u endpoint)
- void `emberAfMessagingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMessagingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMessagingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMessagingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfMessagingClusterDisplayMessageCallback` (int32u messageId, int8u messageControl, int32u startTime, int16u durationInMinutes, int8u \*message, int8u optionalExtendedMessageControl)
- boolean `emberAfMessagingClusterDisplayProtectedMessageCallback` (int32u messageId, int8u messageControl, int32u startTime, int16u durationInMinutes, int8u \*message, int8u optionalExtendedMessageControl)
- boolean `emberAfMessagingClusterGetLastMessageCallback` (void)
- boolean `emberAfMessagingClusterGetMessageCancellationCallback` (int32u earliestImplementationTime)
- boolean `emberAfMessagingClusterMessageConfirmationCallback` (int32u messageId, int32u confirmationTime, int8u messageConfirmationControl, int8u \*messageResponse)
- void `emberAfMessagingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMessagingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMessagingClusterServerInitCallback` (int8u endpoint)
- void `emberAfMessagingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMessagingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMessagingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMessagingClusterServerTickCallback` (int8u endpoint)

## Tunneling Cluster Callbacks

- boolean `emberAfTunnelingClusterAckTransferDataClientToServerCallback` (int16u tunnelId, int16u numberBytesLeft)
- boolean `emberAfTunnelingClusterAckTransferDataServerToClientCallback` (int16u tunnelId, int16u numberBytesLeft)
- void `emberAfTunnelingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTunnelingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfTunnelingClusterClientInitCallback` (int8u endpoint)
- void `emberAfTunnelingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTunnelingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfTunnelingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTunnelingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfTunnelingClusterCloseTunnelCallback` (int16u tunnelId)
- boolean `emberAfTunnelingClusterGetSupportedTunnelProtocolsCallback` (int8u protocolOffset)
- boolean `emberAfTunnelingClusterReadyDataClientToServerCallback` (int16u tunnelId, int16u numberOctetsLeft)
- boolean `emberAfTunnelingClusterReadyDataServerToClientCallback` (int16u tunnelId, int16u numberOctetsLeft)
- boolean `emberAfTunnelingClusterRequestTunnelCallback` (int8u protocolId, int16u manufacturerCode, int8u flowControlSupport, int16u maximumIncomingTransferSize)
- boolean `emberAfTunnelingClusterRequestTunnelResponseCallback` (int16u tunnelId, int8u tunnelStatus, int16u maximumIncomingTransferSize)
- void `emberAfTunnelingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfTunnelingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfTunnelingClusterServerInitCallback` (int8u endpoint)
- void `emberAfTunnelingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfTunnelingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfTunnelingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfTunnelingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfTunnelingClusterSupportedTunnelProtocolsResponseCallback` (int8u protocolListComplete, int8u protocolCount, int8u \*protocolList)
- boolean `emberAfTunnelingClusterTransferDataClientToServerCallback` (int16u tunnelId, int8u \*data)
- boolean `emberAfTunnelingClusterTransferDataErrorClientToServerCallback` (int16u tunnelId, int8u transferDataStatus)
- boolean `emberAfTunnelingClusterTransferDataErrorServerToClientCallback` (int16u tunnelId, int8u transferDataStatus)
- boolean `emberAfTunnelingClusterTransferDataServerToClientCallback` (int16u tunnelId, int8u \*data)
- boolean `emberAfTunnelingClusterTunnelClosureNotificationCallback` (int16u tunnelId)

## Prepayment Cluster Callbacks

- boolean `emberAfPrepaymentClusterChangeDebtCallback` (int32u issuerEventId, int8u \*debtLabel, int32u debtAmount, int8u debtRecoveryMethod, int8u debtAmountType, int32u debtRecoveryStartTime, int16u debtRecoveryCollectionTime, int8u debtRecoveryFrequency, int32u debtRecoveryAmount, int16u debtRecoveryBalancePercentage)
- boolean `emberAfPrepaymentClusterChangePaymentModeCallback` (int32u providerId, int32u issuerEventId, int32u implementationDateTime, int16u proposedPaymentControlConfiguration, int32u cutOffValue)

- boolean `emberAfPrepaymentClusterChangePaymentModeResponseCallback` (int8u friendlyCredit, int32u friendlyCreditCalendarId, int32u emergencyCreditLimit, int32u emergencyCreditThreshold)
- void `emberAfPrepaymentClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPrepaymentClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPrepaymentClusterClientInitCallback` (int8u endpoint)
- void `emberAfPrepaymentClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPrepaymentClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPrepaymentClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPrepaymentClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPrepaymentClusterConsumerTopUpCallback` (int8u originatingDevice, int8u \*topUpCode)
- boolean `emberAfPrepaymentClusterConsumerTopUpResponseCallback` (int8u resultType, int32u topUpValue, int8u sourceOfTopUp, int32u creditRemaining)
- boolean `emberAfPrepaymentClusterCreditAdjustmentCallback` (int32u issuerEventId, int32u startTime, int8u creditAdjustmentType, int32u creditAdjustmentValue)
- boolean `emberAfPrepaymentClusterEmergencyCreditSetupCallback` (int32u issuerEventId, int32u startTime, int32u emergencyCreditLimit, int32u emergencyCreditThreshold)
- boolean `emberAfPrepaymentClusterGetDebtRepaymentLogCallback` (int32u latestEndTime, int8u numberDebts, int8u debtType)
- boolean `emberAfPrepaymentClusterGetPrepaySnapshotCallback` (int32u earliestStartTime, int32u latestEndTime, int8u snapshotOffset, int32u snapshotCause)
- boolean `emberAfPrepaymentClusterGetTopUpLogCallback` (int32u latestEndTime, int8u numberRecords)
- boolean `emberAfPrepaymentClusterPublishDebtLogCallback` (int8u commandIndex, int8u totalNumberOfCommands, int8u \*debtPayload)
- boolean `emberAfPrepaymentClusterPublishPrepaySnapshotCallback` (int32u snapshotId, int32u snapshotTime, int8u totalSnapshotsFound, int8u commandIndex, int8u totalNumberOfCommands, int32u snapshotCause, int8u snapshotPayloadType, int8u \*snapshotPayload)
- boolean `emberAfPrepaymentClusterPublishTopUpLogCallback` (int8u commandIndex, int8u totalNumberOfCommands, int8u \*topUpPayload)
- boolean `emberAfPrepaymentClusterSelectAvailableEmergencyCreditCallback` (int32u commandIssueDate, int8u originatingDevice)
- void `emberAfPrepaymentClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPrepaymentClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPrepaymentClusterServerInitCallback` (int8u endpoint)
- void `emberAfPrepaymentClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPrepaymentClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfPrepaymentClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPrepaymentClusterServerTickCallback` (int8u endpoint)

- boolean `emberAfPrepaymentClusterSetLowCreditWarningLevelCallback` (int32u lowCreditWarningLevel)
- boolean `emberAfPrepaymentClusterSetMaximumCreditLimitCallback` (int32u providerId, int32u issuerEventId, int32u implementationDateTime, int32u maximumCreditLevel, int32u maximumCreditPerTopUp)
- boolean `emberAfPrepaymentClusterSetOverallDebtCapCallback` (int32u providerId, int32u issuerEventId, int32u implementationDateTime, int32u overallDebtCap)

## Energy Management Cluster Callbacks

- void `emberAfEnergyManagementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfEnergyManagementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEnergyManagementClusterClientInitCallback` (int8u endpoint)
- void `emberAfEnergyManagementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfEnergyManagementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfEnergyManagementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEnergyManagementClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfEnergyManagementClusterManageEventCallback` (int32u issuerEventId, int16u deviceClass, int8u utilityEnrollmentGroup, int8u actionRequired)
- boolean `emberAfEnergyManagementClusterReportEventStatusCallback` (int32u issuerEventId, int8u eventStatus, int32u eventStatusTime, int8u criticalityLevelApplied, int16u coolingTemperatureSetPointApplied, int16u heatingTemperatureSetPointApplied, int8s averageLoadAdjustmentPercentageApplied, int8u dutyCycleApplied, int8u eventControl)
- void `emberAfEnergyManagementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfEnergyManagementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEnergyManagementClusterServerInitCallback` (int8u endpoint)
- void `emberAfEnergyManagementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfEnergyManagementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfEnergyManagementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEnergyManagementClusterServerTickCallback` (int8u endpoint)

## Calendar Cluster Callbacks

- boolean `emberAfCalendarClusterCancelCalendarCallback` (int32u providerId, int32u issuerCalendarId, int8u calendarType)
- void `emberAfCalendarClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCalendarClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfCalendarClusterClientInitCallback` (int8u endpoint)
- void `emberAfCalendarClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCalendarClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfCalendarClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCalendarClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfCalendarClusterGetCalendarCallback` (int32u earliestStartTime, int32u minIssuerEventId, int8u numberofCalendars, int8u calendarType, int32u providerId)
- boolean `emberAfCalendarClusterGetCalendarCancellationCallback` (void)
- boolean `emberAfCalendarClusterGetDayProfilesCallback` (int32u providerId, int32u issuerCalendarId, int8u startDayId, int8u numberofDays)
- boolean `emberAfCalendarClusterGetSeasonsCallback` (int32u providerId, int32u issuerCalendarId)
- boolean `emberAfCalendarClusterGetSpecialDaysCallback` (int32u startTime, int8u numberofEvents, int8u calendarType, int32u providerId, int32u issuerCalendarId)
- boolean `emberAfCalendarClusterGetWeekProfilesCallback` (int32u providerId, int32u issuerCalendarId, int8u startWeekId, int8u numberofWeeks)
- boolean `emberAfCalendarClusterPublishCalendarCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int32u startTime, int8u calendarType, int8u calendarTimeReference, int8u \*calendarName, int8u numberofSeasons, int8u numberofWeekProfiles, int8u numberofDayProfiles)
- boolean `emberAfCalendarClusterPublishDayProfileCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int8u dayId, int8u totalNumberOfScheduleEntries, int8u commandIndex, int8u totalNumberOfCommands, int8u calendarType, int8u \*dayScheduleEntries)
- boolean `emberAfCalendarClusterPublishSeasonsCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int8u commandIndex, int8u totalNumberOfCommands, int8u \*seasonEntries)
- boolean `emberAfCalendarClusterPublishSpecialDaysCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int32u startTime, int8u calendarType, int8u totalNumberOfSpecialDays, int8u commandIndex, int8u totalNumberOfCommands, int8u \*specialDayEntries)
- boolean `emberAfCalendarClusterPublishWeekProfileCallback` (int32u providerId, int32u issuerEventId, int32u issuerCalendarId, int8u weekId, int8u dayIdRefMonday, int8u dayIdRefTuesday, int8u dayIdRefWednesday, int8u dayIdRefThursday, int8u dayIdRefFriday, int8u dayIdRefSaturday, int8u dayIdRefSunday)
- void `emberAfCalendarClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfCalendarClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfCalendarClusterServerInitCallback` (int8u endpoint)
- void `emberAfCalendarClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfCalendarClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfCalendarClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfCalendarClusterServerTickCallback` (int8u endpoint)

## Device Management Cluster Callbacks

- void `emberAfDeviceManagementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceManagementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceManagementClusterClientInitCallback` (int8u endpoint)
- void `emberAfDeviceManagementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceManagementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDeviceManagementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceManagementClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDeviceManagementClusterGetCINCallback` (void)
- boolean `emberAfDeviceManagementClusterGetChangeOfSupplierCallback` (void)
- boolean `emberAfDeviceManagementClusterGetChangeOfTenancyCallback` (void)
- boolean `emberAfDeviceManagementClusterGetEventConfigurationCallback` (int16u eventId)
- boolean `emberAfDeviceManagementClusterGetSiteIdCallback` (void)
- boolean `emberAfDeviceManagementClusterPublishChangeOfSupplierCallback` (int32u currentProviderId, int32u issuerEventId, int8u tariffType, int32u proposedProviderId, int32u providerChangeImplementationTime, int32u providerChangeControl, int8u \*proposedProviderName, int8u \*proposedProviderContactDetails)
- boolean `emberAfDeviceManagementClusterPublishChangeOfTenancyCallback` (int32u providerId, int32u issuerEventId, int8u tariffType, int32u implementationDateTime, int32u proposedTenancyChangeControl)
- boolean `emberAfDeviceManagementClusterReportEventConfigurationCallback` (int8u commandIndex, int8u totalCommands, int8u \*eventConfigurationPayload)
- boolean `emberAfDeviceManagementClusterRequestNewPasswordCallback` (int8u passwordType)
- boolean `emberAfDeviceManagementClusterRequestNewPasswordResponseCallback` (int32u issuerEventId, int32u implementationDateTime, int16u durationInMinutes, int8u passwordType, int8u \*password)
- void `emberAfDeviceManagementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDeviceManagementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDeviceManagementClusterServerInitCallback` (int8u endpoint)
- void `emberAfDeviceManagementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDeviceManagementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDeviceManagementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDeviceManagementClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfDeviceManagementClusterSetEventConfigurationCallback` (int32u issuerEventId, int32u startTime, int8u eventConfiguration, int8u configurationControl, int8u \*eventConfigurationPayload)
- boolean `emberAfDeviceManagementClusterUpdateCINCallback` (int32u issuerEventId, int32u implementationTime, int32u providerId, int8u \*customerIdNumber)
- boolean `emberAfDeviceManagementClusterUpdateSiteIdCallback` (int32u issuerEventId, int32u siteIdTime, int32u providerId, int8u \*siteId)

## Events Cluster Callbacks

- boolean `emberAfEventsClusterClearEventLogRequestCallback` (int8u logId)
- boolean `emberAfEventsClusterClearEventLogResponseCallback` (int8u clearedEventsLogs)
- void `emberAfEventsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfEventsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEventsClusterClientInitCallback` (int8u endpoint)
- void `emberAfEventsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfEventsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfEventsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEventsClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfEventsClusterGetEventLogCallback` (int8u eventControlLogId, int16u eventId, int32u startTime, int32u endTime, int8u numberofEvents, int16u eventOffset)
- boolean `emberAfEventsClusterPublishEventCallback` (int8u logId, int16u eventId, int32u eventTime, int8u eventControl, int8u \*eventData)
- boolean `emberAfEventsClusterPublishEventLogCallback` (int16u totalNumberOfEvents, int8u commandIndex, int8u totalCommands, int8u logPayloadControl, int8u \*logPayload)
- void `emberAfEventsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfEventsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfEventsClusterServerInitCallback` (int8u endpoint)
- void `emberAfEventsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfEventsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfEventsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfEventsClusterServerTickCallback` (int8u endpoint)

## MDU Pairing Cluster Callbacks

- void `emberAfMduPairingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId)
- void `emberAfMduPairingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMduPairingClusterClientInitCallback` (int8u endpoint)
- void `emberAfMduPairingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, int16u manufacturerCode)
- void `emberAfMduPairingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMduPairingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)

- void `emberAfMduPairingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfMduPairingClusterPairingRequestCallback` (int32u localPairingInformationVersion, int8u \*eui64OfRequestingDevice)
- boolean `emberAfMduPairingClusterPairingResponseCallback` (int32u pairingInformationVersion, int8u totalNumberOfDevices, int8u commandIndex, int8u totalNumberOfCommands, int8u \*eui64s)
- void `emberAfMduPairingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMduPairingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMduPairingClusterServerInitCallback` (int8u endpoint)
- void `emberAfMduPairingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMduPairingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfMduPairingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMduPairingClusterServerTickCallback` (int8u endpoint)

## Key Establishment Cluster Callbacks

- boolean `emberAfKeyEstablishmentClusterClientCommandReceivedCallback` (`EmberAfClusterCommand` \*cmd)
- void `emberAfKeyEstablishmentClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfKeyEstablishmentClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfKeyEstablishmentClusterClientInitCallback` (int8u endpoint)
- void `emberAfKeyEstablishmentClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfKeyEstablishmentClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfKeyEstablishmentClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfKeyEstablishmentClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfKeyEstablishmentClusterConfirmKeyDataRequestCallback` (int8u \*secureMessageAuthenticationCode)
- boolean `emberAfKeyEstablishmentClusterConfirmKeyDataResponseCallback` (int8u \*secureMessageAuthenticationCode)
- boolean `emberAfKeyEstablishmentClusterEphemeralDataRequestCallback` (int8u \*ephemeralData)
- boolean `emberAfKeyEstablishmentClusterEphemeralDataResponseCallback` (int8u \*ephemeralData)
- boolean `emberAfKeyEstablishmentClusterInitiateKeyEstablishmentRequestCallback` (int16u keyEstablishmentSuite, int8u ephemeralDataGenerateTime, int8u confirmKeyGenerateTime, int8u \*identity)
- boolean `emberAfKeyEstablishmentClusterInitiateKeyEstablishmentResponseCallback` (int16u requestedKeyEstablishmentSuite, int8u ephemeralDataGenerateTime, int8u confirmKeyGenerateTime, int8u \*identity)
- void `emberAfKeyEstablishmentClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfKeyEstablishmentClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfKeyEstablishmentClusterServerInitCallback` (int8u endpoint)
- void `emberAfKeyEstablishmentClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfKeyEstablishmentClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfKeyEstablishmentClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfKeyEstablishmentClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfKeyEstablishmentClusterTerminateKeyEstablishmentCallback` (int8u statusCode, int8u waitTime, int16u keyEstablishmentSuite)
- boolean `emberAfKeyEstablishmentClusterServerCommandReceivedCallback` (`EmberAfClusterCommand` \*cmd)

## Information Cluster Callbacks

- void `emberAfInformationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfInformationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfInformationClusterClientInitCallback` (int8u endpoint)
- void `emberAfInformationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfInformationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfInformationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfInformationClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfInformationClusterConfigureDeliveryEnableCallback` (int8u enable)
- boolean `emberAfInformationClusterConfigureNodeDescriptionCallback` (int8u \*description)
- boolean `emberAfInformationClusterConfigurePushInformationTimerCallback` (int32u timer)
- boolean `emberAfInformationClusterConfigureSetRootIdCallback` (int16u rootId)
- boolean `emberAfInformationClusterDeleteCallback` (int8u deletionOptions, int8u \*contentIds)
- boolean `emberAfInformationClusterDeleteResponseCallback` (int8u \*notificationList)
- boolean `emberAfInformationClusterPushInformationCallback` (int8u \*contents)
- boolean `emberAfInformationClusterPushInformationResponseCallback` (int8u \*notificationList)
- boolean `emberAfInformationClusterRequestInformationCallback` (int8u inquiryId, int8u dataTypeId, int8u \*requestInformationPayload)
- boolean `emberAfInformationClusterRequestInformationResponseCallback` (int8u number, int8u \*buffer)
- boolean `emberAfInformationClusterRequestPreferenceConfirmationCallback` (int8u \*statusFeedbackList)
- boolean `emberAfInformationClusterRequestPreferenceResponseCallback` (int8u statusFeedback, int16u preferenceType, int8u \*preferencePayload)
- boolean `emberAfInformationClusterSendPreferenceCallback` (int16u preferenceType, int8u \*preferencePayload)
- boolean `emberAfInformationClusterSendPreferenceResponseCallback` (int8u \*statusFeedbackList)
- void `emberAfInformationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfInformationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfInformationClusterServerInitCallback` (int8u endpoint)
- void `emberAfInformationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfInformationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfInformationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- boolean `emberAfInformationClusterServerRequestPreferenceCallback` (void)
- void `emberAfInformationClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfInformationClusterUpdateCallback` (int8u accessControl, int8u option, int8u \*contents)
- boolean `emberAfInformationClusterUpdateResponseCallback` (int8u \*notificationList)

## Data Sharing Cluster Callbacks

- void `emberAfDataSharingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataSharingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataSharingClusterClientInitCallback` (int8u endpoint)
- void `emberAfDataSharingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataSharingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDataSharingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataSharingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDataSharingClusterFileTransmissionCallback` (int8u transmitOptions, int8u \*buffer)
- boolean `emberAfDataSharingClusterModifyFileRequestCallback` (int16u fileIndex, int32u fileStartPosition, int32u octetCount)
- boolean `emberAfDataSharingClusterModifyRecordRequestCallback` (int16u fileIndex, int16u fileStartRecord, int16u recordCount)
- boolean `emberAfDataSharingClusterReadFileRequestCallback` (int16u fileIndex, int8u \*fileStartPositionAndRequestedOctetCount)
- boolean `emberAfDataSharingClusterReadRecordRequestCallback` (int16u fileIndex, int8u \*fileStartRecordAndRequestedRecordCount)
- boolean `emberAfDataSharingClusterRecordTransmissionCallback` (int8u transmitOptions, int8u \*buffer)
- void `emberAfDataSharingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataSharingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataSharingClusterServerInitCallback` (int8u endpoint)
- void `emberAfDataSharingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataSharingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDataSharingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataSharingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfDataSharingClusterWriteFileRequestCallback` (int8u writeOptions, int8u \*fileSize)
- boolean `emberAfDataSharingClusterWriteFileResponseCallback` (int8u status, int8u \*fileIndex)

## Gaming Cluster Callbacks

- boolean `emberAfGamingClusterActionControlCallback` (int32u actions)
- void `emberAfGamingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGamingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGamingClusterClientInitCallback` (int8u endpoint)
- void `emberAfGamingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGamingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfGamingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGamingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfGamingClusterDownloadGameCallback` (void)
- boolean `emberAfGamingClusterEndGameCallback` (void)
- boolean `emberAfGamingClusterGameAnnouncementCallback` (int16u gameId, int8u gameMaster, int8u \*listOfGame)
- boolean `emberAfGamingClusterGeneralResponseCallback` (int8u commandId, int8u status, int8u \*message)
- boolean `emberAfGamingClusterJoinGameCallback` (int16u gameId, int8u joinAsMaster, int8u \*nameOfGame)
- boolean `emberAfGamingClusterPauseGameCallback` (void)
- boolean `emberAfGamingClusterQuitGameCallback` (void)
- boolean `emberAfGamingClusterResumeGameCallback` (void)
- boolean `emberAfGamingClusterSearchGameCallback` (int8u specificGame, int16u gameId)
- void `emberAfGamingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfGamingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfGamingClusterServerInitCallback` (int8u endpoint)
- void `emberAfGamingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfGamingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfGamingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfGamingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfGamingClusterStartGameCallback` (void)
- boolean `emberAfGamingClusterStartOverCallback` (void)

## Data Rate Control Cluster Callbacks

- void `emberAfDataRateControlClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataRateControlClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataRateControlClusterClientInitCallback` (int8u endpoint)

- void `emberAfDataRateControlClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataRateControlClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDataRateControlClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataRateControlClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfDataRateControlClusterDataRateControlCallback` (int16u originatorAddress, int16u destinationAddress, int8u dataRate)
- boolean `emberAfDataRateControlClusterDataRateNotificationCallback` (int16u originatorAddress, int16u destinationAddress, int8u dataRate)
- boolean `emberAfDataRateControlClusterPathCreationCallback` (int16u originatorAddress, int16u destinationAddress, int8u dataRate)
- boolean `emberAfDataRateControlClusterPathDeletionCallback` (int16u originatorAddress, int16u destinationAddress)
- void `emberAfDataRateControlClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDataRateControlClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDataRateControlClusterServerInitCallback` (int8u endpoint)
- void `emberAfDataRateControlClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDataRateControlClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDataRateControlClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDataRateControlClusterServerTickCallback` (int8u endpoint)

## Voice over ZigBee Cluster Callbacks

- void `emberAfVoiceOverZigbeeClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfVoiceOverZigbeeClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfVoiceOverZigbeeClusterClientInitCallback` (int8u endpoint)
- void `emberAfVoiceOverZigbeeClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfVoiceOverZigbeeClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfVoiceOverZigbeeClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfVoiceOverZigbeeClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfVoiceOverZigbeeClusterControlCallback` (int8u controlType)
- boolean `emberAfVoiceOverZigbeeClusterControlResponseCallback` (int8u ackNack)
- boolean `emberAfVoiceOverZigbeeClusterEstablishmentRequestCallback` (int8u flag, int8u codecType, int8u sampFreq, int8u codecRate, int8u serviceType, int8u \*buffer)
- boolean `emberAfVoiceOverZigbeeClusterEstablishmentResponseCallback` (int8u ackNack, int8u codecType)

- void `emberAfVoiceOverZigbeeClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfVoiceOverZigbeeClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfVoiceOverZigbeeClusterServerInitCallback` (int8u endpoint)
- void `emberAfVoiceOverZigbeeClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfVoiceOverZigbeeClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfVoiceOverZigbeeClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfVoiceOverZigbeeClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfVoiceOverZigbeeClusterVoiceTransmissionCallback` (int8u \*voiceData)
- boolean `emberAfVoiceOverZigbeeClusterVoiceTransmissionCompletionCallback` (void)
- boolean `emberAfVoiceOverZigbeeClusterVoiceTransmissionResponseCallback` (int8u sequenceNumber, int8u errorFlag)

## Chatting Cluster Callbacks

- boolean `emberAfChattingClusterChatMessageCallback` (int16u destinationUid, int16u sourceUid, int16u cid, int8u \*nickname, int8u \*message)
- void `emberAfChattingClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfChattingClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfChattingClusterClientInitCallback` (int8u endpoint)
- void `emberAfChattingClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfChattingClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfChattingClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfChattingClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfChattingClusterGetNodeInformationRequestCallback` (int16u cid, int16u uid)
- boolean `emberAfChattingClusterGetNodeInformationResponseCallback` (int8u status, int16u cid, int16u uid, int8u \*addressEndpointAndNickname)
- boolean `emberAfChattingClusterJoinChatRequestCallback` (int16u uid, int8u \*nickname, int16u cid)
- boolean `emberAfChattingClusterJoinChatResponseCallback` (int8u status, int16u cid, int8u \*chatParticipantList)
- boolean `emberAfChattingClusterLeaveChatRequestCallback` (int16u cid, int16u uid)
- boolean `emberAfChattingClusterSearchChatRequestCallback` (void)
- boolean `emberAfChattingClusterSearchChatResponseCallback` (int8u options, int8u \*chatRoomList)
- void `emberAfChattingClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfChattingClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfChattingClusterServerInitCallback` (int8u endpoint)
- void `emberAfChattingClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfChattingClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfChattingClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfChattingClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfChattingClusterStartChatRequestCallback` (int8u \*name, int16u uid, int8u \*nickname)
- boolean `emberAfChattingClusterStartChatResponseCallback` (int8u status, int16u cid)
- boolean `emberAfChattingClusterSwitchChairmanConfirmCallback` (int16u cid, int8u \*nodeInformationList)
- boolean `emberAfChattingClusterSwitchChairmanNotificationCallback` (int16u cid, int16u uid, int16u address, int8u endpoint)
- boolean `emberAfChattingClusterSwitchChairmanRequestCallback` (int16u cid)
- boolean `emberAfChattingClusterSwitchChairmanResponseCallback` (int16u cid, int16u uid)
- boolean `emberAfChattingClusterUserJoinedCallback` (int16u cid, int16u uid, int8u \*nickname)
- boolean `emberAfChattingClusterUserLeftCallback` (int16u cid, int16u uid, int8u \*nickname)

## Payment Cluster Callbacks

- boolean `emberAfPaymentClusterAcceptPaymentCallback` (int8u \*userId, int16u userType, int16u serviceId, int8u \*goodId)
- boolean `emberAfPaymentClusterBuyConfirmCallback` (int8u \*serialNumber, int32u currency, int8u priceTrailingDigit, int32u price, int8u \*timestamp, int16u transId, int8u transStatus)
- boolean `emberAfPaymentClusterBuyRequestCallback` (int8u \*userId, int16u userType, int16u serviceId, int8u \*goodId)
- void `emberAfPaymentClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPaymentClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPaymentClusterClientInitCallback` (int8u endpoint)
- void `emberAfPaymentClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPaymentClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfPaymentClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfPaymentClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfPaymentClusterPaymentConfirmCallback` (int8u \*serialNumber, int16u transId, int8u transStatus)
- boolean `emberAfPaymentClusterReceiptDeliveryCallback` (int8u \*serialNumber, int32u currency, int8u priceTrailingDigit, int32u price, int8u \*timestamp)
- void `emberAfPaymentClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfPaymentClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfPaymentClusterServerInitCallback` (int8u endpoint)
- void `emberAfPaymentClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfPaymentClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)

- `EmberAfStatus emberAfPaymentClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfPaymentClusterServerTickCallback (int8u endpoint)`
- `boolean emberAfPaymentClusterTransactionEndCallback (int8u *serialNumber, int8u status)`

## Billing Cluster Callbacks

- `boolean emberAfBillingClusterBillStatusNotificationCallback (int8u *userId, int8u status)`
- `boolean emberAfBillingClusterCheckBillStatusCallback (int8u *userId, int16u serviceId, int16u serviceProviderId)`
- `void emberAfBillingClusterClientAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfBillingClusterClientDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfBillingClusterClientInitCallback (int8u endpoint)`
- `void emberAfBillingClusterClientManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfBillingClusterClientMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfBillingClusterClientPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfBillingClusterClientTickCallback (int8u endpoint)`
- `boolean emberAfBillingClusterSendBillRecordCallback (int8u *userId, int16u serviceId, int16u serviceProviderId, int8u *timestamp, int16u duration)`
- `void emberAfBillingClusterServerAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId)`
- `void emberAfBillingClusterServerDefaultResponseCallback (int8u endpoint, int8u commandId, EmberAfStatus status)`
- `void emberAfBillingClusterServerInitCallback (int8u endpoint)`
- `void emberAfBillingClusterServerManufacturerSpecificAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, int16u manufacturerCode)`
- `void emberAfBillingClusterServerMessageSentCallback (EmberOutgoingMessageType type, int16u indexOrDestination, EmberApsFrame *apsFrame, int16u msgLen, int8u *message, EmberStatus status)`
- `EmberAfStatus emberAfBillingClusterServerPreAttributeChangedCallback (int8u endpoint, EmberAfAttributeId attributeId, EmberAfAttributeType attributeType, int8u size, int8u *value)`
- `void emberAfBillingClusterServerTickCallback (int8u endpoint)`
- `boolean emberAfBillingClusterSessionKeepAliveCallback (int8u *userId, int16u serviceId, int16u serviceProviderId)`
- `boolean emberAfBillingClusterStartBillingSessionCallback (int8u *userId, int16u serviceId, int16u serviceProviderId)`
- `boolean emberAfBillingClusterStopBillingSessionCallback (int8u *userId, int16u serviceId, int16u serviceProviderId)`
- `boolean emberAfBillingClusterSubscribeCallback (int8u *userId, int16u serviceId, int16u serviceProviderId)`
- `boolean emberAfBillingClusterUnsubscribeCallback (int8u *userId, int16u serviceId, int16u serviceProviderId)`

## Appliance Identification Cluster Callbacks

- void `emberAfApplianceIdentificationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceIdentificationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceIdentificationClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceIdentificationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceIdentificationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceIdentificationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceIdentificationClusterClientTickCallback` (int8u endpoint)
- void `emberAfApplianceIdentificationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceIdentificationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceIdentificationClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceIdentificationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceIdentificationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceIdentificationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceIdentificationClusterServerTickCallback` (int8u endpoint)

## Meter Identification Cluster Callbacks

- void `emberAfMeterIdentificationClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMeterIdentificationClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMeterIdentificationClusterClientInitCallback` (int8u endpoint)
- void `emberAfMeterIdentificationClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfMeterIdentificationClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfMeterIdentificationClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMeterIdentificationClusterClientTickCallback` (int8u endpoint)
- void `emberAfMeterIdentificationClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfMeterIdentificationClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfMeterIdentificationClusterServerInitCallback` (int8u endpoint)
- void `emberAfMeterIdentificationClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)

- void `emberAfMeterIdentificationClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfMeterIdentificationClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfMeterIdentificationClusterServerTickCallback` (int8u endpoint)

## Appliance Events and Alert Cluster Callbacks

- boolean `emberAfApplianceEventsAndAlertClusterAlertsNotificationCallback` (int8u alertsCount, int8u \*alertStructures)
- void `emberAfApplianceEventsAndAlertClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceEventsAndAlertClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceEventsAndAlertClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceEventsAndAlertClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceEventsAndAlertClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceEventsAndAlertClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceEventsAndAlertClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfApplianceEventsAndAlertClusterEventsNotificationCallback` (int8u eventHeader, int8u eventId)
- boolean `emberAfApplianceEventsAndAlertClusterGetAlertsCallback` (void)
- boolean `emberAfApplianceEventsAndAlertClusterGetAlertsResponseCallback` (int8u alertsCount, int8u \*alertStructures)
- void `emberAfApplianceEventsAndAlertClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceEventsAndAlertClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceEventsAndAlertClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceEventsAndAlertClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceEventsAndAlertClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus emberAfApplianceEventsAndAlertClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceEventsAndAlertClusterServerTickCallback` (int8u endpoint)

## Appliance Statistics Cluster Callbacks

- void `emberAfApplianceStatisticsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceStatisticsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)

- void `emberAfApplianceStatisticsClusterClientInitCallback` (int8u endpoint)
- void `emberAfApplianceStatisticsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceStatisticsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceStatisticsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceStatisticsClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfApplianceStatisticsClusterLogNotificationCallback` (int32u timeStamp, int32u logId, int32u logLength, int8u \*logPayload)
- boolean `emberAfApplianceStatisticsClusterLogQueueRequestCallback` (void)
- boolean `emberAfApplianceStatisticsClusterLogQueueResponseCallback` (int8u logQueueSize, int8u \*logIds)
- boolean `emberAfApplianceStatisticsClusterLogRequestCallback` (int32u logId)
- boolean `emberAfApplianceStatisticsClusterLogResponseCallback` (int32u timeStamp, int32u logId, int32u logLength, int8u \*logPayload)
- void `emberAfApplianceStatisticsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfApplianceStatisticsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfApplianceStatisticsClusterServerInitCallback` (int8u endpoint)
- void `emberAfApplianceStatisticsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfApplianceStatisticsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfApplianceStatisticsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfApplianceStatisticsClusterServerTickCallback` (int8u endpoint)
- boolean `emberAfApplianceStatisticsClusterStatisticsAvailableCallback` (int8u logQueueSize, int8u \*logIds)

## Electrical Measurement Cluster Callbacks

- void `emberAfElectricalMeasurementClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfElectricalMeasurementClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfElectricalMeasurementClusterClientInitCallback` (int8u endpoint)
- void `emberAfElectricalMeasurementClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfElectricalMeasurementClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfElectricalMeasurementClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfElectricalMeasurementClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfElectricalMeasurementClusterGetMeasurementProfileCommandCallback` (int16u attributeId, int32u startTime, int8u numberofIntervals)

- boolean `emberAfElectricalMeasurementClusterGetMeasurementProfileResponseCommandCallback` (int32u startTime, int8u status, int8u profileIntervalPeriod, int8u numberofIntervalsDelivered, int16u attributeId, int8u \*intervals)
- boolean `emberAfElectricalMeasurementClusterGetProfileInfoCommandCallback` (void)
- boolean `emberAfElectricalMeasurementClusterGetProfileInfoResponseCommandCallback` (int8u profileCount, int8u profileIntervalPeriod, int8u maxNumberofIntervals, int8u \*listOfAttributes)
- void `emberAfElectricalMeasurementClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfElectricalMeasurementClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfElectricalMeasurementClusterServerInitCallback` (int8u endpoint)
- void `emberAfElectricalMeasurementClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfElectricalMeasurementClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfElectricalMeasurementClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfElectricalMeasurementClusterServerTickCallback` (int8u endpoint)

## Diagnostics Cluster Callbacks

- void `emberAfDiagnosticsClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDiagnosticsClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDiagnosticsClusterClientInitCallback` (int8u endpoint)
- void `emberAfDiagnosticsClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDiagnosticsClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDiagnosticsClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDiagnosticsClusterClientTickCallback` (int8u endpoint)
- void `emberAfDiagnosticsClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfDiagnosticsClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfDiagnosticsClusterServerInitCallback` (int8u endpoint)
- void `emberAfDiagnosticsClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfDiagnosticsClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfDiagnosticsClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfDiagnosticsClusterServerTickCallback` (int8u endpoint)

## ZLL Commissioning Cluster Callbacks

- void `emberAfZllCommissioningClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfZllCommissioningClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfZllCommissioningClusterClientInitCallback` (int8u endpoint)
- void `emberAfZllCommissioningClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfZllCommissioningClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfZllCommissioningClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfZllCommissioningClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfZllCommissioningClusterDeviceInformationRequestCallback` (int32u transaction, int8u startIndex)
- boolean `emberAfZllCommissioningClusterDeviceInformationResponseCallback` (int32u transaction, int8u numberofSubDevices, int8u startIndex, int8u deviceInformationRecordCount, int8u \*deviceInformationRecordList)
- boolean `emberAfZllCommissioningClusterEndpointInformationCallback` (int8u \*ieeeAddress, int16u networkAddress, int8u endpointId, int16u profileId, int16u deviceId, int8u version)
- boolean `emberAfZllCommissioningClusterGetEndpointListRequestCallback` (int8u startIndex)
- boolean `emberAfZllCommissioningClusterGetEndpointListResponseCallback` (int8u total, int8u startIndex, int8u count, int8u \*endpointInformationRecordList)
- boolean `emberAfZllCommissioningClusterGetGroupIdentifiersRequestCallback` (int8u startIndex)
- boolean `emberAfZllCommissioningClusterGetGroupIdentifiersResponseCallback` (int8u total, int8u startIndex, int8u count, int8u \*groupInformationRecordList)
- boolean `emberAfZllCommissioningClusterIdentifyRequestCallback` (int32u transaction, int16u identifyDuration)
- boolean `emberAfZllCommissioningClusterNetworkJoinEndDeviceRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u keyIndex, int8u \*encryptedNetworkKey, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd)
- boolean `emberAfZllCommissioningClusterNetworkJoinEndDeviceResponseCallback` (int32u transaction, int8u status)
- boolean `emberAfZllCommissioningClusterNetworkJoinRouterRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u keyIndex, int8u \*encryptedNetworkKey, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd)
- boolean `emberAfZllCommissioningClusterNetworkJoinRouterResponseCallback` (int32u transaction, int8u status)
- boolean `emberAfZllCommissioningClusterNetworkStartRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u keyIndex, int8u \*encryptedNetworkKey, int8u logicalChannel, int16u panId, int16u networkAddress, int16u groupIdentifiersBegin, int16u groupIdentifiersEnd, int16u freeNetworkAddressRangeBegin, int16u freeNetworkAddressRangeEnd, int16u freeGroupIdentifierRangeBegin, int16u freeGroupIdentifierRangeEnd, int8u \*initiatorIeeeAddress, int16u initiatorNetworkAddress)
- boolean `emberAfZllCommissioningClusterNetworkStartResponseCallback` (int32u transaction, int8u status, int8u \*extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId)

- boolean `emberAfZllCommissioningClusterNetworkUpdateRequestCallback` (int32u transaction, int8u \*extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress)
- boolean `emberAfZllCommissioningClusterResetToFactoryNewRequestCallback` (int32u transaction)
- boolean `emberAfZllCommissioningClusterScanRequestCallback` (int32u transaction, int8u zigbeeInformation, int8u zllInformation)
- boolean `emberAfZllCommissioningClusterScanResponseCallback` (int32u transaction, int8u rssiCorrection, int8u zigbeeInformation, int8u zllInformation, int16u keyBitmask, int32u responseId, int8u \*extendedPanId, int8u networkUpdateId, int8u logicalChannel, int16u panId, int16u networkAddress, int8u numberOfSubDevices, int8u totalGroupIds, int8u endpointId, int16u profileId, int16u deviceId, int8u version, int8u groupIdCount)
- void `emberAfZllCommissioningClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfZllCommissioningClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfZllCommissioningClusterServerInitCallback` (int8u endpoint)
- void `emberAfZllCommissioningClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfZllCommissioningClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfZllCommissioningClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfZllCommissioningClusterServerTickCallback` (int8u endpoint)

## Sample Mfg Specific Cluster Cluster Callbacks

- void `emberAfSampleMfgSpecificClusterClientAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSampleMfgSpecificClusterClientDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSampleMfgSpecificClusterClientInitCallback` (int8u endpoint)
- void `emberAfSampleMfgSpecificClusterClientManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSampleMfgSpecificClusterClientMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfSampleMfgSpecificClusterClientPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSampleMfgSpecificClusterClientTickCallback` (int8u endpoint)
- boolean `emberAfSampleMfgSpecificClusterCommandOneCallback` (int8u argOne)
- void `emberAfSampleMfgSpecificClusterServerAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId)
- void `emberAfSampleMfgSpecificClusterServerDefaultResponseCallback` (int8u endpoint, int8u commandId, `EmberAfStatus` status)
- void `emberAfSampleMfgSpecificClusterServerInitCallback` (int8u endpoint)
- void `emberAfSampleMfgSpecificClusterServerManufacturerSpecificAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, int16u manufacturerCode)
- void `emberAfSampleMfgSpecificClusterServerMessageSentCallback` (`EmberOutgoingMessageType` type, int16u indexOrDestination, `EmberApsFrame` \*apsFrame, int16u msgLen, int8u \*message, `EmberStatus` status)
- `EmberAfStatus` `emberAfSampleMfgSpecificClusterServerPreAttributeChangedCallback` (int8u endpoint, `EmberAfAttributeId` attributeId, `EmberAfAttributeType` attributeType, int8u size, int8u \*value)
- void `emberAfSampleMfgSpecificClusterServerTickCallback` (int8u endpoint)

## Basic Server Cluster Plugin Callbacks

- void `emberAfPluginBasicResetToFactoryDefaultsCallback` (uint8\_t endpoint)

## Bulb PWM Configuration Plugin Callbacks

- void `emberAfPluginBulbPwmConfigurationBlinkStopCallback` (uint8\_t endpoint)

## Bulb user interface Plugin Callbacks

- void `emberAfPluginBulbUiFinishedCallback` (`EmberStatus` status)

## Button Form/Join Code Plugin Callbacks

- void `emberAfPluginButtonJoiningButtonEventCallback` (uint8\_t buttonNumber, uint32\_t buttonPressDurationMs)

## Calendar Server Plugin Callbacks

- void `emberAfPluginCalendarServerPublishInfoCallback` (uint8\_t publishCommandId, `EmberNodeId` clientNodeId, uint8\_t clientEndpoint, uint8\_t totalCommands)

## Color Control Cluster Plugin Callbacks

- bool `emberAfPluginColorControlIsColorSupportedCallback` (uint8\_t hue, uint8\_t saturation)

## Comms Hub Function (CHF) Plugin Callbacks

- void `emberAfPluginCommsHubFunctionSendCallback` (uint8\_t status, `EmberEUI64` destinationDeviceId, uint16\_t dataLen, uint8\_t \*data)
- void `emberAfPluginCommsHubFunctionReceivedCallback` (`EmberEUI64` senderDeviceId, uint16\_t dataLen, uint8\_t \*data)
- void `emberAfPluginCommsHubFunctionAlertWANCallback` (uint16\_t alertCode, uint8\_t \*gbzAlert, uint16\_t gbazLength)
- void `emberAfPluginCommsHubFunctionTunnelOpenedCallback` (`EmberEUI64` remoteDeviceId)

## Concentrator Support Plugin Callbacks

- void `emberAfPluginConcentratorBroadcastSentCallback` (void)

## Counters Plugin Callbacks

- void `emberAfPluginCountersRolloverCallback` (`EmberCounterType` type)

## Device Database Plugin Callbacks

- void `emberAfPluginDeviceDatabaseDiscoveryCompleteCallback` (const `EmberAfDeviceInfo` \*device)

## Device Management Client Plugin Callbacks

- void `emberAfPluginDeviceManagementClientEnactChangeOfTenancyCallback` (uint8\_t endpoint, `EmberAfDeviceManagementTenancy` \*tenancy)
- void `emberAfPluginDeviceManagementClientEnactChangeOfSupplierCallback` (uint8\_t endpoint, `EmberAfDeviceManagementSupplier` \*supplier)
- `EmberStatus` `emberAfPluginDeviceManagementClientEnactChangeSupplyCallback` (uint8\_t endpoint, `EmberAfDeviceManagementSupply` \*supply)
- void `emberAfPluginDeviceManagementClientSetSupplyStatusCallback` (uint8\_t endpoint, `EmberAfDeviceManagementSupplyStatusFlags` \*supplyStatus)
- void `emberAfPluginDeviceManagementClientEnactUpdateUncontrolledFlowThresholdCallback` (uint8\_t endpoint, `EmberAfDeviceManagementUncontrolledFlowThreshold` \*supplier)

## Device Management Server Plugin Callbacks

- void `emberAfPluginDeviceManagementServerGetPasswordCallback` (`EmberNodeId` senderNodeId, `EmberAfDeviceManagementPasswordType` passwordType, `EmberAfDeviceManagementPassword` passwordInfo)

## Door Lock Server Cluster Plugin Callbacks

- bool `emberAfPluginDoorLockServerActivateDoorLockCallback` (bool activate)

## Demand Response Load Control Cluster Client Plugin Callbacks

- bool `emberAfPluginDrlcEventActionCallback` (`EmberAfLoadControlEvent` \*loadControlEvent, `EmberAfAmiEventStatus` eventStatus, uint8\_t sequenceNumber)

## End Device Support Plugin Callbacks

- void `emberAfPluginEndDeviceSupportPollCompletedCallback` (`EmberStatus` status)

## Events Server Plugin Callbacks

- bool `emberAfPluginEventsServerOkToClearLogCallback` (`EmberAfEventLogId` logId)
- void `emberAfPluginEventsServerLogDataUpdatedCallback` (const `EmberAfClusterCommand` \*cmd)

## EZ-Mode Commissioning Plugin Callbacks

- void `emberAfPluginEzmodeCommissioningClientCompleteCallback` (uint8\_t bindingIndex)

## Find and Bind Initiator Plugin Callbacks

- bool `emberAfPluginFindAndBindInitiatorBindTargetCallback` (`EmberNodeId` nodeId, `EmberBindingTableEntry` \*bindingEntry, uint8\_t \*groupName)
- void `emberAfPluginFindAndBindInitiatorCompleteCallback` (`EmberStatus` status)

## Form and Join Library Plugin Callbacks

- void `emberAfPluginFormAndJoinNetworkFoundCallback` (`EmberZigbeeNetwork` \*networkFound, `uint8_t` lqi, `int8_t` rssi)
- void `emberAfPluginFormAndJoinUnusedPanIdFoundCallback` (`EmberPanId` panId, `uint8_t` channel)

## Gas Proxy Function (GPF) Plugin Callbacks

- void `emberAfPluginGasProxyFunctionNonTapOffMessageHandlerCompletedCallback` (`uint8_t` \*gbzCommandsResponse, `uint16_t` gbzCommandsResponseLength)
- void `emberAfPluginGasProxyFunctionAlertWANCallback` (`uint16_t` alertCode, `uint8_t` \*gbzAlert, `uint16_t` gbzAlertLength)
- void `emberAfPluginGasProxyFunctionTapOffMessageFutureCommandIgnoredCallback` (`const EmberAfGpfMessage` \*gpfMessage, `const EmberAfClusterCommand` \*zclClusterCommand)
- bool `emberAfPluginGasProxyFunctionDataLogAccessRequestCallback` (`const EmberAfGpfMessage` \*gpfMessage, `const EmberAfClusterCommand` \*zclClusterCommand)
- `EmberAfGpfZclCommandPermission` `emberAfPluginGasProxyFunctionValidateIncomingZclCommandCallback` (`const EmberAfClusterCommand` \*cmd, `uint16_t` messageCode)
- void `emberAfPluginGasProxyFunctionUnknownSeasonWeekIdCallback` (`uint32_t` issuerCalendarId, `uint8_t` \*seasonEntries, `uint8_t` seasonEntriesLength, `uint8_t` unknownWeekIdSeasonsMask)
- void `emberAfPluginGasProxyFunctionUnknownSpecialDaysDayIdCallback` (`uint32_t` issuerCalendarId, `uint8_t` \*specialDayEntries, `uint8_t` specialDayEntriesLength, `uint8_t` unknownDayIdMask)

## GBCS Device Log Plugin Callbacks

- void `emberAfPluginGbcsDeviceLogDeviceRemovedCallback` (`EmberEUI64` deviceId)

## GBZ Message Controller Plugin Callbacks

- void `emberAfPluginGbzMessagControllerDecryptDataCallback` (`EmberAfGbzMessaageData` \*data)
- void `emberAfPluginGbzMessagControllerEncryptDataCallback` (`EmberAfGbzMessaageData` \*data)

## Green Power Server Plugin Callbacks

- bool `emberAfPluginGreenPowerServerGpdCommissioningCallback` (`EmberGpApplicationInfo` \*app-Info)

## Groups Server Cluster Plugin Callbacks

- void `emberAfPluginGroupsServerGetGroupNameCallback` (`uint8_t` endpoint, `uint16_t` groupId, `uint8_t` \*groupName)
- void `emberAfPluginGroupsServerSetGroupNameCallback` (`uint8_t` endpoint, `uint16_t` groupId, `uint8_t` \*groupName)
- bool `emberAfPluginGroupsServerGroupNamesSupportedCallback` (`uint8_t` endpoint)

## Identify Cluster Plugin Callbacks

- void `emberAfPluginIdentifyStartFeedbackCallback` (`uint8_t` endpoint, `uint16_t` identifyTime)
- void `emberAfPluginIdentifyStopFeedbackCallback` (`uint8_t` endpoint)

## Interpan Plugin Callbacks

- bool `emberAfPluginInterpanPreMessageReceivedCallback` (const `EmberAfInterpanHeader` \*header, `uint8_t` msgLen, `uint8_t` \*message)
- void `emberAfPluginInterpanMessageReceivedOverFragmentsCallback` (const `EmberAfInterpanHeader` \*header, `uint8_t` msgLen, `uint8_t` \*message)
- void `emberAfPluginInterpanFragmentTransmissionFailedCallback` (`uint8_t` interpanFragmentationStatus, `uint8_t` fragmentNum)

## Messaging Client Cluster Plugin Callbacks

- bool `emberAfPluginMessagingClientPreDisplayMessageCallback` (`uint32_t` messageId, `uint8_t` messageControl, `uint32_t` startTime, `uint16_t` durationInMinutes, `uint8_t` \*message, `uint8_t` optionalExtendedMessageControl)
- void `emberAfPluginMessagingClientDisplayMessageCallback` (`EmberAfPluginMessagingClientMessage` \*message)
- void `emberAfPluginMessagingClientCancelMessageCallback` (`EmberAfPluginMessagingClientMessage` \*message)

## Meter Mirror Plugin Callbacks

- void `emberAfPluginMeterMirrorMirrorAddedCallback` (const `EmberEUI64` requestingDeviceIeeeAddress, `uint8_t` endpoint)
- void `emberAfPluginMeterMirrorMirrorRemovedCallback` (const `EmberEUI64` requestingDeviceIeeeAddress, `uint8_t` endpoint)
- void `emberAfPluginMeterMirrorReportingCompleteCallback` (`uint8_t` endpoint)

## Meter Snapshot Server Plugin Callbacks

- void `emberAfPluginMeterSnapshotServerScheduleSnapshotCallback` (`uint8_t` srcEndpoint, `uint8_t` dstEndpoint, `EmberNodeId` dest, `uint8_t` \*snapshotPayload, `uint8_t` \*responsePayload)
- `uint32_t` `emberAfPluginMeterSnapshotServerTakeSnapshotCallback` (`uint8_t` endpoint, `uint32_t` snapshotCause, `uint8_t` \*snapshotConfirmation)
- void `emberAfPluginMeterSnapshotServerGetSnapshotCallback` (`uint8_t` srcEndpoint, `uint8_t` dstEndpoint, `EmberNodeId` dest, `uint8_t` \*snapshotCriteria)

## Network Creator Plugin Callbacks

- void `emberAfPluginNetworkCreatorCompleteCallback` (const `EmberNetworkParameters` \*network, `bool` usedSecondaryChannels)
- `EmberPanId` `emberAfPluginNetworkCreatorGetPanIdCallback` (`void`)

## Network Find Plugin Callbacks

- void `emberAfPluginNetworkFindFinishedCallback` (`EmberStatus` status)
- `int8_t` `emberAfPluginNetworkFindGetRadioPowerForChannelCallback` (`uint8_t` channel)
- `bool` `emberAfPluginNetworkFindJoinCallback` (`EmberZigbeeNetwork` \*networkFound, `uint8_t` lqi, `int8_t` rssi)

## Network Steering Plugin Callbacks

- void `emberAfPluginNetworkSteeringCompleteCallback` (`EmberStatus` status, `uint8_t` totalBeacons, `uint8_t` joinAttempts, `uint8_t` finalState)
- `int8_t emberAfPluginNetworkSteeringGetPowerForRadioChannelCallback` (`uint8_t` channel)
- `EmberNodeType emberAfPluginNetworkSteeringGetNodeTypeCallback` (`EmberAfPluginNetworkSteeringJoiningState` state)

## OTA Simple Storage EEPROM Driver Plugin Callbacks

- void `emberAfPluginOtaStorageSimpleEepromEraseCompleteCallback` (`bool` success)

## Prepayment Server Plugin Callbacks

- `bool emberAfPluginPrepaymentServerConsumerTopUpCallback` (`uint8_t` originatingDevice, `uint8_t` \*topUpCode)

## Price Client Plugin Callbacks

- void `emberAfPluginPriceClientPriceStartedCallback` (`EmberAfPluginPriceClientPrice` \*price)
- void `emberAfPluginPriceClientPriceExpiredCallback` (`EmberAfPluginPriceClientPrice` \*price)
- `uint8_t emberAfPluginPriceClientPendingCppEventCallback` (`uint8_t` cppAuth)

## Price Server Plugin Callbacks

- void `emberAfPluginPriceServerNewActivePriceMatrixCallback` (`const EmberAfPriceCommonInfo` \*priceCommonInfo, `const EmberAfScheduledPriceMatrix` \*priceMatrix)
- void `emberAfPluginPriceServerNewActiveTariffInformationCallback` (`const EmberAfPriceCommonInfo` \*priceCommonInfo, `const EmberAfScheduledTariff` \*priceTariffInfo)
- void `emberAfPluginPriceServerNewActiveBlockThresholdsInformationCallback` (`const EmberAfPriceCommonInfo` \*priceCommonInfo, `const EmberAfScheduledBlockThresholds` \*priceBlockThresholds)
- void `emberAfPluginPriceServerNewActiveBlockPeriodInformationCallback` (`const EmberAfPriceCommonInfo` \*priceCommonInfo, `const EmberAfPriceBlockPeriod` \*priceBlockPeriods)

## Reporting Plugin Callbacks

- `EmberAfStatus emberAfPluginReportingConfiguredCallback` (`const EmberAfPluginReportingEntry` \*entry)

## Generic Device Profile Plugin Callbacks

- `bool emberAfPluginRf4ceGdpZrc20StartConfigurationCallback` (`bool` isOriginator, `uint8_t` pairingIndex)
- void `emberAfPluginRf4ceGdpZrc20BindingCompleteCallback` (`EmberAfRf4ceGdpBindingStatus` status, `uint8_t` pairingIndex)
- void `emberAfPluginRf4ceGdpStartValidationCallback` (`uint8_t` pairingIndex)
- void `emberAfPluginRf4ceGdpBindingCompleteCallback` (`EmberAfRf4ceGdpBindingStatus` status, `uint8_t` pairingIndex)

- bool `emberAfPluginRf4ceGdpIncomingBindProxyCallback` (const `EmberEUI64` ieeeAddr)
- void `emberAfPluginRf4ceGdpHeartbeatPollingEstablishedCallback` (uint8\_t pairingIndex, `EmberAfRf4ceGdpPollingTrigger` triggers)
- void `emberAfPluginRf4ceGdpIdentifyCallback` (`EmberAfRf4ceGdpClientNotificationIdentifyFlags` flags, uint16\_t timeS)
- void `emberAfPluginRf4ceGdpIdentifyClientFoundCallback` (`EmberAfRf4ceGdpClientNotificationIdentifyFlags` flags)
- void `emberAfPluginRf4ceGdpKeyExchangeCompleteCallback` (`EmberStatus` status)
- bool `emberAfPluginRf4ceGdpVendorSpecificKeyExchangeCallback` (uint8\_t initiatorVendorSpecificParam, uint8\_t \*responderVendorSpecificParam, uint8\_t \*sharedSecret)

## RF4CE Multiple System Operators Profile Plugin Callbacks

- void `emberAfPluginRf4ceMsoStartValidationCallback` (uint8\_t pairingIndex)
- void `emberAfPluginRf4ceMsoBindingCompleteCallback` (`EmberAfRf4ceMsoBindingStatus` status, uint8\_t pairingIndex)
- void `emberAfPluginRf4ceMsoUserControlCallback` (const `EmberAfRf4ceMsoUserControlRecord` \*record)
- `EmberAfRf4ceStatus` `emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback` (uint8\_t pairingIndex, uint8\_t entryIndex, uint8\_t \*valueLength, uint8\_t \*value)
- bool `emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback` (uint8\_t pairingIndex, uint8\_t entryIndex)
- void `emberAfPluginRf4ceMsoIncomingIrRfDatabaseAttributeCallback` (uint8\_t pairingIndex, uint8\_t entryIndex, uint8\_t valueLength, const uint8\_t \*value)
- `EmberStatus` `emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback` (`EmberAfRf4ceMsoKeyCode` keyCode, `EmberAfRf4ceMsoIrRfDatabaseEntry` \*entry)

## RF4CE Profile Support Plugin Callbacks

- bool `emberAfPluginRf4ceProfileGdpMessageSentCallback` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \*message, uint8\_t messageLength, `EmberStatus` status)
- void `emberAfPluginRf4ceProfileRemoteControl11MessageSentCallback` (uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \*message, uint8\_t messageLength, `EmberStatus` status)
- void `emberAfPluginRf4ceProfileZrc20MessageSentCallback` (uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \*message, uint8\_t messageLength, `EmberStatus` status)
- void `emberAfPluginRf4ceProfileMsoMessageSentCallback` (uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \*message, uint8\_t messageLength, `EmberStatus` status)
- void `emberAfPluginRf4ceProfileMessageSentCallback` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, uint8\_t messageTag, const uint8\_t \*message, uint8\_t messageLength, `EmberStatus` status)
- bool `emberAfPluginRf4ceProfileGdpIncomingMessageCallback` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, `EmberRf4ceTxOption` txOptions, const uint8\_t \*message, uint8\_t messageLength)
- void `emberAfPluginRf4ceProfileRemoteControl11IncomingMessageCallback` (uint8\_t pairingIndex, uint16\_t vendorId, `EmberRf4ceTxOption` txOptions, const uint8\_t \*message, uint8\_t messageLength)
- void `emberAfPluginRf4ceProfileZrc20IncomingMessageCallback` (uint8\_t pairingIndex, uint16\_t vendorId, `EmberRf4ceTxOption` txOptions, const uint8\_t \*message, uint8\_t messageLength)
- void `emberAfPluginRf4ceProfileMsoIncomingMessageCallback` (uint8\_t pairingIndex, uint16\_t vendorId, `EmberRf4ceTxOption` txOptions, const uint8\_t \*message, uint8\_t messageLength)

- void `emberAfPluginRf4ceProfileIncomingMessageCallback` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption txOptions, const uint8\_t \*message, uint8\_t messageLength)
- bool `emberAfPluginRf4ceProfileGdpDiscoveryRequestCallback` (const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType, uint8\_t rxLinkQuality)
- bool `emberAfPluginRf4ceProfileRemoteControl11DiscoveryRequestCallback` (const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType, uint8\_t rxLinkQuality)
- bool `emberAfPluginRf4ceProfileZrc20DiscoveryRequestCallback` (const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType, uint8\_t rxLinkQuality)
- bool `emberAfPluginRf4ceProfileMsoDiscoveryRequestCallback` (const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType, uint8\_t rxLinkQuality)
- bool `emberAfPluginRf4ceProfileGdpDiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- bool `emberAfPluginRf4ceProfileRemoteControl11DiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- bool `emberAfPluginRf4ceProfileZrc20DiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- bool `emberAfPluginRf4ceProfileMsoDiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, `EmberPanId` panId, const `EmberEUI64` ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- void `emberAfPluginRf4ceProfileGdpDiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileRemoteControl11DiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileZrc20DiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileMsoDiscoveryCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceProfileGdpAutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType)
- void `emberAfPluginRf4ceProfileRemoteControl11AutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType)
- void `emberAfPluginRf4ceProfileZrc20AutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType)
- void `emberAfPluginRf4ceProfileMsoAutoDiscoveryResponseCompleteCallback` (`EmberStatus` status, const `EmberEUI64` srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType)
- bool `emberAfPluginRf4ceProfileGdpPairRequestCallback` (`EmberStatus` status, uint8\_t pairingIndex, const `EmberEUI64` sourceIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t keyExchangeTransferCount)

- bool `emberAfPluginRf4ceProfileRemoteControl11PairRequestCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberEUI64` sourceIeeeAddr, `uint8_t` nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, `uint8_t` keyExchangeTransferCount)
- bool `emberAfPluginRf4ceProfileZrc20PairRequestCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberEUI64` sourceIeeeAddr, `uint8_t` nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, `uint8_t` keyExchangeTransferCount)
- bool `emberAfPluginRf4ceProfileMsoPairRequestCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberEUI64` sourceIeeeAddr, `uint8_t` nodeCapabilities, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo, `uint8_t` keyExchangeTransferCount)
- void `emberAfPluginRf4ceProfileGdpPairCompleteCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)
- void `emberAfPluginRf4ceProfileRemoteControl11PairCompleteCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)
- void `emberAfPluginRf4ceProfileZrc20PairCompleteCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)
- void `emberAfPluginRf4ceProfileMsoPairCompleteCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*appInfo)

## ZigBee Remote Control 1.1 Profile Plugin Callbacks

- void `emberAfPluginRf4ceZrc11PairingCompleteCallback` (`EmberStatus` status, `uint8_t` pairingIndex, const `EmberEUI64` eui64, const `EmberRf4ceVendorInfo` \*vendorInfo, const `EmberRf4ceApplicationInfo` \*applicationInfo)
- void `emberAfPluginRf4ceZrc11UserControlCallback` (const `EmberAfRf4ceZrcUserControlRecord` \*record)
- void `emberAfPluginRf4ceZrc11CommandDiscoveryResponseCallback` (`EmberStatus` status, const `EmberAfRf4ceZrcCommandsSupported` \*commandsSupported)

## ZigBee Remote Control 2.0 Profile Plugin Callbacks

- void `emberAfPluginRf4ceZrc20ActionCallback` (const `EmberAfRf4ceZrcActionRecord` \*record)
- void `emberAfPluginRf4ceZrc20HaActionCallback` (const `EmberAfRf4ceZrcActionRecord` \*record)
- void `emberAfPluginRf4ceZrc20LegacyCommandDiscoveryCompleteCallback` (`EmberStatus` status, const `EmberAfRf4ceZrcCommandsSupported` \*commandsSupported)
- void `emberAfPluginRf4ceZrc20ActionMappingsNegotiationCompleteCallback` (`EmberStatus` status)
- void `emberAfPluginRf4ceZrc20IncomingMappableActionCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcMappableAction` \*mappableAction)
- `EmberStatus` `emberAfPluginRf4ceZrc20GetMappableActionCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcMappableAction` \*mappableAction)
- `uint16_t` `emberAfPluginRf4ceZrc20GetMappableActionCountCallback` (`uint8_t` pairingIndex)
- void `emberAfPluginRf4ceZrc20IncomingActionMappingCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcActionMapping` \*actionMapping)
- `EmberStatus` `emberAfPluginRf4ceZrc20GetActionMappingCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcActionMapping` \*actionMapping)
- `EmberStatus` `emberAfPluginRf4ceZrc20SetActionMappingCallback` (`uint8_t` pairingIndex, `uint16_t` entryIndex, `EmberAfRf4ceZrcActionMapping` \*actionMapping)
- void `emberAfPluginRf4ceZrc20HomeAutomationSupportedAnnouncementCompleteCallback` (`EmberStatus` status)

- void `emberAfPluginRf4ceZrc20IncomingHomeAutomationSupportedCallback` (uint8\_t pairingIndex, uint8\_t haInstanceId, `EmberAfRf4ceZrcHomeAutomationSupported` \*haSupported)
- `EmberStatus emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCallback` (uint8\_t pairingIndex, uint8\_t haInstanceId, `EmberAfRf4ceZrcHomeAutomationSupported` \*haSupported)
- `EmberAfRf4ceGdpAttributeStatus emberAfPluginRf4ceZrc20GetHomeAutomationAttributeCallback` (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributeId, `EmberAfRf4ceZrcHomeAutomationAttribute` \*haAttribute)
- void `emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback` (`EmberAfRf4ceGdpAttributeStatus` responseStatus, `EmberAfRf4ceZrcHomeAutomationAttribute` \*haAttribute)

## ZigBee Remote Control 2.0 Home Automation Server Plugin Callbacks

- void `emberAfPluginRf4ceZrc20HaServerHaActionSentCallback` (`EmberOutgoingMessageType` type, uint16\_t indexOrDestination, `EmberApsFrame` \*apsFrame, uint16\_t msgLen, uint8\_t \*message, `EmberStatus` status)

## Simple Metering Client Plugin Callbacks

- uint16\_t `emberAfPluginSimpleMeteringClientRequestMirrorCallback` (`EmberEUI64` requestingDeviceIeeeAddress)
- uint16\_t `emberAfPluginSimpleMeteringClientRemoveMirrorCallback` (`EmberEUI64` requestingDeviceIeeeAddress)

## Simple Metering Server Plugin Callbacks

- void `emberAfPluginSimpleMeteringServerProcessNotificationFlagsCallback` (uint16\_t attributeId, uint32\_t attributeValue)

## Sleepy Message Queue Plugin Callbacks

- void `emberAfPluginSleepyMessageQueueMessageTimedOutCallback` (uint8\_t sleepyMsgId)

## Standalone Bootloader Client Plugin Callbacks

- bool `emberAfPluginStandaloneBootloaderClientAllowIncomingMessageCallback` (`EmberEUI64` sourceEui64, uint8\_t command)
- bool `emberAfPluginStandaloneBootloaderClientAllowBootloadLaunchCallback` (`EmberEUI64` sourceEui64)

## Standalone Bootloader Common Plugin Callbacks

- bool `emberAfPluginStandaloneBootloaderCommonIncomingMessageCallback` (`EmberEUI64` longId, uint8\_t length, uint8\_t \*message)

## Standalone Bootloader Server Plugin Callbacks

- void `emberAfPluginStandaloneBootloaderServerQueryResponseCallback` (bool queryWasBroadcast, const `EmberAfStandaloneBootloaderQueryresponseData` \*queryData)
- void `emberAfPluginStandaloneBootloaderServerFinishedCallback` (bool success)

## Tunneling Client Cluster Plugin Callbacks

- void `emberAfPluginTunnelingClientTunnelOpenedCallback` (uint8\_t tunnelIndex, `EmberAfPluginTunnelingClientStatus` tunnelStatus, uint16\_t maximumIncomingTransferSize)
- void `emberAfPluginTunnelingClientDataReceivedCallback` (uint8\_t tunnelIndex, uint8\_t \*data, uint16\_t dataLen)
- void `emberAfPluginTunnelingClientDataErrorCallback` (uint8\_t tunnelIndex, `EmberAfTunnelingTransferDataStatus` transferDataStatus)
- void `emberAfPluginTunnelingClientTunnelClosedCallback` (uint8\_t tunnelIndex)
- void `emberAfPluginTunnelingClientTransferDataFailureCallback` (uint16\_t indexOfDestination, `EmberApsFrame` \*apsFrame, uint16\_t msgLen, uint8\_t \*message, `EmberStatus` status)

## Tunneling Server Cluster Plugin Callbacks

- bool `emberAfPluginTunnelingServerIsProtocolSupportedCallback` (uint8\_t protocolId, uint16\_t manufacturerCode)
- void `emberAfPluginTunnelingServerTunnelOpenedCallback` (uint16\_t tunnelIndex, uint8\_t protocolId, uint16\_t manufacturerCode, bool flowControlSupport, uint16\_t maximumIncomingTransferSize)
- void `emberAfPluginTunnelingServerDataReceivedCallback` (uint16\_t tunnelIndex, uint8\_t \*data, uint16\_t dataLen)
- void `emberAfPluginTunnelingServerDataErrorCallback` (uint16\_t tunnelIndex, `EmberAfTunnelingTransferDataStatus` transferDataStatus)
- void `emberAfPluginTunnelingServerTunnelClosedCallback` (uint16\_t tunnelIndex, bool clientInitiated)

## Update TC Link Key Plugin Callbacks

- bool `emberAfPluginUpdateTcLinkKeyStatusCallback` (`EmberKeyStatus` keyStatus)

## ZLL Commissioning Plugin Callbacks

- void `emberAfPluginZllCommissioningInitialSecurityStateCallback` (`EmberZllInitialSecurityState` \*securityState)
- void `emberAfPluginZllCommissioningTouchLinkCompleteCallback` (const `EmberZllNetwork` \*networkInfo, uint8\_t deviceInformationRecordCount, const `EmberZllDeviceInfoRecord` \*deviceInformationRecordList)
- void `emberAfPluginZllCommissioningTouchLinkFailedCallback` (`EmberAfZllCommissioningStatus` status)
- uint8\_t `emberAfPluginZllCommissioningGroupIdentifierCountCallback` (uint8\_t endpoint)
- bool `emberAfPluginZllCommissioningGroupIdentifierCallback` (uint8\_t endpoint, uint8\_t index, `EmberAfPluginZllCommissioningGroupInformationRecord` \*record)
- uint8\_t `emberAfPluginZllCommissioningEndpointInformationCountCallback` (uint8\_t endpoint)
- bool `emberAfPluginZllCommissioningEndpointInformationCallback` (uint8\_t endpoint, uint8\_t index, `EmberAfPluginZllCommissioningEndpointInformationRecord` \*record)
- void `emberAfPluginZllCommissioningIdentifyCallback` (uint16\_t durationS)
- void `emberAfPluginZllCommissioningResetToFactoryNewCallback` (void)
- bool `emberAfPluginZllCommissioningJoinCallback` (`EmberZigbeeNetwork` \*networkFound, uint8\_t lqi, int8\_t rssi)

## ZLL On/Off Server Cluster Enhancements Plugin Callbacks

- `EmberAfStatus emberAfPluginZllOnOffServerOffWithEffectCallback (uint8_t endpoint, uint8_t effectId, uint8_t effectVariant)`

## Connection Manager Plugin Callbacks

- void `emberAfPluginConnectionManagerFinishedCallback (EmberStatus status)`
- void `emberAfPluginConnectionManagerStartNetworkSearchCallback (void)`
- void `emberAfPluginConnectionManagerLeaveNetworkCallback (void)`

## Idle/Sleep Plugin Callbacks

- bool `emberAfPluginIdleSleepOkToSleepCallback (uint32_t durationMs)`
- void `emberAfPluginIdleSleepWakeUpCallback (uint32_t durationMs)`
- bool `emberAfPluginIdleSleepOkToIdleCallback (void)`
- void `emberAfPluginIdleSleepActiveCallback (void)`

## Low Voltage Shutdown Plugin Callbacks

- bool `emberAfPluginLowVoltageShutdownOkToShutdownCallback (uint16_t shutdownVoltage)`
- void `emberAfPluginLowVoltageShutdownPreShutdownCallback (uint16_t shutdownVoltage)`

## Battery Monitor Plugin Callbacks

- void `emberAfPluginBatteryMonitorDataReadyCallback (uint16_t batteryVoltageMilliV)`

## Button Interface Plugin Callbacks

- void `emberAfPluginButtonInterfaceButton0PressedShortCallback (uint16_t timePressedMs)`
- void `emberAfPluginButtonInterfaceButton1PressedShortCallback (uint16_t timePressedMs)`
- void `emberAfPluginButtonInterfaceButton0PressedLongCallback (uint16_t timePressedMs, bool pressedAtReset)`
- void `emberAfPluginButtonInterfaceButton1PressedLongCallback (uint16_t timePressedMs, bool pressedAtReset)`
- void `emberAfPluginButtonInterfaceButton0PressingCallback (void)`
- void `emberAfPluginButtonInterfaceButton1PressingCallback (void)`
- void `emberAfPluginButtonInterfaceButton0LowCallback (void)`
- void `emberAfPluginButtonInterfaceButton0HighCallback (void)`
- void `emberAfPluginButtonInterfaceButton1LowCallback (void)`
- void `emberAfPluginButtonInterfaceButton1HighCallback (void)`

## GPIO Sensor Interface Plugin Callbacks

- void `emberAfPluginGpioSensorStateChangedCallback (uint8_t newSensorState)`

## SB1 Gesture Sensor Plugin Callbacks

- void `emberAfPluginSb1GestureSensorGestureReceivedCallback` (uint8\_t gestureReceived, uint8\_t switchNumber)

## Tamper Switch Interface Plugin Callbacks

- void `emberAfPluginTamperSwitchTamperActiveCallback` (void)
- void `emberAfPluginTamperSwitchTamperAlarmCallback` (void)

### 8.27.1 Macro Definition Documentation

#### 8.27.1.1 `#define __EMBER_AF_CALLBACK_PROTOTYPES__`

Definition at line 7 of file [framework/test/headers/callback.doc](#).

## 8.28 callback.doc File Reference

### Functions

- int `main` (MAIN\_FUNCTION\_PARAMETERS)
- void `halButtonIsr` (uint8\_t button, uint8\_t state)
- void `emberDebugHandler` (EmberMessageBuffer message)
- EmberJoinDecision `emberAfPluginEzspSecurityTrustCenterJoinCallback` (EmberNodeId newNodeId, const EmberEUI64 newNodeEui64, EmberDeviceUpdate status, EmberNodeId parentOfNewNode, EzspDecisionId decisionId, EmberJoinDecision joinDecision)
- EmberStatus `emberAfPluginEzspZigbeeProSetConcentratorCommandCallback` (bool on, uint16\_t concentratorType, uint16\_t minTime, uint16\_t maxTime, uint8\_t routeErrorThreshold, uint8\_t deliveryFailureThreshold, uint8\_t maxHops)
- void `halRadioPowerUpHandler` (void)
- void `halRadioPowerDownHandler` (void)
- void `halMicrophoneCodecMsadpcmDataReadyCallback` (int8u \*data, int8u length)
- void `halMicrophoneImaadpcmDataReadyCallback` (int8u \*data, int8u length)
- void `emberZigbeeKeyEstablishmentHandler` (EmberEUI64 partner, EmberKeyStatus status)
- void `halNcpIsAwakeIsr` (bool isAwake)
- EmberStatus `emberAfPluginXncpIncomingCustomFrameCallback` (uint8\_t messageLength, uint8\_t \*messagePayload, uint8\_t \*replyPayloadLength, uint8\_t \*replyPayload)
- bool `emberAfIncomingMessageCallback` (EmberIncomingMessageType type, EmberApsFrame \*apsFrame, EmberMessageBuffer message)
- bool `emberAfPluginCommandHandlerPermitNcpToHostFrameCallback` (uint8\_t frameId, uint8\_t payloadLength, uint8\_t \*payload)
- bool `emberAfPluginCommandHandlerPermitHostToNcpFrameCallback` (uint8\_t frameId, uint8\_t payloadLength, uint8\_t \*payload)
- void `emberAfPluginXncpGetXncpInformation` (uint16\_t \*manufacturerId, uint16\_t \*versionNumber)
- void `emberOrphanNotificationHandler` (EmberEUI64 longId)
- bool `emberMacPassthroughFilterHandler` (uint8\_t \*macHeader)
- void `emberIncomingCommandHandler` (EmberZigbeeCommandType commandType, EmberMessageBuffer commandBuffer, uint8\_t indexOfCommand, void \*data)
- void `emberAfMainInitCallback` (void)

- void `emberAfMainTickCallback` (void)
- void `emberSetOrGetEzspTokenCommandHandler` (bool `isSet`)
- bool `emberAfPluginEzspAddEndpointCommandCallback` (`EmberMessageBuffer` `buffer`)
- void `halSimEepromCallback` (`EmberStatus` `status`)
- void `emberCounterHandler` (`EmberCounterType` `type`, `uint8_t` `data`)
- void `emberStackStatusHandler` (`EmberStatus` `status`)
- void `emberEnergyScanResultHandler` (`uint8_t` `channel`, `int8_t` `maxRssiValue`)
- void `emberRadioNeedsCalibratingHandler` (void)

## 8.29 cli.doc File Reference

### Macros

- #define `__EMBER_AF_CLI__`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ATTRIBUTE_READ`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ATTRIBUTE_WRITE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_SEND`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_SEND_MULTICAST`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_BSEND`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_TIMESYNC`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_RAW`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_INTERPAN_GROUP`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_INTERPAN_SHORT`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_BUILD_SEND_MSG_INTERPAN_LONG`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ENDPOINT_ENDPOINT_PRINT`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ENDPOINT_ENDPOINT_ENABLE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ENDPOINT_ENDPOINT_DISABLE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_GENERAL_ZCL_MFG_CODE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_GENERAL_ZCL_X_DEFAULT_RESP`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_GENERAL_ZCL_TIME`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_GENERAL_RESET`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_GENERAL_ECHO`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_GENERAL_EVENTS`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_READ`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_WRITE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_UWRITE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_NWRITE`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_DISCOVER`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_REPORT`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_REPORT_READ`
- #define `EMBER_AF_DOXYGEN_CLI_COMMAND_ZCL_GLOBAL_ZCL_GLOBAL_SEND_MEASURE_REPORT`

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_EXPECT\_REPORT\_FROM\_ME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DIRECTION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISC\_CMD\_GEN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZCL\_GLOBAL\_ZCL\_GLOBAL\_DISC\_CMD\_REC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_LIBS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_PRINT\_RX\_MSGS\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_PRINT\_RX\_MSGS\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_OPTION\_BINDING\_TABLE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_PRINT\_ATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_PRINT\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ALL\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ALL\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_DEBUGPRINT\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_VERSION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_INFO\_HELP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_DISC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_EDB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_BINDING\_TABLE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTION\_BINDING\_TABLE\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTIONAPSRETRY\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTIONAPSRETRY\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_OPTIONAPSRETRY\_DEFAULT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FORM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_JOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_REJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_REJOIN\_DIFF\_DEVICE\_TYPE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_LEAVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_PJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_BROAD\_PJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_EXTPANID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FIND\_UNUSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_FIND\_JOINABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_CHANGE\_CHANNEL

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_NETWORK\_NETWORK\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_REGISTER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_APSS\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_APSS\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_SECURITY\_SET\_ALLOW\_TRUST\_CENTER\_REJOIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_LINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_OPTION\_INSTALL\_CODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_SECURITY\_MFG\_TOKEN\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_SECURITY\_MFG\_TOKEN\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_KEYS\_DELETE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_CHANGEKEY\_LINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SECURITY\_CHANGEKEY\_NETWORK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TEST\_ZCL\_TEST\_RESPONSE\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TEST\_ZCL\_TEST\_RESPONSE\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IN\_CL\_LIST\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IN\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_OUT\_CL\_LIST\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_OUT\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_CHAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_SCAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK\_UPD\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NWK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_IEEE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_SIMPLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_NODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MATCH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_ACTIVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_UNBIND\_UNICAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_UNBIND\_GROUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_LEAVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MGMT\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_MGMT\_LQI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ZDO\_ZDO\_ROUTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BACNET\_PROTOCOL\_TUNNEL\_ZCL\_BACNET\_TRANSFER\_NPDU\_WHOIS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_ZCL\_DRLC\_LCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ZCL\_IDENTIFY\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ZCL\_IDENTIFY\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_RANDOM\_TO\_SERVER

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_TRANSFER\_TO\_SERVER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_TRANSFER\_TO\_CLIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_ZCL\_TUNNELING\_RANDOM\_TO\_CLIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_LOOKUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ADDRESS\_TABLE\_PLUGIN\_ADDRESS\_TABLE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_BUTTON\_JOINING\_PLUGIN\_BUTTON\_JOINING\_BUTTON0
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_BUTTON\_JOINING\_PLUGIN\_BUTTON\_JOINING\_BUTTON1
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_CLIENT\_PLUGIN\_CALENDAR\_CLIENT\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_CLIENT\_PLUGIN\_CALENDAR\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SELECT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SUMMARY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_WEEKS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_PRINT\_SEASONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_TEST\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_SIMPLE\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_ENHANCED\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_FLAT\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_SIMPLE\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_LOAD\_ENHANCED\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_CAL\_INFO

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_ADD\_CAL\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_DAY\_PROF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_WEEK\_PROF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_COMMON\_PLUGIN\_CALENDAR\_COMMON\_SET\_SEASONS\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_PUBLISH\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_PUBLISH\_DAY\_PROFILES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_PUBLISH\_WEEK\_PROFILE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_PUBLISH\_SEASONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_PUBLISH\_SPECIAL\_DAYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CALENDAR\_SERVER\_PLUGIN\_CALENDAR\_SERVER\_CANCEL\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_SIMULATE\_GBZ\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PRINT\_SUPPORTED\_USE\_CASES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_TIMEOUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_GET\_TUNNEL\_ENDPOINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_CLOSE\_TUNNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_CREATE\_TUNNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PLUGIN\_COMMs\_HUB\_FUNCTION\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_AGG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_PRINT\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONCENTRATOR\_PLUGIN\_CONCENTRATOR\_SET\_ROUTER\_BEHAVIOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_CONNECTION\_MANAGER\_PLUGIN\_CONNECTION\_MANAGER\_SET\_FORCE\_SHORT\_POLL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_PRINT

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTER\_PRINT\_COUNTER\_TYPE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SIMPLE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_PRINT\_THRESHOLDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SET\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_RESET\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_COUNTERS\_PLUGIN\_COUNTERS\_SEND\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_OPT\_IN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_OPT\_OUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_PLUGIN\_DRLC\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_SLCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_LCE\_SCHEDULE\_MAND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_SSLCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DRLC\_SERVER\_PLUGIN\_DRLC\_SERVER\_CSLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_PRINT\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_ERASE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_DATABASE\_PLUGIN\_DEVICE\_DATABASE\_DEVICE\_ADD\_DUMMY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_CLIENT\_PLUGIN\_DEVICE\_MANAGEMENT\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PROVIDER\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_ISSUER\_EVENT\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_TARIFF\_TYPE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_TENANCY

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SITE\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_CIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PASSWORD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PUB\_CHG\_OF\_TENANCY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PUB\_CHG\_OF\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_UPDATE\_SITE\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_UPDATE\_CIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_PENDING\_UPDATES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_MANAGEMENT\_SERVER\_SEND\_REQ\_NEW\_PASS\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_PLUGIN\_DEVICE\_QUERY\_SERVICE\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_DATA\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EEPROM\_PLUGIN\_EEPROM\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EZMODE\_COMMISSIONING\_PLUGIN\_EZMODE\_COMMISSIONING\_CLIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EZMODE\_COMMISSIONING\_PLUGIN\_EZMODE\_COMMISSIONING\_SERVER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_POLL\_COMPLETED\_CALLBACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_END\_DEVICE\_SUPPORT\_PLUGIN\_END\_DEVICE\_SUPPORT\_FORCE\_SHORT\_POLL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_EPRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_ADD

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_EVENTS\_SERVER\_PLUGIN\_EVENTS\_SERVER\_PUBLISH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_PLUGIN\_FIND\_AND\_BIND\_TARGET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_COUNT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_STORE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_EXISTS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_IS\_SLEEPY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_DEVICE\_LOG\_PLUGIN\_GBCS\_DEVICE\_LOG\_FILL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GBCS\_GAS\_METER\_PLUGIN\_GBCS\_GAS\_METER\_REPORT\_ATTRIBUTES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_GBZ\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_GBZ\_MSG\_CREATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PRINT\_SUPPORTED\_USE\_CASES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PRINT\_LOG\_CATCHUPS\_IN\_PROGRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GAS\_PROXY\_FUNCTION\_PLUGIN\_GAS\_PROXY\_FUNCTION\_SIMULATE\_FUTURE\_DATED\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_PUSH\_BUTTON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_INITIATE\_KEY\_EXCHANGE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_SET\_VALIDATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_PUSH\_ATTRIBUTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_PLUGIN\_RF4CE\_GDP\_IDENTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CLIENT\_USER\_INTERACTION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_SERVER\_IDENTIFIER

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_SET\_PROXY\_ENTRY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_ADD\_SINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_ADD\_GROUP\_SINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_RM\_GPD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_RM\_SINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_PRINT\_PROXY\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_CLEAR\_PROXY\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_DUPLICATE\_FILTER\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_CLIENT\_PLUGIN\_GREEN\_POWER\_CLIENT\_SET\_KEY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_CRYPTOTEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_COMMISION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_SERVER\_PLUGIN\_GREEN\_POWER\_SERVER\_TABLE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_IEEE\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_COMM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SEND\_CHANNEL\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SET\_PHY\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SETUP\_GPD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GREEN\_POWER\_TEST\_DEVICE\_SETUP\_IEEE\_GPD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GROUPS\_SERVER\_PLUGIN\_GROUPS\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_GROUPS\_SERVER\_PLUGIN\_GROUPS\_SERVER\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_CLIENT\_PLUGIN\_IAS\_ZONE\_CLIENT\_PRINT\_SERVERS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_CLIENT\_PLUGIN\_IAS\_ZONE\_CLIENT\_CLEAR\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_SERVER\_PLUGIN\_IAS\_ZONE\_SERVER\_INFO

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IAS\_ZONE\_SERVER\_PLUGIN\_IAS\_ZONE\_SERVER\_CHANGE\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDENTIFY\_PLUGIN\_IDENTITY\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_FORCE\_AWAKE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_IDLE\_SLEEP\_PLUGIN\_IDLE\_SLEEP\_AWAKE\_WHEN\_NOT\_JOINED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_TOGGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_BUTTON\_TOGGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_BUTTON\_ON\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_PRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_HOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INFRARED\_LED\_PLUGIN\_INFRARED\_LED\_SIMULATE\_REMOTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_FRAGMENT\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_INTERPAN\_PLUGIN\_INTERPAN\_SET\_MSG\_TIMEOUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_KEY\_ESTABLISHMENT\_PLUGIN\_KEY\_ESTABLISHMENT\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_KEY\_ESTABLISHMENT\_PLUGIN\_KEY\_ESTABLISHMENT\_INTERPAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LED\_DIM\_PWM\_PLUGIN\_PWM\_CONTROL\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PRINT\_VDD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_PLUGIN\_LOW\_VOLTAGE\_SHUTDOWN\_SHUTDOWN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY\_PLUGIN\_MFGLIB\_STOP

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_TONE\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_TONE\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SET\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SET\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_TEST\_MOD\_CAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SYN\_OFFSET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_STREAM\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_STREAM\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SEND\_RANDOM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SEND\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SEND\_MESSAGE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_SLEEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_PROGRAM\_EUI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_MFGENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MANUFACTURING\_LIBRARY-\_PLUGIN\_MFGLIB\_CALDATA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUG-IN\_MESSAGING\_CLIENT\_CONFIRM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUG-IN\_MESSAGING\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_CLIENT\_PLUG-IN\_MESSAGING\_CLIENT\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_MESSAGE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_APPEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_RELATIVE\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_TRANSMISSION\_NORMAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUG-IN\_MESSAGING\_SERVER\_TRANSMISSION\_IPAN

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_TRANSMISSION\_BOTH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_LOW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_MEDIUM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_HIGH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_IMPORTANCE\_CRITICAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CONFIRM\_NOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CONFIRM\_REQ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_VALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_INVALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_DISPLAY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_CANCEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MESSAGING\_SERVER\_PLUGIN\_MESSAGING\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_MIRROR\_PLUGIN\_METER\_MIRROR\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_MIRROR\_PLUGIN\_METER\_MIRROR\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_TAKE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PLUGIN\_METER\_SNAPSHOT\_SERVER\_PUBLISH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_SET\_ROUTING
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PLUGIN\_MN\_PRICE\_PASSTHROUGH\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_SUBTRACT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_MASK\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_PLUGIN\_NETWORK\_CREATOR\_STATUS

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_SET\_JOINING\_LINK\_KEY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_CLEAR\_JOINING\_LINK\_KEYS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_OPEN\_NETWORK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_CREATOR\_SECURITY\_CLOSE\_NETWORK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_SUBTRACT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_MASK\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_NETWORK\_STEERING\_PLUGIN\_NETWORK\_STEERING\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_BOOTLOAD\_PLUGIN\_OTA\_BOOTLOAD\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_BOOTLOAD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_VERIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_BLOCK\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_PAGE\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_PAUSE\_AT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_CLIENT\_PLUGIN\_OTA\_CLIENT\_UPGRADE\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_NOTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_UPGRADE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_QUERY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_UPGRADE

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PAGE\_REQ\_MISS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_PAGE\_REQ\_SUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_POLICY\_BLOCK\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_SERVER\_PLUGIN\_OTA\_SERVER\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_PRINT\_IMAGES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_DELETE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_RELOAD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_STORAGE\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_OTA\_STORAGE\_COMMON\_PLUGIN\_OTA\_STORAGE\_COMMON\_DATA\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_PARTNER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_ALLOW\_PARTNER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_TIMEOUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_RESPOND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PLUGIN\_POLL\_CONTROL\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_WRITE\_ATTRIBUTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_VERIFY\_PAYMENT\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_VERIFY\_ATTRIBUTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_PUBLISH\_PREPAY\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_ADD\_SNAPSHOT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_READ\_DEBT\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_READ\_DEBT\_ATTRIBS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_GET\_TOP\_UP\_PERCENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_CHECK\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_GET\_WEEKDAY\_FROM\_UTC

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PREPAYMENT\_SERVER\_PLUGIN\_PREPAYMENT\_SERVER\_SCHED\_DEBT\_REPAY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONV\_FACTOR\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CALF\_VALUE\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CO2\_VALUE\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_BILL\_PERIOD\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_BLOCK\_PERIOD\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_TIER\_LABEL\_PRINT\_TARIFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_TABLE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CONSOL\_BILL\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CPP\_EVENT\_SET\_AUTH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CPP\_EVENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PMT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CREDIT\_PMT\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERS\_PRINT\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_CLIENT\_PLUGIN\_PRICE\_CLIENT\_CURRENCY\_CONVERS\_PRINT\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_COMMON\_PLUGIN\_PRICE\_COMMON\_ADJ\_ST\_T
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_COMMON\_PLUGIN\_PRICE\_COMMON\_CVRT\_DURN\_TO\_SEC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_INIT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHO

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_WHEN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PRICE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_ALTERNATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_ACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_VALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_INVALID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_SPRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PUBLISH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_PUB\_TARIFF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BLOCK\_PERIOD\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CO2\_VAL\_PUB

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_ADD\_LABEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TIER\_LABEL\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_BILLING\_PERIOD\_REPEAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CONSOL\_BILL\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CPP\_EVENT\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PMT\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PMT\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CURRENCY\_CONV\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_CURRENCY\_CONV\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TARIFF\_CANCEL\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_PRICE\_SERVER\_PLUGIN\_PRICE\_SERVER\_TARIFF\_CANCEL\_PUB
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_PRESSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_RELEASED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_RELEASED

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_CLEAR\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_ADD\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_ADD\_PRESSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_ADD\_REPEATED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_ADD\_RELEASED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_ADD\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_REMOVE\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_PLUGIN\_RF4CE\_MSO\_IR\_RF\_DATABASE\_ORIGINATOR\_GET\_CALLBACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_VALIDATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_TERMINATE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_ABORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_PRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_RELEASE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_MSO\_PLUGIN\_RF4CE\_MSO\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_PAIR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_VENDOR

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_UNPAIR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_POWER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_RX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_AGILITY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_LQI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_PROFILE\_PLUGIN\_RF4CE\_PROFILE\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_LED\_RGB\_PWM\_PLUGIN\_LED\_RGB\_PWM\_XY\_Y
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RELAY\_CONTROL\_SERVER\_PLUGIN\_RELAY\_CONTROL\_SERVER\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RELAY\_CONTROL\_SERVER\_PLUGIN\_RELAY\_CONTROL\_SERVER\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_REPORTING\_PLUGIN\_REPORTING\_CLEAR\_LAST\_REPORT\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_MSG\_READY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_READ\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SB1\_GESTURE\_SENSOR\_PLUGIN\_SB1\_GESTURE\_SENSOR\_SEND\_GEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SCENES\_PLUGIN\_SCENES\_PRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SCENES\_PLUGIN\_SCENES\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_SCH\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_START\_SAMPLING
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_PLUGIN\_SIMPLE\_METERING\_CLIENT\_LOCAL\_CHANGE\_SUPPLY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_SERVER\_PLUGIN\_SIMPLE\_METERING\_SERVER\_CONFIGURE\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SIMPLE\_METERING\_SERVER\_PLUGIN\_SIMPLE\_METERING\_SERVER\_TOGGLE\_FAST\_POLL\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_INIT

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_STORE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_PENDING\_MSG\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_PENDING\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_GET\_NUM\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMOVE\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_UNUSED\_CNT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_REMAIN\_TIME
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_PLUGIN\_SLEEPY\_MESSAGE\_QUEUE\_TIMESTAMP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_SET\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_CHILD\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_NEIGHBOR\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STACK\_DIAGNOSTICS\_PLUGIN\_STACK\_DIAGNOSTICS\_ROUTE\_TABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_CLIENT\_PLUGIN\_STANDALONE\_BOOTLOADER\_CLIENT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_QUERY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PRINT\_TARGET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_BOOTLOAD\_TARGET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_STANDALONE\_BOOTLOADER\_SERVER\_BOOTLOAD\_EUI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEMPERATURE\_MEASUREMENT\_SERVER\_PLUGIN\_TEMPERATURE\_MEASUREMENT\_SERVER\_READ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_AP\_Sec\_FOR\_CLUSTER\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_AP\_Sec\_FOR\_CLUSTER\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_OPTIONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TEST\_HARNESS\_ATTR\_SET\_DEST

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ATTR\_START\_TEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_HASH\_THE\_FLASH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_REGISTRATION\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_REGISTRATION\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_NORMAL\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_NO\_RESOURCES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_OUT\_OF\_SEQUENCE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_TIMEOUT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_DELAY\_CBKE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_DEFAULT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_NEW\_KEY\_POLICY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_RESETAPS\_FC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_ADVAPS\_FC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_LENGTH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_ISSUER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_CORRUPT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_CHANGE\_BYTE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_CERT\_MANGLE\_SUBJECT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_SUITE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_SET\_AVAILABLE\_SUITE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_ESTABLISHMENT\_KEY\_MANGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_PRICE\_SEND\_NEW\_FIELDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_PRICE\_SEND\_SE10\_FIELDS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_TC\_KEEPALIVE\_SEND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_TC\_KEEPALIVE\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_TC\_KEEPALIVE\_STOP

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_OTA\_IMAGE\_MANGLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_CONCENTRATOR\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_CONCENTRATOR\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_UPDATE\_UNICAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_UPDATE\_BROADCAST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_KEY\_UPDATE\_NOW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_STACK\_LIMIT\_BEACONS\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_STACK\_LIMIT\_BEACONS\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_ENABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_DISABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ENDPOINT\_CLUSTER\_ENDPOINT\_INDEX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_RADIO\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_RADIO\_OFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_PLUGIN\_TE-ST\_HARNESS\_ADD\_CHILD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THR-OUGHPUT\_INFLIGHT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THR-OUGHPUT\_DURATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THR-OUGHPUT\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THR-OUGHPUT\_END
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_THROUGHPUT\_PLUGIN\_THR-OUGHPUT\_RESULT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_P-LUGIN\_TRUST\_CENTER\_BACKUP\_PRINT\_EXPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_P-LUGIN\_TRUST\_CENTER\_BACKUP\_IMPORT\_KEY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_P-LUGIN\_TRUST\_CENTER\_BACKUP\_SET\_EXT\_PAN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_P-LUGIN\_TRUST\_CENTER\_BACKUP\_PRINT\_IMPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_P-LUGIN\_TRUST\_CENTER\_BACKUP\_CLEAR\_IMPORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_TRUST\_CENTER\_BACKUP\_P-LUGIN\_TRUST\_CENTER\_BACKUP\_RESTORE

- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_TRANSFER
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_CLOSE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_CLIENT\_PLUGIN\_TUNNELING\_CLIENT\_PRINT
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_TRANSFER
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_BUSY
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TUNNELING\_SERVER\_PLUGIN\_TUNNELING\_SERVER\_PRINT
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_BEACON\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_BEACON\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_ZDO\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_ZDO\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_NWK\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_NWK\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_APS\_PRINTING\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_PACKET\_PRINTING\_APS\_PRINTING\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_BEACON\_BEACON\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_BEACON\_BEACONS\_CONFIG
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_REJOIN\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_REJOIN\_RESPONSE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE\_SUPRESSION\_ON
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_LEAVE\_SUPRESSION\_OFF
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_KEY\_SUPPRESSION\_ON
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_NWK\_NWK\_KEY\_SUPPRESSION\_OFF
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_APS\_APS\_REMOVE\_DEVICE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_TEST\_HARNESS\_Z3\_APS\_APS\_REQUEST\_KEY

- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_SCAN\_REQUEST\_PROCESS
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_START\_AS\_ROUTER
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_IS\_SCANNING
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_DEVICE\_INFORMATION\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_IDENTIFY\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_RESET\_TO\_FACTORY\_NEW\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_START\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_JOIN\_ROUTER\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_JOIN\_END\_DEVICE\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_TOUCHLINK\_NETWORK\_UPDATE\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_MGMT\_PERMIT\_JOINING\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_MGMT\_LEAVE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_MGMT\_NWK\_UPDATE\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_ZDO\_RESET
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_ZDO\_NODE\_DESC\_RSP\_CONFIG
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_ACTIVE\_ENDPOINT\_REQUEST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_MATCH\_DESC\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_MATCH\_DESC\_RSP\_CONFIG
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_SIMPLE\_DESC\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_SIMPLE\_DESC\_RSP\_CONFIG
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_UNBIND\_UNICAST
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_UNBIND\_GROUP
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_IN\_CL\_LIST\_ADD
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_IN\_CL\_LIST\_CLEAR
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_OUT\_CL\_LIST\_ADD
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_OUT\_CL\_LIST\_CLEAR

- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_NODE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_LEAVE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_ROUTE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_POWER
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_BIND
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_BIND\_GROUP
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_NWK\_ADDR\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_IEEE\_ADDR\_REQ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_MGMT\_BIND
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZDO\_MGMT\_LQI
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_RESET
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_ISSUER\_NWK\_ADDRESS\_REMOTE\_DEV
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_NWK\_IEEE\_ADDR\_RSP\_CONFIG\_STATUS\_DEVICE\_NOT\_FOUND
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_ZCL\_READ
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_RESET
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_PLATFORM
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_SET\_PAN\_ID
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_SET\_SHORT\_ADDRESS
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_LEGACY\_PROFILE\_ENABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_LEGACY\_PROFILE\_DISABLE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_SET\_DEVICE\_MODE
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_INSTALL\_CODE\_CLEAR
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_TEST\_HARNESS\_Z3\_PLUGIN\_\_TEST\_HARNESS\_Z3\_INSTALL\_CODE\_SET
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISIONING\_PLUGIN\_ZLL\_COMMISIONING\_FORM
- #define EMBER\_AF\_DODYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISIONING\_PLUGIN\_ZLL\_COMMISIONING\_SCAN\_DEVICE

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_IDENTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_ABORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_LINK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_IDENTIFY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_GROUPS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_ENDPOINTS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_TOKENS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_CHANNEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_MASK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_JOINABLE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_UNUSED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_ZLL\_COMMISSIONING\_PLUGIN\_ZLL\_COMMISSIONING\_NOTOUCHLINK\_NFN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_PAIR\_ORIGINATOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_PAIR\_RECIPIENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_PRESS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_RELEASE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC11\_PLUGIN\_RF4CE\_ZRC11\_DISCOVERY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_CLEAR\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_CLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_RF

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_RF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET\_IR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_RESET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_RESET\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_CLEARALLHAATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_GETHAATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_SETHAATTR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGCLEAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGREMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGGET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGPRINT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_PLUG-IN\_RF4CE\_ZRC20\_HA\_SERVER\_LDANDMAPPINGPRINTALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_PROXY\_BIND
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_START
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PLUGIN\_RF4CE\_ZRC20\_PLUGIN\_RF4CE\_ZRC20\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_B\_A\_CNET\_PROTOCOL\_TUNNEL\_RAN-DOM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_BASIC\_RTFD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_CALENDAR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_DAY\_PROFILES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_WEEK\_PROFILES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_SEASONS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_SPECIAL\_DAYS

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_CALENDAR\_GET\_CANCELLATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVESAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOHUEANDSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOCOLOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVECOLOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPCOLOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVETOCOLORTEMP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVETOHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_ESTEHUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_EMOVETOHUEANDSAT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_LOOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STOPMOVESTEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_MOVECOLORTEMP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_COLOR\_CONTROL\_STEPCOLORTEMP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_CL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_CA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEMAND\_RESPONSE\_AND\_LOAD\_CONTROL\_GSE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CHG\_OF\_TENANCY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CHG\_OF\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_REQ\_NEW\_PASS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_SITE\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_RPT\_EVENT\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_CIN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_PUB\_CHG\_OF\_SUPPLIER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_REQ\_NEW\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_SET\_EVENT\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DEVICE\_MANAGEMENT\_GET\_EVENT\_CONFIG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DOOR\_LOCK\_LOCK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_DOOR\_LOCK\_UNLOCK

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_EVENTS\_GET\_EVENT\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_EVENTS\_CLEAR\_EVENT\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_MATCH
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_RESPONSE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GENERIC\_TUNNEL\_ADVERTISE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_VIEW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_RMALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_GROUPS\_ADD\_IF\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_A
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_B
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_E
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_F
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_P
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_GETZM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IAS\_ACE\_GETZI
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_I\_A\_S\_ZONE\_SC
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_I\_A\_S\_ZONE\_ENROLL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_ID
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_QUERY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_EZ\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_IDENTIFY\_TRIGGER
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_MV\_TO\_LEVEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_MOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_STEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_MV\_TO\_LEVEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_MOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_STEP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_LEVEL\_CONTROL\_O\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_DISP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_CANCEL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_DISP\_PROTD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_X\_ALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_CONFIRM
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_MESSAGING\_GET\_MSG\_X
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_ON
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_LONG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POLL\_CONTROL\_SHORT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_PROFILE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_STATE

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_ENERGY\_PHASES\_SCHEDULE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_SCHEDULE\_CONSTRAINTS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_POWER\_PROFILE\_ENERGY\_PHASES\_SCHEDULE\_STATES
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SEL\_AV\_EM\_CRED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_DEBT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_EM\_CRED\_SETUP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CONS\_TOP\_UP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CRED\_ADJ
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_PMT\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_PP\_SS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_TOP\_UP\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_LOW\_CRED\_WNG\_LVL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_GET\_DEBT\_REPMT\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_MAX\_CRED\_LMT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_SET\_OA\_DEBT\_CAP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_PREP\_SS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CHG\_PMT\_MODE\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_CONS\_TOP\_UP\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_TOP\_UP\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PREPAYMENT\_PUB\_DEBT\_LOG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_PRICE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BLOCK\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_X\_FACTOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CAL\_VAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_TARIFF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_PRICE\_MATRIX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BLOCK\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CO2\_VAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_TIER\_LABELS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_BILLING\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CONSOLIDATED\_BILL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CPP\_EVENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CREDIT\_PAYMENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PUB\_CURRENCY\_CONVERSION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CANCEL\_TARIFF
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CURRENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_SCHEDULED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_PRICE\_ACK
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BLOCK\_PERIODS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CONVERSION\_FACTOR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CAL\_VAL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TARIFF\_INFO
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_PRICE\_MATRIX
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BLOCK\_THRESHOLDS

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CO2\_VALUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TIER\_LABELS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_BILLING\_PERIOD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CON\_BILL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_CPP\_EVENT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CREDIT\_PAYMENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_CUR\_CONV\_CMD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_PRICE\_GET\_TARIFF\_CANCELLATION
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_ADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_VIEW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_REMOVE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_RMALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_STORE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_RECALL
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_GET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_EADD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_EVIEW
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SCENES\_COPY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REQUEST\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REMOVE\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SCH\_SNAPSHOT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_TAKE\_SNAPSHOT\_RESP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_PUB\_SS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_MIRROR
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_NFT\_SCHEMA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CFG\_NFT\_FLAGS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_NTFY\_MSG
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SUP\_STAT\_RSP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_START\_SAMPLE\_RSP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_PROFILE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_MIRROR\_REMOVED
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_REQ\_FAST\_POLL\_MODE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SCH\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_TAKE\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_SNAPSHOT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_START\_SAMPLING
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_RST\_LOAD\_LIMIT\_CTR

- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_CHG\_SUPPLY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_LOCAL\_CHG\_SUPPLY
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SET\_SUPPLY\_STATUS
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_SIMPLE\_METERING\_SET\_UNCNTRL\_FLOW\_THRESHOLD
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_THERMOSTAT\_SET
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_REQUEST
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_TUNNELING\_CLOSE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_UP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_DOWN
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_STOP
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_LIFT\_VALUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_LIFT\_PERCENT
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_TILT\_VALUE
- #define EMBER\_AF\_DOXYGEN\_CLI\_COMMAND\_WINDOW\_COVERING\_GO\_TO\_TILT\_PERCENTAGE

### 8.29.1 Macro Definition Documentation

#### 8.29.1.1 #define \_\_EMBER\_AF\_CLI\_\_

Definition at line 7 of file [cli.doc](#).

## 8.30 client-api.h File Reference

```
#include "client-command-macro.h"
```

### Client API functions

- #define emberAfAppendToExternalBuffer(...)
- uint8\_t \* emAfZclBuffer
- uint16\_t emAfZclBufferLen
- uint16\_t \* emAfResponseLengthPtr
- EmberApsFrame \* emAfCommandApsFrame
- uint16\_t emberAfFillExternalBuffer (uint8\_t frameControl, EmberAfClusterId clusterId, uint8\_t commandId, PGM\_P format,...)
- uint16\_t emberAfFillExternalManufacturerSpecificBuffer (uint8\_t frameControl, EmberAfClusterId clusterId, uint16\_t manufacturerCode, uint8\_t commandId, PGM\_P format,...)
- void emberAfSetExternalBuffer (uint8\_t \*buffer, uint16\_t bufferLen, uint16\_t \*responseLengthPtr, EmberApsFrame \*apsFramePtr)
- uint16\_t emberAfFillBuffer (uint8\_t \*buffer, uint16\_t bufferLen, uint8\_t frameControl, uint8\_t commandId, PGM\_P format,...)

### 8.30.1 Detailed Description

API for generating command buffer.

Definition in file [client-api.h](#).

### 8.30.2 Macro Definition Documentation

#### 8.30.2.1 `#define emberAfAppendToExternalBuffer( ... )`

Function that fills in the buffer with command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with `emberAfSetExternalBuffer`.

##### Parameters

<code>frameControl</code>	byte used for frame control
<code>clusterId</code>	cluster id of message
<code>commandId</code>	command id of message
<code>format</code>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': <code>uint8_t</code>.</li> <li>• 'v': <code>uint16_t</code>. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': <code>int24u</code>. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': <code>uint32_t</code>. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an <code>uint16_t</code> specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an <code>uint8_t</code> specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an <code>uint16_t</code> specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

Definition at line 148 of file [client-api.h](#).

### 8.30.3 Function Documentation

### 8.30.3.1 `uint16_t emberAfFillExternalBuffer ( uint8_t frameControl, EmberAfClusterId clusterId, uint8_t commandId, PGM_P format, ... )`

Function that fills in the buffer with command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with emberAfSetExternalBuffer.

#### Parameters

<code>frameControl</code>	byte used for frame control
<code>clusterId</code>	cluster id of message
<code>commandId</code>	command id of message
<code>format</code>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': <code>uint8_t</code>.</li> <li>• 'v': <code>uint16_t</code>. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': <code>int24u</code>. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': <code>uint32_t</code>. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an <code>uint16_t</code> specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an <code>uint8_t</code> specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an <code>uint16_t</code> specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

### 8.30.3.2 `uint16_t emberAfFillExternalManufacturerSpecificBuffer ( uint8_t frameControl, EmberAfClusterId clusterId, uint16_t manufacturerCode, uint8_t commandId, PGM_P format, ... )`

Function that fills in the buffer with manufacturer-specific command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with emberAfSetExternalBuffer.

#### Parameters

<code>frameControl</code>	byte used for frame control
<code>clusterId</code>	cluster id of message

<i>manufacturerCode</i>	manufacturer code of message
<i>commandId</i>	command id of message
<i>format</i>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': uint8_t.</li> <li>• 'v': uint16_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': int24u. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': uint32_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an uint16_t specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an uint8_t specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an uint16_t specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

### 8.30.3.3 void emberAfSetExternalBuffer ( *uint8\_t \* buffer*, *uint16\_t bufferLen*, *uint16\_t \* responseLengthPtr*, *EmberApsFrame \* apsFramePtr* )

Function that registers the buffer to use with the fill function. Registers the buffer for use with the emberAfFillExternalBuffer function.

#### Parameters

<i>buffer</i>	Main buffer for constructing message.
<i>bufferLen</i>	Available length of buffer.
<i>responseLengthPtr</i>	location where length of message will be written into.
<i>apsFramePtr</i>	location where APS frame data will be written.

### 8.30.3.4 uint16\_t emberAfFillBuffer ( *uint8\_t \* buffer*, *uint16\_t bufferLen*, *uint8\_t frameControl*, *uint8\_t commandId*, *PGM\_P format*, ... )

Stateless function that fills the passed buffer with command data.

Stateless method, that fill the passed buffer. This method is used internally by emberAfFillExternalBuffer, but can be used for generic buffer filling.

#### 8.30.4 Variable Documentation

##### 8.30.4.1 uint8\_t\* emAfZclBuffer

Function that fills in the buffer with command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with emberAfSetExternalBuffer.

###### Parameters

<i>frameControl</i>	byte used for frame control
<i>clusterId</i>	cluster id of message
<i>commandId</i>	command id of message
<i>format</i>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': uint8_t.</li> <li>• 'v': uint16_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': int24u. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': uint32_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an uint16_t specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an uint8_t specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an uint16_t specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

##### 8.30.4.2 uint16\_t emAfZclBufferLen

Function that fills in the buffer with command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with emberAfSetExternalBuffer.

**Parameters**

<i>frameControl</i>	byte used for frame control
<i>clusterId</i>	cluster id of message
<i>commandId</i>	command id of message
<i>format</i>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': uint8_t.</li> <li>• 'v': uint16_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': int24u. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': uint32_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an uint16_t specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an uint8_t specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an uint16_t specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

**8.30.4.3 uint16\_t\* emAfResponseLengthPtr**

Function that fills in the buffer with command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with emberAfSetExternalBuffer.

**Parameters**

<i>frameControl</i>	byte used for frame control
<i>clusterId</i>	cluster id of message
<i>commandId</i>	command id of message
<i>format</i>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': uint8_t.</li> <li>• 'v': uint16_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': int24u. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': uint32_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an uint16_t specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an uint8_t specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an uint16_t specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

**8.30.4.4 EmberApsFrame\* emAfCommandApsFrame**

Function that fills in the buffer with command.

Fills the outgoing zcl buffer and returns the number of bytes used in a buffer. The buffers used are the ones that were previously set with emberAfSetExternalBuffer.

**Parameters**

<i>frameControl</i>	byte used for frame control
<i>clusterId</i>	cluster id of message
<i>commandId</i>	command id of message
<i>format</i>	<p>String format for further arguments to the function. Format values are:</p> <ul style="list-style-type: none"> <li>• '0' – '9' and 'A' – 'G': Pointer to a buffer contain 0–16 raw bytes. The data is copied as is to the destination buffer.</li> <li>• 'u': uint8_t.</li> <li>• 'v': uint16_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'x': int24u. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'w': uint32_t. The bytes are copied in little-endian format to the destination buffer.</li> <li>• 'l': Pointer to a buffer containing a ZigBee long string, with the first two bytes of the buffer specifying the length of the string data in little-endian format. The length bytes and the string itself are both included as is in the destination buffer.</li> <li>• 's': Pointer to a buffer containing a ZigBee string, with the first byte of the buffer specifying the length of the string data. The length byte and the string itself are both included as is in the destination buffer.</li> <li>• 'L': Pointer to a buffer containing a long string followed by an uint16_t specifying the length of the string data. The length bytes in little-endian format will precede the string itself in the destination buffer.</li> <li>• 'S': Pointer to a buffer containing a string followed by an uint8_t specifying the length of the string data. The length byte will precede the string itself in the destination buffer.</li> <li>• 'b': Pointer to a buffer containing a sequence of raw bytes followed by an uint16_t specifying the length of the data. The data is copied as is to the destination buffer. The length is not included.</li> </ul>

## 8.31 client-api.h

```

00001
00006 #ifndef __CLIENT_API__
00007 #define __CLIENT_API__
00008
00010 // @{
00011
00053 uint16_t emberAfFillExternalBuffer(uint8_t
00054 frameControl,
00055                                     EmberAfClusterId clusterId,
00056                                     uint8_t commandId,
00057                                     PGM_P format,
00058                                     ...);
00101 uint16_t emberAfFillExternalManufacturerSpecificBuffer
00102     (uint8_t frameControl,
00103      EmberAfClusterId
00104      clusterId,
00105      uint16_t manufacturerCode,
00106      uint8_t commandId,
00107      PGM_P format,
00108      ...);
00117 void emberAfSetExternalBuffer(uint8_t *buffer,
00118                                 uint16_t bufferLen,
00119                                 uint16_t *responseLengthPtr,
00120                                 EmberApsFrame *apsFramePtr);

```

```

00121
00129 uint16_t emberAfFillBuffer(uint8_t *buffer,
00130                     uint16_t bufferLen,
00131                     uint8_t frameControl,
00132                     uint8_t commandId,
00133                     PGM_P format,
00134                     ...);
00135
00136 // The buffer used for filling ZCL Messages
00137 extern uint8_t *emAfZclBuffer;
00138 // Max length of the buffer
00139 extern uint16_t emAfZclBufferLen;
00140 // Pointer to where this API should put the length
00141 extern uint16_t *emAfResponseLengthPtr;
00142 // The APS frame accompanying the ZCL message.
00143 extern EmberApsFrame *emAfCommandApsFrame;
00144
00145 // Generated macros
00146 #include "client-command-macro.h"
00147
00148 #define emberAfAppendToExternalBuffer(...) emberAfPutBlockInResp(__VA_ARGS__)
00149
00152 #endif // __CLIENT_API__

```

## 8.32 client-command-macro.doc File Reference

### Macros

- #define CLUSTER\_CLIENT\_API

### Global Commands

- #define emberAfFillCommandGlobalServerToClientReadAttributes(attributeIds, attributeIdsLen)
- #define emberAfFillCommandGlobalClientToServerReadAttributes(attributeIds, attributeIdsLen)
- #define emberAfFillCommandGlobalServerToClientReadAttributesResponse(readAttributeStatusRecords, readAttributeStatusRecordsLen)
- #define emberAfFillCommandGlobalClientToServerReadAttributesResponse(readAttributeStatusRecords, readAttributeStatusRecordsLen)
- #define emberAfFillCommandGlobalServerToClientWriteAttributes(writeAttributeRecords, writeAttributeRecordsLen)
- #define emberAfFillCommandGlobalClientToServerWriteAttributes(writeAttributeRecords, writeAttributeRecordsLen)
- #define emberAfFillCommandGlobalServerToClientWriteAttributesUndivided(writeAttributeRecords, writeAttributeRecordsLen)
- #define emberAfFillCommandGlobalClientToServerWriteAttributesUndivided(writeAttributeRecords, writeAttributeRecordsLen)
- #define emberAfFillCommandGlobalServerToClientWriteAttributesResponse(writeAttributeStatusRecords, writeAttributeStatusRecordsLen)
- #define emberAfFillCommandGlobalClientToServerWriteAttributesResponse(writeAttributeStatusRecords, writeAttributeStatusRecordsLen)
- #define emberAfFillCommandGlobalServerToClientWriteAttributesNoResponse(writeAttributeRecords, writeAttributeRecordsLen)
- #define emberAfFillCommandGlobalClientToServerWriteAttributesNoResponse(writeAttributeRecords, writeAttributeRecordsLen)
- #define emberAfFillCommandGlobalServerToClientConfigureReporting(configureReportingRecords, configureReportingRecordsLen)
- #define emberAfFillCommandGlobalClientToServerConfigureReporting(configureReportingRecords, configureReportingRecordsLen)

- #define `emberAfFillCommandGlobalServerToClientConfigureReportingResponse`(configureReportingStatusRecords, configureReportingStatusRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerConfigureReportingResponse`(configureReportingStatusRecords, configureReportingStatusRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientReadReportingConfiguration`(readReportingConfigurationAttributeRecords, readReportingConfigurationAttributeRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerReadReportingConfiguration`(readReportingConfigurationAttributeRecords, readReportingConfigurationAttributeRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientReadReportingConfigurationResponse`(readReportingConfigurationRecords, readReportingConfigurationRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerReadReportingConfigurationResponse`(readReportingConfigurationRecords, readReportingConfigurationRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientReportAttributes`(reportAttributeRecords, reportAttributeRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerReportAttributes`(reportAttributeRecords, reportAttributeRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientDefaultResponse`(commandId, status)
- #define `emberAfFillCommandGlobalClientToServerDefaultResponse`(commandId, status)
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributes`(startId, maxAttributeIds)
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributes`(startId, maxAttributeIds)
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributesResponse`(discoveryComplete, discoverAttributesInfoRecords, discoverAttributesInfoRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributesResponse`(discoveryComplete, discoverAttributesInfoRecords, discoverAttributesInfoRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientReadAttributesStructured`(readStructuredAttributeRecords, readStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerReadAttributesStructured`(readStructuredAttributeRecords, readStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesStructured`(writeStructuredAttributeRecords, writeStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesStructured`(writeStructuredAttributeRecords, writeStructuredAttributeRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientWriteAttributesStructuredResponse`(writeStructuredAttributeStatusRecords, writeStructuredAttributeStatusRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerWriteAttributesStructuredResponse`(writeStructuredAttributeStatusRecords, writeStructuredAttributeStatusRecordsLen)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsReceived`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsReceived`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsReceivedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsReceivedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsGenerated`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsGenerated`(startCommandId, maxCommandIds)
- #define `emberAfFillCommandGlobalServerToClientDiscoverCommandsGeneratedResponse`(discoveryComplete, commandIds, commandIdsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverCommandsGeneratedResponse`(discoveryComplete, commandIds, commandIdsLen)

- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributesExtended`(startId, maxAttribute-  
Ids)
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributesExtended`(startId, maxAttribute-  
Ids)
- #define `emberAfFillCommandGlobalServerToClientDiscoverAttributesExtendedResponse`(discovery-  
Complete, extendedDiscoverAttributesInfoRecords, extendedDiscoverAttributesInfoRecordsLen)
- #define `emberAfFillCommandGlobalClientToServerDiscoverAttributesExtendedResponse`(discovery-  
Complete, extendedDiscoverAttributesInfoRecords, extendedDiscoverAttributesInfoRecordsLen)

## Basic Commands

- #define `emberAfFillCommandBasicClusterResetToFactoryDefaults()`

## Identify Commands

- #define `emberAfFillCommandIdentifyClusterIdentify`(identifyTime)
- #define `emberAfFillCommandIdentifyClusterIdentifyQuery()`
- #define `emberAfFillCommandIdentifyClusterEZModeInvoke`(action)
- #define `emberAfFillCommandIdentifyClusterUpdateCommissionState`(action, commissionStateMask)
- #define `emberAfFillCommandIdentifyClusterIdentifyQueryResponse`(timeout)
- #define `emberAfFillCommandIdentifyClusterTriggerEffect`(effectId, effectVariant)

## Groups Commands

- #define `emberAfFillCommandGroupsClusterAddGroup`(groupId, groupName)
- #define `emberAfFillCommandGroupsClusterViewGroup`(groupId)
- #define `emberAfFillCommandGroupsClusterGetGroupMembership`(groupCount, groupList, group-  
ListLen)
- #define `emberAfFillCommandGroupsClusterRemoveGroup`(groupId)
- #define `emberAfFillCommandGroupsClusterRemoveAllGroups()`
- #define `emberAfFillCommandGroupsClusterAddGroupIfIdentifying`(groupId, groupName)
- #define `emberAfFillCommandGroupsClusterAddGroupResponse`(status, groupId)
- #define `emberAfFillCommandGroupsClusterViewGroupResponse`(status, groupId, groupName)
- #define `emberAfFillCommandGroupsClusterGetGroupMembershipResponse`(capacity, groupCount,  
groupList, groupListLen)
- #define `emberAfFillCommandGroupsClusterRemoveGroupResponse`(status, groupId)

## Scenes Commands

- #define `emberAfFillCommandScenesClusterAddScene`(groupId, sceneId, transitionTime, sceneName,  
extensionFieldSets, extensionFieldSetsLen)
- #define `emberAfFillCommandScenesClusterViewScene`(groupId, sceneId)
- #define `emberAfFillCommandScenesClusterRemoveScene`(groupId, sceneId)
- #define `emberAfFillCommandScenesClusterRemoveAllScenes`(groupId)
- #define `emberAfFillCommandScenesClusterStoreScene`(groupId, sceneId)
- #define `emberAfFillCommandScenesClusterRecallScene`(groupId, sceneId)
- #define `emberAfFillCommandScenesClusterGetSceneMembership`(groupId)
- #define `emberAfFillCommandScenesClusterAddSceneResponse`(status, groupId, sceneId)

- #define `emberAfFillCommandScenesClusterViewSceneResponse`(status, groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)
- #define `emberAfFillCommandScenesClusterRemoveSceneResponse`(status, groupId, sceneId)
- #define `emberAfFillCommandScenesClusterRemoveAllScenesResponse`(status, groupId)
- #define `emberAfFillCommandScenesClusterStoreSceneResponse`(status, groupId, sceneId)
- #define `emberAfFillCommandScenesClusterGetSceneMembershipResponse`(status, capacity, groupId, sceneCount, sceneList, sceneListLen)
- #define `emberAfFillCommandScenesClusterEnhancedAddScene`(groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)
- #define `emberAfFillCommandScenesClusterEnhancedViewScene`(groupId, sceneId)
- #define `emberAfFillCommandScenesClusterCopyScene`(mode, groupIdFrom, sceneIdFrom, groupIdTo, sceneIdTo)
- #define `emberAfFillCommandScenesClusterEnhancedAddSceneResponse`(status, groupId, sceneId)
- #define `emberAfFillCommandScenesClusterEnhancedViewSceneResponse`(status, groupId, sceneId, transitionTime, sceneName, extensionFieldSets, extensionFieldSetsLen)
- #define `emberAfFillCommandScenesClusterCopySceneResponse`(status, groupIdFrom, sceneIdFrom)

## On/off Commands

- #define `emberAfFillCommandOnOffClusterOff()`
- #define `emberAfFillCommandOnOffClusterOn()`
- #define `emberAfFillCommandOnOffClusterToggle()`
- #define `emberAfFillCommandOnOffClusterOffWithEffect`(effectId, effectVariant)
- #define `emberAfFillCommandOnOffClusterOnWithRecallGlobalScene()`
- #define `emberAfFillCommandOnOffClusterOnWithTimedOff`(onOffControl, onTime, offWaitTime)
- #define `emberAfFillCommandOnOffClusterSampleMfgSpecificOffWithTransition()`
- #define `emberAfFillCommandOnOffClusterSampleMfgSpecificOnWithTransition()`
- #define `emberAfFillCommandOnOffClusterSampleMfgSpecificToggleWithTransition()`

## Level Control Commands

- #define `emberAfFillCommandLevelControlClusterMoveToLevel`(level, transitionTime)
- #define `emberAfFillCommandLevelControlClusterMove`(moveMode, rate)
- #define `emberAfFillCommandLevelControlClusterStep`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandLevelControlClusterStop()`
- #define `emberAfFillCommandLevelControlClusterMoveToLevelWithOnOff`(level, transitionTime)
- #define `emberAfFillCommandLevelControlClusterMoveWithOnOff`(moveMode, rate)
- #define `emberAfFillCommandLevelControlClusterStepWithOnOff`(stepMode, stepSize, transitionTime)
- #define `emberAfFillCommandLevelControlClusterStopWithOnOff()`

## Alarms Commands

- #define `emberAfFillCommandAlarmClusterResetAlarm`(alarmCode, clusterId)
- #define `emberAfFillCommandAlarmClusterResetAllAlarms()`
- #define `emberAfFillCommandAlarmClusterGetAlarm()`
- #define `emberAfFillCommandAlarmClusterResetAlarmLog()`
- #define `emberAfFillCommandAlarmClusterAlarm`(alarmCode, clusterId)
- #define `emberAfFillCommandAlarmClusterGetAlarmResponse`(status, alarmCode, clusterId, timeStamp)

## RSSI Location Commands

- #define `emberAfFillCommandRssiLocationClusterSetAbsoluteLocation`(coordinate1, coordinate2, coordinate3, power, pathLossExponent)
- #define `emberAfFillCommandRssiLocationClusterSetDeviceConfiguration`(power, pathLossExponent, calculationPeriod, numberRssiMeasurements, reportingPeriod)
- #define `emberAfFillCommandRssiLocationClusterGetDeviceConfiguration`(targetAddress)
- #define `emberAfFillCommandRssiLocationClusterGetLocationData`(flags, numberResponses, targetAddress)
- #define `emberAfFillCommandRssiLocationClusterRssiResponse`(replyingDevice, coordinate1, coordinate2, coordinate3, rssi, numberRssiMeasurements)
- #define `emberAfFillCommandRssiLocationClusterSendPings`(targetAddress, numberRssiMeasurements, calculationPeriod)
- #define `emberAfFillCommandRssiLocationClusterAnchorNodeAnnounce`(anchorNodeIeeeAddress, coordinate1, coordinate2, coordinate3)
- #define `emberAfFillCommandRssiLocationClusterDeviceConfigurationResponse`(status, power, pathLossExponent, calculationPeriod, numberRssiMeasurements, reportingPeriod)
- #define `emberAfFillCommandRssiLocationClusterLocationDataResponse`(status, locationType, coordinate1, coordinate2, coordinate3, power, pathLossExponent, locationMethod, qualityMeasure, locationAge)
- #define `emberAfFillCommandRssiLocationClusterLocationDataNotification`(locationType, coordinate1, coordinate2, coordinate3, power, pathLossExponent, locationMethod, qualityMeasure, locationAge)
- #define `emberAfFillCommandRssiLocationClusterCompactLocationDataNotification`(locationType, coordinate1, coordinate2, coordinate3, qualityMeasure, locationAge)
- #define `emberAfFillCommandRssiLocationClusterRssiPing`(locationType)
- #define `emberAfFillCommandRssiLocationClusterRssiRequest`()
- #define `emberAfFillCommandRssiLocationClusterReportRssiMeasurements`(measuringDevice, neighbors, neighborsInfo, neighborsInfoLen)
- #define `emberAfFillCommandRssiLocationClusterRequestOwnLocation`(blindNode)

## Commissioning Commands

- #define `emberAfFillCommandCommissioningClusterRestartDevice`(options, delay, jitter)
- #define `emberAfFillCommandCommissioningClusterSaveStartupParameters`(options, index)
- #define `emberAfFillCommandCommissioningClusterRestoreStartupParameters`(options, index)
- #define `emberAfFillCommandCommissioningClusterResetStartupParameters`(options, index)
- #define `emberAfFillCommandCommissioningClusterRestartDeviceResponse`(status)
- #define `emberAfFillCommandCommissioningClusterSaveStartupParametersResponse`(status)
- #define `emberAfFillCommandCommissioningClusterRestoreStartupParametersResponse`(status)
- #define `emberAfFillCommandCommissioningClusterResetStartupParametersResponse`(status)

## Partition Commands

- #define `emberAfFillCommandPartitionClusterTransferPartitionedFrame`(fragmentationOptions, partitionedIndicatorAndFrame, partitionedIndicatorAndFrameLen)
- #define `emberAfFillCommandPartitionClusterReadHandshakeParam`(partitionedClusterId, attributeList, attributeListLen)
- #define `emberAfFillCommandPartitionClusterWriteHandshakeParam`(partitionedClusterId, writeAttributeRecords, writeAttributeRecordsLen)

- #define `emberAfFillCommandPartitionClusterMultipleAck`(ackOptions, firstFrameIdAndNackList, firstFrameIdAndNackListLen)
- #define `emberAfFillCommandPartitionClusterReadHandshakeParamResponse`(partitionedClusterId, readAttributeStatusRecords, readAttributeStatusRecordsLen)

## Over the Air Bootloading Commands

- #define `emberAfFillCommandOtaBootloadClusterImageNotify`(payloadType, queryJitter, manufacturerId, imageType, newFileVersion)
- #define `emberAfFillCommandOtaBootloadClusterQueryNextImageRequest`(fieldControl, manufacturerId, imageType, currentFileVersion, hardwareVersion)
- #define `emberAfFillCommandOtaBootloadClusterQueryNextImageResponse`(status, manufacturerId, imageType, fileVersion, imageSize)
- #define `emberAfFillCommandOtaBootloadClusterImageBlockRequest`(fieldControl, manufacturerId, imageType, fileVersion, fileOffset, maxDataSize, requestNodeAddress)
- #define `emberAfFillCommandOtaBootloadClusterImagePageRequest`(fieldControl, manufacturerId, imageType, fileVersion, fileOffset, maxDataSize, pageSize, responseSpacing, requestNodeAddress)
- #define `emberAfFillCommandOtaBootloadClusterImageBlockResponse`(status, manufacturerId, imageType, fileVersion, fileOffset, dataSize, imageData, imageDataLen)
- #define `emberAfFillCommandOtaBootloadClusterUpgradeEndRequest`(status, manufacturerId, imageType, fileVersion)
- #define `emberAfFillCommandOtaBootloadClusterUpgradeEndResponse`(manufacturerId, imageType, fileVersion, currentTime, upgradeTime)
- #define `emberAfFillCommandOtaBootloadClusterQuerySpecificFileRequest`(requestNodeAddress, manufacturerId, imageType, fileVersion, currentZigbeeStackVersion)
- #define `emberAfFillCommandOtaBootloadClusterQuerySpecificFileResponse`(status, manufacturerId, imageType, fileVersion, imageSize)

## Power Profile Commands

- #define `emberAfFillCommandPowerProfileClusterPowerProfileRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileStateRequest()`
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePriceResponse`(powerProfileId, currency, price, priceTrailingDigit)
- #define `emberAfFillCommandPowerProfileClusterGetOverallSchedulePriceResponse`(currency, price, priceTrailingDigit)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleNotification`(powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleResponse`(powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePriceExtendedResponse`(powerProfileId, currency, price, priceTrailingDigit)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileNotification`(totalProfileNum, powerProfileId, numOfTransferredPhases, transferredPhases, transferredPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileResponse`(totalProfileNum, powerProfileId, numOfTransferredPhases, transferredPhases, transferredPhasesLen)

- #define `emberAfFillCommandPowerProfileClusterPowerProfileStateResponse`(powerProfileCount, powerProfileRecords, powerProfileRecordsLen)
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePrice`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterPowerProfilesStateNotification`(powerProfileCount, powerProfileRecords, powerProfileRecordsLen)
- #define `emberAfFillCommandPowerProfileClusterGetOverallSchedulePrice()`
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleRequest`(powerProfileId)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateResponse`(powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterEnergyPhasesScheduleStateNotification`(powerProfileId, numOfScheduledPhases, scheduledPhases, scheduledPhasesLen)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsNotification`(powerProfileId, startAfter, stopBefore)
- #define `emberAfFillCommandPowerProfileClusterPowerProfileScheduleConstraintsResponse`(powerProfileId, startAfter, stopBefore)
- #define `emberAfFillCommandPowerProfileClusterGetPowerProfilePriceExtended`(options, powerProfileId, powerProfileStartTime)

## Appliance Control Commands

- #define `emberAfFillCommandApplianceControlClusterExecutionOfACommand`(commandId)
- #define `emberAfFillCommandApplianceControlClusterSignalState()`
- #define `emberAfFillCommandApplianceControlClusterWriteFunctions`(functionId, functionDataType, functionData, functionDataLen)
- #define `emberAfFillCommandApplianceControlClusterOverloadPauseResume()`
- #define `emberAfFillCommandApplianceControlClusterOverloadPause()`
- #define `emberAfFillCommandApplianceControlClusterOverloadWarning`(warningEvent)
- #define `emberAfFillCommandApplianceControlClusterSignalStateResponse`(applianceStatus, remoteEnableFlagsAndDeviceStatus2, applianceStatus2)
- #define `emberAfFillCommandApplianceControlClusterSignalStateNotification`(applianceStatus, remoteEnableFlagsAndDeviceStatus2, applianceStatus2)

## Poll Control Commands

- #define `emberAfFillCommandPollControlClusterCheckIn()`
- #define `emberAfFillCommandPollControlClusterCheckInResponse`(startFastPolling, fastPollTimeout)
- #define `emberAfFillCommandPollControlClusterFastPollStop()`
- #define `emberAfFillCommandPollControlClusterSetLongPollInterval`(newLongPollInterval)
- #define `emberAfFillCommandPollControlClusterSetShortPollInterval`(newShortPollInterval)

## Green Power Commands

- #define `emberAfFillCommandGreenPowerClusterGpNotification`(options, gpdSrcId, gpdIeee, gpdEndpoint, gpdSecurityFrameCounter, gpdCommandId, gpdCommandPayload, gppShortAddress, gppDistance)
- #define `emberAfFillCommandGreenPowerClusterGpPairingSearch`(options, gpdSrcId, gpdIeee, endpoint)
- #define `emberAfFillCommandGreenPowerClusterGpTunnelingStop`(options, gpdSrcId, gpdIeee, endpoint, gpdSecurityFrameCounter, gppShortAddress, gppDistance)

- #define `emberAfFillCommandGreenPowerClusterGpCommissioningNotification`(options, gpdSrcId, gpdIeee, endpoint, gpdSecurityFrameCounter, gpdCommandId, gpdCommandPayload, gppShortAddress, gppLink, mic)
- #define `emberAfFillCommandGreenPowerClusterGpSinkCommissioningMode`(options, gpmAddrForSecurity, gpmAddrForPairing, sinkEndpoint)
- #define `emberAfFillCommandGreenPowerClusterGpTranslationTableUpdate`(options, gpdSrcId, gpdIeee, endpoint, translations, translationsLen)
- #define `emberAfFillCommandGreenPowerClusterGpTranslationTableRequest`(startIndex)
- #define `emberAfFillCommandGreenPowerClusterGpPairingConfiguration`(actions, options, gpdSrcId, gpdIeee, endpoint, deviceId, groupListCount, groupList, groupListLen, gpdAssignedAlias, forwardingRadius, securityOptions, gpdSecurityFrameCounter, gpdSecurityKey, numberOfPairedEndpoints, pairedEndpoints, pairedEndpointsLen, applicationInformation, manufacturerId, modeId, number\_of\_GpdCommands, gpdCommandIdList, gpdCommandIdListLen, clusterIdListCount, clusterListServer, clusterListServerLen, clusterListClient, clusterListClientLen)
- #define `emberAfFillCommandGreenPowerClusterGpSinkTableRequest`(options, gpdSrcId, gpdIeee, endpoint, index)
- #define `emberAfFillCommandGreenPowerClusterGpProxyTableResponse`(status, totalNumberOfNonEmptyProxyTableEntries, startIndex, entriesCount, proxyTableEntries, proxyTableEntriesLen)
- #define `emberAfFillCommandGreenPowerClusterGpNotificationResponse`(options, gpdSrcId, gpdIeee, gpdSecurityFrameCounter)
- #define `emberAfFillCommandGreenPowerClusterGpPairing`(options, gpdSrcId, gpdIeee, endpoint, sinkIeeeAddress, sinkNwkAddress, sinkGroupId, deviceId, gpdSecurityFrameCounter, gpdKey, assignedAlias, forwardingRadius)
- #define `emberAfFillCommandGreenPowerClusterGpProxyCommissioningMode`(options, commissioningWindow, channel)
- #define `emberAfFillCommandGreenPowerClusterGpResponse`(options, tempMasterShortAddress, tempMasterTxChannel, gpdSrcId, gpdIeee, endpoint, gpdCommandId, gpdCommandPayload, gpdCommandPayloadLen)
- #define `emberAfFillCommandGreenPowerClusterGpSinkTableResponse`(status, totalNumberOfNonEmptySinkTableEntries, startIndex, sinkTableEntriesCount, sinkTableEntries, sinkTableEntriesLen)
- #define `emberAfFillCommandGreenPowerClusterGpProxyTableRequest`(options, gpdSrcId, gpdIeee, endpoint, index)

## Door Lock Commands

- #define `emberAfFillCommandDoorLockClusterLockDoor`(PIN)
- #define `emberAfFillCommandDoorLockClusterUnlockDoor`(PIN)
- #define `emberAfFillCommandDoorLockClusterToggle`(pin)
- #define `emberAfFillCommandDoorLockClusterUnlockWithTimeout`(timeoutInSeconds, pin)
- #define `emberAfFillCommandDoorLockClusterGetLogRecord`(logIndex)
- #define `emberAfFillCommandDoorLockClusterSetPin`(userId, userStatus, userType, pin)
- #define `emberAfFillCommandDoorLockClusterGetPin`(userId)
- #define `emberAfFillCommandDoorLockClusterClearPin`(userId)
- #define `emberAfFillCommandDoorLockClusterClearAllPins`()
- #define `emberAfFillCommandDoorLockClusterSetUserStatus`(userId, userStatus)
- #define `emberAfFillCommandDoorLockCluster GetUserStatus`(userId)
- #define `emberAfFillCommandDoorLockClusterSetWeekdaySchedule`(scheduleId, userId, daysMask, startHour, startMinute, endHour, endMinute)
- #define `emberAfFillCommandDoorLockClusterGetWeekdaySchedule`(scheduleId, userId)
- #define `emberAfFillCommandDoorLockClusterClearWeekdaySchedule`(scheduleId, userId)

- #define `emberAfFillCommandDoorLockClusterSetYeardaySchedule(scheduleId, userId, localStartTime, localEndTime)`
- #define `emberAfFillCommandDoorLockClusterGetYeardaySchedule(scheduleId, userId)`
- #define `emberAfFillCommandDoorLockClusterClearYeardaySchedule(scheduleId, userId)`
- #define `emberAfFillCommandDoorLockClusterSetHolidaySchedule(scheduleId, localStartTime, localEndTime, operatingModeDuringHoliday)`
- #define `emberAfFillCommandDoorLockClusterGetHolidaySchedule(scheduleId)`
- #define `emberAfFillCommandDoorLockClusterClearHolidaySchedule(scheduleId)`
- #define `emberAfFillCommandDoorLockClusterSetUserType(userId, userType)`
- #define `emberAfFillCommandDoorLockCluster GetUserType(userId)`
- #define `emberAfFillCommandDoorLockClusterSetRfid(userId, userStatus, userType, id)`
- #define `emberAfFillCommandDoorLockClusterGetRfid(userId)`
- #define `emberAfFillCommandDoorLockClusterClearRfid(userId)`
- #define `emberAfFillCommandDoorLockClusterClearAllRfids()`
- #define `emberAfFillCommandDoorLockClusterLockDoorResponse(status)`
- #define `emberAfFillCommandDoorLockClusterUnlockDoorResponse(status)`
- #define `emberAfFillCommandDoorLockClusterToggleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterUnlockWithTimeoutResponse(status)`
- #define `emberAfFillCommandDoorLockClusterGetLogRecordResponse(logEntryId, timestamp, event-Type, source, eventIdOrAlarmCode, userId, pin)`
- #define `emberAfFillCommandDoorLockClusterSetPinResponse(status)`
- #define `emberAfFillCommandDoorLockClusterGetPinResponse(userId, userStatus, userType, pin)`
- #define `emberAfFillCommandDoorLockClusterClearPinResponse(status)`
- #define `emberAfFillCommandDoorLockClusterClearAllPinsResponse(status)`
- #define `emberAfFillCommandDoorLockClusterSetUserStatusResponse(status)`
- #define `emberAfFillCommandDoorLockCluster GetUserStatusResponse(userId, status)`
- #define `emberAfFillCommandDoorLockClusterSetWeekdayScheduleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterGetWeekdayScheduleResponse(scheduleId, userId, status, daysMask, startHour, startMinute, endHour, endMinute)`
- #define `emberAfFillCommandDoorLockClusterClearWeekdayScheduleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterSetYeardayScheduleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterGetYeardayScheduleResponse(scheduleId, userId, status, localStartTime, localEndTime)`
- #define `emberAfFillCommandDoorLockClusterClearYeardayScheduleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterSetHolidayScheduleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterGetHolidayScheduleResponse(scheduleId, status, localStartTime, localEndTime, operatingModeDuringHoliday)`
- #define `emberAfFillCommandDoorLockClusterClearHolidayScheduleResponse(status)`
- #define `emberAfFillCommandDoorLockClusterSetUserTypeResponse(status)`
- #define `emberAfFillCommandDoorLockCluster GetUserTypeResponse(userId, userType)`
- #define `emberAfFillCommandDoorLockClusterSetRfidResponse(status)`
- #define `emberAfFillCommandDoorLockClusterGetRfidResponse(userId, userStatus, userType, rfid)`
- #define `emberAfFillCommandDoorLockClusterClearRfidResponse(status)`
- #define `emberAfFillCommandDoorLockClusterClearAllRfidsResponse(status)`
- #define `emberAfFillCommandDoorLockClusterOperationEventNotification(source, eventCode, userId, pin, timeStamp, data)`
- #define `emberAfFillCommandDoorLockClusterProgrammingEventNotification(source, eventCode, userId, pin, userType, userStatus, timeStamp, data)`

## Window Covering Commands

- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringUpOpen()`
- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringDownClose()`
- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringStop()`
- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringGoToLiftValue(liftValue)`
- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringGoToLiftPercentage(percentageLiftValue)`
- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringGoToTiltValue(tiltValue)`
- #define `emberAfFillCommandWindowCoveringClusterWindowCoveringGoToTiltPercentage(percentageTiltValue)`

## Thermostat Commands

- #define `emberAfFillCommandThermostatClusterSetpointRaiseLower(mode, amount)`
- #define `emberAfFillCommandThermostatClusterSetWeeklySchedule(numberOfTransitionsForSequence, dayOfWeekForSequence, modeForSequence, payload, payloadLen)`
- #define `emberAfFillCommandThermostatClusterGetWeeklySchedule(daysToReturn, modeToReturn)`
- #define `emberAfFillCommandThermostatClusterClearWeeklySchedule()`
- #define `emberAfFillCommandThermostatClusterGetRelayStatusLog()`
- #define `emberAfFillCommandThermostatClusterGetCurrentWeeklySchedule(numberOfTransitionsForSequence, dayOfWeekForSequence, modeForSequence, payload, payloadLen)`
- #define `emberAfFillCommandThermostatClusterRelayStatusLog(timeOfDay, relayStatus, localTemperature, humidityInPercentage, setpoint, unreadEntries)`

## Color Control Commands

- #define `emberAfFillCommandColorControlClusterMoveToHue(hue, direction, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveHue(moveMode, rate)`
- #define `emberAfFillCommandColorControlClusterStepHue(stepMode, stepSize, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveToSaturation(saturation, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveSaturation(moveMode, rate)`
- #define `emberAfFillCommandColorControlClusterStepSaturation(stepMode, stepSize, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveToHueAndSaturation(hue, saturation, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveToColor(colorX, colorY, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveColor(rateX, rateY)`
- #define `emberAfFillCommandColorControlClusterStepColor(stepX, stepY, transitionTime)`
- #define `emberAfFillCommandColorControlClusterMoveToColorTemperature(colorTemperature, transitionTime)`
- #define `emberAfFillCommandColorControlClusterEnhancedMoveToHue(enhancedHue, direction, transitionTime)`
- #define `emberAfFillCommandColorControlClusterEnhancedMoveHue(moveMode, rate)`
- #define `emberAfFillCommandColorControlClusterEnhancedStepHue(stepMode, stepSize, transitionTime)`
- #define `emberAfFillCommandColorControlClusterEnhancedMoveToHueAndSaturation(enhancedHue, saturation, transitionTime)`
- #define `emberAfFillCommandColorControlClusterColorLoopSet(updateFlags, action, direction, time, startHue)`
- #define `emberAfFillCommandColorControlClusterStopMoveStep()`

- #define `emberAfFillCommandColorControlClusterMoveColorTemperature`(moveMode, rate, colorTemperatureMinimum, colorTemperatureMaximum)
- #define `emberAfFillCommandColorControlClusterStepColorTemperature`(stepMode, stepSize, transitionTime, colorTemperatureMinimum, colorTemperatureMaximum)

## IAS Zone Commands

- #define `emberAfFillCommandIasZoneClusterZoneEnrollResponse`(enrollResponseCode, zoneId)
- #define `emberAfFillCommandIasZoneClusterInitiateNormalOperationMode()`
- #define `emberAfFillCommandIasZoneClusterInitiateTestMode`(testModeDuration, currentZoneSensitivityLevel)
- #define `emberAfFillCommandIasZoneClusterZoneStatusChangeNotification`(zoneStatus, extendedStatus, zoneId, delay)
- #define `emberAfFillCommandIasZoneClusterZoneEnrollRequest`(zoneType, manufacturerCode)
- #define `emberAfFillCommandIasZoneClusterInitiateNormalOperationModeResponse()`
- #define `emberAfFillCommandIasZoneClusterInitiateTestModeResponse()`

## IAS ACE Commands

- #define `emberAfFillCommandIasAceClusterArm`(armMode, armDisarmCode, zoneId)
- #define `emberAfFillCommandIasAceClusterBypass`(numberOfZones, zoneIds, zoneIdsLen, armDisarmCode)
- #define `emberAfFillCommandIasAceClusterEmergency()`
- #define `emberAfFillCommandIasAceClusterFire()`
- #define `emberAfFillCommandIasAceClusterPanic()`
- #define `emberAfFillCommandIasAceClusterGetZoneIdMap()`
- #define `emberAfFillCommandIasAceClusterGetZoneInformation`(zoneId)
- #define `emberAfFillCommandIasAceClusterGetPanelStatus()`
- #define `emberAfFillCommandIasAceClusterGetBypassedZoneList()`
- #define `emberAfFillCommandIasAceClusterGetZoneStatus`(startingZoneId, maxNumberOfZoneIds, zoneStatusMaskFlag, zoneStatusMask)
- #define `emberAfFillCommandIasAceClusterArmResponse`(armNotification)
- #define `emberAfFillCommandIasAceClusterGetZoneIdMapResponse`(section0, section1, section2, section3, section4, section5, section6, section7, section8, section9, section10, section11, section12, section13, section14, section15)
- #define `emberAfFillCommandIasAceClusterGetZoneInformationResponse`(zoneId, zoneType, ieeeAddress, zoneLabel)
- #define `emberAfFillCommandIasAceClusterZoneStatusChanged`(zoneId, zoneStatus, audibleNotification, zoneLabel)
- #define `emberAfFillCommandIasAceClusterPanelStatusChanged`(panelStatus, secondsRemaining, audibleNotification, alarmStatus)
- #define `emberAfFillCommandIasAceClusterGetPanelStatusResponse`(panelStatus, secondsRemaining, audibleNotification, alarmStatus)
- #define `emberAfFillCommandIasAceClusterSetBypassedZoneList`(numberOfZones, zoneIds, zoneIdsLen)
- #define `emberAfFillCommandIasAceClusterBypassResponse`(numberOfZones, bypassResult, bypassResultLen)
- #define `emberAfFillCommandIasAceClusterGetZoneStatusResponse`(zoneStatusComplete, numberOfZones, zoneStatusResult, zoneStatusResultLen)

## IAS WD Commands

- #define `emberAfFillCommandIasWdClusterStartWarning`(warningInfo, warningDuration, strobeDutyCycle, strobeLevel)
- #define `emberAfFillCommandIasWdClusterSquawk`(squawkInfo)

## Generic Tunnel Commands

- #define `emberAfFillCommandGenericTunnelClusterMatchProtocolAddress`(protocolAddress)
- #define `emberAfFillCommandGenericTunnelClusterMatchProtocolAddressResponse`(deviceIeeeAddress, protocolAddress)
- #define `emberAfFillCommandGenericTunnelClusterAdvertiseProtocolAddress`(protocolAddress)

## BACnet Protocol Tunnel Commands

- #define `emberAfFillCommandBacnetProtocolTunnelClusterTransferNpdu`(npdu, npduLen)

## 11073 Protocol Tunnel Commands

- #define `emberAfFillCommand11073ProtocolTunnelClusterTransferAPDU`(apdu)
- #define `emberAfFillCommand11073ProtocolTunnelClusterConnectRequest`(connectControl, idleTimeout, managerTarget, managerEndpoint)
- #define `emberAfFillCommand11073ProtocolTunnelClusterDisconnectRequest`(managerIEEEAddress)
- #define `emberAfFillCommand11073ProtocolTunnelClusterConnectStatusNotification`(connectStatus)

## ISO 7816 Protocol Tunnel Commands

- #define `emberAfFillCommandIso7816ProtocolTunnelClusterServerToClientTransferApdu`(apdu)
- #define `emberAfFillCommandIso7816ProtocolTunnelClusterClientToServerTransferApdu`(apdu)
- #define `emberAfFillCommandIso7816ProtocolTunnelClusterInsertSmartCard`()
- #define `emberAfFillCommandIso7816ProtocolTunnelClusterExtractSmartCard`()

## Price Commands

- #define `emberAfFillCommandPriceClusterPublishPrice`(providerId, rateLabel, issuerEventId, currentTime, unitOfMeasure, currency, priceTrailingDigitAndPriceTier, numberOfPriceTiersAndRegisterTier, startTime, durationInMinutes, price, priceRatio, generationPrice, generationPriceRatio, alternateCostDelivered, alternateCostUnit, alternateCostTrailingDigit, numberOfBlockThresholds, priceControl, numberOfGenerationTiers, generationTier, extendedNumberOfPriceTiers, extendedPriceTier, extendedRegisterTier)
- #define `emberAfFillCommandPriceClusterPublishBlockPeriod`(providerId, issuerEventId, blockPeriodStartTime, blockPeriodDuration, blockPeriodControl, blockPeriodDurationType, tariffType, tariffResolutionPeriod)
- #define `emberAfFillCommandPriceClusterPublishConversionFactor`(issuerEventId, startTime, conversionFactor, conversionFactorTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishCalorificValue`(issuerEventId, startTime, calorificValue, calorificValueUnit, calorificValueTrailingDigit)

- #define `emberAfFillCommandPriceClusterPublishTariffInformation`(providerId, issuerEventId, issuerTariffId, startTime, tariffTypeChargingScheme, tariffLabel, numberPriceTiersInUse, numberBlockThresholdsInUse, unitOfMeasure, currency, priceTrailingDigit, standingCharge, tierBlockMode, blockThresholdMultiplier, blockThresholdDivisor)
- #define `emberAfFillCommandPriceClusterPublishPriceMatrix`(providerId, issuerEventId, startTime, issuerTariffId, commandIndex, numberCommands, subPayloadControl, payload, payloadLen)
- #define `emberAfFillCommandPriceClusterPublishBlockThresholds`(providerId, issuerEventId, startTime, issuerTariffId, commandIndex, numberCommands, subPayloadControl, payload, payloadLen)
- #define `emberAfFillCommandPriceClusterPublishCO2Value`(providerId, issuerEventId, startTime, tariffType, cO2Value, cO2ValueUnit, cO2ValueTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishTierLabels`(providerId, issuerEventId, issuerTariffId, commandIndex, numberCommands, numberLabels, tierLabelsPayload, tierLabelsPayloadLen)
- #define `emberAfFillCommandPriceClusterPublishBillingPeriod`(providerId, issuerEventId, billingPeriodStartTime, billingPeriodDuration, billingPeriodDurationType, tariffType)
- #define `emberAfFillCommandPriceClusterPublishConsolidatedBill`(providerId, issuerEventId, billingPeriodStartTime, billingPeriodDuration, billingPeriodDurationType, tariffType, consolidatedBill, currency, billTrailingDigit)
- #define `emberAfFillCommandPriceClusterPublishCppEvent`(providerId, issuerEventId, startTime, durationInMinutes, tariffType, cppPriceTier, cppAuth)
- #define `emberAfFillCommandPriceClusterPublishCreditPayment`(providerId, issuerEventId, creditPaymentDueDate, creditPaymentOverDueAmount, creditPaymentStatus, creditPayment, creditPaymentDate, creditPaymentRef)
- #define `emberAfFillCommandPriceClusterPublishCurrencyConversion`(providerId, issuerEventId, startTime, oldCurrency, newCurrency, conversionFactor, conversionFactorTrailingDigit, currencyChangeControlFlags)
- #define `emberAfFillCommandPriceClusterCancelTariff`(providerId, issuerTariffId, tariffType)
- #define `emberAfFillCommandPriceClusterGetCurrentPrice`(commandOptions)
- #define `emberAfFillCommandPriceClusterGetScheduledPrices`(startTime, numberEvents)
- #define `emberAfFillCommandPriceClusterPriceAcknowledgement`(providerId, issuerEventId, priceAckTime, control)
- #define `emberAfFillCommandPriceClusterGetBlockPeriods`(startTime, numberEvents, tariffType)
- #define `emberAfFillCommandPriceClusterGetConversionFactor`(earliestStartTime, minIssuerEventId, numberCommands)
- #define `emberAfFillCommandPriceClusterGetCalorificValue`(earliestStartTime, minIssuerEventId, numberCommands)
- #define `emberAfFillCommandPriceClusterGetTariffInformation`(earliestStartTime, minIssuerEventId, numberCommands, tariffType)
- #define `emberAfFillCommandPriceClusterGetPriceMatrix`(issuerTariffId)
- #define `emberAfFillCommandPriceClusterGetBlockThresholds`(issuerTariffId)
- #define `emberAfFillCommandPriceClusterGetCO2Value`(earliestStartTime, minIssuerEventId, numberCommands, tariffType)
- #define `emberAfFillCommandPriceClusterGetTierLabels`(issuerTariffId)
- #define `emberAfFillCommandPriceClusterGetBillingPeriod`(earliestStartTime, minIssuerEventId, numberCommands, tariffType)
- #define `emberAfFillCommandPriceClusterGetConsolidatedBill`(earliestStartTime, minIssuerEventId, numberCommands, tariffType)
- #define `emberAfFillCommandPriceClusterCppEventResponse`(issuerEventId, cppAuth)
- #define `emberAfFillCommandPriceClusterGetCreditPayment`(latestEndTime, numberRecords)
- #define `emberAfFillCommandPriceClusterGetCurrencyConversionCommand`()
- #define `emberAfFillCommandPriceClusterGetTariffCancellation`()

## Demand Response and Load Control Commands

- #define `emberAfFillCommandDemandResponseLoadControlClusterLoadControlEvent`(issuerEventId, deviceClass, utilityEnrollmentGroup, startTime, durationInMinutes, criticalityLevel, coolingTemperatureOffset, heatingTemperatureOffset, coolingTemperatureSetPoint, heatingTemperatureSetPoint, averageLoadAdjustmentPercentage, dutyCycle, eventControl)
- #define `emberAfFillCommandDemandResponseLoadControlClusterCancelLoadControlEvent`(issuerEventId, deviceClass, utilityEnrollmentGroup, cancelControl, effectiveTime)
- #define `emberAfFillCommandDemandResponseLoadControlClusterCancelAllLoadControlEvents`(cancelControl)
- #define `emberAfFillCommandDemandResponseLoadControlClusterReportEventStatus`(issuerEventId, eventStatus, eventStatusTime, criticalityLevelApplied, coolingTemperatureSetPointApplied, heatingTemperatureSetPointApplied, averageLoadAdjustmentPercentageApplied, dutyCycleApplied, eventControl, signatureType, signature)
- #define `emberAfFillCommandDemandResponseLoadControlClusterGetScheduledEvents`(startTime, numberEvents, issuerEventId)

## Simple Metering Commands

- #define `emberAfFillCommandSimpleMeteringClusterGetProfileResponse`(endTime, status, profileIntervalPeriod, numberOfPeriodsDelivered, intervals, intervalsLen)
- #define `emberAfFillCommandSimpleMeteringClusterRequestMirror()`
- #define `emberAfFillCommandSimpleMeteringClusterRemoveMirror()`
- #define `emberAfFillCommandSimpleMeteringClusterRequestFastPollModeResponse`(appliedUpdatePeriod, fastPollModeEndtime)
- #define `emberAfFillCommandSimpleMeteringClusterScheduleSnapshotResponse`(issuerEventId, snapshotResponsePayload, snapshotResponsePayloadLen)
- #define `emberAfFillCommandSimpleMeteringClusterTakeSnapshotResponse`(snapshotId, snapshotConfirmation)
- #define `emberAfFillCommandSimpleMeteringClusterPublishSnapshot`(snapshotId, snapshotTime, totalSnapshotsFound, commandIndex, totalCommands, snapshotCause, snapshotPayloadType, snapshotPayload, snapshotPayloadLen)
- #define `emberAfFillCommandSimpleMeteringClusterGetSampledDataResponse`(sampleId, sampleStartTime, sampleType, sampleRequestInterval, numberOfSamples, samples, samplesLen)
- #define `emberAfFillCommandSimpleMeteringClusterConfigureMirror`(issuerEventId, reportingInterval, mirrorNotificationReporting, notificationScheme)
- #define `emberAfFillCommandSimpleMeteringClusterConfigureNotificationScheme`(issuerEventId, notificationScheme, notificationFlagOrder)
- #define `emberAfFillCommandSimpleMeteringClusterConfigureNotificationFlags`(issuerEventId, notificationScheme, notificationFlagAttributeId, clusterId, manufacturerCode, numberOfCommands, commandIds, commandIdsLen)
- #define `emberAfFillCommandSimpleMeteringClusterGetNotifiedMessage`(notificationScheme, notificationFlagAttributeId, notificationFlagsN)
- #define `emberAfFillCommandSimpleMeteringClusterSupplyStatusResponse`(providerId, issuerEventId, implementationDate, supplyStatus)
- #define `emberAfFillCommandSimpleMeteringClusterStartSamplingResponse`(sampleId)
- #define `emberAfFillCommandSimpleMeteringClusterGetProfile`(intervalChannel, endTime, numberOfPeriods)
- #define `emberAfFillCommandSimpleMeteringClusterRequestMirrorResponse`(endpointId)
- #define `emberAfFillCommandSimpleMeteringClusterMirrorRemoved`(endpointId)
- #define `emberAfFillCommandSimpleMeteringClusterRequestFastPollMode`(fastPollUpdatePeriod, duration)

- #define `emberAfFillCommandSimpleMeteringClusterScheduleSnapshot`(issuerEventId, commandIndex, commandCount, snapshotSchedulePayload, snapshotSchedulePayloadLen)
- #define `emberAfFillCommandSimpleMeteringClusterTakeSnapshot`(snapshotCause)
- #define `emberAfFillCommandSimpleMeteringClusterGetSnapshot`(earliestStartTime, latestEndTime, snapshotOffset, snapshotCause)
- #define `emberAfFillCommandSimpleMeteringClusterStartSampling`(issuerEventId, startSamplingTime, sampleType, sampleRequestInterval, maxNumberOfSamples)
- #define `emberAfFillCommandSimpleMeteringClusterGetSampledData`(sampleId, earliestSampleTime, sampleType, numberOfWorks)
- #define `emberAfFillCommandSimpleMeteringClusterMirrorReportAttributeResponse`(notificationScheme, notificationFlags, notificationFlagsLen)
- #define `emberAfFillCommandSimpleMeteringClusterResetLoadLimitCounter`(providerId, issuerEventId)
- #define `emberAfFillCommandSimpleMeteringClusterChangeSupply`(providerId, issuerEventId, requestDateTime, implementationDateTime, proposedSupplyStatus, supplyControlBits)
- #define `emberAfFillCommandSimpleMeteringClusterLocalChangeSupply`(proposedSupplyStatus)
- #define `emberAfFillCommandSimpleMeteringClusterSetSupplyStatus`(issuerEventId, supplyTamperState, supplyDepletionState, supplyUncontrolledFlowState, loadLimitSupplyState)
- #define `emberAfFillCommandSimpleMeteringClusterSetUncontrolledFlowThreshold`(providerId, issuerEventId, uncontrolledFlowThreshold, unitOfMeasure, multiplier, divisor, stabilisationPeriod, measurementPeriod)

## Messaging Commands

- #define `emberAfFillCommandMessagingClusterDisplayMessage`(messageId, messageControl, startTime, durationInMinutes, message, optionalExtendedMessageControl)
- #define `emberAfFillCommandMessagingClusterCancelMessage`(messageId, messageControl)
- #define `emberAfFillCommandMessagingClusterDisplayProtectedMessage`(messageId, messageControl, startTime, durationInMinutes, message, optionalExtendedMessageControl)
- #define `emberAfFillCommandMessagingClusterCancelAllMessages`(implementationDateTime)
- #define `emberAfFillCommandMessagingClusterGetLastMessage`()
- #define `emberAfFillCommandMessagingClusterMessageConfirmation`(messageId, confirmationTime, messageConfirmationControl, messageResponse)
- #define `emberAfFillCommandMessagingClusterGetMessageCancellation`(earliestImplementationTime)

## Tunneling Commands

- #define `emberAfFillCommandTunnelingClusterRequestTunnel`(protocolId, manufacturerCode, flowControlSupport, maximumIncomingTransferSize)
- #define `emberAfFillCommandTunnelingClusterCloseTunnel`(tunnelId)
- #define `emberAfFillCommandTunnelingClusterTransferDataClientToServer`(tunnelId, data, dataLen)
- #define `emberAfFillCommandTunnelingClusterTransferDataErrorClientToServer`(tunnelId, transferDataStatus)
- #define `emberAfFillCommandTunnelingClusterAckTransferDataClientToServer`(tunnelId, numberOfWorksLeft)
- #define `emberAfFillCommandTunnelingClusterReadyDataClientToServer`(tunnelId, numberOfWorksLeft)
- #define `emberAfFillCommandTunnelingClusterGetSupportedTunnelProtocols`(protocolOffset)
- #define `emberAfFillCommandTunnelingClusterRequestTunnelResponse`(tunnelId, tunnelStatus, maximumIncomingTransferSize)

- #define `emberAfFillCommandTunnelingClusterTransferDataServerToClient`(tunnelId, data, dataLen)
- #define `emberAfFillCommandTunnelingClusterTransferDataErrorServerToClient`(tunnelId, transferDataStatus)
- #define `emberAfFillCommandTunnelingClusterAckTransferDataServerToClient`(tunnelId, numberOfBytesLeft)
- #define `emberAfFillCommandTunnelingClusterReadyDataServerToClient`(tunnelId, numberOfOctetsLeft)
- #define `emberAfFillCommandTunnelingClusterSupportedTunnelProtocolsResponse`(protocolListComplete, protocolCount, protocolList, protocolListLen)
- #define `emberAfFillCommandTunnelingClusterTunnelClosureNotification`(tunnelId)

## Prepayment Commands

- #define `emberAfFillCommandPrepaymentClusterSelectAvailableEmergencyCredit`(commandIssueDateTime, originatingDevice)
- #define `emberAfFillCommandPrepaymentClusterChangeDebt`(issuerEventId, debtLabel, debtAmount, debtRecoveryMethod, debtAmountType, debtRecoveryStartTime, debtRecoveryCollectionTime, debtRecoveryFrequency, debtRecoveryAmount, debtRecoveryBalancePercentage)
- #define `emberAfFillCommandPrepaymentClusterEmergencyCreditSetup`(issuerEventId, startTime, emergencyCreditLimit, emergencyCreditThreshold)
- #define `emberAfFillCommandPrepaymentClusterConsumerTopUp`(originatingDevice, topUpCode)
- #define `emberAfFillCommandPrepaymentClusterCreditAdjustment`(issuerEventId, startTime, creditAdjustmentType, creditAdjustmentValue)
- #define `emberAfFillCommandPrepaymentClusterChangePaymentMode`(providerId, issuerEventId, implementationDateTime, proposedPaymentControlConfiguration, cutOffValue)
- #define `emberAfFillCommandPrepaymentClusterGetPrepaySnapshot`(earliestStartTime, latestEndTime, snapshotOffset, snapshotCause)
- #define `emberAfFillCommandPrepaymentClusterGetTopUpLog`(latestEndTime, numberOfRecords)
- #define `emberAfFillCommandPrepaymentClusterSetLowCreditWarningLevel`(lowCreditWarningLevel)
- #define `emberAfFillCommandPrepaymentClusterGetDebtRepaymentLog`(latestEndTime, numberOfDebts, debtType)
- #define `emberAfFillCommandPrepaymentClusterSetMaximumCreditLimit`(providerId, issuerEventId, implementationDateTime, maximumCreditLevel, maximumCreditPerTopUp)
- #define `emberAfFillCommandPrepaymentClusterSetOverallDebtCap`(providerId, issuerEventId, implementationDateTime, overallDebtCap)
- #define `emberAfFillCommandPrepaymentClusterPublishPrepaySnapshot`(snapshotId, snapshotTime, totalSnapshotsFound, commandIndex, totalNumberOfCommands, snapshotCause, snapshotPayloadType, snapshotPayload, snapshotPayloadLen)
- #define `emberAfFillCommandPrepaymentClusterChangePaymentModeResponse`(friendlyCredit, friendlyCreditCalendarId, emergencyCreditLimit, emergencyCreditThreshold)
- #define `emberAfFillCommandPrepaymentClusterConsumerTopUpResponse`(resultType, topUpValue, sourceOfTopUp, creditRemaining)
- #define `emberAfFillCommandPrepaymentClusterPublishTopUpLog`(commandIndex, totalNumberOfCommands, topUpPayload, topUpPayloadLen)
- #define `emberAfFillCommandPrepaymentClusterPublishDebtLog`(commandIndex, totalNumberOfCommands, debtPayload, debtPayloadLen)

## Energy Management Commands

- #define `emberAfFillCommandEnergyManagementClusterReportEventStatus`(issuerEventId, eventStatus, eventStatusTime, criticalityLevelApplied, coolingTemperatureSetPointApplied, heatingTemperatureSetPointApplied, averageLoadAdjustmentPercentageApplied, dutyCycleApplied, eventControl)
- #define `emberAfFillCommandEnergyManagementClusterManageEvent`(issuerEventId, deviceClass, utilityEnrollmentGroup, actionRequired)

## Calendar Commands

- #define `emberAfFillCommandCalendarClusterPublishCalendar`(providerId, issuerEventId, issuerCalendarId, startTime, calendarType, calendarTimeReference, calendarName, numberOfSeasons, numberOfWeekProfiles, numberOfDayProfiles)
- #define `emberAfFillCommandCalendarClusterPublishDayProfile`(providerId, issuerEventId, issuerCalendarId, dayId, totalNumberOfScheduleEntries, commandIndex, totalNumberOfCommands, calendarType, dayScheduleEntries, dayScheduleEntriesLen)
- #define `emberAfFillCommandCalendarClusterPublishWeekProfile`(providerId, issuerEventId, issuerCalendarId, weekId, dayIdRefMonday, dayIdRefTuesday, dayIdRefWednesday, dayIdRefThursday, dayIdRefFriday, dayIdRefSaturday, dayIdRefSunday)
- #define `emberAfFillCommandCalendarClusterPublishSeasons`(providerId, issuerEventId, issuerCalendarId, commandIndex, totalNumberOfCommands, seasonEntries, seasonEntriesLen)
- #define `emberAfFillCommandCalendarClusterPublishSpecialDays`(providerId, issuerEventId, issuerCalendarId, startTime, calendarType, totalNumberOfSpecialDays, commandIndex, totalNumberOfCommands, specialDayEntries, specialDayEntriesLen)
- #define `emberAfFillCommandCalendarClusterCancelCalendar`(providerId, issuerCalendarId, calendarType)
- #define `emberAfFillCommandCalendarClusterGetCalendar`(earliestStartTime, minIssuerEventId, numberOfCalendars, calendarType, providerId)
- #define `emberAfFillCommandCalendarClusterGetDayProfiles`(providerId, issuerCalendarId, startDayId, numberOfDays)
- #define `emberAfFillCommandCalendarClusterGetWeekProfiles`(providerId, issuerCalendarId, startWeekId, numberOfWeeks)
- #define `emberAfFillCommandCalendarClusterGetSeasons`(providerId, issuerCalendarId)
- #define `emberAfFillCommandCalendarClusterGetSpecialDays`(startTime, numberOfEvents, calendarType, providerId, issuerCalendarId)
- #define `emberAfFillCommandCalendarClusterGetCalendarCancellation()`

## Device Management Commands

- #define `emberAfFillCommandDeviceManagementClusterGetChangeOfTenancy()`
- #define `emberAfFillCommandDeviceManagementClusterGetChangeOfSupplier()`
- #define `emberAfFillCommandDeviceManagementClusterRequestNewPassword`(passwordType)
- #define `emberAfFillCommandDeviceManagementClusterGetSiteId()`
- #define `emberAfFillCommandDeviceManagementClusterReportEventConfiguration`(commandIndex, totalCommands, eventConfigurationPayload, eventConfigurationPayloadLen)
- #define `emberAfFillCommandDeviceManagementClusterGetCIN()`
- #define `emberAfFillCommandDeviceManagementClusterPublishChangeOfTenancy`(providerId, issuerEventId, tariffType, implementationDateTime, proposedTenancyChangeControl)
- #define `emberAfFillCommandDeviceManagementClusterPublishChangeOfSupplier`(currentProviderId, issuerEventId, tariffType, proposedProviderId, providerChangeImplementationTime, providerChangeControl, proposedProviderName, proposedProviderContactDetails)

- #define `emberAfFillCommandDeviceManagementClusterRequestNewPasswordResponse`(issuerEventId, implementationDateTime, durationInMinutes, passwordType, password)
- #define `emberAfFillCommandDeviceManagementClusterUpdateSiteId`(issuerEventId, siteIdTime, providerId, siteId)
- #define `emberAfFillCommandDeviceManagementClusterSetEventConfiguration`(issuerEventId, startDateTime, eventConfiguration, configurationControl, eventConfigurationPayload, eventConfigurationPayloadLen)
- #define `emberAfFillCommandDeviceManagementClusterGetEventConfiguration`(eventId)
- #define `emberAfFillCommandDeviceManagementClusterUpdateCIN`(issuerEventId, implementationTime, providerId, customerIdNumber)

## Events Commands

- #define `emberAfFillCommandEventsClusterGetEventLog`(eventControlLogId, eventId, startTime, endTime, numberOfEvents, eventOffset)
- #define `emberAfFillCommandEventsClusterClearEventLogRequest`(logId)
- #define `emberAfFillCommandEventsClusterPublishEvent`(logId, eventId, eventTime, eventControl, eventData)
- #define `emberAfFillCommandEventsClusterPublishEventLog`(totalNumberOfEvents, commandIndex, totalCommands, logPayloadControl, logPayload, logPayloadLen)
- #define `emberAfFillCommandEventsClusterClearEventLogResponse`(clearedEventsLogs)

## MDU Pairing Commands

- #define `emberAfFillCommandMduPairingClusterPairingResponse`(pairingInformationVersion, totalNumberOfDevices, commandIndex, totalNumberOfCommands, eui64s, eui64sLen)
- #define `emberAfFillCommandMduPairingClusterPairingRequest`(localPairingInformationVersion, eui64OfRequestingDevice)

## Key Establishment Commands

- #define `emberAfFillCommandKeyEstablishmentClusterInitiateKeyEstablishmentRequest`(keyEstablishmentSuite, ephemeralDataGenerateTime, confirmKeyGenerateTime, identity)
- #define `emberAfFillCommandKeyEstablishmentClusterEphemeralDataRequest`(ephemeralData)
- #define `emberAfFillCommandKeyEstablishmentClusterConfirmKeyDataRequest`(secureMessageAuthenticationCode)
- #define `emberAfFillCommandKeyEstablishmentClusterServerToClientTerminateKeyEstablishment`(statusCode, waitTime, keyEstablishmentSuite)
- #define `emberAfFillCommandKeyEstablishmentClusterClientToServerTerminateKeyEstablishment`(statusCode, waitTime, keyEstablishmentSuite)
- #define `emberAfFillCommandKeyEstablishmentClusterInitiateKeyEstablishmentResponse`(requestedKeyEstablishmentSuite, ephemeralDataGenerateTime, confirmKeyGenerateTime, identity)
- #define `emberAfFillCommandKeyEstablishmentClusterEphemeralDataResponse`(ephemeralData)
- #define `emberAfFillCommandKeyEstablishmentClusterConfirmKeyDataResponse`(secureMessageAuthenticationCode)

## Information Commands

- #define `emberAfFillCommandInformationClusterRequestInformation`(inquiryId, dataTypeId, requestInformationPayload, requestInformationPayloadLen)
- #define `emberAfFillCommandInformationClusterPushInformationResponse`(notificationList, notificationListLen)
- #define `emberAfFillCommandInformationClusterSendPreference`(preferenceType, preferencePayload, preferencePayloadLen)
- #define `emberAfFillCommandInformationClusterRequestPreferenceResponse`(statusFeedback, preferenceType, preferencePayload, preferencePayloadLen)
- #define `emberAfFillCommandInformationClusterUpdate`(accessControl, option, contents, contentsLen)
- #define `emberAfFillCommandInformationClusterDelete`(deletionOptions, contentIds, contentIdsLen)
- #define `emberAfFillCommandInformationClusterConfigureNodeDescription`(description)
- #define `emberAfFillCommandInformationClusterConfigureDeliveryEnable`(enable)
- #define `emberAfFillCommandInformationClusterConfigurePushInformationTimer`(timer)
- #define `emberAfFillCommandInformationClusterConfigureSetRootId`(rootId)
- #define `emberAfFillCommandInformationClusterRequestInformationResponse`(number, buffer, bufferLen)
- #define `emberAfFillCommandInformationClusterPushInformation`(contents, contentsLen)
- #define `emberAfFillCommandInformationClusterSendPreferenceResponse`(statusFeedbackList, statusFeedbackListLen)
- #define `emberAfFillCommandInformationClusterServerRequestPreference`()
- #define `emberAfFillCommandInformationClusterRequestPreferenceConfirmation`(statusFeedbackList, statusFeedbackListLen)
- #define `emberAfFillCommandInformationClusterUpdateResponse`(notificationList, notificationListLen)
- #define `emberAfFillCommandInformationClusterDeleteResponse`(notificationList, notificationListLen)

## Data Sharing Commands

- #define `emberAfFillCommandDataSharingClusterReadFileRequest`(fileIndex, fileStartPositionAndRequestedOctetCount, fileStartPositionAndRequestedOctetCountLen)
- #define `emberAfFillCommandDataSharingClusterReadRecordRequest`(fileIndex, fileStartPositionAndRequestedRecordCount, fileStartPositionAndRequestedRecordCountLen)
- #define `emberAfFillCommandDataSharingClusterWriteFileResponse`(status, fileIndex, fileIndexLen)
- #define `emberAfFillCommandDataSharingClusterWriteFileRequest`(writeOptions, fileSize, fileSizeLen)
- #define `emberAfFillCommandDataSharingClusterModifyFileRequest`(fileIndex, fileStartPosition, octetCount)
- #define `emberAfFillCommandDataSharingClusterModifyRecordRequest`(fileIndex, fileStartPosition, recordCount)
- #define `emberAfFillCommandDataSharingClusterFileTransmission`(transmitOptions, buffer, bufferLen)
- #define `emberAfFillCommandDataSharingClusterRecordTransmission`(transmitOptions, buffer, bufferLen)

## Gaming Commands

- #define `emberAfFillCommandGamingClusterSearchGame`(specificGame, gameId)
- #define `emberAfFillCommandGamingClusterJoinGame`(gameId, joinAsMaster, nameOfGame)
- #define `emberAfFillCommandGamingClusterStartGame()`
- #define `emberAfFillCommandGamingClusterPauseGame()`
- #define `emberAfFillCommandGamingClusterResumeGame()`
- #define `emberAfFillCommandGamingClusterQuitGame()`
- #define `emberAfFillCommandGamingClusterEndGame()`
- #define `emberAfFillCommandGamingClusterStartOver()`
- #define `emberAfFillCommandGamingClusterActionControl`(actions)
- #define `emberAfFillCommandGamingClusterDownloadGame()`
- #define `emberAfFillCommandGamingClusterGameAnnouncement`(gameId, gameMaster, listOfGame)
- #define `emberAfFillCommandGamingClusterGeneralResponse`(commandId, status, message)

## Data Rate Control Commands

- #define `emberAfFillCommandDataRateControlClusterPathCreation`(originatorAddress, destinationAddress, dataRate)
- #define `emberAfFillCommandDataRateControlClusterDataRateNotification`(originatorAddress, destinationAddress, dataRate)
- #define `emberAfFillCommandDataRateControlClusterPathDeletion`(originatorAddress, destinationAddress)
- #define `emberAfFillCommandDataRateControlClusterDataRateControl`(originatorAddress, destinationAddress, dataRate)

## Voice over ZigBee Commands

- #define `emberAfFillCommandVoiceOverZigbeeClusterEstablishmentRequest`(flag, codecType, sampFreq, codecRate, serviceType, buffer, bufferLen)
- #define `emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmission`(voiceData, voiceDataLen)
- #define `emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmissionCompletion()`
- #define `emberAfFillCommandVoiceOverZigbeeClusterControlResponse`(ackNack)
- #define `emberAfFillCommandVoiceOverZigbeeClusterEstablishmentResponse`(ackNack, codecType)
- #define `emberAfFillCommandVoiceOverZigbeeClusterVoiceTransmissionResponse`(sequenceNumber, errorFlag)
- #define `emberAfFillCommandVoiceOverZigbeeClusterControl`(controlType)

## Chatting Commands

- #define `emberAfFillCommandChattingClusterJoinChatRequest`(uid, nickname, cid)
- #define `emberAfFillCommandChattingClusterLeaveChatRequest`(cid, uid)
- #define `emberAfFillCommandChattingClusterSearchChatRequest()`
- #define `emberAfFillCommandChattingClusterSwitchChairmanResponse`(cid, uid)
- #define `emberAfFillCommandChattingClusterStartChatRequest`(name, uid, nickname)
- #define `emberAfFillCommandChattingClusterChatMessage`(destinationUid, sourceUid, cid, nickname, message)
- #define `emberAfFillCommandChattingClusterGetNodeInformationRequest`(cid, uid)
- #define `emberAfFillCommandChattingClusterStartChatResponse`(status, cid)

- #define `emberAfFillCommandChattingClusterJoinChatResponse`(status, cid, chatParticipantList, chatParticipantListLen)
- #define `emberAfFillCommandChattingClusterUserLeft`(cid, uid, nickname)
- #define `emberAfFillCommandChattingClusterUserJoined`(cid, uid, nickname)
- #define `emberAfFillCommandChattingClusterSearchChatResponse`(options, chatRoomList, chatRoomListLen)
- #define `emberAfFillCommandChattingClusterSwitchChairmanRequest`(cid)
- #define `emberAfFillCommandChattingClusterSwitchChairmanConfirm`(cid, nodeInformationList, nodeInformationListLen)
- #define `emberAfFillCommandChattingClusterSwitchChairmanNotification`(cid, uid, address, endpoint)
- #define `emberAfFillCommandChattingClusterGetNodeInformationResponse`(status, cid, uid, addressEndpointAndNickname, addressEndpointAndNicknameLen)

## Payment Commands

- #define `emberAfFillCommandPaymentClusterBuyRequest`(userId, userType, serviceId, goodId)
- #define `emberAfFillCommandPaymentClusterAcceptPayment`(userId, userType, serviceId, goodId)
- #define `emberAfFillCommandPaymentClusterPaymentConfirm`(serialNumber, transId, transStatus)
- #define `emberAfFillCommandPaymentClusterBuyConfirm`(serialNumber, currency, priceTrailingDigit, price, timestamp, transId, transStatus)
- #define `emberAfFillCommandPaymentClusterReceiptDelivery`(serialNumber, currency, priceTrailingDigit, price, timestamp)
- #define `emberAfFillCommandPaymentClusterTransactionEnd`(serialNumber, status)

## Billing Commands

- #define `emberAfFillCommandBillingClusterSubscribe`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterUnsubscribe`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterStartBillingSession`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterStopBillingSession`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterBillStatusNotification`(userId, status)
- #define `emberAfFillCommandBillingClusterSessionKeepAlive`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterCheckBillStatus`(userId, serviceId, serviceProviderId)
- #define `emberAfFillCommandBillingClusterSendBillRecord`(userId, serviceId, serviceProviderId, timestamp, duration)

## Appliance Events and Alert Commands

- #define `emberAfFillCommandApplianceEventsAndAlertClusterGetAlerts`()
- #define `emberAfFillCommandApplianceEventsAndAlertClusterGetAlertsResponse`(alertsCount, alertStructures, alertStructuresLen)
- #define `emberAfFillCommandApplianceEventsAndAlertClusterAlertsNotification`(alertsCount, alertStructures, alertStructuresLen)
- #define `emberAfFillCommandApplianceEventsAndAlertClusterEventsNotification`(eventHeader, eventId)

## Appliance Statistics Commands

- #define `emberAfFillCommandApplianceStatisticsClusterLogNotification`(timeStamp, logId, logLength, logPayload, logPayloadLen)
- #define `emberAfFillCommandApplianceStatisticsClusterLogResponse`(timeStamp, logId, logLength, logPayload, logPayloadLen)
- #define `emberAfFillCommandApplianceStatisticsClusterLogQueueResponse`(logQueueSize, logIds, logIdsLen)
- #define `emberAfFillCommandApplianceStatisticsClusterStatisticsAvailable`(logQueueSize, logIds, logIdsLen)
- #define `emberAfFillCommandApplianceStatisticsClusterLogRequest`(logId)
- #define `emberAfFillCommandApplianceStatisticsClusterLogQueueRequest`()

## Electrical Measurement Commands

- #define `emberAfFillCommandElectricalMeasurementClusterGetProfileInfoResponseCommand`(profileCount, profileIntervalPeriod, maxNumberOfIntervals, listOfAttributes, listOfAttributesLen)
- #define `emberAfFillCommandElectricalMeasurementClusterGetMeasurementProfileResponseCommand`(startTime, status, profileIntervalPeriod, numberOfIntervalsDelivered, attributeId, intervals, intervalsLen)
- #define `emberAfFillCommandElectricalMeasurementClusterGetProfileInfoCommand`()
- #define `emberAfFillCommandElectricalMeasurementClusterGetMeasurementProfileCommand`(attributeId, startTime, numberOfIntervals)

## ZLL Commissioning Commands

- #define `emberAfFillCommandZllCommissioningClusterScanRequest`(transaction, zigbeeInformation, zllInformation)
- #define `emberAfFillCommandZllCommissioningClusterDeviceInformationRequest`(transaction, startIndex)
- #define `emberAfFillCommandZllCommissioningClusterIdentifyRequest`(transaction, identifyDuration)
- #define `emberAfFillCommandZllCommissioningClusterResetToFactoryNewRequest`(transaction)
- #define `emberAfFillCommandZllCommissioningClusterNetworkStartRequest`(transaction, extendedPanId, keyIndex, encryptedNetworkKey, logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd, initiatorIeeeAddress, initiatorNetworkAddress)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinRouterRequest`(transaction, extendedPanId, keyIndex, encryptedNetworkKey, networkUpdateId, logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinEndDeviceRequest`(transaction, extendedPanId, keyIndex, encryptedNetworkKey, networkUpdateId, logicalChannel, panId, networkAddress, groupIdentifiersBegin, groupIdentifiersEnd, freeNetworkAddressRangeBegin, freeNetworkAddressRangeEnd, freeGroupIdentifierRangeBegin, freeGroupIdentifierRangeEnd)
- #define `emberAfFillCommandZllCommissioningClusterNetworkUpdateRequest`(transaction, extendedPanId, networkUpdateId, logicalChannel, panId, networkAddress)
- #define `emberAfFillCommandZllCommissioningClusterGetGroupIdentifiersRequest`(startIndex)
- #define `emberAfFillCommandZllCommissioningClusterGetEndpointListRequest`(startIndex)
- #define `emberAfFillCommandZllCommissioningClusterScanResponse`(transaction, rssiCorrection, zigbeeInformation, zllInformation, keyBitmask, responseId, extendedPanId, networkUpdateId, logicalChannel, panId, networkAddress, numberOfSubDevices, totalGroupIds, endpointId, profileId, deviceId, version, groupIdCount)

- #define `emberAfFillCommandZllCommissioningClusterDeviceInformationResponse`(transaction, number-OfSubDevices, startIndex, deviceInformationRecordCount, deviceInformationRecordList, device-InformationRecordListLen)
- #define `emberAfFillCommandZllCommissioningClusterNetworkStartResponse`(transaction, status, extendedPanId, networkUpdateId, logicalChannel, panId)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinRouterResponse`(transaction, sta-tus)
- #define `emberAfFillCommandZllCommissioningClusterNetworkJoinEndDeviceResponse`(transaction, status)
- #define `emberAfFillCommandZllCommissioningClusterEndpointInformation`(ieeeAddress, network-Address, endpointId, profileId, deviceId, version)
- #define `emberAfFillCommandZllCommissioningClusterGetGroupIdentifiersResponse`(total, startIndex, count, groupInformationRecordList, groupInformationRecordListLen)
- #define `emberAfFillCommandZllCommissioningClusterGetEndpointListResponse`(total, startIndex, count, endpointInformationRecordList, endpointInformationRecordListLen)

## Sample Mfg Specific Cluster Commands

- #define `emberAfFillCommandSampleMfgSpecificClusterCommandOne`(argOne)

### 8.32.1 Macro Definition Documentation

#### 8.32.1.1 #define CLUSTER\_CLIENT\_API

Definition at line 7 of file `client-command-macro.doc`.

## 8.33 comms-hub-function.h File Reference

### Macros

- #define `emberAfPluginCommsHubFunctionPrint`(...)
- #define `emberAfPluginCommsHubFunctionPrintln`(...)
- #define `emberAfPluginCommsHubFunctionDebugExec`(x)
- #define `emberAfPluginCommsHubFunctionPrintBuffer`(buffer, len, withSpace)

### Enumerations

- enum `EmberAfPluginCommsHubFunctionStatus` {
 EMBER\_AF\_CHF\_STATUS\_SUCCESS, EMBER\_AF\_CHF\_STATUS\_TOO\_MANY\_PEND\_M-ESSAGES, EMBER\_AF\_CHF\_STATUS\_FNF\_ATTR\_FAILURE, EMBER\_AF\_CHF\_STATUS-\_NO\_MIRROR, EMBER\_AF\_CHF\_STATUS\_TUNNEL\_FAILURE, EMBER\_AF\_CHF\_STATUS\_NO\_ACCESS, EMBER\_AF\_CHF\_STATUS\_SEND\_TIMEOUT }

### Functions

- `EmberAfPluginCommsHubFunctionStatus emberAfPluginCommsHubFunctionSend` (`EmberEUI64` destinationDeviceId, `uint16_t` length, `uint8_t` \*payload, `uint16_t` messageCode)

- bool `emAfPluginCommsHubFunctionTunnelAcceptCallback` (`EmberEUI64 deviceId`)
- void `emAfPluginCommsHubFunctionTunnelDataReceivedCallback` (`EmberEUI64 senderDeviceId, uint16_t length, uint8_t *payload`)
- void `emAfPluginCommsHubFunctionSetDefaultTimeout` (`uint32_t timeout`)

### 8.33.1 Macro Definition Documentation

#### 8.33.1.1 `#define emberAfPluginCommsHubFunctionPrint( ... )`

Definition at line 9 of file `comms-hub-function.h`.

#### 8.33.1.2 `#define emberAfPluginCommsHubFunctionPrintln( ... )`

Definition at line 10 of file `comms-hub-function.h`.

#### 8.33.1.3 `#define emberAfPluginCommsHubFunctionDebugExec( x )`

Definition at line 11 of file `comms-hub-function.h`.

#### 8.33.1.4 `#define emberAfPluginCommsHubFunctionPrintBuffer( buffer, len, withSpace )`

Definition at line 12 of file `comms-hub-function.h`.

### 8.33.2 Enumeration Type Documentation

#### 8.33.2.1 enum `EmberAfPluginCommsHubFunctionStatus`

Enumerator:

```
EMBER_AF_CHF_STATUS_SUCCESS
EMBER_AF_CHF_STATUS_TOO_MANY_PEND_MESSAGES
EMBER_AF_CHF_STATUS_FNF_ATTR_FAILURE
EMBER_AF_CHF_STATUS_NO_MIRROR
EMBER_AF_CHF_STATUS_TUNNEL_FAILURE
EMBER_AF_CHF_STATUS_NO_ACCESS
EMBER_AF_CHF_STATUS_SEND_TIMEOUT
```

Definition at line 14 of file `comms-hub-function.h`.

### 8.33.3 Function Documentation

#### 8.33.3.1 `EmberAfPluginCommsHubFunctionStatus emberAfPluginCommsHubFunctionSend ( EmberEUI64 destinationDeviceId, uint16_t length, uint8_t * payload, uint16_t messageCode )`

Pass message to be tunneled over the HAN using either a sleepy buffer system (GSME) or direct to the device by initiating a tunnel (ESME, HCALCS, PPMID, TYPE2).

This function can be used to transfer data to a device on the HAN.

**Parameters**

<i>destination-DeviceId</i>	The EUI64 of the destination device.
<i>length</i>	The length in octets of the data.
<i>payload</i>	Buffer(memory location at WAN Message Handler) containing the raw octets of the message(GBCS Message)
<i>messageCode</i>	The GBCS Message Code for the data that is being sent.

**Returns**

`EMBER_AF_CHF_STATUS_SUCCESS` data was sent or has been queue to be sent  
`EMBER_AF_CHF_STATUS_NO_ACCESS` No entry in the GBCS Device Log for the specified device  
`EMBER_AF_CHF_STATUS_NO_MIRROR` Mirror endpoint for given device has not been configured  
`EMBER_AF_CHF_STATUS_FNF_ATTR_FAILURE` Unable to read or write the functional notification flags  
attribute `EMBER_AF_CHF_STATUS_TOO_MANY_PEND_MESSAGES` There are too many messages currently pending to be delivered  
`EMBER_AF_CHF_STATUS_TUNNEL_FAILURE` tunnel cannot be created to non sleepy devices

**8.33.3.2 bool emAfPluginCommsHubFunctionTunnelAcceptCallback ( EmberEUI64 deviceId )**

Tunnel Accept.

This callback is called by the tunnel manager when a tunnel is requested. The given device identifier should be checked against the Device Log to verify whether tunnels from the device should be accepted or not.

**Parameters**

<i>deviceId</i>	Identifier of the device from which a tunnel is requested
-----------------	---

**Returns**

true is the tunnel should be allowed, false otherwise

**8.33.3.3 void emAfPluginCommsHubFunctionTunnelDataReceivedCallback ( EmberEUI64 senderDeviceId, uint16\_t length, uint8\_t \* payload )**

Tunnel Data Received.

This callback is called by the tunnel manager when data is received over a tunnel. It is responsible for the implementation of the GET, GET\_RESPONSE, PUT protocol used when communicating with a sleepy device.

**Parameters**

<i>senderDeviceId</i>	Identifier of the device from which the data was received
<i>length</i>	The length of the data received
<i>payload</i>	The data received

### 8.33.3.4 void emAfPluginCommsHubFunctionSetDefaultTimeout ( uint32\_t timeout )

Set the default remote part message timeout.

This function can be used to set the default timeout for all messages destined for a sleepy device. If the device does not retrieve the message before this time then it will be discarded and a [EMBER\\_AF\\_CHF\\_STATUS\\_SEND\\_TIMEOUT](#) error will be return in [emberAfPluginCommsHubFunctionSendCallback\(\)](#).

#### Parameters

<i>timeout</i>	timeout in seconds
----------------	--------------------

## 8.34 comms-hub-function.h

```

00001 // ****
00002 // * comms-hub-function.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories, Inc. All rights reserved.
00006 // ****
00007
00008 // Printing macros for plugin: Comms Hub Function
00009 #define emberAfPluginCommsHubFunctionPrint(...)    emberAfAppPrint(__VA_ARGS__)
00010 #define emberAfPluginCommsHubFunctionPrintln(...)   emberAfAppPrintln(__VA_ARGS__)
00011 #define emberAfPluginCommsHubFunctionDebugExec(x)  emberAfAppDebugExec(x)
00012 #define emberAfPluginCommsHubFunctionPrintBuffer(buffer, len, withSpace)
00013                                         emberAfAppPrintBuffer(buffer, len, withSpace)
00014 typedef enum
00015 {
00016     EMBER_AF_CHF_STATUS_SUCCESS          = 0x00
00017     , EMBER_AF_CHF_STATUS_TOO_MANY_PEND_MESSAGES
00018         = 0xFA,
00019     EMBER_AF_CHF_STATUS_FNF_ATTR_FAILURE
00020         = 0xFB,
00021     EMBER_AF_CHF_STATUS_NO_MIRROR
00022         = 0xFC,
00023     EMBER_AF_CHF_STATUS_TUNNEL_FAILURE
00024         = 0xFD,
00025     EMBER_AF_CHF_STATUS_NO_ACCESS
00026         = 0xFE,
00027     EMBER_AF_CHF_STATUS_SEND_TIMEOUT
00028         = 0xFF,
00029 } EmberAfPluginCommsHubFunctionStatus;
00030
00031 EmberAfPluginCommsHubFunctionStatus
00032 emberAfPluginCommsHubFunctionSend(EmberEUI64
00033     destinationDeviceId,
00034
00035     length,                                uint16_t
00036     payload,                                uint8_t *
00037     messageCode);                           uint16_t
00038
00039
00040 bool emAfPluginCommsHubFunctionTunnelAcceptCallback
00041     (EmberEUI64 deviceId);
00042
00043 void emAfPluginCommsHubFunctionTunnelDataReceivedCallback
00044     (EmberEUI64 senderDeviceId,
00045
00046     length,                                uint16_t length,
00047     payload);                             uint8_t *payload);
00048
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00081
00082
00083
00084
00085
00086
00087
00088 void emAfPluginCommsHubFunctionSetDefaultTimeout
00089     (uint32_t timeout);

```

## 8.35 comms-hub-tunnel-endpoints.h File Reference

### Macros

- #define INVALID\_TUNNELING\_ENDPOINT

### Functions

- void `emberAfPluginTunnelingEndpointInit` (void)
- void `emberAfPluginAddTunnelingEndpoint` (uint16\_t nodeId, uint8\_t \*endpointList, uint8\_t numEndpoints)
- uint8\_t `emberAfPluginGetDeviceTunnelingEndpoint` (uint16\_t nodeId)

#### 8.35.1 Macro Definition Documentation

##### 8.35.1.1 #define INVALID\_TUNNELING\_ENDPOINT

Definition at line 5 of file `comms-hub-tunnel-endpoints.h`.

#### 8.35.2 Function Documentation

##### 8.35.2.1 void `emberAfPluginTunnelingEndpointInit` ( void )

Tunneling Endpoint Init.

This function initializes the table of device tunnel endpoints.

##### 8.35.2.2 void `emberAfPluginAddTunnelingEndpoint` ( uint16\_t nodeId, uint8\_t \* endpointList, uint8\_t numEndpoints )

Add Tunneling Endpoint.

This function adds an address and tunnel endpoint into the table.

#### Parameters

<code>nodeId</code>	The address of the device that should be added to the table.
<code>endpointList</code>	The list of tunneling endpoints on the device.
<code>numEndpoints</code>	The number of tunneling endpoints on the device.

##### 8.35.2.3 uint8\_t `emberAfPluginGetDeviceTunnelingEndpoint` ( uint16\_t nodeId )

Get Tunneling Endpoint.

This function returns the tunneling endpoint for the specified nodeId. If an endpoint for the nodeId cannot be found, it returns INVALID\_TUNNELING\_ENDPOINT.

#### Returns

The tunneling endpoint for the nodeId, or INVALID\_TUNNELING\_ENDPOINT.

## 8.36 comms-hub-tunnel-endpoints.h

```

00001
00002 #ifndef _COMMS_HUB_TUNNEL_ENDPOINTS_H_
00003 #define _COMMS_HUB_TUNNEL_ENDPOINTS_H_
00004
00005 #define INVALID_TUNNELING_ENDPOINT 0xFF
00006
00007
00014 void emberAfPluginTunnelingEndpointInit( void
    );
00015
00016
00027 void emberAfPluginAddTunnelingEndpoint(
    uint16_t nodeId, uint8_t *endpointList, uint8_t numEndpoints );
00028
00029
00039 uint8_t emberAfPluginGetDeviceTunnelingEndpoint
    ( uint16_t nodeId );
00040
00041
00042 #endif // #ifndef _COMMS_HUB_TUNNEL_ENDPOINTS_H_
00043
00044

```

## 8.37 concentrator-support.h File Reference

### Macros

- #define **LOW\_RAM\_CONCENTRATOR**
- #define **HIGH\_RAM\_CONCENTRATOR**
- #define **emAfConcentratorStartDiscovery**
- #define **NONE**
- #define **FULL**
- #define **emberAfPluginConcentratorGetRouterBehavior()**
- #define **emberAfPluginConcentratorSetRouterBehavior(behavior)**

### Typedefs

- typedef uint8\_t **EmberAfPluginConcentratorRouterBehavior**

### Enumerations

- enum { **EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_NONE**, **EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_FULL**, **EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_MAX** }

### Functions

- void **emAfConcentratorStopDiscovery** (void)
- uint32\_t **emberAfPluginConcentratorQueueDiscovery** (void)
- void **emberAfPluginConcentratorStopDiscovery** (void)
- void **emberConcentratorStartDiscovery** (void)
- void **emberConcentratorStopDiscovery** (void)

## Variables

- `uint8_t emAfRouteErrorCount`
- `uint8_t emAfDeliveryFailureCount`
- `EmberEventControl emberAfPluginConcentratorUpdateEventControl`
- `EmberAfPluginConcentratorRouterBehavior emAfPluginConcentratorRouterBehavior`

### 8.37.1 Macro Definition Documentation

#### 8.37.1.1 `#define LOW_RAM_CONCENTRATOR`

Definition at line 7 of file [concentrator-support.h](#).

#### 8.37.1.2 `#define HIGH_RAM_CONCENTRATOR`

Definition at line 8 of file [concentrator-support.h](#).

#### 8.37.1.3 `#define emAfConcentratorStartDiscovery`

Definition at line 10 of file [concentrator-support.h](#).

#### 8.37.1.4 `#define NONE`

Definition at line 18 of file [concentrator-support.h](#).

#### 8.37.1.5 `#define FULL`

Definition at line 19 of file [concentrator-support.h](#).

#### 8.37.1.6 `#define emberAfPluginConcentratorGetRouterBehavior( )`

Definition at line 29 of file [concentrator-support.h](#).

#### 8.37.1.7 `#define emberAfPluginConcentratorSetRouterBehavior( behavior )`

Definition at line 31 of file [concentrator-support.h](#).

### 8.37.2 Typedef Documentation

#### 8.37.2.1 `typedef uint8_t EmberAfPluginConcentratorRouterBehavior`

Definition at line 26 of file [concentrator-support.h](#).

### 8.37.3 Enumeration Type Documentation

#### 8.37.3.1 anonymous enum

Enumerator:

*EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_NONE*  
*EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_FULL*  
*EMBER\_AF\_PLUGIN\_CONCENTRATOR\_ROUTER\_BEHAVIOR\_MAX*

Definition at line 20 of file [concentrator-support.h](#).

### 8.37.4 Function Documentation

#### 8.37.4.1 void emAfConcentratorStopDiscovery ( void )

#### 8.37.4.2 uint32\_t emberAfPluginConcentratorQueueDiscovery ( void )

#### 8.37.4.3 void emberAfPluginConcentratorStopDiscovery ( void )

#### 8.37.4.4 void emberConcentratorStartDiscovery ( void )

Starts periodic many-to-one route discovery. Periodic discovery is started by default on bootup, but this function may be used if discovery has been stopped by a call to [emberConcentratorStopDiscovery\(\)](#).

#### 8.37.4.5 void emberConcentratorStopDiscovery ( void )

Stops periodic many-to-one route discovery.

### 8.37.5 Variable Documentation

#### 8.37.5.1 uint8\_t emAfRouteErrorCount

#### 8.37.5.2 uint8\_t emAfDeliveryFailureCount

#### 8.37.5.3 EmberEventControl emberAfPluginConcentratorUpdateEventControl

#### 8.37.5.4 EmberAfPluginConcentratorRouterBehavior emAfPluginConcentratorRouterBehavior

## 8.38 concentrator-support.h

```

00001
00002 extern uint8_t emAfRouteErrorCount;
00003 extern uint8_t emAfDeliveryFailureCount;
00004
00005 extern EmberEventControl
00006     emberAfPluginConcentratorUpdateEventControl
00007 ;
00008
00009 #define LOW_RAM_CONCENTRATOR EMBER_LOW_RAM_CONCENTRATOR
00010 #define HIGH_RAM_CONCENTRATOR EMBER_HIGH_RAM_CONCENTRATOR
00011
00012 #define emAfConcentratorStartDiscovery emberAfPluginConcentratorQueueDiscovery
00013 void emAfConcentratorStopDiscovery(void);

```

```

00012
00013
00014 uint32_t emberAfPluginConcentratorQueueDiscovery
00015     (void);
00016 void emberAfPluginConcentratorStopDiscovery
00017     (void);
00018 // These values are defined by appbuilder.
00019 #define NONE (0x00)
00020 #define FULL (0x01)
00021 enum {
00022     EMBER_AF_PLUGIN_CONCENTRATOR_ROUTER_BEHAVIOR_NONE
00023         = NONE,
00024     EMBER_AF_PLUGIN_CONCENTRATOR_ROUTER_BEHAVIOR_FULL
00025         = FULL,
00026     EMBER_AF_PLUGIN_CONCENTRATOR_ROUTER_BEHAVIOR_MAX
00027         = EMBER_AF_PLUGIN_CONCENTRATOR_ROUTER_BEHAVIOR_FULL
00028     ,
00029 };
00030 typedef uint8_t EmberAfPluginConcentratorRouterBehavior
00031 ;
00032 extern EmberAfPluginConcentratorRouterBehavior
00033     emAfPluginConcentratorRouterBehavior;
00034 #define emberAfPluginConcentratorGetRouterBehavior() \
00035     (emAfPluginConcentratorRouterBehavior)
00036 #define emberAfPluginConcentratorSetRouterBehavior(behavior) \
00037     do { emAfPluginConcentratorRouterBehavior = behavior; } while (0);
00038
00039 void emberConcentratorStartDiscovery(void);
00040
00041 void emberConcentratorStopDiscovery(void);

```

## 8.39 connection-manager-test.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_CONNECTION\_MANAGER\_REJOIN\_TIME\_M
- #define EMBER\_AF\_PLUGIN\_CONNECTION\_MANAGER\_RETRY\_TIME\_S
- #define EMBER\_AF\_PLUGIN\_CONNECTION\_MANAGER\_REJOIN\_ATTEMPTS
- #define TOKEN\_FORCE\_SHORT\_POLL
- #define TOKEN\_FORCE\_SHORT\_POLL\_SIZE

### 8.39.1 Macro Definition Documentation

#### 8.39.1.1 #define EMBER\_AF\_PLUGIN\_CONNECTION\_MANAGER\_REJOIN\_TIME\_M

Definition at line 2 of file [connection-manager-test.h](#).

#### 8.39.1.2 #define EMBER\_AF\_PLUGIN\_CONNECTION\_MANAGER\_RETRY\_TIME\_S

Definition at line 3 of file [connection-manager-test.h](#).

#### 8.39.1.3 #define EMBER\_AF\_PLUGIN\_CONNECTION\_MANAGER\_REJOIN\_ATTEMPTS

Definition at line 4 of file [connection-manager-test.h](#).

#### 8.39.1.4 #define TOKEN\_FORCE\_SHORT\_POLL

Definition at line 6 of file [connection-manager-test.h](#).

#### 8.39.1.5 #define TOKEN\_FORCE\_SHORT\_POLL\_SIZE

Definition at line 7 of file [connection-manager-test.h](#).

## 8.40 connection-manager-test.h

```
00001
00002 #define EMBER_AF_PLUGIN_CONNECTION_MANAGER_REJOIN_TIME_M      15
00003 #define EMBER_AF_PLUGIN_CONNECTION_MANAGER_RETRY_TIME_S       5
00004 #define EMBER_AF_PLUGIN_CONNECTION_MANAGER_REJOIN_ATTEMPTS    20
00005
00006 #define TOKEN_FORCE_SHORT_POLL          0
00007 #define TOKEN_FORCE_SHORT_POLL_SIZE     1
```

## 8.41 connection-manager-tokens.h File Reference

### Macros

- #define [CREATOR\\_FORCE\\_SHORT\\_POLL](#)

#### 8.41.1 Macro Definition Documentation

##### 8.41.1.1 #define CREATOR\_FORCE\_SHORT\_POLL

Custom Application Tokens

Definition at line 11 of file [connection-manager-tokens.h](#).

## 8.42 connection-manager-tokens.h

```
00001 // ****
00002 // * connection-manager-tokens.h
00003 // *
00004 // *
00005 // * Copyright 2015 Silicon Laboratories, Inc.
00006 // ****
00007
00011 #define CREATOR_FORCE_SHORT_POLL (0x000e)
00012
00013 #ifdef DEFINETYPES
00014 // Include or define any typedef for tokens here
00015 #endif //DEFINETYPES
00016 #ifdef DEFINETOKENS
00017 // Define the actual token storage information here
00018
00019 DEFINE_BASIC_TOKEN(FORCE_SHORT_POLL, bool, false)
00020
00021 #endif //DEFINETOKENS
```

## 8.43 connection-manager.h File Reference

### Functions

- void `emberAfPluginConnectionManagerResetJoinAttempts` (void)
- void `emberAfPluginConnectionManagerLeaveNetworkAndStartSearchForNewOne` (void)
- void `emberAfPluginConnectionManagerStartSearchForJoinableNetwork` (void)
- void `emberAfPluginConnectionManagerFactoryReset` (void)
- void `emberAfPluginConnectionManagerSetNumberJoinBlink` (uint8\_t numBlinks)
- void `emberAfPluginConnectionManagerSetNumberLeaveBlink` (uint8\_t numBlinks)
- void `emberAfPluginConnectionManagerLedNetworkFoundBlink` (void)

#### 8.43.1 Function Documentation

##### 8.43.1.1 void `emberAfPluginConnectionManagerResetJoinAttempts` ( void )

Reset the join attempt counter.

This function will reset the internal counter that the connection manager plugin uses to track how many attempts it has made to join a network. This function can be used to delay the call to , which normally occurs (with a status of EMBER\_NOT\_JOINED) after 20 failed join attempts.

##### 8.43.1.2 void `emberAfPluginConnectionManagerLeaveNetworkAndStartSearchForNewOne` ( void )

Leave the current network and attempt to join a new one.

This function will cause the plugin to leave the current network and begin searching for a new network to join.

##### 8.43.1.3 void `emberAfPluginConnectionManagerStartSearchForJoinableNetwork` ( void )

Begin searching for a new network to join.

This function will attempt to join a new network. It tracks the number of network join attempts that have occurred, and will generate a call to with a status of EMBER\_NOT\_JOINED if a network can not be found within 20 join attempts. This function will also make sure that a new join attempt occurs 20 seconds after an unsuccessful join attempt occurs (until it encounters 20 failed join attempts).

##### 8.43.1.4 void `emberAfPluginConnectionManagerFactoryReset` ( void )

Perform a factory reset.

This function will clear all binding, scene, and group tables. It does not cause a change in network state.

##### 8.43.1.5 void `emberAfPluginConnectionManagerSetNumberJoinBlink` ( uint8\_t *numBlinks* )

Set the LED behavior for a network join event.

This function will configure the connection manager plugin to blink the network activity LED a user specified number of times when a successful network join event occurs.

**Parameters**

<i>numBlinks</i>	The number of times to blink the LED on network join
------------------	--

**8.43.1.6 void emberAfPluginConnectionManagerSetNumberLeaveBlink ( uint8\_t numBlinks )**

Set the LED behavior for a network leave event.

This function will configure the connection manager plugin to blink the network activity LED a user specified number of times when a network leave event occurs.

**Parameters**

<i>numBlinks</i>	The number of times to blink the LED on network leave
------------------	---

**8.43.1.7 void emberAfPluginConnectionManagerLedNetworkFoundBlink ( void )**

Blink the Network Found LED pattern.

This function will blink the network found LED pattern

**8.44 connection-manager.h**

```

00001 // ****
00002 // * connection-manager.h
00003 // *
00004 // * Implements code to maintain a network connection. It will implement
00005 // * rejoin
00006 // * algorithms and perform activity LED blinking as required.
00007 // * Copyright 2015 Silicon Laboratories, Inc.
00008 // * 80*
00009 // -----
00010 #ifndef __CONNECTION_MANAGER_H__
00011 #define __CONNECTION_MANAGER_H__
00012 //
00013 //
00014 // Plugin public function declarations
00015
00024 void emberAfPluginConnectionManagerResetJoinAttempts
00025     (void);
00031 void emberAfPluginConnectionManagerLeaveNetworkAndStartSearchForNewOne
00032     (void);
00043 void emberAfPluginConnectionManagerStartSearchForJoinableNetwork
00044     (void);
00050 void emberAfPluginConnectionManagerFactoryReset
00051     (void);
00060 void emberAfPluginConnectionManagerSetNumberJoinBlink
00061     (uint8_t numBlinks);
00070 void emberAfPluginConnectionManagerSetNumberLeaveBlink
00071     (uint8_t numBlinks);
00077 void emberAfPluginConnectionManagerLedNetworkFoundBlink
00078     (void);
00079 #endif //__CONNECTION_MANAGER_H__

```

## 8.45 core-cli.h File Reference

### Functions

- void [emAfCliCountersCommand](#) (void)
- void [emAfCliInfoCommand](#) (void)

#### 8.45.1 Function Documentation

8.45.1.1 void [emAfCliCountersCommand](#) ( void )

8.45.1.2 void [emAfCliInfoCommand](#) ( void )

## 8.46 core-cli.h

```
00001 // ****
00002 // * core-cli.h
00003 // *
00004 // * Core CLI commands used by all applications regardless of profile.
00005 // *
00006 // * Copyright 2010 by Ember Corporation. All rights reserved.
00007 // *80*
00008 // ****
00009 #if !defined(EMBER_AF_GENERATE_CLI)
00010 void emAfCliCountersCommand(void);
00011 void emAfCliInfoCommand(void);
00012 #endif
00013
```

## 8.47 counters-cli.h File Reference

### Functions

- void [emberAfPluginCountersPrintCommand](#) (void)
- void [emberAfPluginCountersSimplePrintCommand](#) (void)
- void [emberAfPluginCountersPrintThresholdsCommand](#) (void)
- void [emberAfPluginCountersSetThresholdCommand](#) (void)
- void [emberAfPluginCountersSendRequestCommand](#) (void)
- void [emberAfPluginCounterPrintCountersResponse](#) ([EmberMessageBuffer](#) message)
- void [sendCountersRequestCommand](#) (void)
- void [printCountersResponse](#) ([EmberMessageBuffer](#) message)

#### 8.47.1 Detailed Description

Used for testing the counters library via a command line interface. For documentation on the counters library see [counters.h](#).

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Definition in file [counters-cli.h](#).

## 8.47.2 Function Documentation

- 8.47.2.1 void `emberAfPluginCountersPrintCommand ( void )`
- 8.47.2.2 void `emberAfPluginCountersSimplePrintCommand ( void )`
- 8.47.2.3 void `emberAfPluginCountersPrintThresholdsCommand ( void )`
- 8.47.2.4 void `emberAfPluginCountersSetThresholdCommand ( void )`
- 8.47.2.5 void `emberAfPluginCountersSendRequestCommand ( void )`
- 8.47.2.6 void `emberAfPluginCounterPrintCountersResponse ( EmberMessageBuffer message )`
- 8.47.2.7 void `sendCountersRequestCommand ( void )`

Args: destination id, clearCounters (bool)

- 8.47.2.8 void `printCountersResponse ( EmberMessageBuffer message )`

Utility function for printing out the OTA counters response.

## 8.48 counters-cli.h

```

00001
00010 void emberAfPluginCountersPrintCommand(void);
00011 void emberAfPluginCountersSimplePrintCommand
          (void);
00012 void emberAfPluginCountersPrintThresholdsCommand
          (void);
00013 void emberAfPluginCountersSetThresholdCommand
          (void);
00014 void emberAfPluginCountersSendRequestCommand
          (void);
00015 void emberAfPluginCounterPrintCountersResponse
          (EmberMessageBuffer message);
00016
00018 void sendCountersRequestCommand(void);
00019
00021 void printCountersResponse(EmberMessageBuffer
          message);
00022

```

## 8.49 counters-ota.h File Reference

### Macros

- `#define MAX_PAYLOAD_LENGTH`

### Functions

- `EmberStatus emberAfPluginCountersSendRequest (EmberNodeId destination, bool clearCounters)`
- `bool emberAfPluginCountersIsIncomingRequest (EmberApsFrame *apsFrame, EmberNodeId sender)`
- `bool emberAfPluginCountersIsIncomingResponse (EmberApsFrame *apsFrame)`

- bool `emberAfPluginCountersIsOutgoingResponse` (`EmberApsFrame` \*`apsFrame`, `EmberStatus` `status`)

### 8.49.1 Detailed Description

Description: A library for retrieving Ember stack counters over the air.

The library allows the application to request counters from a remote node. The request specifies whether the remote node should clear its counters after sending back the response. The library also handles and responds to incoming counter requests appropriately. A convenience method recognizes incoming responses.

Summary of requirements:

- Include `counters.c` and `counters-ota.c` in the build on an EmberZNet processor. Include only `counters-ota-host.c` in the build on an EZSP host processor.
- Call `::emberIsIncomingCountersRequest()` in the incoming message handler.
- Call `::emberIsIncomingCountersResponse()` in the incoming message handler.
- Call `::emberIsOutgoingCountersResponse()` in the message sent handler.

The request and response messages use profile id `EMBER_PRIVATE_PROFILE_ID`, and the following cluster ids:

- `EMBER_REPORT_COUNTERS_REQUEST`
- `EMBER_REPORT_AND_CLEAR_COUNTERS_REQUEST`
- `EMBER_REPORT_COUNTERS_RESPONSE`
- `EMBER_REPORT_AND_CLEAR_COUNTERS_RESPONSE`

The request has no payload. The payload of the response is a list of the non-zero counters. Each entry in the list consists of the one-byte counter id followed by a two-byte counter, low byte first. If all entries do not fit into a single payload, multiple response messages are sent.

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Definition in file [counters-ota.h](#).

### 8.49.2 Macro Definition Documentation

#### 8.49.2.1 `#define MAX_PAYLOAD_LENGTH`

To ensure the counters response does not exceed the maximum payload length, it is divided into separate messages if necessary. The maximum length of 48 leaves sufficient room for headers, all security modes, and source routing subframes if present. It should not be necessary to change this value, but if you do, make sure you know what you're doing.

Definition at line 42 of file [counters-ota.h](#).

### 8.49.3 Function Documentation

#### 8.49.3.1 EmberStatus emberAfPluginCountersSendRequest ( EmberNodeId *destination*, bool *clearCounters* )

Sends an request to the specified destination to send back a report of the non-zero counters.

##### Parameters

<i>destination</i>	the address of the node to send the request to.
<i>clearCounters</i>	whether or not the destination should reset its counters to zero after successfully reporting them back to the requestor. Note that due to technical constraints, counters are always cleared on a network coprocessor such as the EM260.

##### Returns

EMBER\_SUCCESS if the request was successfully submitted for sending. See ::emberSendUnicast() or ::ezspSendUnicast for possible failure statuses.

#### 8.49.3.2 bool emberAfPluginCountersIsIncomingRequest ( EmberApsFrame \* *apsFrame*, EmberNodeId *sender* )

The application must call this function at the beginning of the incoming message handler. It returns true if the incoming message was a counters request and should be ignored by the rest of the incoming message handler.

##### Parameters

<i>apsFrame</i>	the APS frame passed to the incoming message handler.
<i>sender</i>	the node id of the sender of the request.

##### Returns

true if the message was a counters request and should be ignored by the rest of the incoming message handler.

#### 8.49.3.3 bool emberAfPluginCountersIsIncomingResponse ( EmberApsFrame \* *apsFrame* )

The application may call this function within the incoming message handler to determine if the message is a counters response. If so, it is up to the application to decode the payload, whose format is described above.

##### Parameters

<i>apsFrame</i>	the APS frame passed to the incoming message handler.
-----------------	---

##### Returns

true if the message is a counters response.

#### 8.49.3.4 bool emberAfPluginCountersIsOutgoingResponse ( EmberApsFrame \* *apsFrame*, EmberStatus *status* )

The application must call this function at the begining of the message sent handler. It returns true if the message was a counters response and should be ignored by the rest of the handler.

##### Parameters

<i>apsFrame</i>	the APS frame passed to the message sent handler.
<i>status</i>	the status passed to the message sent handler.
<i>return</i>	true if the message was a counters response and should be ignored by the rest of the message sent handler.

## 8.50 counters-ota.h

```

00001
00042 #define MAX_PAYLOAD_LENGTH 48
00043
00056 EmberStatus emberAfPluginCountersSendRequest
    (EmberNodeId destination,
00057                                         bool
    clearCounters);
00058
00069 bool emberAfPluginCountersIsIncomingRequest
    (EmberApsFrame *apsFrame,
00070                                         EmberNodeId
    sender);
00071
00080 bool emberAfPluginCountersIsIncomingResponse
    (EmberApsFrame *apsFrame);
00081
00091 bool emberAfPluginCountersIsOutgoingResponse
    (EmberApsFrame *apsFrame,
00092                                         EmberStatus
    status);

```

## 8.51 counters.h File Reference

### Macros

- #define EMBER\_APPLICATION\_HAS\_COUNTER\_ROLLOVER\_HANDLER
- #define MULTI\_NETWORK\_COUNTER\_TYPE\_COUNT

### Functions

- void **emberAfPluginCountersClear** (void)
- void **emberAfPluginCountersResetThresholds** (void)
- void **emberAfPluginCountersSetThreshold** (EmberCounterType type, uint16\_t threshold)

### Variables

- uint16\_t **emberCounters** [EMBER\_COUNTER\_TYPE\_COUNT]
- uint16\_t **emberCountersThresholds** [EMBER\_COUNTER\_TYPE\_COUNT]
- uint16\_t **emberMultiNetworkCounters** [EMBER\_SUPPORTED\_NETWORKS][MULTI\_NETWORK\_COUNTER\_TYPE\_COUNT]

### 8.51.1 Detailed Description

A library to tally up Ember stack counter events.

The Ember stack tracks a number of events defined by [EmberCounterType](#) and reports them to the app via the [emberCounterHandler\(\)](#) callback. This library simply keeps a tally of the number of times each type of counter event occurred. The application must define ::EMBER\_APPLICATION\_HAS\_COUNTER\_HANDLER in its CONFIGURATION\_HEADER in order to use this library.

See [counters-ota.h](#) for the ability to retrieve stack counters from a remote node over the air.

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Definition in file [counters.h](#).

### 8.51.2 Macro Definition Documentation

#### 8.51.2.1 #define EMBER\_APPLICATION\_HAS\_COUNTER\_ROLLOVER\_HANDLER

Definition at line 19 of file [counters.h](#).

#### 8.51.2.2 #define MULTI\_NETWORK\_COUNTER\_TYPE\_COUNT

Definition at line 35 of file [counters.h](#).

### 8.51.3 Function Documentation

#### 8.51.3.1 void emberAfPluginCountersClear ( void )

Reset the counters to zero.

#### 8.51.3.2 void emberAfPluginCountersResetThresholds ( void )

Resets counter thresholds to 0xFFFF.

#### 8.51.3.3 void emberAfPluginCountersSetThreshold ( EmberCounterType *type*, uint16\_t *threshold* )

Set the threshold for a particular counter type

### 8.51.4 Variable Documentation

#### 8.51.4.1 uint16\_t emberCounters[EMBER\_COUNTER\_TYPE\_COUNT]

The *i*th entry in this array is the count of events of EmberCounterType *i*.

#### 8.51.4.2 uint16\_t emberCountersThresholds[EMBER\_COUNTER\_TYPE\_COUNT]

The *i*th entry in this array is the count of threshold values set for the corresponding *i*th event in emberCounters. The default value is set to 0xFFFF and can be changed by an application by calling emberSet

### 8.51.4.3 uint16\_t emberMultiNetworkCounters[EMBER\_SUPPORTED\_NETWORKS][MULTI\_NETWORK\_COUNTER\_TYPE\_COUNT]

The value at the position [n,i] in this matrix is the count of events of per-network EmberCounterType i for network n.

## 8.52 counters.h

```

00001
00019 #define EMBER_APPLICATION_HAS_COUNTER_ROLLOVER_HANDLER
00020
00023 extern uint16_t emberCounters[EMBER_COUNTER_TYPE_COUNT];
00030 #ifdef EMBER_APPLICATION_HAS_COUNTER_ROLLOVER_HANDLER
00031 extern uint16_t emberCountersThresholds[
    EMBER_COUNTER_TYPE_COUNT];
00032 #endif
00033
00034 #if !defined(EMBER_MULTI_NETWORK_STIPPED)
00035 #define MULTI_NETWORK_COUNTER_TYPE_COUNT 17
00036
00040 extern uint16_t emberMultiNetworkCounters[
    EMBER_SUPPORTED_NETWORKS]
00041                                     [MULTI_NETWORK_COUNTER_TYPE_COUNT]
00042 #endif // EMBER_MULTI_NETWORK_STIPPED
00043
00044 void emberAfPluginCountersClear(void);
00047 void emberAfPluginCountersResetThreshold(
    void);
00049 void emberAfPluginCountersSetThreshold(
    EmberCounterType type, uint16_t threshold);

```

## 8.53 custom-cli.h File Reference

### Macros

- #define CUSTOM\_COMMANDS

### 8.53.1 Macro Definition Documentation

#### 8.53.1.1 #define CUSTOM\_COMMANDS

Definition at line 14 of file [custom-cli.h](#).

## 8.54 custom-cli.h

```

00001 #ifndef CUSTOM_CLI_H
00002 #define CUSTOM_CLI_H
00003 #ifdef EMBER_AF_ENABLE_CUSTOM_COMMANDS
00004     extern EmberCommandEntry emberAfCustomCommands[];
00005     #ifndef CUSTOM_SUBMENU_NAME
00006         #define CUSTOM_SUBMENU_NAME "custom"
00007     #endif
00008     #ifndef CUSTOM_SUBMENU_DESCRIPTION
00009         #define CUSTOM_SUBMENU_DESCRIPTION "Custom commands defined by the
developer"
00010     #endif
00011     #define CUSTOM_COMMANDS     emberCommandEntrySubMenu(CUSTOM_SUBMENU_NAME,
emberAfCustomCommands, CUSTOM_SUBMENU_DESCRIPTION),

```

```

00012 #else
00013     #ifndef CUSTOM_COMMANDS
00014         #define CUSTOM_COMMANDS
00015     #endif
00016 #endif
00017 #endif

```

## 8.55 custom-ezsp.h File Reference

### Macros

- `#define EMBER_MAX_CUSTOM_EZSP_MESSAGE_PAYLOAD`

#### 8.55.1 Macro Definition Documentation

##### 8.55.1.1 `#define EMBER_MAX_CUSTOM_EZSP_MESSAGE_PAYLOAD`

Definition at line 10 of file `custom-ezsp.h`.

## 8.56 custom-ezsp.h

```

00001 //
***** * custom-ezsp.h *
00002 // * A sample of custom EZSP protocol.
00003 // *
00004 // * Copyright 2012 by Ember Corporation. All rights reserved.
00005 // *
00006 // * *80*
00007 //
***** * define EMBER_MAX_CUSTOM_EZSP_MESSAGE_PAYLOAD 119
00008
00009
00010 #define EMBER_MAX_CUSTOM_EZSP_MESSAGE_PAYLOAD 119

```

## 8.57 demand-response-load-control.h File Reference

```

#include "load-control-event-table.h"
#include "stack/include/ember-types.h"

```

### Macros

- `#define EVENT_OPT_IN_DEFAULT`

### Functions

- `void afReportEventStatusHandler (uint32_t eventId, uint8_t eventCode, uint32_t startTime, uint8_t criticalityLevelApplied, int16_t coolingTempSetPointApplied, int16_t heatingTempSetPointApplied, int8_t avgLoadAdjPercent, uint8_t dutyCycle, uint8_t eventControl, uint8_t messageLength, uint8_t *message, EmberSignatureData *signature)`

### 8.57.1 Macro Definition Documentation

#### 8.57.1.1 #define EVENT\_OPT\_IN\_DEFAULT

Definition at line 13 of file [demand-response-load-control.h](#).

### 8.57.2 Function Documentation

#### 8.57.2.1 void afReportEventStatusHandler ( uint32\_t eventId, uint8\_t eventCode, uint32\_t startTime, uint8\_t criticalityLevelApplied, int16\_t coolingTempSetPointApplied, int16\_t heatingTempSetPointApplied, int8\_t avgLoadAdjPercent, uint8\_t dutyCycle, uint8\_t eventControl, uint8\_t messageLength, uint8\_t \* message, EmberSignatureData \* signature )

## 8.58 demand-response-load-control.h

```

00001 // ****
00002 // * ami-demand-response-load-control.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // * * * * *
00007
00008 #include "load-control-event-table.h"
00009
00010 // needed for EmberSignatureData
00011 #include "stack/include/ember-types.h"
00012
00013 #define EVENT_OPT_IN_DEFAULT 0x01
00014
00015 void afReportEventStatusHandler(uint32_t eventId,
00016                               uint8_t eventCode,
00017                               uint32_t startTime,
00018                               uint8_t criticalityLevelApplied,
00019                               int16_t coolingTempSetPointApplied,
00020                               int16_t heatingTempSetPointApplied,
00021                               int8_t avgLoadAdjPercent,
00022                               uint8_t dutyCycle,
00023                               uint8_t eventControl,
00024                               uint8_t messageLength,
00025                               uint8_t* message,
00026                               EmberSignatureData*
00027                               signature);

```

## 8.59 device-database.h File Reference

### Functions

- const [EmberAfDeviceInfo](#) \* [emberAfPluginDeviceDatabaseGetDeviceByIndex](#) (uint16\_t index)
- const [EmberAfDeviceInfo](#) \* [emberAfPluginDeviceDatabaseFindDeviceByStatus](#) ([EmberAfDeviceDiscoveryStatus](#) status)
- const [EmberAfDeviceInfo](#) \* [emberAfPluginDeviceDatabaseFindDeviceByEui64](#) ([EmberEUI64](#) eui64)
- const [EmberAfDeviceInfo](#) \* [emberAfPluginDeviceDatabaseAdd](#) ([EmberEUI64](#) eui64, uint8\_t zigbee-Capabilities)
- bool [emberAfPluginDeviceDatabaseEraseDevice](#) ([EmberEUI64](#) eui64)
- bool [emberAfPluginDeviceDatabaseSetEndpoints](#) (const [EmberEUI64](#) eui64, const uint8\_t \*endpointList, uint8\_t endpointCount)
- uint8\_t [emberAfPluginDeviceDatabaseGetDeviceEndpointFromIndex](#) (const [EmberEUI64](#) eui64, uint8\_t index)

- `uint8_t emberAfPluginDeviceDatabaseGetIndexFromEndpoint (uint8_t endpoint, const EmberEUI64 eui64)`
- `bool emberAfPluginDeviceDatabaseSetClustersForEndpoint (const EmberEUI64 eui64, const EmberAfClusterList *clusterList)`
- `bool emberAfPluginDeviceDatabaseClearAllFailedDiscoveryStatus (uint8_t maxFailureCount)`
- `const char * emberAfPluginDeviceDatabaseGetStatusString (EmberAfDeviceDiscoveryStatus status)`
- `bool emberAfPluginDeviceDatabaseSetStatus (const EmberEUI64 deviceEui64, EmberAfDeviceDiscoveryStatus newStatus)`
- `const EmberAfDeviceInfo * emberAfPluginDeviceDatabaseAddDeviceWithAllInfo (const EmberAfDeviceInfo *newDevice)`
- `EmberStatus emberAfPluginDeviceDatabaseDoesDeviceHaveCluster (EmberEUI64 deviceEui64, EmberAfClusterId clusterToFind, bool server, uint8_t *returnEndpoint)`
- `void emberAfPluginDeviceDatabaseCreateNewSearch (EmberAfDeviceDatabaseIterator *iterator)`
- `EmberStatus emberAfPluginDeviceDatabaseFindDeviceSupportingCluster (EmberAfDeviceDatabaseIterator *iterator, EmberAfClusterId clusterToFind, bool server, uint8_t *returnEndpoint)`

### 8.59.1 Function Documentation

8.59.1.1 `const EmberAfDeviceInfo* emberAfPluginDeviceDatabaseGetDeviceByIndex ( uint16_t index )`

8.59.1.2 `const EmberAfDeviceInfo* emberAfPluginDeviceDatabaseFindDeviceByStatus ( EmberAfDeviceDiscoveryStatus status )`

8.59.1.3 `const EmberAfDeviceInfo* emberAfPluginDeviceDatabaseFindDeviceByEui64 ( EmberEUI64 eui64 )`

8.59.1.4 `const EmberAfDeviceInfo* emberAfPluginDeviceDatabaseAdd ( EmberEUI64 eui64, uint8_t zigbeeCapabilities )`

8.59.1.5 `bool emberAfPluginDeviceDatabaseEraseDevice ( EmberEUI64 eui64 )`

8.59.1.6 `bool emberAfPluginDeviceDatabaseSetEndpoints ( const EmberEUI64 eui64, const uint8_t *endpointList, uint8_t endpointCount )`

8.59.1.7 `uint8_t emberAfPluginDeviceDatabaseGetDeviceEndpointFromIndex ( const EmberEUI64 eui64, uint8_t index )`

8.59.1.8 `uint8_t emberAfPluginDeviceDatabaseGetIndexFromEndpoint ( uint8_t endpoint, const EmberEUI64 eui64 )`

8.59.1.9 `bool emberAfPluginDeviceDatabaseSetClustersForEndpoint ( const EmberEUI64 eui64, const EmberAfClusterList *clusterList )`

8.59.1.10 `bool emberAfPluginDeviceDatabaseClearAllFailedDiscoveryStatus ( uint8_t maxFailureCount )`

8.59.1.11 `const char* emberAfPluginDeviceDatabaseGetStatusString ( EmberAfDeviceDiscoveryStatus status )`

8.59.1.12 `bool emberAfPluginDeviceDatabaseSetStatus ( const EmberEUI64 deviceEui64, EmberAfDeviceDiscoveryStatus newStatus )`

- 8.59.1.13 `const EmberAfDeviceInfo* emberAfPluginDeviceDatabaseAddDeviceWithAllInfo ( const EmberAfDeviceInfo * newDevice )`
- 8.59.1.14 `EmberStatus emberAfPluginDeviceDatabaseDoesDeviceHaveCluster ( EmberEUI64 deviceEui64, EmberAfClusterId clusterToFind, bool server, uint8_t * returnEndpoint )`
- 8.59.1.15 `void emberAfPluginDeviceDatabaseCreateNewSearch ( EmberAfDeviceDatabaseIterator * iterator )`
- 8.59.1.16 `EmberStatus emberAfPluginDeviceDatabaseFindDeviceSupportingCluster ( EmberAfDeviceDatabaseIterator * iterator, EmberAfClusterId clusterToFind, bool server, uint8_t * returnEndpoint )`

## 8.60 device-database.h

```

00001
00002
00003 const EmberAfDeviceInfo*
emberAfPluginDeviceDatabaseGetDeviceByIndex
(uint16_t index);
00004
00005 const EmberAfDeviceInfo*
emberAfPluginDeviceDatabaseFindDeviceByStatus
(EmberAfDeviceDiscoveryStatus status);
00006
00007 const EmberAfDeviceInfo*
emberAfPluginDeviceDatabaseFindDeviceByEui64
(EmberEUI64 eui64);
00008
00009 const EmberAfDeviceInfo* emberAfPluginDeviceDatabaseAdd
(EmberEUI64 eui64, uint8_t zigbeeCapabilities);
00010
00011 bool emberAfPluginDeviceDatabaseEraseDevice
(EmberEUI64 eui64);
00012
00013 bool emberAfPluginDeviceDatabaseSetEndpoints
(const EmberEUI64 eui64,
00014 const uint8_t* endpointList,
00015 uint8_t endpointCount);
00016
00017 uint8_t emberAfPluginDeviceDatabaseGetDeviceEndpointFromIndex
(const EmberEUI64 eui64,
00018 uint8_t index);
00019
00020 // Explicitly made the eui64 the second argument to prevent confusion between
00021 // this function and the
emberAfPluginDeviceDatabaseGetDeviceEndpointsFromIndex()
00022 uint8_t emberAfPluginDeviceDatabaseGetIndexFromEndpoint
(uint8_t endpoint,
00023 const EmberEUI64
00024 eui64);
00025 bool emberAfPluginDeviceDatabaseSetClustersForEndpoint
(const EmberEUI64 eui64,
00026 const
EmberAfClusterList* clusterList);
00027
00028 bool emberAfPluginDeviceDatabaseClearAllFailedDiscoveryStatus
(uint8_t maxFailureCount);
00029
00030 const char* emberAfPluginDeviceDatabaseGetStatusString
(EmberAfDeviceDiscoveryStatus status);
00031
00032 bool emberAfPluginDeviceDatabaseSetStatus
(const EmberEUI64 deviceEui64, EmberAfDeviceDiscoveryStatus
newStatus);
00033
00034 const EmberAfDeviceInfo*
emberAfPluginDeviceDatabaseAddDeviceWithAllInfo
(const EmberAfDeviceInfo* newDevice);
00035
00036 EmberStatus emberAfPluginDeviceDatabaseDoesDeviceHaveCluster

```

```

00037     (EmberEUI64 deviceEui64,
00038         clusterToFind,
00039         returnEndpoint);
00040     void emberAfPluginDeviceDatabaseCreateNewSearch
00041         (EmberAfDeviceDatabaseIterator* iterator);
00042     EmberStatus emberAfPluginDeviceDatabaseFindDeviceSupportingCluster
00043         (EmberAfDeviceDatabaseIterator* iterator,
00044             EmberAfClusterId clusterToFind,
00045             bool server,
00046             uint8_t*
00047             returnEndpoint);

```

## 8.61 device-management-client.h File Reference

```
#include "app/framework/plugin/device-management-server/device-management-common.h"
```

### Functions

- void `emberAfDeviceManagementClientPrint()`

#### 8.61.1 Function Documentation

##### 8.61.1.1 void `emberAfDeviceManagementClientPrint()`

## 8.62 device-management-client.h

```

00001 // ****
00002 // * device-management-client.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // * 80*
00007 // ****
00008 #include "
00009     app/framework/plugin/device-management-server/device-management-common.h"
00010 void emberAfDeviceManagementClientPrint();

```

## 8.63 device-management-common.h File Reference

### Macros

- `#define EMBER_AF_DEVICE_MANAGEMENT_SUPPLY_CONTROL_ACK_MASK`

### 8.63.1 Macro Definition Documentation

#### 8.63.1.1 #define EMBER\_AF\_DEVICE\_MANAGEMENT\_SUPPLY\_CONTROL\_ACK\_MASK

Definition at line 11 of file [device-management-common.h](#).

## 8.64 device-management-common.h

```

00001 // ****
00002 // * device-management-common.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // ****
00007
00008 #ifndef _DEVICE_MANAGEMENT_COMMON
00009 #define _DEVICE_MANAGEMENT_COMMON
00010
00011 #define EMBER_AF_DEVICE_MANAGEMENT_SUPPLY_CONTROL_ACK_MASK      0x01
00012
00013 #endif // _DEVICE_MANAGEMENT_COMMON

```

## 8.65 device-management-server.h File Reference

```
#include "app/framework/plugin/device-management-server/device-management-common.h"
```

### Functions

- `bool emberAfPluginDeviceManagementSetTenancy (EmberAfDeviceManagementTenancy *tenancy, bool validateOptionalFields)`
- `bool emberAfPluginDeviceManagementGetTenancy (EmberAfDeviceManagementTenancy *tenancy)`
- `bool emberAfPluginDeviceManagementSetSupplier (uint8_t endpoint, EmberAfDeviceManagementSupplier *supplier)`
- `bool emberAfPluginDeviceManagementGetSupplier (EmberAfDeviceManagementSupplier *supplier)`
- `bool emberAfPluginDeviceManagementSetInfoGlobalData (uint32_t providerId, uint32_t issuerEventId, uint8_t tariffType)`
- `bool emberAfPluginDeviceManagementSetSiteId (EmberAfDeviceManagementSiteId *siteId)`
- `bool emberAfPluginDeviceManagementGetSiteId (EmberAfDeviceManagementSiteId *siteId)`
- `bool emberAfPluginDeviceManagementSetCIN (EmberAfDeviceManagementCIN *cin)`
- `bool emberAfPluginDeviceManagementGetCIN (EmberAfDeviceManagementCIN *cin)`
- `bool emberAfPluginDeviceManagementSetPassword (EmberAfDeviceManagementPassword *password)`
- `bool emberAfPluginDeviceManagementGetPassword (EmberAfDeviceManagementPassword *password, uint8_t passwordType)`
- `void emberAfDeviceManagementServerPrint (void)`
- `bool emberAfDeviceManagementClusterUpdateSiteId (EmberNodeId dstAddr, uint8_t srcEndpoint, uint8_t dstEndpoint)`
- `bool emberAfPluginDeviceManagementSetProviderId (uint32_t providerId)`
- `bool emberAfPluginDeviceManagementSetIssuerEventId (uint32_t issuerEventId)`
- `bool emberAfPluginDeviceManagementSetTariffType (EmberAfTariffType tariffType)`

- bool `emberAfDeviceManagementClusterPublishChangeOfTenancy` (`EmberNodeId` `dstAddr`, `uint8_t` `srcEndpoint`, `uint8_t` `dstEndpoint`)
- bool `emberAfDeviceManagementClusterPublishChangeOfSupplier` (`EmberNodeId` `dstAddr`, `uint8_t` `srcEndpoint`, `uint8_t` `dstEndpoint`)
- void `emberAfDeviceManagementClusterSetPendingUpdates` (`EmberAfDeviceManagementChangePendingFlags` `pendingUpdatesMask`)
- void `emberAfDeviceManagementClusterGetPendingUpdates` (`EmberAfDeviceManagementChangePendingFlags` \*`pendingUpdatesMask`)
- bool `emberAfDeviceManagementClusterUpdateCIN` (`EmberNodeId` `dstAddr`, `uint8_t` `srcEndpoint`, `uint8_t` `dstEndpoint`)
- bool `emberAfDeviceManagementClusterSendRequestNewPasswordResponse` (`uint8_t` `passwordType`, `EmberNodeId` `dstAddr`, `uint8_t` `srcEndpoint`, `uint8_t` `dstEndpoint`)

### 8.65.1 Function Documentation

- 8.65.1.1 bool `emberAfPluginDeviceManagementSetTenancy` ( `EmberAfDeviceManagementTenancy` \*  
`tenancy`, `bool validateOptionalFields` )
- 8.65.1.2 bool `emberAfPluginDeviceManagementGetTenancy` ( `EmberAfDeviceManagementTenancy` \*  
`tenancy` )
- 8.65.1.3 bool `emberAfPluginDeviceManagementSetSupplier` ( `uint8_t endpoint`,  
`EmberAfDeviceManagementSupplier` \*  
`supplier` )
- 8.65.1.4 bool `emberAfPluginDeviceManagementGetSupplier` ( `EmberAfDeviceManagementSupplier` \*  
`supplier` )
- 8.65.1.5 bool `emberAfPluginDeviceManagementSetInfoGlobalData` ( `uint32_t providerId`, `uint32_t`  
`issuerEventId`, `uint8_t tariffType` )
- 8.65.1.6 bool `emberAfPluginDeviceManagementSetSiteId` ( `EmberAfDeviceManagementSiteId` \*  
`sitId` )
- 8.65.1.7 bool `emberAfPluginDeviceManagementGetSiteId` ( `EmberAfDeviceManagementSiteId` \*  
`sitId` )
- 8.65.1.8 bool `emberAfPluginDeviceManagementSetCIN` ( `EmberAfDeviceManagementCIN` \*  
`cin` )
- 8.65.1.9 bool `emberAfPluginDeviceManagementGetCIN` ( `EmberAfDeviceManagementCIN` \*  
`cin` )
- 8.65.1.10 bool `emberAfPluginDeviceManagementSetPassword` ( `EmberAfDeviceManagementPassword`  
\*  
`password` )
- 8.65.1.11 bool `emberAfPluginDeviceManagementGetPassword` ( `EmberAfDeviceManagementPassword`  
\*  
`password`, `uint8_t passwordType` )
- 8.65.1.12 void `emberAfDeviceManagementServerPrint` ( `void` )
- 8.65.1.13 bool `emberAfDeviceManagementClusterUpdateSiteId` ( `EmberNodeId dstAddr`, `uint8_t`  
`srcEndpoint`, `uint8_t dstEndpoint` )

- 8.65.1.14 bool emberAfPluginDeviceManagementSetProviderId ( uint32\_t *providerId* )
- 8.65.1.15 bool emberAfPluginDeviceManagementSetIssuerEventId ( uint32\_t *issuerEventId* )
- 8.65.1.16 bool emberAfPluginDeviceManagementSetTariffType ( EmberAfTariffType *tariffType* )
- 8.65.1.17 bool emberAfDeviceManagementClusterPublishChangeOfTenancy ( EmberNodeId *dstAddr*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )
- 8.65.1.18 bool emberAfDeviceManagementClusterPublishChangeOfSupplier ( EmberNodeId *dstAddr*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )
- 8.65.1.19 void emberAfDeviceManagementClusterSetPendingUpdates ( EmberAfDeviceManagementChangePendingFlags *pendingUpdatesMask* )
- 8.65.1.20 void emberAfDeviceManagementClusterGetPendingUpdates ( EmberAfDeviceManagementChangePendingFlags \* *pendingUpdatesMask* )
- 8.65.1.21 bool emberAfDeviceManagementClusterUpdateCIN ( EmberNodeId *dstAddr*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )
- 8.65.1.22 bool emberAfDeviceManagementClusterSendRequestNewPasswordResponse ( uint8\_t *passwordType*, EmberNodeId *dstAddr*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )

## 8.66 device-management-server.h

```

00001 // ****
00002 // * device-management-server.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // *
00007
00008 #include "
00009     app/framework/plugin/device-management-server/device-management-common.h
00010 "
00011
00012 bool emberAfPluginDeviceManagementSetTenancy
00013     (EmberAfDeviceManagementTenancy *tenancy,
00014         bool validateOptionalFields);
00015 bool emberAfPluginDeviceManagementGetTenancy
00016     (EmberAfDeviceManagementTenancy *tenancy);
00017
00018 bool emberAfPluginDeviceManagementSetSupplier
00019     (uint8_t endpoint, EmberAfDeviceManagementSupplier
00020         *supplier);
00021 bool emberAfPluginDeviceManagementGetSupplier
00022     (EmberAfDeviceManagementSupplier *supplier);
00023
00024 bool emberAfPluginDeviceManagementSetInfoGlobalData
00025     (uint32_t providerId,
00026         uint32_t issuerEventId,
00027         uint8_t tariffType);
00028
00029 bool emberAfPluginDeviceManagementSetSiteId
00030     (EmberAfDeviceManagementSiteId *siteId);
00031 bool emberAfPluginDeviceManagementGetSiteId
00032     (EmberAfDeviceManagementSiteId *siteId);
00033
00034 bool emberAfPluginDeviceManagementSetCIN(
00035     EmberAfDeviceManagementCIN *cin);
00036 bool emberAfPluginDeviceManagementGetCIN(
00037

```

```

    EmberAfDeviceManagementCIN *cin);

00026
00027 bool emberAfPluginDeviceManagementSetPassword
    (EmberAfDeviceManagementPassword *password);
00028 bool emberAfPluginDeviceManagementGetPassword
    (EmberAfDeviceManagementPassword *password,
     uint8_t passwordType);
00029
00030
00031 void emberAfDeviceManagementServerPrint(void)
    ;
00032
00033 bool emberAfDeviceManagementClusterUpdateSiteId
    (EmberNodeId dstAddr,
     uint8_t srcEndpoint,
     uint8_t dstEndpoint);
00034
00035
00036
00037 bool emberAfPluginDeviceManagementSetProviderId
    (uint32_t providerId);
00038 bool emberAfPluginDeviceManagementSetIssuerEventId
    (uint32_t issuerEventId);
00039 bool emberAfPluginDeviceManagementSetTariffType
    (EmberAfTariffType tariffType);
00040
00041 bool emberAfDeviceManagementClusterPublishChangeOfTenancy
    (EmberNodeId dstAddr,
     uint8_t
     srcEndpoint,
     uint8_t
     dstEndpoint);
00042
00043
00044 bool emberAfDeviceManagementClusterPublishChangeOfSupplier
    (EmberNodeId dstAddr,
     uint8_t
     srcEndpoint,
     uint8_t
     dstEndpoint);
00045
00046
00047 void emberAfDeviceManagementClusterSetPendingUpdates
    (EmberAfDeviceManagementChangePendingFlags
     pendingUpdatesMask);
00048 vsid emberAfDeviceManagementClusterGetPendingUpdates
    (EmberAfDeviceManagementChangePendingFlags
     *pendingUpdatesMask);
00049 bool emberAfDeviceManagementClusterUpdateCIN
    (EmberNodeId dstAddr,
     uint8_t srcEndpoint,
     uint8_t dstEndpoint);
00050
00051
00052
00053
00054 bool emberAfDeviceManagementClusterSendRequestNewPasswordResponse
    (uint8_t passwordType,
     uint8_t
     EmberNodeId dstAddr,
     uint8_t
     srcEndpoint,
     uint8_t
     dstEndpoint);
00055
00056
00057
00058
00059

```

## 8.67 device-query-service.h File Reference

### Functions

- void `emberAfPluginDeviceQueryServiceEnableDisable` (bool enable)
- bool `emberAfPluginDeviceQueryServiceGetEnabledState` (void)
- void `emberAfPluginDeviceQueryServiceGetCurrentDiscoveryTargetEui64` (EmberEUI64 returnEui64)

#### 8.67.1 Function Documentation

##### 8.67.1.1 void `emberAfPluginDeviceQueryServiceEnableDisable` ( bool *enable* )

8.67.1.2 `bool emberAfPluginDeviceQueryServiceGetEnabledState ( void )`

8.67.1.3 `void emberAfPluginDeviceQueryServiceGetCurrentDiscoveryTargetEui64 ( EmberEUI64 returnEui64 )`

## 8.68 device-query-service.h

```
00001
00002 void emberAfPluginDeviceQueryServiceEnableDisable
00003   (bool enable);
00004 bool emberAfPluginDeviceQueryServiceGetEnabledState
00005   (void);
00006 void emberAfPluginDeviceQueryServiceGetCurrentDiscoveryTargetEui64
00007   (EmberEUI64 returnEui64);
```

## 8.69 diagnostic-server.h File Reference

### Functions

- `bool emberAfReadDiagnosticAttribute (EmberAfAttributeMetadata *attributeMetadata, uint8_t *buffer)`

### 8.69.1 Function Documentation

8.69.1.1 `bool emberAfReadDiagnosticAttribute ( EmberAfAttributeMetadata * attributeMetadata, uint8_t * buffer )`

## 8.70 diagnostic-server.h

```
00001 // ****
00002 // * diagnostic-server.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // * * * * *
00007
00008 bool emberAfReadDiagnosticAttribute(
00009     EmberAfAttributeMetadata *
00010     attributeMetadata,
00011     uint8_t *buffer);
```

## 8.71 door-lock-server.h File Reference

### Data Structures

- `struct EmberAfDoorLockUser`
- `struct EmberAfDoorLockScheduleEntry`

### Macros

- `#define DOOR_LOCK_USER_TABLE_SIZE`
- `#define DOOR_LOCK_SCHEDULE_TABLE_SIZE`
- `#define DOOR_LOCK_MAX_PIN_LENGTH`

### 8.71.1 Macro Definition Documentation

#### 8.71.1.1 #define DOOR\_LOCK\_USER\_TABLE\_SIZE

Definition at line 11 of file [door-lock-server.h](#).

#### 8.71.1.2 #define DOOR\_LOCK\_SCHEDULE\_TABLE\_SIZE

Definition at line 15 of file [door-lock-server.h](#).

#### 8.71.1.3 #define DOOR\_LOCK\_MAX\_PIN\_LENGTH

Definition at line 19 of file [door-lock-server.h](#).

## 8.72 door-lock-server.h

```

00001 // ****
00002 // * door-lock-server.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 // These are variable and should be defined by the application using
00009 // this plugin.
00010 #ifndef DOOR_LOCK_USER_TABLE_SIZE
00011 #define DOOR_LOCK_USER_TABLE_SIZE 4
00012 #endif
00013
00014 #ifndef DOOR_LOCK_SCHEDULE_TABLE_SIZE
00015 #define DOOR_LOCK_SCHEDULE_TABLE_SIZE 4
00016 #endif
00017
00018 #ifndef DOOR_LOCK_MAX_PIN_LENGTH
00019 #define DOOR_LOCK_MAX_PIN_LENGTH 8
00020 #endif
00021
00022 #ifndef DOOR_LOCK_SERVER_ENDPOINT
00023 #define DOOR_LOCK_SERVER_ENDPOINT 1
00024 #endif
00025
00026 typedef struct {
00027     EmberAfDoorLockUserStatus status;
00028     EmberAfDoorLockUserType type;
00029     uint8_t pinLength;
00030     uint8_t pin[DOOR_LOCK_MAX_PIN_LENGTH];
00031 } EmberAfDoorLockUser;
00032
00033 typedef struct {
00034     uint16_t userID;
00035     uint8_t daysMask;
00036     uint8_t startHour;
00037     uint8_t startMinute;
00038     uint8_t stopHour;
00039     uint8_t stopMinute;
00040 } EmberAfDoorLockScheduleEntry;

```

## 8.73 drlc-server.h File Reference

```
#include "../../include/af-types.h"
```

## Macros

- `#define EMBER_AF_PLUGIN_DRLC_SERVER_SCHEDULED_EVENT_TABLE_SIZE`

## Functions

- `void emAfClearScheduledLoadControlEvents (uint8_t endpoint)`
- `EmberStatus emAfGetScheduledLoadControlEvent (uint8_t endpoint, uint8_t index, EmberAfLoadControlEvent *event)`
- `EmberStatus emAfSetScheduledLoadControlEvent (uint8_t endpoint, uint8_t index, const EmberAfLoadControlEvent *event)`
- `void emAfPluginDrlcServerPrintInfo (uint8_t endpoint)`
- `void emAfPluginDrlcServerSlceMessage (EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index)`
- `uint8_t findPlacementInEventOrderToLoadControlIndex (uint8_t ep, uint8_t index)`
- `void updateEventOrderToLoadControlIndex (uint8_t ep, uint8_t index, bool eventAdded, bool isNewEvent)`
- `void clearEventOrderToLoadControlIndex (uint8_t ep)`

### 8.73.1 Macro Definition Documentation

#### 8.73.1.1 `#define EMBER_AF_PLUGIN_DRLC_SERVER_SCHEDULED_EVENT_TABLE_SIZE`

Definition at line 30 of file `drlc-server.h`.

### 8.73.2 Function Documentation

#### 8.73.2.1 `void emAfClearScheduledLoadControlEvents ( uint8_t endpoint )`

#### 8.73.2.2 `EmberStatus emAfGetScheduledLoadControlEvent ( uint8_t endpoint, uint8_t index, EmberAfLoadControlEvent * event )`

#### 8.73.2.3 `EmberStatus emAfSetScheduledLoadControlEvent ( uint8_t endpoint, uint8_t index, const EmberAfLoadControlEvent * event )`

#### 8.73.2.4 `void emAfPluginDrlcServerPrintInfo ( uint8_t endpoint )`

#### 8.73.2.5 `void emAfPluginDrlcServerSlceMessage ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index )`

#### 8.73.2.6 `uint8_t findPlacementInEventOrderToLoadControlIndex ( uint8_t ep, uint8_t index )`

#### 8.73.2.7 `void updateEventOrderToLoadControlIndex ( uint8_t ep, uint8_t index, bool eventAdded, bool isNewEvent )`

#### 8.73.2.8 `void clearEventOrderToLoadControlIndex ( uint8_t ep )`

## 8.74 drlc-server.h

```
00001 // ****
```

```

0002 // * drlc-server.h
0003 //
0004 // * This is an implementation of a drlc server which is intended to
0005 // * be used for testing only. Generally it is expected that the drlc
0006 // * server will act as a passthrough for drlc events and will not maintain
0007 // * a list of scheduled events of its own. However for testing purposes
0008 // * it is highly useful to have the server store scheduled events so that
0009 // * - minus a backend - the ESP can respond to get scheduled events
0010 // * commands.
0011 //
0012 // * There are a couple things about
0013 // * this code that make it incomplete as an actual drlc server table
0014 //
0015 // * 1. Scheduled events are not stored in persistent memory, which they
0016 // * would have to be if this were intended for an ESP which for some
0017 // * reason were storing events.
0018 //
0019 // * Note: The EmberAfLoadControlEvent source field is used by the plugin as a
0020 // * status field. If the first byte is set to 0xFF, then the event is
0021 // * considered inactive. If it is set to 0x00, then the event is considered
0022 // * active. Other bytes are used internally.
0023 //
0024 // * Copyright 2007 by Ember Corporation. All rights reserved.
0025 // ****
0026
0027 #include "../../include/af-types.h"
0028
0029 #ifndef EMBER_AF_PLUGIN_DRLC_SERVER_SCHEDULED_EVENT_TABLE_SIZE
0030     #define EMBER_AF_PLUGIN_DRLC_SERVER_SCHEDULED_EVENT_TABLE_SIZE 2
0031 #endif //EMBER_AF_PLUGIN_DRLC_SERVER_SCHEDULED_EVENT_TABLE_SIZE
0032
0033 // used by the cli to clear all scheduled events in the drlc server
0034 void emAfClearScheduledLoadControlEvents(
0035     uint8_t endpoint);
0036 // Retrieves the load control event at the given index.
0037 EmberStatus emAfGetScheduledLoadControlEvent
0038     (uint8_t endpoint,
0039         uint8_t index,
0040         EmberAfLoadControlEvent
0041             *event);
0042 // Sets the load control event at the given index. The first byte of the
0043 // source field should be set to 0x00 for active or 0xFF for inactive.
0044 EmberStatus emAfSetScheduledLoadControlEvent
0045     (uint8_t endpoint,
0046         uint8_t index,
0047         const EmberAfLoadControlEvent
0048             *event);
0049 void emAfPluginDrlcServerPrintInfo(uint8_t
0050     endpoint);
0051 void emAfPluginDrlcServerSlceMessage(EmberNodeId
0052     nodeId,
0053         uint8_t srcEndpoint,
0054         uint8_t dstEndpoint,
0055         uint8_t index);
0056
0057 // These internal functions help maintain event order, which is sorted by
0058 // start time and issuer event ID. This is needed when responding to
0059 // GetScheduledEvents with startTime and/or issuerEventId specified, where
0060 // the returned events must be sent back in order
0061 uint8_t findPlacementInEventOrderToLoadControlIndex
0062     (uint8_t ep, uint8_t index);
0063 void updateEventOrderToLoadControlIndex(
0064     uint8_t ep,
0065         uint8_t index,
0066         bool eventAdded,
0067         bool isNewEvent);
0068 void clearEventOrderToLoadControlIndex(uint8_t
0069     ep);

```

## 8.75 eeprom.h File Reference

## Data Structures

- struct [EmAfPartialWriteStruct](#)

## Macros

- #define [EM\\_AF\\_EEPROM\\_MAX\\_WORD\\_SIZE](#)

## Functions

- void [emberAfPluginEepromInit](#) (void)
- void [emberAfPluginEepromNoteInitializedState](#) (bool state)
- uint8\_t [emberAfPluginEepromGetWordSize](#) (void)
- const HalEepromInformationType \* [emberAfPluginEepromInfo](#) (void)
- uint8\_t [emberAfPluginEepromWrite](#) (uint32\_t address, const uint8\_t \*data, uint16\_t totalLength)
- uint8\_t [emberAfPluginEepromRead](#) (uint32\_t address, uint8\_t \*data, uint16\_t totalLength)
- uint8\_t [emberAfPluginEepromErase](#) (uint32\_t address, uint32\_t totalLength)
- bool [emberAfPluginEepromBusy](#) (void)
- bool [emberAfPluginEepromShutdown](#) (void)
- uint8\_t [emberAfPluginEepromFlushSavedPartialWrites](#) (void)
- bool [emAfIsEepromInitialized](#) (void)

## Variables

- [EmAfPartialWriteStruct emAfEepromSavedPartialWrites](#) [ ]

### 8.75.1 Macro Definition Documentation

#### 8.75.1.1 #define EM\_AF\_EEPROM\_MAX\_WORD\_SIZE

Definition at line 40 of file [eeprom.h](#).

### 8.75.2 Function Documentation

#### 8.75.2.1 void [emberAfPluginEepromInit](#) ( void )

#### 8.75.2.2 void [emberAfPluginEepromNoteInitializedState](#) ( bool state )

#### 8.75.2.3 uint8\_t [emberAfPluginEepromGetWordSize](#) ( void )

#### 8.75.2.4 const HalEepromInformationType\* [emberAfPluginEepromInfo](#) ( void )

#### 8.75.2.5 uint8\_t [emberAfPluginEepromWrite](#) ( uint32\_t address, const uint8\_t \* data, uint16\_t totalLength )

#### 8.75.2.6 uint8\_t [emberAfPluginEepromRead](#) ( uint32\_t address, uint8\_t \* data, uint16\_t totalLength )

#### 8.75.2.7 uint8\_t [emberAfPluginEepromErase](#) ( uint32\_t address, uint32\_t totalLength )

8.75.2.8 **bool emberAfPluginEepromBusy ( void )**

8.75.2.9 **bool emberAfPluginEepromShutdown ( void )**

8.75.2.10 **uint8\_t emberAfPluginEepromFlushSavedPartialWrites ( void )**

8.75.2.11 **bool emAfIsEepromInitialized ( void )**

### 8.75.3 Variable Documentation

8.75.3.1 **EmAfPartialWriteStruct emAfEepromSavedPartialWrites[]**

## 8.76 eeprom.h

```

00001 //
00002 // * eeprom.h
00003 // *
00004 // * Header file for eeprom plugin API.
00005 // *
00006 // * Copyright 2012 by Silicon Labs.      All rights reserved.
00007 // *80*
00008 //
00009
00010 void emberAfPluginEepromInit(void);
00011
00012 void emberAfPluginEepromNoteInitializedState
00013     (bool state);
00014 uint8_t emberAfPluginEepromGetWordSize(void);
00015 const HalEepromInformationType* emberAfPluginEepromInfo(
00016     void);
00017 uint8_t emberAfPluginEepromWrite(uint32_t address,
00018     const uint8_t *data, uint16_t totalLength);
00019 uint8_t emberAfPluginEepromRead(uint32_t address,
00020     uint8_t *data, uint16_t totalLength);
00021 // Erase has a 32-bit argument, since it's possible to erase more than uint16_t
00022 // chunk.
00023 // Read and write have only uint16_t for length, because you don't have enough
00024 // RAM
00025 // for the data buffer
00026 uint8_t emberAfPluginEepromErase(uint32_t address,
00027     uint32_t totalLength);
00028 bool emberAfPluginEepromBusy(void);
00029
00030 uint8_t emberAfPluginEepromFlushSavedPartialWrites
00031     (void);
00032 #if defined(EMBER_TEST)
00033 void emAfPluginEepromFakeEepromCallback(void);
00034 #endif
00035
00036
00037 // Currently there are no EEPROM/flash parts that we support that have a word
00038 // size
00039 // of 4. The local storage bootloader has a 2-byte word size and that is the
00040 // main
00041 // thing we are optimizing for.
00042 #define EM_AF_EEPROM_MAX_WORD_SIZE 2
00043
00044 typedef struct {
00045     uint32_t address;
00046     uint8_t data;
00047 } EmAfPartialWriteStruct;

```

```

00046
00047 extern EmAfPartialWriteStruct
00048     emAfEepromSavedPartialWrites[];
00049 bool emAfIsEepromInitialized(void);

```

## 8.77 ember-types.h File Reference

```

#include "stack/include/error.h"
#include "stack/include/zll-types.h"
#include "stack/include/rf4ce-types.h"
#include "stack/include/gp-types.h"

```

### Data Structures

- struct [EmberReleaseTypeStruct](#)  
*A structure relating version types to human readable strings.*
- struct [EmberVersion](#)  
*Version struct containing all version information.*
- struct [EmberZigbeeNetwork](#)  
*Defines a ZigBee network and the associated parameters.*
- struct [EmberNetworkInitStruct](#)  
*Defines the network initialization configuration that should be used when ::emberNetworkInitExtended() is called by the application.*
- struct [EmberNetworkParameters](#)  
*Holds network parameters.*
- struct [EmberApsFrame](#)  
*An in-memory representation of a ZigBee APS frame of an incoming or outgoing message.*
- struct [EmberBindingTableEntry](#)  
*Defines an entry in the binding table.*
- struct [EmberNeighborTableEntry](#)  
*Defines an entry in the neighbor table.*
- struct [EmberRouteTableEntry](#)  
*Defines an entry in the route table.*
- struct [EmberMulticastTableEntry](#)  
*Defines an entry in the multicast table.*
- struct [EmberEventControl](#)  
*Control structure for events.*
- struct [EmberEventData\\_S](#)  
*Complete events with a control and a handler procedure.*
- struct [EmberTaskControl](#)  
*Control structure for tasks.*
- struct [EmberKeyData](#)  
*This data structure contains the key data that is passed into various other functions.*
- struct [EmberCertificateData](#)  
*This data structure contains the certificate data that is used for Certificate Based Key Exchange (CBKE).*
- struct [EmberPublicKeyData](#)

*This data structure contains the public key data that is used for Certificate Based Key Exchange (CBKE).*

- struct [EmberPrivateKeyData](#)

*This data structure contains the private key data that is used for Certificate Based Key Exchange (CBKE).*

- struct [EmberSmacData](#)

*This data structure contains the Shared Message Authentication Code (SMAC) data that is used for Certificate Based Key Exchange (CBKE).*

- struct [EmberSignatureData](#)

*This data structure contains a DSA signature. It is the bit concatenation of the 'r' and 's' components of the signature.*

- struct [EmberMessageDigest](#)

*This data structure contains an AES-MMO Hash (the message digest).*

- struct [EmberAesMmoHashContext](#)

*This data structure contains the context data when calculating an AES MMO hash (message digest).*

- struct [EmberCertificate283k1Data](#)

*This data structure contains the certificate data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.*

- struct [EmberPublicKey283k1Data](#)

*This data structure contains the public key data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.*

- struct [EmberPrivateKey283k1Data](#)

*This data structure contains the private key data that is used for Certificate Based Key Exchange (CBKE) in SECT283k1 Elliptical Cryptography.*

- struct [EmberSignature283k1Data](#)

*This data structure contains a DSA signature used in SECT283k1 Elliptical Cryptography. It is the bit concatenation of the 'r' and 's' components of the signature.*

- struct [EmberInitialSecurityState](#)

*This describes the Initial Security features and requirements that will be used when forming or joining the network.*

- struct [EmberCurrentSecurityState](#)

*This describes the security features used by the stack for a joined device.*

- struct [EmberKeyStruct](#)

*This describes a one of several different types of keys and its associated data.*

- struct [EmberMfgSecurityStruct](#)

*This structure is used to get/set the security config that is stored in manufacturing tokens.*

- struct [EmberMacFilterMatchStruct](#)

*This structure indicates a matching raw MAC message has been received by the application configured MAC filters.*

## Macros

- #define [EMBER\\_MIN\\_BROADCAST\\_ADDRESS](#)
- #define [emberIsZigbeeBroadcastAddress\(address\)](#)
- #define [EMBER\\_JOIN\\_DECISION\\_STRINGS](#)
- #define [EMBER\\_DEVICE\\_UPDATE\\_STRINGS](#)
- #define [emberInitializeNetworkParameters\(parameters\)](#)
- #define [EMBER\\_COUNTER\\_STRINGS](#)
- #define [EMBER\\_STANDARD\\_SECURITY\\_MODE](#)
- #define [EMBER\\_TRUST\\_CENTER\\_NODE\\_ID](#)
- #define [EMBER\\_NO\\_TRUST\\_CENTER\\_MODE](#)

- #define EMBER\_GLOBAL\_LINK\_KEY
- #define EMBER\_MFG\_SECURITY\_CONFIG\_MAGIC\_NUMBER
- #define EMBER\_MAC\_FILTER\_MATCH\_ENABLED\_MASK
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_MASK
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_MASK
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_MASK
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_MASK
- #define EMBER\_MAC\_FILTER\_MATCH\_ENABLED
- #define EMBER\_MAC\_FILTER\_MATCH\_DISABLED
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_NONE
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_LOCAL
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_DEST\_BROADCAST
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_NONE
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_NON\_LOCAL
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_PAN\_SOURCE\_LOCAL
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_BROADCAST\_SHORT
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_UNICAST\_SHORT
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_DEST\_UNICAST\_LONG
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_LONG
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_SHORT
- #define EMBER\_MAC\_FILTER\_MATCH\_ON\_SOURCE\_NONE
- #define EMBER\_MAC\_FILTER\_MATCH\_END
- #define WEAK\_TEST

## Typedefs

- typedef uint8\_t EmberTaskId
- typedef PGM struct EmberEventData\_S EmberEventData
- typedef uint16\_t EmberMacFilterMatchData
- typedef uint8\_t EmberLibraryStatus

## Enumerations

- enum EmberNodeType {
 EMBER\_UNKNOWN\_DEVICE, EMBER\_COORDINATOR, EMBER\_ROUTER, EMBER\_END\_DEVICE,
 EMBER\_SLEEPY\_END\_DEVICE, EMBER\_MOBILE\_END\_DEVICE, EMBER\_RF4CE\_TARGET, EMBER\_RF4CE\_CONTROLLER
 }
- enum EmberEndDeviceConfiguration { EMBER\_END\_DEVICE\_CONFIG\_NONE, EMBER\_END\_DEVICE\_CONFIG\_PERSIST\_DATA\_ON\_PARENT }
- enum EmberNetworkInitBitmask { EMBER\_NETWORK\_INIT\_NO\_OPTIONS, EMBER\_NETWORK\_INIT\_PARENT\_INFO\_IN\_TOKEN }
- enum EmberApsOption {
 EMBER\_APS\_OPTION\_NONE, EMBER\_APS\_OPTION\_DSA\_SIGN, EMBER\_APS\_OPTION\_ENCRYPTION, EMBER\_APS\_OPTION\_RETRY,
 EMBER\_APS\_OPTION\_ENABLE\_ROUTE\_DISCOVERY, EMBER\_APS\_OPTION\_FORCE\_ROUTE\_DISCOVERY, EMBER\_APS\_OPTION\_SOURCE\_EUI64, EMBER\_APS\_OPTION\_DESTINATION\_EUI64,
 EMBER\_APS\_OPTION\_ENABLE\_ADDRESS\_DISCOVERY, EMBER\_APS\_OPTION\_POLL\_RESPONSE, EMBER\_APS\_OPTION\_ZDO\_RESPONSE\_REQUIRED, EMBER\_APS\_OPTION\_FRAGMENT
 }

- enum `EmberIncomingMessageType` {
 `EMBER_INCOMING_UNICAST`, `EMBER_INCOMING_UNICAST_REPLY`, `EMBER_INCOMING_MULTICAST`, `EMBER_INCOMING_MULTICAST_LOOPBACK`, `EMBER_INCOMING_BROADCAST`, `EMBER_INCOMING_BROADCAST_LOOPBACK` }
- enum `EmberOutgoingMessageType` {
 `EMBER_OUTGOING_DIRECT`, `EMBER_OUTGOING_VIA_ADDRESS_TABLE`, `EMBER_OUTGOING_VIA_BINDING`, `EMBER_OUTGOING_MULTICAST`, `EMBER_OUTGOING_MULTICAST_WITH_ALIAS`, `EMBER_OUTGOING_BROADCAST_WITH_ALIAS`, `EMBER_OUTGOING_BROADCAST` }
- enum `EmberZigbeeCommandType` {
 `EMBER_ZIGBEE_COMMAND_TYPE_MAC`, `EMBER_ZIGBEE_COMMAND_TYPE_NWK`, `EMBER_ZIGBEE_COMMAND_TYPE_APS`, `EMBER_ZIGBEE_COMMAND_TYPE_ZDO`, `EMBER_ZIGBEE_COMMAND_TYPE_ZCL`, `EMBER_ZIGBEE_COMMAND_TYPE_BEACON` }
- enum `EmberNetworkStatus` {
 `EMBER_NO_NETWORK`, `EMBER_JOINING_NETWORK`, `EMBER_JOINED_NETWORK`, `EMBER_JOINED_NETWORK_NO_PARENT`, `EMBER_LEAVING_NETWORK` }
- enum `EmberNetworkScanType` { `EMBER_ENERGY_SCAN`, `EMBER_ACTIVE_SCAN` }
- enum `EmberBindingType` { `EMBER_UNUSED_BINDING`, `EMBER_UNICAST_BINDING`, `EMBER_MANY_TO_ONE_BINDING`, `EMBER_MULTICAST_BINDING` }
- enum `EmberJoinDecision` { `EMBER_USE_PRECONFIGURED_KEY`, `EMBER_SEND_KEY_IN_THE_CLEAR`, `EMBER_DENY_JOIN`, `EMBER_NO_ACTION` }
- enum `EmberDeviceUpdate` {
 `EMBER_STANDARD_SECURITY_SECURED_REJOIN`, `EMBER_STANDARD_SECURITY_UNSECURED_JOIN`, `EMBER_DEVICE_LEFT`, `EMBER_STANDARD_SECURITY_UNSECURED_REJOIN`, `EMBER_HIGH_SECURITY_SECURED_REJOIN`, `EMBER_HIGH_SECURITY_UNSECURED_JOIN`, `EMBER_HIGH_SECURITY_UNSECURED_REJOIN` }
- enum `EmberRejoinReason` {
 `EMBER_REJOIN_REASON_NONE`, `EMBER_REJOIN_DUE_TO_NWK_KEY_UPDATE`, `EMBER_REJOIN_DUE_TO_LEAVE_MESSAGE`, `EMBER_REJOIN_DUE_TO_NO_PARENT`, `EMBER_REJOIN_DUE_TO_ZLL_TOUCHLINK`, `EMBER_REJOIN_DUE_TO_APP_EVENT_5`, `EMBER_REJOIN_DUE_TO_APP_EVENT_4`, `EMBER_REJOIN_DUE_TO_APP_EVENT_3`, `EMBER_REJOIN_DUE_TO_APP_EVENT_2`, `EMBER_REJOIN_DUE_TO_APP_EVENT_1` }
- enum `EmberClusterListId` { `EMBER_INPUT_CLUSTER_LIST`, `EMBER_OUTPUT_CLUSTER_LIST` }
- enum `EmberEventUnits` {
 `EMBER_EVENT_INACTIVE`, `EMBER_EVENT_MS_TIME`, `EMBER_EVENT_QS_TIME`, `EMBER_EVENT_MINUTE_TIME`, `EMBER_EVENT_ZERO_DELAY` }
- enum `EmberJoinMethod` { `EMBER_USE_MAC_ASSOCIATION`, `EMBER_USE_NWK_REJOIN`, `EMBER_USE_NWK_REJOIN_HAVE_NWK_KEY`, `EMBER_USE_NWK_COMMISSIONING` }

- enum [EmberCounterType](#) {
 EMBER\_COUNTER\_MAC\_RX\_BROADCAST, EMBER\_COUNTER\_MAC\_TX\_BROADCAST, EMBER\_COUNTER\_MAC\_RX\_UNICAST, EMBER\_COUNTER\_MAC\_TX\_UNICAST\_SUCCESS,
 EMBER\_COUNTER\_MAC\_TX\_UNICAST\_RETRY, EMBER\_COUNTER\_MAC\_TX\_UNICAST\_FAILED, EMBER\_COUNTER\_APSS\_DATA\_RX\_BROADCAST, EMBER\_COUNTER\_APSS\_DATA\_TX\_BROADCAST,
 EMBER\_COUNTER\_APSS\_DATA\_RX\_UNICAST, EMBER\_COUNTER\_APSS\_DATA\_TX\_UNICAST\_SUCCESS, EMBER\_COUNTER\_APSS\_DATA\_TX\_UNICAST\_RETRY, EMBER\_COUNTER\_APSS\_DATA\_TX\_UNICAST\_FAILED,
 EMBER\_COUNTER\_ROUTE\_DISCOVERY\_INITIATED, EMBER\_COUNTER\_NEIGHBOR\_ADDED, EMBER\_COUNTER\_NEIGHBOR\_REMOVED, EMBER\_COUNTER\_NEIGHBOR\_STALE,
 EMBER\_COUNTER\_JOIN\_INDICATION, EMBER\_COUNTER\_CHILD\_REMOVED, EMBER\_COUNTER\_ASH\_OVERFLOW\_ERROR, EMBER\_COUNTER\_ASH\_FRAMING\_ERROR,
 EMBER\_COUNTER\_ASH\_OVERRUN\_ERROR, EMBER\_COUNTER\_NWK\_FRAME\_COUNTER\_FAILURE, EMBER\_COUNTER\_APSS\_FRAME\_COUNTER\_FAILURE, EMBER\_COUNTER\_ASH\_XOFF,
 EMBER\_COUNTER\_APSS\_LINK\_KEY\_NOTAUTHORIZED, EMBER\_COUNTER\_NWK\_DECRYPTION\_FAILURE, EMBER\_COUNTER\_APSS\_DECRYPTION\_FAILURE, EMBER\_COUNTER\_ALLOCATE\_PACKET\_BUFFER\_FAILURE,
 EMBER\_COUNTER\_RELAYED\_UNICAST, EMBER\_COUNTER\_PHY\_TO\_MAC\_QUEUE\_LIMIT\_REACHED, EMBER\_COUNTER\_PACKET\_VALIDATE\_LIBRARY\_DROPPED\_COUNT, EMBER\_COUNTER\_TYPE\_NWK\_RETRY\_OVERFLOW,
 EMBER\_COUNTER\_PHY\_CCA\_FAIL\_COUNT, EMBER\_COUNTER\_BROADCAST\_TABLE\_FULL, EMBER\_COUNTER\_TYPE\_COUNT }
- enum [EmberInitialSecurityBitmask](#) {
 EMBER\_DISTRIBUTED\_TRUST\_CENTER\_MODE, EMBER\_TRUST\_CENTER\_GLOBAL\_LINK\_KEY, EMBER\_PRECONFIGURED\_NETWORK\_KEY\_MODE, EMBER\_HAVE\_TRUST\_CENTER\_EUI64,
 EMBER\_TRUST\_CENTER\_USES\_HASHED\_LINK\_KEY, EMBER\_HAVE\_PRECONFIGURED\_KEY, EMBER\_HAVE\_NETWORK\_KEY, EMBER\_GET\_LINK\_KEY\_WHEN\_JOINING,
 EMBER\_REQUIRE\_ENCRYPTED\_KEY, EMBER\_NO\_FRAME\_COUNTER\_RESET, EMBER\_GET\_PRECONFIGURED\_KEY\_FROM\_INSTALL\_CODE }
- enum [EmberExtendedSecurityBitmask](#) { EMBER\_JOINER\_GLOBAL\_LINK\_KEY, EMBER\_EXT\_NO\_FRAME\_COUNTER\_RESET, EMBER\_NWK\_LEAVE\_REQUEST\_NOT\_ALLOWED }
- enum [EmberCurrentSecurityBitmask](#) {
 EMBER\_STANDARD\_SECURITY\_MODE\_, EMBER\_DISTRIBUTED\_TRUST\_CENTER\_MODE\_, EMBER\_TRUST\_CENTER\_GLOBAL\_LINK\_KEY\_, EMBER\_HAVE\_TRUST\_CENTER\_LINK\_KEY,
 EMBER\_TRUST\_CENTER\_USES\_HASHED\_LINK\_KEY\_ }
- enum [EmberKeyStructBitmask](#) {
 EMBER\_KEY\_HAS\_SEQUENCE\_NUMBER, EMBER\_KEY\_HAS\_OUTGOING\_FRAME\_COUNTER, EMBER\_KEY\_HAS\_INCOMING\_FRAME\_COUNTER, EMBER\_KEY\_HAS\_PARTNER\_EUI64,
 EMBER\_KEY\_IS\_AUTHORIZED, EMBER\_KEY\_PARTNER\_IS\_SLEEPY }
- enum [EmberKeyType](#) {
 EMBER\_TRUST\_CENTER\_LINK\_KEY, EMBER\_TRUST\_CENTER\_MASTER\_KEY, EMBER\_CURRENT\_NETWORK\_KEY, EMBER\_NEXT\_NETWORK\_KEY,
 EMBER\_APPLICATION\_LINK\_KEY, EMBER\_APPLICATION\_MASTER\_KEY }

- enum `EmberKeyStatus` {
 `EMBER_KEY_STATUS_NONE`, `EMBER_APP_LINK_KEY_ESTABLISHED`, `EMBER_APP_MASTER_KEY_ESTABLISHED`, `EMBER_TRUST_CENTER_LINK_KEY_ESTABLISHED`, `EMBER_KEY_ESTABLISHMENT_TIMEOUT`, `EMBER_KEY_TABLE_FULL`, `EMBER_TC_RESPONSEDED_TO_KEY_REQUEST`, `EMBER_TC_APP_KEY_SENT_TO_REQUESTER`, `EMBER_TC_RESPONSE_TO_KEY_REQUEST_FAILED`, `EMBER_TC_REQUEST_KEY_TYPE_NOT_SUPPORTED`, `EMBER_TC_NO_LINK_KEY_FOR_REQUESTER`, `EMBER_TC_REQUESTER_EUI64_UNKNOWN`, `EMBER_TC RECEIVED FIRST APP KEY REQUEST`, `EMBER_TC_TIMEOUT_WAITING FOR SECOND APP KEY REQUEST`, `EMBER_TC_NON_MATCHING_APP_KEY_REQUEST_RECEIVED`, `EMBER_TC FAILED TO SEND APP KEYS`, `EMBER_TC FAILED TO STORE APP KEY REQUEST`, `EMBER_TC REJECTED APP KEY REQUEST`, `EMBER_TC FAILED TO GENERATE NEW KEY`, `EMBER_TC FAILED TO SEND TC KEY`, `EMBER_TRUST_CENTER_IS_PRE_R21`, `EMBER_TC_REQUESTER_VERIFY_KEY_TIMEOUT`, `EMBER_TC_REQUESTER_VERIFY_KEY_FAILURE`, `EMBER_TC_REQUESTER_VERIFY_KEY_SUCCESS`, `EMBER_VERIFY_LINK_KEY_FAILURE`, `EMBER_VERIFY_LINK_KEY_SUCCESS` }
- enum `EmberLinkKeyRequestPolicy` { `EMBER_DENY_KEY_REQUESTS`, `EMBER_ALLOW_KEY_REQUESTS`, `EMBER_GENERATE_NEW_TC_LINK_KEY` }
- enum `EmberKeySettings` { `EMBER_KEY_PERMISSIONS_NONE`, `EMBER_KEY_PERMISSIONS_READING_ALLOWED`, `EMBER_KEY_PERMISSIONS_HASHING_ALLOWED` }
- enum `EmberMacPassthroughType` {
 `EMBER_MAC_PASSTHROUGH_NONE`, `EMBER_MAC_PASSTHROUGH_SE_INTERPAN`, `EMBER_MAC_PASSTHROUGH_EMBERNET`, `EMBER_MAC_PASSTHROUGH_EMBERNET_SOURCE`, `EMBER_MAC_PASSTHROUGH_APPLICATION`, `EMBER_MAC_PASSTHROUGH_CUSTOM` }

## Functions

- `uint8_t * emberKeyContents (EmberKeyData *key)`
- `uint8_t * emberCertificateContents (EmberCertificateData *cert)`
- `uint8_t * emberPublicKeyContents (EmberPublicKeyData *key)`
- `uint8_t * emberPrivateKeyContents (EmberPrivateKeyData *key)`
- `uint8_t * emberSmacContents (EmberSmacData *key)`
- `uint8_t * emberSignatureContents (EmberSignatureData *sig)`
- `uint8_t * emberCertificate283k1Contents (EmberCertificate283k1Data *cert)`
- `uint8_t * emberPublicKey283k1Contents (EmberPublicKey283k1Data *key)`
- `uint8_t * emberPrivateKey283k1Contents (EmberPrivateKey283k1Data *key)`
- `uint8_t * ember283k1SignatureContents (Ember283k1SignatureData *sig)`

## Miscellaneous Ember Types

- `#define EMBER_RELEASE_TYPE_TO_STRING_STRUCT_DATA`
- `#define EUI64_SIZE`
- `#define EXTENDED_PAN_ID_SIZE`
- `#define EMBER_ENCRYPTION_KEY_SIZE`
- `#define EMBER_CERTIFICATE_SIZE`
- `#define EMBER_PUBLIC_KEY_SIZE`
- `#define EMBER_PRIVATE_KEY_SIZE`

- #define EMBER\_SMAC\_SIZE
- #define EMBER\_SIGNATURE\_SIZE
- #define EMBER\_AES\_HASH\_BLOCK\_SIZE
- #define EMBER\_CERTIFICATE\_283K1\_SIZE
- #define EMBER\_PUBLIC\_KEY\_283K1\_SIZE
- #define EMBER\_PRIVATE\_KEY\_283K1\_SIZE
- #define EMBER\_SIGNATURE\_283K1\_SIZE
- #define \_\_EMBERSTATUS\_TYPE\_\_
- #define EMBER\_MAX\_802\_15\_4\_CHANNEL\_NUMBER
- #define EMBER\_MIN\_802\_15\_4\_CHANNEL\_NUMBER
- #define EMBER\_NUM\_802\_15\_4\_CHANNELS
- #define EMBER\_ALL\_802\_15\_4\_CHANNELS\_MASK
- #define EMBER\_ZIGBEE\_COORDINATOR\_ADDRESS
- #define EMBER\_NULL\_NODE\_ID
- #define EMBER\_NULL\_BINDING
- #define EMBER\_TABLE\_ENTRY\_UNUSED\_NODE\_ID
- #define EMBER\_MULTICAST\_NODE\_ID
- #define EMBER\_UNKNOWN\_NODE\_ID
- #define EMBER\_DISCOVERY\_ACTIVE\_NODE\_ID
- #define EMBER\_NULL\_ADDRESS\_TABLE\_INDEX
- #define EMBER\_ZDO\_ENDPOINT
- #define EMBER\_BROADCAST\_ENDPOINT
- #define EMBER\_ZDO\_PROFILE\_ID
- #define EMBER\_WILDCARD\_PROFILE\_ID
- #define EMBER\_MAXIMUM\_STANDARD\_PROFILE\_ID
- #define EMBER\_BROADCAST\_TABLE\_TIMEOUT\_QS
- #define EMBER\_MANUFACTURER\_ID
- enum EmberVersionType {
 EMBER\_VERSION\_TYPE\_PRE\_RELEASE, EMBER\_VERSION\_TYPE\_ALPHA\_1, EMBER\_VERSION\_TYPE\_ALPHA\_2, EMBER\_VERSION\_TYPE\_ALPHA\_3,
 EMBER\_VERSION\_TYPE\_BETA\_1, EMBER\_VERSION\_TYPE\_BETA\_2, EMBER\_VERSION\_TYPE\_BETA\_3, EMBER\_VERSION\_TYPE\_GA
 }
- enum EmberLeaveRequestFlags { EMBER\_ZIGBEE\_LEAVE\_AND\_REJOIN, EMBER\_ZIGBEE\_LEAVE\_AND\_REMOVE\_CHILDREN }
- enum EmberLeaveReason {
 EMBER\_LEAVE\_REASON\_NONE, EMBER\_LEAVE\_DUE\_TO\_NWK\_LEAVE\_MESSAGE, EMBER\_LEAVE\_DUE\_TO\_APS\_REMOVE\_MESSAGE, EMBER\_LEAVE\_DUE\_TO\_ZDO\_LEAVE\_MESSAGE,
 EMBER\_LEAVE\_DUE\_TO\_ZLL\_TOUCHLINK, EMBER\_LEAVE\_DUE\_TO\_APP\_EVENT\_1
 }
- typedef uint8\_t EmberStatus
- typedef uint8\_t EmberEUI64 [EUI64\_SIZE]
- typedef uint8\_t EmberMessageBuffer
- typedef uint16\_t EmberNodeId
- typedef uint16\_t EmberMulticastId
- typedef uint16\_t EmberPanId
- const EmberVersion emberVersion

## ZigBee Broadcast Addresses

ZigBee specifies three different broadcast addresses that reach different collections of nodes. Broadcasts are normally sent only to routers. Broadcasts can also be forwarded to end devices, either all of them or only those that do not sleep. Broadcasting to end devices is both significantly more resource-intensive and significantly less reliable than broadcasting to routers.

- #define EMBER\_BROADCAST\_ADDRESS
- #define EMBER\_RX\_ON\_WHEN\_IDLE\_BROADCAST\_ADDRESS
- #define EMBER\_SLEEPY\_BROADCAST\_ADDRESS

## Ember Concentrator Types

- #define EMBER\_LOW\_RAM\_CONCENTRATOR
- #define EMBER\_HIGH\_RAM\_CONCENTRATOR

## txPowerModes for emberSetTxPowerMode and mfplibSetPower

- #define EMBER\_TX\_POWER\_MODE\_DEFAULT
- #define EMBER\_TX\_POWER\_MODE\_BOOST
- #define EMBER\_TX\_POWER\_MODE\_ALTERNATE
- #define EMBER\_TX\_POWER\_MODE\_BOOST\_AND\_ALTERNATE

## Alarm Message and Counters Request Definitions

- #define EMBER\_PRIVATE\_PROFILE\_ID
- #define EMBER\_PRIVATE\_PROFILE\_ID\_START
- #define EMBER\_PRIVATE\_PROFILE\_ID\_END
- #define EMBER\_BROADCAST\_ALARM\_CLUSTER
- #define EMBER\_UNICAST\_ALARM\_CLUSTER
- #define EMBER\_CACHED\_UNICAST\_ALARM\_CLUSTER
- #define EMBER\_REPORT\_COUNTERS\_REQUEST
- #define EMBER\_REPORT\_COUNTERS\_RESPONSE
- #define EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_REQUEST
- #define EMBER\_REPORT\_AND\_CLEAR\_COUNTERS\_RESPONSE
- #define EMBER\_OTA\_CERTIFICATE\_UPGRADE\_CLUSTER

## ZDO response status.

Most responses to ZDO commands contain a status byte. The meaning of this byte is defined by the ZigBee Device Profile.

- enum EmberZdoStatus {
 EMBER\_ZDP\_SUCCESS, EMBER\_ZDP\_INVALID\_REQUEST\_TYPE, EMBER\_ZDP\_DEVICE\_NOT\_FOUND, EMBER\_ZDP\_INVALID\_ENDPOINT,
 EMBER\_ZDP\_NOT\_ACTIVE, EMBER\_ZDP\_NOT\_SUPPORTED, EMBER\_ZDP\_TIMEOUT, EMBER\_ZDP\_NO\_MATCH,
 EMBER\_ZDP\_NO\_ENTRY, EMBER\_ZDP\_NO\_DESCRIPTOR, EMBER\_ZDP\_INSUFFICIENT\_SPACE, EMBER\_ZDP\_NOT\_PERMITTED,
 EMBER\_ZDP\_TABLE\_FULL, EMBER\_ZDP\_NOT\_AUTHORIZED, EMBER\_NWK\_ALREADY\_PRESENT, EMBER\_NWK\_TABLE\_FULL,
 EMBER\_NWK\_UNKNOWN\_DEVICE }

## Network and IEEE Address Request/Response

Defines for ZigBee device profile cluster IDs follow. These include descriptions of the formats of the messages.

Note that each message starts with a 1-byte transaction sequence number. This sequence number is used to match a response command frame to the request frame that it is replying to. The application shall maintain a 1-byte counter that is copied into this field and incremented by one for each command sent. When a value of 0xff is reached, the next command shall re-start the counter with a value of 0x00

```
Network request: <transaction sequence number: 1>
                  <EUI64:8>  <type:1> <start index:1>
IEEE request:    <transaction sequence number: 1>
                  <node ID:2> <type:1> <start index:1>
                  <type> = 0x00 single address response, ignore the start index
                  = 0x01 extended response -> sends kid's IDs as well
Response:        <transaction sequence number: 1>
                  <status:1> <EUI64:8> <node ID:2>
                  <ID count:1> <start index:1> <child ID:2>*
```

- #define NETWORK\_ADDRESS\_REQUEST
- #define NETWORK\_ADDRESS\_RESPONSE
- #define IEEE\_ADDRESS\_REQUEST
- #define IEEE\_ADDRESS\_RESPONSE

## Node Descriptor Request/Response

```
<br>
@code
Request:  <transaction sequence number: 1> <node ID:2>
Response: <transaction sequence number: 1> <status:1> <node ID:2>

// <node descriptor: 13> // // Node Descriptor field is divided into subfields of bitmasks as follows: //
// (Note: All lengths below are given in bits rather than bytes.) // Logical Type: 3 // Complex Descriptor Available: 1 // User Descriptor Available: 1 // (reserved/unused): 3 // APS Flags: 3 // Frequency Band: 5 // MAC capability flags: 8 // Manufacturer Code: 16 // Maximum buffer size: 8 // Maximum incoming transfer size: 16 // Server mask: 16 // Maximum outgoing transfer size: 16 // Descriptor Capability Flags: 8 // See ZigBee document 053474, Section 2.3.2.3 for more details.
```

- #define NODE\_DESCRIPTOR\_REQUEST
- #define NODE\_DESCRIPTOR\_RESPONSE

## Power Descriptor Request / Response

```
<br>
@code
Request: <transaction sequence number: 1> <node ID:2>
Response: <transaction sequence number: 1> <status:1> <node ID:2>
           <current power mode, available power sources:1>
           <current power source, current power source level:1>
```

// See ZigBee document 053474, Section 2.3.2.4 for more details.

- #define **POWER\_DESCRIPTOR\_REQUEST**
- #define **POWER\_DESCRIPTOR\_RESPONSE**

## Simple Descriptor Request / Response

```
Request: <transaction sequence number: 1>
          <node ID:2> <endpoint:1>
Response: <transaction sequence number: 1>
          <status:1> <node ID:2> <length:1> <endpoint:1>
          <app profile ID:2> <app device ID:2>
          <app device version, app flags:1>
          <input cluster count:1> <input cluster:2>*
          <output cluster count:1> <output cluster:2>*
```

- #define **SIMPLE\_DESCRIPTOR\_REQUEST**
- #define **SIMPLE\_DESCRIPTOR\_RESPONSE**

## Active Endpoints Request / Response

```
Request: <transaction sequence number: 1> <node ID:2>
Response: <transaction sequence number: 1>
          <status:1> <node ID:2> <endpoint count:1> <endpoint:1>*
```

- #define **ACTIVE\_ENDPOINTS\_REQUEST**
- #define **ACTIVE\_ENDPOINTS\_RESPONSE**

## Match Descriptors Request / Response

```
Request: <transaction sequence number: 1>
          <node ID:2> <app profile ID:2>
          <input cluster count:1> <input cluster:2>*
          <output cluster count:1> <output cluster:2>*
Response: <transaction sequence number: 1>
          <status:1> <node ID:2> <endpoint count:1> <endpoint:1>*
```

- #define **MATCH\_DESCRIPTOR\_REQUEST**
- #define **MATCH\_DESCRIPTOR\_RESPONSE**

## Discovery Cache Request / Response

```
Request: <transaction sequence number: 1>
          <source node ID:2> <source EUI64:8>
Response: <transaction sequence number: 1>
          <status (== EMBER_ZDP_SUCCESS):1>
```

- #define **DISCOVERY\_CACHE\_REQUEST**
- #define **DISCOVERY\_CACHE\_RESPONSE**

## End Device Announce and End Device Announce Response

```
Request: <transaction sequence number: 1>
         <node ID:2> <EUI64:8> <capabilities:1>
No response is sent.
```

- #define END\_DEVICE\_ANNOUNCE
- #define END\_DEVICE\_ANNOUNCE\_RESPONSE

## System Server Discovery Request / Response

This is broadcast and only servers which have matching services respond. The response contains the request services that the recipient provides.

```
Request: <transaction sequence number: 1> <server mask:2>
Response: <transaction sequence number: 1>
           <status (== EMBER_ZDP_SUCCESS):1> <server mask:2>
```

- #define SYSTEM\_SERVER\_DISCOVERY\_REQUEST
- #define SYSTEM\_SERVER\_DISCOVERY\_RESPONSE

## Parent Announce and Parent Announce Response

This is broadcast and only servers which have matching children respond. The response contains the list of children that the recipient now holds.

```
Request: <transaction sequence number: 1>
         <number of children:1> <child EUI64:8> <child Age:4>*
Response: <transaction sequence number: 1>
           <number of children:1> <child EUI64:8> <child Age:4>*
```

- #define PARENT\_ANNOUNCE
- #define PARENT\_ANNOUNCE\_RESPONSE

## ZDO server mask bits

These are used in server discovery requests and responses.

- enum EmberZdoServerMask {
 EMBER\_ZDP\_PRIMARY\_TRUST\_CENTER, EMBER\_ZDP\_SECONDARY\_TRUST\_CENTER,
 EMBER\_ZDP\_PRIMARY\_BINDING\_TABLE\_CACHE, EMBER\_ZDP\_SECONDARY\_BINDING\_TABLE\_CACHE,
 EMBER\_ZDP\_PRIMARY\_DISCOVERY\_CACHE, EMBER\_ZDP\_SECONDARY\_DISCOVERY\_CACHE,
 EMBER\_ZDP\_NETWORK\_MANAGER }

## Find Node Cache Request / Response

This is broadcast and only discovery servers which have the information for the device of interest, or the device of interest itself, respond. The requesting device can then direct any service discovery requests to the responder.

```

Request: <transaction sequence number: 1>
<device of interest ID:2> <d-of-i EUI64:8>
Response: <transaction sequence number: 1>
<responder ID:2> <device of interest ID:2> <d-of-i EUI64:8>

```

- #define FIND\_NODE\_CACHE\_REQUEST
- #define FIND\_NODE\_CACHE\_RESPONSE

## End Device Bind Request / Response

```

Request: <transaction sequence number: 1>
<node ID:2> <EUI64:8> <endpoint:1> <app profile ID:2>
<input cluster count:1> <input cluster:2>*
<output cluster count:1> <output cluster:2>*
Response: <transaction sequence number: 1> <status:1>

```

- #define END\_DEVICE\_BIND\_REQUEST
- #define END\_DEVICE\_BIND\_RESPONSE

## Binding types and Request / Response

Bind and unbind have the same formats. There are two possible formats, depending on whether the destination is a group address or a device address. Device addresses include an endpoint, groups don't.

```

Request: <transaction sequence number: 1>
<source EUI64:8> <source endpoint:1>
<cluster ID:2> <destination address:3 or 10>
Destination address:
<0x01:1> <destination group:2>
Or:
<0x03:1> <destination EUI64:8> <destination endpoint:1>
Response: <transaction sequence number: 1> <status:1>

```

- #define UNICAST\_BINDING
- #define UNICAST\_MANY\_TO\_ONE\_BINDING
- #define MULTICAST\_BINDING
- #define BIND\_REQUEST
- #define BIND\_RESPONSE
- #define UNBIND\_REQUEST
- #define UNBIND\_RESPONSE

## LQI Table Request / Response

```

Request: <transaction sequence number: 1> <start index:1>
Response: <transaction sequence number: 1> <status:1>
<neighbor table entries:1> <start index:1>
<entry count:1> <entry:22>*
<entry> = <extended PAN ID:8> <EUI64:8> <node ID:2>
<device type, rx on when idle, relationship:1>
<permit joining:1> <depth:1> <LQI:1>

```

The device-type byte has the following fields:

Name	Mask	Values
device type	0x03	0x00 coordinator 0x01 router 0x02 end device 0x03 unknown

rx mode	0x0C	0x00 off when idle 0x04 on when idle 0x08 unknown
relationship	0x70	0x00 parent 0x10 child 0x20 sibling 0x30 other 0x40 previous child
reserved	0x10	

The permit-joining byte has the following fields

Name	Mask	Values
permit joining	0x03	0x00 not accepting join requests 0x01 accepting join requests 0x02 unknown
reserved	0xFC	

- #define [LQI\\_TABLE\\_REQUEST](#)
- #define [LQI\\_TABLE\\_RESPONSE](#)

## Routing Table Request / Response

```

Request: <transaction sequence number: 1> <start index:1>
Response: <transaction sequence number: 1> <status:1>
           <routing table entries:1> <start index:1>
           <entry count:1> <entry:5>*
           <entry> = <destination address:2>
                     <status:1>
                     <next hop:2>

```

The status byte has the following fields:

Name	Mask	Values
status	0x07	0x00 active 0x01 discovery underway 0x02 discovery failed 0x03 inactive 0x04 validation underway
flags	0x38	0x08 memory constrained 0x10 many-to-one 0x20 route record required
reserved	0xC0	

- #define [ROUTING\\_TABLE\\_REQUEST](#)
- #define [ROUTING\\_TABLE\\_RESPONSE](#)

## Binding Table Request / Response

```

Request: <transaction sequence number: 1> <start index:1>
Response: <transaction sequence number: 1>
           <status:1> <binding table entries:1> <start index:1>
           <entry count:1> <entry:14/21>*
           <entry> = <source EUI64:8> <source endpoint:1> <cluster ID:2>
                     <dest addr mode:1> <dest:2/8> <dest endpoint:0/1>

```

### Note

If Dest. Address Mode = 0x03, then the Long Dest. Address will be used and Dest. endpoint will be included. If Dest. Address Mode = 0x01, then the Short Dest. Address will be used and there will be no Dest. endpoint.

- #define **BINDING\_TABLE\_REQUEST**
- #define **BINDING\_TABLE\_RESPONSE**

## Leave Request / Response

```
Request: <transaction sequence number: 1> <EUI64:8> <flags:1>
          The flag bits are:
          0x40 remove children
          0x80 rejoin
Response: <transaction sequence number: 1> <status:1>
```

- #define **LEAVE\_REQUEST**
- #define **LEAVE\_RESPONSE**
- #define **LEAVE\_REQUEST\_REMOVE\_CHILDREN\_FLAG**
- #define **LEAVE\_REQUEST\_REJOIN\_FLAG**

## Permit Joining Request / Response

```
Request: <transaction sequence number: 1>
          <duration:1> <permit authentication:1>
Response: <transaction sequence number: 1> <status:1>
```

- #define **PERMIT\_JOINING\_REQUEST**
- #define **PERMIT\_JOINING\_RESPONSE**

## Network Update Request / Response

```
Request: <transaction sequence number: 1>
          <scan channels:4> <duration:1> <count:0/1> <manager:0/2>

If the duration is in 0x00 ... 0x05, then 'count' is present but
not 'manager'. Perform 'count' scans of the given duration on the
given channels.

If duration is 0xFE, then 'channels' should have a single channel
and 'count' and 'manager' are not present. Switch to the indicated
channel.

If duration is 0xFF, then 'count' is not present. Set the active
channels and the network manager ID to the values given.

Unicast requests always get a response, which is INVALID_REQUEST if the
duration is not a legal value.
```

```
Response: <transaction sequence number: 1> <status:1>
          <scanned channels:4> <transmissions:2> <failures:2>
          <energy count:1> <energy:1>*
```

- #define **NWK\_UPDATE\_REQUEST**
- #define **NWK\_UPDATE\_RESPONSE**

## Unsupported

Not mandatory and not supported.

- #define COMPLEX\_DESCRIPTOR\_REQUEST
- #define COMPLEX\_DESCRIPTOR\_RESPONSE
- #define USER\_DESCRIPTOR\_REQUEST
- #define USER\_DESCRIPTOR\_RESPONSE
- #define DISCOVERY\_REGISTER\_REQUEST
- #define DISCOVERY\_REGISTER\_RESPONSE
- #define USER\_DESCRIPTOR\_SET
- #define USER\_DESCRIPTOR\_CONFIRM
- #define NETWORK\_DISCOVERY\_REQUEST
- #define NETWORK\_DISCOVERY\_RESPONSE
- #define DIRECT\_JOIN\_REQUEST
- #define DIRECT\_JOIN\_RESPONSE
- #define CLUSTER\_ID\_RESPONSE\_MINIMUM

## ZDO configuration flags.

For controlling which ZDO requests are passed to the application. These are normally controlled via the following configuration definitions:

EMBER\_APPLICATION RECEIVES\_SUPPORTED\_ZDO\_REQUESTS EMBER\_APPLICATION\_HANDLES\_UNSUPPORTED\_ZDO\_REQUESTS EMBER\_APPLICATION\_HANDLES\_ENDPOINT\_ZDO\_REQUESTS EMBER\_APPLICATION\_HANDLES\_BINDING\_ZDO\_REQUESTS

See ember-configuration.h for more information.

- enum EmberZdoConfigurationFlags { EMBER\_APP RECEIVES\_SUPPORTED\_ZDO\_REQUESTS, EMBER\_APP\_HANDLES\_UNSUPPORTED\_ZDO\_REQUESTS, EMBER\_APP\_HANDLES\_ENDPOINT\_ZDO\_REQUESTS, EMBER\_APP\_HANDLES\_BINDING\_ZDO\_REQUESTS }

### 8.77.1 Detailed Description

Ember data type definitions. See [Ember Common Data Types](#) for details.

Definition in file `ember-types.h`.

## 8.78 ember-types.h

```

00001
00020 #ifndef EMBER_TYPES_H
00021 #define EMBER_TYPES_H
00022
00023 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00024 #include "stack/config/ember-configuration-defaults.h"
00025 #include "stack/include/ember-static-struct.h"
00026 #endif //DOXYGEN_SHOULD_SKIP_THIS
00027
00032
00036 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00037 enum EmberVersionType
00038 #else
00039 typedef uint8_t EmberVersionType;
00040 enum

```

```

00041 #endif
00042 {
00043     EMBER_VERSION_TYPE_PRE_RELEASE = 0x00,
00044
00045     //Alpha, should be used rarely
00046     EMBER_VERSION_TYPE_ALPHA_1      = 0x11,
00047     EMBER_VERSION_TYPE_ALPHA_2      = 0x12,
00048     EMBER_VERSION_TYPE_ALPHA_3      = 0x13,
00049     // Leave space in case we decide to add other types in the future.
00050     EMBER_VERSION_TYPE_BETA_1       = 0x21,
00051     EMBER_VERSION_TYPE_BETA_2       = 0x22,
00052     EMBER_VERSION_TYPE_BETA_3       = 0x23,
00053
00054
00055
00056     // Anything other than 0xAA is considered pre-release
00057     // We may define other types in the future (e.g. beta, alpha)
00058     // We chose an arbitrary number (0xAA) to allow for expansion, but
00059     // to prevent ambiguity in case 0x00 or 0xFF is accidentally retrieved
00060     // as the version type.
00061     EMBER_VERSION_TYPE_GA = 0xAA,
00062 };
00063
00064
00065     typedef struct {
00066         EmberVersionType typeNum;
00067         PGM_P typeString;
00068     } EmberReleaseTypeStruct;
00069
00070
00071
00072     #define EMBER_RELEASE_TYPE_TO_STRING_STRUCT_DATA \
00073     { EMBER_VERSION_TYPE_PRE_RELEASE, "Pre-Release" }, \
00074     { EMBER_VERSION_TYPE_ALPHA_1, "Alpha 1" }, \
00075     { EMBER_VERSION_TYPE_ALPHA_2, "Alpha 2" }, \
00076     { EMBER_VERSION_TYPE_ALPHA_3, "Alpha 3" }, \
00077     { EMBER_VERSION_TYPE_BETA_1, "Beta 1" }, \
00078     { EMBER_VERSION_TYPE_BETA_2, "Beta 2" }, \
00079     { EMBER_VERSION_TYPE_BETA_3, "Beta 3" }, \
00080     { EMBER_VERSION_TYPE_GA, "GA" }, \
00081     { 0xFF, NULL },
00082
00083
00084
00085
00086
00087     typedef struct {
00088         uint16_t build;
00089         uint8_t major;
00090         uint8_t minor;
00091         uint8_t patch;
00092         uint8_t special;
00093         EmberVersionType type;
00094     } EmberVersion;
00095
00096
00097
00098
00099     extern const EmberVersion emberVersion;
00100
00101
00102     #define EUI64_SIZE 8
00103
00104
00105     #define EXTENDED_PAN_ID_SIZE 8
00106
00107
00108
00109     #define EMBER_ENCRYPTION_KEY_SIZE 16
00110
00111
00112     #define EMBER_CERTIFICATE_SIZE 48
00113
00114
00115     #define EMBER_PUBLIC_KEY_SIZE 22
00116
00117
00118
00119     #define EMBER_PRIVATE_KEY_SIZE 21
00120
00121
00122     #define EMBER_SMAC_SIZE 16
00123
00124
00125     #define EMBER_SIGNATURE_SIZE 42
00126
00127
00128     #define EMBER_AES_HASH_BLOCK_SIZE 16
00129
00130
00131     #define EMBER_CERTIFICATE_283K1_SIZE 74
00132
00133
00134
00135     #define EMBER_PUBLIC_KEY_283K1_SIZE 37
00136
00137
00138     #define EMBER_PRIVATE_KEY_283K1_SIZE 36
00139
00140
00141     #define EMBER_SIGNATURE_283K1_SIZE 72
00142
00143
00144
00145
00146     #ifndef __EMBERSTATUS_TYPE__
00147     #define __EMBERSTATUS_TYPE__
00148     typedef uint8_t EmberStatus;
00149
00150
00151
00152
00153
00154
00155
00156
00157
00158
00159
00160
00161
00162
00163
00164
00165
00166
00167
00168
00169
00170
00171
00172
00173
00174
00175
00176
00177
00178

```

```

00179 #endif //__EMBERSTATUS_TYPE__
00180
00181 #include "stack/include/error.h"
00182
00186 typedef uint8_t EmberEUI64[EUI64_SIZE];
00187
00197 typedef uint8_t EmberMessageBuffer;
00198
00202 typedef uint16_t EmberNodeId;
00203
00205 typedef uint16_t EmberMulticastId;
00206
00210 typedef uint16_t EmberPanId;
00211
00215 #define EMBER_MAX_802_15_4_CHANNEL_NUMBER 26
00216
00220 #define EMBER_MIN_802_15_4_CHANNEL_NUMBER 11
00221
00225 #define EMBER_NUM_802_15_4_CHANNELS \
00226     (EMBER_MAX_802_15_4_CHANNEL_NUMBER - EMBER_MIN_802_15_4_CHANNEL_NUMBER + 1)
00227
00231 #define EMBER_ALL_802_15_4_CHANNELS_MASK 0x07FFF800UL
00232
00236 #define EMBER_ZIGBEE_COORDINATOR_ADDRESS 0x0000
00237
00242 #define EMBER_NULL_NODE_ID 0xFFFF
00243
00248 #define EMBER_NULL_BINDING 0xFF
00249
00259 #define EMBER_TABLE_ENTRY_UNUSED_NODE_ID 0xFFFF
00260
00267 #define EMBER_MULTICAST_NODE_ID 0xFFFFE
00268
00276 #define EMBER_UNKNOWN_NODE_ID 0xFFFFD
00277
00285 #define EMBER_DISCOVERY_ACTIVE_NODE_ID 0xFFFFC
00286
00291 #define EMBER_NULL_ADDRESS_TABLE_INDEX 0xFF
00292
00296 #define EMBER_ZDO_ENDPOINT 0
00297
00301 #define EMBER_BROADCAST_ENDPOINT 0xFF
00302
00306 #define EMBER_ZDO_PROFILE_ID 0x0000
00307
00311 #define EMBER_WILDCARD_PROFILE_ID 0xFFFF
00312
00316 #define EMBER_MAXIMUM_STANDARD_PROFILE_ID 0x7FFF
00317
00323 #define EMBER_BROADCAST_TABLE_TIMEOUT_QS (20 * 4)
00324
00325
00329 #define EMBER_MANUFACTURER_ID 0x1002
00330
00331
00332 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00333 enum EmberLeaveRequestFlags
00334 #else
00335 typedef uint8_t EmberLeaveRequestFlags;
00336 enum
00337 #endif
00338 {
00340     EMBER_ZIGBEE_LEAVE_AND_REJOIN = 0x80,
00341
00343     EMBER_ZIGBEE_LEAVE_AND_REMOVE_CHILDREN
00344     = 0x40,
00345 };
00346 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00347 enum EmberLeaveReason
00348 #else
00349 typedef uint8_t EmberLeaveReason;
00350 enum
00351 #endif
00352 {
00353     EMBER_LEAVE_REASON_NONE = 0,
00354     EMBER_LEAVE_DUE_TO_NWK_LEAVE_MESSAGE = 1
00355     ,
00356     EMBER_LEAVE_DUE_TOAPS_REMOVE_MESSAGE =
00357     2,

```

```

00356 // Currently, the stack does not process the ZDO leave message since it is
00357 optional
00358 EMBER_LEAVE_DUE_TO_ZDO_LEAVE_MESSAGE = 3
00359 ,
00360 EMBER_LEAVE_DUE_TO_ZLL_TOUCHLINK = 4,
00361 } ;
00362
00364
00365
00378 #define EMBER_BROADCAST_ADDRESS 0xFFFFC
00379
00380 #define EMBER_RX_ON_WHEN_IDLE_BROADCAST_ADDRESS 0xFFFFD
00381
00382 #define EMBER_SLEEPY_BROADCAST_ADDRESS 0xFFFFF
00383
00386 // From table 3.51 of 053474r14
00387 #define EMBER_MIN_BROADCAST_ADDRESS 0xFFFF8
00388
00389 #define emberIsZigbeeBroadcastAddress(address) \
00390 (EMBER_MIN_BROADCAST_ADDRESS <= ((uint16_t) (address)))
00391
00392
00397 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00398 enum EmberNodeType
00399 #else
00400 typedef uint8_t EmberNodeType;
00401 enum
00402 #endif
00403 {
00405 EMBER_UNKNOWN_DEVICE = 0,
00407 EMBER_COORDINATOR = 1,
00409 EMBER_ROUTER = 2,
00411 EMBER_END_DEVICE = 3,
00415 EMBER_SLEEPY_END_DEVICE = 4,
00417 EMBER_MOBILE_END_DEVICE = 5,
00419 EMBER_RF4CE_TARGET = 6,
00421 EMBER_RF4CE_CONTROLLER = 7,
00422 } ;
00423
00427 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00428 enum EmberEndDeviceConfiguration
00429 #else
00430 typedef uint8_t EmberEndDeviceConfiguration;
00431 enum
00432 #endif
00433 {
00434 EMBER_END_DEVICE_CONFIG_NONE = 0x00,
00435 EMBER_END_DEVICE_CONFIG_PERSIST_DATA_ON_PARENT = 0x01,
00436 } ;
00437
00441 typedef struct {
00442 uint16_t panId;
00443 uint8_t channel;
00444 bool allowingJoin;
00445 uint8_t extendedPanId[8];
00446 uint8_t stackProfile;
00447 uint8_t nwkUpdateId;
00448 } EmberZigbeeNetwork;
00449
00450
00455 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00456 enum EmberNetworkInitBitmask
00457 #else
00458 typedef uint16_t EmberNetworkInitBitmask;
00459 enum
00460 #endif
00461 {
00462 EMBER_NETWORK_INIT_NO_OPTIONS = 0x0000
00466 , EMBER_NETWORK_INIT_PARENT_INFO_IN_TOKEN = 0x0001,
00467 } ;
00468
00469
00474 typedef struct {
00475 EmberNetworkInitBitmask bitmask;

```

```

00476 } EmberNetworkInitStruct;
00477
00478
00485 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00486 enum EmberApsOption
00487 #else
00488 typedef uint16_t EmberApsOption;
00489 enum
00490 #endif
00491 {
00493     EMBER_APS_OPTION_NONE             = 0x0000,
00494
00495 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00496     EMBER_APS_OPTION_ENCRYPT_WITH_TRANSIENT_KEY = 0x0001,
00497     EMBER_APS_OPTION_USE_ALIAS_SEQUENCE_NUMBER = 0x0002,
00498 #endif
00499
00511     EMBER_APS_OPTION_DSA_SIGN          = 0x0010,
00514     EMBER_APS_OPTION_ENCRYPTION        = 0x0020
00518     EMBER_APS_OPTION_RETRY            = 0x0040,
00524     EMBER_APS_OPTION_ENABLE_ROUTE_DISCOVERY
00525         = 0x0100,
00527     EMBER_APS_OPTION_FORCE_ROUTE_DISCOVERY
00528         = 0x0200,
00529     EMBER_APS_OPTION_SOURCE_EUI64      =
00530         0x0400,
00531     EMBER_APS_OPTION_DESTINATION_EUI64 =
00532         0x0800,
00534     EMBER_APS_OPTION_ENABLE_ADDRESS_DISCOVERY
00535         = 0x1000,
00539     EMBER_APS_OPTION_POLL_RESPONSE    =
00540         0x2000,
00544     EMBER_APS_OPTION_ZDO_RESPONSE_REQUIRED
00545         = 0x4000,
00550     EMBER_APS_OPTION_FRAGMENT         =
00551     SIGNED_ENUM 0x8000
00551 };
00552
00553
00554
00558 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00559 enum EmberIncomingMessageType
00560 #else
00561 typedef uint8_t EmberIncomingMessageType;
00562 enum
00563 #endif
00564 {
00566     EMBER_INCOMING_UNICAST,
00568     EMBER_INCOMING_UNICAST_REPLY,
00570     EMBER_INCOMING_MULTICAST,
00572     EMBER_INCOMING_MULTICAST_LOOPBACK,
00574     EMBER_INCOMING_BROADCAST,
00576     EMBER_INCOMING_BROADCAST_LOOPBACK
00577 };
00578
00579
00583 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00584 enum EmberOutgoingMessageType
00585 #else
00586 typedef uint8_t EmberOutgoingMessageType;
00587 enum
00588 #endif
00589 {
00591     EMBER_OUTGOING_DIRECT,
00593     EMBER_OUTGOING_VIA_ADDRESS_TABLE,
00595     EMBER_OUTGOING_VIA_BINDING,
00598     EMBER_OUTGOING_MULTICAST,
00601     EMBER_OUTGOING_MULTICAST_WITH_ALIAS,
00604     EMBER_OUTGOING_BROADCAST_WITH_ALIAS,
00607     EMBER_OUTGOING_BROADCAST
00608 };
00609
00615 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00616 enum EmberZigbeeCommandType
00617 #else
00618 typedef uint8_t EmberZigbeeCommandType;
00619 enum
00620 #endif
00621 {

```

```

00623     EMBER_ZIGBEE_COMMAND_TYPE_MAC,
00625     EMBER_ZIGBEE_COMMAND_TYPE_NWK,
00627     EMBER_ZIGBEE_COMMAND_TYPE_APS,
00629     EMBER_ZIGBEE_COMMAND_TYPE_ZDO,
00631     EMBER_ZIGBEE_COMMAND_TYPE_ZCL,
00632
00634     EMBER_ZIGBEE_COMMAND_TYPE_BEACON,
00635 };
00636
00640 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00641 enum EmberNetworkStatus
00642 #else
00643 typedef uint8_t EmberNetworkStatus;
00644 enum
00645 #endif
00646 {
00648     EMBER_NO_NETWORK,
00650     EMBER_JOINING_NETWORK,
00652     EMBER_JOINED_NETWORK,
00655     EMBER_JOINED_NETWORK_NO_PARENT,
00657     EMBER_LEAVING_NETWORK
00658 };
00659
00660
00664 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00665 enum EmberNetworkScanType
00666 #else
00667 typedef uint8_t EmberNetworkScanType;
00668 enum
00669 #endif
00670 {
00672     EMBER_ENERGY_SCAN,
00674     EMBER_ACTIVE_SCAN
00675 };
00676
00677
00681 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00682 enum EmberBindingType
00683 #else
00684 typedef uint8_t EmberBindingType;
00685 enum
00686 #endif
00687 {
00689     EMBER_UNUSED_BINDING      = 0,
00691     EMBER_UNICAST_BINDING    = 1,
00695     EMBER_MANY_TO_ONE_BINDING = 2,
00699     EMBER_MULTICAST_BINDING  = 3,
00700 };
00701
00702
00711 #define EMBER_LOW_RAM_CONCENTRATOR 0xFFFF8
00712
00716 #define EMBER_HIGH_RAM_CONCENTRATOR 0xFFFF9
00717
00719
00720
00724 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00725 enum EmberJoinDecision
00726 #else
00727 typedef uint8_t EmberJoinDecision;
00728 enum
00729 #endif
00730 {
00732     EMBER_USE_PRECONFIGURED_KEY = 0,
00734     EMBER_SEND_KEY_IN_THE_CLEAR,
00736     EMBER_DENY_JOIN,
00738     EMBER_NO_ACTION
00739 };
00740
00744 #define EMBER_JOIN_DECISION_STRINGS \
00745     "use preconfigured key",           \
00746     "send key in the clear",          \
00747     "deny join",                   \
00748     "no action",
00749
00750
00756 // These map to the actual values within the APS Command frame so they cannot
00757 // be arbitrarily changed.
00758 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00759 enum EmberDeviceUpdate

```

```

00760 #else
00761 typedef uint8_t EmberDeviceUpdate;
00762 enum
00763 #endif
00764 {
00765     EMBER_STANDARD_SECURITY_SECURED_REJOIN
00766     = 0,
00767     EMBER_STANDARD_SECURITY_UNSECURED_JOIN
00768     = 1,
00769     EMBER_DEVICE_LEFT
00770     = 2,
00771     EMBER_STANDARD_SECURITY_UNSECURED_REJOIN
00772     = 3,
00773     EMBER_HIGH_SECURITY_SECURED_REJOIN
00774     =
00775     4,
00776     EMBER_HIGH_SECURITY_UNSECURED_JOIN
00777     =
00778     5,
00779     /* 6 Reserved */
00780     EMBER_HIGH_SECURITY_UNSECURED_REJOIN
00781     = 7,
00782     /* 8 - 15 Reserved */
00783 };
00784
00785 #define EMBER_DEVICE_UPDATE_STRINGS
00786     "secured rejoin",
00787     "UNsecured join",
00788     "device left",
00789     "UNsecured rejoin",
00790     "high secured rejoin",
00791     "high UNsecured join",
00792     "RESERVED",
00793     /* reserved status code, per the spec. */ \
00794     "high UNsecured rejoin",
00795
00796 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00797 enum EmberRejoinReason
00798 #else
00799 typedef uint8_t EmberRejoinReason;
00800 enum
00801 #endif
00802 {
00803     EMBER_REJOIN_REASON_NONE
00804     = 0,
00805     EMBER_REJOIN_DUE_TO_NWK_KEY_UPDATE
00806     = 1,
00807     EMBER_REJOIN_DUE_TO_LEAVE_MESSAGE
00808     = 2,
00809     EMBER_REJOIN_DUE_TO_NO_PARENT
00810     = 3,
00811     EMBER_REJOIN_DUE_TO_ZLL_TOUCHLINK
00812     = 4,
00813
00814 // App. Framework events
00815 // 0xA0 - 0xE0
00816
00817 // Customer Defined Events
00818 // I numbered these backwards in case there is ever request
00819 // for more application events. We can expand them
00820 // without renumbering the previous ones.
00821 EMBER_REJOIN_DUE_TO_APP_EVENT_5
00822 = 0xFB,
00823 EMBER_REJOIN_DUE_TO_APP_EVENT_4
00824 = 0xFC,
00825 EMBER_REJOIN_DUE_TO_APP_EVENT_3
00826 = 0xFD,
00827 EMBER_REJOIN_DUE_TO_APP_EVENT_2
00828 = 0xFE,
00829 EMBER_REJOIN_DUE_TO_APP_EVENT_1
00830 = 0xFF,
00831 };
00832
00833 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00834 enum EmberClusterListId
00835 #else
00836 typedef uint8_t EmberClusterListId;
00837 enum
00838 {
00839     EMBER_INPUT_CLUSTER_LIST
00840     = 0,
00841     EMBER_OUTPUT_CLUSTER_LIST
00842     = 1
00843 };
00844
00845 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00846 enum EmberEventUnits
00847 #else
00848 typedef uint8_t EmberEventUnits;
00849 enum
00850 {
00851     EMBER_EVENT_INACTIVE
00852     = 0,
00853     EMBER_EVENT_MS_TIME,
00854 }
```



```

00853     EMBER_EVENT_QS_TIME,
00856     EMBER_EVENT_MINUTE_TIME,
00858     EMBER_EVENT_ZERO_DELAY
00859 };
00860
00861
00865 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00866 enum EmberJoinMethod
00867 {
00868     typedef uint8_t EmberJoinMethod;
00869     enum
00870     #endif
00871 {
00872     EMBER_USE_MAC_ASSOCIATION      = 0,
00873
00874     EMBER_USE_NWK_REJOIN          = 1,
00875
00876     /* For those networks where the "permit joining" flag is never turned
00877      * on, they will need to use a NWK Rejoin. If those devices have been
00878      * preconfigured with the NWK key (including sequence number) they can use
00879      * a secured rejoin. This is only necessary for end devices since they need
00880      * a parent. Routers can simply use the ::EMBER_USE_NWK_COMMISIONING
00881      * join method below.
00882      */
00883     EMBER_USE_NWK_REJOIN_HAVE_NWK_KEY = 2,
00884
00885     EMBER_USE_NWK_COMMISIONING     = 3,
00886 };
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00914
00915     typedef struct {
00916         uint8_t    extendedPanId[8];
00917         uint16_t   panId;
00918         int8_t     radioTxPower;
00919         uint8_t    radioChannel;
00920         EmberJoinMethod joinMethod;
00921
00922         EmberNodeId nwkManagerId;
00923         uint8_t    nwkUpdateId;
00924         uint32_t   channels;
00925     } EmberNetworkParameters;
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00944
00945 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00946 #define emberInitializeNetworkParameters(parameters) \
00947     (MEMSET(parameters, 0, sizeof(EmberNetworkParameters)))
00948
00949
00950 #else
00951 void emberInitializeNetworkParameters(
00952     EmberNetworkParameters* parameters);
00953
00954 #endif
00955
00956
00957
00958
00959
00960     typedef struct {
00961         uint16_t   profileId;
00962         uint16_t   clusterId;
00963         uint8_t    sourceEndpoint;
00964         uint8_t    destinationEndpoint;
00965         EmberApsOption options;
00966         uint16_t   groupId;
00967         uint8_t    sequence;
00968     } EmberApsFrame;
00969
00970
00971
00972
00973
00974
00975
00976
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00979
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00981
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00983
00984     typedef struct {
00985         EmberBindingType type;
00986         uint8_t    local;
00987         uint16_t   clusterId;
00988         uint8_t    remote;
00989         EmberEUI64 identifier;
00990         uint8_t    networkIndex;
00991     } EmberBindingTableEntry;
00992
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01014     typedef struct {
01015         uint16_t   shortId;
01016         uint8_t    averageLqi;
01017         uint8_t    inCost;
01018         uint8_t    outCost;
01019         uint8_t    age;
01020         EmberEUI64 longId;
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01038 } EmberNeighborTableEntry;
01039
01045 typedef struct {
01047     uint16_t destination;
01049     uint16_t nextHop;
01052     uint8_t status;
01055     uint8_t age;
01058     uint8_t concentratorType;
01063     uint8_t routeRecordState;
01064 } EmberRouteTableEntry;
01065
01073 typedef struct {
01075     EmberMulticastId multicastId;
01079     uint8_t endpoint;
01081     uint8_t networkIndex;
01082 } EmberMulticastTableEntry;
01083
01088 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01089 enum EmberCounterType
01090 #else
01091 typedef uint8_t EmberCounterType;
01092 enum
01093 #endif
01094 {
01096     EMBER_COUNTER_MAC_RX_BROADCAST = 0,
01098     EMBER_COUNTER_MAC_TX_BROADCAST = 1,
01100     EMBER_COUNTER_MAC_RX_UNICAST = 2,
01102     EMBER_COUNTER_MAC_TX_UNICAST_SUCCESS = 3,
01108     EMBER_COUNTER_MAC_TX_UNICAST_RETRY = 4,
01110     EMBER_COUNTER_MAC_TX_UNICAST_FAILED = 5,
01111
01113     EMBER_COUNTERAPS_DATA_RX_BROADCAST = 6,
01115     EMBER_COUNTERAPS_DATA_TX_BROADCAST = 7,
01117     EMBER_COUNTERAPS_DATA_RX_UNICAST = 8,
01119     EMBER_COUNTERAPS_DATA_TX_UNICAST_SUCCESS
= 9,
01125     EMBER_COUNTERAPS_DATA_TX_UNICAST_RETRY
= 10,
01127     EMBER_COUNTERAPS_DATA_TX_UNICAST_FAILED
= 11,
01128
01131     EMBER_COUNTER_ROUTE_DISCOVERY_INITIATED
= 12,
01132
01134     EMBER_COUNTER_NEIGHBOR_ADDED = 13,
01136     EMBER_COUNTER_NEIGHBOR_REMOVED = 14,
01138     EMBER_COUNTER_NEIGHBOR_STALE = 15,
01139
01141     EMBER_COUNTER_JOIN_INDICATION = 16,
01143     EMBER_COUNTER_CHILD_REMOVED = 17,
01144
01146     EMBER_COUNTERASH_OVERFLOW_ERROR = 18,
01148     EMBER_COUNTERASH_FRAMING_ERROR = 19,
01150     EMBER_COUNTERASH_OVERRUN_ERROR = 20,
01151
01154     EMBER_COUNTER_NWK_FRAME_COUNTER_FAILURE
= 21,
01155
01158     EMBER_COUNTERAPS_FRAME_COUNTER_FAILURE
= 22,
01159
01161     EMBER_COUNTERASH_XOFF = 23,
01162
01166     EMBER_COUNTERAPS_LINK_KEY_NOTAUTHORIZED
= 24,
01167
01170     EMBER_COUNTER_NWK_DECRYPTION_FAILURE = 25
,
01171
01174     EMBER_COUNTERAPS_DECRYPTION_FAILURE = 26
,
01175
01180     EMBER_COUNTER_ALLOCATE_PACKET_BUFFER_FAILURE
= 27,
01181
01183     EMBER_COUNTER_RELAYED_UNICAST = 28,
01184
01196     EMBER_COUNTERPHY_TO_MAC_QUEUE_LIMIT_REACHED
= 29,
01197

```

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01202     EMBER_COUNTER_PACKET_VALIDATE_LIBRARY_DROPPED_COUNT
01203         = 30,
01204
01205     EMBER_COUNTER_TYPE_NWK_RETRY_OVERFLOW =
01206         31,
01207
01208     EMBER_COUNTER_PHY_CCA_FAIL_COUNT = 32,
01209
01210     EMBER_COUNTER_BROADCAST_TABLE_FULL = 33,
01211
01212     EMBER_COUNTER_TYPE_COUNT = 34,
01213
01214 };
01215
01216 #define EMBER_COUNTER_STRINGS
01217     "Mac Rx Bcast",
01218     "Mac Tx Bcast",
01219     "Mac Rx Ucast",
01220     "Mac Tx Ucast",
01221     "Mac Tx Ucast Retry",
01222     "Mac Tx Ucast Fail",
01223     "APS Rx Bcast",
01224     "APS Tx Bcast",
01225     "APS Rx Ucast",
01226     "APS Tx Ucast Success",
01227     "APS Tx Ucast Retry",
01228     "APS Tx Ucast Fail",
01229     "Route Disc Initiated",
01230     "Neighbor Added",
01231     "Neighbor Removed",
01232     "Neighbor Stale",
01233     "Join Indication",
01234     "Child Moved",
01235     "ASH Overflow",
01236     "ASH Frame Error",
01237     "ASH Overrun Error",
01238     "NWK FC Failure",
01239     "APS FC Failure",
01240     "ASH XOff",
01241     "APS Unauthorized Key",
01242     "NWK Decrypt Failures",
01243     "APS Decrypt Failures",
01244     "Packet Buffer Allocate Failures",
01245     "Relayed Ucast",
01246     "Phy to MAC queue limit reached",
01247     "Packet Validate drop count",
01248     "NWK retry overflow",
01249     "CCA Failures",
01250     "Broadcast table full",
01251     NULL
01252
01253
01254
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01260
01261
01262
01263
01264 typedef uint8_t EmberTaskId;
01265
01266
01267 typedef struct {
01268     EmberEventUnits status;
01269     EmberTaskId taskid;
01270     uint32_t timeToExecute;
01271 } EmberEventControl;
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01334 \
01335 #ifndef DOXYGEN_SHOULD_SKIP_THIS
01336 // The application does not ever need to call emberSetTxPowerMode() with the
01337 // txPowerMode parameter set to this value. This value is used internally by
01338 // the stack to indicate that the default token configuration has not been
01339 // overridden by a prior call to emberSetTxPowerMode().
01340 #define EMBER_TX_POWER_MODE_USE_TOKEN 0x8000
01341 #endif//DOXYGEN_SHOULD_SKIP_THIS
01342
01344
01349
01357 #define EMBER_PRIVATE_PROFILE_ID 0xC00E
01358
01362 #define EMBER_PRIVATE_PROFILE_ID_START 0xC00D
01363
01367 #define EMBER_PRIVATE_PROFILE_ID_END 0xC016
01368
01407 #define EMBER_BROADCAST_ALARM_CLUSTER 0x0000
01408
01445 #define EMBER_UNICAST_ALARM_CLUSTER 0x0001
01446
01462 #define EMBER_CACHED_UNICAST_ALARM_CLUSTER 0x0002
01463
01467 #define EMBER_REPORT_COUNTERS_REQUEST 0x0003
01468
01470 #define EMBER_REPORT_COUNTERS_RESPONSE 0x8003
01471
01476 #define EMBER_REPORT_AND_CLEAR_COUNTERS_REQUEST 0x0004
01477
01479 #define EMBER_REPORT_AND_CLEAR_COUNTERS_RESPONSE 0x8004
01480
01485 #define EMBER_OTA_CERTIFICATE_UPGRADE_CLUSTER 0x0005
01486
01488
01489
01492 typedef struct {
01494     uint8_t contents[EMBER_ENCRYPTION_KEY_SIZE];
01495 } EmberKeyData;
01496
01499 typedef struct {
01500     uint8_t contents[EMBER_CERTIFICATE_SIZE];
01501 } EmberCertificateData;
01502
01505 typedef struct {
01506     uint8_t contents[EMBER_PUBLIC_KEY_SIZE];
01507 } EmberPublicKeyData;
01508
01511 typedef struct {
01512     uint8_t contents[EMBER_PRIVATE_KEY_SIZE];
01513 } EmberPrivateKeyData;
01514
01517 typedef struct {
01518     uint8_t contents[EMBER_SMAC_SIZE];
01519 } EmberSmacData;
01520
01524 typedef struct {
01525     uint8_t contents[EMBER_SIGNATURE_SIZE];
01526 } EmberSignatureData;
01527
01530 typedef struct {
01531     uint8_t contents[EMBER_AES_HASH_BLOCK_SIZE];
01532 } EmberMessageDigest;
01533
01537 typedef struct {
01538     uint8_t result[EMBER_AES_HASH_BLOCK_SIZE];
01539     uint32_t length;
01540 } EmberAesMmoHashContext;
01541
01544 typedef struct {
01545     /* This is the certificate byte data. */
01546     uint8_t contents[EMBER_CERTIFICATE_283K1_SIZE];
01547 } EmberCertificate283k1Data;
01548
01551 typedef struct {
01552     uint8_t contents[EMBER_PUBLIC_KEY_283K1_SIZE];
01553 } EmberPublicKey283k1Data;
01554
01557 typedef struct {
01558     uint8_t contents[EMBER_PRIVATE_KEY_283K1_SIZE];
01559 }
```

```

01559 } EmberPrivateKey283k1Data;
0160
01655 typedef struct {
01660     uint8_t contents[EMBER_SIGNATURE_283K1_SIZE];
01661 } EmberSignature283k1Data;
01662
01674 #define EMBER_STANDARD_SECURITY_MODE 0x0000
01675
01679 #define EMBER_TRUST_CENTER_NODE_ID 0x0000
01680
01681
01685 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01686 enum EmberInitialSecurityBitmask
01687 #else
01688 typedef uint16_t EmberInitialSecurityBitmask;
01689 enum
01690 #endif
01691 {
01694     EMBER_DISTRIBUTED_TRUST_CENTER_MODE
01695         = 0x0002,
01697     EMBER_TRUST_CENTER_GLOBAL_LINK_KEY           =
01698         0x0004,
01699     EMBER_PRECONFIGURED_NETWORK_KEY_MODE
01700         = 0x0008,
01701
01702 #if !defined DOXYGEN_SHOULD_SKIP_THIS
01703 // Hidden fields used internally.
01704     EMBER_HAVE_TRUST_CENTER_UNKNOWN_KEY_TOKEN = 0x0010,
01705     EMBER_HAVE_TRUST_CENTER_LINK_KEY_TOKEN    = 0x0020,
01706     EMBER_HAVE_TRUST_CENTER_MASTER_KEY_TOKEN = 0x0030,
01707 #endif
01708
01718     EMBER_HAVE_TRUST_CENTER_EUI64               =
01719         0x0040,
01720
01725     EMBER_TRUST_CENTERUSES_HASHED_LINK_KEY
01726         = 0x0084,
01727
01731     EMBER_HAVE_PRECONFIGURED_KEY               =
01732         0x0100,
01735     EMBER_HAVE_NETWORK_KEY                   =
01736         0x0200,
01741     EMBER_GET_LINK_KEY_WHEN_JOINING
01742         = 0x0400,
01747     EMBER_REQUIRE_ENCRYPTED_KEY
01748         = 0x0800
01749 ,
01758     EMBER_NO_FRAME_COUNTER_RESET
01759         = 0x1000,
01764     EMBER_GET_PRECONFIGURED_KEY_FROM_INSTALL_CODE
01765         = 0x2000,
01766
01766 #if !defined DOXYGEN_SHOULD_SKIP_THIS
01767 // Internal data
01768     EM_SAVED_IN_TOKEN
01769     #define EM_SECURITY_INITIALIZED
01770
01771 // This is only used internally. High security is not released or supported
01772 // except for golden unit compliance.
01773     #define EMBER_HIGH_SECURITY_MODE
01774 #else
01775 /* All other bits are reserved and must be zero. */
01776 #endif
01777 };
01778
01782 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01783 enum EmberExtendedSecurityBitmask
01784 #else
01785 typedef uint16_t EmberExtendedSecurityBitmask;
01786 enum
01787 #endif
01788 {
01789 #ifndef DOXYGEN_SHOULD_SKIP_THIS
01790 // If this bit is set, we set the 'key token data' field in the Initial
01791 // Security Bitmask to 0 (No Preconfig Key token), otherwise we leave the
01792 // field as it is.
01793     EMBER_PRECONFIG_KEY_NOT_VALID
01794         = 0x0001,
01795
01796 // bits 1-3 are unused.
01797
01799     EMBER_JOINER_GLOBAL_LINK_KEY
01800         = 0x0010,

```

```

01701
01707     EMBER_EXT_NO_FRAME_COUNTER_RESET      = 0x0020,
01708
01709 // bit 6-7 reserved for future use (stored in TOKEN).
01710
01713     EMBER_NWK_LEAVE_REQUEST_NOT_ALLOWED =
01714     0x0100,
01715 #ifndef DOXYGEN_SHOULD_SKIP_THIS
01716
01720     EMBER_R18_STACK_BEHAVIOR              = 0x0200,
01721 #endif
01722
01723 // bit 10 and 11 are stored in RAM only.
01724 // bit 11 is reserved for future use.
01725 // bits 12-15 are unused.
01726 };
01727
01730 #define EMBER_NO_TRUST_CENTER_MODE    EMBER_DISTRIBUTED_TRUST_CENTER_MODE
01731
01734 #define EMBER_GLOBAL_LINK_KEY    EMBER_TRUST_CENTER_GLOBAL_LINK_KEY
01735
01736
01737 #if !defined DOXYGEN_SHOULD_SKIP_THIS
01738     #define NO_TRUST_CENTER_KEY_TOKEN        0x0000
01739     #define TRUST_CENTER_KEY_TOKEN_MASK      0x0030
01740     #define SECURITY_BIT_TOKEN_MASK          0x71FF
01741
01742     #define SECURITY_LOWER_BIT_MASK         0x000000FF // ""
01743     #define SECURITY_UPPER_BIT_MASK         0x00FF0000L // ""
01744 #endif
01745
01748 typedef struct {
01753     uint16_t bitmask;
01762     EmberKeyData preconfiguredKey;
01768     EmberKeyData networkKey;
01775     uint8_t networkKeySequenceNumber;
01783     EmberEUI64 preconfiguredTrustCenterEui64
01784 };
01785
01786
01790 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01791 enum EmberCurrentSecurityBitmask
01792 #else
01793 typedef uint16_t EmberCurrentSecurityBitmask;
01794 enum
01795 #endif
01796 {
01797 #if defined DOXYGEN_SHOULD_SKIP_THIS
01798 // These options are the same for Initial and Current Security state
01799
01802     EMBER_STANDARD_SECURITY_MODE_        =
01803     0x0000,
01805     EMBER_DISTRIBUTED_TRUST_CENTER_MODE_ =
01806     0x0002,
01808     EMBER_TRUST_CENTER_GLOBAL_LINK_KEY_ =
01809     0x0004,
01810     // Bit 3 reserved
01811 #endif
01812
01813     EMBER_HAVE_TRUST_CENTER_LINK_KEY_     =
01814     0x0010,
01816     EMBER_TRUST_CENTERUSES_HASHED_LINK_KEY_ =
01817     0x0084,
01818     // Bits 1,5,6, 8-15 reserved
01819 };
01820
01821 #if !defined DOXYGEN_SHOULD_SKIP_THIS
01822     #define INITIAL_AND_CURRENT_BITMASK      0x00FF
01823 #endif
01824
01825
01828 typedef struct {
01831     EmberCurrentSecurityBitmask bitmask;
01835     EmberEUI64 trustCenterLongAddress;
01836 } EmberCurrentSecurityState;

```

```

01837
01838
01842 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01843 enum EmberKeyStructBitmask
01844 #else
01845 typedef uint16_t EmberKeyStructBitmask;
01846 enum
01847 #endif
01848 {
01851     EMBER_KEY_HAS_SEQUENCE_NUMBER      = 0x0001,
01855     EMBER_KEY_HAS_OUTGOING_FRAME_COUNTER =
0x0002,
01859     EMBER_KEY_HAS_INCOMING_FRAME_COUNTER =
0x0004,
01863     EMBER_KEY_HAS_PARTNER_EUI64      = 0x0008,
01867     EMBER_KEY_IS_AUTHORIZED        = 0x0010,
01872     EMBER_KEY_PARTNER_IS_SLEEPY    = 0x0020,
01873
01874 };
01875
01877 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01878 enum EmberKeyType
01879 #else
01880 typedef uint8_t EmberKeyType;
01881 enum
01882 #endif
01883 {
01885     EMBER_TRUST_CENTER_LINK_KEY      = 1,
01887     EMBER_TRUST_CENTER_MASTER_KEY   = 2,
01889     EMBER_CURRENT_NETWORK_KEY      = 3,
01891     EMBER_NEXT_NETWORK_KEY         = 4,
01893     EMBER_APPLICATION_LINK_KEY     = 5,
01895     EMBER_APPLICATION_MASTER_KEY   = 6,
01896 };
01897
01901 typedef struct {
01905     EmberKeyStructBitmask bitmask;
01907     EmberKeyType type;
01909     EmberKeyData key;
01912     uint32_t outgoingFrameCounter;
01915     uint32_t incomingFrameCounter;
01918     uint8_t sequenceNumber;
01921     EmberEUI64 partnerEUI64;
01922 } EmberKeyStruct;
01923
01924
01928 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01929 enum EmberKeyStatus
01930 #else
01931 typedef uint8_t EmberKeyStatus;
01932 enum
01933 #endif
01934 {
01935     EMBER_KEY_STATUS_NONE          = 0,
01936     EMBER_APP_LINK_KEY_ESTABLISHED = 1,
01937     EMBER_APP_MASTER_KEY_ESTABLISHED = 2,
01938     EMBER_TRUST_CENTER_LINK_KEY_ESTABLISHED
= 3,
01939
01940     EMBER_KEY_ESTABLISHMENT_TIMEOUT = 4,
01941     EMBER_KEY_TABLE_FULL           = 5,
01942
01943 // These are success status values applying only to the
01944 // Trust Center answering key requests
01945     EMBER_TC_RESPONDED_TO_KEY_REQUEST = 6
01946     EMBER_TC_APP_KEY_SENT_TO_REQUESTER =
7,
01947
01948 // These are failure status values applying only to the
01949 // Trust Center answering key requests
01950     EMBER_TC_RESPONSE_TO_KEY_REQUEST_FAILED
= 8,
01951     EMBER_TC_REQUEST_KEY_TYPE_NOT_SUPPORTED
= 9,
01952     EMBER_TC_NO_LINK_KEY_FOR_REQUESTER =
10,
01953     EMBER_TC_REQUESTER_EUI64_UNKNOWN = 11
01954     EMBER_TC_RECEIVED_FIRST_APP_KEY_REQUEST

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```

        = 12,
01955 EMBER_TC_TIMEOUT_WAITING_FOR_SECOND_APP_KEY_REQUEST
        = 13,
01956 EMBER_TC_NON_MATCHING_APP_KEY_REQUEST_RECEIVED
            = 14,
01957 EMBER_TC_FAILED_TO_SEND_APP_KEYS          = 15
,
01958 EMBER_TC_FAILED_TO_STORE_APP_KEY_REQUEST
        = 16,
01959 EMBER_TC_REJECTED_APP_KEY_REQUEST          =
17,
01960 EMBER_TC_FAILED_TO_GENERATE_NEW_KEY        =
18,
01961 EMBER_TC_FAILED_TO_SEND_TC_KEY             = 19,
01962
01963 // These are generic status values for a key requester.
01964 EMBER_TRUST_CENTER_IS_PRE_R21              = 30,
01965
01966 // These are status values applying only to the Trust Center
01967 // verifying link keys.
01968 EMBER_TC_REQUESTER_VERIFY_KEY_TIMEOUT
        = 50,
01969 EMBER_TC_REQUESTER_VERIFY_KEY_FAILURE
        = 51,
01970 EMBER_TC_REQUESTER_VERIFY_KEY_SUCCESS
        = 52,
01971
01972 // These are status values applying only to the key requester
01973 // verifying link keys.
01974 EMBER_VERIFY_LINK_KEY_FAILURE              = 100,
01975 EMBER_VERIFY_LINK_KEY_SUCCESS              = 101,
01976 };
01977
01981 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01982 enum EmberLinkKeyRequestPolicy
01983 #else
01984 typedef uint8_t EmberLinkKeyRequestPolicy;
01985 enum
01986 #endif
01987 {
01988     EMBER_DENY_KEY_REQUESTS    = 0x00,
01989     EMBER_ALLOW_KEY_REQUESTS  = 0x01,
01990     EMBER_GENERATE_NEW_TC_LINK_KEY = 0x02,
01991 };
01992
01993
02001 #if defined DOXYGEN_SHOULD_SKIP_THIS
02002 uint8_t* emberKeyContents(EmberKeyData* key);
02003 #else
02004 #define emberKeyContents(key) ((key)->contents)
02005 #endif
02006
02014 #if defined DOXYGEN_SHOULD_SKIP_THIS
02015 uint8_t* emberCertificateContents(EmberCertificateData
        * cert);
02016 #else
02017 #define emberCertificateContents(cert) ((cert)->contents)
02018 #endif
02019
02027 #if defined DOXYGEN_SHOULD_SKIP_THIS
02028 uint8_t* emberPublicKeyContents(EmberPublicKeyData
        * key);
02029 #else
02030 #define emberPublicKeyContents(key) ((key)->contents)
02031 #endif
02032
02040 #if defined DOXYGEN_SHOULD_SKIP_THIS
02041 uint8_t* emberPrivateKeyContents(EmberPrivateKeyData
        * key);
02042 #else
02043 #define emberPrivateKeyContents(key) ((key)->contents)
02044 #endif
02045
02050 #if defined DOXYGEN_SHOULD_SKIP_THIS
02051 uint8_t* emberSmacContents(EmberSmacData* key);
02052 #else
02053 #define emberSmacContents(key) ((key)->contents)
02054 #endif
02055
02059 #if defined DOXYGEN_SHOULD_SKIP_THIS

```

```

02060 uint8_t* emberSignatureContents(EmberSignatureData
02061     * sig);
02062 #define emberSignatureContents(sig) ((sig)->contents)
02063 #endif
02064
02072 #if defined DOXYGEN_SHOULD_SKIP_THIS
02073 uint8_t* emberCertificate283k1Contents(
02074     EmberCertificate283k1Data* cert);
02075 #else
02076 #define emberCertificate283k1Contents(cert) ((cert)->contents)
02077 #endif
02078 #if defined DOXYGEN_SHOULD_SKIP_THIS
02079 uint8_t* emberPublicKey283k1Contents(
02080     EmberPublicKey283k1Data* key);
02081 #else
02082 #define emberPublicKey283k1Contents(key) ((key)->contents)
02083 #endif
02084
02098 #if defined DOXYGEN_SHOULD_SKIP_THIS
02099 uint8_t* emberPrivateKey283k1Contents(
02100     EmberPrivateKey283k1Data* key);
02101 #else
02102 #define emberPrivateKey283k1Contents(key) ((key)->contents)
02103 #endif
02107 #if defined DOXYGEN_SHOULD_SKIP_THIS
02108 uint8_t* ember283k1SignatureContents(
02109     Ember283k1SignatureData* sig);
02110 #else
02111 #define ember283k1SignatureContents(sig) ((sig)->contents)
02112 #endif
02113 #ifdef DOXYGEN_SHOULD_SKIP_THIS
02114 enum EmberKeySettings
02115 #else
02116 typedef uint16_t EmberKeySettings;
02117 enum
02118 #endif
02119 {
02120     EMBER_KEY_PERMISSIONS_NONE          = 0x0000,
02121     EMBER_KEY_PERMISSIONS_READING_ALLOWED =
0x0001,
02122     EMBER_KEY_PERMISSIONS_HASHING_ALLOWED =
0x0002,
02123 };
02124
02125
02129 typedef struct {
02130     EmberKeySettings keySettings;
02131 } EmberMfgSecurityStruct;
02132
02133
02138 #define EMBER_MFG_SECURITY_CONFIG_MAGIC_NUMBER 0xCABAD11FUL
02139
02140
02145 #ifdef DOXYGEN_SHOULD_SKIP_THIS
02146 enum EmberMacPassthroughType
02147 #else
02148 typedef uint8_t EmberMacPassthroughType;
02149 enum
02150 #endif
02151 {
02153     EMBER_MAC_PASSTHROUGH_NONE          = 0x00,
02155     EMBER_MAC_PASSTHROUGH_SE_INTERPAN   =
0x01,
02157     EMBER_MAC_PASSTHROUGH_EMBERNET      = 0x02,
02159     EMBER_MAC_PASSTHROUGH_EMBERNET_SOURCE =
0x04,
02161     EMBER_MAC_PASSTHROUGH_APPLICATION    =
0x08,
02163     EMBER_MAC_PASSTHROUGH_CUSTOM         = 0x10,
02164
02165 #if !defined DOXYGEN_SHOULD_SKIP_THIS
02166
02167     EM_MAC_PASSTHROUGH_INTERNAL_ZLL      = 0x80,
02168     EM_MAC_PASSTHROUGH_INTERNAL_GP       = 0x40
02169 #endif
02170 };

```

```

02171
02176 typedef uint16_t EmberMacFilterMatchData;
02177
02178 #define EMBER_MAC_FILTER_MATCH_ENABLED_MASK 0x0001
02179 #define EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_MASK 0x0003
02180 #define EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_MASK 0x000C
02181 #define EMBER_MAC_FILTER_MATCH_ON_DEST_MASK 0x0030
02182 #define EMBER_MAC_FILTER_MATCH_ON_SOURCE_MASK 0x0080
02183
02184 // Globally turn on/off this filter
02185 #define EMBER_MAC_FILTER_MATCH_ENABLED 0x0000
02186 #define EMBER_MAC_FILTER_MATCH_DISABLED 0x0001
02187
02188 // Pick either one of these
02189 #define EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_NONE 0x0000
02190 #define EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL 0x0001
02191 #define EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST 0x0002
02192
02193 // and one of these
02194 #define EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NONE 0x0000
02195 #define EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL 0x0004
02196 #define EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL 0x0008
02197
02198 // and one of these
02199 #define EMBER_MAC_FILTER_MATCH_ON_DEST_BROADCAST_SHORT 0x0000
02200 #define EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_SHORT 0x0010
02201 #define EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_LONG 0x0020
02202
02203 // and one of these
02204 #define EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG 0x0000
02205 #define EMBER_MAC_FILTER_MATCH_ON_SOURCE_SHORT 0x0080
02206 #define EMBER_MAC_FILTER_MATCH_ON_SOURCE_NONE 0x0100
02207
02208 // Last entry should set this and nothing else. No other bits will be
     examined.
02209 #define EMBER_MAC_FILTER_MATCH_END 0x8000
02210
02214 typedef struct {
02215     uint8_t filterIndexMatch;
02216     EmberMacPassthroughType legacyPassthroughType
02217     EmberMessageBuffer message;
02218 } EmberMacFilterMatchStruct;
02219
02220
02224 typedef uint8_t EmberLibraryStatus;
02225
02230
02236 #ifdef DOXYGEN_SHOULD_SKIP_THIS
02237 enum EmberZdoStatus
02238#else
02239 typedef uint8_t EmberZdoStatus;
02240 enum
02241#endif
02242 {
02243     // These values are taken from Table 48 of ZDP Errata 043238r003 and Table 2
02244     // of NWK 02130r10.
02245     EMBER_ZDP_SUCCESS = 0x00,
02246     // 0x01 to 0x7F are reserved
02247     EMBER_ZDP_INVALID_REQUEST_TYPE = 0x80,
02248     EMBER_ZDP_DEVICE_NOT_FOUND = 0x81,
02249     EMBER_ZDP_INVALID_ENDPOINT = 0x82,
02250     EMBER_ZDP_NOT_ACTIVE = 0x83,
02251     EMBER_ZDP_NOT_SUPPORTED = 0x84,
02252     EMBER_ZDP_TIMEOUT = 0x85,
02253     EMBER_ZDP_NO_MATCH = 0x86,
02254     // 0x87 is reserved
02255     EMBER_ZDP_NO_ENTRY = 0x87,
02256     EMBER_ZDP_NO_DESCRIPTOR = 0x88,
02257     EMBER_ZDP_INSUFFICIENT_SPACE = 0x89,
02258     EMBER_ZDP_NOT_PERMITTED = 0x8A,
02259     EMBER_ZDP_TABLE_FULL = 0x8B,
02260     EMBER_ZDP_NOT_AUTHORIZED = 0x8C,
02261
02262     EMBER_NWK_ALREADY_PRESENT = 0xC5,
02263     EMBER_NWK_TABLE_FULL = 0xC7,
02264     EMBER_NWK_UNKNOWN_DEVICE = 0xC8
02265 };
02266
02279

```

```

02280
02281
02282
02283
02284
02285
02286
02287
02288
02289
02290
02291
02292
02293 #define NETWORK_ADDRESS_REQUEST      0x0000
02294 #define NETWORK_ADDRESS_RESPONSE    0x8000
02295 #define IEEE_ADDRESS_REQUEST        0x0001
02296 #define IEEE_ADDRESS_RESPONSE       0x8001
02297
02298
02305 //           <node descriptor: 13>
02306 //
02307 //   Node Descriptor field is divided into subfields of bitmasks as follows:
02308 //   (Note: All lengths below are given in bits rather than bytes.)
02309 //       Logical Type:            3
02310 //       Complex Descriptor Available: 1
02311 //       User Descriptor Available: 1
02312 //       (reserved/unused):      3
02313 //       APS Flags:             3
02314 //       Frequency Band:       5
02315 //       MAC capability flags: 8
02316 //       Manufacturer Code:   16
02317 //       Maximum buffer size: 8
02318 //       Maximum incoming transfer size: 16
02319 //       Server mask:          16
02320 //       Maximum outgoing transfer size: 16
02321 //       Descriptor Capability Flags: 8
02322 //       See ZigBee document 053474, Section 2.3.2.3 for more details.
02324 #define NODE_DESCRIPTOR_REQUEST      0x0002
02325 #define NODE_DESCRIPTOR_RESPONSE     0x8002
02326
02327
02336 //       See ZigBee document 053474, Section 2.3.2.4 for more details.
02338 #define POWER_DESCRIPTOR_REQUEST    0x0003
02339 #define POWER_DESCRIPTOR_RESPONSE   0x8003
02340
02341
02355 #define SIMPLE_DESCRIPTOR_REQUEST   0x0004
02356 #define SIMPLE_DESCRIPTOR_RESPONSE   0x8004
02357
02358
02367 #define ACTIVE_ENDPOINTS_REQUEST    0x0005
02368 #define ACTIVE_ENDPOINTS_RESPONSE   0x8005
02369
02370
02382 #define MATCH_DESCRIPTORS_REQUEST   0x0006
02383 #define MATCH_DESCRIPTORS_RESPONSE  0x8006
02384
02385
02395 #define DISCOVERY_CACHE_REQUEST     0x0012
02396 #define DISCOVERY_CACHE_RESPONSE    0x8012
02397
02398
02407 #define END_DEVICE_ANNOUNCE         0x0013
02408 #define END_DEVICE_ANNOUNCE_RESPONSE 0x8013
02409
02410
02422 #define SYSTEM_SERVER_DISCOVERY_REQUEST 0x0015
02423 #define SYSTEM_SERVER_DISCOVERY_RESPONSE 0x8015
02424
02425
02438 #define PARENT_ANNOUNCE            0x001F
02439 #define PARENT_ANNOUNCE_RESPONSE   0x801F
02440
02441
02446 #ifdef DOXYGEN_SHOULD_SKIP_THIS
02447 enum EmberZdoServerMask
02448 #else
02449 typedef uint16_t EmberZdoServerMask;
02450 enum
02451 #endif

```

```

02452 {
02453     EMBER_ZDP_PRIMARY_TRUST_CENTER      =
02454     0x0001,
02455     EMBER_ZDP_SECONDARY_TRUST_CENTER    =
02456     0x0002,
02457     EMBER_ZDP_PRIMARY_BINDING_TABLE_CACHE
= 0x0004,
02458     EMBER_ZDP_SECONDARY_BINDING_TABLE_CACHE
= 0x0008,
02459     EMBER_ZDP_PRIMARY_DISCOVERY_CACHE   =
02460     0x0010,
02461     EMBER_ZDP_SECONDARY_DISCOVERY_CACHE =
02462     0x0020,
02463     EMBER_ZDP_NETWORK_MANAGER           = 0x0040,
02464     // Bits 0x0080 to 0x8000 are reserved.
02465 };
02466
02467 #define FIND_NODE_CACHE_REQUEST        0x001C
02468 #define FIND_NODE_CACHE_RESPONSE       0x801C
02469
02470 #define END_DEVICE_BIND_REQUEST         0x0020
02471 #define END_DEVICE_BIND_RESPONSE        0x8020
02472
02473 #define UNICAST_BINDING               0x03
02474 #define UNICAST_MANY_TO_ONE_BINDING    0x83
02475 #define MULTICAST_BINDING             0x01
02476
02477 #define BIND_REQUEST                  0x0021
02478 #define BIND_RESPONSE                 0x8021
02479 #define UNBIND_REQUEST                0x0022
02480 #define UNBIND_RESPONSE               0x8022
02481
02482 #define LQI_TABLE_REQUEST              0x0031
02483 #define LQI_TABLE_RESPONSE             0x8031
02484
02485 #define ROUTING_TABLE_REQUEST         0x0032
02486 #define ROUTING_TABLE_RESPONSE        0x8032
02487
02488 #define BINDING_TABLE_REQUEST          0x0033
02489 #define BINDING_TABLE_RESPONSE         0x8033
02490
02491 #define LEAVE_REQUEST                0x0034
02492 #define LEAVE_RESPONSE                0x8034
02493
02494 #define LEAVE_REQUEST_REMOVE_CHILDREN_FLAG 0x40
02495 #define LEAVE_REQUEST_REJOIN_FLAG      0x80
02496
02497 #define PERMIT_JOINING_REQUEST        0x0036
02498 #define PERMIT_JOINING_RESPONSE       0x8036
02499
02500 #define NWK_UPDATE_REQUEST            0x0038
02501 #define NWK_UPDATE_RESPONSE           0x8038
02502
02503 #define COMPLEX_DESCRIPTOR_REQUEST    0x0010
02504 #define COMPLEX_DESCRIPTOR_RESPONSE   0x8010
02505 #define USER_DESCRIPTOR_REQUEST       0x0011
02506 #define USER_DESCRIPTOR_RESPONSE      0x8011
02507 #define DISCOVERY_REGISTER_REQUEST    0x0012
02508 #define DISCOVERY_REGISTER_RESPONSE   0x8012
02509 #define USER_DESCRIPTOR_SET           0x0014
02510 #define USER_DESCRIPTOR_CONFIRM        0x8014
02511 #define NETWORK_DISCOVERY_REQUEST    0x0030
02512 #define NETWORK_DISCOVERY_RESPONSE   0x8030
02513 #define DIRECT_JOIN_REQUEST           0x0035
02514 #define DIRECT_JOIN_RESPONSE          0x8035
02515
02516 #define CLUSTER_ID_RESPONSE_MINIMUM 0x8000
02517
02518 #ifdef DOXYGEN_SHOULD_SKIP_THIS

```

```

02721 enum EmberZdoConfigurationFlags
02722 #else
02723 typedef uint8_t EmberZdoConfigurationFlags;
02724 enum
02725 #endif
02726
02727 {
02728 EMBER_APP RECEIVES SUPPORTED_ZDO_REQUESTS
02729 = 0x01,
02730 EMBER_APP HANDLES UNSUPPORTED_ZDO_REQUESTS
02731 = 0x02,
02732 EMBER_APP HANDLES ZDO_ENDPOINT_REQUESTS
02733 = 0x04,
02734 EMBER_APP HANDLES ZDO_BINDING_REQUESTS
02735 = 0x08
02736 };
02737
02738 #if defined(EMBER_TEST)
02739 #define WEAK_TEST WEAK() //__attribute__((weak))
02740 #else
02741 #define WEAK_TEST
02742 #endif
02743
02744 #endif // EMBER_TYPES_H
02745
02746 #include "stack/include/zll-types.h"
02747 #include "stack/include/rf4ce-types.h"
02748 #include "stack/include/gp-types.h"
02749
02750
02751
02752

```

## 8.79 end-device-support.h File Reference

### Data Structures

- struct [EmAfPollingState](#)

### Functions

- void [emAfPollCompleteHandler](#) (EmberStatus status, uint8\_t limit)
- void [emberAfPluginEndDeviceSupportMoveNetworkEventHandler](#) (void)

### Variables

- bool [emAfEnablePollCompletedCallback](#)
- [EmAfPollingState](#) emAfPollingStates [ ]

#### 8.79.1 Function Documentation

8.79.1.1 void [emAfPollCompleteHandler](#) ( EmberStatus *status*, uint8\_t *limit* )

8.79.1.2 void [emberAfPluginEndDeviceSupportMoveNetworkEventHandler](#) ( void )

#### 8.79.2 Variable Documentation

8.79.2.1 bool [emAfEnablePollCompletedCallback](#)

### 8.79.2.2 EmAfPollingState emAfPollingStates[]

## 8.80 end-device-support.h

```

00001 // Copyright 2013 Silicon Laboratories, Inc.
00002
00003 extern bool emAfEnablePollCompletedCallback;
00004
00005 typedef struct {
00006     uint32_t pollIntervalMs;
00007     uint8_t numPollsFailing;
00008 } EmAfPollingState;
00009 extern EmAfPollingState emAfPollingStates[];
00010 void emAfPollCompleteHandler(EmberStatus
    status, uint8_t limit);
00011
00012 void emberAfPluginEndDeviceSupportMoveNetworkEventHandler
    (void);

```

## 8.81 enums.doc File Reference

### Macros

- #define \_\_EMBER\_AF\_ENUMS\_\_

### Enums

- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_OPERATIONAL
- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_ADJUSTING
- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_ADJUSTING\_OFFSET
- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_OPENING
- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_OPENING\_OFFSET
- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_MOTOR\_OPENING
- #define EMBER\_AF\_SHADE\_CLOSURE\_STATUS\_MOTOR\_OPENING\_OFFSET
- #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_HW\_FAULT
- #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_SW\_FAULT
- #define EMBER\_AF\_ALARM\_MASK\_GENERAL\_SW\_FAULT\_OFFSET
- #define EMBER\_AF\_RESTART\_OPTIONS\_START\_MODE1
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE2
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE2\_OFFSET
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE3
- #define EMBER\_AF\_RESTART\_OPTIONS\_STARTUP\_MODE3\_OFFSET
- #define EMBER\_AF\_RESTART\_OPTIONS\_IMMEDIATE
- #define EMBER\_AF\_RESTART\_OPTIONS\_IMMEDIATE\_OFFSET
- #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_CURRENT
- #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_ALL
- #define EMBER\_AF\_RESET\_OPTIONS\_RESET\_ALL\_OFFSET
- #define EMBER\_AF\_RESET\_OPTIONS\_ERASE\_INDEX
- #define EMBER\_AF\_RESET\_OPTIONS\_ERASE\_INDEX\_OFFSET
- #define EMBER\_AF\_MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_LOW
- #define EMBER\_AF\_MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_HIGH
- #define EMBER\_AF\_MAINS\_ALARM\_MASK\_VOLTAGE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_MAINS\_ALARM\_MASK\_MAINS\_POWER\_SUPPLY\_LOST

- #define EMBER\_AF\_MAINS\_ALARM\_MASK\_MAINS\_POWER\_SUPPLY\_LOST\_OFFSET
- #define EMBER\_AF\_BATTERY\_ALARM\_MASK\_VOLTAGE\_TOO\_LOW
- #define EMBER\_AF\_DEVICE\_TEMP\_ALARM\_MASK\_TOO\_LOW
- #define EMBER\_AF\_DEVICE\_TEMP\_ALARM\_MASK\_TOO\_HIGH
- #define EMBER\_AF\_DEVICE\_TEMP\_ALARM\_MASK\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_TIME\_STATUS\_MASK\_MASTER\_CLOCK
- #define EMBER\_AF\_TIME\_STATUS\_MASK\_SYNCHRONIZED
- #define EMBER\_AF\_TIME\_STATUS\_MASK\_SYNCHRONIZED\_OFFSET
- #define EMBER\_AF\_LOCATION\_TYPE\_ABSOLUTE
- #define EMBER\_AF\_LOCATION\_TYPE2\_D
- #define EMBER\_AF\_LOCATION\_TYPE2\_D\_OFFSET
- #define EMBER\_AF\_LOCATION\_TYPE\_COORDINATE\_SYSTEM
- #define EMBER\_AF\_LOCATION\_TYPE\_COORDINATE\_SYSTEM\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_ABSOLUTE\_ONLY
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_RECALCULATE
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_RECALCULATE\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST\_RESPONSE
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_BROADCAST\_RESPONSE\_OFFSET
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_COMPACT\_RESPONSE
- #define EMBER\_AF\_GET\_LOCATION\_DATA\_FLAGS\_COMPACT\_RESPONSE\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_DEVICE\_FAULT
- #define EMBER\_AF\_PUMP\_STATUS\_SUPPLYFAULT
- #define EMBER\_AF\_PUMP\_STATUS\_SUPPLYFAULT\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_LOW
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_LOW\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_HIGH
- #define EMBER\_AF\_PUMP\_STATUS\_SPEED\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_LOCAL\_OVERRIDE
- #define EMBER\_AF\_PUMP\_STATUS\_LOCAL\_OVERRIDE\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_RUNNING
- #define EMBER\_AF\_PUMP\_STATUS\_RUNNING\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_PRESSURE
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_PRESSURE\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_FLOW
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_FLOW\_OFFSET
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_TEMPERATURE
- #define EMBER\_AF\_PUMP\_STATUS\_REMOTE\_TEMPERATURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_LOW
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SUPPLY\_VOLTAGE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_POWER\_MISSING\_PHASE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_POWER\_MISSING\_PHASE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_LOW
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_LOW\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SYSTEM\_PRESSURE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_DRY\_RUNNING
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_DRY\_RUNNING\_OFFSET

- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_MOTOR\_TEMPERATURE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_MOTOR\_TEMPERATURE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_MOTOR\_HAS\_FATAL\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_MOTOR\_HAS\_FATAL\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_TEMPERATURE\_TOO\_HIGH
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_TEMPERATURE\_TOO\_HIGH\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_BLOCKED
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_PUMP\_BLOCKED\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SENSOR\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_SENSOR\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_NON\_FATAL\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_NON\_FATAL\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_FATAL\_FAILURE
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_ELECTRONIC\_FATAL\_FAILURE\_OFFSET
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_GENERAL\_FAULT
- #define EMBER\_AF\_PUMP\_ALARM\_MASK\_GENERAL\_FAULT\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_OCCUPANCY\_OCCUPIED
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_LOCAL\_TEMP\_SENSED\_Remotely
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OUTDOOR\_TEMP\_SENSED\_Remotely
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OUTDOOR\_TEMP\_SENSED\_Remotely\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OCCUPANCY\_SENSED\_Remotely
- #define EMBER\_AF\_THERMOSTAT\_SENSING\_OCCUPANCY\_SENSED\_Remotely\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_INITIALIZATION\_FAILURE
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_HARDWARE\_FAILURE
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_HARDWARE\_FAILURE\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_SELFCALIBRATION\_FAILURE
- #define EMBER\_AF\_THERMOSTAT\_ALARM\_MASK\_SELFCALIBRATION\_FAILURE\_OFFSET
- #define EMBER\_AF\_BALLAST\_STATUS\_NON\_OPERATIONAL
- #define EMBER\_AF\_BALLAST\_STATUS\_LAMP\_NOT\_IN\_SOCKET
- #define EMBER\_AF\_BALLAST\_STATUS\_LAMP\_NOT\_IN\_SOCKET\_OFFSET
- #define EMBER\_AF\_LAMP\_ALARM\_MODE\_LAMP\_BURN\_HOURS
- #define EMBER\_AF\_OCCUPANCY\_OCCUPIED
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM1
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM2
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_ALARM2\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TAMPER
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TAMPER\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_SUPERVISION\_REPORTS
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_SUPERVISION\_REPORTS\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_RESTORE\_REPORTS
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_RESTORE\_REPORTS\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TROUBLE

- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TROUBLE\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_A\_C
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_A\_C\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TEST
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_TEST\_OFFSET
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_DEFECT
- #define EMBER\_AF\_IAS\_ZONE\_STATUS\_BATTERY\_DEFECT\_OFFSET
- #define EMBER\_AF\_WARNING\_INFO\_MODE
- #define EMBER\_AF\_WARNING\_INFO\_MODE\_OFFSET
- #define EMBER\_AF\_WARNING\_INFO\_STROBE
- #define EMBER\_AF\_WARNING\_INFO\_STROBE\_OFFSET
- #define EMBER\_AF\_SQUAWK\_INFO\_MODE
- #define EMBER\_AF\_SQUAWK\_INFO\_MODE\_OFFSET
- #define EMBER\_AF\_SQUAWK\_INFO\_STROBE
- #define EMBER\_AF\_SQUAWK\_INFO\_STROBE\_OFFSET
- #define EMBER\_AF\_SQUAWK\_INFO\_LEVEL
- #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_RIGHT\_OF\_THE\_DECIMAL\_POINT
- #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_LEFT\_OF\_THE\_DECIMAL\_POINT
- #define EMBER\_AF\_ENERGY\_FORMATTING\_NUMBER\_OF\_DIGITS\_TO\_THE\_LEFT\_OF\_THE\_DECIMAL\_POINT\_OFFSET
- #define EMBER\_AF\_ENERGY\_FORMATTING\_SUPPRESS.LEADING\_ZEROS
- #define EMBER\_AF\_ENERGY\_FORMATTING\_SUPPRESS.LEADING\_ZEROS\_OFFSET
- #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_REMOTE\_ENABLE\_FLAGS
- #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_DEVICE\_STATUS2\_STRUCTURE
- #define EMBER\_AF\_REMOTE\_ENABLE\_FLAGS\_AND\_DEVICE\_STATUS2\_DEVICE\_STATUS2\_STRUCTURE\_OFFSET
- #define EMBER\_AF\_START\_TIME\_MINUTES
- #define EMBER\_AF\_START\_TIME\_TIME\_ENCODING
- #define EMBER\_AF\_START\_TIME\_TIME\_ENCODING\_OFFSET
- #define EMBER\_AF\_START\_TIME\_HOURS
- #define EMBER\_AF\_START\_TIME\_HOURS\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SUNDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_MONDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_MONDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_TUESDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_TUESDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_WEDNESDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_WEDNESDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_THURSDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_THURSDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_FRIDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_FRIDAY\_OFFSET
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SATURDAY
- #define EMBER\_AF\_DOOR\_LOCK\_DAY\_OF\_WEEK\_SATURDAY\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_STATE\_ON

- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_SECOND\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_HEAT\_SECOND\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_SECOND\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_COOL\_SECOND\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_SECOND\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_SECOND\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_THIRD\_STAGE\_STATE\_ON
- #define EMBER\_AF\_THERMOSTAT\_RUNNING\_STATE\_FAN\_THIRD\_STAGE\_STATE\_ON\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_SUNDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_MONDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_MONDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_TUESDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_TUESDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_WEDNESDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_WEDNESDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_THURSDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_THURSDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_FRIDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_FRIDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_SATURDAY
- #define EMBER\_AF\_DAY\_OF\_WEEK\_SATURDAY\_OFFSET
- #define EMBER\_AF\_DAY\_OF\_WEEK\_AWAY\_OR\_VACATION
- #define EMBER\_AF\_DAY\_OF\_WEEK\_AWAY\_OR\_VACATION\_OFFSET
- #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_HEAT\_SETPOINT\_FIELD\_PRESENT
- #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_COOL\_SETPOINT\_FIELD\_PRESENT
- #define EMBER\_AF\_MODE\_FOR\_SEQUENCE\_COOL\_SETPOINT\_FIELD\_PRESENT\_OFFSET
- #define EMBER\_AF\_ALERT\_STRUCTURE\_ALERT\_ID
- #define EMBER\_AF\_ALERT\_STRUCTURE\_CATEGORY
- #define EMBER\_AF\_ALERT\_STRUCTURE\_CATEGORY\_OFFSET
- #define EMBER\_AF\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY
- #define EMBER\_AF\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_OFFSET
- #define EMBER\_AF\_ALERT\_COUNT\_NUMBER\_OF\_ALERTS
- #define EMBER\_AF\_ALERT\_COUNT\_TYPE\_OF\_ALERT
- #define EMBER\_AF\_ALERT\_COUNT\_TYPE\_OF\_ALERT\_OFFSET
- #define EMBER\_AF\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE
- #define EMBER\_AF\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL
- #define EMBER\_AF\_BLOCK\_PERIOD\_DURATION\_TYPE\_CONTROL\_OFFSET
- #define EMBER\_AF\_CONVERSION\_FACTOR\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_CONVERSION\_FACTOR\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET

- #define EMBER\_AF\_CALORIFIC\_VALUE\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_CALORIFIC\_VALUE\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_C\_O2\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_C\_O2\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_AND\_PRICE\_TIER\_PRICE\_TIER
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_AND\_PRICE\_TIER\_TRAILING\_DIGIT
- #define EMBER\_AF\_PRICE\_TRAILING\_DIGIT\_AND\_PRICE\_TIER\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_NUMBER\_OF\_PRICE\_TIERS\_AND\_REGISTER\_TIER\_REGISTER\_TIER
- #define EMBER\_AF\_PRICE\_NUMBER\_OF\_PRICE\_TIERS\_AND\_REGISTER\_TIER\_NUMBER\_OF\_PRICE\_TIERS
- #define EMBER\_AF\_PRICE\_NUMBER\_OF\_PRICE\_TIERS\_AND\_REGISTER\_TIER\_NUMBER\_OF\_PRICE\_TIERS\_OFFSET
- #define EMBER\_AF\_ALTERNATE\_COST\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_ALTERNATE\_COST\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_PRICE\_CONTROL\_MASK\_PRICE\_ACKNOWLEDGEMENT\_REQUIRED
- #define EMBER\_AF\_PRICE\_CONTROL\_MASK\_TOTAL\_TIERS\_EXCEEDS15
- #define EMBER\_AF\_PRICE\_CONTROL\_MASK\_TOTAL\_TIERS\_EXCEEDS15\_OFFSET
- #define EMBER\_AF\_BLOCK\_PERIOD\_CONTROL\_PRICE\_ACKNOWLEDGEMENT\_REQUIREMENT
- #define EMBER\_AF\_BLOCK\_PERIOD\_CONTROL\_REPEAT\_BLOCK
- #define EMBER\_AF\_BLOCK\_PERIOD\_CONTROL\_REPEAT\_BLOCK\_OFFSET
- #define EMBER\_AF\_TARIFF\_TYPE\_CHARGING\_SCHEME\_TARIFF\_TYPE
- #define EMBER\_AF\_TARIFF\_TYPE\_CHARGING\_SCHEME\_TARIFF\_CHARGING\_SCHEME
- #define EMBER\_AF\_TARIFF\_TYPE\_CHARGING\_SCHEME\_TARIFF\_CHARGING\_SCHEME\_OFFSET
- #define EMBER\_AF\_PRICE\_MATRIX\_SUB\_PAYLOAD\_CONTROL\_TOU\_BASED
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_SUB\_PAYLOAD\_CONTROL\_APPLY\_TO\_ALL\_TOU\_TIERS\_OR\_WHEN\_BLOCK\_ONLY\_CHARGING
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_DURATION
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_UNITS
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_UNITS\_OFFSET
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_TYPE\_TIMEBASE
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_TYPE\_CONTROL
- #define EMBER\_AF\_BILLING\_PERIOD\_DURATION\_TYPE\_CONTROL\_OFFSET
- #define EMBER\_AF\_BILL\_TRAILING\_DIGIT\_TRAILING\_DIGIT
- #define EMBER\_AF\_BILL\_TRAILING\_DIGIT\_TRAILING\_DIGIT\_OFFSET
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CLEAR\_BILLING\_INFO
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_BILLING\_INFO\_USING\_NEW\_CURRENCY
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_BILLING\_INFO\_USING\_NEW\_CURRENCY\_OFFSET
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CLEAR\_OLD\_CONSUMPTION\_DATA
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CLEAR\_OLD\_CONSUMPTION\_DATA\_OFFSET

- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_OLD\_CONSUMPTION\_DATA\_USING\_NEW\_CURRENCY
- #define EMBER\_AF\_CURRENCY\_CHANGE\_CONTROL\_CONVERT\_OLD\_CONSUMPTION\_DATA\_USING\_NEW\_CURRENCY\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER1
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER1\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER2
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER2\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER3
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER3\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER4
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER4\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER5
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER5\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER6
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER6\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER7
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER7\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER8
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER8\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER9
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER9\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER10
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER10\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER11
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER11\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER12
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER12\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER13
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER13\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER14
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER14\_OFFSET
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER15
- #define EMBER\_AF\_BLOCK\_THRESHOLD\_MASK\_TIER15\_OFFSET
- #define EMBER\_AF\_AMI\_COMMAND\_OPTIONS\_REQUEST\_RX\_ON\_WHEN\_IDLE
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_HVAC\_COMPRESSOR\_OR\_FURNACE
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_STRIP\_HEAT\_BASEBOARD\_HEAT
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_STRIP\_HEAT\_BASEBOARD\_HEAT\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_WATER\_HEATER
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_WATER\_HEATER\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_POOL\_PUMP\_SPA\_JACUZZI
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_POOL\_PUMP\_SPA\_JACUZZI\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SMART\_APPLIANCES
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SMART\_APPLIANCES\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_IRRIGATION\_PUMP
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_IRRIGATION\_PUMP\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_MANAGED\_C\_AND\_I\_LOADS
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_MANAGED\_C\_AND\_I\_LOADS\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SIMPLE\_MISC\_LOADS
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_SIMPLE\_MISC\_LOADS\_OFFSET

- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_EXTERIOR\_LIGHTING
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_EXTERIOR\_LIGHTING\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_INTERIOR\_LIGHTING
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_INTERIOR\_LIGHTING\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_ELECTRIC\_VEHICLE
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_ELECTRIC\_VEHICLE\_OFFSET
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_GENERATION\_SYSTEMS
- #define EMBER\_AF\_AMI\_DEVICE\_CLASS\_GENERATION\_SYSTEMS\_OFFSET
- #define EMBER\_AF\_AMI\_EVENT\_CONTROL\_RANDOMIZED\_START\_TIME
- #define EMBER\_AF\_AMI\_EVENT\_CONTROL\_RANDOMIZED\_END\_TIME
- #define EMBER\_AF\_AMI\_EVENT\_CONTROL\_RANDOMIZED\_END\_TIME\_OFFSET
- #define EMBER\_AF\_AMI\_CANCEL\_CONTROL\_TERMINATE\_WITH\_RANDOMIZATION
- #define EMBER\_AF\_AMI\_METER\_STATUS\_CHECK\_METER
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LOW\_BATTERY
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_TAMPER\_DETECT
- #define EMBER\_AF\_AMI\_METER\_STATUS\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_FAILURE
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_FAILURE\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_QUALITY
- #define EMBER\_AF\_AMI\_METER\_STATUS\_POWER\_QUALITY\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LEAK\_DETECT
- #define EMBER\_AF\_AMI\_METER\_STATUS\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_SERVICE\_DISCONNECT\_OPEN
- #define EMBER\_AF\_AMI\_METER\_STATUS\_SERVICE\_DISCONNECT\_OPEN\_OFFSET
- #define EMBER\_AF\_AMI\_METER\_STATUS\_RESERVED
- #define EMBER\_AF\_AMI\_METER\_STATUS\_RESERVED\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_FAILURE
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_QUALITY
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_POWER\_QUALITY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_SERVICE\_DISCONNECT\_OPEN
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_SERVICE\_DISCONNECT\_OPEN\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_RESERVED
- #define EMBER\_AF\_METERING\_STATUS\_ELECTRICITY\_RESERVED\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_NOT\_DEFINED
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_NOT\_DEFINED\_OFFSET

- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_PRESSURE
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LOW\_PRESSURE\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_SERVICE\_DISCONNECT
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_SERVICE\_DISCONNECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_REVERSE\_FLOW
- #define EMBER\_AF\_METERING\_STATUS\_GAS\_REVERSE\_FLOW\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_PIPE\_EMPTY
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_PIPE\_EMPTY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_PRESSURE
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LOW\_PRESSURE\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_SERVICE\_DISCONNECT
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_SERVICE\_DISCONNECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_REVERSE\_FLOW
- #define EMBER\_AF\_METERING\_STATUS\_WATER\_REVERSE\_FLOW\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_CHECK\_METER
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LOW\_BATTERY
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LOW\_BATTERY\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TAMPER\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TAMPER\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TEMPERATURE\_SENSOR
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_TEMPERATURE\_SENSOR\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_BURST\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_BURST\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LEAK\_DETECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_LEAK\_DETECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_SERVICE\_DISCONNECT
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_SERVICE\_DISCONNECT\_OFFSET
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_FLOW\_SENSOR
- #define EMBER\_AF\_METERING\_STATUS\_HEAT\_AND\_COOLING\_FLOW\_SENSOR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_METER\_COVER\_REMOVED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_STRONG\_MAGNETIC\_FIELD\_DETECTED

- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_STRONG\_MAGNETIC\_FIELD\_DETECTED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_BATTERY\_FAILURE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_BATTERY\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_PROGRAM\_MEMORY\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_PROGRAM\_MEMORY\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_RAM\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_RAM\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_NV\_MEMORY\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_NV\_MEMORY\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SYSTEM\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SYSTEM\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_WATCHDOG\_ERROR
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_WATCHDOG\_ERROR\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_DISCONNECT\_FAILURE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_DISCONNECT\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_CONNECT\_FAILURE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_SUPPLY\_CONNECT\_FAILURE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SW\_CHANGED\_TAMPERED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MEASUREMENT\_SW\_CHANGED\_TAMPERED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_CLOCK\_INVALID
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_CLOCK\_INVALID\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_TEMPERATURE\_EXCEEDED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_TEMPERATURE\_EXCEEDED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MOISTURE\_DETECTED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_MOISTURE\_DETECTED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_BATTERY\_COVER\_REMOVED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_BATTERY\_COVER\_REMOVED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_TILT\_TAMPER
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_TILT\_TAMPER\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_EXCESS\_FLOW
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_GAS\_METER\_EXCESS\_FLOW\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_LIMIT\_THRESHOLD\_EXCEEDED
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_LIMIT\_THRESHOLD\_EXCEEDED\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_UNDER\_VOLTAGE

- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_UNDER\_VOLTAGE\_OFFSET
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_OVER\_VOLTAGE
- #define EMBER\_AF\_METERING\_EXTENDED\_STATUS\_ELECTRICITY\_METER\_OVER\_VOLTAGE\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NEW\_OTA\_FIRMWARE
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CBKE\_UPDATE\_REQUEST
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CBKE\_UPDATE\_REQUEST\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TIME\_SYNC
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TIME\_SYNC\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_HAN
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_HAN\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_WAN
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_STAY\_AWAKE\_REQUEST\_WAN\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_METERING\_DATA\_ATTRIBUTE\_SET\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_HISTORICAL\_PREPAYMENT\_DATA\_ATTRIBUTE\_SET\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_BASIC\_CLUSTER\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_METERING\_CLUSTER\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_PUSH\_ALL\_STATIC\_DATA\_PREPAYMENT\_CLUSTER\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NETWORK\_KEY\_ACTIVE
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_NETWORK\_KEY\_ACTIVE\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_DISPLAY\_MESSAGE
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_DISPLAY\_MESSAGE\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CANCEL\_ALL\_MESSAGES
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CANCEL\_ALL\_MESSAGES\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CHANGE\_SUPPLY
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_CHANGE\_SUPPLY\_OFFSET

- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_LOCAL\_CHANGE\_SUPPLY
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_LOCAL\_CHANGE\_SUPPLY\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_SET\_UNCONTROLLED\_FLOW\_THRESHOLD\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TUNNEL\_MESSAGE\_PENDING
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_TUNNEL\_MESSAGE\_PENDING\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SNAPSHOT
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SNAPSHOT\_OFFSET
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SAMPLED\_DATA
- #define EMBER\_AF\_FUNCTIONAL\_NOTIFICATION\_FLAGS\_GET\_SAMPLED\_DATA\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_GENERAL
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BLOCK\_PERIOD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_BLOCK\_PERIOD\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_BLOCK\_THRESHOLDS
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_BLOCK\_THRESHOLDS\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CV
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CV\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CF
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CF\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CALENDAR
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_CALENDAR\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CRITICAL\_PEAK\_PRICING
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CRITICAL\_PEAK\_PRICING\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_RESOLVE\_PERIOD
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_END\_OF\_RESOLVE\_PERIOD\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_MODE
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_CHANGE\_OF\_MODE\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_DEBT\_PAYMENT
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_DEBT\_PAYMENT\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_SCHEDULED\_SNAPSHOT
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_SCHEDULED\_SNAPSHOT\_OFFSET
- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_OTA\_FIRMWARE\_DOWNLOAD

- #define EMBER\_AF\_SNAPSHOT\_CAUSE\_OTA\_FIRMWARE\_DOWNLOAD\_OFFSET
- #define EMBER\_AF\_SUPPLY\_CONTROL\_BITS\_ACKNOWLEDGE\_REQUIRED
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_TRANS\_MECHANISM
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_URGENCY
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_URGENCY\_OFFSET
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_ENHANCED\_CONFIRMATION\_REQUEST
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_ENHANCED\_CONFIRMATION\_REQUEST\_OFFSET
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION
- #define EMBER\_AF\_MESSAGING\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION\_OFFSET
- #define EMBER\_AF\_MESSAGING\_EXTENDED\_CONTROL\_MASK\_MESSAGE\_CONFIRMATION\_STATUS
- #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_NO\_RETURNED
- #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_YES\_RETURNED
- #define EMBER\_AF\_MESSAGING\_CONFIRMATION\_CONTROL\_YES\_RETURNED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_DISCONNECTED\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_PREPAYMENT\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_PREPAYMENT\_ENABLED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_MANAGEMENT\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_MANAGEMENT\_ENABLED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_DISPLAY\_ENABLED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CREDIT\_DISPLAY\_ENABLED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_ACCOUNT\_BASE
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_ACCOUNT\_BASE\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CONTACTOR\_FITTED
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_CONTACTOR\_FITTED\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_STANDING\_CHARGE\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_STANDING\_CHARGE\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_STANDING\_CHARGE\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_STANDING\_CHARGE\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_DEBT\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_DEBT\_CONFIGURATION\_OFFSET
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_DEBT\_CONFIGURATION
- #define EMBER\_AF\_PAYMENT\_CONTROL\_CONFIGURATION\_EMERGENCY\_DEBT\_CONFIGURATION\_OFFSET

- #define EMBER\_AF\_CREDIT\_STATUS\_CREDIT\_OK
- #define EMBER\_AF\_CREDIT\_STATUS\_LOW\_CREDIT
- #define EMBER\_AF\_CREDIT\_STATUS\_LOW\_CREDIT\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_ENABLED
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_ENABLED\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_AVAILABLE
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_AVAILABLE\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_SELECTED
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_SELECTED\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_IN\_USE
- #define EMBER\_AF\_CREDIT\_STATUS\_EMERGENCY\_CREDIT\_IN\_USE\_OFFSET
- #define EMBER\_AF\_CREDIT\_STATUS\_CREDIT\_EXHAUSTED
- #define EMBER\_AF\_CREDIT\_STATUS\_CREDIT\_EXHAUSTED\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_LOW\_CREDIT\_WARNING
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ERROR
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ERROR\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ALREADY\_USED
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_ALREADY\_USED\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_INVALID
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_TOP\_UP\_CODE\_INVALID\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_IN\_USE
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_IN\_USE\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_EC\_AVAILABLE
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_EC\_AVAILABLE\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_UNAUTHORISED\_ENERGY\_USE
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_UNAUTHORISED\_ENERGY\_USE\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_CREDIT
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_CREDIT\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_TAMPER
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_TAMPER\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_HES
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_DISCONNECTED\_SUPPLY\_DUE\_TO\_HES\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_PHYSICAL\_ATTACK
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_PHYSICAL\_ATTACK\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_ELECTRONIC\_ATTACK
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_ELECTRONIC\_ATTACK\_OFFSET

- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_A
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_A\_OFFSET
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_B
- #define EMBER\_AF\_PREPAYMENT\_ALARM\_STATUS\_MANUFACTURE\_ALARM\_CODE\_B\_OFFSET
- #define EMBER\_AF\_ORIGINATOR\_ID\_SUPPLY\_CONTROL\_BITS\_ACKNOWLEDGE\_REQUIRED
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_GENERAL
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TARIFF\_INFORMATION\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TENANCY
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_TENANCY\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_SUPPLIER
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_SUPPLIER\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_METER\_MODE
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_CHANGE\_OF\_METER\_MODE\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_TOP\_UP\_ADDITION
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_TOP\_UP\_ADDITION\_OFFSET
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_DEBT\_CREDIT\_ADDITION
- #define EMBER\_AF\_PREPAY\_SNAPSHOT\_PAYLOAD\_CAUSE\_DEBT\_CREDIT\_ADDITION\_OFFSET
- #define EMBER\_AF\_FRIENDLY\_CREDIT\_FRIENDLY\_CREDIT\_ENABLED
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_RELAY\_OPEN\_OR\_CONSUMPTION\_INTERRUPTED
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_EVENT\_IN\_PROGRESS
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_EVENT\_IN\_PROGRESS\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_POWER\_STABILIZING
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_POWER\_STABILIZING\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_OTHER\_LOAD\_REDUCTION
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_OTHER\_LOAD\_REDUCTION\_OFFSET
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_CURRENT\_FLOW\_OR\_CONSUMING\_COMMODITY
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_CURRENT\_FLOW\_OR\_CONSUMING\_COMMODITY\_OFFSET

- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_LOAD\_CALL
- #define EMBER\_AF\_LOAD\_CONTROL\_STATE\_LOAD\_CALL\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_START\_TIME
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_DURATION
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_RANDOMIZED\_DURATION\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EXTENDED\_BITS\_PRESENT
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EXTENDED\_BITS\_PRESENT\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EVENT\_ACTIVE
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_EVENT\_ACTIVE\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_DEVICE\_PARTICIPATING\_IN\_EVENT
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_DEVICE\_PARTICIPATING\_IN\_EVENT\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_REDUCING\_LOAD
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_REDUCING\_LOAD\_OFFSET
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_ON\_AT\_END\_OF\_EVENT
- #define EMBER\_AF\_CURRENT\_EVENT\_STATUS\_ON\_AT\_END\_OF\_EVENT\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH1
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH2
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH2\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH3
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH3\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH4
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH4\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH5
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH5\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH6
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH6\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH7
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH7\_OFFSET
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH8
- #define EMBER\_AF\_AUXILIARY\_LOAD\_SWITCH\_STATE\_AUXILIARY\_SWITCH8\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_PRE\_SNAPSHOTS
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_POST\_SNAPSHOTS
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_POST\_SNAPSHOTS\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_CREDIT\_REGISTER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_CREDIT\_REGISTER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_DEBIT\_REGISTER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_DEBIT\_REGISTER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_BILLING\_PERIOD
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_RESET\_BILLING\_PERIOD\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TARIFF\_PLAN

- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TARIFF\_PLAN\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_STANDING\_CHARGE
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_STANDING\_CHARGE\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_BLOCK\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_BLOCK\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_HISTORICAL\_LOAD\_PROFILE\_INFORMATION\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_CONSUMER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_CONSUMER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_SUPPLIER
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_IHD\_DATA\_SUPPLIER\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_METER\_CONNECTOR\_STATE\_ON\_OFF\_ARMED
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_METER\_CONNECTOR\_STATE\_ON\_OFF\_ARMED\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TRANSACTION\_LOG
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_TRANSACTION\_LOG\_OFFSET
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_PREPAYMENT\_LOG
- #define EMBER\_AF\_PROPOSED\_CHANGE\_CONTROL\_CLEAR\_PREPAYMENT\_LOG\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_LOG\_ACTION
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_W\_A\_N
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_W\_A\_N\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_H\_A\_N
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_PUSH\_EVENT\_TO\_H\_A\_N\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_ZIG\_BEE
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_ZIG\_BEE\_OFFSET
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_PHYSICAL
- #define EMBER\_AF\_EVENT\_CONFIGURATION\_RAISE\_ALARM\_PHYSICAL\_OFFSET
- #define EMBER\_AF\_EVENT\_CONTROL\_LOG\_ID\_LOG\_ID
- #define EMBER\_AF\_EVENT\_CONTROL\_LOG\_ID\_EVENT\_CONTROL
- #define EMBER\_AF\_EVENT\_CONTROL\_LOG\_ID\_EVENT\_CONTROL\_OFFSET
- #define EMBER\_AF\_EVENT\_ACTION\_CONTROL\_REPORT\_EVENT\_TO\_H\_A\_N\_DEVICES
- #define EMBER\_AF\_EVENT\_ACTION\_CONTROL\_REPORT\_EVENT\_TO\_W\_A\_N
- #define EMBER\_AF\_EVENT\_ACTION\_CONTROL\_REPORT\_EVENT\_TO\_W\_A\_N\_OFFSET
- #define EMBER\_AF\_NUMBER\_OF\_EVENTS\_LOG\_PAYLOAD\_CONTROL\_LOG\_PAYLOAD\_CONTROL
- #define EMBER\_AF\_NUMBER\_OF\_EVENTS\_LOG\_PAYLOAD\_CONTROL\_NUMBER\_OF\_EVENTS
- #define EMBER\_AF\_NUMBER\_OF\_EVENTS\_LOG\_PAYLOAD\_CONTROL\_NUMBER\_OF\_EVENTS\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_ALL\_LOGS\_CLEARED

- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_TAMPER\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_TAMPER\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_FAULT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_FAULT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_GENERAL\_EVENT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_GENERAL\_EVENT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_SECURITY\_EVENT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_SECURITY\_EVENT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_NETWORK\_EVENT\_LOG\_CLEARED
- #define EMBER\_AF\_CLEARED\_EVENTS\_LOGS\_NETWORK\_EVENT\_LOG\_CLEARED\_OFFSET
- #define EMBER\_AF\_SCENES\_COPY\_MODE\_COPY\_ALL\_SCENES
- #define EMBER\_AF\_ON\_OFF\_CONTROL\_ACCEPT\_ONLY\_WHEN\_ON
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_HUE\_SATURATION\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_ENHANCED\_HUE\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_ENHANCED\_HUE\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_LOOP\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_LOOP\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_X\_Y\_ATTRIBUTES\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_X\_Y\_ATTRIBUTES\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_TEMPERATURE\_SUPPORTED
- #define EMBER\_AF\_COLOR\_CAPABILITIES\_COLOR\_TEMPERATURE\_SUPPORTED\_OFFSET
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_ACTION
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_DIRECTION
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_DIRECTION\_OFFSET
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_TIME
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_TIME\_OFFSET
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_START\_HUE
- #define EMBER\_AF\_COLOR\_LOOP\_UPDATE\_FLAGS\_UPDATE\_START\_HUE\_OFFSET
- #define EMBER\_AF\_ZIGBEE\_INFORMATION\_LOGICAL\_TYPE
- #define EMBER\_AF\_ZIGBEE\_INFORMATION\_RX\_ON\_WHEN\_IDLE
- #define EMBER\_AF\_ZIGBEE\_INFORMATION\_RX\_ON\_WHEN\_IDLE\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_FACTORY\_NEW
- #define EMBER\_AF\_ZLL\_INFORMATION\_ADDRESS\_ASSIGNMENT
- #define EMBER\_AF\_ZLL\_INFORMATION\_ADDRESS\_ASSIGNMENT\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_INITIATOR
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_INITIATOR\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_PRIORITY\_REQUEST
- #define EMBER\_AF\_ZLL\_INFORMATION\_TOUCH\_LINK\_PRIORITY\_REQUEST\_OFFSET
- #define EMBER\_AF\_ZLL\_INFORMATION\_PROFILE\_INTEROP
- #define EMBER\_AF\_ZLL\_INFORMATION\_PROFILE\_INTEROP\_OFFSET
- #define EMBER\_AF\_KEY\_BITMASK\_DEVELOPMENT
- #define EMBER\_AF\_KEY\_BITMASK\_MASTER
- #define EMBER\_AF\_KEY\_BITMASK\_MASTER\_OFFSET
- #define EMBER\_AF\_KEY\_BITMASK\_CERTIFICATION
- #define EMBER\_AF\_KEY\_BITMASK\_CERTIFICATION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_APPLICATION\_ID

- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_ACTIVE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_ACTIVE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_VALID
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ENTRY\_VALID\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SEQUENCE\_NUMBER\_CAP
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SEQUENCE\_NUMBER\_CAP\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_LIGHTWEIGHT\_UNICAST\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_LIGHTWEIGHT\_UNICAST\_GPS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_DERIVED\_GROUP\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_DERIVED\_GROUP\_GPS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_COMMISIONED\_GROUP\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_COMMISIONED\_GROUP\_GPS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FIRST\_TO\_FORWARD
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FIRST\_TO\_FORWARD\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_IN\_RANGE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_IN\_RANGE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_GPD\_FIXED
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_GPD\_FIXED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_HAS\_ALL\_UNICAST\_ROUTES
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_HAS\_ALL\_UNICAST\_ROUTES\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ASSIGNED\_ALIAS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_ASSIGNED\_ALIAS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SECURITY\_USE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_SECURITY\_USE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_EXTENSION
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_EXTENSION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FULL\_UNICAST\_GPS
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_OPTIONS\_FULL\_UNICAST\_GPS\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_ENTRY\_SECURITY\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_MAC\_SEQ\_NUM\_CAP
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RX\_ON\_CAP
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RX\_ON\_CAP\_OFFSET

- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_APPLICATION\_INFORMATION\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_APPLICATION\_INFORMATION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_PAN\_ID\_REQUEST
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_PAN\_ID\_REQUEST\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_GP\_SECURITY\_KEY\_REQUEST
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_GP\_SECURITY\_KEY\_REQUEST\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_FIXED\_LOCATION
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_FIXED\_LOCATION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_EXTENDED\_OPTIONS\_FIELD
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_OPTIONS\_EXTENDED\_OPTIONS\_FIELD\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_SECURITY\_LEVEL\_CAPABILITIES
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_KEY\_TYPE
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_ENCRYPTION
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_KEY\_ENCRYPTION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_OUTGOING\_COUNTER\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_EXTENDED\_OPTIONS\_GPD\_OUTGOING\_COUNTER\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_PAN\_ID\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPD\_SECURITY\_KEY\_PRESENT
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPD\_SECURITY\_KEY\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPDKEY\_ENCRYPTION
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_GPDKEY\_ENCRYPTION\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_KEY\_TYPE
- #define EMBER\_AF\_GP\_GPD\_COMMISSIONING\_REPLY\_OPTIONS\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_UNICAST
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_ALSO\_UNICAST\_OFFSET

- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION ALSO\_DERIVED\_GROUP
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION ALSO\_DERIVED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION ALSO\_COMMISSED\_GROUP
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION ALSO\_COMMISSED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_GPTXQUEUE\_FULL
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_GPTXQUEUE\_FULL\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_NOTIFICATION\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_UNICAST\_SINKS
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_UNICAST\_SINKS\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_DERIVED\_GROUPCAST\_SINKS
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_DERIVED\_GROUPCAST\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_COMMISSED\_GROUPCAST\_SINKS
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_COMMISSED\_GROUPCAST\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_FRAME\_COUNTER
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_FRAME\_COUNTER\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_KEY
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_REQUEST\_GPD\_SECURITY\_KEY\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_SEARCH\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION ALSO\_DERIVED\_GROUP
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION ALSO\_DERIVED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION ALSO\_COMMISSED\_GROUP
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION ALSO\_COMMISSED\_GROUP\_OFFSET
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_TUNNELING\_STOP\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSED\_NOTIFICATION\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_COMMISSED\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX

- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RX\_AFTER\_TX\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_PROCESSING\_FAILED
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_SECURITY\_PROCESSING\_FAILED\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_BIDIRECTIONAL\_CAPABILITY\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_PROXY\_INFO\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_COMMISSIONING\_NOTIFICATION\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_ACTION
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_SECURITY
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_SECURITY\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_PAIRING
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_GPM\_IN\_PAIRING\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_PROXIES
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_INOLVE\_PROXIES\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_SINK\_COMMISSIONING\_MODE\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_ACTION
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_ACTION\_OFFSET
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_NUMBER\_OF\_TRANSLATIONS
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_NUMBER\_OF\_TRANSLATIONS\_OFFSET
- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_RESERVED

- #define EMBER\_AF\_GP\_TRANSLATION\_TABLE\_UPDATE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_ACTION
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_SEND\_GP\_PAIRING
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_SEND\_GP\_PAIRING\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_ACTIONS\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SEQUENCE\_NUMBER\_CAPABILITIES
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SEQUENCE\_NUMBER\_CAPABILITIES\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RX\_ON\_CAPABILITY
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RX\_ON\_CAPABILITY\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_FIXED\_LOCATION
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_FIXED\_LOCATION\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_ASSIGNED\_ALIAS
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_ASSIGNED\_ALIAS\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SECURITY\_USE
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_SECURITY\_USE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_INFORMATION\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_APPLICATION\_INFORMATION\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_CONFIGURATION\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MANUFACTURE\_ID\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MODEL\_ID\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_MODEL\_ID\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_GPD\_COMMANDS\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_GPD\_COMMANDS\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_CLUSTER\_LIST\_PRESENT
- #define EMBER\_AF\_GP\_APPLICATION\_INFORMATION\_CLUSTER\_LIST\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_FIRST\_TO\_FORWARD
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_FIRST\_TO\_FORWARD\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_NO\_PAIRING
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_NO\_PAIRING\_OFFSET
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_NOTIFICATION\_RESPONSE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_APPLICATION\_ID

- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ADD\_SINK
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ADD\_SINK\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_REMOVE\_GPD
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_REMOVE\_GPD\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_COMMUNICATION\_MODE
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_COMMUNICATION\_MODE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_FIXED
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_FIXED\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_MAC\_SEQUENCE\_NUMBER\_CAPABILITIES
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_MAC\_SEQUENCE\_NUMBER\_CAPABILITIES\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_LEVEL
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_LEVEL\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_KEY\_TYPE
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_SECURITY\_KEY\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_FRAME\_COUNTER\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_FRAME\_COUNTER\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_KEY\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_GPD\_SECURITY\_KEY\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ASSIGNED\_ALIAS\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_ASSIGNED\_ALIAS\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_FORWARDING\_RADIUS\_PRESENT
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_FORWARDING\_RADIUS\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PAIRING\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_ACTION
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_EXIT\_MODE
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_EXIT\_MODE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_CHANNEL\_PRESENT
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_CHANNEL\_PRESENT\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_UNICAST\_COMMUNICATION
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_UNICAST\_COMMUNICATION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_COMMISSIONING\_WINDOW\_EXPIRATION
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_COMMISSIONING\_WINDOW\_EXPIRATION\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_FIRST\_PAIRING\_SUCCESS
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_FIRST\_PAIRING\_SUCCESS\_OFFSET

- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT
- #define EMBER\_AF\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_MODE\_ON\_GP\_PROXY\_COMMISSIONING\_MODE\_EXIT\_OFFSET
- #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_RESERVED
- #define EMBER\_AF\_GP\_RESPONSE\_OPTION\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_TRANSMIT CHANNEL
- #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_RESERVED
- #define EMBER\_AF\_GP\_RESPONSE\_TEMP\_MASTER\_TX\_CHANNEL\_RESERVED\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_APPLICATION\_ID
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_OFFSET
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_RESERVED
- #define EMBER\_AF\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_RESERVED\_OFFSET
- enum EmberAf11073ConnectRequestConnectControl { EMBER\_ZCL\_11073\_CONNECT REQUEST\_CONNECT\_CONTROL\_PREEMPTIBLE }
- enum EmberAf11073TunnelConnectionStatus {
 EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_DISCONNECTED, EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_CONNECTED, EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_NOT\_AUTHORIZED, EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_RECONNECT\_REQUEST,
 EMBER\_ZCL\_11073\_TUNNEL\_CONNECTION\_STATUS\_ALREADY\_CONNECTED
 }
- enum EmberAfAlertCountType { EMBER\_ZCL\_ALERT\_COUNT\_TYPE\_UNSTRUCTURED }
- enum EmberAfAlertStructureCategory { EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_WARNING, EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_DANGER, EMBER\_ZCL\_ALERT\_STRUCTURE\_CATEGORY\_FAILURE }
- enum EmberAfAlertStructurePresenceRecovery { EMBER\_ZCL\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY, EMBER\_ZCL\_ALERT\_STRUCTURE\_PRESENCE\_RECOVERY\_PRESENCE }
- enum EmberAfAlternateCostUnit { EMBER\_ZCL\_ALTERNATE\_COST\_UNIT\_KG\_OF\_CO2\_PER\_UNIT\_OF\_MEASURE }
- enum EmberAfAmiCriticalityLevel {
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_RESERVED, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_GREEN, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_1, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_2,
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_3, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_4, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_5, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_EMERGENCY,
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_PLANNED\_OUTAGE, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL\_SERVICE\_DISCONNECT, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED1, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED2,
 EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED3, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED4, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED5, EMBER\_ZCL\_AMI\_CRITICALITY\_LEVEL.Utility\_DEFINED6
 }

- enum EmberAfAmiEventStatus {
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_LOAD\_CONTROL\_EVENT\_COMMAND\_RX, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_STARTED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_COMPLETED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_USER\_HAS\_CHOOSE\_TO\_OPT\_OUT,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_USER\_HAS\_CHOOSE\_TO\_OPT\_IN, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_THE\_EVENT\_HAS\_BEEN\_CANCELED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_THE\_EVENT\_HAS\_BEEN\_SUPERSEDED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_PARTIALLY\_COMPLETED\_WITH\_USER\_OPT\_OUT,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_PARTIALLY\_COMPLETED\_DUE\_TO\_USER\_OPT\_IN, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_COMPLETED\_NO\_USER\_PARTICIPATION\_PREVIOUS\_OPT\_OUT, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_INVALID\_OPT\_OUT, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_EVENT\_NOT\_FOUND,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_INVALID\_CANCEL\_COMMAND, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_INVALID\_CANCEL\_COMMAND\_INVALID\_EFFECTIVE\_TIME, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_EVENT\_EXPIRED, EMBER\_ZCL\_AMI\_EVENT\_STATUS\_REJECTED\_INVALID\_CANCEL\_UNDEFINED\_EVENT,
 EMBER\_ZCL\_AMI\_EVENT\_STATUS\_LOAD\_CONTROL\_EVENT\_COMMAND\_REJECTED }
- enum EmberAfAmiGetProfileStatus {
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_SUCCESS, EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_UNDEFINED\_INTERVAL\_CHANNEL\_REQUESTED, EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_INTERVAL\_CHANNEL\_NOT\_SUPPORTED, EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_INVALID\_END\_TIME,
 EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_MORE\_PERIODS\_REQUESTED\_THAN\_CAN\_BE\_RETURNED, EMBER\_ZCL\_AMI\_GET\_PROFILE\_STATUS\_NO\_INTERVALS\_AVAILABLE\_FOR\_THE\_REQUESTED\_TIME }
- enum EmberAfAmiIntervalChannel { EMBER\_ZCL\_AMI\_INTERVAL\_CHANNEL\_CONSUMPTION\_DELIVERED, EMBER\_ZCL\_AMI\_INTERVAL\_CHANNEL\_CONSUMPTION RECEIVED }
- enum EmberAfAmiIntervalPeriod {
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_DAILY, EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES60, EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES30, EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES15,
 EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES10, EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES7P5, EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES5, EMBER\_ZCL\_AMI\_INTERVAL\_PERIOD\_MINUTES2P5 }
- enum EmberAfAmiKeyEstablishmentStatus {
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_SUCCESS, EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_UNKNOWN\_ISSUER, EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_BAD\_KEY\_CONFIRM, EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_BAD\_MESSAGE,
 EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_NO\_RESOURCES, EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_UNSUPPORTED\_SUITE, EMBER\_ZCL\_AMI\_KEY\_ESTABLISHMENT\_STATUS\_INVALID\_KEY\_USAGE }
- enum EmberAfAmiRegistrationState {
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_UNREGISTERED, EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_JOINING\_NETWORK, EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_JOINED\_NETWORK, EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_SUBMITTED\_REGISTRATION\_REQUEST,
 EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_REGISTRATION\_REJECTED, EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_REGISTERED, EMBER\_ZCL\_AMI\_REGISTRATION\_STATE\_REGISTRATION\_NOT\_POSSIBLE }

- enum EmberAfAmiUnitOfMeasure {
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KILO\_WATT\_HOURS, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_METER\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_FEET\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CENTUM\_CUBIC\_FEET\_PER\_HOUR,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_US\_GALLONS\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_IMPERIAL\_GALLONS\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_BT\_US\_OR\_BTU\_PER\_HOUR, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_LITERS\_OR\_LITERS\_PER\_HOUR,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_GAUGE, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_ABSOLUTE, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MCF\_OR\_MCF\_PER\_SECOND, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_UNITLESS,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MJ\_OR\_MJ\_PER\_SECOND, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KILO\_WATT\_HOURS\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_METER\_PER\_HOUR\_BCD,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CUBIC\_FEET\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_CENTUM\_CUBIC\_FEET\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_IMPERIAL\_GALLONS\_PER\_HOUR\_BCD,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_BT\_US\_OR\_BTU\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_LITERS\_OR\_LITERS\_PER\_HOUR\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_GUAGE\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_KPA\_ABSOLUTE\_BCD,
 EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MCF\_OR\_MCF\_PER\_SECOND\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_UNITLESS\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_MJ\_OR\_MJ\_PER\_SECOND\_BCD, EMBER\_ZCL\_AMI\_UNIT\_OF\_MEASURE\_K\_VAR\_OR\_K\_VAR\_HOURS\_BCD
 }
- enum EmberAfAnonymousDataState { EMBER\_ZCL\_ANONYMOUS\_DATA\_STATE\_NO\_SOURCE\_FOUND, EMBER\_ZCL\_ANONYMOUS\_DATA\_STATE\_SOURCE\_FOUND }
- enum EmberAfApplianceStatus {
 EMBER\_ZCL\_APPLIANCE\_STATUS\_OFF, EMBER\_ZCL\_APPLIANCE\_STATUS\_STAND\_BY, EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMMED, EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMMED\_WAITING\_TO\_START,
 EMBER\_ZCL\_APPLIANCE\_STATUS\_RUNNING, EMBER\_ZCL\_APPLIANCE\_STATUS\_PAUSE, EMBER\_ZCL\_APPLIANCE\_STATUS\_END\_PROGRAMMED, EMBER\_ZCL\_APPLIANCE\_STATUS\_FAILURE,
 EMBER\_ZCL\_APPLIANCE\_STATUS\_PROGRAMME\_INTERRUPTED, EMBER\_ZCL\_APPLIANCE\_STATUS\_IDLE, EMBER\_ZCL\_APPLIANCE\_STATUS\_RINSE\_HOLD, EMBER\_ZCL\_APPLIANCE\_STATUS\_SERVICE,
 EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERFREEZING, EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERCOOLING, EMBER\_ZCL\_APPLIANCE\_STATUS\_SUPERHEATING }
- enum EmberAfAttributeReportingStatus { EMBER\_ZCL\_ATTRIBUTE\_REPORTING\_STATUS\_PENDING, EMBER\_ZCL\_ATTRIBUTE\_REPORTING\_STATUS\_ATTRIBUTE\_REPORTING\_COMPLETE }
- enum EmberAfAttributeWritePermission {
 EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_DENY\_WRITE, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_ALLOW\_WRITE\_NORMAL, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_ALLOW\_WRITE\_OF\_READ\_ONLY, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_UNSUPPORTED\_ATTRIBUTE,
 EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_INVALID\_VALUE, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_READ\_ONLY, EMBER\_ZCL\_ATTRIBUTE\_WRITE\_PERMISSION\_INVALID\_DATA\_TYPE }

- enum EmberAfBatterySize {
 EMBER\_ZCL\_BATTERY\_SIZE\_NO\_BATTERY, EMBER\_ZCL\_BATTERY\_SIZE\_BUILT\_IN,
 EMBER\_ZCL\_BATTERY\_SIZE\_OTHER, EMBER\_ZCL\_BATTERY\_SIZE\_AA,
 EMBER\_ZCL\_BATTERY\_SIZE\_AAA, EMBER\_ZCL\_BATTERY\_SIZE\_C, EMBER\_ZCL\_BA-
 TTERY\_SIZE\_D, EMBER\_ZCL\_BATTERY\_SIZE\_UNKNOWN
 }
- enum EmberAfBillingPeriodDurationUnits { EMBER\_ZCL\_BILLING\_PERIOD\_DURATION\_U-
 NITS\_MINUTES, EMBER\_ZCL\_BILLING\_PERIOD\_DURATION\_UNITS\_DAYS, EMBER\_Z-
 CL\_BILLING\_PERIOD\_DURATION\_UNITS\_WEEKS, EMBER\_ZCL\_BILLING\_PERIOD\_DU-
 RATION\_UNITS\_MONTHS }
- enum EmberAfBlock {
 EMBER\_ZCL\_BLOCK\_NO\_BLOCKS\_IN\_USE, EMBER\_ZCL\_BLOCK\_BLOCK1, EMBER\_Z-
 CL\_BLOCK\_BLOCK2, EMBER\_ZCL\_BLOCK\_BLOCK3,
 EMBER\_ZCL\_BLOCK\_BLOCK4, EMBER\_ZCL\_BLOCK\_BLOCK5, EMBER\_ZCL\_BLOCK\_-\_
 BLOCK6, EMBER\_ZCL\_BLOCK\_BLOCK7,
 EMBER\_ZCL\_BLOCK\_BLOCK8, EMBER\_ZCL\_BLOCK\_BLOCK9, EMBER\_ZCL\_BLOCK\_-\_
 BLOCK10, EMBER\_ZCL\_BLOCK\_BLOCK11,
 EMBER\_ZCL\_BLOCK\_BLOCK12, EMBER\_ZCL\_BLOCK\_BLOCK13, EMBER\_ZCL\_BLOCK\_-\_
 BLOCK14, EMBER\_ZCL\_BLOCK\_BLOCK15,
 EMBER\_ZCL\_BLOCK\_BLOCK16
 }
- enum EmberAfBlockPeriodDurationTypeControl { EMBER\_ZCL\_BLOCK\_PERIOD\_DURATIO-
 N\_TYPE\_CONTROL\_START\_OF\_TIMEBASE, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_-
 TYPE\_CONTROL\_END\_OF\_TIMEBASE, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TY-
 PE\_CONTROL\_NOT\_SPECIFIED }
- enum EmberAfBlockPeriodDurationTypeTimebase { EMBER\_ZCL\_BLOCK\_PERIOD\_DURATI-
 ON\_TYPE\_TIMEBASE\_MINUTES, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIM-
 EBASE\_DAYS, EMBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_WEEKS, E-
 MBER\_ZCL\_BLOCK\_PERIOD\_DURATION\_TYPE\_TIMEBASE\_MONTHS }
- enum EmberAfCO2Unit { EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_KILOWATT\_HOU-
 R, EMBER\_ZCL\_C\_O2\_UNIT\_KILOGRAM\_PER\_GALLON\_OF\_GASOLINE, EMBER\_ZCL\_-\_
 C\_O2\_UNIT\_KILOGRAM\_PER\_THERM\_OF\_NATURAL\_GAS }
- enum EmberAfCalendarTimeReference { EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_UT-
 C\_TIME, EMBER\_ZCL\_CALENDAR\_TIME\_REFERENCE\_STANDARD\_TIME, EMBER\_ZC-
 L\_CALENDAR\_TIME\_REFERENCE\_LOCAL\_TIME }
- enum EmberAfCalendarType {
 EMBER\_ZCL\_CALENDAR\_TYPE\_DELIVERED\_CALENDAR, EMBER\_ZCL\_CALENDAR\_-\_
 TYPE\_RECEIVED\_CALENDAR, EMBER\_ZCL\_CALENDAR\_TYPE\_DELIVERED\_AND\_RE-
 CEIVED\_CALENDAR, EMBER\_ZCL\_CALENDAR\_TYPE\_FRIENDLY\_CREDIT\_CALEND-
 AR,
 EMBER\_ZCL\_CALENDAR\_TYPE\_AUXILLIARY\_LOAD\_SWITCH\_CALENDAR
 }
- enum EmberAfCalorificValueUnit { EMBER\_ZCL\_CALORIFIC\_VALUE\_UNIT\_MEGAJOULE\_-
 \_PER\_CUBIC\_METER, EMBER\_ZCL\_CALORIFIC\_VALUE\_UNIT\_MEGAJOULE\_PER\_KIL-
 OGRAM }
- enum EmberAfCecedSpecificationVersion { EMBER\_ZCL\_CECED\_SPECIFICATION\_VERSIO-
 N\_COMPLIANT\_WITH\_V10\_NOT\_CERTIFIED, EMBER\_ZCL\_CECED\_SPECIFICATION\_V-
 ERSION\_COMPLIANT\_WITH\_V10\_CERTIFIED }
- enum EmberAfColorLoopAction { EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_DEACTIVATE, E-
 MBER\_ZCL\_COLOR\_LOOP\_ACTION\_ACTIVATE\_FROM\_COLOR\_LOOP\_START\_ENHAN-
 CED\_HUE, EMBER\_ZCL\_COLOR\_LOOP\_ACTION\_ACTIVATE\_FROM\_ENHANCED\_CUR-
 RENT\_HUE }
- enum EmberAfColorLoopDirection { EMBER\_ZCL\_COLOR\_LOOP\_DIRECTION\_DECREME-
 NT\_HUE, EMBER\_ZCL\_COLOR\_LOOP\_DIRECTION\_INCREMENT\_HUE }
- enum EmberAfColorMode { EMBER\_ZCL\_COLOR\_MODE\_CURRENT\_HUE\_AND\_CURRE-
 NT\_SATURATION, EMBER\_ZCL\_COLOR\_MODE\_CURRENT\_X\_AND\_CURRENT\_Y, EM-
 BER\_ZCL\_COLOR\_MODE\_COLOR\_TEMPERATURE }

- enum EmberAfCommandIdentification {
 EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_PAUSE, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START\_SUPERFREEZING,
 EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP\_SUPERFREEZING, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_START\_SUPERCOOLING, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_STOP\_SUPERCOOLING, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_DISABLE\_GAS,
 EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_ENABLE\_GAS, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_ENABLE\_ENERGY\_CONTROL, EMBER\_ZCL\_COMMAND\_IDENTIFICATION\_DISABLE\_ENERGY\_CONTROL
 }
- enum EmberAfCommissioningStartupControl { EMBER\_ZCL\_COMMISSIONING\_STARTUP\_NO\_ACTION, EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_FORM\_NETWORK, EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_REJOIN\_NETWORK, EMBER\_ZCL\_COMMISSIONING\_STARTUP\_CONTROL\_START\_FROM\_SCRATCH }
- enum EmberAfCommodityType {
 EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_GAS\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_WATER\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_THERMAL\_METERING,
 EMBER\_ZCL\_COMMODITY\_TYPE\_PRESSURE\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_HEAT\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_COOLING\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_VEHICLE\_CHARGING\_METERING,
 EMBER\_ZCL\_COMMODITY\_TYPE\_PV\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_WIND\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_WATER\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_MICRO\_GENERATION\_METERING,
 EMBER\_ZCL\_COMMODITY\_TYPE\_SOLAR\_HOT\_WATER\_GENERATION\_METERING, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING\_ELEMENT1, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING\_ELEMENT2, EMBER\_ZCL\_COMMODITY\_TYPE\_ELECTRIC\_METERING\_ELEMENT3
 }
- enum EmberAfCppEventResponseCppTypeAuth { EMBER\_ZCL\_CPP\_EVENT\_RESPONSE\_CPP\_AUTH\_ACCEPTED, EMBER\_ZCL\_CPP\_EVENT\_RESPONSE\_CPP\_AUTH\_REJECTED }
- enum EmberAfCppPriceTier { EMBER\_ZCL\_CPP\_PRICE\_TIER\_CPP1, EMBER\_ZCL\_CPP\_PRICE\_TIER\_CPP2 }
- enum EmberAfCreditAdjustmentType { EMBER\_ZCL\_CREDIT\_ADJUSTMENT\_TYPE\_CREDIT\_INCREMENTAL, EMBER\_ZCL\_CREDIT\_ADJUSTMENT\_TYPE\_CREDIT\_ABSOLUTE }
- enum EmberAfCreditPaymentStatus {
 EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_PENDING, EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_RECEIVED\_PAID, EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_OVERDUE, EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_2\_PAYMENTS\_OVERDUE,
 EMBER\_ZCL\_CREDIT\_PAYMENT\_STATUS\_3\_PAYMENTS\_OVERDUE
 }
- enum EmberAfDataQualityId { EMBER\_ZCL\_DATA\_QUALITY\_ID\_ALL\_DATA\_CERTIFIED, EMBER\_ZCL\_DATA\_QUALITY\_ID\_ONLY\_INSTANTANEOUS\_POWER\_NOT\_CERTIFIED, EMBER\_ZCL\_DATA\_QUALITY\_ID\_ONLY\_CUMULATED\_CONSUMPTION\_NOT\_CERTIFIED, EMBER\_ZCL\_DATA\_QUALITY\_ID\_NOT\_CERTIFIED\_DATA }
- enum EmberAfDebtAmountType {
 EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE1\_ABSOLUTE, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE1\_INCREMENTAL, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE2\_ABSOLUTE, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE2\_INCREMENTAL,
 EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE3\_ABSOLUTE, EMBER\_ZCL\_DEBT\_AMOUNT\_TYPE\_TYPE3\_INCREMENTAL
 }

- enum EmberAfDebtRecoveryFrequency {
 EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_HOUR, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_DAY, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_WEEK, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_MONTH, EMBER\_ZCL\_DEBT\_RECOVERY\_FREQUENCY\_PER\_QUARTER }
- enum EmberAfDebtRecoveryMethod { EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_TIME\_BASED, EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_PERCENTAGE\_BASED, EMBER\_ZCL\_DEBT\_RECOVERY\_METHOD\_CATCH\_UP\_BASED }
- enum EmberAfDehumidificationLockout { EMBER\_ZCL\_DEHUMIDIFICATION\_LOCKOUT\_NOT\_ALLOWED, EMBER\_ZCL\_DEHUMIDIFICATION\_LOCKOUT\_ALLOWED }
- enum EmberAfDeviceInformationRecordSort { EMBER\_ZCL\_DEVICE\_INFORMATION\_RECORD\_SORT\_NOT\_SORTED, EMBER\_ZCL\_DEVICE\_INFORMATION\_RECORD\_SORT\_TOP\_OF\_THE\_LIST }
- enum EmberAfDeviceStatus2Structure { EMBER\_ZCL\_DEVICE\_STATUS2\_STRUCTURE\_IRIS\_SYMPTOM\_CODE }
- enum EmberAfDoorLockEventSource {
 EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_KEYPAD, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_RF, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_MANUAL, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_RFID, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_SOURCE\_INDETERMINATE }
- enum EmberAfDoorLockEventType { EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_OPERATION, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_PROGRAMMING, EMBER\_ZCL\_DOOR\_LOCK\_EVENT\_TYPE\_ALARM }
- enum EmberAfDoorLockOperatingMode {
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_NORMAL\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_VACATION\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_PRIVACY\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_NO\_RF\_LOCK\_OR\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_LOCAL\_PROGRAMMING\_MODE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATING\_MODE\_PASSAGE\_MODE }
- enum EmberAfDoorLockOperationEventCode {
 EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNKNOWN\_OR\_MFG\_SPECIFIC, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK\_INVALID\_PIN\_OR\_ID, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_LOCK\_INVALID\_SCHEDULE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK\_INVALID\_PIN\_OR\_ID, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_UNLOCK\_INVALID\_SCHEDULE, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_ONE\_TOUCH\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_KEY\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_KEY\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_AUTO\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_SCHEDULE\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_SCHEDULE\_UNLOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_MANUAL\_LOCK, EMBER\_ZCL\_DOOR\_LOCK\_OPERATION\_EVENT\_CODE\_MANUAL\_UNLOCK }
- enum EmberAfDoorLockProgrammingEventCode {
 EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_UNKNOWN\_OR\_MFG\_SPECIFIC, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_MASTER\_CODE\_CHANGED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_ADDED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_DELETED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_PIN\_CHANGED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_ID\_ADDED, EMBER\_ZCL\_DOOR\_LOCK\_PROGRAMMING\_EVENT\_CODE\_ID\_DELETED }

- enum EmberAfDoorLockSecurityLevel { EMBER\_ZCL\_DOOR\_LOCK\_SECURITY\_LEVEL\_NETWORK\_SECURITY, EMBER\_ZCL\_DOOR\_LOCK\_SECURITY\_LEVEL\_APS\_SECURITY }
- enum EmberAfDoorLockSetPinOrIdStatus { EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_SUCCESS, EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_GENERAL\_FAILURE, EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_MEMORY\_FULL, EMBER\_ZCL\_DOOR\_LOCK\_SET\_PIN\_OR\_ID\_STATUS\_DUPLICATE\_CODE\_ERROR }
- enum EmberAfDoorLockSoundVolume { EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_SILENT, EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_LOW, EMBER\_ZCL\_DOOR\_LOCK\_SOUND\_VOLUME\_HIGH }
- enum EmberAfDoorLockState { EMBER\_ZCL\_DOOR\_LOCK\_STATE\_NOT\_FULLY\_LOCKED, EMBER\_ZCL\_DOOR\_LOCK\_STATE\_LOCKED, EMBER\_ZCL\_DOOR\_LOCK\_STATE\_UNLOCKED }
- enum EmberAfDoorLockType {
 EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_DEAD\_BOLT, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_MAGNETIC, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_MORTISE, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_RIM,
 EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_LATCH\_BOLT, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_CYLINDRICAL, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_TUBULAR, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_INTERCONNECTED,
 EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_DEAD\_LATCH, EMBER\_ZCL\_DOOR\_LOCK\_TYPE\_OTHER }
- enum EmberAfDoorLockUserStatus { EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_AVAILABLE, EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_OCCUPIED\_ENABLED, EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_OCCUPIED\_DISABLED, EMBER\_ZCL\_DOOR\_LOCK\_USER\_STATUS\_NOT\_SUPPORTED }
- enum EmberAfDoorLockUserType {
 EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_UNRESTRICTED, EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_ONE\_TIME\_USER, EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_USER\_WITH\_SCHEDULE, EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_MASTER\_USER,
 EMBER\_ZCL\_DOOR\_LOCK\_USER\_TYPE\_NOT\_SUPPORTED }
- enum EmberAfDoorState {
 EMBER\_ZCL\_DOOR\_STATE\_OPEN, EMBER\_ZCL\_DOOR\_STATE\_CLOSED, EMBER\_ZCL\_DOOR\_STATE\_ERROR\_JAMMED, EMBER\_ZCL\_DOOR\_STATE\_ERROR\_FORCED\_OPEN,
 EMBER\_ZCL\_DOOR\_STATE\_ERROR\_UNSPECIFIED }

- enum EmberAfElectricityAlarmGroups {
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_LOW\_VOLTAGE\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_HIGH\_VOLTAGE\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_LOW\_VOLTAGE\_L2, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_HIGH\_VOLTAGE\_L2,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_LOW\_VOLTAGE\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_HIGH\_VOLTAGE\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_CURRENT\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_CURRENT\_L2,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_CURRENT\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_LOW\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_HIGH\_L1, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_LOW\_L2,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_HIGH\_L2, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_LOW\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_FREQUENCY\_TOO\_HIGH\_L3, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_GROUND\_FAULT,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_ELECTRIC\_TAMPER\_DETECT, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_INCORRECT\_POLARITY, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_CURRENT\_NO\_VOLTAGE, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_UNDER\_VOLTAGE,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_OVER\_VOLTAGE, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_NORMAL\_VOLTAGE, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_P\_F\_BELOW\_THRESHOLD, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_P\_F\_ABOVE\_THRESHOLD,
 EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_TERMINAL\_COVER\_REMOVED, EMBER\_ZCL\_ELECTRICITY\_ALARM\_GROUPS\_TERMINAL\_COVER\_CLOSED }
- enum EmberAfEnhancedColorMode { EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION, EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_CURRENT\_X\_AND\_CURRENT\_Y, EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_COLOR\_TEMPERATURE, EMBER\_ZCL\_ENHANCED\_COLOR\_MODE\_ENHANCED\_CURRENT\_HUE\_AND\_CURRENT\_SATURATION }
- enum EmberAfEventConfigurationControl { EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_LIST, EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_EVENT\_GROUP, EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_LOG\_TYPE, EMBER\_ZCL\_EVENT\_CONFIGURATION\_CONTROL\_APPLY\_BY\_CONFIGURATION\_MATCH }
- enum EmberAfEventConfigurationLogAction {
 EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_DO\_NOT\_LOG, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_TAMPER, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_ASFAULT, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_GENERAL\_EVENT,
 EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_SECURITY\_EVENT, EMBER\_ZCL\_EVENT\_CONFIGURATION\_LOG\_ACTION\_LOG\_AS\_NETWORK\_EVENT }
- enum EmberAfEventControl { EMBER\_ZCL\_EVENT\_CONTROL\_RETRIEVE\_MINIMAL\_INFORMATION, EMBER\_ZCL\_EVENT\_CONTROL\_RETRIEVE\_FULL\_INFORMATION }

- enum EmberAfEventId {
 EMBER\_ZCL\_EVENT\_ID\_METER\_COVER\_REMOVED, EMBER\_ZCL\_EVENT\_ID\_METER\_COVER\_CLOSED, EMBER\_ZCL\_EVENT\_ID\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_EVENT\_ID\_NO\_STRONG\_MAGNETIC\_FIELD,
 EMBER\_ZCL\_EVENT\_ID\_BATTERY\_FAILURE, EMBER\_ZCL\_EVENT\_ID\_LOW\_BATTERY, EMBER\_ZCL\_EVENT\_ID\_PROGRAM\_MEMORY\_ERROR, EMBER\_ZCL\_EVENT\_ID\_RAM\_ERROR,
 EMBER\_ZCL\_EVENT\_ID\_NV\_MEMORY\_ERROR, EMBER\_ZCL\_EVENT\_ID\_MEASUREMENT\_SYSTEM\_ERROR, EMBER\_ZCL\_EVENT\_ID\_WATCHDOG\_ERROR, EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_DISCONNECT\_FAILURE,
 EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_CONNECT\_FAILURE, EMBER\_ZCL\_EVENT\_ID\_MEASURMENT\_SOFTWARE\_CHANGED, EMBER\_ZCL\_EVENT\_ID\_DST\_ENABLED, EMBER\_ZCL\_EVENT\_ID\_DST\_DISABLED,
 EMBER\_ZCL\_EVENT\_ID\_CLOCK\_ADJ\_BACKWARD, EMBER\_ZCL\_EVENT\_ID\_CLOCK\_ADJ\_FORWARD, EMBER\_ZCL\_EVENT\_ID\_CLOCK\_INVALID, EMBER\_ZCL\_EVENT\_ID\_COMMS\_ERROR\_HAN,
 EMBER\_ZCL\_EVENT\_ID\_COMMS\_OK\_HAN, EMBER\_ZCL\_EVENT\_ID\_FRAUD\_ATTEMPT, EMBER\_ZCL\_EVENT\_ID\_POWER\_LOSS, EMBER\_ZCL\_EVENT\_ID\_INCORRECT\_PROTOCOL,
 EMBER\_ZCL\_EVENT\_ID\_UNUSUAL\_HAN\_TRAFFIC, EMBER\_ZCL\_EVENT\_ID\_UNEXPECTED\_CLOCK\_CHANGE, EMBER\_ZCL\_EVENT\_ID\_COMMs\_USING\_UNAUTHENTICATED\_COMPONENT, EMBER\_ZCL\_EVENT\_ID\_ERROR\_REG\_CLEAR,
 EMBER\_ZCL\_EVENT\_ID\_ALARM\_REG\_CLEAR, EMBER\_ZCL\_EVENT\_ID\_UNEXPECTED\_HW\_RESET, EMBER\_ZCL\_EVENT\_ID\_UNEXPECTED\_PROGRAM\_EXECUTION, EMBER\_ZCL\_EVENT\_ID\_EVENT\_LOG\_CLEARED,
 EMBER\_ZCL\_EVENT\_ID\_MANUAL\_DISCONNECT, EMBER\_ZCL\_EVENT\_ID\_MANUAL\_CONNECT, EMBER\_ZCL\_EVENT\_ID\_REMOTE\_DISCONNECT, EMBER\_ZCL\_EVENT\_ID\_LOCAL\_DISCONNECT,
 EMBER\_ZCL\_EVENT\_ID\_LIMIT\_THRESHOLD\_EXCEEDED, EMBER\_ZCL\_EVENT\_ID\_LIMIT\_THRESHOLD\_OK, EMBER\_ZCL\_EVENT\_ID\_LIMIT\_THRESHOLD\_CHANGED, EMBER\_ZCL\_EVENT\_ID\_MAXIMUM\_DEMAND\_EXCEEDED,
 EMBER\_ZCL\_EVENT\_ID\_PROFILE\_CLEARED, EMBER\_ZCL\_EVENT\_ID\_FIRMWARE\_READY\_FOR\_ACTIVATION, EMBER\_ZCL\_EVENT\_ID\_FIRMWARE\_ACTIVATED, EMBER\_ZCL\_EVENT\_ID\_PATCH\_FAILURE,
 EMBER\_ZCL\_EVENT\_ID\_TOU\_TARIFF\_ACTIVATION, EMBER\_ZCL\_EVENT\_ID\_8X8\_TARIFFACTIVATED, EMBER\_ZCL\_EVENT\_ID\_SINGLE\_TARIFF\_RATE\_ACTIVATED, EMBER\_ZCL\_EVENT\_ID\_ASYNCNCHRONOUS\_BILLING\_OCCURRED,
 EMBER\_ZCL\_EVENT\_ID\_SYNCHRONOUS\_BILLING\_OCCURRED, EMBER\_ZCL\_EVENT\_ID\_INCORRECT\_POLARITY, EMBER\_ZCL\_EVENT\_ID\_CURRENT\_NO\_VOLTAGE, EMBER\_ZCL\_EVENT\_ID\_UNDER\_VOLTAGE,
 EMBER\_ZCL\_EVENT\_ID\_OVER\_VOLTAGE, EMBER\_ZCL\_EVENT\_ID\_NORMAL\_VOLTAGE, EMBER\_ZCL\_EVENT\_ID\_PF\_BELOW\_THRESHOLD, EMBER\_ZCL\_EVENT\_ID\_PF ABOVE\_THRESHOLD,
 EMBER\_ZCL\_EVENT\_ID\_TERMINAL\_COVER\_REMOVED, EMBER\_ZCL\_EVENT\_ID\_TERMINAL\_COVER\_CLOSED, EMBER\_ZCL\_EVENT\_ID\_REVERSE\_FLOW, EMBER\_ZCL\_EVENT\_ID\_TILT\_TAMPER,
 EMBER\_ZCL\_EVENT\_ID\_BATTERY\_COVER\_REMOVED, EMBER\_ZCL\_EVENT\_ID\_BATTERY\_COVER\_CLOSED, EMBER\_ZCL\_EVENT\_ID\_EXCESS\_FLOW, EMBER\_ZCL\_EVENT\_ID\_EMERGENCY\_CREDIT\_IN\_USE,
 EMBER\_ZCL\_EVENT\_ID\_EMERGENCY\_CREDIT\_EXHAUSTED, EMBER\_ZCL\_EVENT\_ID\_ZERO\_CREDIT\_EC\_NOT\_SELECTED, EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_ON, EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_OFF\_ARMED,
 EMBER\_ZCL\_EVENT\_ID\_SUPPLY\_OFF, EMBER\_ZCL\_EVENT\_ID\_DISCOUNT\_APPLIED, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_A, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_B,
 EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_C, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_D, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_E, EMBER\_ZCL\_EVENT\_ID\_MANUFACTURER\_SPECIFIC\_F
 }

- enum EmberAfEventIdentification {  
EMBER\_ZCL\_EVENT\_IDENTIFICATION\_END\_OF\_CYCLE, EMBER\_ZCL\_EVENT\_IDENTIFICATION\_TEMPERATURE\_REACHED, EMBER\_ZCL\_EVENT\_IDENTIFICATION\_END\_OF\_COOKING, EMBER\_ZCL\_EVENT\_IDENTIFICATION\_SWITCHING\_OFF,  
EMBER\_ZCL\_EVENT\_IDENTIFICATION\_WRONG\_DATA }
- enum EmberAfEventLogId {  
EMBER\_ZCL\_EVENT\_LOG\_ID\_ALL\_LOGS, EMBER\_ZCL\_EVENT\_LOG\_ID\_TAMPER\_LOG, EMBER\_ZCL\_EVENT\_LOG\_ID\_FAULT\_LOG, EMBER\_ZCL\_EVENT\_LOG\_ID\_GENERAL\_EVENT\_LOG,  
EMBER\_ZCL\_EVENT\_LOG\_ID\_SECURITY\_EVENT\_LOG, EMBER\_ZCL\_EVENT\_LOG\_ID\_NETWORK\_EVENT\_LOG }
- enum EmberAfEventLogPayloadControl { EMBER\_ZCL\_EVENT\_LOG\_PAYLOAD\_CONTROL\_EVENTS\_DO\_NOT\_CROSS\_FRAME\_BOUNDARY, EMBER\_ZCL\_EVENT\_LOG\_PAYLOAD\_CONTROL\_EVENT\_CROSSES\_FRAME\_BOUNDARY }

- enum EmberAfExtendedGenericAlarmGroups {
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MEASUREMENT\_SYSTEM\_ERROR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_WATCHDOG\_ERROR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SUPPLY\_DISCONNECT\_FAILURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SUPPLY\_CONNECT\_FAILURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MEASURMENT\_SOFTWARE\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DST\_ENABLED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DST\_DISABLED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_ADJ\_BACKWARD,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_ADJ\_FORWARD,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_CLOCK\_INVALID,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMUNICATION\_ERROR\_HAN,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMUNICATION\_OK\_H\_AN,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_FRAUD\_ATTEMPT,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_POWER\_LOSS,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNUSUAL\_HAN\_TRAFFIC,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_CLOCK\_CHANGE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_COMMMS\_USING\_UNAUTHENTICATED\_COMPONENT,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_ERROR\_REG\_CLEAR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_ALARM\_REG\_CLEAR,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_HW\_RESET,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNEXPECTED\_PROGRAM\_EXECUTION,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_EVENT\_LOG\_CLEARED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_EXCEEDED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_OK,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_LIMIT\_THRESHOLD\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_MAXIMUM\_DEMAND\_EXCEEDED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_PROFILE\_CLEARED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_SAMPLING\_BUFFERCLEARED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_BATTERY\_WARNING,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_WRONG\_SIGNATURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_NO\_SIGNATURE,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_UNAUTHORISED\_ACTIONFROM\_HAN,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_FAST\_POLLING\_START,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_FAST\_POLLING\_END,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_REPORTING\_INTERVAL\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_DISCONNECT\_DUE\_TO\_LOAD\_LIMIT,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_SUPPLY\_STATUS\_REGISTER\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED,
 EMBER\_ZCL\_EXTENDED\_GENERIC\_ALARM\_GROUPS\_EXTENDED\_METER\_ALARM\_STATUS\_REGISTER\_CHANGED
 }

- enum EmberAfExtendedNumberOfPriceTiers {
 EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_REFER\_TO\_NUMBER\_OF\_PRICE\_TIERS\_FIELD, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS16, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS17, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS18, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS19, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS20, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS21, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS22, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS23, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS24, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS25, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS26, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS27, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS28, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS29, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS30, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS31, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS32, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS33, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS34, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS35, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS36, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS37, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS38, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS39, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS40, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS41, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS42, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS43, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS44, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS45, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS46, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS47, EMBER\_ZCL\_EXTENDED\_NUMBER\_OF\_PRICE\_TIERS\_NUMBER\_OF\_PRICE\_TIERS48
 }

- enum EmberAfExtendedPriceTier {  
EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_REFER\_TO\_PRICE\_TIER\_FIELD, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER16\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER17\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER18\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER19\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER20\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER21\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER22\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER23\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER24\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER25\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER26\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER27\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER28\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER29\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER30\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER31\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER32\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER33\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER34\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER35\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER36\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER37\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER38\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER39\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER40\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER41\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER42\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER43\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER45\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER46\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER47\_PRICE\_LABEL, EMBER\_ZCL\_EXTENDED\_PRICE\_TIER\_TIER48\_PRICE\_LABEL }

- enum EmberAfExtendedRegisterTier {
 EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_REFER\_TO\_REGISTER\_TIER\_FIELD, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER16\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER17\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER18\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER19\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER20\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER21\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER22\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER23\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER24\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER25\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER26\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER27\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER28\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER29\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER30\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER31\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER32\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER33\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER34\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER35\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER36\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER37\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER38\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER39\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER40\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER41\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER42\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER43\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER44\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER45\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER46\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER47\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_EXTENDED\_REGISTER\_TIER\_CURRENT\_TIER48\_SUMMATION\_DELIVERED\_ATTRIBUTE }
- enum EmberAfEzModeCommissioningClusterType { EMBER\_ZCL\_EZ\_MODE\_COMMMISSIONING\_CLUSTER\_TYPE\_SERVER, EMBER\_ZCL\_EZ\_MODE\_COMMISIONING\_CLUSTER\_TYPE\_CLIENT }
- enum EmberAfFanMode {
 EMBER\_ZCL\_FAN\_MODE\_OFF, EMBER\_ZCL\_FAN\_MODE\_LOW, EMBER\_ZCL\_FAN\_MODE\_MEDIUM, EMBER\_ZCL\_FAN\_MODE\_HIGH, EMBER\_ZCL\_FAN\_MODE\_ON, EMBER\_ZCL\_FAN\_MODE\_AUTO, EMBER\_ZCL\_FAN\_MODE\_SMART }

- enum EmberAfFanModeSequence {  
EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_MED\_HIGH, EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_HIGH, EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_MED\_HIGH\_AUTO,  
EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_LOW\_HIGH\_AUTO,  
EMBER\_ZCL\_FAN\_MODE\_SEQUENCE\_ON\_AUTO }
- enum EmberAfGasSpecificAlarmGroups {  
EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_TILT\_TAMPER, EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_BATTERY\_COVER\_REMOVED, EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_BATTERY\_COVER\_CLOSED, EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_EXCESS\_FLOW,  
EMBER\_ZCL\_GAS\_SPECIFIC\_ALARM\_GROUPS\_TILT\_TAMPER\_ENDED }



- enum EmberAfGenericAlarmGroups {
 EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_CHECK\_METER, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_LOW\_BATTERY, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_TAMPER\_DETECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_LEAK\_DETECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_SERVICE\_DISCONNECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_METER\_COVER\_REMOVED, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_METER\_COVER\_CLOSED, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_NO\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_BATTERY\_FAILURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_PROGRAM\_MEMORY\_ERROR, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_R\_A\_M\_ERROR, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_N\_V\_MEMORY\_ERROR }
- enum EmberAfGenericAlarmGroupsElectricity { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_ELECTRICITY\_POWER\_FAILURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_ELECTRICITY\_POWER\_QUALITY }
- enum EmberAfGenericAlarmGroupsGas { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_GAS\_LOW\_PRESSURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_GAS\_REVERSE\_FLOW }
- enum EmberAfGenericAlarmGroupsHeatCooling { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_TEMPERATURE\_SENSOR, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_BURST\_DETECT, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_HEAT\_COOLING\_FLOW\_SENSOR }
- enum EmberAfGenericAlarmGroupsWater { EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_PIPE\_EMPTY, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_LOW\_PRESSURE, EMBER\_ZCL\_GENERIC\_ALARM\_GROUPS\_WATER\_WATER\_REVERSE\_FLOW }
- enum EmberAfGenericDeviceClass { EMBER\_ZCL\_GENERIC\_DEVICE\_CLASS\_LIGHTING }
- enum EmberAfGenericDeviceType {
 EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_INCANDESCENT, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_SPOTLIGHT\_HALOGEN, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_HALOGEN\_BULB, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_CFL, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LINEAR\_FLOURESCENT, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_BULB, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_SPOTLIGHT\_LED, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_STRIP, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_LED\_TUBE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_INDOOR\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_OUTDOOR\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PENDANT\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_FLOOR\_STANDING\_FIXTURE, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_CONTROLLER, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_WALL\_SWITCH, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PORTABLE\_REMOTE\_CONTROLLER, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_MOTION\_OR\_LIGHT\_SENSOR, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_GENERIC\_ACTUATOR, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_PLUGIN\_UNIT, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_RETROFIT\_ACTUATOR, EMBER\_ZCL\_GENERIC\_DEVICE\_TYPE\_UNSPECIFIED }

- enum EmberAfGenericFlowPressureAlarmGroups {  
    EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_BURST\_DETECT, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PRESSURE\_TOO\_LOW, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PRESSURE\_TOO\_HIGH, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_COMMUNICATION\_ERROR,  
    EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_MEASUREMENT\_FAULT, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_REVERSE\_FLOW, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_FLOW\_SENSOR\_AIR\_DETECT, EMBER\_ZCL\_GENERIC\_FLOW\_PRESSURE\_ALARM\_GROUPS\_PIPE\_EMPTY }
- enum EmberAfGpDeviceId { EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_SIMPLE\_GENERICE\_TWO\_STATE\_SWITCH, EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_ON\_OFF\_SWITCH, EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_LEVEL\_CONTROL\_SWITCH, EMBER\_ZCL\_GP\_DEVICE\_ID\_GP\_INDOOR\_ENVIRONMENT\_SNESOR }

- enum EmberAfGpGpdf {
 EMBER\_ZCL\_GP\_GPDF\_IDENTIFY, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE0, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE1, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE2, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE3, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE4, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE5, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE6, EMBER\_ZCL\_GP\_GPDF\_RECALL\_SCENE7, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE0, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE1, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE2, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE3, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE4, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE5, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE6, EMBER\_ZCL\_GP\_GPDF\_STORE\_SCENE7, EMBER\_ZCL\_GP\_GPDF\_OFF, EMBER\_ZCL\_GP\_GPDF\_ON, EMBER\_ZCL\_GP\_GPDF\_TOGGLE, EMBER\_ZCL\_GP\_GPDF\_RELEASE, EMBER\_ZCL\_GP\_GPDF\_MOVE\_UP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_DOWN, EMBER\_ZCL\_GP\_GPDF\_STEP\_UP, EMBER\_ZCL\_GP\_GPDF\_STEP\_DOWN, EMBER\_ZCL\_GP\_GPDF\_LEVEL\_CONTROL\_STOP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_UP\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_MOVE\_DOWN\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_STEP\_UP\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_STEP\_DOWN\_N\_WITH\_ON\_OFF, EMBER\_ZCL\_GP\_GPDF\_MOVE\_HUE\_STOP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_HUE\_UP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_HUE\_DOWN, EMBER\_ZCL\_GP\_GPDF\_STEP\_HUE\_UP, EMBER\_ZCL\_GP\_GPDF\_STEP\_HUE\_DOWN, EMBER\_ZCL\_GP\_GPDF\_MOVE\_SATURATION\_STOP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_SATURATION\_UP, EMBER\_ZCL\_GP\_GPDF\_MOVE\_SATURATION\_DOWN, EMBER\_ZCL\_GP\_GPDF\_STEP\_SATURATION\_UP, EMBER\_ZCL\_GP\_GPDF\_STEP\_SATURATION\_DOWN, EMBER\_ZCL\_GP\_GPDF\_MOVE\_COLOR, EMBER\_ZCL\_GP\_GPDF\_STEP\_COLOR, EMBER\_ZCL\_GP\_GPDF\_LOCK\_DOOR, EMBER\_ZCL\_GP\_GPDF\_UNLOCK\_DOOR, EMBER\_ZCL\_GP\_GPDF\_PRESS1\_OF1, EMBER\_ZCL\_GP\_GPDF\_RELEASE1\_OF1, EMBER\_ZCL\_GP\_GPDF\_PRESS1\_OF2, EMBER\_ZCL\_GP\_GPDF\_RELEASE1\_OF2, EMBER\_ZCL\_GP\_GPDF\_PRESS2\_OF2, EMBER\_ZCL\_GP\_GPDF\_RELEASE2\_OF2, EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS1\_OF1, EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS1\_OF2, EMBER\_ZCL\_GP\_GPDF\_SHORT\_PRESS2\_OF2, EMBER\_ZCL\_GP\_GPDF\_ATTRIBUTE\_REPORTING, EMBER\_ZCL\_GP\_GPDF\_MFR\_SP\_ATTR\_RPTG, EMBER\_ZCL\_GP\_GPDF\_MULTI\_CLUSTER\_RPTG, EMBER\_ZCL\_GP\_GPDF\_MFR\_SP\_MULTI\_CLUSTER\_RPTG, EMBER\_ZCL\_GP\_GPDF\_REQUEST\_ATTRIBUTE, EMBER\_ZCL\_GP\_GPDF\_READ\_ATTR\_RESPONSE, EMBER\_ZCL\_GP\_GPDF\_ZCL\_TUNNELING\_WITH\_PAYLOAD, EMBER\_ZCL\_GP\_GPDF\_ANY\_GPD\_SENSOR\_CMD, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD0, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD1, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD2, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD3, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD4, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD5, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD6, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD7, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD8, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD9, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_A, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_B, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_C, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_D, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_E, EMBER\_ZCL\_GP\_GPDF\_MFR\_DEF\_GPD\_CMD\_F, EMBER\_ZCL\_GP\_GPDF\_COMMISSIONING, EMBER\_ZCL\_GP\_GPDF\_DECOMMISSIONING, EMBER\_ZCL\_GP\_GPDF\_SUCCESS, EMBER\_ZCL\_GP\_GPDF\_CHANNEL\_REQUEST, EMBER\_ZCL\_GP\_GPDF\_COMMISIONING\_REPLY, EMBER\_ZCL\_GP\_GPDF\_WRITE\_ATTRIBUTES, EMBER\_ZCL\_GP\_GPDF\_READ\_ATTRIBUTES, EMBER\_ZCL\_GP\_GPDF\_CHANNEL\_CONFIGURATION, EMBER\_ZCL\_GP\_GPDF\_ZCL\_TU\_NNEVNG }

- enum EmberAfGpPairingConfigurationAction {
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_NO\_ACTION, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_EXTEND\_SINK\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REPLACE\_SINK\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REMOVE\_A\_PAIRING,
 EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_ACTION\_REMOVE\_GPD
 }
- enum EmberAfGpPairingConfigurationOptionCommunicationMode { EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_D\_GROUP\_ID, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_PRE\_COMMISSED, EMBER\_ZCL\_GP\_PAIRING\_CONFIGURATION\_OPTION\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING\_LIGHTWEIGHT }
- enum EmberAfGpPairingOptionsCommunicationMode { EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_FULL\_UNICAST\_FORWARDING, EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_D\_GROUP\_ID, EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_GROUPCAST\_FORWARDING\_TO\_PRE\_COMM\_UNIT, EMBER\_ZCL\_GP\_PAIRING\_OPTIONS\_COMMUNICATION\_MODE\_UNICAST\_FORWARDING\_BY\_PROX\_SUPPORT }
- enum EmberAfGpProxyTableRequestOptionsRequestType { EMBER\_ZCL\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_BY\_GPD\_ID, EMBER\_ZCL\_GP\_PROXY\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TYPE\_BY\_INDEX }
- enum EmberAfGpProxyTableResponseStatus { EMBER\_ZCL\_GP\_PROXY\_TABLE\_RESPONSE\_STATUS\_SUCCESS, EMBER\_ZCL\_GP\_PROXY\_TABLE\_RESPONSE\_STATUS\_NOT\_FOUND }
- enum EmberAfGpSecurityKeyType {
 EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_NONE, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_ZIGBEE\_NETWORK\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_GPD\_GROUP\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_NETWORK\_DERIVED\_GROUP\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_INDIVIDUAL\_GPD\_KEY, EMBER\_ZCL\_GP\_SECURITY\_KEY\_TYPE\_DERIVED\_INDIVIDUAL\_GPD\_KEY
 }
- enum EmberAfGpSinkTableRequestOptions { EMBER\_ZCL\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TABLE\_ENTRIES\_BY\_GPD\_ID, EMBER\_ZCL\_GP\_SINK\_TABLE\_REQUEST\_OPTIONS\_REQUEST\_TABLE\_ENTRIES\_BY\_INDEX }
- enum EmberAfGpTranslationTableUpdateAction { EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_ADD\_TRANSLATION\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_REPLACE\_TRANSLATION\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_REMOVE\_TRANSLATION\_TABLE\_ENTRY, EMBER\_ZCL\_GP\_TRANSLATION\_TABLE\_UPDATE\_ACTION\_RESERVED }
- enum EmberAfHeatAndCoolingSpecificAlarmGroups { EMBER\_ZCL\_HEAT\_AND\_COOLING\_SPECIFIC\_ALARM\_GROUPS\_INLET\_TEMPERATURE\_SENSOR\_FAULT, EMBER\_ZCL\_HEAT\_AND\_COOLING\_SPECIFIC\_ALARM\_GROUPS\_OUTLET\_TEMPERATURE\_SENSOR\_FAULT }
- enum EmberAfHueDirection { EMBER\_ZCL\_HUE\_DIRECTION\_SHORTEST\_DISTANCE, EMBER\_ZCL\_HUE\_DIRECTION\_LONGEST\_DISTANCE, EMBER\_ZCL\_HUE\_DIRECTION\_UP, EMBER\_ZCL\_HUE\_DIRECTION\_DOWN }
- enum EmberAfHueMoveMode { EMBER\_ZCL\_HUE\_MOVE\_MODE\_STOP, EMBER\_ZCL\_HUE\_MOVE\_MODE\_UP, EMBER\_ZCL\_HUE\_MOVE\_MODE\_DOWN }
- enum EmberAfHueStepMode { EMBER\_ZCL\_HUE\_STEP\_MODE\_UP, EMBER\_ZCL\_HUE\_STEP\_MODE\_DOWN }

- enum EmberAfIasAceAlarmStatus {
 EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_NO\_ALARM, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_BURGLAR, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_FIRE, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_EMERGENCY,
 EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_POLICE\_PANIC, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_FIRE\_PANIC, EMBER\_ZCL\_IAS\_ACE\_ALARM\_STATUS\_EMERGENCY\_PANIC
 }
- enum EmberAfIasAceArmMode { EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_DISARM, EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_DAY\_HOME\_ZONES\_ONLY, EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_NIGHT\_SLEEP\_ZONES\_ONLY, EMBER\_ZCL\_IAS\_ACE\_ARM\_MODE\_ARM\_ALL\_ZONES }
- enum EmberAfIasAceArmNotification {
 EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALL\_ZONES\_DISARMED, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ONLY\_DAY\_HOME\_ZONES\_ARMED, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ONLY\_NIGHT\_SLEEP\_ZONES\_ARMED, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALL\_ZONES\_ARMED,
 EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_INVALID\_ARM\_DISARM\_CODE, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_NOT\_READY\_TO\_ARM, EMBER\_ZCL\_IAS\_ACE\_ARM\_NOTIFICATION\_ALREADY\_DISARMED
 }
- enum EmberAfIasAceAudibleNotification { EMBER\_ZCL\_IAS\_ACE\_AUDIBLE\_NOTIFICATION\_MUTE, EMBER\_ZCL\_IAS\_ACE\_AUDIBLE\_NOTIFICATION\_DEFAULT\_SOUND }
- enum EmberAfIasAceBypassResult {
 EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_ZONE\_BYPASSED, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_ZONE\_NOT\_BYPASSED, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_NOT\_ALLOWED, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_INVALID\_ZONE\_ID,
 EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_UNKNOWN\_ZONE\_ID, EMBER\_ZCL\_IAS\_ACE\_BYPASS\_RESULT\_INVALID\_ARM\_DISARM\_CODE
 }
- enum EmberAfIasAcePanelStatus {
 EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_PANEL\_DISARMED, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMED\_STAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMED\_NIGHT, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMED\_AWAY,
 EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_EXIT\_DELAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ENTRY\_DELAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_NOT\_READY\_TO\_ARM, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_IN\_ALARM,
 EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMING\_STAY, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMING\_NIGHT, EMBER\_ZCL\_IAS\_ACE\_PANEL\_STATUS\_ARMING\_AWAY
 }
- enum EmberAfIasEnrollResponseCode { EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_SUCCESS, EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_NOT\_SUPPORTED, EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_NO\_ENROLL\_PERMIT, EMBER\_ZCL\_IAS\_ENROLL\_RESPONSE\_CODE\_TOO\_MANY\_ZONES }
- enum EmberAfIasZoneState { EMBER\_ZCL\_IAS\_ZONE\_STATE\_NOT\_ENROLLED, EMBER\_ZCL\_IAS\_ZONE\_STATE\_ENROLLED }

- enum EmberAfIasZoneType {
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_STANDARD\_CIE, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_MOTION\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_CONTACT\_SWITCH, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_FIRE\_SENSOR,
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_WATER\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_GAS\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_PERSONAL\_EMERGENCY\_DEVICE, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_VIBRATION\_MOVEMENT\_SENSOR,
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_REMOTE\_CONTROL, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_KEY\_FOB, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_KEYPAD, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_STANDARD\_WARNING\_DEVICE,
 EMBER\_ZCL\_IAS\_ZONE\_TYPE\_GLASS\_BREAK\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_CARBON\_MONOXIDE\_SENSOR, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_SECURITY\_REPEATER, EMBER\_ZCL\_IAS\_ZONE\_TYPE\_INVALID\_ZONE\_TYPE }
- enum EmberAfIdentifyEffectIdentifier {
 EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_BLINK, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_BREATHE, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_OKAY, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_CHANNEL\_CHANGE,
 EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_FINISH\_EFFECT, EMBER\_ZCL\_IDENTIFY\_EFFECT\_IDENTIFIER\_STOP\_EFFECT }
- enum EmberAfIdentifyEffectVariant { EMBER\_ZCL\_IDENTIFY\_EFFECT VARIANT\_DEFAULT }
- enum EmberAfKeyIndex { EMBER\_ZCL\_KEY\_INDEX DEVELOPMENT, EMBER\_ZCL\_KEY\_INDEX\_MASTER, EMBER\_ZCL\_KEY\_INDEX\_CERTIFICATION }
- enum EmberAfKeypadLockout {
 EMBER\_ZCL\_KEYPAD\_LOCKOUT\_NO\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_ONE\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_TWO\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_THREE\_LOCKOUT,
 EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVEL\_FOUR\_LOCKOUT, EMBER\_ZCL\_KEYPAD\_LOCKOUT\_LEVELFIVE\_LOCKOUT }
- enum EmberAfLevelControlOptions { EMBER\_ZCL\_LEVEL\_CONTROL\_OPTIONS\_EXECUTE\_IF\_OFF, EMBER\_ZCL\_LEVEL\_CONTROL\_OPTIONS\_COUPLE\_COLOR\_TEMP\_TO\_LEVEL }
- enum EmberAfLevelStatus { EMBER\_ZCL\_LEVEL\_STATUS\_ON\_TARGET, EMBER\_ZCL\_LEVEL\_STATUS\_BELOW\_TARGET, EMBER\_ZCL\_LEVEL\_STATUS\_ABOVE\_TARGET }
- enum EmberAfLocationMethod { EMBER\_ZCL\_LOCATION\_METHOD\_LATERATION, EMBER\_ZCL\_LOCATION\_METHOD\_SIGNPOSTING, EMBER\_ZCL\_LOCATION\_METHOD\_RF\_FINGERPRINTING, EMBER\_ZCL\_LOCATION\_METHOD\_OUT\_OF\_BAND }
- enum EmberAfManufacturerSpecificAlarmGroups {
 EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_A, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_B, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_C, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_D,
 EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_E, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_F, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_G, EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_H,
 EMBER\_ZCL\_MANUFACTURER\_SPECIFIC\_ALARM\_GROUPS\_MANUFACTURER\_SPECIFIC\_I }
- enum EmberAfMeasurementLightSensorType { EMBER\_ZCL\_MEASUREMENT\_LIGHT\_SENSOR\_TYPE\_PHOTODIODE, EMBER\_ZCL\_MEASUREMENT\_LIGHT\_SENSOR\_TYPE\_CMO\_S }

- enum EmberAfMessagingControlConfirmation { EMBER\_ZCL\_MESSAGING\_CONTROL\_CONFIRMATION\_NOT\_REQUIRED, EMBER\_ZCL\_MESSAGING\_CONTROL\_CONFIRMATION\_REQUIRED }
- enum EmberAfMessagingControlEnhancedConfirmation { EMBER\_ZCL\_MESSAGING\_CONTROL\_ENHANCED\_CONFIRMATION\_NOT\_REQUIRED, EMBER\_ZCL\_MESSAGING\_CONTROL\_ENHANCED\_CONFIRMATION\_REQUIRED }
- enum EmberAfMessagingControlImportance { EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_LOW, EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_MEDIUM, EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_HIGH, EMBER\_ZCL\_MESSAGING\_CONTROL\_IMPORTANCE\_CRITICAL }
- enum EmberAfMessagingControlTransmission { EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_NORMAL, EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_NORMAL\_AND\_ANONYMOUS, EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_ANONYMOUS, EMBER\_ZCL\_MESSAGING\_CONTROL\_TRANSMISSION\_RESERVED }
- enum EmberAfMeterDeviceType {
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_ELECTRIC\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_GAS\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_WATER\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_THERMAL\_METER,
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_PRESSURE\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_HEAT\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_COOLING\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_GAS\_METER,
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_WATER\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_THERMAL\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_PRESSURE\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_HEAT\_METER,
 EMBER\_ZCL\_METER\_DEVICE\_TYPE\_MIRRORED\_COOLING\_METER, EMBER\_ZCL\_METER\_DEVICE\_TYPE\_UNDEFINED\_MIRROR\_METER
 }
- enum EmberAfMeterTypeId {
 EMBER\_ZCL\_METER\_TYPE\_ID.Utility\_PRIMARY\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Utility\_PRODUCTION\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Utility\_SECONDARY\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Private\_PRIMARY\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Private\_PRODUCTION\_METER, EMBER\_ZCL\_METER\_TYPE\_ID.Private\_SECONDARY\_METERS, EMBER\_ZCL\_METER\_TYPE\_ID.Generic\_METER
 }

- enum EmberAfMeteringAlarmCode {
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_CHECK\_METER, EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_BATTERY, EMBER\_ZCL\_METERING\_ALARM\_CODE\_TAMPER\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_POWER\_FAILURE\_PIPE\_EMPTY\_TEMPERATURE\_SENSOR,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_POWER\_QUALITY\_LOW\_PRESSURE\_BURST\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_LEAK\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_SERVICE\_DISCONNECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_REVERSE\_FLOW\_FLOW\_SENSOR,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_COVER\_REMOVED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_METER\_COVER\_CLOSED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_STRONG\_MAGNETIC\_FIELD, EMBER\_ZCL\_METERING\_ALARM\_CODE\_NO\_STRONG\_MAGNETIC\_FIELD,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_FAILURE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_PROGRAM\_MEMORY\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_R\_A\_M\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_N\_V\_MEMORY\_ERROR,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_VOLTAGE\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_HIGH\_VOLTAGE\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_VOLTAGE\_L2, EMBER\_ZCL\_METERING\_ALARM\_CODE\_HIGH\_VOLTAGE\_L2,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_LOW\_VOLTAGE\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_CURRENT\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_CURRENT\_L2,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_CURRENT\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L1, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L2,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L2, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_LOW\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FREQUENCY\_TOO\_HIGH\_L3, EMBER\_ZCL\_METERING\_ALARM\_CODE\_GROUND\_FAULT,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_ELECTRIC\_TAMPER\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_INCORRECT\_POLARITY, EMBER\_ZCL\_METERING\_ALARM\_CODE\_CURRENT\_NO\_VOLTAGE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_UNDER\_VOLTAGE,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_OVER\_VOLTAGE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_NORMAL\_VOLTAGE, EMBER\_ZCL\_METERING\_ALARM\_CODE\_P\_F\_BELOW\_THRESHOLD, EMBER\_ZCL\_METERING\_ALARM\_CODE\_P\_F\_ABOVE\_THRESHOLD,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_TERMINAL\_COVER\_REMOVED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_TERMINAL\_COVER\_CLOSED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_BURST\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_PRESSURE\_TOO\_LOW,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_PRESSURE\_TOO\_HIGH, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_COMMUNICATION\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_MEASUREMENT\_FAULT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_REVERSE\_FLOW,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_FLOW\_SENSOR\_AIR\_DETECT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_PIPE\_EMPTY, EMBER\_ZCL\_METERING\_ALARM\_CODE\_INLET\_TEMPERATURE\_SENSOR\_FAULT, EMBER\_ZCL\_METERING\_ALARM\_CODE\_OUTLET\_TEMPERATURE\_SENSOR\_FAULT,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_TILT\_TAMPER, EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_COVER\_REMOVED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_BATTERY\_COVER\_CLOSED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_EXCESS\_FLOW,
 EMBER\_ZCL\_METERING\_ALARM\_CODE\_TILT\_TAMPER\_ENDED, EMBER\_ZCL\_METERING\_ALARM\_CODE\_MEASUREMENT\_SYSTEM\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_WATCHDOG\_ERROR, EMBER\_ZCL\_METERING\_ALARM\_CODE\_SUPPLY\_DISCONNECT\_FAILURE
 }

- enum EmberAfMeteringBlockEnumerations {
 EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_NO\_BLOCKS\_IN\_USE, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK1, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK2, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK3, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK4, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK5, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK6, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK7, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK8, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK9, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK10, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK11, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK12, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK13, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK14, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK15, EMBER\_ZCL\_METERING\_BLOCK\_ENUMERATIONS\_BLOCK16
 }
- enum EmberAfMeteringConsumptionStatus { EMBER\_ZCL\_METERING\_CONSUMPTION\_STATUS\_LOW\_ENERGY\_USAGE, EMBER\_ZCL\_METERING\_CONSUMPTION\_STATUS\_MEDIUM\_ENERGY\_USAGE, EMBER\_ZCL\_METERING\_CONSUMPTION\_STATUS\_HIGH\_ENERGY\_USAGE }
- enum EmberAfMeteringDeviceType {
 EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE GAS\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE WATER\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE THERMAL\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE PRESSURE\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE HEAT\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE COOLING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_VEHICLE\_CHARGING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE PV\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE WIND\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE WATER\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MICRO\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE SOLAR\_HOT\_WATER\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING\_ELEMENT1, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING\_ELEMENT2, EMBER\_ZCL\_METERING\_DEVICE\_TYPE ELECTRIC\_METERING\_ELEMENT3, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_GAS\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_WATER\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_THERMAL\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_PRESSURE\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_HEAT\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_COOLING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_VEHICLE\_CHARGING\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_PV\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_WIND\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_WATER\_TURBINE\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_MICRO\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_SOLAR\_HOT\_WATER\_GENERATION\_METERING, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING\_ELEMENT1, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING\_ELEMENT2, EMBER\_ZCL\_METERING\_DEVICE\_TYPE MIRRORED\_ELECTRIC\_METERING\_ELEMENT3, EMBER\_ZCL\_METERING\_DEVICE\_TYPE\_UNDEFINED\_MIRROR\_METER
 }

- enum EmberAfMeteringSupplyStatus { EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_OFF, EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED, EMBER\_ZCL\_METERING\_SUPPLY\_STATUS\_SUPPLY\_ON }
- enum EmberAfMeteringTemperatureUnitOfMeasure {
 EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_KELVIN, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_CELSIUS, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_FAHRENHEIT, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_KELVIN\_BCD,
 EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_CELSIUS\_BCD, EMBER\_ZCL\_METERING\_TEMPERATURE\_UNIT\_OF\_MEASURE\_FAHRENHEIT\_BCD }
- enum EmberAfMoveMode { EMBER\_ZCL\_MOVE\_MODE\_UP, EMBER\_ZCL\_MOVE\_MODE\_DOWN }
- enum EmberAfNotificationScheme { EMBER\_ZCL\_NOTIFICATION\_SCHEME\_NO\_NOTIFICATION\_SCHEME\_DEFINED, EMBER\_ZCL\_NOTIFICATION\_SCHEME\_PREDEFINED\_NOTIFICATION\_SCHEME\_A, EMBER\_ZCL\_NOTIFICATION\_SCHEME\_PREDEFINED\_NOTIFICATION\_SCHEME\_B }
- enum EmberAfOccupancySensorType { EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_PIR, EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_ULTRASONIC, EMBER\_ZCL\_OCCUPANCY\_SENSOR\_TYPE\_PIR\_AND\_ULTRASONIC }
- enum EmberAfOnOffDelayedAllOffEffectVariant { EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_FADE\_TO\_OFF\_IN\_0P8\_SECONDS, EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_NO\_FADE, EMBER\_ZCL\_ON\_OFF\_DELAYED\_ALL\_OFF\_EFFECT\_VARIANT\_50\_PERCENT\_DIM\_DOWN\_IN\_0P8\_SECONDS\_THEN\_FADE\_TO\_OFF\_IN\_12\_SECONDS }
- enum EmberAfOnOffDyingLightEffectVariant { EMBER\_ZCL\_ON\_OFF\_DYING\_LIGHT\_EFFECT\_VARIANT\_20\_PERCENTER\_DIM\_UP\_IN\_0P5\_SECONDS\_THEN\_FADE\_TO\_OFF\_IN\_1\_SECOND }
- enum EmberAfOnOffEffectIdentifier { EMBER\_ZCL\_ON\_OFF\_EFFECT\_IDENTIFIER\_DELAYED\_ALL\_OFF, EMBER\_ZCL\_ON\_OFF\_EFFECT\_IDENTIFIER\_DYING\_LIGHT }
- enum EmberAfOperatingMode { EMBER\_ZCL\_OPERATING\_MODE\_NORMAL, EMBER\_ZCL\_OPERATING\_MODE\_CONFIGURE }
- enum EmberAfOriginatingDevice { EMBER\_ZCL\_ORIGINATING\_DEVICE\_ENERGY\_SERVICE\_INTERFACE, EMBER\_ZCL\_ORIGINATING\_DEVICE\_METER, EMBER\_ZCL\_ORIGINATING\_DEVICE\_IN\_HOME\_DISPLAY\_DEVICE }
- enum EmberAfPasswordType { EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD1\_SERVICE\_MENU\_ACCESS, EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD2\_CONSUMER\_MENU\_ACCESS, EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD3, EMBER\_ZCL\_PASSWORD\_TYPE\_PASSWORD4 }
- enum EmberAfPaymentDiscountDuration {
 EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_CURRENT\_BILLING\_PERIOD, EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_CURRENT CONSOLIDATED\_BILL, EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_ONE\_MONTH, EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_ONE\_QUARTER,
 EMBER\_ZCL\_PAYMENT\_DISCOUNT\_DURATION\_ONE\_YEAR }
- enum EmberAfPhysicalEnvironment { EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_UNSPECIFIED, EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_FIRST\_PROFILE\_SPECIFIED\_VALUE, EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_LAST\_PROFILE\_SPECIFIED\_VALUE, EMBER\_ZCL\_PHYSICAL\_ENVIRONMENT\_UNKNOWN }

- enum EmberAfPowerProfileState {
 EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_WAITING\_TO\_START, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_STARTED, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_RUNNING, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_ENDED,
 EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_WAITING\_TO\_START, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_ENERGY\_PHASE\_STARTED, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_ENDED, EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_READY\_FOR\_SCHEDULING,
 EMBER\_ZCL\_POWER\_PROFILE\_STATE\_POWER\_PROFILE\_SCHEDULED }
- enum EmberAfPowerSource {
 EMBER\_ZCL\_POWER\_SOURCE\_UNKNOWN, EMBER\_ZCL\_POWER\_SOURCE\_SINGLE\_PHASE\_MAINS, EMBER\_ZCL\_POWER\_SOURCE\_THREE\_PHASE\_MAINS, EMBER\_ZCL\_POWER\_SOURCE\_BATTERY,
 EMBER\_ZCL\_POWER\_SOURCE\_DC\_SOURCE, EMBER\_ZCL\_POWER\_SOURCE\_EMERGENCY\_MAINS\_CONSTANT\_POWER, EMBER\_ZCL\_POWER\_SOURCE\_EMERGENCY\_MAINS\_TRANSFER\_SWITCH, EMBER\_ZCL\_POWER\_SOURCE\_BATTERY\_BACKUP }
- enum EmberAfPrePayGenericAlarmGroup {
 EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_LOW\_CREDIT, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_NO\_CREDIT, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_CREDIT\_EXHAUSTED, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_EMERGENCY\_CREDIT\_ENABLED,
 EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_EMERGENCY\_CREDIT\_EXHAUSTED, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_IHD\_LOW\_CREDIT\_WARNING, EMBER\_ZCL\_PRE\_PAY\_GENERIC\_ALARM\_GROUP\_EVENT\_LOG\_CLEARED }
- enum EmberAfPrepayEventAlarmGroup {
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_PHYSICAL\_ATTACK\_ON\_THE\_PREPAY\_METER, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ELECTRONIC\_ATTACK\_ON\_THE\_PREPAY\_METER, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_DISCOUNT\_APPLIED, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_CREDIT\_ADJUSTMENT,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_CREDIT\_ADJUSTMENT\_FAIL, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_DEBT\_ADJUSTMENT, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_DEBT\_ADJUSTMENT\_FAIL, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_CHANGE,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_CODE\_ERROR, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_ALREADY\_USED, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_TOPUP\_CODE\_INVALID, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_IN\_USE,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_PERIOD\_END\_WARNING, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_FRIENDLY\_CREDIT\_PERIOD-END, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ERROR\_REG\_CLEAR, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_ALARM\_REG\_CLEAR,
 EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_PREPAY\_CLUSTER\_NOT\_FOUND, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_CREDIT2\_PREPAY, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_PREPAY2\_CREDIT, EMBER\_ZCL\_PREPAY\_EVENT\_ALARM\_GROUP\_MODE\_DEFAULT }
- enum EmberAfPrepaySnapshotPayloadType { EMBER\_ZCL\_PREPAY\_SNAPSHOT\_PAYLOAD\_TYPE\_DEBT\_CREDIT\_STATUS, EMBER\_ZCL\_PREPAY\_SNAPSHOT\_PAYLOAD\_TYPE\_NOT\_USED }

- enum EmberAfPrepaySwitchAlarmGroup {
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_ON, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_ARM, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_SUPPLY\_OFF, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_FAILURE,
 EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_DUE\_TO\_TAMPER\_DETECTED, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_DISCONNECTED\_DUE\_TO\_CUT\_OFF\_VALUE, EMBER\_ZCL\_PREPAY\_SWITCH\_ALARM\_GROUP\_REMOTE\_DISCONNECTED }
- enum EmberAfPriceControlAcknowledgement { EMBER\_ZCL\_PRICE\_CONTROL\_ACKNOWLEDGEMENT\_NOT\_REQUIRED, EMBER\_ZCL\_PRICE\_CONTROL\_ACKNOWLEDGEMENT\_REQUIRED }
- enum EmberAfPriceTier {
 EMBER\_ZCL\_PRICE\_TIER\_NO\_TIER RELATED, EMBER\_ZCL\_PRICE\_TIER\_TIER1\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER2\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER3\_PRICE\_LABEL,
 EMBER\_ZCL\_PRICE\_TIER\_TIER4\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER5\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER6\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER7\_PRICE\_LABEL,
 EMBER\_ZCL\_PRICE\_TIER\_TIER8\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER9\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER10\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER11\_PRICE\_LABEL,
 EMBER\_ZCL\_PRICE\_TIER\_TIER12\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER13\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER14\_PRICE\_LABEL, EMBER\_ZCL\_PRICE\_TIER\_TIER15\_PRICE\_LABEL }
- enum EmberAfProductCode {
 EMBER\_ZCL\_PRODUCT\_CODE\_MANUFACTURER\_DEFINED, EMBER\_ZCL\_PRODUCT\_CODE\_INTERNATIONAL\_ARTICLE\_NUMBER, EMBER\_ZCL\_PRODUCT\_CODE\_GLOBAL\_TRADE\_ITEM\_NUMBER, EMBER\_ZCL\_PRODUCT\_CODE\_UNIVERSAL\_PRODUCT\_CODE,
 EMBER\_ZCL\_PRODUCT\_CODE\_STOCK\_KEEPING\_UNIT }
- enum EmberAfProductId {
 EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_WHITE\_GOODS, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_DISHWASHER, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_TUMBLE\_DRYER, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_WASHER\_DRYER,
 EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_WASHING\_MACHINE, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_HOBS, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_INDUCTION\_HOBS, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_OVEN,
 EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_ELECTRICAL\_OVEN, EMBER\_ZCL\_PRODUCT\_TYPE\_ID\_REFRIGERATOR\_FREEZER }
- enum EmberAfProposedSupplyStatus { EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_RESERVED, EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED, EMBER\_ZCL\_PROPOSED\_SUPPLY\_STATUS\_SUPPLY\_ON }
- enum EmberAfPublishCppEventCppAuth { EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_PENDING, EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_ACCEPTED, EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_REJECTED, EMBER\_ZCL\_PUBLISH\_CPP\_EVENT\_CPP\_AUTH\_FORCED }
- enum EmberAfPumpControlMode {
 EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_SPEED, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_PRESSURE, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_PROPORIONAL\_PRESSURE, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_FLOW,
 EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_CONSTANT\_TEMPERATURE, EMBER\_ZCL\_PUMP\_CONTROL\_MODE\_AUTOMATIC }

- enum EmberAfPumpOperationMode { EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_NORMAL, EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_MINIMUM, EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_MAXIMUM, EMBER\_ZCL\_PUMP\_OPERATION\_MODE\_LOCAL }
- enum EmberAfPushHistoricalMeteringData { EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_DAY, EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_WEEK, EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_MONTH, EMBER\_ZCL\_PUSH\_HISTORICAL\_METERING\_DATA\_YEAR }
- enum EmberAfPushHistoricalPaymentData { EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_DAY, EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_WEEK, EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_MONTH, EMBER\_ZCL\_PUSH\_HISTORICAL\_PAYMENT\_DATA\_YEAR }
- enum EmberAfRegisterTier {
 EMBER\_ZCL\_REGISTER\_TIER\_NO\_TIER RELATED, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER1\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER2\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER3\_SUMMATION\_DELIVERED\_ATTRIBUTE,
 EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER4\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER5\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER6\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER7\_SUMMATION\_DELIVERED\_ATTRIBUTE,
 EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER8\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER9\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER10\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER11\_SUMMATION\_DELIVERED\_ATTRIBUTE,
 EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER12\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER13\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER14\_SUMMATION\_DELIVERED\_ATTRIBUTE, EMBER\_ZCL\_REGISTER\_TIER\_CURRENT\_TIER15\_SUMMATION\_DELIVERED\_ATTRIBUTE
 }
- enum EmberAfRelativeHumidityDisplay { EMBER\_ZCL\_RELATIVE\_HUMIDITY\_DISPLAY\_NOT\_DISPLAYED, EMBER\_ZCL\_RELATIVE\_HUMIDITY\_DISPLAY\_DISPLAYED }
- enum EmberAfRelativeHumidityMode { EMBER\_ZCL\_RELATIVE\_HUMIDITY\_MODE\_MEASURE\_LOCALLY, EMBER\_ZCL\_RELATIVE\_HUMIDITY\_MODE\_UPDATED\_OVER\_THE\_NETWORK }
- enum EmberAfRemoteEnableFlags { EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_DISABLED, EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_TEMPORARILY\_LOCKED\_DISABLED, EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_ENABLED\_REMOTE\_CONTROL, EMBER\_ZCL\_REMOTE\_ENABLE\_FLAGS\_ENABLED\_REMOTE\_AND\_ENERGY\_CONTROL }
- enum EmberAfRepaymentDebtType { EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT1, EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT2, EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_DEBT3, EMBER\_ZCL\_REPAYMENT\_DEBT\_TYPE\_ALL\_DEBTS }
- enum EmberAfReportingDirection { EMBER\_ZCL\_REPORTING\_DIRECTION\_REPORTED, EMBER\_ZCL\_REPORTING\_DIRECTION\_RECEIVED }
- enum EmberAfResultType {
 EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_INVALID\_TOP\_UP, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_DUPLICATE\_TOP\_UP, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_ERROR,
 EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_MAX\_CREDIT\_REACHED, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_KEYPAD\_LOCK, EMBER\_ZCL\_RESULT\_TYPE\_REJECTED\_TOP\_UP\_VALUE\_TOO\_LARGE, EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_ENABLED, EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_DISABLED, EMBER\_ZCL\_RESULT\_TYPE\_ACCEPTED\_SUPPLY\_ARMED
 }

- enum EmberAfSampleType { EMBER\_ZCL\_SAMPLE\_TYPE\_CONSUMPTION\_DELIVERED }
- enum EmberAfSaturationMoveMode { EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_STOP, EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_UP, EMBER\_ZCL\_SATURATION\_MOVE\_MODE\_DOWN }
- enum EmberAfSaturationStepMode { EMBER\_ZCL\_SATURATION\_STEP\_MODE\_UP, EMBER\_ZCL\_SATURATION\_STEP\_MODE\_DOWN }
- enum EmberAfSensingLightSensorType { EMBER\_ZCL\_SENSING\_LIGHT\_SENSOR\_TYPE\_PHOTODIODE, EMBER\_ZCL\_SENSING\_LIGHT\_SENSOR\_TYPE\_CMOS }
- enum EmberAfSetpointAdjustMode { EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_HEAT\_SETPOINT, EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_COOL\_SETPOINT, EMBER\_ZCL\_SETPOINT\_ADJUST\_MODE\_HEAT\_AND\_COOL\_SETPOINTS }
- enum EmberAfSignatureType { EMBER\_ZCL\_SIGNATURE\_TYPE\_RESERVED, EMBER\_ZCL\_SIGNATURE\_TYPE\_ECDSA }
- enum EmberAfSnapshotConfirmation { EMBER\_ZCL\_SNAPSHOT\_CONFIRMATION\_ACCEPTED, EMBER\_ZCL\_SNAPSHOT\_CONFIRMATION\_SNAPSHOT\_CAUSE\_NOT\_SUPPORTED }
- enum EmberAfSnapshotPayloadType {
 EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_DELIVERED\_REGISTERS, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_RECEIVED\_REGISTERS, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_DELIVERED, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_RECEIVED,
 EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_DELIVERED\_REGISTERS\_NO\_BILLING, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_TOU\_INFORMATION\_SET\_RECEIVED\_REGISTER\_NO\_BILLINGS, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_DELIVERED\_NO\_BILLING, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_BLOCK\_TIER\_INFORMATION\_SET\_RECEIVED\_NO\_BILLING, EMBER\_ZCL\_SNAPSHOT\_PAYLOAD\_TYPE\_DATA\_UNAVAILABLE
 }
- enum EmberAfSnapshotScheduleConfirmation {
 EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_ACCEPTED, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_TYPE\_NOT\_SUPPORTED, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_CAUSE\_NOT\_SUPPORTED, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_SCHEDULE\_NOT\_CURRENTLY\_AVAILABLE,
 EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_SNAPSHOT\_SCHEDULES\_NOT\_SUPPORTED\_BY\_DEVICE, EMBER\_ZCL\_SNAPSHOT\_SCHEDULE\_CONFIRMATION\_INSUFFICIENT\_SPACE\_FOR\_SNAPSHOT\_SCHEDULE
 }
- enum EmberAfSquawkLevel { EMBER\_ZCL\_SQUAWK\_LEVEL\_LOW\_LEVEL, EMBER\_ZCL\_SQUAWK\_LEVEL\_MEDIUM\_LEVEL, EMBER\_ZCL\_SQUAWK\_LEVEL VERY\_HIGH\_LEVEL }
- enum EmberAfSquawkMode { EMBER\_ZCL\_SQUAWK\_MODE\_SYSTEM\_IS\_ARMED, EMBER\_ZCL\_SQUAWK\_MODE\_SYSTEM\_IS\_DISARMED }
- enum EmberAfSquawkStobe { EMBER\_ZCL\_SQUAWK\_STOBE\_NO\_STROBE, EMBER\_ZCL\_SQUAWK\_STOBE\_USE\_STROBE }
- enum EmberAfStartOfWeek {
 EMBER\_ZCL\_START\_OF\_WEEK\_SUNDAY, EMBER\_ZCL\_START\_OF\_WEEK\_MONDAY, EMBER\_ZCL\_START\_OF\_WEEK\_TUESDAY, EMBER\_ZCL\_START\_OF\_WEEK\_WEDNESDAY,
 EMBER\_ZCL\_START\_OF\_WEEK\_THURSDAY, EMBER\_ZCL\_START\_OF\_WEEK\_FRIDAY, EMBER\_ZCL\_START\_OF\_WEEK\_SATURDAY
 }
- enum EmberAfStartUpOnOffValue { EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_OFF, EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_ON, EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_TOGGLE, EMBER\_ZCL\_START\_UP\_ON\_OFF\_VALUE\_SET\_TO\_PREVIOUS }

- enum EmberAfStatus {
 EMBER\_ZCL\_STATUS\_SUCCESS, EMBER\_ZCL\_STATUS\_FAILURE, EMBER\_ZCL\_STATUS\_REQUEST\_DENIED, EMBER\_ZCL\_STATUS\_MULTIPLE\_REQUEST\_NOT\_ALLOWED, EMBER\_ZCL\_STATUS\_INDICATION\_REDIRECTION\_TO\_AP, EMBER\_ZCL\_STATUS\_PREFERENCE\_DENIED, EMBER\_ZCL\_STATUS\_PREFERENCE\_IGNORED, EMBER\_ZCL\_STATUS\_NOT\_AUTHORIZED,
 EMBER\_ZCL\_STATUS\_RESERVED\_FIELD\_NOT\_ZERO, EMBER\_ZCL\_STATUS\_MALFORMED\_COMMAND, EMBER\_ZCL\_STATUS\_UNSUP\_CLUSTER\_COMMAND, EMBER\_ZCL\_STATUS\_UNSUP\_GENERAL\_COMMAND,
 EMBER\_ZCL\_STATUS\_UNSUP\_MANUF\_CLUSTER\_COMMAND, EMBER\_ZCL\_STATUS\_UNSUP\_MANUF\_GENERAL\_COMMAND, EMBER\_ZCL\_STATUS\_INVALID\_FIELD, EMBER\_ZCL\_STATUS\_UNSUPPORTED\_ATTRIBUTE,
 EMBER\_ZCL\_STATUS\_INVALID\_VALUE, EMBER\_ZCL\_STATUS\_READ\_ONLY, EMBER\_ZCL\_STATUS\_INSUFFICIENT\_SPACE, EMBER\_ZCL\_STATUS\_DUPLICATE\_EXISTS,
 EMBER\_ZCL\_STATUS\_NOT\_FOUND, EMBER\_ZCL\_STATUS\_UNREPORTABLE\_ATTRIBUTE, EMBER\_ZCL\_STATUS\_INVALID\_DATA\_TYPE, EMBER\_ZCL\_STATUS\_INVALID\_SELECTOR,
 EMBER\_ZCL\_STATUS\_WRITE\_ONLY, EMBER\_ZCL\_STATUS\_INCONSISTENT\_STARTUP\_STATE, EMBER\_ZCL\_STATUS\_DEFINED\_OUT\_OF\_BAND, EMBER\_ZCL\_STATUS\_INCONSISTENT,
 EMBER\_ZCL\_STATUS\_ACTION\_DENIED, EMBER\_ZCL\_STATUS\_TIMEOUT, EMBER\_ZCL\_STATUS\_ABORT, EMBER\_ZCL\_STATUS\_INVALID\_IMAGE,
 EMBER\_ZCL\_STATUS\_WAIT\_FOR\_DATA, EMBER\_ZCL\_STATUS\_NO\_IMAGE\_AVAILABLE, EMBER\_ZCL\_STATUS\_REQUIRE\_MORE\_IMAGE, EMBER\_ZCL\_STATUS\_HARDWARE\_FAILURE,
 EMBER\_ZCL\_STATUS\_SOFTWARE\_FAILURE, EMBER\_ZCL\_STATUS\_CALIBRATION\_ERROR, EMBER\_ZCL\_STATUS\_UNSUPPORTED\_CLUSTER
 }
- enum EmberAfStepMode { EMBER\_ZCL\_STEP\_MODE\_UP, EMBER\_ZCL\_STEP\_MODE\_DOWN }
- enum EmberAfSupplyStatus { EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_OFF, EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_OFF\_ARMED, EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_ON, EMBER\_ZCL\_SUPPLY\_STATUS\_SUPPLY\_UNCHANGED }
- enum EmberAfSwitchActions { EMBER\_ZCL\_SWITCH\_ACTIONS\_ON, EMBER\_ZCL\_SWITCH\_ACTIONS\_OFF, EMBER\_ZCL\_SWITCH\_ACTIONS\_TOGGLE }
- enum EmberAfSwitchType { EMBER\_ZCL\_SWITCH\_TYPE\_TOGGLE, EMBER\_ZCL\_SWITCH\_TYPE\_MOMENTARY, EMBER\_ZCL\_SWITCH\_TYPE\_MULTI\_FUNCTION }
- enum EmberAfTariffChargingScheme { EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_TOU\_TARIFF, EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TARIFF, EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TOU\_TARIFF\_WITH\_COMMON\_THRESHOLDS, EMBER\_ZCL\_TARIFF\_CHARGING\_SCHEME\_BLOCK\_TOU\_TARIFF\_WITH\_INDIVIDUAL\_THRESHOLDS\_PER\_TIER }
- enum EmberAfTariffResolutionPeriod { EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_NOT\_DEFINED, EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_BLOCK\_PERIOD, EMBER\_ZCL\_TARIFF\_RESOLUTION\_PERIOD\_ONE\_DAY }
- enum EmberAfTariffType { EMBER\_ZCL\_TARIFF\_TYPE\_DELIVERED\_TARIFF, EMBER\_ZCL\_TARIFF\_TYPE\_RECEIVED\_TARIFF, EMBER\_ZCL\_TARIFF\_TYPE\_DELIVERED\_AND\_RECEIVED\_TARIFF }
- enum EmberAfTemperatureDisplayMode { EMBER\_ZCL\_TEMPERATURE\_DISPLAY\_MODE\_CELSIUS, EMBER\_ZCL\_TEMPERATURE\_DISPLAY\_MODE\_FAHRENHEIT }
- enum EmberAfTemperatureSetpointHold { EMBER\_ZCL\_TEMPERATURE\_SETPOINT\_HOLD\_SETPOINT\_HOLD\_OFF, EMBER\_ZCL\_TEMPERATURE\_SETPOINT\_HOLD\_SETPOINT\_HOLD\_ON }

- enum `EmberAfThermostatControlSequence` {
   
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_ONLY, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_WITH\_REHEAT, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_HEATING\_ONLY, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_HEATING\_WITH\_REHEAT,
   
 EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_AND\_HEATING, EMBER\_ZCL\_THERMOSTAT\_CONTROL\_SEQUENCE\_COOLING\_AND\_HEATING\_WITH\_REHEAT }
- enum `EmberAfThermostatRunningMode` { EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_OFF, EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_COOL, EMBER\_ZCL\_THERMOSTAT\_RUNNING\_MODE\_HEAT }
- enum `EmberAfThermostatSystemMode` {
   
 EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_OFF, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_AUTO, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_COOL, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_HEAT,
   
 EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_EMERGENCY\_HEATING, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_PRECOOLING, EMBER\_ZCL\_THERMOSTAT\_SYSTEM\_MODE\_FAN\_ONLY }
- enum `EmberAfTierBlockMode` { EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK, EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK\_PRICE\_TIER, EMBER\_ZCL\_TIER\_BLOCK\_MODE\_ACTIVE\_BLOCK\_PRICE\_TIER\_THRESHOLD, EMBER\_ZCL\_TIER\_BLOCK\_MODE\_NOT\_USED }
- enum `EmberAfTimeEncoding` { EMBER\_ZCL\_TIME\_ENCODING\_RELATIVE, EMBER\_ZCL\_TIME\_ENCODING\_ABSOLUTE }
- enum `EmberAfTunnelingProtocolId` {
   
 EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_DLMS\_COSEM, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_IEC\_61107, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_ANSI\_C12, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_M\_BUS,
   
 EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_SML, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_CLIMATE\_TALK, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_GB\_HRGP, EMBER\_ZCL\_TUNNELING\_PROTOCOL\_ID\_TEST }
- enum `EmberAfTunnelingTransferDataStatus` { EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_NO SUCH TUNNEL, EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_WRONG\_DEVICE, EMBER\_ZCL\_TUNNELING\_TRANSFER\_DATA\_STATUS\_DATA\_OVERFLOW }
- enum `EmberAfTunnelingTunnelStatus` {
   
 EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_SUCCESS, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_BUSY, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_NO\_MORE\_TUNNEL\_IDS, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_PROTOCOL\_NOT\_SUPPORTED, EMBER\_ZCL\_TUNNELING\_TUNNEL\_STATUS\_FLOW\_CONTROL\_NOT\_SUPPORTED }
- enum `EmberAfWanStatus` { EMBER\_ZCL\_WAN\_STATUS\_CONNECTION\_TO\_WAN\_IS\_NOT\_AVAILABLE, EMBER\_ZCL\_WAN\_STATUS\_CONNECTION\_TO\_WAN\_IS\_AVAILABLE }
- enum `EmberAfWarningEvent` {
   
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING1\_OVERALL\_POWER\_ABOVE\_AVAILABLE\_POWER\_LEVEL, EMBER\_ZCL\_WARNING\_EVENT\_WARNING2\_OVERALL\_POWER\_ABOVE\_POWER\_THRESHOLD\_LEVEL, EMBER\_ZCL\_WARNING\_EVENT\_WARNING3\_OVERALL\_POWER\_BACK\_BELOW\_THE\_AVAILABLE\_POWER\_LEVEL, EMBER\_ZCL\_WARNING\_EVENT\_WARNING4\_OVERALL\_POWER\_BACK\_BELOW\_THE\_POWER\_THRESHOLD\_LEVEL,
   
 EMBER\_ZCL\_WARNING\_EVENT\_WARNING5\_OVERALL\_POWER\_WILL\_BE\_POTENTIALLY ABOVE AVAILABLE\_POWER\_LEVEL\_IF\_THE\_APPLIANCE\_STARTS }

- enum `EmberAfWarningMode` {
 `EMBER_ZCL_WARNING_MODE_STOP`, `EMBER_ZCL_WARNING_MODE_BURGLAR`, `EMBER_ZCL_WARNING_MODE_FIRE`, `EMBER_ZCL_WARNING_MODE_EMERGENCY`, `EMBER_ZCL_WARNING_MODE_POLICE_PANIC`, `EMBER_ZCL_WARNING_MODE_FIRE_PANIC`, `EMBER_ZCL_WARNING_MODE_EMERGENCY_PANIC` }
- enum `EmberAfWarningStobe` { `EMBER_ZCL_WARNING_STOBE_NO_STROBE`, `EMBER_ZCL_WARNING_STOBE_USE_STROBE` }
- enum `EmberAfZigbeeInformationLogicalType` { `EMBER_ZCL_ZIGBEE_INFORMATION_LOGICAL_TYPE_COORDINATOR`, `EMBER_ZCL_ZIGBEE_INFORMATION_LOGICAL_TYPE_ROUTER`, `EMBER_ZCL_ZIGBEE_INFORMATION_LOGICAL_TYPE_END_DEVICE` }
- enum `EmberAfZllStatus` { `EMBER_ZCL_ZLL_STATUS_SUCCESS`, `EMBER_ZCL_ZLL_STATUS_FAILURE` }

### 8.81.1 Macro Definition Documentation

#### 8.81.1.1 `#define __EMBER_AF_ENUMS__`

Definition at line 7 of file `enums.doc`.

## 8.82 error-def.h File Reference

### Generic Messages

These messages are system wide.

- `#define EMBER_SUCCESS(x00)`
- `#define EMBER_ERR_FATAL(x01)`
- `#define EMBER_BAD_ARGUMENT(x02)`
- `#define EMBER_NOT_FOUND(x03)`
- `#define EMBER_EEPROM_MFG_STACK_VERSION_MISMATCH(x04)`
- `#define EMBER_INCOMPATIBLE_STATIC_MEMORY_DEFINITIONS(x05)`
- `#define EMBER_EEPROM_MFG_VERSION_MISMATCH(x06)`
- `#define EMBER_EEPROM_STACK_VERSION_MISMATCH(x07)`

### Packet Buffer Module Errors

- `#define EMBER_NO_BUFFERS(x18)`

### Serial Manager Errors

- `#define EMBER_SERIAL_INVALID_BAUD_RATE(x20)`
- `#define EMBER_SERIAL_INVALID_PORT(x21)`
- `#define EMBER_SERIAL_TX_OVERFLOW(x22)`
- `#define EMBER_SERIAL_RX_OVERFLOW(x23)`
- `#define EMBER_SERIAL_RX_FRAME_ERROR(x24)`
- `#define EMBER_SERIAL_RX_PARITY_ERROR(x25)`
- `#define EMBER_SERIAL_RX_EMPTY(x26)`
- `#define EMBER_SERIAL_RX_OVERRUN_ERROR(x27)`

## MAC Errors

- #define EMBER\_MAC\_TRANSMIT\_QUEUE\_FULL(x39)
- #define EMBER\_MAC\_UNKNOWN\_HEADER\_TYPE(x3A)
- #define EMBER\_MAC\_ACK\_HEADER\_TYPE(x3B)
- #define EMBER\_MAC\_SCANNING(x3D)
- #define EMBER\_MAC\_NO\_DATA(x31)
- #define EMBER\_MAC\_JOINED\_NETWORK(x32)
- #define EMBER\_MAC\_BAD\_SCAN\_DURATION(x33)
- #define EMBER\_MAC\_INCORRECT\_SCAN\_TYPE(x34)
- #define EMBER\_MAC\_INVALID\_CHANNEL\_MASK(x35)
- #define EMBER\_MAC\_COMMAND\_TRANSMIT\_FAILURE(x36)
- #define EMBER\_MAC\_NO\_ACK RECEIVED(x40)
- #define EMBER\_MAC\_RADIO\_NETWORK\_SWITCH\_FAILED(x41)
- #define EMBER\_MAC\_INDIRECT\_TIMEOUT(x42)

## Simulated EEPROM Errors

- #define EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_GREEN(x43)
- #define EMBER\_SIM\_EEPROM\_ERASE\_PAGE\_RED(x44)
- #define EMBER\_SIM\_EEPROM\_FULL(x45)
- #define EMBER\_SIM\_EEPROM\_INIT\_1 FAILED(x48)
- #define EMBER\_SIM\_EEPROM\_INIT\_2 FAILED(x49)
- #define EMBER\_SIM\_EEPROM\_INIT\_3 FAILED(x4A)
- #define EMBER\_SIM\_EEPROM\_REPAIRING(x4D)

## Flash Errors

- #define EMBER\_ERR\_FLASH\_WRITE\_INHIBITED(x46)
- #define EMBER\_ERR\_FLASH\_VERIFY FAILED(x47)
- #define EMBER\_ERR\_FLASH\_PROG FAIL(x4B)
- #define EMBER\_ERR\_FLASH\_ERASE FAIL(x4C)

## Bootloader Errors

- #define EMBER\_ERR\_BOOTLOADER\_TRAP\_TABLE\_BAD(x58)
- #define EMBER\_ERR\_BOOTLOADER\_TRAP\_UNKNOWN(x59)
- #define EMBER\_ERR\_BOOTLOADER\_NO\_IMAGE(x05A)

## Transport Errors

- #define EMBER\_DELIVERY FAILED(x66)
- #define EMBER\_BINDING\_INDEX\_OUT\_OF\_RANGE(x69)
- #define EMBER\_ADDRESS\_TABLE\_INDEX\_OUT\_OF\_RANGE(x6A)
- #define EMBER\_INVALID\_BINDING\_INDEX(x6C)
- #define EMBER\_INVALID\_CALL(x70)
- #define EMBER\_COST\_NOT\_KNOWN(x71)
- #define EMBER\_MAX\_MESSAGE\_LIMIT\_REACHED(x72)
- #define EMBER\_MESSAGE\_TOO\_LONG(x74)
- #define EMBER\_BINDING\_IS\_ACTIVE(x75)
- #define EMBER\_ADDRESS\_TABLE\_ENTRY\_IS\_ACTIVE(x76)

## Green Power status codes

- #define EMBER\_MATCH(x78)
- #define EMBER\_DROP\_FRAME(x79)
- #define EMBER\_PASS\_UNPROCESSED(x7A)
- #define EMBER\_TX\_THEN\_DROP(x7B)
- #define EMBER\_NO\_SECURITY(x7C)
- #define EMBER\_COUNTER\_FAILURE(x7D)
- #define EMBER\_AUTH\_FAILURE(x7E)
- #define EMBER\_UNPROCESSED(x7F)

## HAL Module Errors

- #define EMBER\_ADC\_CONVERSION\_DONE(x80)
- #define EMBER\_ADC\_CONVERSION\_BUSY(x81)
- #define EMBER\_ADC\_CONVERSION\_DEFERRED(x82)
- #define EMBER\_ADC\_NO\_CONVERSION\_PENDING(x84)
- #define EMBER\_SLEEP\_INTERRUPTED(x85)

## PHY Errors

- #define EMBER\_PHY\_TX\_UNDERFLOW(x88)
- #define EMBER\_PHY\_TX\_INCOMPLETE(x89)
- #define EMBER\_PHY\_INVALID\_CHANNEL(x8A)
- #define EMBER\_PHY\_INVALID\_POWER(x8B)
- #define EMBER\_PHY\_TX\_BUSY(x8C)
- #define EMBER\_PHY\_TX\_CCA\_FAIL(x8D)
- #define EMBER\_PHY\_OSCILLATOR\_CHECK\_FAILED(x8E)
- #define EMBER\_PHY\_ACK RECEIVED(x8F)

## Return Codes Passed to emberStackStatusHandler()

See also [emberStackStatusHandler\(\)](#).

- #define EMBER\_NETWORK\_UP(x90)
- #define EMBER\_NETWORK\_DOWN(x91)
- #define EMBER\_JOIN FAILED(x94)
- #define EMBER\_MOVE FAILED(x96)
- #define EMBER\_CANNOT JOIN AS ROUTER(x98)
- #define EMBER\_NODE\_ID\_CHANGED(x99)
- #define EMBER\_PAN\_ID\_CHANGED(x9A)
- #define EMBER\_CHANNEL\_CHANGED(x9B)
- #define EMBER\_NO\_BEACONS(xAB)
- #define EMBER RECEIVED KEY IN THE CLEAR(xAC)
- #define EMBER\_NO\_NETWORK\_KEY RECEIVED(xAD)
- #define EMBER\_NO\_LINK\_KEY RECEIVED(xAE)
- #define EMBER\_PRECONFIGURED\_KEY REQUIRED(xAF)

## Security Errors

- #define EMBER\_KEY\_INVALID(xB2)
- #define EMBER\_INVALID\_SECURITY\_LEVEL(x95)
- #define EMBER\_APS\_ENCRYPTION\_ERROR(xA6)
- #define EMBER\_TRUST\_CENTER\_MASTER\_KEY\_NOT\_SET(xA7)
- #define EMBER\_SECURITY\_STATE\_NOT\_SET(xA8)
- #define EMBER\_KEY\_TABLE\_INVALID\_ADDRESS(xB3)
- #define EMBER\_SECURITY\_CONFIGURATION\_INVALID(xB7)
- #define EMBER\_TOO\_SOON\_FOR\_SWITCH\_KEY(xB8)
- #define EMBER\_SIGNATURE\_VERIFY\_FAILURE(xB9)
- #define EMBER\_KEY\_NOTAUTHORIZED(xBB)
- #define EMBER\_SECURITY\_DATA\_INVALID(xBD)

## Miscellaneous Network Errors

- #define EMBER\_NOT\_JOINED(x93)
- #define EMBER\_NETWORK\_BUSY(xA1)
- #define EMBER\_INVALID\_ENDPOINT(xA3)
- #define EMBER\_BINDING\_HAS\_CHANGED(xA4)
- #define EMBER\_INSUFFICIENT\_RANDOM\_DATA(xA5)
- #define EMBER\_SOURCE\_ROUTE\_FAILURE(xA9)
- #define EMBER\_MANY\_TO\_ONE\_ROUTE\_FAILURE(xAA)

## Miscellaneous Utility Errors

- #define EMBER\_STACK\_AND\_HARDWARE\_MISMATCH(xB0)
- #define EMBER\_INDEX\_OUT\_OF\_RANGE(xB1)
- #define EMBER\_TABLE\_FULL(xB4)
- #define EMBER\_TABLE\_ENTRY\_ERASED(xB6)
- #define EMBER\_LIBRARY\_NOT\_PRESENT(xB5)
- #define EMBER\_OPERATION\_IN\_PROGRESS(xBA)
- #define EMBER\_TRUST\_CENTER\_EUI\_HAS\_CHANGED(xBC)

## ZigBee RF4CE specific errors.

- #define EMBER\_NO\_RESPONSE(xC0)
- #define EMBER\_DUPLICATE\_ENTRY(xC1)
- #define EMBER\_NOT\_PERMITTED(xC2)
- #define EMBER\_DISCOVERY\_TIMEOUT(xC3)
- #define EMBER\_DISCOVERY\_ERROR(xC4)
- #define EMBER\_SECURITY\_TIMEOUT(xC5)
- #define EMBER\_SECURITY\_FAILURE(xC6)

## Application Errors

These error codes are available for application use.

- #define EMBER\_APPLICATION\_ERROR\_0(xF0)
- #define EMBER\_APPLICATION\_ERROR\_1(xF1)
- #define EMBER\_APPLICATION\_ERROR\_2(xF2)
- #define EMBER\_APPLICATION\_ERROR\_3(xF3)
- #define EMBER\_APPLICATION\_ERROR\_4(xF4)
- #define EMBER\_APPLICATION\_ERROR\_5(xF5)
- #define EMBER\_APPLICATION\_ERROR\_6(xF6)
- #define EMBER\_APPLICATION\_ERROR\_7(xF7)
- #define EMBER\_APPLICATION\_ERROR\_8(xF8)
- #define EMBER\_APPLICATION\_ERROR\_9(xF9)
- #define EMBER\_APPLICATION\_ERROR\_10(xFA)
- #define EMBER\_APPLICATION\_ERROR\_11(xFB)
- #define EMBER\_APPLICATION\_ERROR\_12(xFC)
- #define EMBER\_APPLICATION\_ERROR\_13(xFD)
- #define EMBER\_APPLICATION\_ERROR\_14(xFE)
- #define EMBER\_APPLICATION\_ERROR\_15(xFF)

### 8.82.1 Detailed Description

Return-code definitions for EmberZNet stack API functions. See [Status Codes](#) for documentation.

Definition in file [error-def.h](#).

## 8.83 error-def.h

```

00001
00038
00039 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00040
00043 #define EMBER_SUCCESS (0x00)
00044 #else
00045 DEFINE_ERROR(SUCCESS, 0)
00046 #endif //DOXYGEN_SHOULD_SKIP_THIS
00047
00048
00049 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00050
00053 #define EMBER_ERR_FATAL (0x01)
00054 #else
00055 DEFINE_ERROR(ERR_FATAL, 0x01)
00056 #endif //DOXYGEN_SHOULD_SKIP_THIS
00057
00058
00059 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00060
00063 #define EMBER_BAD_ARGUMENT (0x02)
00064 #else
00065 DEFINE_ERROR(BAD_ARGUMENT, 0x02)
00066 #endif //DOXYGEN_SHOULD_SKIP_THIS
00067
00068
00069 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00070
00073 #define EMBER_NOT_FOUND (0x03)
00074 #else
00075 DEFINE_ERROR(NOT_FOUND, 0x03)
00076 #endif //DOXYGEN_SHOULD_SKIP_THIS

```

```

00077
00078
00079 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00080
00084 #define EMBER_EEPROM_MFG_STACK_VERSION_MISMATCH(0x04)
00085 #else
00086 DEFINE_ERROR(EEPROM_MFG_STACK_VERSION_MISMATCH, 0x04)
00087 #endif //DOXYGEN_SHOULD_SKIP_THIS
00088
00089
00090 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00091
00095 #define EMBER_INCOMPATIBLE_STATIC_MEMORY_DEFINITIONS(0x05)
00096 #else
00097 DEFINE_ERROR(INCOMPATIBLE_STATIC_MEMORY_DEFINITIONS, 0x05)
00098 #endif //DOXYGEN_SHOULD_SKIP_THIS
00099
00100
00101 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00102
00106 #define EMBER_EEPROM_MFG_VERSION_MISMATCH(0x06)
00107 #else
00108 DEFINE_ERROR(EEPROM_MFG_VERSION_MISMATCH, 0x06)
00109 #endif //DOXYGEN_SHOULD_SKIP_THIS
00110
00111
00112 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00113
00117 #define EMBER_EEPROM_STACK_VERSION_MISMATCH(0x07)
00118 #else
00119 DEFINE_ERROR(EEPROM_STACK_VERSION_MISMATCH, 0x07)
00120 #endif //DOXYGEN_SHOULD_SKIP_THIS
00121
00123
00124
00129
00130 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00131
00134 #define EMBER_NO_BUFFERS(0x18)
00135 #else
00136 DEFINE_ERROR(NO_BUFFERS, 0x18)
00137 #endif //DOXYGEN_SHOULD_SKIP_THIS
00138
00140
00145
00146 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00147
00150 #define EMBER_SERIAL_INVALID_BAUD_RATE(0x20)
00151 #else
00152 DEFINE_ERROR(SERIAL_INVALID_BAUD_RATE, 0x20)
00153 #endif //DOXYGEN_SHOULD_SKIP_THIS
00154
00155
00156 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00157
00160 #define EMBER_SERIAL_INVALID_PORT(0x21)
00161 #else
00162 DEFINE_ERROR(SERIAL_INVALID_PORT, 0x21)
00163 #endif //DOXYGEN_SHOULD_SKIP_THIS
00164
00165
00166 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00167
00170 #define EMBER_SERIAL_TX_OVERFLOW(0x22)
00171 #else
00172 DEFINE_ERROR(SERIAL_TX_OVERFLOW, 0x22)
00173 #endif //DOXYGEN_SHOULD_SKIP_THIS
00174
00175
00176 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00177
00181 #define EMBER_SERIAL_RX_OVERFLOW(0x23)
00182 #else
00183 DEFINE_ERROR(SERIAL_RX_OVERFLOW, 0x23)
00184 #endif //DOXYGEN_SHOULD_SKIP_THIS
00185
00186
00187 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00188
00191 #define EMBER_SERIAL_RX_FRAME_ERROR(0x24)

```

```

00192 #else
00193 DEFINE_ERROR(SERIAL_RX_FRAME_ERROR, 0x24)
00194 #endif //DOXYGEN_SHOULD_SKIP_THIS
00195
00196
00197 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00198
00201 #define EMBER_SERIAL_RX_PARITY_ERROR(0x25)
00202 #else
00203 DEFINE_ERROR(SERIAL_RX_PARITY_ERROR, 0x25)
00204 #endif //DOXYGEN_SHOULD_SKIP_THIS
00205
00206
00207 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00208
00211 #define EMBER_SERIAL_RX_EMPTY(0x26)
00212 #else
00213 DEFINE_ERROR(SERIAL_RX_EMPTY, 0x26)
00214 #endif //DOXYGEN_SHOULD_SKIP_THIS
00215
00216
00217 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00218
00222 #define EMBER_SERIAL_RX_OVERRUN_ERROR(0x27)
00223 #else
00224 DEFINE_ERROR(SERIAL_RX_OVERRUN_ERROR, 0x27)
00225 #endif //DOXYGEN_SHOULD_SKIP_THIS
00226
00228
00233
00234 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00235
00238 #define EMBER_MAC_TRANSMIT_QUEUE_FULL(0x39)
00239 #else
00240 // Internal
00241 DEFINE_ERROR(MAC_TRANSMIT_QUEUE_FULL, 0x39)
00242 #endif //DOXYGEN_SHOULD_SKIP_THIS
00243
00244
00245 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00246
00249 #define EMBER_MAC_UNKNOWN_HEADER_TYPE(0x3A)
00250 #else
00251 DEFINE_ERROR(MAC_UNKNOWN_HEADER_TYPE, 0x3A)
00252 #endif //DOXYGEN_SHOULD_SKIP_THIS
00253
00254 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00255
00258 #define EMBER_MAC_ACK_HEADER_TYPE(0x3B)
00259 #else
00260 DEFINE_ERROR(MAC_ACK_HEADER_TYPE, 0x3B)
00261 #endif //DOXYGEN_SHOULD_SKIP_THIS
00262
00263
00264
00265 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00266
00269 #define EMBER_MAC_SCANNING(0x3D)
00270 #else
00271 DEFINE_ERROR(MAC_SCANNING, 0x3D)
00272 #endif //DOXYGEN_SHOULD_SKIP_THIS
00273
00274
00275 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00276
00279 #define EMBER_MAC_NO_DATA(0x31)
00280 #else
00281 DEFINE_ERROR(MAC_NO_DATA, 0x31)
00282 #endif //DOXYGEN_SHOULD_SKIP_THIS
00283
00284
00285 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00286
00289 #define EMBER_MAC_JOINED_NETWORK(0x32)
00290 #else
00291 DEFINE_ERROR(MAC_JOINED_NETWORK, 0x32)
00292 #endif //DOXYGEN_SHOULD_SKIP_THIS
00293
00294
00295 #ifdef DOXYGEN_SHOULD_SKIP_THIS

```

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00296
00300 #define EMBER_MAC_BAD_SCAN_DURATION (0x33)
00301 #else
00302 DEFINE_ERROR(MAC_BAD_SCAN_DURATION, 0x33)
00303 #endif //DOXYGEN_SHOULD_SKIP_THIS
00304
00305
00306 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00307
00310 #define EMBER_MAC_INCORRECT_SCAN_TYPE (0x34)
00311 #else
00312 DEFINE_ERROR(MAC_INCORRECT_SCAN_TYPE, 0x34)
00313 #endif //DOXYGEN_SHOULD_SKIP_THIS
00314
00315
00316 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00317
00320 #define EMBER_MAC_INVALID_CHANNEL_MASK (0x35)
00321 #else
00322 DEFINE_ERROR(MAC_INVALID_CHANNEL_MASK, 0x35)
00323 #endif //DOXYGEN_SHOULD_SKIP_THIS
00324
00325
00326 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00327
00331 #define EMBER_MAC_COMMAND_TRANSMIT_FAILURE (0x36)
00332 #else
00333 DEFINE_ERROR(MAC_COMMAND_TRANSMIT_FAILURE, 0x36)
00334 #endif //DOXYGEN_SHOULD_SKIP_THIS
00335
00336
00337 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00338
00342 #define EMBER_MAC_NO_ACK RECEIVED (0x40)
00343 #else
00344 DEFINE_ERROR(MAC_NO_ACK RECEIVED, 0x40)
00345 #endif //DOXYGEN_SHOULD_SKIP_THIS
00346
00347
00348 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00349
00353 #define EMBER_MAC_RADIO_NETWORK_SWITCH_FAILED (0x41)
00354 #else
00355 DEFINE_ERROR(MAC_RADIO_NETWORK_SWITCH_FAILED, 0x41)
00356 #endif //DOXYGEN_SHOULD_SKIP_THIS
00357
00358
00359 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00360
00363 #define EMBER_MAC_INDIRECT_TIMEOUT (0x42)
00364 #else
00365 DEFINE_ERROR(MAC_INDIRECT_TIMEOUT, 0x42)
00366 #endif //DOXYGEN_SHOULD_SKIP_THIS
00367
00369
00370
00375
00376
00377 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00378
00386 #define EMBER_SIM_EEPROM_ERASE_PAGE_GREEN (0x43)
00387 #else
00388 DEFINE_ERROR(SIM_EEPROM_ERASE_PAGE_GREEN, 0x43)
00389 #endif //DOXYGEN_SHOULD_SKIP_THIS
00390
00391
00392 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00393
00402 #define EMBER_SIM_EEPROM_ERASE_PAGE_RED (0x44)
00403 #else
00404 DEFINE_ERROR(SIM_EEPROM_ERASE_PAGE_RED, 0x44)
00405 #endif //DOXYGEN_SHOULD_SKIP_THIS
00406
00407
00408 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00409
00417 #define EMBER_SIM_EEPROM_FULL (0x45)
00418 #else
00419 DEFINE_ERROR(SIM_EEPROM_FULL, 0x45)
00420 #endif //DOXYGEN_SHOULD_SKIP_THIS

```

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00421
00422
00423 // Errors 46 and 47 are now defined below in the
00424 // flash error block (was attempting to prevent renumbering)
00425
00426
00427 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00428
00429 #define EMBER_SIM EEPROM_INIT_1_FAILED(0x48)
00430 #else
00431 DEFINE_ERROR(SIM EEPROM_INIT_1_FAILED, 0x48)
00432 #endif //DOXYGEN_SHOULD_SKIP_THIS
00433
00434
00435 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00436
00437 #define EMBER_SIM EEPROM_INIT_2_FAILED(0x49)
00438 #else
00439 DEFINE_ERROR(SIM EEPROM_INIT_2_FAILED, 0x49)
00440 #endif //DOXYGEN_SHOULD_SKIP_THIS
00441
00442
00443 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00444
00445 #define EMBER_SIM EEPROM_INIT_3_FAILED(0x4A)
00446 #else
00447 DEFINE_ERROR(SIM EEPROM_INIT_3_FAILED, 0x4A)
00448 #endif //DOXYGEN_SHOULD_SKIP_THIS
00449
00450
00451 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00452
00453
00454 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00455
00456 #define EMBER_SIM EEPROM_REPAIRING(0x4D)
00457 #else
00458 DEFINE_ERROR(SIM EEPROM_REPAIRING, 0x4D)
00459 #endif //DOXYGEN_SHOULD_SKIP_THIS
00460
00461
00462
00463
00464 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00465
00466
00467
00468 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00469
00470
00471 #define EMBER_ERR_FLASH_WRITE_INHIBITED(0x46)
00472 #else
00473 DEFINE_ERROR(ERR_FLASH_WRITE_INHIBITED, 0x46)
00474 #endif //DOXYGEN_SHOULD_SKIP_THIS
00475
00476
00477
00478 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00479
00480 #define EMBER_ERR_FLASH_VERIFY_FAILED(0x47)
00481 #else
00482 DEFINE_ERROR(ERR_FLASH_VERIFY_FAILED, 0x47)
00483 #endif //DOXYGEN_SHOULD_SKIP_THIS
00484
00485
00486
00487
00488
00489
00490 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00491
00492
00493
00494
00495 #define EMBER_ERR_FLASH_PROG_FAIL(0x4B)
00496 #else
00497 DEFINE_ERROR(ERR_FLASH_PROG_FAIL, 0x4B)
00498 #endif //DOXYGEN_SHOULD_SKIP_THIS
00499
00500
00501
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00562 #endif //DOXYGEN_SHOULD_SKIP_THIS
00563
00564
00565 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00566
00570 #define EMBER_ERR_BOOTLOADER_TRAP_UNKNOWN (0x59)
00571 #else
00572 DEFINE_ERROR(ERR_BOOTLOADER_TRAP_UNKNOWN, 0x59)
00573 #endif //DOXYGEN_SHOULD_SKIP_THIS
00574
00575
00576 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00577
00581 #define EMBER_ERR_BOOTLOADER_NO_IMAGE (0x05A)
00582 #else
00583 DEFINE_ERROR(ERR_BOOTLOADER_NO_IMAGE, 0x5A)
00584 #endif //DOXYGEN_SHOULD_SKIP_THIS
00585
00587
00588
00593
00594 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00595
00599 #define EMBER_DELIVERY_FAILED (0x66)
00600 #else
00601 DEFINE_ERROR(DELIVERY_FAILED, 0x66)
00602 #endif //DOXYGEN_SHOULD_SKIP_THIS
00603
00604
00605 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00606
00609 #define EMBER_BINDING_INDEX_OUT_OF_RANGE (0x69)
00610 #else
00611 DEFINE_ERROR(BINDING_INDEX_OUT_OF_RANGE, 0x69)
00612 #endif //DOXYGEN_SHOULD_SKIP_THIS
00613
00614
00615 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00616
00620 #define EMBER_ADDRESS_TABLE_INDEX_OUT_OF_RANGE (0x6A)
00621 #else
00622 DEFINE_ERROR(ADDRESS_TABLE_INDEX_OUT_OF_RANGE, 0x6A)
00623 #endif //DOXYGEN_SHOULD_SKIP_THIS
00624
00625
00626 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00627
00630 #define EMBER_INVALID_BINDING_INDEX (0x6C)
00631 #else
00632 DEFINE_ERROR(INVALID_BINDING_INDEX, 0x6C)
00633 #endif //DOXYGEN_SHOULD_SKIP_THIS
00634
00635
00636 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00637
00641 #define EMBER_INVALID_CALL (0x70)
00642 #else
00643 DEFINE_ERROR(INVALID_CALL, 0x70)
00644 #endif //DOXYGEN_SHOULD_SKIP_THIS
00645
00646
00647 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00648
00651 #define EMBER_COST_NOT_KNOWN (0x71)
00652 #else
00653 DEFINE_ERROR(COST_NOT_KNOWN, 0x71)
00654 #endif //DOXYGEN_SHOULD_SKIP_THIS
00655
00656
00657 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00658
00662 #define EMBER_MAX_MESSAGE_LIMIT_REACHED (0x72)
00663 #else
00664 DEFINE_ERROR(MAX_MESSAGE_LIMIT_REACHED, 0x72)
00665 #endif //DOXYGEN_SHOULD_SKIP_THIS
00666
00667 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00668
00672 #define EMBER_MESSAGE_TOO_LONG (0x74)
00673 #else

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00674 DEFINE_ERROR(MESSAGE_TOO_LONG, 0x74)
00675 #endif //DOXYGEN_SHOULD_SKIP_THIS
00676
00677
00678 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00679
00683 #define EMBER_BINDING_IS_ACTIVE(0x75)
00684 #else
00685 DEFINE_ERROR(BINDING_IS_ACTIVE, 0x75)
00686 #endif //DOXYGEN_SHOULD_SKIP_THIS
00687
00688 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00689
00693 #define EMBER_ADDRESS_TABLE_ENTRY_IS_ACTIVE(0x76)
00694 #else
00695 DEFINE_ERROR(ADDRESS_TABLE_ENTRY_IS_ACTIVE, 0x76)
00696 #endif //DOXYGEN_SHOULD_SKIP_THIS
00697
00699 //
00700
00705
00706 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00707
00710 #define EMBER_MATCH(0x78)
00711 #else
00712 DEFINE_ERROR(MATCH, 0x78)
00713 #endif //DOXYGEN_SHOULD_SKIP_THIS
00714 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00715
00718 #define EMBER_DROP_FRAME(0x79)
00719 #else
00720 DEFINE_ERROR(DROP_FRAME, 0x79)
00721 #endif //DOXYGEN_SHOULD_SKIP_THIS
00722
00725 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00726 #define EMBER_PASS_UNPROCESSED(0x7A)
00727 #else
00728 DEFINE_ERROR(PASS_UNPROCESSED, 0x7A)
00729 #endif //DOXYGEN_SHOULD_SKIP_THIS
00730
00733 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00734 #define EMBER_TX_THEN_DROP(0x7B)
00735 #else
00736 DEFINE_ERROR(TX_THEN_DROP, 0x7B)
00737 #endif //DOXYGEN_SHOULD_SKIP_THIS
00738
00741 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00742 #define EMBER_NO_SECURITY(0x7C)
00743 #else
00744 DEFINE_ERROR(NO_SECURITY, 0x7C)
00745 #endif //DOXYGEN_SHOULD_SKIP_THIS
00746
00749 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00750 #define EMBER_COUNTER_FAILURE(0x7D)
00751 #else
00752 DEFINE_ERROR(COUNTER_FAILURE, 0x7D)
00753 #endif //DOXYGEN_SHOULD_SKIP_THIS
00754
00757 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00758 #define EMBER_AUTH_FAILURE(0x7E)
00759 #else
00760 DEFINE_ERROR(AUTH_FAILURE, 0x7E)
00761 #endif //DOXYGEN_SHOULD_SKIP_THIS
00762
00765 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00766 #define EMBER_UNPROCESSED(0x7F)
00767 #else
00768 DEFINE_ERROR(UNPROCESSED, 0x7F)
00769 #endif //DOXYGEN_SHOULD_SKIP_THIS
00770
00772 //
00773
00778
00779
00780 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00781
00784 #define EMBER_ADC_CONVERSION_DONE(0x80)
00785 #else
00786 DEFINE_ERROR(ADC_CONVERSION_DONE, 0x80)
00787 #endif //DOXYGEN_SHOULD_SKIP_THIS

```

```

00788
00789
00790 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00791
00795 #define EMBER_ADC_CONVERSION_BUSY(0x81)
00796 #else
00797 DEFINE_ERROR(ADC_CONVERSION_BUSY, 0x81)
00798 #endif //DOXYGEN_SHOULD_SKIP_THIS
00799
00800
00801 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00802
00806 #define EMBER_ADC_CONVERSION_DEFERRED(0x82)
00807 #else
00808 DEFINE_ERROR(ADC_CONVERSION_DEFERRED, 0x82)
00809 #endif //DOXYGEN_SHOULD_SKIP_THIS
00810
00811
00812 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00813
00816 #define EMBER_ADC_NO_CONVERSION_PENDING(0x84)
00817 #else
00818 DEFINE_ERROR(ADC_NO_CONVERSION_PENDING, 0x84)
00819 #endif //DOXYGEN_SHOULD_SKIP_THIS
00820
00821
00822 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00823
00827 #define EMBER_SLEEP_INTERRUPTED(0x85)
00828 #else
00829 DEFINE_ERROR(SLEEP_INTERRUPTED, 0x85)
00830 #endif //DOXYGEN_SHOULD_SKIP_THIS
00831
00833
00838
00839
00840 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00841
00844 #define EMBER_PHY_TX_UNDERFLOW(0x88)
00845 #else
00846 DEFINE_ERROR(PHY_TX_UNDERFLOW, 0x88)
00847 #endif //DOXYGEN_SHOULD_SKIP_THIS
00848
00849
00850 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00851
00854 #define EMBER_PHY_TX_INCOMPLETE(0x89)
00855 #else
00856 DEFINE_ERROR(PHY_TX_INCOMPLETE, 0x89)
00857 #endif //DOXYGEN_SHOULD_SKIP_THIS
00858
00859
00860 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00861
00864 #define EMBER_PHY_INVALID_CHANNEL(0x8A)
00865 #else
00866 DEFINE_ERROR(PHY_INVALID_CHANNEL, 0x8A)
00867 #endif //DOXYGEN_SHOULD_SKIP_THIS
00868
00869
00870 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00871
00874 #define EMBER_PHY_INVALID_POWER(0x8B)
00875 #else
00876 DEFINE_ERROR(PHY_INVALID_POWER, 0x8B)
00877 #endif //DOXYGEN_SHOULD_SKIP_THIS
00878
00879
00880 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00881
00885 #define EMBER_PHY_TX_BUSY(0x8C)
00886 #else
00887 DEFINE_ERROR(PHY_TX_BUSY, 0x8C)
00888 #endif //DOXYGEN_SHOULD_SKIP_THIS
00889
00890
00891 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00892
00896 #define EMBER_PHY_TX_CCA_FAIL(0x8D)
00897 #else

```

```

00898 DEFINE_ERROR(PHY_TX_CCA_FAIL, 0x8D)
00899 #endif //DOXYGEN_SHOULD_SKIP_THIS
00900
00901
00902 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00903
00907 #define EMBER_PHY_OSCILLATOR_CHECK_FAILED(0x8E)
00908 #else
00909 DEFINE_ERROR(PHY_OSCILLATOR_CHECK_FAILED, 0x8E)
00910 #endif //DOXYGEN_SHOULD_SKIP_THIS
00911
00912
00913 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00914
00917 #define EMBER_PHY_ACK RECEIVED(0x8F)
00918 #else
00919 DEFINE_ERROR(PHY_ACK RECEIVED, 0x8F)
00920 #endif //DOXYGEN_SHOULD_SKIP_THIS
00921
00923
00929
00930
00931 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00932
00936 #define EMBER_NETWORK_UP(0x90)
00937 #else
00938 DEFINE_ERROR(NETWORK_UP, 0x90)
00939 #endif //DOXYGEN_SHOULD_SKIP_THIS
00940
00941
00942 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00943
00946 #define EMBER_NETWORK_DOWN(0x91)
00947 #else
00948 DEFINE_ERROR(NETWORK_DOWN, 0x91)
00949 #endif //DOXYGEN_SHOULD_SKIP_THIS
00950
00951
00952 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00953
00956 #define EMBER_JOIN FAILED(0x94)
00957 #else
00958 DEFINE_ERROR(JOIN FAILED, 0x94)
00959 #endif //DOXYGEN_SHOULD_SKIP_THIS
00960
00961
00962 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00963
00967 #define EMBER_MOVE FAILED(0x96)
00968 #else
00969 DEFINE_ERROR(MOVE FAILED, 0x96)
00970 #endif //DOXYGEN_SHOULD_SKIP_THIS
00971
00972
00973 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00974
00979 #define EMBER_CANNOT JOIN AS ROUTER(0x98)
00980 #else
00981 DEFINE_ERROR(CANNOT JOIN AS ROUTER, 0x98)
00982 #endif //DOXYGEN_SHOULD_SKIP_THIS
00983
00984
00985 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00986
00989 #define EMBER_NODE_ID_CHANGED(0x99)
00990 #else
00991 DEFINE_ERROR(NODE_ID_CHANGED, 0x99)
00992 #endif
00993
00994
00995 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00996
00999 #define EMBER_PAN_ID_CHANGED(0x9A)
01000 #else
01001 DEFINE_ERROR(PAN_ID_CHANGED, 0x9A)
01002 #endif
01003
01004 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01005
01007 #define EMBER_CHANNEL_CHANGED(0x9B)

```

```

01008 #else
01009 DEFINE_ERROR(CHANNEL_CHANGED, 0x9B)
0110 #endif
0111
0112 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0113
0116 #define EMBER_NO_BEACONS(0xAB)
0117 #else
0118 DEFINE_ERROR(NO_BEACONS, 0xAB)
0119 #endif
0120
0121
0122 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0123
0127 #define EMBER_RECEIVED_KEY_IN_THE_CLEAR(0xAC)
0128 #else
0129 DEFINE_ERROR(RECEIVED_KEY_IN_THE_CLEAR, 0xAC)
0130 #endif
0131
0132
0133 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0134
0137 #define EMBER_NO_NETWORK_KEY RECEIVED(0xAD)
0138 #else
0139 DEFINE_ERROR(NO_NETWORK_KEY RECEIVED, 0xAD)
0140 #endif
0141
0142
0143 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0144
0147 #define EMBER_NO_LINK_KEY RECEIVED(0xAE)
0148 #else
0149 DEFINE_ERROR(NO_LINK_KEY RECEIVED, 0xAE)
0150 #endif
0151
0152
0153 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0154
0158 #define EMBER_PRECONFIGURED_KEY REQUIRED(0xAF)
0159 #else
0160 DEFINE_ERROR(PRECONFIGURED_KEY REQUIRED, 0xAF)
0161 #endif
0162
0163
0164
0165 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0166
0170
0174 #define EMBER_KEY_INVALID(0xB2)
0175 #else
0176 DEFINE_ERROR(KEY_INVALID, 0xB2)
0177 #endif // DOXYGEN_SHOULD_SKIP_THIS
0178
0179 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0180
0184 #define EMBER_INVALID_SECURITY_LEVEL(0x95)
0185 #else
0186 DEFINE_ERROR(INVALID_SECURITY_LEVEL, 0x95)
0187 #endif //DOXYGEN_SHOULD_SKIP_THIS
0188
0189 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0190
0198 #define EMBER_APS_ENCRYPTION_ERROR(0xA6)
0199 #else
0200     DEFINE_ERROR(APS_ENCRYPTION_ERROR, 0xA6)
0201 #endif //DOXYGEN_SHOULD_SKIP_THIS
0202
0203 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0204
02107 #define EMBER_TRUST_CENTER_MASTER_KEY_NOT_SET(0xA7)
0208 #else
0209     DEFINE_ERROR(TRUST_CENTER_MASTER_KEY_NOT_SET, 0xA7)
02110 #endif //DOXYGEN_SHOULD_SKIP_THIS
02111
02112 #ifdef DOXYGEN_SHOULD_SKIP_THIS
02113
02116 #define EMBER_SECURITY_STATE_NOT_SET(0xA8)
02117 #else
02118     DEFINE_ERROR(SECURITY_STATE_NOT_SET, 0xA8)
02119 #endif //DOXYGEN_SHOULD_SKIP_THIS
02120

```

```

01121 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01122
01129 #define EMBER_KEY_TABLE_INVALID_ADDRESS (0xB3)
01130 #else
01131 DEFINE_ERROR(KEY_TABLE_INVALID_ADDRESS, 0xB3)
01132 #endif //DOXYGEN_SHOULD_SKIP_THIS
01133
01134 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01135
01138 #define EMBER_SECURITY_CONFIGURATION_INVALID (0xB7)
01139 #else
01140 DEFINE_ERROR(SECURITY_CONFIGURATION_INVALID, 0xB7)
01141 #endif //DOXYGEN_SHOULD_SKIP_THIS
01142
01143 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01144
01149 #define EMBER_TOO_SOON_FOR_SWITCH_KEY (0xB8)
01150 #else
01151     DEFINE_ERROR(TOO_SOON_FOR_SWITCH_KEY, 0xB8)
01152 #endif
01153
01154 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01155
01158 #define EMBER_SIGNATURE_VERIFY_FAILURE (0xB9)
01159 #else
01160     DEFINE_ERROR(SIGNATURE_VERIFY_FAILURE, 0xB9)
01161 #endif
01162
01163 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01164
01170 #define EMBER_KEY_NOTAUTHORIZED (0xBB)
01171 #else
01172     DEFINE_ERROR(KEY_NOTAUTHORIZED, 0xBB)
01173 #endif
01174
01175
01176 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01177
01180 #define EMBER_SECURITY_DATA_INVALID (0xBD)
01181 #else
01182     DEFINE_ERROR(SECURITY_DATA_INVALID, 0xBD)
01183 #endif
01184
01186
01187
01192
01193
01194 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01195
01198 #define EMBER_NOT_JOINED (0x93)
01199 #else
01200 DEFINE_ERROR(NOT_JOINED, 0x93)
01201 #endif //DOXYGEN_SHOULD_SKIP_THIS
01202
01203 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01204
01208 #define EMBER_NETWORK_BUSY (0xA1)
01209 #else
01210 DEFINE_ERROR(NETWORK_BUSY, 0xA1)
01211 #endif //DOXYGEN_SHOULD_SKIP_THIS
01212
01213
01214 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01215
01219 #define EMBER_INVALID_ENDPOINT (0xA3)
01220 #else
01221 DEFINE_ERROR(INVALID_ENDPOINT, 0xA3)
01222 #endif //DOXYGEN_SHOULD_SKIP_THIS
01223
01224
01225 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01226
01230 #define EMBER_BINDING_HAS_CHANGED (0xA4)
01231 #else
01232 DEFINE_ERROR(BINDING_HAS_CHANGED, 0xA4)
01233 #endif //DOXYGEN_SHOULD_SKIP_THIS
01234
01235 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01236
01240 #define EMBER_INSUFFICIENT_RANDOM_DATA (0xA5)

```

```

01241 #else
01242     DEFINE_ERROR(INSUFFICIENT_RANDOM_DATA, 0xA5)
01243 #endif //DOXYGEN_SHOULD_SKIP_THIS
01244
01245
01246 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01247
01250 #define EMBER_SOURCE_ROUTE_FAILURE(0xA9)
01251 #else
01252     DEFINE_ERROR(SOURCE_ROUTE_FAILURE, 0xA9)
01253 #endif
01254
01255 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01256
01261 #define EMBER_MANY_TO_ONE_ROUTE_FAILURE(0xAA)
01262 #else
01263     DEFINE_ERROR(MANY_TO_ONE_ROUTE_FAILURE, 0xAA)
01264 #endif
01265
01266
01268
01273
01274
01275 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01276
01282 #define EMBER_STACK_AND_HARDWARE_MISMATCH(0xB0)
01283 #else
01284     DEFINE_ERROR(STACK_AND_HARDWARE_MISMATCH, 0xB0)
01285 #endif //DOXYGEN_SHOULD_SKIP_THIS
01286
01287
01288 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01289
01293 #define EMBER_INDEX_OUT_OF_RANGE(0xB1)
01294 #else
01295     DEFINE_ERROR(INDEX_OUT_OF_RANGE, 0xB1)
01296 #endif
01297
01298 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01299
01302 #define EMBER_TABLE_FULL(0xB4)
01303 #else
01304     DEFINE_ERROR(TABLE_FULL, 0xB4)
01305 #endif //DOXYGEN_SHOULD_SKIP_THIS
01306
01307 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01308
01312 #define EMBER_TABLE_ENTRY_ERASED(0xB6)
01313 #else
01314     DEFINE_ERROR(TABLE_ENTRY_ERASED, 0xB6)
01315 #endif
01316
01317 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01318
01322 #define EMBER_LIBRARY_NOT_PRESENT(0xB5)
01323 #else
01324     DEFINE_ERROR(LIBRARY_NOT_PRESENT, 0xB5)
01325 #endif
01326
01327 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01328
01332 #define EMBER_OPERATION_IN_PROGRESS(0xBA)
01333 #else
01334     DEFINE_ERROR(OPERATION_IN_PROGRESS, 0xBA)
01335 #endif
01336
01337 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01338
01343 #define EMBER_TRUST_CENTER_EUI_HAS_CHANGED(0xBC)
01344 #else
01345     DEFINE_ERROR(TRUST_CENTER_EUI_HAS_CHANGED, 0xBC)
01346 #endif
01347
01349
01354
01355 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01356
01360 #define EMBER_NO_RESPONSE(0xC0)
01361 #else
01362     DEFINE_ERROR(NO_RESPONSE, 0xC0)

```

```

01363 #endif
01364
01365 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01366
01370 #define EMBER_DUPLICATE_ENTRY(0xC1)
01371 #else
01372     DEFINE_ERROR(DUPLICATE_ENTRY, 0xC1)
01373 #endif
01374
01375 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01376
01381 #define EMBER_NOT_PERMITTED(0xC2)
01382 #else
01383     DEFINE_ERROR(NOT_PERMITTED, 0xC2)
01384 #endif
01385
01386 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01387
01390 #define EMBER_DISCOVERY_TIMEOUT(0xC3)
01391 #else
01392     DEFINE_ERROR(DISCOVERY_TIMEOUT, 0xC3)
01393 #endif
01394
01395
01396 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01397
01401 #define EMBER_DISCOVERY_ERROR(0xC4)
01402 #else
01403     DEFINE_ERROR(DISCOVERY_ERROR, 0xC4)
01404 #endif
01405
01406
01407 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01408
01412 #define EMBER_SECURITY_TIMEOUT(0xC5)
01413 #else
01414     DEFINE_ERROR(SECURITY_TIMEOUT, 0xC5)
01415 #endif
01416
01417
01418 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01419
01422 #define EMBER_SECURITY_FAILURE(0xC6)
01423 #else
01424     DEFINE_ERROR(SECURITY_FAILURE, 0xC6)
01425 #endif
01426
01428
01434
01435 #ifdef DOXYGEN_SHOULD_SKIP_THIS
01436
01440 #define EMBER_APPLICATION_ERROR_0(0xF0)
01441 #define EMBER_APPLICATION_ERROR_1(0xF1)
01442 #define EMBER_APPLICATION_ERROR_2(0xF2)
01443 #define EMBER_APPLICATION_ERROR_3(0xF3)
01444 #define EMBER_APPLICATION_ERROR_4(0xF4)
01445 #define EMBER_APPLICATION_ERROR_5(0xF5)
01446 #define EMBER_APPLICATION_ERROR_6(0xF6)
01447 #define EMBER_APPLICATION_ERROR_7(0xF7)
01448 #define EMBER_APPLICATION_ERROR_8(0xF8)
01449 #define EMBER_APPLICATION_ERROR_9(0xF9)
01450 #define EMBER_APPLICATION_ERROR_10(0xFA)
01451 #define EMBER_APPLICATION_ERROR_11(0xFB)
01452 #define EMBER_APPLICATION_ERROR_12(0xFC)
01453 #define EMBER_APPLICATION_ERROR_13(0xFD)
01454 #define EMBER_APPLICATION_ERROR_14(0xFE)
01455 #define EMBER_APPLICATION_ERROR_15(0xFF)
01456 #else
01457     DEFINE_ERROR(APPLICATION_ERROR_0, 0xF0)
01458     DEFINE_ERROR(APPLICATION_ERROR_1, 0xF1)
01459     DEFINE_ERROR(APPLICATION_ERROR_2, 0xF2)
01460     DEFINE_ERROR(APPLICATION_ERROR_3, 0xF3)
01461     DEFINE_ERROR(APPLICATION_ERROR_4, 0xF4)
01462     DEFINE_ERROR(APPLICATION_ERROR_5, 0xF5)
01463     DEFINE_ERROR(APPLICATION_ERROR_6, 0xF6)
01464     DEFINE_ERROR(APPLICATION_ERROR_7, 0xF7)
01465     DEFINE_ERROR(APPLICATION_ERROR_8, 0xF8)
01466     DEFINE_ERROR(APPLICATION_ERROR_9, 0xF9)
01467     DEFINE_ERROR(APPLICATION_ERROR_10, 0xFA)
01468     DEFINE_ERROR(APPLICATION_ERROR_11, 0xFB)

```

```

01469 DEFINE_ERROR( APPLICATION_ERROR_12, 0xFC)
01470 DEFINE_ERROR( APPLICATION_ERROR_13, 0xFD)
01471 DEFINE_ERROR( APPLICATION_ERROR_14, 0xFE)
01472 DEFINE_ERROR( APPLICATION_ERROR_15, 0xFF)
01473 #endif //DOXYGEN_SHOULD_SKIP_THIS
01474
01476

```

## 8.84 esi-management.h File Reference

### Data Structures

- struct [EmberAfPluginEsiManagementEsiEntry](#)

### Macros

- #define [EMBER\\_AF\\_PLUGIN\\_ESI\\_MANAGEMENT\\_ESI\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_ESI\\_MANAGEMENT\\_MIN\\_ERASING\\_AGE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_ESI\\_MANAGEMENT\\_PLUGIN\\_CALLBACK\\_TABLE\\_SIZE](#)

### Typedefs

- typedef void(\* [EmberAfEsiManagementDeletionCallback](#) )(uint8\_t)

### Functions

- [EmberAfPluginEsiManagementEsiEntry \\* emberAfPluginEsiManagementEsiLookUpByShortIdAndEndpoint](#) (EmberNodeId shortId, uint8\_t endpoint)
- [EmberAfPluginEsiManagementEsiEntry \\* emberAfPluginEsiManagementEsiLookUpByLongIdAndEndpoint](#) (EmberEUI64 longId, uint8\_t endpoint)
- [uint8\\_t emberAfPluginEsiManagementIndexLookUpByShortIdAndEndpoint](#) (EmberNodeId shortId, uint8\_t endpoint)
- [uint8\\_t emberAfPluginEsiManagementIndexLookUpByLongIdAndEndpoint](#) (EmberEUI64 longId, uint8\_t endpoint)
- [EmberAfPluginEsiManagementEsiEntry \\* emberAfPluginEsiManagementEsiLookUpByIndex](#) (uint8\_t index)
- [EmberAfPluginEsiManagementEsiEntry \\* emberAfPluginEsiManagementGetNextEntry](#) (EmberAfPluginEsiManagementEsiEntry \*entry, uint8\_t age)
- [EmberAfPluginEsiManagementEsiEntry \\* emberAfPluginEsiManagementGetFreeEntry](#) (void)
- [void emberAfPluginEsiManagementDeleteEntry](#) (uint8\_t index)
- [void emberAfPluginEsiManagementAgeAllEntries](#) (void)
- [void emberAfPluginEsiManagementClearTable](#) (void)
- [bool emberAfPluginEsiManagementSubscribeToDeleteAnnouncements](#) (EmberAfEsiManagementDeletionCallback callback)
- [uint8\\_t emberAfPluginEsiManagementUpdateEsiAndGetIndex](#) (const EmberAfClusterCommand \*cmd)

#### 8.84.1 Macro Definition Documentation

##### 8.84.1.1 #define EMBER\_AF\_PLUGIN\_ESI\_MANAGEMENT\_ESI\_TABLE\_SIZE

Definition at line 11 of file [esi-management.h](#).

#### **8.84.1.2 #define EMBER\_AF\_PLUGIN\_ESI\_MANAGEMENT\_MIN\_ERASING\_AGE**

Definition at line 15 of file [esi-management.h](#).

#### **8.84.1.3 #define EMBER\_AF\_PLUGIN\_ESI\_MANAGEMENT\_PLUGIN\_CALLBACK\_TABLE\_SIZE**

Definition at line 19 of file [esi-management.h](#).

### **8.84.2 Typedef Documentation**

#### **8.84.2.1 typedef void(\* EmberAfEsiManagementDeletionCallback)(uint8\_t)**

Definition at line 30 of file [esi-management.h](#).

### **8.84.3 Function Documentation**

#### **8.84.3.1 EmberAfPluginEsiManagementEsiEntry\* emberAfPluginEsiManagementEsiLookUpByShortIdAndEndpoint ( EmberNodeId shortId, uint8\_t endpoint )**

It allows to search in the ESI table by the pair node (short id, endpoint).

It returns a pointer to the entry if a matching entry was found, otherwise it returns NULL.

#### **8.84.3.2 EmberAfPluginEsiManagementEsiEntry\* emberAfPluginEsiManagementEsiLookUpByLongIdAndEndpoint ( EmberEUI64 longId, uint8\_t endpoint )**

It allows to search in the ESI table by the pair node (long id, endpoint).

It returns a pointer to the entry if a matching entry was found, otherwise it returns NULL.

#### **8.84.3.3 uint8\_t emberAfPluginEsiManagementIndexLookUpByShortIdAndEndpoint ( EmberNodeId shortId, uint8\_t endpoint )**

It allows to retrieve the index of an entry that matches the passed short ID and endpoint.

It returns the index of the matching entry if a matching entry was found, otherwise it returns 0xFF.

#### **8.84.3.4 uint8\_t emberAfPluginEsiManagementIndexLookUpByLongIdAndEndpoint ( EmberEUI64 longId, uint8\_t endpoint )**

It allows to retrieve the index of an entry that matches the passed long ID and endpoint.

It returns the index of the matching entry if a matching entry was found, otherwise it returns 0xFF.

#### **8.84.3.5 EmberAfPluginEsiManagementEsiEntry\* emberAfPluginEsiManagementEsiLookUpByIndex ( uint8\_t index )**

It allows to search in the ESI table by the table index.

It returns a pointer to the ESI entry stored at the index passed as parameter.

**8.84.3.6 EmberAfPluginEsiManagementEsiEntry\* emberAfPluginEsiManagementGetNextEntry ( EmberAfPluginEsiManagementEsiEntry \* *entry*, uint8\_t *age* )**

This function can be used as an iterator to go through the entries in the table that are within a certain age threshold.

If the passed pointer is NULL, it returns the first active entry with age lesser or equal than the passed age parameter (if any). Otherwise it returns the next active entry that satisfy the age requirement. If there are no entries after the passed entry that satisfy the age requirement, it returns NULL.

**8.84.3.7 EmberAfPluginEsiManagementEsiEntry\* emberAfPluginEsiManagementGetFreeEntry ( void )**

This function allows to obtain a free entry in the ESI table. It is the requester responsibility to properly set all the fields in the obtained free entry such as nodeId, age, etc. in order to avoid inconsistencies in the table.

Returns a free entry (if any), otherwise it clears the oldest entry whose age is at least EMBER\_AF\_PLUGIN\_ESI\_MANAGEMENT\_MIN\_ERASING\_AGE (if any) and returns it, otherwise it returns NULL.

**8.84.3.8 void emberAfPluginEsiManagementDeleteEntry ( uint8\_t *index* )**

This function deletes the entry indicated by the parameter 'index' from the ESI table.

**8.84.3.9 void emberAfPluginEsiManagementAgeAllEntries ( void )**

This function increases the age of all the active entries in the table. A non-active entry is an entry whose short ID is set to EMBER\_NULL\_NODE\_ID.

**8.84.3.10 void emberAfPluginEsiManagementClearTable ( void )**

This function clears the ESI table, i.e., it sets the short ID of each entry to EMBER\_NULL\_NODE\_ID.

**8.84.3.11 bool emberAfPluginEsiManagementSubscribeToDeleteAnnouncements ( EmberAfEsiManagementDeletionCallback *callback* )**

This function allows a plugin to subscribe to ESI entries deletion announcements, by passing its own deletion callback function. Upon an entry deletion, all the deletion callback function are called passing the index of the deleted entry.

It returns true if the subscription was successful, false otherwise.

**8.84.3.12 uint8\_t emberAfPluginEsiManagementUpdateEsiAndGetIndex ( const EmberAfClusterCommand \* *cmd* )**

This function performs the following steps:

- Search for the source node of the passed command in the ESI table.
- Adds a new entry in the ESI table if the source node is not present in the ESI table yet, or updates the current entry if needed.

## Returns

The index of the source node of the passed command in the ESI table, or it returns 0xFF if the ESI was not present in the table and a new entry could not be added since the table was full.

## 8.85 esi-management.h

```

00001 /**
00002 * *****
00003 * esi-management.h
00004 * It implements and manages the ESI table. The ESI table is shared among
00005 * other plugins.
00006 *
00007 * Copyright 2011 by Ember Corporation. All rights reserved.
00008 * 80*
00009 */
00010 #ifndef EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE
00011 #define EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE 3
00012 #endif //EMBER_AF_PLUGIN_ESI_MANAGEMENT_ESI_TABLE_SIZE
00013
00014 #ifndef EMBER_AF_PLUGIN_ESI_MANAGEMENT_MIN_ERASING_AGE
00015 #define EMBER_AF_PLUGIN_ESI_MANAGEMENT_MIN_ERASING_AGE 3
00016 #endif //EMBER_AF_PLUGIN_ESI_MANAGEMENT_MIN_ERASING_AGE
00017
00018 #ifndef EMBER_AF_PLUGIN_ESI_MANAGEMENT_PLUGIN_CALLBACK_TABLE_SIZE
00019 #define EMBER_AF_PLUGIN_ESI_MANAGEMENT_PLUGIN_CALLBACK_TABLE_SIZE 5
00020 #endif // EMBER_AF_PLUGIN_ESI_MANAGEMENT_PLUGIN_CALLBACK_TABLE_SIZE
00021
00022 typedef struct {
00023     EmberEUI64 eui64;
00024     EmberNodeId nodeId;
00025     uint8_t networkIndex;
00026     uint8_t endpoint;
00027     uint8_t age; // Number of discovery cycles the ESI has not been
00028     discovered.
00029 } EmberAfPluginEsiManagementEsiEntry;
00030
00031 typedef void(*EmberAfEsiManagementDeletionCallback
00032     )(uint8_t);
00033
00034 EmberAfPluginEsiManagementEsiEntry*
00035 emberAfPluginEsiManagementEsiLookUpByShortIdAndEndpoint
00036     (EmberNodeId shortId,
00037      uint8_t endpoint);
00038
00039 EmberAfPluginEsiManagementEsiEntry*
00040 emberAfPluginEsiManagementEsiLookUpByLongIdAndEndpoint
00041     (EmberEUI64 longId,
00042      uint8_t endpoint);
00043
00044 uint8_t emberAfPluginEsiManagementIndexLookUpByShortIdAndEndpoint
00045     (EmberNodeId shortId,
00046      uint8_t endpoint
00047 );
00048
00049 uint8_t emberAfPluginEsiManagementIndexLookUpByLongIdAndEndpoint
00050     (EmberEUI64 longId,
00051      uint8_t endpoint
00052 );
00053
00054 EmberAfPluginEsiManagementEsiEntry*
00055 emberAfPluginEsiManagementEsiLookUpByIndex
00056     (uint8_t index);

```

```

00077
00087 EmberAfPluginEsiManagementEsiEntry*
00088     emberAfPluginEsiManagementGetNextEntry(
00089         EmberAfPluginEsiManagementEsiEntry* entry,
00090         uint8_t age);
00091
00100 EmberAfPluginEsiManagementEsiEntry*
00101     emberAfPluginEsiManagementGetFreeEntry(
00102         void);
00103
00106 void emberAfPluginEsiManagementDeleteEntry
00107     (uint8_t index);
00108
00112 void emberAfPluginEsiManagementAgeAllEntries
00113     (void);
00118 void emberAfPluginEsiManagementClearTable(
00119     void);
00128 bool emberAfPluginEsiManagementSubscribeToDeleteAnnouncements
00129     (EmberAfEsiManagementDeletionCallback
00130         callback);
00140 uint8_t emberAfPluginEsiManagementUpdateEsiAndGetIndex
00141     (const EmberAfClusterCommand *cmd);
00142

```

## 8.86 events-server.h File Reference

### Data Structures

- struct [EmberAfEvent](#)

### Macros

- #define [ZCL\\_EVENTS\\_INVALID\\_INDEX](#)

### Functions

- bool [emberAfEventsServerClearEventLog](#) (uint8\_t endpoint, [EmberAfEventLogId](#) logId)
- void [emberAfEventsServerPrintEventLog](#) (uint8\_t endpoint, [EmberAfEventLogId](#) logId)
- void [emberAfEventsServerPrintEvent](#) (const [EmberAfEvent](#) \*event)
- bool [emberAfEventsServerGetEvent](#) (uint8\_t endpoint, [EmberAfEventLogId](#) logId, uint8\_t index, [EmberAfEvent](#) \*event)
- bool [emberAfEventsServerSetEvent](#) (uint8\_t endpoint, [EmberAfEventLogId](#) logId, uint8\_t index, const [EmberAfEvent](#) \*event)
- uint8\_t [emberAfEventsServerAddEvent](#) (uint8\_t endpoint, [EmberAfEventLogId](#) logId, const [EmberAfEvent](#) \*event)
- void [emberAfEventsServerPublishEventMessage](#) ([EmberNodeId](#) nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, [EmberAfEventLogId](#) logId, uint8\_t index, uint8\_t eventControl)

#### 8.86.1 Macro Definition Documentation

##### 8.86.1.1 #define ZCL\_EVENTS\_INVALID\_INDEX

Definition at line 14 of file [events-server.h](#).

## 8.86.2 Function Documentation

### 8.86.2.1 bool emberAfEventsServerClearEventLog ( *uint8\_t endpoint*, EmberAfEventLogId *logId* )

Clear all events in the specified event log.

#### Parameters

<i>endpoint</i>	The endpoint for which the event log will be cleared.
<i>logId</i>	The log to be cleared

#### Returns

true if the log was successfully cleared or false if logId is invalid.

### 8.86.2.2 void emberAfEventsServerPrintEventLog ( *uint8\_t endpoint*, EmberAfEventLogId *logId* )

Print all events in the specified event log.

#### Parameters

<i>endpoint</i>	The endpoint for which the event log will be printed
<i>logId</i>	The log to be printed

### 8.86.2.3 void emberAfEventsServerPrintEvent ( const EmberAfEvent \* *event* )

Print an event.

#### Parameters

<i>event</i>	The event to print
--------------	--------------------

### 8.86.2.4 bool emberAfEventsServerGetEvent ( *uint8\_t endpoint*, EmberAfEventLogId *logId*, uint8\_t *index*, EmberAfEvent \* *event* )

Get an event from the specified event log.

This function can be used to get an event at a specific location in the specified log.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>logId</i>	The relevant log
<i>index</i>	The index in the event log.
<i>event</i>	The <a href="#">EmberAfEvent</a> structure describing the event.

#### Returns

true if the event was found or false if the index is invalid.

### 8.86.2.5 bool emberAfEventsServerSetEvent ( uint8\_t *endpoint*, EmberAfEventLogId *logId*, uint8\_t *index*, const EmberAfEvent \* *event* )

Store an event in the specified event log.

This function can be used to set an event at a specific location in the specified log.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>logId</i>	The relevant log
<i>index</i>	The index in the event log.
<i>event</i>	The <a href="#">EmberAfEvent</a> structure describing the event. If NULL, the event is removed from the server.

#### Returns

true if the event was set or removed or false if the index is invalid.

### 8.86.2.6 uint8\_t emberAfEventsServerAddEvent ( uint8\_t *endpoint*, EmberAfEventLogId *logId*, const EmberAfEvent \* *event* )

Add an event to the specified event log.

This function can be used to add an event at the next available location in the specified log. Once the event log is full, new events will start overwriting old events at the beginning of the table.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>logId</i>	The relevant log
<i>event</i>	The <a href="#">EmberAfEvent</a> structure describing the event.

#### Returns

the index of the location in the log where the event was added or ZCL\_EVENTS\_INVALID\_INDEX if the specified event log is full.

### 8.86.2.7 void emberAfEventsServerPublishEventMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, EmberAfEventLogId *logId*, uint8\_t *index*, uint8\_t *eventControl* )

Publish an event.

This function will locate the event in the specified log at the specified location and using the information from the event build and send a PublishEvent command.

#### Parameters

<i>nodeId</i>	The destination nodeId
<i>srcEndpoint</i>	The source endpoint
<i>dstEndpoint</i>	The destination endpoint
<i>logId</i>	The relevant log
<i>index</i>	The index in the event log.

<i>eventControl</i>	Actions to be taken regarding this event. For example, Report event to HAN and/or Report event to WAN.
---------------------	--

## 8.87 events-server.h

```

00001 // ****
00002 // * events-server.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // ****
00007
00008 typedef struct {
00009     uint16_t eventId;
00010    uint32_t eventTime;
00011    uint8_t eventData[EMBER_AF_PLUGIN_EVENTS_SERVER_EVENT_DATA_LENGTH + 1];
00012 } EmberAfEvent;
00013
00014 #define ZCL_EVENTS_INVALID_INDEX 0xFF
00015
00016
00017
00018 #if defined(EMBER_AF_PLUGIN_GAS_PROXY_FUNCTION)
00019 // GBCS Alert Codes
00020 #define GBCS_ALERT_BILLING_DATA_LOG_UPDATED (0x800A)
00021 #define GBCS_EVENT_ID_UNAUTHD_COMM_ACC_ATT (0x803E)
00022 #define GBCS_EVENT_ID_EVENT_LOG_CLEARED (0x8052)
00023 #define GBCS_EVENT_ID_FAILED_AUTH (0x8053)
00024 #define GBCS_EVENT_ID_IMM_HAN_CMD_RXED_ACTED (0x8054)
00025 #define GBCS_EVENT_ID_IMM_HAN_CMD_RXED_NOT_ACTED (0x8055)
00026 #define GBCS_EVENT_ID_FUT_HAN_CMD_ACTED (0x8066)
00027 #define GBCS_EVENT_ID_FUT_HAN_CMD_NOT_ACTED (0x8067)
00028 #define GBCS_EVENT_ID_GPF_DEVICE_LOG_CHGD (0x8071)
00029 #define GBCS_EVENT_ID_GSME_CMD_NOT_RETRVD (0x809D)
00030 #define GBCS_EVENT_LOG_ID_GSME_EVENT_LOG (0x6)
00031 #define GBCS_EVENT_LOG_ID_GSME_SECURITY_EVENT_LOG (0x7)
00032 #endif
00033
00041 bool emberAfEventsServerClearEventLog(uint8_t
00042     endpoint,
00043                         EmberAfEventLogId
00044     logId);
00043
00050 void emberAfEventsServerPrintEventLog(uint8_t
00051     endpoint,
00052                         EmberAfEventLogId logId)
00051 ;
00052
00058 void emberAfEventsServerPrintEvent(const
00059     EmberAfEvent *event);
00059
00072 bool emberAfEventsServerGetEvent(uint8_t endpoint,
00073                         EmberAfEventLogId logId,
00074                         uint8_t index,
00075                         EmberAfEvent *event);
00076
00090 bool emberAfEventsServerSetEvent(uint8_t endpoint,
00091                         EmberAfEventLogId logId,
00092                         uint8_t index,
00093                         const EmberAfEvent *event);
00094
00108 uint8_t emberAfEventsServerAddEvent(uint8_t endpoint
00109 ,
00110                         EmberAfEventLogId logId,
00110                         const EmberAfEvent *event);
00111
00127 void emberAfEventsServerPublishEventMessage
00128     (EmberNodeId nodeId,
00128                         uint8_t srcEndpoint,
00129                         uint8_t dstEndpoint,
00130                         EmberAfEventLogId
00130     logId,

```

```

00131     uint8_t index,
00132     uint8_t eventControl);

```

## 8.88 ez-mode.h File Reference

### Enumerations

- enum `EmberAfEzModeCommissioningDirection` { `EMBER_AF_EZMODE_COMMISSIONING_SERVER_TO_CLIENT`, `EMBER_AF_EZMODE_COMMISSIONING_CLIENT_TO_SERVER` }

### Functions

- `EmberStatus emberAfEzmodeClientCommission` (`uint8_t endpoint`, `EmberAfEzModeCommissioningDirection direction`, `const uint16_t *clusterIds`, `uint8_t clusterIdsLength`)
- `EmberStatus emberAfEzmodeServerCommission` (`uint8_t endpoint`)
- `EmberStatus emberAfEzmodeServerCommissionWithTimeout` (`uint8_t endpoint`, `uint16_t identifyTimeoutSeconds`)

#### 8.88.1 Enumeration Type Documentation

##### 8.88.1.1 enum `EmberAfEzModeCommissioningDirection`

Enumerator:

`EMBER_AF_EZMODE_COMMISSIONING_SERVER_TO_CLIENT`  
`EMBER_AF_EZMODE_COMMISSIONING_CLIENT_TO_SERVER`

Definition at line 3 of file `ez-mode.h`.

#### 8.88.2 Function Documentation

##### 8.88.2.1 `EmberStatus emberAfEzmodeClientCommission` ( `uint8_t endpoint`, `EmberAfEzModeCommissioningDirection direction`, `const uint16_t * clusterIds`, `uint8_t clusterIdsLength` )

Starts EZ-Mode Client commissioning.

Kicks off the ezmode commissioning process by sending out an identify query command to the given endpoint. Endpoints that return an identify query response are interrogated for the given cluster ids in the given direction (client or server).

#### Parameters

<code>endpoint</code>	The endpoint to send the identify query command from
<code>direction</code>	The side of the cluster ids given either client or server
<code>clusterIds</code>	An array of clusters against which to match. <i>NOTE</i> The API only keeps the pointer to the data structure. The data is expected to exist throughout the ezmode-commissioning calls.
<code>clusterIdsLength</code>	The number of cluster ids passed for the match

### 8.88.2.2 EmberStatus emberAfEzmodeServerCommission ( *uint8\_t endpoint* )

Begins EZ-Mode server commissioning.

Kicks off the server side of EZ-Mode commissioning by putting the device into identify mode.

#### Parameters

<i>endpoint</i>	The endpoint on which to begin identifying
-----------------	--

### 8.88.2.3 EmberStatus emberAfEzmodeServerCommissionWithTimeout ( *uint8\_t endpoint, uint16\_t identifyTimeoutSeconds* )

Begins EZ-Mode server commissioning with a given timeout.

Kicks off the server side of EZ-Mode commissioning by putting the device into identify mode for a given time.

#### Parameters

<i>endpoint</i>	The endpoint on which to begin identifying
<i>identify- Timeout- Seconds</i>	The number of seconds to identify for before stopping identify mode.

## 8.89 ez-mode.h

```

00001 // Copyright 2013 Silicon Laboratories, Inc.
00002
00003 typedef enum {
00004     /* allows the creation of bindings from
00005      * an attribute server to an attribute client. */
00006     EMBER_AF_EZMODE_COMMISSIONING_SERVER_TO_CLIENT
00007     = 0,
00008     /* allows the creation of bindings from
00009      * an attribute client to an attribute server. */
00010     EMBER_AF_EZMODE_COMMISSIONING_CLIENT_TO_SERVER
00011     = 1,
00012 } EmberAfEzModeCommissioningDirection;
00013
00029 EmberStatus emberAfEzmodeClientCommission
00030     (uint8_t endpoint,
00031         EmberAfEzModeCommissioningDirection
00032         direction,
00033         const uint16_t *clusterIds,
00034         uint8_t clusterIdsLength);
00035
00042 EmberStatus emberAfEzmodeServerCommission
00043     (uint8_t endpoint);
00044
00054 EmberStatus emberAfEzmodeServerCommissionWithTimeout
00055     (uint8_t endpoint,
00056         uint16_t
00057         identifyTimeoutSeconds);

```

## 8.90 file-descriptor-dispatch.h File Reference

## Data Structures

- struct [EmberAfFileDescriptorDispatchStruct](#)

## Typedefs

- typedef void(\* [EmberAfFileDescriptorReadyCallback](#) )(void \*data, [EmberAfFileDescriptorOperation](#) operation)

## Enumerations

- enum [EmberAfFileDescriptorOperation](#) { [EMBER\\_AF\\_FILE\\_DESCRIPTOR\\_OPERATION\\_NONE](#), [EMBER\\_AF\\_FILE\\_DESCRIPTOR\\_OPERATION\\_READ](#), [EMBER\\_AF\\_FILE\\_DESCRIPTOR\\_OPERATION\\_WRITE](#) }

## Functions

- [EmberStatus](#) [emberAfPluginFileDescriptorDispatchAdd](#) ([EmberAfFileDescriptorDispatchStruct](#) \*dispatchStruct)
- [EmberStatus](#) [emberAfPluginFileDescriptorDispatchWaitForEvents](#) (uint32\_t timeoutMs)
- bool [emberAfPluginFileDescriptorDispatchRemove](#) (int fileDescriptor)

### 8.90.1 Type Definition Documentation

**8.90.1.1 [typedef void\(\\* EmberAfFileDescriptorReadyCallback\)\(void \\*data, EmberAfFileDescriptorOperation operation\)](#)**

Definition at line 8 of file [file-descriptor-dispatch.h](#).

### 8.90.2 Enumeration Type Documentation

**8.90.2.1 [enum EmberAfFileDescriptorOperation](#)**

Enumerator:

[EMBER\\_AF\\_FILE\\_DESCRIPTOR\\_OPERATION\\_NONE](#)  
[EMBER\\_AF\\_FILE\\_DESCRIPTOR\\_OPERATION\\_READ](#)  
[EMBER\\_AF\\_FILE\\_DESCRIPTOR\\_OPERATION\\_WRITE](#)

Definition at line 2 of file [file-descriptor-dispatch.h](#).

### 8.90.3 Function Documentation

**8.90.3.1 [EmberStatus](#) [emberAfPluginFileDescriptorDispatchAdd](#) ( EmberAfFileDescriptorDispatchStruct \* *dispatchStruct* )**

**8.90.3.2 [EmberStatus](#) [emberAfPluginFileDescriptorDispatchWaitForEvents](#) ( uint32\_t *timeoutMs* )**

### 8.90.3.3 bool emberAfPluginFileDescriptorDispatchRemove ( int *fileDescriptor* )

## 8.91 file-descriptor-dispatch.h

```

00001
00002 typedef enum {
00003     EMBER_AF_FILE_DESCRIPTOR_OPERATION_NONE
00004     = 0x00,
00005     EMBER_AF_FILE_DESCRIPTOR_OPERATION_READ
00006     = 0x01,
00007     EMBER_AF_FILE_DESCRIPTOR_OPERATION_WRITE
00008     = 0x02,
00009 } EmberAfFileDescriptorOperation;
00010
00011 typedef void (*EmberAfFileDescriptorReadyCallback
00012 )(void* data, EmberAfFileDescriptorOperation
00013 operation);
00014
00015 typedef struct {
00016     EmberAfFileDescriptorReadyCallback callback
00017     ;
00018     void* dataPassedToCallback;
00019     EmberAfFileDescriptorOperation operation
00020     ;
00021     int fileDescriptor;
00022 } EmberAfFileDescriptorDispatchStruct;
00023
00024 EmberStatus emberAfPluginFileDescriptorDispatchAdd
00025     (EmberAfFileDescriptorDispatchStruct*
00026      dispatchStruct);
00027 EmberStatus emberAfPluginFileDescriptorDispatchWaitForEvents
00028     (uint32_t timeoutMs);
00029 bool emberAfPluginFileDescriptorDispatchRemove
00030     (int fileDescriptor);

```

## 8.92 find-and-bind-initiator.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR\_PLUGIN\_NAME
- #define EMBER\_AF\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_RESPONSES\_COUNT
- #define EMBER\_AF\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_RESPONSES\_DELAY\_MS

### Functions

- EmberStatus emberAfPluginFindAndBindInitiatorStart (uint8\_t endpoint)

#### 8.92.1 Macro Definition Documentation

##### 8.92.1.1 #define EMBER\_AF\_PLUGIN\_FIND\_AND\_BIND\_INITIATOR\_PLUGIN\_NAME

Definition at line 9 of file [find-and-bind-initiator.h](#).

##### 8.92.1.2 #define EMBER\_AF\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_RESPONSES\_COUNT

Definition at line 12 of file [find-and-bind-initiator.h](#).

### 8.92.1.3 #define EMBER\_AF\_PLUGIN\_FIND\_AND\_BIND\_TARGET\_RESPONSES\_DELAY\_MS

Definition at line 16 of file [find-and-bind-initiator.h](#).

## 8.92.2 Function Documentation

### 8.92.2.1 EmberStatus emberAfPluginFindAndBindInitiatorStart ( uint8\_t endpoint )

Start initiator finding and binding operations.

A call to this function will commence the initiator finding and binding operations. Specifically, the initiator will attempt to start searching for potential bindings that can be made with identifying targets.

#### Parameters

<i>endpoint</i>	The endpoint on which to begin initiator operations.
-----------------	--

#### Returns

An [EmberStatus](#) value describing the success of the commencement of the initiator operations.

## 8.93 find-and-bind-initiator.h

```

00001 // Copyright 2016 Silicon Laboratories, Inc.
00002
00003 #ifndef __FIND_AND_BIND_INITIATOR_H__
00004 #define __FIND_AND_BIND_INITIATOR_H__
00005
00006 //
00007 // -----
00008 // Constants
00009 #define EMBER_AF_PLUGIN_FIND_AND_BIND_INITIATOR_PLUGIN_NAME "Find and Bind
00010           Initiator"
00011 #ifndef EMBER_AF_PLUGIN_FIND_AND_BIND_TARGET_RESPONSES_COUNT
00012 #define EMBER_AF_PLUGIN_FIND_AND_BIND_TARGET_RESPONSES_COUNT (5)
00013 #endif
00014
00015 #ifndef EMBER_AF_PLUGIN_FIND_AND_BIND_TARGET_RESPONSES_DELAY_MS
00016 #define EMBER_AF_PLUGIN_FIND_AND_BIND_TARGET_RESPONSES_DELAY_MS \
00017           (MILLISECOND_TICKS_PER_SECOND)
00018 #endif
00019
00020 //
00021 // -----
00022 // API
00023
00024 #endif /* __FIND_AND_BIND_INITIATOR_H__ */
00025
00026
00027
00028
00029
00030
00031
00032
00033
00034
00035 EmberStatus emberAfPluginFindAndBindInitiatorStart
00036     (uint8_t endpoint);
00037 #endif /* __FIND_AND_BIND_INITIATOR_H__ */

```

## 8.94 find-and-bind-target.h File Reference

### Macros

- #define [EMBER\\_AF\\_PLUGIN\\_FIND\\_AND\\_BIND\\_TARGET\\_PLUGIN\\_NAME](#)
- #define [EMBER\\_AF\\_PLUGIN\\_FIND\\_AND\\_BIND\\_COMMISSIONING\\_TIME](#)

## Functions

- `EmberAfStatus emberAfPluginFindAndBindTargetStart (uint8_t endpoint)`

### 8.94.1 Macro Definition Documentation

#### 8.94.1.1 `#define EMBER_AF_PLUGIN_FIND_AND_BIND_TARGET_PLUGIN_NAME`

Definition at line 9 of file [find-and-bind-target.h](#).

#### 8.94.1.2 `#define EMBER_AF_PLUGIN_FIND_AND_BIND_COMMISSIONING_TIME`

Definition at line 12 of file [find-and-bind-target.h](#).

### 8.94.2 Function Documentation

#### 8.94.2.1 `EmberAfStatus emberAfPluginFindAndBindTargetStart ( uint8_t endpoint )`

Start target finding and binding operations.

A call to this function will commence the target finding and binding operations. Specifically, the target will attempt to start identifying on the endpoint that is passed as a parameter.

#### Parameters

<code>endpoint</code>	The endpoint on which to begin target operations.
-----------------------	---

#### Returns

An `EmberAfStatus` value describing the success of the commencement of the target operations.

## 8.95 find-and-bind-target.h

```

0001 // Copyright 2016 Silicon Laboratories, Inc.
0002
0003 #ifndef __FIND_AND_BIND_TARGET_H__
0004 #define __FIND_AND_BIND_TARGET_H__
0005
0006 //
-----+
0007 // Constants
0008
0009 #define EMBER_AF_PLUGIN_FIND_AND_BIND_TARGET_PLUGIN_NAME "Find and Bind Target"
0010
0011 #ifndef EMBER_AF_PLUGIN_FIND_AND_BIND_COMMISSIONING_TIME
0012     #define EMBER_AF_PLUGIN_FIND_AND_BIND_COMMISSIONING_TIME (180) /* seconds */
0013 #endif
0014
0015 //
-----+
0016 // API
0017
0018
0019 EmberAfStatus emberAfPluginFindAndBindTargetStart
0020     (uint8_t endpoint);
0021
0022 #endif /* __FIND_AND_BIND_TARGET_H__ */
0023

```

## 8.96 fragmentation.h File Reference

### Data Structures

- struct `txFragmentedPacket`
- struct `rxFragmentedPacket`

### Macros

- `#define ZIGBEE_APSC_MAX_TRANSMIT_RETRIES`
- `#define EMBER_AF_PLUGIN_FRAGMENTATION_MAX_INCOMING_PACKETS`
- `#define EMBER_AF_PLUGIN_FRAGMENTATION_MAX_OUTGOING_PACKETS`
- `#define EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE`
- `#define EMBER_AF_FRAGMENTATION_EVENTS`
- `#define EMBER_AF_FRAGMENTATION_EVENT_STRINGS`

### Enumerations

- enum `rxPacketStatus` { `EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_AVAILABLE`, `EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_ACKED`, `EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_IN_USE`, `EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_PAYLOAD_TOO_LARGE` }

### Functions

- `EmberStatus emAfFragmentationSendUnicast (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint8_t *buffer, uint16_t bufLen, uint8_t *messageTag)`
- `bool emAfFragmentationMessageSent (EmberApsFrame *apsFrame, EmberStatus status)`
- `void emAfFragmentationMessageSentHandler (EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame *apsFrame, uint8_t *buffer, uint16_t bufLen, EmberStatus status, uint8_t messageTag)`
- `bool emAfFragmentationIncomingMessage (EmberIncomingMessageType type, EmberApsFrame *apsFrame, EmberNodeId sender, uint8_t **buffer, uint16_t *bufLen)`
- `void emAfFragmentationAbortReception (EmberEventControl *control)`
- `void emAfPluginFragmentationPlatformInitCallback (void)`
- `EmberStatus emAfPluginFragmentationSend (txFragmentedPacket *txPacket, uint8_t fragmentNumber, uint16_t fragmentLen, uint16_t offset)`
- `void emAfPluginFragmentationHandleSourceRoute (txFragmentedPacket *txPacket, uint16_t indexOrDestination)`
- `void emAfPluginFragmentationSendReply (EmberNodeId sender, EmberApsFrame *apsFrame, rxFragmentedPacket *rxPacket)`

### Variables

- `EmberEventControl emAfFragmentationEvents [10]`
- `uint8_t emberFragmentWindowSize`
- `uint16_t emberMacIndirectTimeout`

### 8.96.1 Macro Definition Documentation

#### 8.96.1.1 `#define ZIGBEE_APSC_MAX_TRANSMIT_RETRIES`

Definition at line 10 of file [fragmentation.h](#).

#### 8.96.1.2 `#define EMBER_AF_PLUGIN_FRAGMENTATION_MAX_INCOMING_PACKETS`

Definition at line 14 of file [fragmentation.h](#).

#### 8.96.1.3 `#define EMBER_AF_PLUGIN_FRAGMENTATION_MAX_OUTGOING_PACKETS`

Definition at line 18 of file [fragmentation.h](#).

#### 8.96.1.4 `#define EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE`

Definition at line 22 of file [fragmentation.h](#).

#### 8.96.1.5 `#define EMBER_AF_FRAGMENTATION_EVENTS`

Definition at line 33 of file [fragmentation.h](#).

#### 8.96.1.6 `#define EMBER_AF_FRAGMENTATION_EVENT_STRINGS`

Definition at line 44 of file [fragmentation.h](#).

### 8.96.2 Enumeration Type Documentation

#### 8.96.2.1 `enum rxPacketStatus`

Enumerator:

```
EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_AVAILABLE
EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_ACKED
EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_IN_USE
EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_PAYLOAD_TOO_LARGE
```

Definition at line 100 of file [fragmentation.h](#).

### 8.96.3 Function Documentation

#### 8.96.3.1 `EmberStatus emAfFragmentationSendUnicast ( EmberOutgoingMessageType type, uint16_t indexOrDestination, EmberApsFrame * apsFrame, uint8_t * buffer, uint16_t bufLen, uint8_t * messageTag )`

#### 8.96.3.2 `bool emAfFragmentationMessageSent ( EmberApsFrame * apsFrame, EmberStatus status )`

- 8.96.3.3 void emAfFragmentationMessageSentHandler ( EmberOutgoingMessageType *type*, uint16\_t *indexOrDestination*, EmberApsFrame \* *apsFrame*, uint8\_t \* *buffer*, uint16\_t *bufLen*, EmberStatus *status*, uint8\_t *messageTag* )
- 8.96.3.4 bool emAfFragmentationIncomingMessage ( EmberIncomingMessageType *type*, EmberApsFrame \* *apsFrame*, EmberNodeId *sender*, uint8\_t \*\* *buffer*, uint16\_t \* *bufLen* )
- 8.96.3.5 void emAfFragmentationAbortReception ( EmberEventControl \* *control* )
- 8.96.3.6 void emAfPluginFragmentationPlatformInitCallback ( void )
- 8.96.3.7 EmberStatus emAfPluginFragmentationSend ( txFragmentedPacket \* *txPacket*, uint8\_t *fragmentNumber*, uint16\_t *fragmentLen*, uint16\_t *offset* )
- 8.96.3.8 void emAfPluginFragmentationHandleSourceRoute ( txFragmentedPacket \* *txPacket*, uint16\_t *indexOrDestination* )
- 8.96.3.9 void emAfPluginFragmentationSendReply ( EmberNodeId *sender*, EmberApsFrame \* *apsFrame*, rxFragmentedPacket \* *rxPacket* )

#### 8.96.4 Variable Documentation

8.96.4.1 EmberEventControl emAfFragmentationEvents[10]

8.96.4.2 uint8\_t emberFragmentWindowSize

8.96.4.3 uint16\_t emberMacIndirectTimeout

### 8.97 fragmentation.h

```

00001 /**
00002  * fragmentation.h
00003 */
00004 /* Splits long messages into smaller blocks for transmission and reassembles
00005  * received blocks.
00006 */
00007 /* Copyright 2010 by Ember Corporation. All rights reserved.
00008 *80*
00009 */
00010 #ifndef ZIGBEE_APSC_MAX_TRANSMIT_RETRIES
00011 #define ZIGBEE_APSC_MAX_TRANSMIT_RETRIES 3
00012 #endif //ZIGBEE_APSC_MAX_TRANSMIT_RETRIES
00013 #ifndef EMBER_AF_PLUGIN_FRAGMENTATION_MAX_INCOMING_PACKETS
00014 #define EMBER_AF_PLUGIN_FRAGMENTATION_MAX_INCOMING_PACKETS 2
00015 #endif //EMBER_AF_PLUGIN_FRAGMENTATION_MAX_INCOMING_PACKETS
00016
00017 #ifndef EMBER_AF_PLUGIN_FRAGMENTATION_MAX_OUTGOING_PACKETS
00018 #define EMBER_AF_PLUGIN_FRAGMENTATION_MAX_OUTGOING_PACKETS 2
00019 #endif //EMBER_AF_PLUGIN_FRAGMENTATION_MAX_OUTGOING_PACKETS
00020
00021 #ifndef EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE
00022 #define EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE 1500
00023 #endif //EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE
00024
00025 #ifndef EMBER_AF_PLUGIN_FRAGMENTATION_RX_WINDOW_SIZE
00026 #define EMBER_AF_PLUGIN_FRAGMENTATION_RX_WINDOW_SIZE 1
00027 #endif //EMBER_AF_PLUGIN_FRAGMENTATION_RX_WINDOW_SIZE
00028
00029 // TODO: We should have the App Builder generating these events. For now, I
00030 // manually added 10 events which means we will be able to set and accept up to

```

```

00031 // 10 incoming distinct fragmented packets. In AppBuilder the max incoming
00032 // packets number is capped to 10, therefore we will never run out of events.
00033 #define EMBER_AF_FRAGMENTATION_EVENTS \
00034     {&(emAfFragmentationEvents[0]), (void) \
00035         (*)(void)emAfFragmentationAbortReception}, \
00036     {&(emAfFragmentationEvents[1]), (void) \
00037         (*)(void)emAfFragmentationAbortReception}, \
00038     {&(emAfFragmentationEvents[3]), (void) \
00039         (*)(void)emAfFragmentationAbortReception}, \
00040     {&(emAfFragmentationEvents[4]), (void) \
00041         (*)(void)emAfFragmentationAbortReception}, \
00042     {&(emAfFragmentationEvents[5]), (void) \
00043         (*)(void)emAfFragmentationAbortReception}, \
00044     {&(emAfFragmentationEvents[6]), (void) \
00045         (*)(void)emAfFragmentationAbortReception}, \
00046     {&(emAfFragmentationEvents[7]), (void) \
00047         (*)(void)emAfFragmentationAbortReception}, \
00048     {&(emAfFragmentationEvents[8]), (void) \
00049         (*)(void)emAfFragmentationAbortReception}, \
00050     {&(emAfFragmentationEvents[9]), (void) \
00051         (*)(void)emAfFragmentationAbortReception}, \
00052     {&(emAfFragmentationEvents[10]), (void) \
00053         (*)(void)emAfFragmentationAbortReception}, \
00054     {&(emAfFragmentationEvents[11]), (void) \
00055         (*)(void)emAfFragmentationAbortReception}
00056 extern EmberEventControl emAfFragmentationEvents
00057 [10];
00058 //
-----//
00059 // Sending
00060
00061 typedef struct {
00062     EmberOutgoingMessageType    messageType;
00063     uint16_t                      indexOrDestination;
00064     uint8_t                       sequence;
00065     EmberApsFrame                apsFrame;
00066 #ifdef EZSP_APPLICATION_HAS_ROUTE_RECORD_HANDLER
00067     bool                           sourceRoute;
00068     uint8_t                       relayCount;
00069     uint16_t                      relayList[2A_MAX_HOPS];
00070 #endif //EZSP_APPLICATION_HAS_ROUTE_RECORD_HANDLER
00071     uint8_t_*                     bufferPtr;
00072     uint16_t                      bufLen;
00073     uint8_t                       fragmentLen;
00074     uint8_t                       fragmentCount;
00075     uint8_t                       fragmentBase;
00076     uint8_t_*                     fragmentsInTransit;
00077 }txFragmentedPacket;
00078
00079 EmberStatus emAfFragmentationSendUnicast
00080     (EmberOutgoingMessageType type,
00081             uint16_t indexOrDestination,
00082             EmberApsFrame *apsFrame,
00083             uint8_t *buf,
00084             uint16_t bufLen,
00085             uint8_t *messageTag);
00086
00087 bool emAfFragmentationMessageSent(EmberApsFrame
00088     *apsFrame,
00089     EmberStatus status);
00090
00091 void emAfFragmentationMessageSentHandler(
00092     EmberOutgoingMessageType type,
00093             uint16_t indexOrDestination,
00094             EmberApsFrame *apsFrame,
00095             uint8_t *buf,
00096             uint16_t bufLen,
00097             EmberStatus status,
00098             uint8_t messageTag);

```

```

00097 // -----
00098 // Receiving.
00099
00100 typedef enum {
00101     EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_AVAILABLE
00102         = 0,
00103     EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_ACKED
00104         = 1,
00105     EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_IN_USE
00106         = 2,
00107     EMBER_AF_PLUGIN_FRAGMENTATION_RX_PACKET_PAYLOAD_TOO_LARGE
00108         = 3
00109 }rxPacketStatus;
00110
00111 typedef struct {
00112     rxPacketStatus status;
00113     uint8_t ackedPacketAge;
00114     uint8_t buffer[EMBER_AF_PLUGIN_FRAGMENTATION_BUFFER_SIZE]
00115 ];
00116     EmberNodeId fragmentSource;
00117     uint8_t fragmentSequenceNumber;
00118     uint8_t fragmentBase; // first fragment inside the rx
00119     window.
00120     uint16_t windowFinger; // points to the first byte inside the
00121     rx window.
00122     uint8_t fragmentsExpected; // total number of
00123     fragments expected.
00124     uint8_t fragmentsReceived; // fragments received so
00125     far.
00126     uint8_t fragmentMask; // bitmask of received fragments
00127     inside the rx window.
00128     uint8_t lastfragmentLen; // Length of the last fragment.
00129     uint8_t fragmentLen; // Length of the fragment inside the rx
00130     window.
00131             // All the fragments inside the rx window should
00132             have
00133             // the same length.
00134     EmberEventControl *fragmentEventControl;
00135 }rxFragmentedPacket;
00136
00137 bool emAfFragmentationIncomingMessage(
00138     EmberIncomingMessageType type,
00139     EmberApsFrame *apsFrame,
00140     EmberNodeId sender,
00141     uint8_t **buffer,
00142     uint16_t *bufLen);
00143
00144 void emAfFragmentationAbortReception(
00145     EmberEventControl* control);
00146
00147 extern uint8_t emberFragmentWindowSize;
00148
00149 extern uint16_t emberMacIndirectTimeout;
00150 #if defined(EZSP_HOST)
00151 extern uint16_t emberApsAckTimeoutMs;
00152 #endif
00153
00154 void emAfPluginFragmentationPlatformInitCallback
00155     (void);
00156
00157 EmberStatus emAfPluginFragmentationSend(
00158     txFragmentedPacket* txPacket,
00159             uint8_t fragmentNumber,
00160             uint16_t fragmentLen,
00161             uint16_t offset);
00162
00163 void emAfPluginFragmentationHandleSourceRoute
00164     (txFragmentedPacket* txPacket,
00165             uint16_t indexOrDestination);
00166
00167 void emAfPluginFragmentationSendReply(
00168     EmberNodeId sender,
00169             EmberApsFrame* apsFrame,
00170             rxFragmentedPacket*
00171     rxPacket);
00172
00173 #if defined(EMBER_TEST)
00174 extern uint8_t emAfPluginFragmentationArtificiallyDropBlockNumber;
00175 #endif

```

00157

## 8.98 gas-proxy-function.h File Reference

### Macros

- `#define emberAfPluginGasProxyFunctionPrint(...)`
- `#define emberAfPluginGasProxyFunctionPrintln(...)`
- `#define emberAfPluginGasProxyFunctionDebugExec(x)`
- `#define emberAfPluginGasProxyFunctionPrintBuffer(buffer, len, withSpace)`
- `#define emberAfPluginGasProxyFunctionPrintString(buffer)`

### Enumerations

- `enum EmberAfGpfZclCommandPermission { EMBER_AF_GPF_ZCL_COMMAND_PERMISSION_ALLOWED, EMBER_AF_GPF_ZCL_COMMAND_PERMISSION_NOT_ALLOWED, EMBER_AF_GPF_ZCL_COMMAND_PERMISSION_IGNORED }`
- `enum EmberAfGpfMessageType { EMBER_AF_GPF_MESSAGE_TYPE_TOM, EMBER_AF_GPF_MESSAGE_TYPE_NON_TOM }`

### Functions

- `EmberStatus emberAfPluginGasProxyFunctionNonTapOffMessageHandler(uint8_t *gbzCommands, uint16_t gbzCommandsLength, uint16_t messageCode)`
- `EmberStatus emberAfPluginGasProxyFunctionTapOffMessageHandler(uint8_t *gbzCommand, uint16_t gbzCommandLength, uint8_t *gbzCommandResponse, uint16_t gbzCommandResponseLength, uint16_t messageCode)`
- `uint32_t emAfGasProxyFunctionGetGbzStartTime(void)`
- `void emAfGasProxyFunctionAlert(uint16_t alertCode, EmberAfClusterCommand *cmd, uint16_t messageCode)`
- `bool emberAfPluginGasProxyFunctionIgnoreFutureCommand(uint32_t startTime)`

#### 8.98.1 Macro Definition Documentation

##### 8.98.1.1 `#define emberAfPluginGasProxyFunctionPrint( ... )`

Definition at line 11 of file `gas-proxy-function.h`.

##### 8.98.1.2 `#define emberAfPluginGasProxyFunctionPrintln( ... )`

Definition at line 12 of file `gas-proxy-function.h`.

##### 8.98.1.3 `#define emberAfPluginGasProxyFunctionDebugExec( x )`

Definition at line 13 of file `gas-proxy-function.h`.

#### 8.98.1.4 #define emberAfPluginGasProxyFunctionPrintBuffer( *buffer*, *len*, *withSpace* )

Definition at line 14 of file [gas-proxy-function.h](#).

#### 8.98.1.5 #define emberAfPluginGasProxyFunctionPrintString( *buffer* )

Definition at line 15 of file [gas-proxy-function.h](#).

### 8.98.2 Enumeration Type Documentation

#### 8.98.2.1 enum EmberAfGpfZclCommandPermission

Enumerator:

*EMBER\_AF\_GPF\_ZCL\_COMMAND\_PERMISSION\_ALLOWED*  
*EMBER\_AF\_GPF\_ZCL\_COMMAND\_PERMISSION\_NOT\_ALLOWED*  
*EMBER\_AF\_GPF\_ZCL\_COMMAND\_PERMISSION\_IGNORED*

Definition at line 28 of file [gas-proxy-function.h](#).

#### 8.98.2.2 enum EmberAfGPFMessageType

Enumerator:

*EMBER\_AF\_GPF\_MESSAGE\_TYPE\_TOM*  
*EMBER\_AF\_GPF\_MESSAGE\_TYPE\_NON\_TOM*

Definition at line 34 of file [gas-proxy-function.h](#).

### 8.98.3 Function Documentation

#### 8.98.3.1 EmberStatus emberAfPluginGasProxyFunctionNonTapOffMessageHandler ( *uint8\_t* \* *gbzCommands*, *uint16\_t* *gbzCommandsLength*, *uint16\_t* *messageCode* )

#### 8.98.3.2 EmberStatus emberAfPluginGasProxyFunctionTapOffMessageHandler ( *uint8\_t* \* *gbzCommand*, *uint16\_t* *gbzCommandLength*, *uint8\_t* \**gbzCommandResponse*, *uint16\_t* *gbzCommandResponseLength*, *uint16\_t* *messageCode* )

#### 8.98.3.3 *uint32\_t* emAfGasProxyFunctionGetGbzStartTime ( *void* )

#### 8.98.3.4 *void* emAfGasProxyFunctionAlert ( *uint16\_t* *alertCode*, *EmberAfClusterCommand* \**cmd*, *uint16\_t* *messageCode* )

#### 8.98.3.5 *bool* emberAfPluginGasProxyFunctionIgnoreFutureCommand ( *uint32\_t* *startTime* )

### 8.99 gas-proxy-function.h

```
00001 // ****
00002 // * gas-proxy-function.h
00003 // *
```

```

00004 // *
00005 // * Copyright 2014 by Silicon Laboratories, Inc. All rights reserved.
00006 // ****
00007
00008 #ifndef _GAS_PROXY_FUNCTION_H_
00009 #define _GAS_PROXY_FUNCTION_H_
00010
00011 #define emberAfPluginGasProxyFunctionPrint(....)
00012     emberAfAppPrint((__VA_ARGS__))
00013 #define emberAfPluginGasProxyFunctionPrintln(....)
00014     emberAfAppPrintln(__VA_ARGS__)
00015 #define emberAfPluginGasProxyFunctionDebugExec(x)
00016     emberAfAppDebugExec(x)
00017
00018 #define emberAfPluginGasProxyFunctionPrintBuffer(buffer, len, withSpace)
00019     emberAfAppPrintBuffer(buffer, len, withSpace)
00020 #define emberAfPluginGasProxyFunctionPrintString(buffer)
00021     emberAfPrintString(EMBER_AF_PRINT_APP, (buffer))
00022
00023 EmberStatus emberAfPluginGasProxyFunctionNonTapOffMessageHandler
00024     (uint8_t * gbzCommands,
00025      gbzCommandsLength,
00026      messageCode);
00027
00028 EmberStatus emberAfPluginGasProxyFunctionTapOffMessageHandler
00029     (uint8_t * gbzCommand,
00030      gbzCommandLength,
00031      gbzCommandResponse,
00032      gbzCommandResponseLength,
00033      messageCode);
00034
00035 typedef enum {
00036     EMBER_AF_GPF_ZCL_COMMAND_PERMISSION_ALLOWED
00037     , EMBER_AF_GPF_ZCL_COMMAND_PERMISSION_NOT_ALLOWED
00038     , EMBER_AF_GPF_ZCL_COMMAND_PERMISSION_IGNORED
00039 } EmberAfGpfZclCommandPermission;
00040
00041 typedef enum {
00042     EMBER_AF_GPF_MESSAGE_TYPE_TOM,
00043     EMBER_AF_GPF_MESSAGE_TYPE_NON_TOM,
00044 } EmberAfGpfMessageType;
00045
00046 uint32_t emAfGasProxyFunctionGetGbzStartTime
00047     (void);
00048 void emAfGasProxyFunctionAlert(uint16_t alertCode,
00049     EmberAfClusterCommand *cmd,
00050     uint16_t messageCode);
00051
00052 /* @brief Ignore future commands
00053 * Per GBCS v0.8.1, Section 10.3.4.2 Step 12/13. We are inferring that per
00054 * elemental ZCL command, future commands ( startTime greater than now ) will
00055 * be discarded and the application will be notified.
00056 */
00057 bool emberAfPluginGasProxyFunctionIgnoreFutureCommand
00058     (uint32_t startTime);
00059
00060#endif // #ifndef _GAS_PROXY_FUNCTION_H_

```

## 8.100 gateway-support-cli.h File Reference

## Macros

- #define EMBER\_AF\_PLUGIN\_GATEWAY\_COMMANDS

## Variables

- EmberCommandEntry emberAfPluginGatewayCommands [ ]

### 8.100.1 Macro Definition Documentation

#### 8.100.1.1 #define EMBER\_AF\_PLUGIN\_GATEWAY\_COMMANDS

Definition at line 23 of file [gateway-support-cli.h](#).

### 8.100.2 Variable Documentation

#### 8.100.2.1 EmberCommandEntry emberAfPluginGatewayCommands[]

## 8.101 gateway-support-cli.h

```

00001 // File: gateway-support-cli.c
00002 //
00003 // Description: Gateway specific CLI behavior for a host application.
00004 // In this case we assume our application is running on
00005 // a PC with Unix library support, connected to an NCP via serial uart.
00006 //
00007 // Author(s): Rob Alexander <rob.alexander@silabs.com>
00008 //
00009 // Copyright 2013 by Ember Corporation. All rights reserved.
00010 // *80*
00011 //

-----
00012
00013
00014 extern EmberCommandEntry emberAfPluginGatewayCommands
00015 [];
00016 #if defined(GATEWAY_APP)
00017     #define EMBER_AF_PLUGIN_GATEWAY_COMMANDS \
00018         emberCommandEntrySubMenu("gateway", \
00019             emberAfPluginGatewayCommands, \
00020             "Commands for the Linux host application"),
00021
00022 #else
00023     #define EMBER_AF_PLUGIN_GATEWAY_COMMANDS
00024
00025 #endif
00026

```

## 8.102 gateway-support.h File Reference

### Typedefs

- typedef uint8\_t BackchannelState

## Enumerations

- enum { `NO_CONNECTION`, `CONNECTION_EXISTS`, `NEW_CONNECTION`, `CONNECTION_ERROR` }

## Functions

- void `gatewayBackchannelStop` (void)
- `EmberStatus backchannelStartServer` (`uint8_t` port)
- `EmberStatus backchannelStopServer` (`uint8_t` port)
- `EmberStatus backchannelReceive` (`uint8_t` port, `char *data`)
- `EmberStatus backchannelSend` (`uint8_t` port, `uint8_t *data`, `uint8_t length`)
- `EmberStatus backchannelClientConnectionCleanup` (`uint8_t` port)
- `BackchannelState backchannelCheckConnection` (`uint8_t` port, `bool waitForConnection`)
- `EmberStatus backchannelMapStandardInputOutputToRemoteConnection` (`int port`)
- `EmberStatus backchannelCloseConnection` (`uint8_t` port)
- `EmberStatus backchannelServerPrintf` (`const char *formatString,...`)
- `EmberStatus backchannelClientPrintf` (`uint8_t port, const char *formatString,...`)
- `EmberStatus backchannelClientVprintf` (`uint8_t port, const char *formatString, va_list ap`)

## Variables

- `const bool backchannelSupported`
- `bool backchannelEnable`
- `int backchannelSerialPortOffset`

### 8.102.1 Typedef Documentation

#### 8.102.1.1 `typedef uint8_t BackchannelState`

Definition at line 6 of file `gateway-support.h`.

### 8.102.2 Enumeration Type Documentation

#### 8.102.2.1 `anonymous enum`

Enumerator:

`NO_CONNECTION`  
`CONNECTION_EXISTS`  
`NEW_CONNECTION`  
`CONNECTION_ERROR`

Definition at line 8 of file `gateway-support.h`.

### 8.102.3 Function Documentation

- 8.102.3.1 `void gatewayBackchannelStop ( void )`
- 8.102.3.2 `EmberStatus backchannelStartServer ( uint8_t port )`
- 8.102.3.3 `EmberStatus backchannelStopServer ( uint8_t port )`
- 8.102.3.4 `EmberStatus backchannelReceive ( uint8_t port, char * data )`
- 8.102.3.5 `EmberStatus backchannelSend ( uint8_t port, uint8_t * data, uint8_t length )`
- 8.102.3.6 `EmberStatus backchannelClientConnectionCleanup ( uint8_t port )`
- 8.102.3.7 `BackchannelState backchannelCheckConnection ( uint8_t port, bool waitForConnection )`
- 8.102.3.8 `EmberStatus backchannelMapStandardInputOutputToRemoteConnection ( int port )`
- 8.102.3.9 `EmberStatus backchannelCloseConnection ( uint8_t port )`
- 8.102.3.10 `EmberStatus backchannelServerPrintf ( const char * formatString, ... )`
- 8.102.3.11 `EmberStatus backchannelClientPrintf ( uint8_t port, const char * formatString, ... )`
- 8.102.3.12 `EmberStatus backchannelClientVprintf ( uint8_t port, const char * formatString, va_list ap )`

### 8.102.4 Variable Documentation

- 8.102.4.1 `const bool backchannelSupported`
- 8.102.4.2 `bool backchannelEnable`
- 8.102.4.3 `int backchannelSerialPortOffset`

## 8.103 gateway-support.h

```

00001
00002
00003 void gatewayBackchannelStop(void);
00004
00005
00006 typedef uint8_t BackchannelState;
00007
00008 enum {
00009     NO_CONNECTION = 0,
00010     CONNECTION_EXISTS = 1,
00011     NEW_CONNECTION = 2,
00012     CONNECTION_ERROR = 3,
00013 };
00014
00015 extern const bool backchannelSupported;
00016 extern bool backchannelEnable;
00017 extern int backchannelSerialPortOffset;
00018
00019 EmberStatus backchannelStartServer(uint8_t
00020     port);
00020 EmberStatus backchannelStopServer(uint8_t port)
00021 ;
00021 EmberStatus backchannelReceive(uint8_t port, char*
00022     data);

```

```

00022 EmberStatus backchannelSend(uint8_t port, uint8_t *
00023     data, uint8_t length);
00024 EmberStatus backchannelClientConnectionCleanup
00025     (uint8_t port);
00026 BackchannelState backchannelCheckConnection
00027     (uint8_t port,
00028         bool waitForConnection);
00029 EmberStatus backchannelMapStandardInputOutputToRemoteConnection
00030     (int port);
00031 EmberStatus backchannelCloseConnection(
00032     uint8_t port);
00033 EmberStatus backchannelServerPrintf(const
00034     char* formatString, ...);
00035 EmberStatus backchannelClientPrintf(uint8_t
00036     port, const char* formatString, ...);
00037 EmberStatus backchannelClientVprintf(uint8_t
00038     port,
00039             const char* formatString,
00040             va_list ap);
00041
00042
00043
00044
00045
00046
00047

```

## 8.104 gpcs-device-log.h File Reference

### Data Structures

- struct [EmberAfGBCSDeviceLogInfo](#)

### Macros

- #define [emberAfPluginGbcDeviceLogPrint\(...\)](#)
- #define [emberAfPluginGbcDeviceLogPrintn\(...\)](#)
- #define [emberAfPluginGbcDeviceLogDebugExec\(x\)](#)
- #define [emberAfPluginGbcDeviceLogIsSleepyType\(deviceType\)](#)

### Enumerations

- enum [EmberAfGBCSDeviceType](#) {
 EMBER\_AF\_GBCS\_GSME\_DEVICE\_TYPE, EMBER\_AF\_GBCS\_ESME\_DEVICE\_TYPE, EMBER\_AF\_GBCS\_CHF\_DEVICE\_TYPE, EMBER\_AF\_GBCS\_GPF\_DEVICE\_TYPE, EMBER\_AF\_GBCS\_HCALCS\_DEVICE\_TYPE, EMBER\_AF\_GBCS\_PPMID\_DEVICE\_TYPE, EMBER\_AF\_GBCS\_TYPE2\_DEVICE\_TYPE
 }

### Functions

- void [emberAfPluginGbcDeviceLogClear \(void\)](#)
- void [emberAfPluginGbcDeviceLogReset \(void\)](#)
- uint8\_t [emberAfPluginGbcDeviceLogCount \(void\)](#)
- bool [emberAfPluginGbcDeviceLogStore \(EmberEUI64 deviceId, EmberAfGBCSDeviceLogInfo \\*deviceInfo\)](#)
- bool [emberAfPluginGbcDeviceLogRemove \(EmberEUI64 deviceId\)](#)
- bool [emberAfPluginGbcDeviceLogGet \(EmberEUI64 deviceId, EmberAfGBCSDeviceLogInfo \\*deviceInfo\)](#)

- bool `emberAfPluginGbcDeviceLogExists` (EmberEUI64 deviceId, EmberAfGBCSDeviceType deviceType)
- void `emberAfPluginGbcDeviceLogPrintEntries` (void)
- bool `emberAfPluginGbcDeviceLogRetrieveByIndex` (uint8\_t index, EmberEUI64 returnDeviceId, EmberAfGBCSDeviceLogInfo \*returnDeviceInfo)
- uint8\_t `emberAfPluginGbcDeviceLogMaxSize` (void)

### 8.104.1 Macro Definition Documentation

#### 8.104.1.1 #define `emberAfPluginGbcDeviceLogPrint`( ... )

Definition at line 12 of file `gbcs-device-log.h`.

#### 8.104.1.2 #define `emberAfPluginGbcDeviceLogPrintln`( ... )

Definition at line 13 of file `gbcs-device-log.h`.

#### 8.104.1.3 #define `emberAfPluginGbcDeviceLogDebugExec`( x )

Definition at line 14 of file `gbcs-device-log.h`.

#### 8.104.1.4 #define `emberAfPluginGbcDeviceLogIsSleepyType`( *deviceType* )

Is the given device type a sleepy device.

##### Parameters

<i>deviceType</i>	The GBCS device type to be checked.
-------------------	-------------------------------------

##### Returns

true if the *deviceType* is a sleepy device, false otherwise

Definition at line 115 of file `gbcs-device-log.h`.

### 8.104.2 Enumeration Type Documentation

#### 8.104.2.1 enum `EmberAfGBCSDeviceType`

Enumerator:

*EMBER\_AF\_GBCS\_GSME\_DEVICE\_TYPE*  
*EMBER\_AF\_GBCS\_ESME\_DEVICE\_TYPE*  
*EMBER\_AF\_GBCS\_CHF\_DEVICE\_TYPE*  
*EMBER\_AF\_GBCS\_GPF\_DEVICE\_TYPE*  
*EMBER\_AF\_GBCS\_HCALCS\_DEVICE\_TYPE*  
*EMBER\_AF\_GBCS\_PPMID\_DEVICE\_TYPE*  
*EMBER\_AF\_GBCS\_TYPE2\_DEVICE\_TYPE*

Definition at line 16 of file `gbcs-device-log.h`.

### 8.104.3 Function Documentation

#### 8.104.3.1 void emberAfPluginGbcDeviceLogClear ( void )

Clear all entries from the GBCS Device Log.

#### 8.104.3.2 void emberAfPluginGbcDeviceLogReset ( void )

Reset the GBCS Device Log to include just those entries configured with the plugin.

This function will clear the device log then add each of the devices configured with the plugin.

#### 8.104.3.3 uint8\_t emberAfPluginGbcDeviceLogCount ( void )

Get the number of entries in the GBCS Device Log.

##### Returns

The number of entries currently in the GBCS Device Log..

#### 8.104.3.4 bool emberAfPluginGbcDeviceLogStore ( EmberEUI64 deviceId, EmberAfGBCSDeviceInfo \* deviceInfo )

Add or update an entry within the GBCS Device Log.

This function can be used to add or update an entry within the GBCS Device Log.

##### Parameters

<i>deviceId</i>	The EUI64 of the device to be added or updated.
<i>deviceInfo</i>	Pointer to a structure containing the deviceType of the device to be added or updated.

##### Returns

true if successfully added or updated, false if there is insufficient room in the device log to add the new entry. The size of the device log is controlled by the "Device Log Size" plugin configuration parameter.

#### 8.104.3.5 bool emberAfPluginGbcDeviceLogRemove ( EmberEUI64 deviceId )

Remove an entry from the GBCS Device Log.

This function can be used to remove an entry within the GBCS Device Log.

##### Parameters

<i>deviceId</i>	The EUI64 of the device to be removed.
-----------------	--

##### Returns

true if successfully removed, false if the device is not currently in the GBCS Device Log.

#### 8.104.3.6 bool emberAfPluginGbcDeviceLogGet ( EmberEUI64 deviceId, EmberAfGBCSDeviceLogInfo \* deviceInfo )

Get device info about an entry in the GBCS Device Log.

This function can be used to retrieve information pertaining to a device in the GBCS Device Log. Note that if a single device implements two device types (i.e comms hub implements both the CHF and GPF) then only the first device found is returned.

##### Parameters

<i>deviceId</i>	The EUI64 of the device for which information is requested.
-----------------	---

##### Returns

true if device is in the device log, false otherwise. The contents of the deviceInfo structure will be populated when true is returned.

#### 8.104.3.7 bool emberAfPluginGbcDeviceLogExists ( EmberEUI64 deviceId, EmberAfGBCSDeviceType deviceType )

Check to see if the given device exists within the GBCS Device Log.

This function can be used to check if the given device and type exists within the GBCS Device Log..

##### Parameters

<i>deviceId</i>	The EUI64 of the device in question
<i>deviceType</i>	The device type of the device in question.

##### Returns

true if device is in the device log, false otherwise.

#### 8.104.3.8 void emberAfPluginGbcDeviceLogPrintEntries ( void )

Print all entries in the GBCS Device log.

#### 8.104.3.9 bool emberAfPluginGbcDeviceLogRetrieveByIndex ( uint8\_t index, EmberEUI64 returnDeviceId, EmberAfGBCSDeviceLogInfo \* returnDeviceInfo )

Retrieves the device from the log at the specified index.

##### Parameters

<i>index</i>	The absolute index into the device log.
<i>returnDeviceId</i>	a pointer where the EUI64 return data will be written.
<i>returnDevice- Info</i>	a pointer where the device info return data will be written.

## Returns

true if the index has a valid entry. false otherwise.

#### 8.104.3.10 uint8\_t emberAfPluginGbcsDeviceLogMaxSize ( void )

@ brief Returns the max size of the device log, including currently empty entries.

## Returns

an `uint8_t` indicating the maximum size.

## 8.105 gucs-device-log.h

```

00115 #define emberAfPluginGbcDeviceLogIsSleepyType(deviceType) (deviceType ==
00116     EMBER_AF_GBCS_GSME_DEVICE_TYPE)
00116
00126 bool emberAfPluginGbcDeviceLogRetrieveByIndex
00127     (uint8_t index,
00128      returnDeviceId,
00129      EmberEUI64
00128      * returnDeviceInfo);
00129
00135 uint8_t emberAfPluginGbcDeviceLogMaxSize(void
00136 );
00137
00138 #endif /* GBCS_DEVICE_LOG_H_ */

```

## 8.106 gbc-gas-meter.h File Reference

### Macros

- #define `emberAfPluginGbcGasMeterPrint(...)`
- #define `emberAfPluginGbcGasMeterPrintln(...)`
- #define `emberAfPluginGbcGasMeterDebugExec(x)`
- #define `emberAfPluginGbcGasMeterPrintBuffer(buffer, len, withSpace)`

### Functions

- void `emberAfPluginGbcGasMeterReportAttributes (void)`

#### 8.106.1 Macro Definition Documentation

##### 8.106.1.1 #define `emberAfPluginGbcGasMeterPrint( ... )`

Definition at line 12 of file `gbc-gas-meter.h`.

##### 8.106.1.2 #define `emberAfPluginGbcGasMeterPrintln( ... )`

Definition at line 13 of file `gbc-gas-meter.h`.

##### 8.106.1.3 #define `emberAfPluginGbcGasMeterDebugExec( x )`

Definition at line 14 of file `gbc-gas-meter.h`.

##### 8.106.1.4 #define `emberAfPluginGbcGasMeterPrintBuffer( buffer, len, withSpace )`

Definition at line 15 of file `gbc-gas-meter.h`.

### 8.106.2 Function Documentation

#### 8.106.2.1 void `emberAfPluginGbcGasMeterReportAttributes ( void )`

Report Attributes.

If the mirror is ready to receive attribute reports and there is not already a report in progress the this function will kick off the task of reporting all attributes to the mirror.

## 8.107 gbcS-gas-meter.h

```

00001 // ****
00002 // * gbcS-gas-meter.h
00003 // *
00004 // *
00005 // * Copyright 2014 Silicon Laboratories, Inc.
00006 // * 80*
00007
00008 #ifndef GBCS_GAS_METER_H_
00009 #define GBCS_GAS_METER_H_
00010
00011 // Printing macros for plugin: GBCS Gas Meter
00012 #define emberAfPluginGbcSGasMeterPrint(...) emberAfAppPrint(__VA_ARGS__)
00013 #define emberAfPluginGbcSGasMeterPrintln(...) emberAfAppPrintln(__VA_ARGS__)
00014 #define emberAfPluginGbcSGasMeterDebugExec(x) emberAfAppDebugExec(x)
00015 #define emberAfPluginGbcSGasMeterPrintBuffer(buffer, len, withSpace)
00016     emberAfAppPrintBuffer(buffer, len, withSpace)
00017
00018 void emberAfPluginGbcSGasMeterReportAttributes
00019     (void);
00020
00021 #endif /* GBCS_GAS_METER_H_ */

```

## 8.108 gbz-message-controller.h File Reference

### Data Structures

- struct [EmberAfGbZclCommand](#)
- struct [EmberAfGbZMessageParserState](#)
- struct [EmAfGbZPayloadHeader](#)
- struct [EmAfGbZUseCaseSpecificComponent](#)
- struct [EmberAfGbZMessageCreatorResult](#)
- struct [EmberAfGbZMessageCreatorState](#)

### Macros

- #define [emberAfPluginGbZMessageControllerPrint\(...\)](#)
- #define [emberAfPluginGbZMessageControllerPrintln\(...\)](#)
- #define [emberAfPluginGbZMessageControllerDebugExec\(x\)](#)
- #define [emberAfPluginGbZMessageControllerPrintBuffer\(buffer, len, withSpace\)](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_COMPONENT\\_EXT\\_HEADER\\_CONTROL\\_FIELD\\_OFFSET](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_COMPONENT\\_EXT\\_HEADER\\_CLUSTER\\_ID\\_OFFSET](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_COMPONENT\\_EXT\\_HEADER\\_GBZ\\_CMD\\_LENGTH\\_H\\_OFFSET](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_MESSAGE\\_COMMAND\\_HEADER\\_LENGTH](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_MESSAGE\\_RESPONSE\\_HEADER\\_LENGTH](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_MESSAGE\\_ALERT\\_HEADER\\_LENGTH](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_COMPONENT\\_EXT\\_HEADER\\_FIELDS\\_LENGTH](#)
- #define [GAS\\_PROXY\\_FUNCTION\\_GBZ\\_COMPONENT\\_ZCL\\_HEADER\\_LENGTH](#)

- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_FROM\_DATE\_TIME\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_HEADER\_FIELDS\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_CIPHERED\_INFO\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_EXT\_HEADER\_FIELDS\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_HEADER\_FIELDS\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_FROM\_DATE\_TIME\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_CIPHERED\_INFO\_LENGTH
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_LAST\_MSG\_MASK
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTED\_MSG\_MASK
- #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_FROM\_DATE\_TIME\_MASK

## Typedefs

- typedef struct  
EmAfGbzUseCaseSpecificComponent EmAfGbzUseCaseSpecificComponent

## Enumerations

- enum GBCSUseCaseMessageCode {
 GCS06\_MESSAGE\_CODE, GCS11\_MESSAGE\_CODE, CS11\_MESSAGE\_CODE, GCS01a\_MESSAGE\_CODE,  
 GCS01b\_MESSAGE\_CODE, GCS05\_MESSAGE\_CODE, GCS07\_MESSAGE\_CODE, GCS09\_MESSAGE\_CODE,  
 GCS13a\_MESSAGE\_CODE, GCS13b\_MESSAGE\_CODE, GCS13c\_MESSAGE\_CODE, GCS14\_MESSAGE\_CODE,  
 GCS17\_MESSAGE\_CODE, GCS21d\_MESSAGE\_CODE, GCS21e\_MESSAGE\_CODE, GCS21j\_MESSAGE\_CODE,  
 GCS23\_MESSAGE\_CODE, GCS25\_MESSAGE\_CODE, GCS33\_MESSAGE\_CODE, GCS38\_MESSAGE\_CODE,  
 GCS44\_MESSAGE\_CODE, GCS46\_MESSAGE\_CODE, GCS60\_MESSAGE\_CODE, CS10a\_MESSAGE\_CODE,  
 CS10b\_MESSAGE\_CODE, GCS61\_MESSAGE\_CODE, GCS16a\_MESSAGE\_CODE, GCS16b\_MESSAGE\_CODE,  
 GCS15b\_MESSAGE\_CODE, GCS15c\_MESSAGE\_CODE, GCS15d\_MESSAGE\_CODE, GCS15e\_MESSAGE\_CODE,  
 GCS21f\_MESSAGE\_CODE, GCS21b\_MESSAGE\_CODE, GCS53\_MESSAGE\_CODE, TEST\_ENCRYPTED\_MESSAGE\_CODE,  
 TEST\_MESSAGE\_CODE }
- enum EmberAfGbzExtendedHeaderControlField { EMBER\_AF\_GBZ\_NOT\_LAST\_UNENCRYPTED\_MESSAGE, EMBER\_AF\_GBZ\_LAST\_UNENCRYPTED\_MESSAGE, EMBER\_AF\_GBZ\_NOT\_LAST\_ENCRYPTED\_MESSAGE, EMBER\_AF\_GBZ\_LAST\_ENCRYPTED\_MESSAGE }
- enum EmberAfGbzMessagType { EMBER\_AF\_GBZ\_MESSAGE\_COMMAND, EMBER\_AF\_GBZ\_MESSAGE\_RESPONSE, EMBER\_AF\_GBZ\_MESSAGE\_ALERT }

## Functions

- `EmberAfStatus emberAfClusterSpecificCommandParse (EmberAfClusterCommand *cmd)`
- `EmberAfGbzMessageCreatorResult * emberAfPluginGbzMessageControllerCreatorAssemble (EmberAfGbzMessageCreatorState *state)`
- `EmberAfStatus emberAfPluginGbzMessageControllerGetZclDefaultResponse (EmberAfGbzZclCommand *cmd)`
- `bool emberAfPluginGbzMessageControllerHasNextCommand (EmberAfGbzMessageParserState *state)`
- `void emberAfPluginGbzMessageControllerParserCleanup (EmberAfGbzMessageParserState *state)`
- `bool emberAfPluginGbzMessageControllerParserInit (EmberAfGbzMessageParserState *state, EmberAfGbzMessageType type, uint8_t *gbzCommand, uint16_t gbzCommandLength, bool copyGbzCommand, uint16_t messageCode)`
- `uint16_t emberAfPluginGbzMessageControllerAppendCommand (EmberAfGbzMessageCreatorState *state, EmberAfGbzZclCommand *zclCmd)`
- `uint16_t emberAfPluginGbzMessageControllerCreatorInit (EmberAfGbzMessageCreatorState *state, EmberAfGbzMessageType type, uint16_t alertCode, uint32_t timestamp, uint16_t messageCode, uint8_t *gbzCommand, uint16_t gbzCommandLength)`
- `uint8_t emberAfPluginGbzMessageControllerGetComponentSize (EmberAfGbzMessageParserState *state)`
- `void emberAfPluginGbzMessageControllerCreatorCleanup (EmberAfGbzMessageCreatorState *state)`
- `void emberAfPluginGbzMessageControllerNextCommand (EmberAfGbzMessageParserState *state, EmberAfGbzZclCommand *gbzZclCommand)`
- `void emberAfPluginGbzMessageControllerPrintCommandInfo (EmberAfGbzZclCommand *gbzZclCommand)`
- `uint16_t emAfPluginGbzMessageControllerGetLength (EmberAfGbzZclCommand *cmd, EmberAfGbzMessageData *msg)`
- `bool emberAfPluginGbzMessageControllerGetEncryptPayloadFlag (EmberAfGbzMessageCreatorState *state, EmberAfGbzZclCommand *resp)`

### 8.108.1 Macro Definition Documentation

**8.108.1.1 #define emberAfPluginGbzMessageControllerPrint( ... )**

Definition at line 51 of file `gbz-message-controller.h`.

**8.108.1.2 #define emberAfPluginGbzMessageControllerPrintln( ... )**

Definition at line 52 of file `gbz-message-controller.h`.

**8.108.1.3 #define emberAfPluginGbzMessageControllerDebugExec( x )**

Definition at line 53 of file `gbz-message-controller.h`.

**8.108.1.4 #define emberAfPluginGbzMessageControllerPrintBuffer( buffer, len, withSpace )**

Definition at line 54 of file `gbz-message-controller.h`.

**8.108.1.5 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_EXT\_HEADER\_CONTROL\_FIELD\_OFFSET**

Definition at line 58 of file `gbz-message-controller.h`.

8.108.1.6 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_EXT\_HEADER\_CLUSTER\_ID\_OFFSET

Definition at line 59 of file [gbz-message-controller.h](#).

8.108.1.7 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_EXT\_HEADER\_GBZ\_CMD\_LENGTH\_OFFSET

Definition at line 60 of file [gbz-message-controller.h](#).

8.108.1.8 #define GAS\_PROXY\_FUNCTION\_GBZ\_MESSAGE\_COMMAND\_HEADER\_LENGTH

Definition at line 62 of file [gbz-message-controller.h](#).

8.108.1.9 #define GAS\_PROXY\_FUNCTION\_GBZ\_MESSAGE\_RESPONSE\_HEADER\_LENGTH

Definition at line 63 of file [gbz-message-controller.h](#).

8.108.1.10 #define GAS\_PROXY\_FUNCTION\_GBZ\_MESSAGE\_ALERT\_HEADER\_LENGTH

Definition at line 64 of file [gbz-message-controller.h](#).

8.108.1.11 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_EXT\_HEADER\_FIELDS\_LENGTH

Definition at line 70 of file [gbz-message-controller.h](#).

8.108.1.12 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ZCL\_HEADER\_LENGTH

Definition at line 66 of file [gbz-message-controller.h](#).

8.108.1.13 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_FROM\_DATE\_TIME\_LENGTH

Definition at line 72 of file [gbz-message-controller.h](#).

8.108.1.14 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_HEADER\_FIELDS\_LENGTH

Definition at line 71 of file [gbz-message-controller.h](#).

8.108.1.15 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_CIPHERED\_INFO\_LENGTH

Definition at line 73 of file [gbz-message-controller.h](#).

8.108.1.16 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_EXT\_HEADER\_FIELDS\_LENGTH

Definition at line 70 of file [gbz-message-controller.h](#).

8.108.1.17 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_HEADER\_FIELDS\_LENGTH

Definition at line 71 of file [gbz-message-controller.h](#).

8.108.1.18 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_FROM\_DATE\_TIME\_LENGTH

Definition at line 72 of file [gbz-message-controller.h](#).

8.108.1.19 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTION\_CIPHERED\_INFO\_LENGTH

Definition at line 73 of file [gbz-message-controller.h](#).

8.108.1.20 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_LAST\_MSG\_MASK

Definition at line 74 of file [gbz-message-controller.h](#).

8.108.1.21 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_ENCRYPTED\_MSG\_MASK

Definition at line 75 of file [gbz-message-controller.h](#).

8.108.1.22 #define GAS\_PROXY\_FUNCTION\_GBZ\_COMPONENT\_FROM\_DATE\_TIME\_MASK

Definition at line 76 of file [gbz-message-controller.h](#).

## 8.108.2 Typedef Documentation

8.108.2.1 **typedef struct EmAfGbzUseCaseSpecificComponent EmAfGbzUseCaseSpecificComponent**

Definition at line 143 of file [gbz-message-controller.h](#).

## 8.108.3 Enumeration Type Documentation

8.108.3.1 enum GBCSUseCaseMessageCode

Enumerator:

- GCS06\_MESSAGE\_CODE*
- GCS11\_MESSAGE\_CODE*
- CS11\_MESSAGE\_CODE*
- GCS01a\_MESSAGE\_CODE*
- GCS01b\_MESSAGE\_CODE*
- GCS05\_MESSAGE\_CODE*
- GCS07\_MESSAGE\_CODE*
- GCS09\_MESSAGE\_CODE*
- GCS13a\_MESSAGE\_CODE*

```

GCS13b_MESSAGE_CODE
GCS13c_MESSAGE_CODE
GCS14_MESSAGE_CODE
GCS17_MESSAGE_CODE
GCS21d_MESSAGE_CODE
GCS21e_MESSAGE_CODE
GCS21j_MESSAGE_CODE
GCS23_MESSAGE_CODE
GCS25_MESSAGE_CODE
GCS33_MESSAGE_CODE
GCS38_MESSAGE_CODE
GCS44_MESSAGE_CODE
GCS46_MESSAGE_CODE
GCS60_MESSAGE_CODE
CS10a_MESSAGE_CODE
CS10b_MESSAGE_CODE
GCS61_MESSAGE_CODE
GCS16a_MESSAGE_CODE
GCS16b_MESSAGE_CODE
GCS15b_MESSAGE_CODE
GCS15c_MESSAGE_CODE
GCS15d_MESSAGE_CODE
GCS15e_MESSAGE_CODE
GCS21f_MESSAGE_CODE
GCS21b_MESSAGE_CODE
GCS53_MESSAGE_CODE
TEST_ENCRYPTED_MESSAGE_CODE
TEST_MESSAGE_CODE

```

Definition at line 11 of file [gbz-message-controller.h](#).

#### 8.108.3.2 enum EmberAfGbzExtendedHeaderControlField

Enumerator:

```

EMBER_AF_GBZ_NOT_LAST_UNENCRYPTED_MESSAGE
EMBER_AF_GBZ_LAST_UNENCRYPTED_MESSAGE
EMBER_AF_GBZ_NOT_LAST_ENCRYPTED_MESSAGE
EMBER_AF_GBZ_LAST_ENCRYPTED_MESSAGE

```

Definition at line 81 of file [gbz-message-controller.h](#).

### 8.108.3.3 enum EmberAfGbzMessagetype

Enumerator:

*EMBER\_AF\_GBZ\_MESSAGE\_COMMAND*  
*EMBER\_AF\_GBZ\_MESSAGE\_RESPONSE*  
*EMBER\_AF\_GBZ\_MESSAGE\_ALERT*

Definition at line 88 of file [gbz-message-controller.h](#).

### 8.108.4 Function Documentation

- 8.108.4.1 `EmberAfStatus emberAfClusterSpecificCommandParse ( EmberAfClusterCommand * cmd )`
- 8.108.4.2 `EmberAfGbzMessagewriterResult* emberAfPluginGbzMessagewriterCreatorAssemble ( EmberAfGbzMessagewriterState * state )`
- 8.108.4.3 `EmberAfStatus emberAfPluginGbzMessagewriterGetZclDefaultResponse ( EmberAfGbZclCommand * cmd )`
- 8.108.4.4 `bool emberAfPluginGbzMessagewriterHasNextCommand ( EmberAfGbzMessagewriterState * state )`
- 8.108.4.5 `void emberAfPluginGbzMessagewriterParserCleanup ( EmberAfGbzMessagewriterState * state )`
- 8.108.4.6 `bool emberAfPluginGbzMessagewriterParserInit ( EmberAfGbzMessagewriterState * state, EmberAfGbzMessagetype type, uint8_t * gbzCommand, uint16_t gbzCommandLength, bool copyGbzCommand, uint16_t messageCode )`
- 8.108.4.7 `uint16_t emberAfPluginGbzMessagewriterAppendCommand ( EmberAfGbzMessagewriterState * state, EmberAfGbZclCommand * zclCmd )`
- 8.108.4.8 `uint16_t emberAfPluginGbzMessagewriterCreatorInit ( EmberAfGbzMessagewriterState * state, EmberAfGbzMessagetype type, uint16_t alertCode, uint32_t timestamp, uint16_t messageCode, uint8_t * gbzCommand, uint16_t gbzCommandLength )`
- 8.108.4.9 `uint8_t emberAfPluginGbzMessagewriterGetComponentSize ( EmberAfGbzMessagewriterState * state )`
- 8.108.4.10 `void emberAfPluginGbzMessagewriterCreatorCleanup ( EmberAfGbzMessagewriterState * state )`
- 8.108.4.11 `void emberAfPluginGbzMessagewriterNextCommand ( EmberAfGbzMessagewriterState * state, EmberAfGbZclCommand * gbzZclCommand )`
- 8.108.4.12 `void emberAfPluginGbzMessagewriterPrintCommandInfo ( EmberAfGbZclCommand * gbzZclCommand )`

**8.108.4.13** `uint16_t emAfPluginGbzMessageControllerGetLength ( EmberAfGbzZclCommand * cmd,  
EmberAfGbzMessageData * msg )`

**8.108.4.14** `bool emberAfPluginGbzMessageControllerGetEncryptPayloadFlag ( EmberAfGbzMessageCreatorState * state, EmberAfGbzZclCommand * resp )`

## 8.109 gbz-message-controller.h

```

00001 // ****
00002 // * gbz-message-controller.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories, Inc. All rights reserved.
00006 // ****
00007
00008 #ifndef _GBZ_MESSAGE_CONTROLLER_
00009 #define _GBZ_MESSAGE_CONTROLLER_
0010
0011 typedef enum {
0012     GCS06_MESSAGE_CODE = 0x0070, // CHF
0013     GCS11_MESSAGE_CODE = 0x0073, // CHF
0014     CS11_MESSAGE_CODE = 0x0015,
0015     GCS01a_MESSAGE_CODE = 0x006B,
0016     GCS01b_MESSAGE_CODE = 0x00A3,
0017     GCS05_MESSAGE_CODE = 0x006F,
0018     GCS07_MESSAGE_CODE = 0x0071,
0019     GCS09_MESSAGE_CODE = 0x0072,
0020     GCS13a_MESSAGE_CODE = 0x0074,
0021     GCS13b_MESSAGE_CODE = 0x00B8,
0022     GCS13c_MESSAGE_CODE = 0x00B6,
0023     GCS14_MESSAGE_CODE = 0x0075,
0024     GCS17_MESSAGE_CODE = 0x0078,
0025     GCS21d_MESSAGE_CODE = 0x009D,
0026     GCS21e_MESSAGE_CODE = 0x009E,
0027     GCS21j_MESSAGE_CODE = 0x00BF,
0028     GCS23_MESSAGE_CODE = 0x007C,
0029     GCS25_MESSAGE_CODE = 0x007E,
0030     GCS33_MESSAGE_CODE = 0x0082,
0031     GCS38_MESSAGE_CODE = 0x0084,
0032     GCS44_MESSAGE_CODE = 0x0088,
0033     GCS46_MESSAGE_CODE = 0x0089,
0034     GCS60_MESSAGE_CODE = 0x008D,
0035     CS10a_MESSAGE_CODE = 0x0014,
0036     CS10b_MESSAGE_CODE = 0x00A1,
0037     GCS61_MESSAGE_CODE = 0x00A0,
0038     GCS16a_MESSAGE_CODE = 0x0077,
0039     GCS16b_MESSAGE_CODE = 0x0096,
0040     GCS15b_MESSAGE_CODE = 0x00C3,
0041     GCS15c_MESSAGE_CODE = 0x0076,
0042     GCS15d_MESSAGE_CODE = 0x00C4,
0043     GCS15e_MESSAGE_CODE = 0x00C5,
0044     GCS21f_MESSAGE_CODE = 0x009F,
0045     GCS21b_MESSAGE_CODE = 0x00B5,
0046     GCS53_MESSAGE_CODE = 0x008B,
0047     TEST_ENCRYPTED_MESSAGE_CODE = 0xFFFF,
0048     TEST_MESSAGE_CODE = 0xFFFF,
0049 } GBCSUseCaseMessageCode;
0050 // debug prints
0051 #define emberAfPluginGbzMessageControllerPrint(...)
0052     emberAfAppPrint(__VA_ARGS__)
0053 #define emberAfPluginGbzMessageControllerPrintln(...)
0054     emberAfAppPrintln(__VA_ARGS__)
0055 #define emberAfPluginGbzMessageControllerDebugExec(x) emberAfAppDebugExec(x)
0056 #define emberAfPluginGbzMessageControllerPrintBuffer(buffer, len, withSpace)
0057     emberAfAppPrintBuffer(buffer, len, withSpace)
0058
0059 // offsets
0060 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_EXT_HEADER_CONTROL_FIELD_OFFSET (0)
0061 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_EXT_HEADER_CLUSTER_ID_OFFSET (2)
0062 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_EXT_HEADER_GBZ_CMD_LENGTH_OFFSET (3)
0063 #define GAS_PROXY_FUNCTION_GBZ_MESSAGE_COMMAND_HEADER_LENGTH (3)
0064 #define GAS_PROXY_FUNCTION_GBZ_MESSAGE_RESPONSE_HEADER_LENGTH (3)

```

```

00064 #define GAS_PROXY_FUNCTION_GBZ_MESSAGE_ALERT_HEADER_LENGTH          (9)
00065 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_EXT_HEADER_FIELDS_LENGTH    (5)
00066 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_ZCL_HEADER_LENGTH            (3)
00067 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_FROM_DATE_TIME_LENGTH        (4)
00068 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_ENCRYPTION_HEADER_FIELDS_LENGTH (2)
00069 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_ENCRYPTION_CIPHERED_INFO_LENGTH (2)
00070 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_EXT_HEADER_FIELDS_LENGTH      (5)
00071 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_ENCRYPTION_HEADER_FIELDS_LENGTH (2)
00072 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_FROM_DATE_TIME_LENGTH        (4)
00073 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_ENCRYPTION_CIPHERED_INFO_LENGTH (2)
00074 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_LAST_MSG_MASK                (0x01)
00075 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_ENCRYPTED_MSG_MASK           (0x02)
00076 #define GAS_PROXY_FUNCTION_GBZ_COMPONENT_FROM_DATE_TIME_MASK         (0x10)
00077
00078 // Forward declaration
00079 EmberAfStatus emberAfClusterSpecificCommandParse
  (EmberAfClusterCommand *cmd);
00080
00081 typedef enum {
00082   EMBER_AF_GBZ_NOT_LAST_UNENCRYPTED_MESSAGE
00083     = 0x00,
00084   EMBER_AF_GBZ_LAST_UNENCRYPTED_MESSAGE =
0x01,
00085   EMBER_AF_GBZ_NOT_LAST_ENCRYPTED_MESSAGE
00086     = 0x02,
00087   EMBER_AF_GBZ_LAST_ENCRYPTED_MESSAGE = 0x03
00088 };
00089
00090 typedef enum {
00091   EMBER_AF_GBZ_MESSAGE_COMMAND,
00092   EMBER_AF_GBZ_MESSAGE_RESPONSE,
00093   EMBER_AF_GBZ_MESSAGE_ALERT
00094 } EmberAfGbzMessagetype;
00095
00096 typedef struct {
00097   EmberAfClusterId clusterId;
00098   uint8_t frameControl;
00099   uint8_t transactionSequenceNumber;
00100  uint8_t commandId;
00101  uint8_t * payload;
00102  uint16_t payloadLength;
00103  uint8_t direction;
00104  bool clusterSpecific;
00105  bool mfgSpecific;
00106  uint32_t fromDateTime;
00107  bool hasFromDateTime; // Zigbee UTC Time.
00108  bool encryption;
00109 } EmberAfGbzZclCommand;
00110
00111 typedef struct {
00112  bool freeRequired;
00113  uint8_t * command;
00114  EmberAfGbzMessagetype type;
00115  uint16_t alertCode;
00116  uint32_t alertTimestamp;
00117  uint16_t profileId;
00118  uint8_t nextComponentZclSequenceNumber;
00119  uint8_t componentsSize;
00120  uint8_t componentsParsed;
00121  uint16_t parseIndex; // index to the next byte for parsing.
00122  uint16_t length;
00123  uint16_t messageCode; // "Message Code" for the corresponding Non
TOM Command.
00124 } EmberAfGbzmanagerState;
00125
00126 typedef struct {
00127  uint8_t * payload;
00128  uint8_t payloadLength;
00129 } EmAfGbzPayloadHeader;
00130
00131
00132
00133 /*
00134  * @brief a link list that keeps track of raw data that represents appended
00135  *        GBZ Use Case Specific components.
00136 */
00137 struct EmAfGbzUseCaseSpecificComponent{

```

```

00138     uint8_t * payload;
00139     uint16_t payloadLength;
00140     struct EmAfGbzUseCaseSpecificComponent * next
00141 ;
00142 }
00143 typedef struct EmAfGbzUseCaseSpecificComponent
00144     EmAfGbzUseCaseSpecificComponent;
00145 typedef struct {
00146     uint8_t * payload;
00147     uint16_t payloadLength;
00148     bool freeRequired;
00149 } EmberAfGbzMessageCreatorResult;
00150
00151 typedef struct {
00152     bool allocateMemoryForResponses;
00153
00154     // used when allocateMemoryForResponses is false
00155     uint8_t * command;
00156     uint16_t commandIndex; // index to the next byte for appending.
00157     uint16_t commandLength;
00158
00159     // used when allocateMemoryForResponses is true
00160     EmAfGbzUseCaseSpecificComponent * responses
00161 ;
00162     EmAfGbzUseCaseSpecificComponent * lastResponse
00163 ;
00164     EmAfGbzPayloadHeader * header;
00165
00166     // otherwise.
00167     uint8_t nextEncryptedComponentZclSequenceNumber
00168 ;
00169     uint8_t nextComponentZclSequenceNumber;
00170     uint8_t nextAdditionalHeaderFrameCounter;
00171     uint8_t * componentsCount;
00172     uint8_t * lastExtHeaderControlField;
00173     uint16_t messageCode;
00174
00175 } EmberAfGbzMessageCreatorState;
00176
00177 /*
00178 * @brief Assemble appended ZCL responses into 1 big chunk of memory.
00179 *
00180 */
00181 EmberAfGbzMessageCreatorResult *
00182 emberAfPluginGbzMessageControllerCreatorAssemble
00183 (EmberAfGbzMessageCreatorState * state);
00184
00185 /*
00186 * @brief Grab the default response byte from the GBZ ZCL Command.
00187 *
00188 * @param ZCL status
00189 */
00190 EmberAfStatus
00191 emberAfPluginGbzMessageControllerGetZclDefaultResponse
00192 (EmberAfGbzZclCommand * cmd);
00193
00194 /*
00195 * @brief Check the GBZ parser struct for any non-parsed commands.
00196 *
00197 * @param state struct containing the bookkeeping information of parsing GBZ
00198 * messages
00199 */
00200 bool emberAfPluginGbzMessageControllerHasNextCommand
00201 (EmberAfGbzMessageParserState * state);
00202
00203 /*
00204 * @brief This function cleans any on resources allocated during the parsing of
00205 * GBZ message.
00206 *
00207 * @param state a pre-allocated struct that will be updated to hold
00208 * bookkeeping information of parsing GBZ messages
00209 */
00210 void emberAfPluginGbzMessageControllerParserCleanup
00211 (EmberAfGbzMessageParserState * state);
00212
00213

```

```

00205 /*
00206  * @brief This function initializes proper parsing states for decoding of GBZ
00207  * messages.
00208  * The gbz message payload and payload length will be passed in as
00209  * arguments. Iterator functions,
00210  * emberAfPluginGbzMessageControllerHasNextCommand() and
00211  * emberAfPluginGbzMessageControllerNextCommand() will be used to iterate
00212  * through
00213  * each of the embedded ZCL functions.
00214  *
00215  * @param state      a pre-allocated struct that will be updated to hold
00216  *                   bookkeeping information for parsing GBZ messages
00217  * @param gbzCommand pointer to gbz messages
00218  * @param gbzCommandLength length of the gbz messages
00219  * @param copyGbzCommand flag to indicate if parser should be storing the gbz
00220  *                       command locally for parsing.
00221  * @param messageCode "Message Code" for the corresponding Non TOM
00222  *                     command.
00223  *
00224  */
00225
00226 bool emberAfPluginGbzMessageControllerParserInit
00227  (EmberAfGbzMessageParserState * state,
00228           EmberAfGbzMessageType
00229  type,
00230           uint8_t * gbzCommand,
00231           uint16_t gbzCommandLength,
00232           bool copyGbzCommand,
00233           uint16_t messageCode);
00234
00235 /**
00236  * @brief Append ZCL command to a given GBZ creator struct.
00237  *
00238  * @param state a pre-allocated struct that will be updated to hold
00239  *             bookkeeping information of creating GBZ messages
00240  * @param zclCmd struct containing information for new zcl cmd.
00241  *
00242  * @return 0 - if the appending operation did not succeed
00243  *         else - number of appended bytes
00244  */
00245 uint16_t emberAfPluginGbzMessageControllerAppendCommand
00246  (EmberAfGbzMessageCreatorState * state,
00247           EmberAfGbzZclCommand * zclCmd);
00248
00249 /**
00250  * @brief This function initializes proper states for construction of GBZ
00251  * messages.
00252  *
00253  *
00254  * Depending on the value of the argument (gbzCommand), the creator will
00255  * behave differently. If a NULL value is passed, the creator assumes the
00256  * user wants the API to allocate memory to store the appended responses.
00257  * Otherwise, the creator will use the provided buffer as the destination for
00258  * storing responses.
00259
00260  * Below is a general flow for the creation of ZCL messages into a GBZ
00261  * message.
00262
00263  * 1. emberAfPluginGbzMessageControllerCreatorInit() - create
00264  * 2. emberAfPluginGbzMessageControllerAppendCommand() - append
00265  * 3. emberAfPluginGbzMessageControllerCreatorAssemble() - assemble result.
00266  * 4. emberAfPluginGbzMessageControllerCreatorCleanup() - memory clean up
00267
00268  * @param state      A pre-allocated struct that will be updated to hold
00269  *                   bookkeeping information for creating GBZ messages
00270  * @param type       GBZ payload type: command, response, or alert
00271  * @param alertCode  When type is alert this field contains the alert code
00272  * @param timestamp   When type is alert this field contains the UTC when the
00273  *                   alert occurred
00274  * @param gbzCommand NULL - if the user wants API to allocate memory to store
00275  *                      responses
00276  *                      Otherwsie - pointer to destination buffer for gbz messages
00277  * @param gbzCommandLength length of the gbz messages. this argument is
00278  *                         ignored if gbzCommand is NULL
00279
00280  */
00281 uint16_t emberAfPluginGbzMessageControllerCreatorInit
00282  (EmberAfGbzMessageCreatorState * state,
00283           EmberAfGbzMessageType
00284  type,

```

```

00273                               uint16_t alertCode,
00274                               uint32_t timestamp,
00275                               uint16_t messageCode,
00276                               uint8_t * gbzCommand,
00277                               uint16_t gbzCommandLength);

00278  /*
00279   * @brief Return commands size of the given parser struct
00280   *
00281   * @param state struct containing the bookkeeping information of parsing GBZ
00282   * messages
00283   */
00284
00285 uint8_t emberAfPluginGbzMessageControllerGetComponentSize
00286   (EmberAfGbzMessageParserState * state);
00287 /*
00288  * @brief This function will cleanup/free all the allocated memory used to
00289  * store the overall GBZ response
00290  */
00291 void emberAfPluginGbzMessageControllerCreatorCleanup
00292   (EmberAfGbzMessageCreatorState * state);
00293 /*
00294  * @brief Get the next available ZCL command from the given GBZ parser struct.
00295  *
00296  * If any payload is encrypted, the decrypted data will overwrite the old
00297  * data.
00298  *
00299  * @param state a struct that retains the bookkeeping info of parsing GBZ
00300  * messages
00301  * @param gbzZclCommand a pre-allocated buffer that will be modified with the
00302  * next available ZCL command's information
00303 */
00304 void emberAfPluginGbzMessageControllerNextCommand
00305   (EmberAfGbzMessageParserState * state,
00306    EmberAfGbzZclCommand * gbzZclCommand);
00307 /*
00308  * @brief Print out all information retained in a EmberAfGbzZclCommand struct.
00309  */
00310 void emberAfPluginGbzMessageControllerPrintCommandInfo
00311   (EmberAfGbzZclCommand * gbzZclCommand);
00312 /*
00313  * @ Get the length of the overall GBZ message
00314  */
00315 uint16_t emberAfPluginGbzMessageControllerGetLength
00316   (EmberAfGbzZclCommand * cmd,
00317    EmberAfGbzMessageData
00318    * msg);
00319 /*
00320  * @ brief tells us whether we be encrypting the zcl payload or not
00321  */
00322 bool emberAfPluginGbzMessageControllerGetEncryptPayloadFlag
00323   (EmberAfGbzMessageCreatorState * state,
00324    EmberAfGbzZclCommand * resp);
00325
00326 #endif // #ifndef _GBZ_MESSAGE_CONTROLLER_

```

## 8.110 gpf-structured-data.h File Reference

### Functions

- void [emberAfPluginGasProxyFunctionInitStructuredData](#) (void)

#### 8.110.1 Function Documentation

### 8.110.1.1 void emberAfPluginGasProxyFunctionInitStructuredData ( void )

## 8.111 gpf-structured-data.h

```

00001 // ****
00002 // * gpf-structured-data.h
00003 // *
00004 // *
00005 // * Copyright 2015 Silicon Laboratories, Inc.
00006 // *
00007
00008 #ifndef GPF_STRUCTURED_DATA_H_
00009 #define GPF_STRUCTURED_DATA_H_
00010
00011 void emberAfPluginGasProxyFunctionInitStructuredData
00012     (void);
00013 #endif /* GPF_STRUCTURED_DATA_H_ */

```

## 8.112 green-power-client.h File Reference

### Data Structures

- struct [EmberAfGreenPowerClientCommissioningState](#)
- struct [EmberAfGreenPowerDuplicateFilter](#)

### Enumerations

- enum [EmberGpGpdMacSeqNumCap](#) { [EMBER\\_GP\\_GPD\\_MAC\\_SEQ\\_NUM\\_CAP\\_SEQUENTIAL](#), [EMBER\\_GP\\_GPD\\_MAC\\_SEQ\\_NUM\\_CAP\\_RANDOM](#) }
- enum [EmberAfGreenPowerClientCommissioningExitMode](#) { [EMBER\\_AF\\_GPC\\_COMMISSIONING\\_EXIT\\_ON\\_COMMISSIONING\\_WINDOW\\_EXP](#), [EMBER\\_AF\\_GPC\\_COMMISSIONING\\_EXIT\\_ON\\_FIRST\\_PAIRING\\_SUCCESS](#), [EMBER\\_AF\\_GPC\\_COMMISSIONING\\_EXIT\\_ON\\_G\\_P\\_PROXY\\_COMMISSIONING\\_MODE\\_EXIT](#), [EMBER\\_AF\\_GPC\\_COMMISSIONING\\_EXIT\\_MODE\\_MAX](#) }

### Functions

- bool [emGpMessageChecking](#) (EmberGpAddress \*gpAddr, uint8\_t sequenceNumber)

### 8.112.1 Enumeration Type Documentation

#### 8.112.1.1 enum EmberGpGpdMacSeqNumCap

Enumerator:

*EMBER\_GP\_GPD\_MAC\_SEQ\_NUM\_CAP\_SEQUENTIAL*  
*EMBER\_GP\_GPD\_MAC\_SEQ\_NUM\_CAP\_RANDOM*

Definition at line 10 of file [green-power-client.h](#).

### 8.112.1.2 enum EmberAfGreenPowerClientCommissioningExitMode

Enumerator:

```
EMBER_AF_GPC_COMMISIONING_EXIT_ON_COMMISIONING_WINDOW_EXP
EMBER_AF_GPC_COMMISIONING_EXIT_ON_FIRST_PAIRING_SUCCESS
EMBER_AF_GPC_COMMISIONING_EXIT_ON_GP_PROXY_COMMISIONING_MODE_EXIT

EMBER_AF_GPC_COMMISIONING_EXIT_MODE_MAX
```

Definition at line 15 of file [green-power-client.h](#).

### 8.112.2 Function Documentation

#### 8.112.2.1 bool emGpMessageChecking ( EmberGpAddress \* gpAddr, uint8\_t sequenceNumber )

## 8.113 green-power-client.h

```
00001 // ****
00002 // * green-power-client.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // ****
00007
00008 /* bookkeeping for Commissioning related info. */
00009
00010 typedef enum {
00011     EMBER_GP_GPD_MAC_SEQ_NUM_CAP_SEQUENTIAL
00012         = 0x00,
00013     EMBER_GP_GPD_MAC_SEQ_NUM_CAP_RANDOM
00014         = 0x01,
00015 } EmberGpGpdMacSeqNumCap;
00016
00017 typedef enum {
00018     EMBER_AF_GPC_COMMISIONING_EXIT_ON_COMMISIONING_WINDOW_EXP
00019         = 0x1,
00020     EMBER_AF_GPC_COMMISIONING_EXIT_ON_FIRST_PAIRING_SUCCESS
00021         = 0x2,
00022     EMBER_AF_GPC_COMMISIONING_EXIT_ON_GP_PROXY_COMMISIONING_MODE_EXIT
00023         = 0x4,
00024     EMBER_AF_GPC_COMMISIONING_EXIT_MODE_MAX
00025         = 0xFF,
00026 } EmberAfGreenPowerClientCommissioningExitMode
00027 ;
00028
00029 typedef struct {
00030     bool inCommissioningMode;
00031     EmberAfGreenPowerClientCommissioningExitMode
00032         exitMode;
00033     uint16_t gppCommissioningWindow;
00034     uint8_t channel;
00035     bool unicastCommunication;
00036     EmberNodeId commissioningSink;
00037     uint8_t onTransmitChannel; //we're on a temp channel to
00038     //send channel info, XXX overloaded to save network channel
00039 } EmberAfGreenPowerClientCommissioningState
00040 ;
00041
00042 typedef struct {
00043     EmberGpAddress addrs[EMBER_AF_PLUGIN_GREEN_POWER_CLIENT_MAX_ADDR_ENTRIES];
00044     uint8_t randomSeqNums[EMBER_AF_PLUGIN_GREEN_POWER_CLIENT_MAX_ADDR_ENTRIES][
00045         EMBER_AF_PLUGIN_GREEN_POWER_CLIENT_MAX_SEQ_NUM_ENTRIES_PER_ADDR];
00046     uint32_t expirationTimes[EMBER_AF_PLUGIN_GREEN_POWER_CLIENT_MAX_ADDR_ENTRIES]
00047         [EMBER_AF_PLUGIN_GREEN_POWER_CLIENT_MAX_SEQ_NUM_ENTRIES_PER_ADDR];
00048 } EmberAfGreenPowerDuplicateFilter;
00049
```

```
00038 bool emGpMessageChecking(EmberGpAddress *gpAddr, uint8_t
sequenceNumber);
```

## 8.114 green-power-common.h File Reference

### Macros

- #define **GP\_ENDPOINT**
- #define **GP\_HIDDEN\_GP\_ZCL\_ENDPOINT**
- #define **TICKS\_PER\_SEC**
- #define **TICKS\_PER\_MIN**
- #define **GP\_COMMISSIONING\_SECURITY\_LEVEL\_TO\_OPTIONS\_SHIFT**
- #define **GP\_COMMISSIONING\_SECURITY\_KEY\_TYPE\_TO\_OPTIONS\_SHIFT**
- #define **EMBER\_GP\_COMMISSIONING\_NOTIFICATION\_SEQUENCE\_NUMBER\_OFFSET**
- #define **GP\_NOTIFICATION\_OPTIONS\_SECURITY\_LEVEL\_TO\_OPTIONS\_SHIFT**
- #define **EMBER\_AF\_GREEN\_POWER\_SERVER\_GPDF\_SCENE\_DERIVED\_GROUP\_ID**
- #define **EMBER\_AF\_GREEN\_POWER\_SERVER\_GPDF\_TRANSLATION\_DEFAULT\_OPTION**
- #define **emberAfGreenPowerPairingOptionsGetCommMode**(options)
- #define **emberAfGreenPowerPairingOptionsGetAddSink**(options)
- #define **emberAfGreenPowerGetApplicationId**(options)
- #define **emberAfGreenPowerGpdSeqNumCap**(entry)
- #define **emberAfGreenPowerSecurityLevel**(entry)
- #define **emberAfGreenPowerPortableCap**(options)
- #define **emberAfGreenPowerSecurityKeyType**(options)

### Functions

- uint16\_t **emberAfFillCommandGreenPowerClusterGpNotificationSmart** (uint16\_t options, uint32\_t gpdSrcId, uint8\_t \*gpdIeee, uint8\_t gpdEndpoint, uint32\_t gpdSecurityFrameCounter, uint8\_t gpdCommandId, uint8\_t gpdCommandPayloadLength, const uint8\_t \*gpdCommandPayload, uint16\_t gppShortAddress, uint8\_t gppDistance)
- uint16\_t **emberAfFillCommandGreenPowerClusterGpPairingSearchSmart** (uint16\_t options, uint32\_t gpdSrcId, uint8\_t \*gpdIeee, uint8\_t endpoint)
- uint16\_t **emberAfFillCommandGreenPowerClusterGpTunnelingStopSmart** (uint8\_t options, uint32\_t gpdSrcId, uint8\_t \*gpdIeee, uint8\_t endpoint, uint32\_t gpdSecurityFrameCounter, uint16\_t gppShortAddress, int8\_t gppDistance)
- uint16\_t **emberAfFillCommandGreenPowerClusterGpCommissioningNotificationSmart** (uint16\_t options, uint32\_t gpdSrcId, uint8\_t \*gpdIeee, uint8\_t endpoint, EmberGpSecurityFrameCounter gpdSecurityFrameCounter, uint8\_t gpdCommandId, uint8\_t gpdCommandPayloadLength, const uint8\_t \*gpdCommandPayload, EmberNodeId gppShortAddress, uint8\_t gppLink, EmberGpMic mic)
- uint16\_t **emberAfFillCommandGreenPowerClusterGpTranslationTableUpdateSmart** (uint16\_t options, uint32\_t gpdSrcId, uint8\_t \*gpdIeee, uint8\_t endpoint, uint8\_t translationsLen, GpTranslationTableUpdateTranslation \*translations)
- uint16\_t **emberAfFillCommandGreenPowerClusterGpPairingConfigurationSmart** (uint8\_t actions, uint16\_t options, uint32\_t gpdSrcId, uint8\_t \*gpdIeee, uint8\_t endpoint, uint8\_t deviceId, uint8\_t groupListCount, uint8\_t \*groupList, uint16\_t gpdAssignedAlias, uint8\_t forwardingRadius, uint8\_t securityOptions, uint32\_t gpdSecurityFrameCounter, uint8\_t \*gpdSecurityKey, uint8\_t numberofPairedEndpoints, uint8\_t \*pairedEndpoints, uint8\_t applicationInformation, uint16\_t manufacturerId, uint16\_t modeId, uint8\_t numberofGpdCommands, uint8\_t \*gpdCommandIdList, uint8\_t clusterIdListCount, uint16\_t \*clusterListServer, uint16\_t \*clusterListClient)

- `uint16_t emberAfFillCommandGreenPowerClusterGpSinkTableRequestSmart (uint8_t options, uint32_t gpdSrcId, uint8_t *gpdIeee, uint8_t endpoint, uint8_t index)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpProxyTableResponseSmart (uint8_t status, uint8_t totalNumberOfNonEmptyProxyTableEntries, uint8_t startIndex, uint8_t entriesCount, uint8_t *proxyTableEntries)`
- `uint32_t emberAfFillCommandGreenPowerClusterGpNotificationResponseSmart (uint8_t options, uint32_t gpdSrcId, uint8_t *gpdIeee, uint8_t endpoint, uint32_t gpdSecurityFrameCounter)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpPairingSmart (uint32_t options, uint32_t gpdSrcId, uint8_t *gpdIeee, uint8_t endpoint, uint8_t *sinkIeeeAddress, uint16_t sinkNwkAddress, uint16_t sinkGroupId, uint8_t deviceId, uint32_t gpdSecurityFrameCounter, uint8_t *gpdKey, uint16_t assignedAlias, uint8_t forwardingRadius)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpProxyCommissioningModeSmart (uint8_t options, uint16_t commissioningWindow, uint8_t channel)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpResponseSmart (uint8_t options, uint16_t tempMasterShortAddress, uint8_t tempMasterTxChannel, uint32_t gpdSrcId, uint8_t *gpdIeee, uint8_t endpoint, uint8_t gpdCommandId, uint8_t gpdCommandPayloadLength, uint8_t *gpdCommandPayload)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpSinkTableResponseSmart (uint8_t status, uint8_t totalNumberOfNonEmptySinkTableEntries, uint8_t startIndex, uint8_t sinkTableEntriesCount, uint8_t *sinkTableEntries)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpProxyTableRequestSmart (uint8_t options, uint32_t gpdSrcId, uint8_t *gpdIeee, uint8_t endpoint, uint8_t index)`
- `uint16_t emberAfFillCommandGreenPowerClusterGpSinkCommissioningModeSmart (uint8_t options, uint16_t gpmAddrForSecurity, uint16_t gpmAddrForPairing, uint8_t sinkEndpoint)`
- `bool emberAfGreenPowerCommonGpAddrCompare (const EmberGpAddress *a, const EmberGpAddress *b)`
- `EmberNodeId emGpdAlias (EmberGpAddress *addr)`

### 8.114.1 Macro Definition Documentation

#### 8.114.1.1 #define GP\_ENDPOINT

Definition at line 11 of file `green-power-common.h`.

#### 8.114.1.2 #define GP\_HIDDEN\_GP\_ZCL\_ENDPOINT

Definition at line 12 of file `green-power-common.h`.

#### 8.114.1.3 #define TICKS\_PER\_SEC

Definition at line 14 of file `green-power-common.h`.

#### 8.114.1.4 #define TICKS\_PER\_MIN

Definition at line 15 of file `green-power-common.h`.

#### 8.114.1.5 #define GP\_COMMISIONING\_SECURITY\_LEVEL\_TO\_OPTIONS\_SHIFT

Definition at line 16 of file `green-power-common.h`.

8.114.1.6 `#define GP_COMMISSIONING_SECURITY_KEY_TYPE_TO_OPTIONS_SHIFT`

Definition at line 17 of file [green-power-common.h](#).

8.114.1.7 `#define EMBER_GP_COMMISSIONING_NOTIFICATION_SEQUENCE_NUMBER_OFFSET`

Definition at line 18 of file [green-power-common.h](#).

8.114.1.8 `#define GP_NOTIFICATION_OPTIONS_SECURITY_LEVEL_TO_OPTIONS_SHIFT`

Definition at line 19 of file [green-power-common.h](#).

8.114.1.9 `#define EMBER_AF_GREEN_POWER_SERVER_GPDF_SCENE_DERIVED_GROUP_ID`

Definition at line 21 of file [green-power-common.h](#).

8.114.1.10 `#define EMBER_AF_GREEN_POWER_SERVER_GPDF_TRANSLATION_DEFAULT_OPTION`

Definition at line 22 of file [green-power-common.h](#).

8.114.1.11 `#define emberAfGreenPowerPairingOptionsGetCommMode( options )`

Definition at line 24 of file [green-power-common.h](#).

8.114.1.12 `#define emberAfGreenPowerPairingOptionsGetAddSink( options )`

Definition at line 25 of file [green-power-common.h](#).

8.114.1.13 `#define emberAfGreenPowerGetApplicationId( options )`

Definition at line 26 of file [green-power-common.h](#).

8.114.1.14 `#define emberAfGreenPowerGpdSeqNumCap( entry )`

Definition at line 27 of file [green-power-common.h](#).

8.114.1.15 `#define emberAfGreenPowerSecurityLevel( entry )`

Definition at line 28 of file [green-power-common.h](#).

8.114.1.16 `#define emberAfGreenPowerPortableCap( options )`

Definition at line 29 of file [green-power-common.h](#).

8.114.1.17 #define emberAfGreenPowerSecurityKeyType( *options* )

Definition at line 30 of file [green-power-common.h](#).

## 8.114.2 Function Documentation

- 8.114.2.1 uint16\_t emberAfFillCommandGreenPowerClusterGpNotificationSmart ( uint16\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *gpdEndpoint*, uint32\_t *gpdSecurityFrameCounter*, uint8\_t *gpdCommandId*, uint8\_t *gpdCommandPayloadLength*, const uint8\_t \* *gpdCommandPayload*, uint16\_t *gppShortAddress*, uint8\_t *gppDistance* )
- 8.114.2.2 uint16\_t emberAfFillCommandGreenPowerClusterGpPairingSearchSmart ( uint16\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint* )
- 8.114.2.3 uint16\_t emberAfFillCommandGreenPowerClusterGpTunnelingStopSmart ( uint8\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, uint32\_t *gpdSecurityFrameCounter*, uint16\_t *gppShortAddress*, int8\_t *gppDistance* )
- 8.114.2.4 uint16\_t emberAfFillCommandGreenPowerClusterGpCommissioningNotificationSmart ( uint16\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, EmberGpSecurityFrameCounter *gpdSecurityFrameCounter*, uint8\_t *gpdCommandId*, uint8\_t *gpdCommandPayloadLength*, const uint8\_t \* *gpdCommandPayload*, EmberNodeId *gppShortAddress*, uint8\_t *gppLink*, EmberGpMic *mic* )
- 8.114.2.5 uint16\_t emberAfFillCommandGreenPowerClusterGpTranslationTableUpdateSmart ( uint16\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, uint8\_t *translationsLen*, GpTranslationTableUpdateTranslation \* *translations* )
- 8.114.2.6 uint16\_t emberAfFillCommandGreenPowerClusterGpPairingConfigurationSmart ( uint8\_t *actions*, uint16\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, uint8\_t *deviceId*, uint8\_t *groupListCount*, uint8\_t \* *groupList*, uint16\_t *gpdAssignedAlias*, uint8\_t *forwardingRadius*, uint8\_t *securityOptions*, uint32\_t *gpdSecurityFrameCounter*, uint8\_t \* *gpdSecurityKey*, uint8\_t *numberOfPairedEndpoints*, uint8\_t \* *pairedEndpoints*, uint8\_t *applicationInformation*, uint16\_t *manufacturerId*, uint16\_t *modelId*, uint8\_t *numberOfGpdCommands*, uint8\_t \* *gpdCommandIdList*, uint8\_t *clusterIdListCount*, uint16\_t \* *clusterListServer*, uint16\_t \* *clusterListClient* )
- 8.114.2.7 uint16\_t emberAfFillCommandGreenPowerClusterGpSinkTableRequestSmart ( uint8\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, uint8\_t *index* )
- 8.114.2.8 uint16\_t emberAfFillCommandGreenPowerClusterGpProxyTableResponseSmart ( uint8\_t *status*, uint8\_t *totalNumberOfNonEmptyProxyTableEntries*, uint8\_t *startIndex*, uint8\_t *entriesCount*, uint8\_t \* *proxyTableEntries* )
- 8.114.2.9 uint32\_t emberAfFillCommandGreenPowerClusterGpNotificationResponseSmart ( uint8\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, uint32\_t *gpdSecurityFrameCounter* )
- 8.114.2.10 uint16\_t emberAfFillCommandGreenPowerClusterGpPairingSmart ( uint32\_t *options*, uint32\_t *gpdSrcId*, uint8\_t \* *gpdeeee*, uint8\_t *endpoint*, uint8\_t \* *sinkLeeeeAddress*, uint16\_t *sinkNwkAddress*, uint16\_t *sinkGroupId*, uint8\_t *deviceId*, uint32\_t *gpdSecurityFrameCounter*, uint8\_t \* *gpdKey*, uint16\_t *assignedAlias*, uint8\_t *forwardingRadius* )

- 8.114.2.11 `uint16_t emberAfFillCommandGreenPowerClusterGpProxyCommissioningModeSmart ( uint8_t options, uint16_t commissioningWindow, uint8_t channel )`
  - 8.114.2.12 `uint16_t emberAfFillCommandGreenPowerClusterGpResponseSmart ( uint8_t options, uint16_t tempMasterShortAddress, uint8_t tempMasterTxChannel, uint32_t gpdSrcId, uint8_t * gpdleee, uint8_t endpoint, uint8_t gpdCommandId, uint8_t gpdCommandPayloadLength, uint8_t * gpdCommandPayload )`
  - 8.114.2.13 `uint16_t emberAfFillCommandGreenPowerClusterGpSinkTableResponseSmart ( uint8_t status, uint8_t totalNumberOfNonEmptySinkTableEntries, uint8_t startIndex, uint8_t sinkTableEntriesCount, uint8_t * sinkTableEntries )`
  - 8.114.2.14 `uint16_t emberAfFillCommandGreenPowerClusterGpProxyTableRequestSmart ( uint8_t options, uint32_t gpdSrcId, uint8_t * gpdleee, uint8_t endpoint, uint8_t index )`
  - 8.114.2.15 `uint16_t emberAfFillCommandGreenPowerClusterGpSinkCommissioningModeSmart ( uint8_t options, uint16_t gpmAddrForSecurity, uint16_t gpmAddrForPairing, uint8_t sinkEndpoint )`
  - 8.114.2.16 `bool emberAfGreenPowerCommonGpAddrCompare ( const EmberGpAddress * a, const EmberGpAddress * b )`
  - 8.114.2.17 `EmberNodeId emGpdAlias ( EmberGpAddress * addr )`

## 8.115 green-power-common.h

```
00001 // ****
00002 // * green-power-common.c
00003 // *
00004 // * Place for common functions / definitions shared by
00005 // * Green Power Client/Server
00006 // *
00007 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
*80*
00008 // * Jing Teng ( jing.teng@silabs.com )
00009 // ****
00010
00011 #define GP_ENDPOINT (242)
00012 #define GP_HIDDEN_GP_ZCL_ENDPOINT
    (EMBER_AF_PLUGIN_GREEN_POWER_SERVER_HIDDEN_ZCL_MESSAGE_PROXY_ENDPOINT)
00013
00014 #define TICKS_PER_SEC (1024)
00015 #define TICKS_PER_MIN TICKS_PER_SEC*(60)
00016 #define GP_COMMISSIONING_SECURITY_LEVEL_TO_OPTIONS_SHIFT (6)
00017 #define GP_COMMISSIONING_SECURITY_KEY_TYPE_TO_OPTIONS_SHIFT (6)
00018 #define EMBER_GP_COMMISSIONING_NOTIFICATION_SEQUENCE_NUMBER_OFFSET (12)
00019 #define GP_NOTIFICATION_OPTIONS_SECURITY_LEVEL_TO_OPTIONS_SHIFT (6)
00020
00021 #define EMBER_AF_GREEN_POWER_SERVER_GPDF_SCENE_DERIVED_GROUP_ID (0xFFFF)
00022 #define EMBER_AF_GREEN_POWER_SERVER_GPDF_TRANSLATION_DEFAULT_OPTION (0x00)
00023
00024 #define emberAfGreenPowerPairingOptionsGetCommMode(options) (((options &
EMBER_AF_GP_PAIRING_OPTION_COMMUNICATION_MODE) >> 5))
00025 #define emberAfGreenPowerPairingOptionsGetAddSink(options) (((options &
EMBER_AF_GP_PAIRING_OPTION_ADD_SINK) >> 3))
00026 #define emberAfGreenPowerGetApplicationId(options) ((EmberGpApplicationId)
(options & 0x07))
00027 #define emberAfGreenPowerGpdSeqNumCap(entry) ((entry->options >> 8) &
0x01)
00028 #define emberAfGreenPowerSecurityLevel(entry) ((entry->options >> 9) &
0x03)
00029 #define emberAfGreenPowerPortableCap(options) (((options &
GP_PAIRING_OPTIONS_GPD_FIXED) >> 7) & 0x01)
00030 #define emberAfGreenPowerSecurityKeyType(options) (((options &
GP_PAIRING_OPTIONS_SECURITY_KEY_TYPE) >> 11) & 0x07)
00031
00032
```

```

00033
00034 uint16_t emberAfFillCommandGreenPowerClusterGpNotificationSmart
00035     (uint16_t options,
00036         ,
00037         gpdEndpoint,
00038         gpdSecurityFrameCounter,
00039         gpdCommandId,
00040         gpdCommandPayloadLength,
00041         gpdCommandPayload,
00042         gppShortAddress,
00043         gppDistance);
00044
00045 uint16_t emberAfFillCommandGreenPowerClusterGpPairingSearchSmart
00046     (uint16_t options,
00047         gpdSrcId,
00048         ,
00049 );
00050
00051 uint16_t emberAfFillCommandGreenPowerClusterGpTunnelingStopSmart
00052     (uint8_t options,
00053         ,
00054         gpdSecurityFrameCounter,
00055         gppShortAddress,
00056         );
00057
00058 uint16_t emberAfFillCommandGreenPowerClusterGpCommissioningNotificationSmart
00059     (uint16_t options,
00060         uint32_t gpdSrcId,
00061         uint8_t* gpdIeee,
00062         uint8_t endpoint,
00063         EmberGpSecurityFrameCounter gpdSecurityFrameCounter,
00064         uint8_t gpdCommandId,
00065         uint8_t gpdCommandPayloadLength,
00066         const uint8_t *gpdCommandPayload,
00067         EmberNodeId gppShortAddress,
00068         uint8_t gppLink,
00069         EmberGpMic mic);
00070
00071 uint16_t emberAfFillCommandGreenPowerClusterGpTranslationTableUpdateSmart
00072     (uint16_t options,
00073         uint32_t gpdSrcId,
00074         * gpdIeee,
00075         endpoint,
00076         translationsLen,
00077         GpTranslationTableUpdateTranslation* translations);
00078 uint16_t emberAfFillCommandGreenPowerClusterGpPairingConfigurationSmart

```

```

00079     (uint8_t actions,
00080         options,                                uint16_t
00081         gpdSrcId,                               uint32_t
00082         gpdIeee,                                uint8_t*
00083         endpoint,                               uint8_t
00084         deviceId,                               uint8_t
00085         groupListCount,                          uint8_t
00086         groupList,                               uint8_t*
00087         gpdAssignedAlias,                         uint16_t
00088         forwardingRadius,                        uint8_t
00089         securityOptions,                          uint32_t
00090         gpdSecurityFrameCounter,                  uint8_t*
00091         gpdSecurityKey,                           uint8_t
00092         numberOfPairedEndpoints,                 uint8_t
00093         pairedEndpoints,                          uint8_t*
00094         applicationInformation,                 uint16_t
00095         manufacturerId,                          uint16_t
00096         modelId,                                uint16_t
00097         numberofGpdCommands,                     uint8_t *
00098         gpdCommandIdList,                         uint8_t
00099         clusterIdListCount,                      uint16_t *
00100         clusterListServer,                       uint16_t *
00101         clusterListClient);                    uint16_t *
00102 uint16_t emberAfFillCommandGreenPowerClusterGpSinkTableRequestSmart
00103     (uint8_t options,
00104         gpdSrcId,                               uint32_t
00105         gpdIeee,                                uint8_t*
00106         endpoint,                               uint8_t
00107         );
00108 uint16_t emberAfFillCommandGreenPowerClusterGpProxyTableResponseSmart
00109     (uint8_t status,
00110         totalNumberOfNonEmptyProxyTableEntries, uint8_t
00111         startIndex,                            uint8_t
00112         entriesCount,                           uint8_t
00113         proxyTableEntries);                   uint8_t*
00114 uint32_t emberAfFillCommandGreenPowerClusterGpNotificationResponseSmart
00115     (uint8_t options,
00116         gpdSrcId,                               uint32_t
00117         gpdIeee,                                uint8_t*
00118         endpoint,                               uint8_t
00119         gpdSecurityFrameCounter);              uint32_t
00120 uint16_t emberAfFillCommandGreenPowerClusterGpPairingSmart

```

```

    (uint32_t options,
00121                                uint32_t gpdSrcId,
00122                                uint8_t* gpdIeee,
00123                                uint8_t endpoint,
00124                                uint8_t* sinkIeeeAddress
00125                                ,
00126                                gpdSecurityFrameCounter,
00127                                uint16_t sinkNwkAddress,
00128                                uint16_t sinkGroupId,
00129                                uint8_t deviceId,
00130                                uint32_t
00131                                );
00132
00133 uint16_t emberAfFillCommandGreenPowerClusterGpProxyCommissioningModeSmart
00134     (uint8_t options,
00135         uint16_t commissioningWindow,
00136         uint8_t channel);
00137 uint16_t emberAfFillCommandGreenPowerClusterGpResponseSmart
00138     (uint8_t options,
00139         tempMasterShortAddress,
00140         tempMasterTxChannel,
00141         uint16_t
00142         uint8_t
00143         tempMasterTxChannel,
00144         uint8_t
00145         uint8_t*
00146         gpdCommandPayloadLength,
00147         uint8_t*
00148         gpdCommandPayload);
00149
00150 uint16_t emberAfFillCommandGreenPowerClusterGpSinkTableResponseSmart
00151     (uint8_t status,
00152         uint8_t
00153         totalNumberofNonEmptySinkTableEntries,
00154         uint8_t
00155         startIndex,
00156         uint8_t
00157         sinkTableEntriesCount,
00158         uint8_t*
00159         sinkTableEntries);
00160
00161 uint16_t emberAfFillCommandGreenPowerClusterGpProxyTableRequestSmart
00162     (uint8_t options,
00163         uint32_t
00164         gpdSrcId,
00165         uint8_t*
00166         gpdIeee,
00167         uint8_t
00168         endpoint,
00169         uint8_t index);
00170
00171 uint16_t emberAfFillCommandGreenPowerClusterGpSinkCommissioningModeSmart
00172     (uint8_t options,
00173         uint16_t
00174         gpmAddrForSecurity,
00175         uint16_t
00176         gpmAddrForPairing,
00177         uint8_t
00178         sinkEndpoint);
00179
00180 bool emberAfGreenPowerCommonGpAddrCompare(
00181     const EmberGpAddress * a,
00182                                         const EmberGpAddress * b);
00183
00184 EmberNodeId emGpdAlias(EmberGpAddress *addr);

```

## 8.116 green-power-crypto.h File Reference

```
#include "phy/security.h"
```

### Data Structures

- struct [CryptoTimingInfo](#)

### Macros

- #define STANDALONE\_FLAGS\_INDEX
- #define STANDALONE\_NONCE\_SOURCE\_ADDR\_INDEX
- #define STANDALONE\_NONCE\_FRAME\_COUNTER\_INDEX
- #define STANDALONE\_NONCE\_SECURITY\_CONTROL\_INDEX
- #define STANDALONE\_VARIABLE\_FIELD\_INDEX\_HIGH
- #define STANDALONE\_VARIABLE\_FIELD\_INDEX\_LOW
- #define FRAME\_COUNTER\_UPDATE\_INTERVAL\_LOG
- #define FRAME\_COUNTER\_UPDATE\_INTERVAL
- #define FRAME\_COUNTER\_UPDATE\_MASK
- #define emEncryptFlatPayload(payload, length, nonce)
- #define NUMBER\_RESULTS

### Functions

- bool [emZigbeeProApsEncryptPacket](#) (PacketHeader header, uint8\_t authenticationstartIndex, uint8\_t auxFrameIndex)
- bool [emZigbeeProDecryptPacket](#) (PacketHeader header, uint8\_t authenticationstartIndex, uint8\_t auxFrameIndex, EmberEUI64 sourceEui64, bool nwkDecrypt)
- void [emZigbeeProNetworkEncryptFlatPacket](#) (uint8\_t \*packet, uint8\_t packetLength, uint8\_t authenticationstartIndex, uint8\_t auxFrameIndex)
- void [emCalculateMic](#) (EmberMessageBuffer header, uint8\_t \*contents, uint8\_t authenticationstartIndex, uint8\_t encryptionstartIndex, uint8\_t packetLength, bool useCbcMac, uint8\_t nonce[SECURITY\_BLOCK\_SIZE], uint8\_t micResult[MIC\_SIZE\_MAX])
- void [emEncryptBytes](#) (uint8\_t \*bytes, uint8\_t length, uint16\_t blockCount, uint8\_t nonce[SECURITY\_BLOCK\_SIZE])
- void [emEncryptPayload](#) (EmberMessageBuffer header, uint8\_t encryptionstartIndex, uint8\_t nonce[SECURITY\_BLOCK\_SIZE])
- void [emCryptoTimingRecordEnable](#) (bool on)
- void [emCryptoTimingReset](#) (void)
- const [CryptoTimingInfo](#) \* [emCryptoTimingGetData](#) (uint8\_t index, bool outgoing)

#### 8.116.1 Macro Definition Documentation

##### 8.116.1.1 #define STANDALONE\_FLAGS\_INDEX

Definition at line 7 of file [green-power-crypto.h](#).

8.116.1.2 `#define STANDALONE_NONCE_SOURCE_ADDR_INDEX`

Definition at line 8 of file [green-power-crypto.h](#).

8.116.1.3 `#define STANDALONE_NONCE_FRAME_COUNTER_INDEX`

Definition at line 9 of file [green-power-crypto.h](#).

8.116.1.4 `#define STANDALONE_NONCE_SECURITY_CONTROL_INDEX`

Definition at line 10 of file [green-power-crypto.h](#).

8.116.1.5 `#define STANDALONE_VARIABLE_FIELD_INDEX_HIGH`

Definition at line 11 of file [green-power-crypto.h](#).

8.116.1.6 `#define STANDALONE_VARIABLE_FIELD_INDEX_LOW`

Definition at line 12 of file [green-power-crypto.h](#).

8.116.1.7 `#define FRAME_COUNTER_UPDATE_INTERVAL_LOG`

Definition at line 14 of file [green-power-crypto.h](#).

8.116.1.8 `#define FRAME_COUNTER_UPDATE_INTERVAL`

Definition at line 15 of file [green-power-crypto.h](#).

8.116.1.9 `#define FRAME_COUNTER_UPDATE_MASK`

Definition at line 16 of file [green-power-crypto.h](#).

8.116.1.10 `#define emEncryptFlatPayload( payload, length, nonce )`

Definition at line 54 of file [green-power-crypto.h](#).

8.116.1.11 `#define NUMBER_RESULTS`

Definition at line 65 of file [green-power-crypto.h](#).

## 8.116.2 Function Documentation

8.116.2.1 `bool emZigbeeProApsEncryptPacket ( PacketHeader header, uint8_t authenticationStartIndex, uint8_t auxFrameIndex )`

- 8.116.2.2 `bool emZigbeeProDecryptPacket ( PacketHeader header, uint8_t authenticationStartIndex, uint8_t auxFrameIndex, EmberEUI64 sourceEui64, bool nwkDecrypt )`
  - 8.116.2.3 `void emZigbeeProNetworkEncryptFlatPacket ( uint8_t * packet, uint8_t packetLength, uint8_t authenticationStartIndex, uint8_t auxFrameIndex )`
  - 8.116.2.4 `void emCalculateMic ( EmberMessageBuffer header, uint8_t * contents, uint8_t authenticationStartIndex, uint8_t encryptionStartIndex, uint8_t packetLength, bool useCbcMac, uint8_t nonce[SECURITY_BLOCK_SIZE], uint8_t micResult[MIC_SIZE_MAX] )`
  - 8.116.2.5 `void emEncryptBytes ( uint8_t * bytes, uint8_t length, uint16_t blockCount, uint8_t nonce[SECURITY_BLOCK_SIZE] )`
  - 8.116.2.6 `void emEncryptPayload ( EmberMessageBuffer header, uint8_t encryptionStartIndex, uint8_t nonce[SECURITY_BLOCK_SIZE] )`
  - 8.116.2.7 `void emCryptoTimingRecordEnable ( bool on )`
  - 8.116.2.8 `void emCryptoTimingReset ( void )`
  - 8.116.2.9 `const CryptoTimingInfo* emCryptoTimingGetData ( uint8_t index, bool outgoing )`

## 8.117 green-power-crypto.h

```

00042                     uint8_t micResult[MIC_SIZE_MAX]);
00043
00044 void emEncryptBytes(uint8_t* bytes,
00045                         uint8_t length,
00046                         uint16_t blockCount,
00047                         uint8_t nonce[SECURITY_BLOCK_SIZE]);
00048
00049 void emEncryptPayload(EmberMessageBuffer
00050                         header,
00051                         uint8_t encryptionstartIndex,
00052                         uint8_t nonce[SECURITY_BLOCK_SIZE]);
00053 // The payload gets encrypted starting from block 1.
00054 #define emEncryptFlatPayload(payload, length, nonce) \
00055 (emEncryptBytes((payload), (length), 1, (nonce)))
00056
00057 // Routines for extracting timing data for the CCM* crypto operations.
00058 // The code currently only measures NWK encryption. Since we are only
00059 // measuring CCM* performance: MIC create/check, Encrypt/Decrypt,
00060 // and not the overall packet manipulation we don't bother to measure
00061 // APS encryption. It is the same as NWK but the max packet size we can
00062 // operate over is smaller.
00063
00064 // We store separate results for sending and receiving
00065 #define NUMBER_RESULTS 10
00066
00067 typedef struct {
00068     uint32_t micTimingMicroSeconds;
00069     uint8_t micPacketSize;
00070     uint32_t encryptDecryptTimingMicroSeconds;
00071     uint8_t encryptDecryptPacketSize;
00072     uint32_t frameCounter;
00073 } CryptoTimingInfo;
00074
00075 void emCryptoTimingRecordEnable(bool on);
00076 void emCryptoTimingReset(void);
00077 const CryptoTimingInfo* emCryptoTimingGetData
00078     (uint8_t index,
00079      bool outgoing);
00079
00080 // DON'T ADD Below here. Add new stuff above the CCM* timing header block
00081 // above.
00082 #endif // __CRYPTO_H__

```

## 8.118 green-power-server.h File Reference

### Data Structures

- struct [EmberAfGreenPowerServerCommissioningState](#)
- struct [EmberAfGreenPowerServerGpdCommandTranslation](#)

### Macros

- #define [EMBER\\_AF\\_GREEN\\_POWER\\_SERVER\\_TRANSLATION\\_TABLE\\_ENTRY\\_ZCL\\_PAYLOAD\\_LEN](#)
- #define [EMBER\\_AF\\_PLUGIN\\_GREEN\\_POWER\\_SERVER\\_CUSTOMIZED\\_GPD\\_TRANSLATION\\_TABLE\\_SIZE](#)

### Enumerations

- enum [EmberAfGreenPowerServerGpdToZclCmdMappingPayloadSrc](#) { [EMBER\\_AF\\_GREEN\\_POWER\\_ZCL\\_PAYLOAD\\_SRC\\_PRECONFIGURED](#), [EMBER\\_AF\\_GREEN\\_POWER\\_ZCL\\_PAYLOAD\\_SRC\\_NA](#), [EMBER\\_AF\\_GREEN\\_POWER\\_ZCL\\_PAYLOAD\\_SRC\\_GPD\\_CMD](#) }

### 8.118.1 Macro Definition Documentation

**8.118.1.1 #define EMBER\_AF\_GREEN\_POWER\_SERVER\_TRANSLATION\_TABLE\_ENTRY\_ZCL\_PAYLOAD\_LEN**

Definition at line 9 of file [green-power-server.h](#).

**8.118.1.2 #define EMBER\_AF\_PLUGIN\_GREEN\_POWER\_SERVER\_CUSTOMIZED\_GPD\_TRANSLATION\_TABLE\_SIZE**

Definition at line 12 of file [green-power-server.h](#).

### 8.118.2 Enumeration Type Documentation

**8.118.2.1 enum EmberAfGreenPowerServerGpdToZclCmdMappingPayloadSrc**

Enumerator:

**EMBER\_AF\_GREEN\_POWER\_ZCL\_PAYLOAD\_SRC\_PRECONFIGURED**  
**EMBER\_AF\_GREEN\_POWER\_ZCL\_PAYLOAD\_SRC\_NA**  
**EMBER\_AF\_GREEN\_POWER\_ZCL\_PAYLOAD\_SRC\_GPD\_CMD**

Definition at line 25 of file [green-power-server.h](#).

## 8.119 green-power-server.h

```

00001 // ****
00002 // * green-power-server.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // *8*
00007 //
00008
00009 #define EMBER_AF_GREEN_POWER_SERVER_TRANSLATION_TABLE_ENTRY_ZCL_PAYLOAD_LEN (7)

00010
00011 #ifndef
00012     EMBER_AF_PLUGIN_GREEN_POWER_SERVER_CUSTOMIZED_GPD_TRANSLATION_TABLE_SIZE
00013 #define
00014     EMBER_AF_PLUGIN_GREEN_POWER_SERVER_CUSTOMIZED_GPD_TRANSLATION_TABLE_SIZE (1)
00015 #endif
00016
00017 typedef struct {
00018     bool inCommissioningMode;
00019     bool proxiesInvolved;
00020     //EmberAfGreenPowerClientCommissioningExitMode exitMode;
00021     //uint16_t gppCommissioningWindow;
00022     //uint8_t channel;
00023     //bool unicastCommunication;
00024     //EmberNodeId commissioningSink;
00025 } EmberAfGreenPowerServerCommissioningState
00026 ;
00027
00028 typedef enum {
00029     EMBER_AF_GREEN_POWER_ZCL_PAYLOAD_SRC_PRECONFIGURED
00030     = 1,
00031     EMBER_AF_GREEN_POWER_ZCL_PAYLOAD_SRC_NA
00032     = 2,
00033     EMBER_AF_GREEN_POWER_ZCL_PAYLOAD_SRC_GPD_CMD
00034     = 4
00035 }
```

```

00029 } EmberAfGreenPowerServerGpdToZclCmdMappingPayloadSrc
;
00030
00031 typedef struct {
00032     bool           validEntry;
00033     uint8_t        options;
00034     EmberGpAddress gpAddr;
00035
00036     // A.3.6.2.2 GPD application functionality translation.
00037     // If the EndPoint field is set to 0xfd, there are no paired endpoints. If
00038     // the EndPoint field is set to 0xff, all matching endpoints are paired.
00039     uint8_t        endpoint;
00040
00041     // If the GPD Command field is set to 0xAF, all of the GPD sensor report
00042     // commands 0xA0 - 0xA3 are supported. Thus, 0xAF is not used as a true
00043     // GPD CommandID, but as a way to make the Translation Tables more compact.
00044     uint8_t        gpdCommand;
00045     uint16_t       zigbeeProfile;
00046     uint16_t       zigbeeCluster;
00047     uint8_t        zigbeeCommandId;
00048     EmberAfGreenPowerServerGpdToZclCmdMappingPayloadSrc
payloadSrc;
00049
00050     // This is a Zigbee string./ If the Length sub-field of the ZigBee Command
00051     // payload field is set to 0x00,
00052     // the Payload sub-field is not present, and the ZigBee command is sent
00053     // without payload.
00054
00055     // If the Length sub-field of the ZigBee Command payload field is set to
00056     // 0xff,
00057     // the Payload sub-field is not present, and the payload from the triggering
00058     // GPD command is to be copied verbatim into the ZigBee command. If the
Length
00059     // sub-field of the ZigBee Command payload field is set to 0xfe, the Payload
00060     // sub-field is not present, and the pay-load from the triggering GPD command needs
00061     // to be parsed. For all other values of the Length sub-field, the Payload
00062     // sub-field is present, has a length as defined in the Length sub-field and specifies the
00063     // pay-load to be used.
00064     uint8_t        zclPayloadDefault[
EMBER_AF_GREEN_POWER_SERVER_TRANSLATION_TABLE_ENTRY_ZCL_PAYLOAD_LEN
];
00065 } EmberAfGreenPowerServerGpdCommandTranslation
;

```

## 8.120 green-power-test-device.h File Reference

### 8.121 green-power-test-device.h

```

00001 // ****
00002 // * green-power-client.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
*80*
00006 // ****
00007
00008 /* bookkeeping for Commissioning related info. */
00009

```

## 8.122 ias-zone-client.h File Reference

### Data Structures

- struct [IasZoneDevice](#)

## Macros

- #define NO\_INDEX
- #define UNKNOWN\_ENDPOINT
- #define UNKNOWN\_ZONE\_ID

## Functions

- void emAfClearServers (void)
- void emberAfPluginIasZoneClientZdoCallback (EmberNodeId emberNodeId, EmberApsFrame \*apsFrame, uint8\_t \*message, uint16\_t length)
- void emberAfPluginIasZoneClientWriteAttributesResponseCallback (EmberAfClusterId clusterId, uint8\_t \*buffer, uint16\_t bufLen)
- void emberAfPluginIasZoneClientReadAttributesResponseCallback (EmberAfClusterId clusterId, uint8\_t \*buffer, uint16\_t bufLen)

## Variables

- IasZoneDevice emberAfIasZoneClientKnownServers [ ]

### 8.122.1 Macro Definition Documentation

#### 8.122.1.1 #define NO\_INDEX

Definition at line 14 of file [ias-zone-client.h](#).

#### 8.122.1.2 #define UNKNOWN\_ENDPOINT

Definition at line 15 of file [ias-zone-client.h](#).

#### 8.122.1.3 #define UNKNOWN\_ZONE\_ID

Definition at line 17 of file [ias-zone-client.h](#).

### 8.122.2 Function Documentation

#### 8.122.2.1 void emAfClearServers ( void )

#### 8.122.2.2 void emberAfPluginIasZoneClientZdoCallback ( EmberNodeId emberNodeId, EmberApsFrame \*apsFrame, uint8\_t \* message, uint16\_t length )

#### 8.122.2.3 void emberAfPluginIasZoneClientWriteAttributesResponseCallback ( EmberAfClusterId clusterId, uint8\_t \* buffer, uint16\_t bufLen )

#### 8.122.2.4 void emberAfPluginIasZoneClientReadAttributesResponseCallback ( EmberAfClusterId clusterId, uint8\_t \* buffer, uint16\_t bufLen )

### 8.122.3 Variable Documentation

### 8.122.3.1 IasZoneDevice emberAfIasZoneClientKnownServers[]

## 8.123 ias-zone-client.h

```

00001
00002 typedef struct {
00003     EmberEUI64 ieeeAddress;
00004     uint16_t zoneType;
00005     uint16_t zoneStatus;
00006     uint8_t zoneState;
00007     uint8_t endpoint;
00008     uint8_t zoneId;
00009 } IasZoneDevice;
00010
00011
00012 extern IasZoneDevice emberAfIasZoneClientKnownServers
00013 [];
00014 #define NO_INDEX 0xFF
00015 #define UNKNOWN_ENDPOINT 0
00016
00017 #define UNKNOWN_ZONE_ID 0xFF
00018
00019 void emAfClearServers(void);
00020
00021 void emberAfPluginIasZoneClientZdoCallback
00022 (EmberNodeId emberNodeId,
00023                                     EmberApsFrame* apsFrame
00024                                     ,
00025                                     uint8_t* message,
00026                                     uint16_t length);
00027
00028 void emberAfPluginIasZoneClientWriteAttributesResponseCallback
00029 (EmberAfClusterId clusterId,
00030                                     uint8_t * buffer
00031 void emberAfPluginIasZoneClientReadAttributesResponseCallback
00032 (EmberAfClusterId clusterId,
00033                                     uint8_t * buffer,
00034                                     uint16_t bufLen);

```

## 8.124 ias-zone-server-test.h File Reference

### Macros

- **#define EMBER\_AF\_PLUGIN\_IAS\_ZONE\_SERVER\_ZONE\_TYPE**
- **#define EMBER\_BINDING\_TABLE\_SIZE**

### 8.124.1 Macro Definition Documentation

#### 8.124.1.1 #define EMBER\_AF\_PLUGIN\_IAS\_ZONE\_SERVER\_ZONE\_TYPE

Definition at line 11 of file [ias-zone-server-test.h](#).

#### 8.124.1.2 #define EMBER\_BINDING\_TABLE\_SIZE

Definition at line 14 of file [ias-zone-server-test.h](#).

## 8.125 ias-zone-server-test.h

```

00001 // ****
00002 // * ias-zone-server-test.h
00003 // *
00004 // * Include file for ias zone server's unit tests
00005 // *
00006 // * Copyright 2015 Silicon Laboratories, Inc.
00007 // *80*
00008 #ifndef __IAS_ZONE_SERVER_TEST_H__
00009 #define __IAS_ZONE_SERVER_TEST_H__
00010
00011 #define EMBER_AF_PLUGIN_IAS_ZONE_SERVER_ZONE_TYPE 21
00012
00013 #undef EMBER_BINDING_TABLE_SIZE
00014 #define EMBER_BINDING_TABLE_SIZE 12
00015
00016 #endif //__IAS_ZONE_SERVER_TEST_H__

```

## 8.126 ias-zone-server.h File Reference

### Macros

- `#define EM_AF_UNKNOWN_ENDPOINT`

### Functions

- `EmberStatus emberAfPluginIasZoneServerUpdateZoneStatus (uint8_t endpoint, uint16_t newStatus, uint8_t timeSinceStatusOccurredQs)`
- `uint8_t emberAfPluginIasZoneServerGetZoneId (uint8_t endpoint)`
- `bool emberAflasZoneClusterAmIEnrolled (uint8_t endpoint)`

### 8.126.1 Macro Definition Documentation

#### 8.126.1.1 `#define EM_AF_UNKNOWN_ENDPOINT`

Definition at line 15 of file [ias-zone-server.h](#).

### 8.126.2 Function Documentation

#### 8.126.2.1 `EmberStatus emberAfPluginIasZoneServerUpdateZoneStatus ( uint8_t endpoint, uint16_t newStatus, uint8_t timeSinceStatusOccurredQs )`

Update the zone status for an endpoint.

This function will update the zone status attribute of the specified endpoint using the specified new zone status. It will then notify the CIE of the updated status.

#### Parameters

<code>endpoint</code>	The endpoint whose zone status attribute is to be updated
<code>newStatus</code>	The new status to write to the attribute

<i>timeSince-Status-OccurredQs</i>	The amount of time (in quarter seconds) that has passed since the status change occurred
------------------------------------	--

**Returns**

EMBER\_SUCCESS if the attribute update and notify succeeded, error code otherwise

**8.126.2.2 uint8\_t emberAfPluginIasZoneServerGetZoneId ( uint8\_t endpoint )**

Get the CIE assigned zone id of a given endpoint.

This function will return the zone ID that was assigned to the given endpoint by the CIE at time of enrollment.

**Parameters**

<i>endpoint</i>	The endpoint whose ID is to be queried
-----------------	--

**Returns**

The zone ID assigned by the CIE at time of enrollment

**8.126.2.3 bool emberAfIasZoneClusterAmIEnrolled ( uint8\_t endpoint )**

Determine the enrollment status of a given endpoint.

This function will return true or false depending on whether the specified endpoint has undergone IAS Zone Enrollment.

**Parameters**

<i>endpoint</i>	The endpoint whose enrollment status is to be queried
-----------------	---

**Returns**

true if enrolled, false otherwise

**8.127 ias-zone-server.h**

```

00001 // ****
00002 // * ias-zone-server.h
00003 // *
00004 // * This is the source for the plugin used to add an IAS Zone cluster server
00005 // * to a project. This source handles zone enrollment and storing of
00006 // * attributes from a CIE device, and provides an API for different plugins to
00007 // * post updated zone status values.
00008 // *
00009 // * Copyright 2015 Silicon Laboratories, Inc.
00010 // ****
00011 //-----
00012 #ifndef __IAS_ZONE_SERVER_H__
00013 #define __IAS_ZONE_SERVER_H__

```

```

00014
00015 #define EM_AF_UNKNOWN_ENDPOINT 0
00016
00031 EmberStatus emberAfPluginIasZoneServerUpdateZoneStatus
(
00032     uint8_t endpoint,
00033     uint16_t newStatus,
00034     uint8_t timeSinceStatusOccurredQs;
00035
00045 uint8_t emberAfPluginIasZoneServerGetZoneId (
00046     uint8_t endpoint);
00046
00056 bool emberAfIasZoneClusterAmIEnrolled(uint8_t
00057     endpoint);
00057 #endif //__IAS_ZONE_SERVER_H__

```

## 8.128 idle-sleep.h File Reference

### Functions

- void [emberAfForceEndDeviceToStayAwake](#) (bool stayAwake)
- bool [emAfOkToIdleOrSleep](#) (void)

### Variables

- bool [emAfStayAwakeWhenNotJoined](#)
- bool [emAfForceEndDeviceToStayAwake](#)

#### 8.128.1 Function Documentation

8.128.1.1 void [emberAfForceEndDeviceToStayAwake](#) ( bool stayAwake )

8.128.1.2 bool [emAfOkToIdleOrSleep](#) ( void )

#### 8.128.2 Variable Documentation

8.128.2.1 bool [emAfStayAwakeWhenNotJoined](#)

8.128.2.2 bool [emAfForceEndDeviceToStayAwake](#)

## 8.129 idle-sleep.h

```

00001 // Copyright 2013 Silicon Laboratories, Inc.
00002
00003 extern bool emAfStayAwakeWhenNotJoined;
00004 extern bool emAfForceEndDeviceToStayAwake;
00005
00006 void emberAfForceEndDeviceToStayAwake(bool
00007     stayAwake);
00007 bool emAfOkToIdleOrSleep(void);

```

## 8.130 illuminance-measurement-server-tokens.h File Reference

## Macros

- #define CREATOR\_SI1141\_MULTIPLIER

### 8.130.1 Macro Definition Documentation

#### 8.130.1.1 #define CREATOR\_SI1141\_MULTIPLIER

Custom Application Tokens

Definition at line 6 of file [illuminance-measurement-server-tokens.h](#).

## 8.131 illuminance-measurement-server-tokens.h

```
00001 // * Copyright 2015 by Silicon Laboratories. All rights reserved.
      *80*
00002
00006 #define CREATOR_SI1141_MULTIPLIER  (0x000F)
00007
00008 #ifdef DEFINETOKENS
00009 DEFINE_BASIC_TOKEN(SI1141_MULTIPLIER, uint8_t, 0)
00010 #endif //DEFINETOKENS
```

## 8.132 illuminance-measurement-server.h File Reference

## Macros

- #define EMBER\_AF\_PLUGIN\_ILLUMINANCE\_MEASUREMENT\_SERVER\_MULTIPLIER\_MAX
- #define EMBER\_AF\_PLUGIN\_ILLUMINANCE\_MEASUREMENT\_SERVER\_MULTIPLIER\_MIN

## Functions

- void [emberAfPluginIlluminanceMeasurementServerSetMeasurementRate](#) (uint32\_t measurementRateS)

### 8.132.1 Macro Definition Documentation

#### 8.132.1.1 #define EMBER\_AF\_PLUGIN\_ILLUMINANCE\_MEASUREMENT\_SERVER\_MULTIPLIER\_MAX

Definition at line 6 of file [illuminance-measurement-server.h](#).

#### 8.132.1.2 #define EMBER\_AF\_PLUGIN\_ILLUMINANCE\_MEASUREMENT\_SERVER\_MULTIPLIER\_MIN

Definition at line 7 of file [illuminance-measurement-server.h](#).

### 8.132.2 Function Documentation

#### 8.132.2.1 void emberAfPluginIlluminanceMeasurementServerSetMeasurementRate ( uint32\_t measurementRateS )

Set the hardware read interval.

This function will set the amount of time to wait (in seconds) between polls of the illuminance sensor. This function will never set the measurement interval to be greater than the plugin specified maximum measurement interval. If a value of 0 is given, the plugin specified maximum measurement interval will be used for the polling interval.

## 8.133 illuminance-measurement-server.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002 *80*
00003 #ifndef __ILLUMINANCE_MEASUREMENT_SERVER_H__
00004 #define __ILLUMINANCE_MEASUREMENT_SERVER_H__
00005
00006 #define EMBER_AF_PLUGIN_ILLUMINANCE_MEASUREMENT_SERVER_MULTIPLIER_MAX 200
00007 #define EMBER_AF_PLUGIN_ILLUMINANCE_MEASUREMENT_SERVER_MULTIPLIER_MIN 2
00008
00009 //
00010 // -----
00010 // Plugin public function declarations
00011
00020 void emberAfPluginIlluminanceMeasurementServerSetMeasurementRate
00021 (
00021     uint32_t measurementRateS);
00022
00023 #endif //__ILLUMINANCE_MEASUREMENT_SERVER_H__

```

### 8.134 interpan.h File Reference

#### Macros

- #define MAX\_INTER\_PAN\_MAC\_SIZE
- #define STUB\_NWK\_SIZE
- #define STUB\_NWK\_FRAME\_CONTROL
- #define INTERPAN\_APS\_UNICAST\_SIZE
- #define INTERPAN\_APS\_BROADCAST\_SIZE
- #define INTERPAN\_APS\_MULTICAST\_SIZE
- #define MAX\_STUB\_APS\_SIZE
- #define MIN\_STUB\_APS\_SIZE
- #define INTERPAN\_UNICAST\_HEADER\_SIZE
- #define INTERPAN\_MULTICAST\_HEADER\_SIZE
- #define MAX\_INTER\_PAN\_HEADER\_SIZE
- #define INTERPAN\_APS\_FRAME\_TYPE
- #define INTERPAN\_APS\_FRAME\_TYPE\_MASK
- #define INTERPAN\_APS\_FRAME\_CONTROL\_NO\_DELIVERY\_MODE
- #define INTERPAN\_APS\_FRAME\_DELIVERY\_MODE\_MASK
- #define INTERPAN\_APS\_FRAME\_SECURITY
- #define INTERPAN\_APS\_ENCRYPTION\_OVERHEAD
- #define EMBER\_APS\_INTERPAN\_FRAGMENTATION\_OVERHEAD
- #define EMBER\_APS\_INTERPAN\_FRAGMENTATION\_RESPONSE\_LEN

- #define EMBER\_APS\_INTERPAN\_FRAGMENT\_MIN\_LEN
- #define INTERPAN\_FRAGMENTATIONAPS\_CONTROL\_BYTE\_INDEX
- #define INTERPAN\_FRAGMENTATIONAPS\_INDEX\_IPMF\_INDEX
- #define INTERPAN\_FRAGMENTATIONAPS\_IPMF\_RESPONSE\_INDEX
- #define INTERPAN\_FRAGMENTATIONAPS\_LEN\_IPMF\_INDEX
- #define INTERPAN\_FRAGMENTATIONAPS\_CONTROL\_BYTE\_IPMF\_VAL
- #define INTERPAN\_FRAGMENTATIONAPS\_CONTROL\_BYTE\_IPMF\_RESPONSE\_VAL
- #define INTERPAN\_IPMF\_RESPONSE\_SUCCESS
- #define INTERPAN\_IPMF\_RESPONSE\_FAILURE
- #define EMBER\_AF\_PLUGIN\_INTERPAN\_FRAGMENTATION\_MAX\_PAYLOAD\_SIZE
- #define EMBER\_AF\_PLUGIN\_INTERPAN\_FRAGMENTATION\_MAX\_INCOMING\_PACKETS
- #define EMBER\_AF\_PLUGIN\_INTERPAN\_FRAGMENTATION\_MAX\_OUTGOING\_PACKETS
- #define EMBER\_AF\_PLUGIN\_INTERPAN\_FRAGMENTATION\_BUFFER\_SIZE
- #define EMBER\_AF\_PLUGIN\_INTERPAN\_FILTER\_LIST

## Enumerations

- enum EInterpanFragmentationStatus {
 IPMF\_SUCCESS, IPMF\_TX\_TIMEOUT, IPMF\_RX\_TIMEOUT, IPMF\_TX\_BAD\_RESPONSE,
 IPMF\_RX\_BAD\_RESPONSE
 }

## Functions

- void interpanPluginInit ()
- void interpanPluginSetMacMatchFilterEnable (bool enable)
- bool emAfPluginInterpanProcessMessage (uint8\_t messageLength, uint8\_t \*messageContents)
- EmberStatus emAfPluginInterpanSendRawMessage (uint8\_t length, uint8\_t \*message)
- EmberStatus emAfInterpanApsCryptMessage (bool encrypt, uint8\_t \*apsFrame, uint8\_t \*messageLength, uint8\_t apsHeaderLength, EmberEUI64 remoteEui64)
- void emAfPluginInterpanSetEnableState (bool enable)

### 8.134.1 Detailed Description

Plugin for receiving InterPAN messages. See message for documentation.

Definition in file [interpan.h](#).

### 8.134.2 Macro Definition Documentation

#### 8.134.2.1 #define MAX\_INTER\_PAN\_MAC\_SIZE

Definition at line 23 of file [interpan.h](#).

#### 8.134.2.2 #define STUB\_NWK\_SIZE

Definition at line 26 of file [interpan.h](#).

**8.134.2.3 #define STUB\_NWK\_FRAME\_CONTROL**

Definition at line [27](#) of file [interpan.h](#).

**8.134.2.4 #define INTERPAN\_APS\_UNICAST\_SIZE**

Definition at line [33](#) of file [interpan.h](#).

**8.134.2.5 #define INTERPAN\_APS\_BROADCAST\_SIZE**

Definition at line [36](#) of file [interpan.h](#).

**8.134.2.6 #define INTERPAN\_APS\_MULTICAST\_SIZE**

Definition at line [43](#) of file [interpan.h](#).

**8.134.2.7 #define MAX\_STUB\_APS\_SIZE**

Definition at line [45](#) of file [interpan.h](#).

**8.134.2.8 #define MIN\_STUB\_APS\_SIZE**

Definition at line [46](#) of file [interpan.h](#).

**8.134.2.9 #define INTERPAN\_UNICAST\_HEADER\_SIZE**

Definition at line [48](#) of file [interpan.h](#).

**8.134.2.10 #define INTERPAN\_MULTICAST\_HEADER\_SIZE**

Definition at line [51](#) of file [interpan.h](#).

**8.134.2.11 #define MAX\_INTER\_PAN\_HEADER\_SIZE**

Definition at line [54](#) of file [interpan.h](#).

**8.134.2.12 #define INTERPAN\_APS\_FRAME\_TYPE**

Definition at line [56](#) of file [interpan.h](#).

**8.134.2.13 #define INTERPAN\_APS\_FRAME\_TYPE\_MASK**

Definition at line [57](#) of file [interpan.h](#).

**8.134.2.14 #define INTERPAN\_APS\_FRAME\_CONTROL\_NO\_DELIVERY\_MODE**

Definition at line [60](#) of file [interpan.h](#).

**8.134.2.15 #define INTERPAN\_APS\_FRAME\_DELIVERY\_MODE\_MASK**

Definition at line [62](#) of file [interpan.h](#).

**8.134.2.16 #define INTERPAN\_APS\_FRAME\_SECURITY**

Definition at line [63](#) of file [interpan.h](#).

**8.134.2.17 #define INTERPAN\_APS\_ENCRYPTION\_OVERHEAD**

Definition at line [66](#) of file [interpan.h](#).

**8.134.2.18 #define EMBER\_APS\_INTERPAN\_FRAGMENTATION\_OVERHEAD**

Definition at line [69](#) of file [interpan.h](#).

**8.134.2.19 #define EMBER\_APS\_INTERPAN\_FRAGMENTATION\_RESPONSE\_LEN**

Definition at line [71](#) of file [interpan.h](#).

**8.134.2.20 #define EMBER\_APS\_INTERPAN\_FRAGMENT\_MIN\_LEN**

Definition at line [72](#) of file [interpan.h](#).

**8.134.2.21 #define INTERPAN\_FRAGMENTATIONAPS\_CONTROL\_BYTE\_INDEX**

Definition at line [75](#) of file [interpan.h](#).

**8.134.2.22 #define INTERPAN\_FRAGMENTATIONAPS\_INDEX\_IPMF\_INDEX**

Definition at line [76](#) of file [interpan.h](#).

**8.134.2.23 #define INTERPAN\_FRAGMENTATIONAPS\_IPMF\_RESPONSE\_INDEX**

Definition at line [77](#) of file [interpan.h](#).

**8.134.2.24 #define INTERPAN\_FRAGMENTATIONAPS\_LEN\_IPMF\_INDEX**

Definition at line [78](#) of file [interpan.h](#).

8.134.2.25 `#define INTERPAN_FRAGMENTATIONAPS_CONTROL_BYTE_IPMF_VAL`

Definition at line 79 of file [interpan.h](#).

8.134.2.26 `#define INTERPAN_FRAGMENTATIONAPS_CONTROL_BYTE_IPMF_RESPONSE_VAL`

Definition at line 80 of file [interpan.h](#).

8.134.2.27 `#define INTERPAN_IPMF_RESPONSE_SUCCESS`

Definition at line 82 of file [interpan.h](#).

8.134.2.28 `#define INTERPAN_IPMF_RESPONSE_FAILURE`

Definition at line 83 of file [interpan.h](#).

8.134.2.29 `#define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_PAYLOAD_SIZE`

Definition at line 85 of file [interpan.h](#).

8.134.2.30 `#define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_INCOMING_PACKETS`

Definition at line 91 of file [interpan.h](#).

8.134.2.31 `#define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_OUTGOING_PACKETS`

Definition at line 92 of file [interpan.h](#).

8.134.2.32 `#define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_BUFFER_SIZE`

Definition at line 93 of file [interpan.h](#).

8.134.2.33 `#define EMBER_AF_PLUGIN_INTERPAN_FILTER_LIST`

Definition at line 97 of file [interpan.h](#).

### 8.134.3 Enumeration Type Documentation

8.134.3.1 `enum EInterpanFragmentationStatus`

Enumerator:

*IPMF\_SUCCESS*

*IPMF\_TX\_TIMEOUT*

*IPMF\_RX\_TIMEOUT*

*IPMF\_TX\_BAD\_RESPONSE*

***IPMF\_RX\_BAD\_RESPONSE***

Definition at line 186 of file [interpan.h](#).

#### 8.134.4 Function Documentation

- 8.134.4.1 void interpanPluginInit ( )
- 8.134.4.2 void interpanPluginSetMacMatchFilterEnable ( bool enable )
- 8.134.4.3 bool emAfPluginInterpanProcessMessage ( uint8\_t messageLength, uint8\_t \* messageContents )
- 8.134.4.4 EmberStatus emAfPluginInterpanSendRawMessage ( uint8\_t length, uint8\_t \* message )
- 8.134.4.5 EmberStatus emAfInterpanApsCryptMessage ( bool encrypt, uint8\_t \* apsFrame, uint8\_t \* messageLength, uint8\_t apsHeaderLength, EmberEUI64 remoteEui64 )
- 8.134.4.6 void emAfPluginInterpanSetEnableState ( bool enable )

### 8.135 interpan.h

```

00001
00009 // The three types of inter-PAN messages. The values are actually the
00010 // corresponding APS frame controls.
00011 //
00012 // 0x03 is the special interPAN message type. Unicast mode is 0x00,
00013 // broadcast mode is 0x08, and multicast mode is 0x0C.
00014 //
00015
00016 // MAC Frame Max size
00017 // - Frame control (2-bytes)
00018 // - Sequence (1-byte)
00019 // - Dest PAN ID (2-bytes)
00020 // - Dest long (8-bytes)
00021 // - Source PAN ID (2-bytes)
00022 // - Source long (8-bytes)
00023 #define MAX_INTER_PAN_MAC_SIZE 23
00024
00025 // NWK stub frame has two control bytes.
00026 #define STUB_NWK_SIZE 2
00027 #define STUB_NWK_FRAME_CONTROL 0x000B
00028
00029 // Interpan APS Unicast
00030 // - Frame Control (1-byte)
00031 // - Cluster ID (2-bytes)
00032 // - Profile ID (2-bytes)
00033 #define INTERPAN_APS_UNICAST_SIZE 5
00034
00035 // Interpan APS Broadcast, same as unicast
00036 #define INTERPAN_APS_BROADCAST_SIZE 5
00037
00038 // Interpan APS Multicast
00039 // - Frame Control (1-byte)
00040 // - Group ID (2-bytes)
00041 // - Cluster ID (2-bytes)
00042 // - Profile ID (2-bytes)
00043 #define INTERPAN_APS_MULTICAST_SIZE 7
00044
00045 #define MAX_STUB_APS_SIZE (INTERPAN_APS_MULTICAST_SIZE)
00046 #define MIN_STUB_APS_SIZE (INTERPAN_APS_UNICAST_SIZE)
00047
00048 #define INTERPAN_UNICAST_HEADER_SIZE \
00049 (MAX_INTER_PAN_MAC_SIZE + STUB_NWK_SIZE + INTERPAN_APS_UNICAST_SIZE)
00050
00051 #define INTERPAN_MULTICAST_HEADER_SIZE \

```

```

00052 (MAX_INTER_PAN_MAC_SIZE + STUB_NWK_SIZE + INTERPANAPS_MULTICAST_SIZE)
00053
00054 #define MAX_INTER_PAN_HEADER_SIZE (INTERPAN_MULTICAST_HEADER_SIZE)
00055
00056 #define INTERPANAPS_FRAME_TYPE 0x03
00057 #define INTERPANAPS_FRAME_TYPE_MASK 0x03
00058
00059 // The only allowed APS FC value (without the delivery mode subfield)
00060 #define INTERPANAPS_FRAME_CONTROL_NO_DELIVERY_MODE (INTERPANAPS_FRAME_TYPE)
00061
00062 #define INTERPANAPS_FRAME_DELIVERY_MODE_MASK 0x0C
00063 #define INTERPANAPS_FRAME_SECURITY 0x20
00064
00065 // 5 byte AUX header + 4 byte MIC
00066 #define INTERPANAPS_ENCRYPTION_OVERHEAD (5 + 4)
00067
00068 // Control byte (1), Index IPMF (1), Number IPMF (1), Len IPMF (1)
00069 #define EMBERAPS_INTERPAN_FRAGMENTATION_OVERHEAD 4
00070 // Control byte (1), Index IPMF (1), Response (1)
00071 #define EMBERAPS_INTERPAN_FRAGMENTATION_RESPONSE_LEN 3
00072 #define EMBERAPS_INTERPAN_FRAGMENT_MIN_LEN \
00073     EMBERAPS_INTERPAN_FRAGMENTATION_RESPONSE_LEN
00074
00075 #define INTERPAN_FRAGMENTATIONAPS_CONTROL_BYTE_INDEX 0
00076 #define INTERPAN_FRAGMENTATIONAPS_INDEX_IPMF_INDEX 1
00077 #define INTERPAN_FRAGMENTATIONAPS_IPMF_RESPONSE_INDEX 2 // IPMF response only
00078 #define INTERPAN_FRAGMENTATIONAPS_LEN_IPMF_INDEX 3 // IPMF only
00079 #define INTERPAN_FRAGMENTATIONAPS_CONTROL_BYTE_IPMF_VAL 0x00
00080 #define INTERPAN_FRAGMENTATIONAPS_CONTROL_BYTE_IPMF_RESPONSE_VAL 0x80
00081
00082 #define INTERPANIPMF_RESPONSE_SUCCESS 0x00
00083 #define INTERPANIPMF_RESPONSE_FAILURE 0x01
00084
00085 #define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_PAYLOAD_SIZE 1500
00086
00087 // NOTE: unlike regular frags, which rely on APS sequence numbers in the ACK to
00088 // know when to send the next fragment, interpan frags do not have APS ACKs.
00089 // The only way to distinguish is to judge based on the partner ID. For any
00090 // partner, only 1 packet can be transmitted to or received from at a time
00091 #define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_INCOMING_PACKETS 1
00092 #define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_OUTGOING_PACKETS 1
00093 #define EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_BUFFER_SIZE \
00094     (EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_MAX_PAYLOAD_SIZE +
INTERPAN_UNICAST_HEADER_SIZE)
00095
00096
00097 #define EMBER_AF_PLUGIN_INTERPAN_FILTER_LIST \
00098 (EMBER_MAC_FILTER_MATCH_ENABLED \
00099 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL \
00100 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL \
00101 | EMBER_MAC_FILTER_MATCH_ON_DEST_BROADCAST_SHORT \
00102 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00103 (EMBER_MAC_FILTER_MATCH_ENABLED \
00104 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL \
00105 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL \
00106 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_SHORT \
00107 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00108 (EMBER_MAC_FILTER_MATCH_ENABLED \
00109 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL \
00110 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL \
00111 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_LONG \
00112 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00113 (EMBER_MAC_FILTER_MATCH_ENABLED \
00114 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL \
00115 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL \
00116 | EMBER_MAC_FILTER_MATCH_ON_DEST_BROADCAST_SHORT \
00117 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00118 (EMBER_MAC_FILTER_MATCH_ENABLED \
00119 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL \
00120 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL \
00121 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_SHORT \
00122 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00123 (EMBER_MAC_FILTER_MATCH_ENABLED \
00124 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_LOCAL \
00125 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL \
00126 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_LONG \
00127 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00128 (EMBER_MAC_FILTER_MATCH_ENABLED \
00129 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST \
00130 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL \

```

```

00131 | EMBER_MAC_FILTER_MATCH_ON_DEST_BROADCAST_SHORT \
00132 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG), \
00133 (EMBER_MAC_FILTER_MATCH_ENABLED \
00134 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST \
00135 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL \
00136 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_SHORT \
00137 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG),
00138 (EMBER_MAC_FILTER_MATCH_ENABLED \
00139 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST \
00140 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_NON_LOCAL \
00141 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_LONG \
00142 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG),
00143 (EMBER_MAC_FILTER_MATCH_ENABLED \
00144 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST \
00145 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL \
00146 | EMBER_MAC_FILTER_MATCH_ON_DEST_BROADCAST_SHORT \
00147 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG),
00148 (EMBER_MAC_FILTER_MATCH_ENABLED \
00149 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST \
00150 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL \
00151 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_SHORT \
00152 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG),
00153 (EMBER_MAC_FILTER_MATCH_ENABLED \
00154 | EMBER_MAC_FILTER_MATCH_ON_PAN_DEST_BROADCAST \
00155 | EMBER_MAC_FILTER_MATCH_ON_PAN_SOURCE_LOCAL \
00156 | EMBER_MAC_FILTER_MATCH_ON_DEST_UNICAST_LONG \
00157 | EMBER_MAC_FILTER_MATCH_ON_SOURCE_LONG),
00158
00159 #if defined(EMBER_AF_PLUGIN_INTERPAN_ALLOW_FRAGMENTATION)
00160
00161 #define UNUSED_TX_PACKET_ENTRY 0xFF
00162 typedef struct {
00163     EmberOutgoingMessageType   messageType;
00164     EmberEUI64                  destEui;
00165     uint8_t                      buffer[
00166         EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_BUFFER_SIZE
00167     ]; // Whole message, including hdrs
00168     uint16_t                     bufLen;           // Whole message size
00169     uint8_t                      fragmentMaxLen; // Max possible frag length
00170     uint8_t                      numFragments; // Number of frags to be sent
00171     uint8_t                      fragmentNum; // Running # of which frag is
00172     TX
00173     EmberEventControl*          eventControl;
00174 } txFragmentedInterpanPacket;
00175
00176 typedef struct {
00177     EmberEUI64                  sourceEui;
00178     uint8_t                      buffer[
00179         EMBER_AF_PLUGIN_INTERPAN_FRAGMENTATION_BUFFER_SIZE];
00180     uint16_t                     bufLen;
00181     uint8_t                      numFragments;
00182     uint8_t                      lastFragmentNumReceived;
00183     EmberEventControl*          eventControl;
00184 } rxFragmentedInterpanPacket;
00185
00186 void interpanPluginSetFragmentMessageTimeout(uint16_t timeout); // seconds
00187
00188 #endif // EMBER_AF_PLUGIN_INTERPAN_ALLOW_FRAGMENTATION
00189
00190 typedef enum {
00191     IPMF_SUCCESS = 0,
00192     IPMF_TX_TIMEOUT,        // IPMF response not received
00193     IPMF_RX_TIMEOUT,        // Next IPMF not received
00194     IPMF_TX_BAD_RESPONSE,  // Bad IPMF header data
00195     IPMF_RX_BAD_RESPONSE   // Bad IPMF header data
00196 } EInterpanFragmentationStatus;
00197
00198 void interpanPluginInit();
00199
00200 void interpanPluginSetMacMatchFilterEnable
00201 (bool enable);
00202
00203 bool emAfPluginInterpanProcessMessage(uint8_t
00204 messageLength,
00205                                         uint8_t *messageContents);
00206
00207 EmberStatus emAfPluginInterpanSendRawMessage
00208 (uint8_t length, uint8_t* message);
00209
00210 EmberStatus emAfInterpanApsCryptMessage (

```

```

    bool encrypt,
00204                               uint8_t * apsFrame,
00205                               uint8_t * messageLength,
00206                               uint8_t apsHeaderLength,
00207                               EmberEUI64 remoteEui64);
00208
00209 void emAfPluginInterpanSetEnableState(bool
enable);

```

## 8.136 key-establishment-storage.h File Reference

### Functions

- `bool storePublicPartnerData (bool isCertificate, uint8_t *data)`
- `bool storePublicPartnerData163k1 (bool isCertificate, uint8_t *data)`
- `bool storePublicPartnerData283k1 (bool isCertificate, uint8_t *data)`
- `bool retrieveAndClearPublicPartnerData163k1 (EmberCertificateData *partnerCertificate, EmberPublicKeyData *partnerEphemeralPublicKey)`
- `bool retrieveAndClearPublicPartnerData (EmberCertificate283k1Data *partnerCertificate, EmberPublicKey283k1Data *partnerEphemeralPublicKey)`
- `bool retrieveAndClearPublicPartnerData283k1 (EmberCertificate283k1Data *partnerCertificate, EmberPublicKey283k1Data *partnerEphemeralPublicKey)`
- `bool storeSmac (EmberSmacData *smac)`
- `bool getSmacPointer (EmberSmacData **smacPtr)`
- `void clearAllTemporaryPublicData (void)`

### 8.136.1 Function Documentation

- 8.136.1.1 `bool storePublicPartnerData ( bool isCertificate, uint8_t * data )`
- 8.136.1.2 `bool storePublicPartnerData163k1 ( bool isCertificate, uint8_t * data )`
- 8.136.1.3 `bool storePublicPartnerData283k1 ( bool isCertificate, uint8_t * data )`
- 8.136.1.4 `bool retrieveAndClearPublicPartnerData163k1 ( EmberCertificateData * partnerCertificate, EmberPublicKeyData * partnerEphemeralPublicKey )`
- 8.136.1.5 `bool retrieveAndClearPublicPartnerData ( EmberCertificate283k1Data * partnerCertificate, EmberPublicKey283k1Data * partnerEphemeralPublicKey )`
- 8.136.1.6 `bool retrieveAndClearPublicPartnerData283k1 ( EmberCertificate283k1Data * partnerCertificate, EmberPublicKey283k1Data * partnerEphemeralPublicKey )`
- 8.136.1.7 `bool storeSmac ( EmberSmacData * smac )`
- 8.136.1.8 `bool getSmacPointer ( EmberSmacData ** smacPtr )`
- 8.136.1.9 `void clearAllTemporaryPublicData ( void )`

## 8.137 key-establishment-storage.h

```
00001 // ****
```

```

0002 // * key-establishment-storage.h
0003 // *
0004 // * API for the storage of public temporary partner data.
0005 // * - Partner Certificate
0006 // * - Partner Ephemeral Public Key
0007 // * - A single SMAC
0008 // *
0009 // * Copyright 2008 by Ember Corporation. All rights reserved.
0010 // ****
0011
0012 // If isCertificate is false, data is a public key.
0013 bool storePublicPartnerData(bool isCertificate,
0014           uint8_t* data);
0015 bool storePublicPartnerData163k1(bool isCertificate,
0016           uint8_t* data);
0017 bool storePublicPartnerData283k1(bool isCertificate,
0018           uint8_t* data);
0019 bool retrieveAndClearPublicPartnerData163k1
0020   (EmberCertificateData* partnerCertificate,
0021           EmberPublicKeyData
0022     * partnerEphemeralPublicKey);
0023 bool retrieveAndClearPublicPartnerData(
0024   EmberCertificate283k1Data* partnerCertificate,
0025           EmberPublicKey283k1Data
0026     * partnerEphemeralPublicKey);
0027 bool storeSmac(EmberSmacData* smac);
0028 bool getSmacPointer(EmberSmacData** smacPtr);
0029 void clearAllTemporaryPublicData(void);
0030

```

## 8.138 key-establishment.h File Reference

### Macros

- #define EM\_AF\_KE\_INITIATE\_SIZE
- #define EM\_AF\_KE\_INITIATE\_SIZE\_283K1
- #define EM\_AF\_KE\_EPHEMERAL\_SIZE
- #define EM\_AF\_KE\_EPHEMERAL\_SIZE\_283K1
- #define EM\_AF\_KE\_SMAC\_SIZE
- #define EM\_AF\_KE\_TERMINATE\_SIZE
- #define APS\_ACK\_TIMEOUT\_SECONDS
- #define DEFAULT\_EPHEMERAL\_DATA\_GENERATE\_TIME\_SECONDS
- #define DEFAULT\_GENERATE\_SHARED\_SECRET\_TIME\_SECONDS
- #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler
- #define emAfPluginKeyEstablishmentCalculateSmacsHandler
- #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler283k1
- #define emAfPluginKeyEstablishmentCalculateSmacsHandler283k1
- #define TERMINATE\_STATUS\_STRINGS
- #define UNKNOWN\_TERMINATE\_STATUS
- #define isCbkeKeyEstablishmentSuiteValid()
- #define isCbkeKeyEstablishmentSuite163k1()
- #define isCbkeKeyEstablishmentSuite283k1()
- #define cleanupAndStop(message)

## Typedefs

- `typedef uint8_t KeyEstablishMessage`

## Enumerations

- `enum KeyEstablishEvent {  
 NO_KEY_ESTABLISHMENT_EVENT, CHECK_SUPPORTED_CURVES, BEGIN_KEY_EST-  
 ABISHMENT, GENERATE_KEYS,  
 SEND_EPHEMERAL_DATA_MESSAGE, GENERATE_SHARED_SECRET, SEND_CONFIR-  
 M_KEY_MESSAGE, INITIATOR RECEIVED_CONFIRM_KEY }`

## Functions

- `bool checkIssuer (uint8_t *issuer)`
- `void cleanupAndStopWithDelay (EmberAfKeyEstablishmentNotifyMessage message, uint8_t delay-  
InSec)`
- `EmberAfKeyEstablishmentNotifyMessage sendCertificate (void)`
- `void sendNextKeyEstablishMessage (KeyEstablishMessage message, uint8_t *data)`
- `EmberStatus emGenerateCbkeKeysForCurve (void)`
- `void emAfKeyEstablishmentSelectCurve (EmberAfCbkeKeyEstablishmentSuite suite)`
- `EmberStatus emCalculateSmacsForCurve (bool amInitiator, EmberCertificate283k1Data *partner-  
Cert, EmberPublicKey283k1Data *partnerEphemeralPublicKey)`
- `EmberStatus emberClearTemporaryDataMaybeStoreLinkKeyForCurve (bool storeLinkKey)`
- `void emberAfPluginKeyEstablishmentReadAttributesCallback (EmberAfCbkeKeyEstablishmentSuite  
suite)`
- `void emAfSkipCheckSupportedCurves (EmberAfCbkeKeyEstablishmentSuite suite)`
- `void emAfSetAvailableCurves (EmberAfCbkeKeyEstablishmentSuite suite)`

## Variables

- `PGM uint8_t emAfKeyEstablishMessageToDataSize []`
- `EmberAfCbkeKeyEstablishmentSuite emAfAvailableCbkeSuite`
- `EmberAfCbkeKeyEstablishmentSuite emAfCurrentCbkeSuite`

### 8.138.1 Macro Definition Documentation

#### 8.138.1.1 #define EM\_AF\_KE\_INITIATE\_SIZE

Definition at line 10 of file `key-establishment.h`.

#### 8.138.1.2 #define EM\_AF\_KE\_INITIATE\_SIZE\_283K1

Definition at line 11 of file `key-establishment.h`.

#### 8.138.1.3 #define EM\_AF\_KE\_EPHEMERAL\_SIZE

Definition at line 12 of file `key-establishment.h`.

**8.138.1.4 #define EM\_AF\_KE\_EPHEMERAL\_SIZE\_283K1**

Definition at line 13 of file [key-establishment.h](#).

**8.138.1.5 #define EM\_AF\_KE\_SMAC\_SIZE**

Definition at line 14 of file [key-establishment.h](#).

**8.138.1.6 #define EM\_AF\_KE\_TERMINATE\_SIZE**

Definition at line 17 of file [key-establishment.h](#).

**8.138.1.7 #define APS\_ACK\_TIMEOUT\_SECONDS**

Definition at line 19 of file [key-establishment.h](#).

**8.138.1.8 #define DEFAULT\_EPHEMERAL\_DATA\_GENERATE\_TIME\_SECONDS**

Definition at line 23 of file [key-establishment.h](#).

**8.138.1.9 #define DEFAULT\_GENERATE\_SHARED\_SECRET\_TIME\_SECONDS**

Definition at line 24 of file [key-establishment.h](#).

**8.138.1.10 #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler**

Definition at line 34 of file [key-establishment.h](#).

**8.138.1.11 #define emAfPluginKeyEstablishmentCalculateSmacsHandler**

Definition at line 35 of file [key-establishment.h](#).

**8.138.1.12 #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler283k1**

Definition at line 36 of file [key-establishment.h](#).

**8.138.1.13 #define emAfPluginKeyEstablishmentCalculateSmacsHandler283k1**

Definition at line 37 of file [key-establishment.h](#).

**8.138.1.14 #define TERMINATE\_STATUS\_STRINGS**

Definition at line 40 of file [key-establishment.h](#).

**8.138.1.15 #define UNKNOWN\_TERMINATE\_STATUS**

Definition at line 50 of file [key-establishment.h](#).

**8.138.1.16 #define isCbkeKeyEstablishmentSuiteValid( )**

Definition at line 72 of file [key-establishment.h](#).

**8.138.1.17 #define isCbkeKeyEstablishmentSuite163k1( )**

Definition at line 75 of file [key-establishment.h](#).

**8.138.1.18 #define isCbkeKeyEstablishmentSuite283k1( )**

Definition at line 79 of file [key-establishment.h](#).

**8.138.1.19 #define cleanupAndStop( message )**

Definition at line 83 of file [key-establishment.h](#).

## 8.138.2 Typedef Documentation

**8.138.2.1 typedef uint8\_t KeyEstablishMessage**

Definition at line 67 of file [key-establishment.h](#).

## 8.138.3 Enumeration Type Documentation

**8.138.3.1 enum KeyEstablishEvent**

Enumerator:

*NO\_KEY\_ESTABLISHMENT\_EVENT  
 CHECK\_SUPPORTED\_CURVES  
 BEGIN\_KEY\_ESTABLISHMENT  
 GENERATE\_KEYS  
 SEND\_EPHEMERAL\_DATA\_MESSAGE  
 GENERATE\_SHARED\_SECRET  
 SEND\_CONFIRM\_KEY\_MESSAGE  
 INITIATOR RECEIVED CONFIRM KEY*

Definition at line 52 of file [key-establishment.h](#).

### 8.138.4 Function Documentation

- 8.138.4.1 `bool checkIssuer ( uint8_t * issuer )`
- 8.138.4.2 `void cleanupAndStopWithDelay ( EmberAfKeyEstablishmentNotifyMessage message, uint8_t delayInSec )`
- 8.138.4.3 `EmberAfKeyEstablishmentNotifyMessage sendCertificate ( void )`
- 8.138.4.4 `void sendNextKeyEstablishMessage ( KeyEstablishMessage message, uint8_t * data )`
- 8.138.4.5 `EmberStatus emGenerateCbkeKeysForCurve ( void )`
- 8.138.4.6 `void emAfKeyEstablishmentSelectCurve ( EmberAfCbkeKeyEstablishmentSuite suite )`
- 8.138.4.7 `EmberStatus emCalculateSmacsForCurve ( bool amInitiator, EmberCertificate283k1Data * partnerCert, EmberPublicKey283k1Data * partnerEphemeralPublicKey )`
- 8.138.4.8 `EmberStatus emberClearTemporaryDataMaybeStoreLinkKeyForCurve ( bool storeLinkKey )`
- 8.138.4.9 `void emberAfPluginKeyEstablishmentReadAttributesCallback ( EmberAfCbkeKeyEstablishmentSuite suite )`
- 8.138.4.10 `void emAfSkipCheckSupportedCurves ( EmberAfCbkeKeyEstablishmentSuite suite )`
- 8.138.4.11 `void emAfSetAvailableCurves ( EmberAfCbkeKeyEstablishmentSuite suite )`

### 8.138.5 Variable Documentation

- 8.138.5.1 `PGM uint8_t emAfKeyEstablishMessageToDataSize[]`
- 8.138.5.2 `EmberAfCbkeKeyEstablishmentSuite emAfAvailableCbkeSuite`
- 8.138.5.3 `EmberAfCbkeKeyEstablishmentSuite emAfCurrentCbkeSuite`

## 8.139 key-establishment.h

```

00001 // ****
00002 // * key-establishment.h
00003 // *
00004 // *
00005 // * Copyright 2008 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008
00009 // Init - bytes: suite (2), key gen time (1), derive secret time (1), cert (48)
00010 #define EM_AF_KE_INITIATE_SIZE          (2 + 1 + 1 + EMBER_CERTIFICATE_SIZE)
00011 #define EM_AF_KE_INITIATE_SIZE_283K1    (2 + 1 + 1 +
00012           EMBER_CERTIFICATE_283K1_SIZE)
00013 #define EM_AF_KE_EPHEMERAL_SIZE        EMBER_PUBLIC_KEY_SIZE
00014 #define EM_AF_KE_EPHEMERAL_SIZE_283K1  EMBER_PUBLIC_KEY_283K1_SIZE
00015 #define EM_AF_KE_SMAC_SIZE            EMBER_SMAC_SIZE
00016 // Terminate - bytes: status (1), wait time (1), suite (2)
00017 #define EM_AF_KE_TERMINATE_SIZE      (1 + 1 + 2)
00018
00019 #define APS_ACK_TIMEOUT_SECONDS 1
00020
00021 // These values reported to the remote device as to how long the local

```

```

00022 // device takes to execute these operations.
00023 #define DEFAULT_EPHEMERAL_DATA_GENERATE_TIME_SECONDS (10 +
    APS_ACK_TIMEOUT_SECONDS)
00024 #define DEFAULT_GENERATE_SHARED_SECRET_TIME_SECONDS (15 +
    APS_ACK_TIMEOUT_SECONDS)
00025
00026 extern PGM uint8_t emAfKeyEstablishMessageToDataSize
    [];
00027
00028 #ifdef EZSP_HOST
00029     #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler
        ezspGenerateCbkeKeysHandler
00030     #define emAfPluginKeyEstablishmentCalculateSmacsHandler
        ezspCalculateSmacsHandler
00031     #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler283k1
        ezspGenerateCbkeKeysHandler283k1
00032     #define emAfPluginKeyEstablishmentCalculateSmacsHandler283k1
        ezspCalculateSmacsHandler283k1
00033 #else
00034     #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler
        emberGenerateCbkeKeysHandler
00035     #define emAfPluginKeyEstablishmentCalculateSmacsHandler
        emberCalculateSmacsHandler
00036     #define emAfPluginKeyEstablishmentGenerateCbkeKeysHandler283k1
        emberGenerateCbkeKeysHandler283k1
00037     #define emAfPluginKeyEstablishmentCalculateSmacsHandler283k1
        emberCalculateSmacsHandler283k1
00038 #endif
00039
00040 #define TERMINATE_STATUS_STRINGS {
00041     "Success",
00042     "Unknown Issuer",
00043     "Bad Key Confirm",
00044     "Bad Message",
00045     "No resources",
00046     "Unsupported suite",
00047     "Invalid certificate",
00048     "???", \
00049 }
00050 #define UNKNOWN_TERMINATE_STATUS 7
00051
00052 typedef enum {
00053     NO_KEY_ESTABLISHMENT_EVENT = 0,
00054     //Initiator only event
00055     CHECK_SUPPORTED_CURVES = 1,
00056     BEGIN_KEY_ESTABLISHMENT = 2,
00057     GENERATE_KEYS = 3,
00058     SEND_EPHEMERAL_DATA_MESSAGE = 4,
00059     GENERATE_SHARED_SECRET = 5,
00060     SEND_CONFIRM_KEY_MESSAGE = 6,
00061
00062     // Initiator only event
00063     INITIATOR_RECEIVED_CONFIRM_KEY = 7,
00064
00065 } KeyEstablishEvent;
00066
00067 typedef uint8_t KeyEstablishMessage;
00068
00069 extern EmberAfCbkeKeyEstablishmentSuite
    emAfAvailableCbkeSuite;
00070 extern EmberAfCbkeKeyEstablishmentSuite
    emAfCurrentCbkeSuite;
00071
00072 # define isCbkeKeyEstablishmentSuiteValid() \
00073     (emAfCurrentCbkeSuite <= EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_283K1)
00074
00075 # define isCbkeKeyEstablishmentSuite163k1() \
00076     (emAfCurrentCbkeSuite \
00077      == EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_163K1)
00078
00079 # define isCbkeKeyEstablishmentSuite283k1() \
00080     (emAfCurrentCbkeSuite \
00081      == EMBER_AF_CBKE_KEY_ESTABLISHMENT_SUITE_283K1)
00082
00083 #define cleanupAndStop(message) cleanupAndStopWithDelay((message), 0)
00084
00085 bool checkIssuer(uint8_t *issuer);
00086 void cleanupAndStopWithDelay(
    EmberAfKeyEstablishmentNotifyMessage
    message,

```

```

00087                               uint8_t delayInSec);
00088 EmberAfKeyEstablishmentNotifyMessage
00089     sendCertificate(void);
00090 void sendNextKeyEstablishMessage(KeyEstablishMessage
00091     message,
00092                               uint8_t *data);
00093 EmberStatus emGenerateCbkeKeysForCurve(
00094     void);
00095 void emAfKeyEstablishmentSelectCurve(
00096     EmberAfCbkeKeyEstablishmentSuite suite);
00097 EmberStatus emCalculateSmacsForCurve(bool
00098     amInitiator,
00099                               EmberCertificate283k1Data
00100     * partnerCert,
00101                               EmberPublicKey283k1Data
00102     * partnerEphemeralPublicKey);
00103 EmberStatus emberClearTemporaryDataMaybeStoreLinkKeyForCurve
00104     (bool storeLinkKey);
00105 void emberAfPluginKeyEstablishmentReadAttributesCallback
00106     (EmberAfCbkeKeyEstablishmentSuite suite);
00107 void emAfSkipCheckSupportedCurves(
00108     EmberAfCbkeKeyEstablishmentSuite suite);
00109 void emAfSetAvailableCurves(
00110     EmberAfCbkeKeyEstablishmentSuite suite);

```

## 8.140 led-dim-pwm-transform.h File Reference

```
#include <stdio.h>
```

### Macros

- #define PWM\_VALUES\_LENGTH
- #define PWM\_VALUES

#### 8.140.1 Macro Definition Documentation

##### 8.140.1.1 #define PWM\_VALUES\_LENGTH

Definition at line 12 of file led-dim-pwm-transform.h.

##### 8.140.1.2 #define PWM\_VALUES

Definition at line 14 of file led-dim-pwm-transform.h.

## 8.141 led-dim-pwm-transform.h

```

00001 // ****
00002 // * led-dim-pwm-transform.h
00003 // *
00004 // *
00005 // * Copyright 2015 by Silicon Laboratories. All rights reserved.
00006 // * 80*
00007 // ****
00008 #ifndef __LED_DIM_PWM_TRANSFORM_H__
00009 #define __LED_DIM_PWM_TRANSFORM_H__
00010 #include <stdio.h>
00011
00012 #define PWM_VALUES_LENGTH 255

```

```
00013
00014 #define PWM_VALUES \
00015 0, \
00016 0, \
00017 22, \
00018 44, \
00019 66, \
00020 88, \
00021 110, \
00022 132, \
00023 154, \
00024 176, \
00025 198, \
00026 220, \
00027 242, \
00028 264, \
00029 286, \
00030 308, \
00031 330, \
00032 352, \
00033 374, \
00034 396, \
00035 418, \
00036 440, \
00037 462, \
00038 484, \
00039 506, \
00040 528, \
00041 550, \
00042 572, \
00043 594, \
00044 616, \
00045 638, \
00046 660, \
00047 682, \
00048 705, \
00049 727, \
00050 749, \
00051 771, \
00052 793, \
00053 815, \
00054 837, \
00055 859, \
00056 881, \
00057 903, \
00058 925, \
00059 947, \
00060 969, \
00061 991, \
00062 1013, \
00063 1035, \
00064 1057, \
00065 1079, \
00066 1101, \
00067 1123, \
00068 1145, \
00069 1167, \
00070 1189, \
00071 1211, \
00072 1233, \
00073 1255, \
00074 1277, \
00075 1299, \
00076 1321, \
00077 1343, \
00078 1365, \
00079 1387, \
00080 1409, \
00081 1431, \
00082 1453, \
00083 1475, \
00084 1497, \
00085 1519, \
00086 1541, \
00087 1563, \
00088 1585, \
00089 1607, \
00090 1629, \
00091 1651, \
00092 1673, \
```

00093 1695, \  
00094 1717, \  
00095 1739, \  
00096 1761, \  
00097 1783, \  
00098 1805, \  
00099 1827, \  
00100 1849, \  
00101 1871, \  
00102 1893, \  
00103 1915, \  
00104 1937, \  
00105 1959, \  
00106 1981, \  
00107 2003, \  
00108 2025, \  
00109 2047, \  
00110 2069, \  
00111 2091, \  
00112 2114, \  
00113 2136, \  
00114 2158, \  
00115 2180, \  
00116 2202, \  
00117 2224, \  
00118 2246, \  
00119 2268, \  
00120 2290, \  
00121 2312, \  
00122 2334, \  
00123 2356, \  
00124 2378, \  
00125 2400, \  
00126 2422, \  
00127 2444, \  
00128 2466, \  
00129 2488, \  
00130 2510, \  
00131 2532, \  
00132 2554, \  
00133 2576, \  
00134 2598, \  
00135 2620, \  
00136 2642, \  
00137 2664, \  
00138 2686, \  
00139 2708, \  
00140 2730, \  
00141 2752, \  
00142 2774, \  
00143 2796, \  
00144 2818, \  
00145 2840, \  
00146 2862, \  
00147 2884, \  
00148 2906, \  
00149 2928, \  
00150 2950, \  
00151 2972, \  
00152 2994, \  
00153 3016, \  
00154 3038, \  
00155 3060, \  
00156 3082, \  
00157 3104, \  
00158 3126, \  
00159 3148, \  
00160 3170, \  
00161 3192, \  
00162 3214, \  
00163 3236, \  
00164 3258, \  
00165 3280, \  
00166 3302, \  
00167 3324, \  
00168 3346, \  
00169 3368, \  
00170 3390, \  
00171 3412, \  
00172 3434, \

00173 3456, \  
00174 3478, \  
00175 3501, \  
00176 3523, \  
00177 3545, \  
00178 3567, \  
00179 3589, \  
00180 3611, \  
00181 3633, \  
00182 3655, \  
00183 3677, \  
00184 3699, \  
00185 3721, \  
00186 3743, \  
00187 3765, \  
00188 3787, \  
00189 3809, \  
00190 3831, \  
00191 3853, \  
00192 3875, \  
00193 3897, \  
00194 3919, \  
00195 3941, \  
00196 3963, \  
00197 3985, \  
00198 4007, \  
00199 4029, \  
00200 4051, \  
00201 4073, \  
00202 4095, \  
00203 4117, \  
00204 4139, \  
00205 4161, \  
00206 4183, \  
00207 4205, \  
00208 4227, \  
00209 4249, \  
00210 4271, \  
00211 4293, \  
00212 4315, \  
00213 4337, \  
00214 4359, \  
00215 4381, \  
00216 4403, \  
00217 4425, \  
00218 4447, \  
00219 4469, \  
00220 4491, \  
00221 4513, \  
00222 4535, \  
00223 4557, \  
00224 4579, \  
00225 4601, \  
00226 4623, \  
00227 4645, \  
00228 4667, \  
00229 4689, \  
00230 4711, \  
00231 4733, \  
00232 4755, \  
00233 4777, \  
00234 4799, \  
00235 4821, \  
00236 4843, \  
00237 4865, \  
00238 4887, \  
00239 4910, \  
00240 4932, \  
00241 4954, \  
00242 4976, \  
00243 4998, \  
00244 5020, \  
00245 5042, \  
00246 5064, \  
00247 5086, \  
00248 5108, \  
00249 5130, \  
00250 5152, \  
00251 5174, \  
00252 5196, \

```

00253 5218, \
00254 5240, \
00255 5262, \
00256 5284, \
00257 5306, \
00258 5328, \
00259 5350, \
00260 5372, \
00261 5394, \
00262 5416, \
00263 5438, \
00264 5460, \
00265 5482, \
00266 5504, \
00267 5526, \
00268 5548, \
00269 6000, \
00270 6000,
00271
00272 #endif

```

## 8.142 led-dim-pwm.h File Reference

### 8.143 led-dim-pwm.h

```

00001 // ****
00002 // * led-dim-pwm.h
00003 // *
00004 // *
00005 // * Copyright 2015 by Silicon Laboratories. All rights reserved.
00006 // *
00007 #ifndef __LED_DIM_PWM_H__
00008 #define __LED_DIM_PWM_H__
00009
00010 #endif

```

## 8.144 led-rgb-pwm.h File Reference

### Functions

- void [emberAfLedRgbPwmComputeRgbFromXy](#) (uint8\_t endpoint)
- void [emberAfLedRgbPwmComputeRgbFromColorTemp](#) (uint8\_t endpoint)
- void [emberAfLedRgbComputeRgbFromHSV](#) (uint8\_t endpoint)

### 8.144.1 Function Documentation

8.144.1.1 void [emberAfLedRgbPwmComputeRgbFromXy](#) ( uint8\_t *endpoint* )

8.144.1.2 void [emberAfLedRgbPwmComputeRgbFromColorTemp](#) ( uint8\_t *endpoint* )

8.144.1.3 void [emberAfLedRgbComputeRgbFromHSV](#) ( uint8\_t *endpoint* )

### 8.145 led-rgb-pwm.h

```

00001 // ****
00002 // * led-rgb-pwm.h
00003 // *
00004 // *

```

```

00005 // * Copyright 2015 Silicon Laboratories, Inc.
      *80*
00006 // ****
00007 #ifndef __LED_RGB_PWM_H__
00008 #define __LED_RGB_PWM_H__
00009
00010 void emberAfLedRbgPwmComputeRbgFromXy( uint8_t
      endpoint );
00011 void emberAfLedRbgPwmComputeRgbFromColorTemp
      ( uint8_t endpoint );
00012 void emberAfLedRbgComputeRgbFromHSV( uint8_t
      endpoint );
00013
00014 #endif

```

## 8.146 led-temp-pwm.h File Reference

### 8.147 led-temp-pwm.h

```

00001 // ****
00002 // * led-temp-pwm.h
00003 //
00004 // * Implements the color control server for color temperature bulbs. Note:
00005 // * this is HA certifiable and has passed HA certification for one customer
00006 // * project.
00007 //
00008 // * Copyright 2015 by Silicon Laboratories. All rights reserved.
      *80*
00009 // ****
00010
00011 // Nothing here for now..
00012 #ifndef __LED_TEMP_PWM_H__
00013 #define __LED_TEMP_PWM_H__
00014
00015 #endif

```

## 8.148 level-control.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_LEVEL_CONTROL_TICKS_PER_SECOND`
- `#define EMBER_AF_PLUGIN_LEVEL_CONTROL_TICK_TIME`

#### 8.148.1 Macro Definition Documentation

##### 8.148.1.1 `#define EMBER_AF_PLUGIN_LEVEL_CONTROL_TICKS_PER_SECOND`

Definition at line 12 of file [level-control.h](#).

##### 8.148.1.2 `#define EMBER_AF_PLUGIN_LEVEL_CONTROL_TICK_TIME`

Definition at line 14 of file [level-control.h](#).

## 8.149 level-control.h

```

00001 // ****

```

```

00002 // * level-control.h
00003 // *
00004 // *
00005 // * Copyright 2014 Silicon Laboratories, Inc.
00006 // ****
00007
00008 // Rate of level control tick execution.
00009 // To increase tick frequency (for more granular updates of device state based
00010 // on level), redefine EMBER_AF_PLUGIN_LEVEL_CONTROL_TICKS_PER_SECOND.
00011 #ifndef EMBER_AF_PLUGIN_LEVEL_CONTROL_TICKS_PER_SECOND
00012 #define EMBER_AF_PLUGIN_LEVEL_CONTROL_TICKS_PER_SECOND 32
00013 #endif
00014 #define EMBER_AF_PLUGIN_LEVEL_CONTROL_TICK_TIME \
00015 (MILLISECOND_TICKS_PER_SECOND /
EMBER_AF_PLUGIN_LEVEL_CONTROL_TICKS_PER_SECOND)

```

## 8.150 load-control-event-table.h File Reference

```
#include "../../include/af.h"
```

### Macros

- #define RANDOMIZE\_START\_TIME\_FLAG
- #define RANDOMIZE\_DURATION\_TIME\_FLAG
- #define CANCEL\_WITH\_RANDOMIZATION

### Enumerations

- enum {
 ENTRY\_VOID, ENTRY\_SCHEDULED, ENTRY\_STARTED, ENTRY\_IS\_SUPERSEDED\_EVENT,
 ENTRY\_IS\_CANCELLED\_EVENT }
- enum { EVENT\_OPT\_FLAG\_OPT\_IN, EVENT\_OPT\_FLAG\_PARTIAL }

### Functions

- void afLoadControlEventTableInit (uint8\_t endpoint)
- void emAfScheduleLoadControlEvent (uint8\_t endpoint, EmberAfLoadControlEvent \*event)
- void emAfLoadControlEventTableTick (uint8\_t endpoint)
- bool emAfCancelAllLoadControlEvents (uint8\_t endpoint, uint8\_t cancelControl)
- void emAfCancelLoadControlEvent (uint8\_t endpoint, uint32\_t eventId, uint8\_t cancelControl, uint32\_t effectiveTime)
- void afScheduleCancelEvent (EmberAfLoadControlEvent \*e)
- void emAfLoadControlEventOptInOrOut (uint8\_t endpoint, uint32\_t eventId, bool optIn)
- void emberAfEventAction (EmberAfLoadControlEvent \*event, uint8\_t eventStatus, uint8\_t sequenceNumber, uint8\_t esiIndex)
- void emAfNoteSignatureFailure (void)
- void emAfLoadControlEventTablePrint (uint8\_t endpoint)
- void emAfLoadControlEventTableInit (uint8\_t endpoint)
- void emAfLoadControlEventTableClear (uint8\_t endpoint)

### 8.150.1 Macro Definition Documentation

#### 8.150.1.1 #define RANDOMIZE\_START\_TIME\_FLAG

Definition at line 37 of file [load-control-event-table.h](#).

#### 8.150.1.2 #define RANDOMIZE\_DURATION\_TIME\_FLAG

Definition at line 38 of file [load-control-event-table.h](#).

#### 8.150.1.3 #define CANCEL\_WITH\_RANDOMIZATION

Definition at line 40 of file [load-control-event-table.h](#).

### 8.150.2 Enumeration Type Documentation

#### 8.150.2.1 anonymous enum

Enumerator:

```
ENTRY_VOID
ENTRY_SCHEDULED
ENTRY_STARTED
ENTRY_IS_SUPERSEDED_EVENT
ENTRY_IS_CANCELLED_EVENT
```

Definition at line 43 of file [load-control-event-table.h](#).

#### 8.150.2.2 anonymous enum

Enumerator:

```
EVENT_OPT_FLAG_OPT_IN
EVENT_OPT_FLAG_PARTIAL
```

Definition at line 51 of file [load-control-event-table.h](#).

### 8.150.3 Function Documentation

#### 8.150.3.1 void afLoadControlEventTableInit ( uint8\_t endpoint )

#### 8.150.3.2 void emAfScheduleLoadControlEvent ( uint8\_t endpoint, EmberAfLoadControlEvent \* event )

This function is used to schedule events in the load control event table. The interface expects that the user will populate a LoadControlEvent with all the necessary fields and will pass a pointer to this event. The passed event will be copied into the event table so it does not need to survive the call to scheduleEvent.

A call to this function always generates an event response OTA

### **8.150.3.3 void emAfLoadControlEventTableTick ( uint8\_t endpoint )**

Tells the Event table when a tick has taken place. This function should be called by the cluster that uses the event table.

### **8.150.3.4 bool emAfCancelAllLoadControlEvents ( uint8\_t endpoint, uint8\_t cancelControl )**

Used to cancel all events in the event table

#### **Returns**

A bool value indicating that a response was generated for this action.

### **8.150.3.5 void emAfCancelLoadControlEvent ( uint8\_t endpoint, uint32\_t eventId, uint8\_t cancelControl, uint32\_t effectiveTime )**

Used to cancel an event in the event table

A call to this function always generates an event response OTA.

### **8.150.3.6 void afScheduleCancelEvent ( EmberAfLoadControlEvent \* e )**

Used to schedule a call to cancel an event. Takes a LoadControlEvent struct which is used to encapsulate the necessary information for the scheduled cancel.

The scheduleCancelEvent function only uses three fields from the LoadControlEvent struct, eventId, startTime, and eventControl, as follows:

eventId: The eventId of the event to cancel.

startTime: The starttime of the event should be the same as the effective time of the cancel and will be used to schedule the call to cancel.

eventControl: The eventControl of the event should be the same as the cancelControl passed when sending the initial cancel event call.

NOTE: A call to cancelAllEvents() will wipe out this scheduled cancel as well as all other events which should be ok, since the event scheduled to cancel would be affected as well by the cancel all call anyway.

### **8.150.3.7 void emAfLoadControlEventOptInOrOut ( uint8\_t endpoint, uint32\_t eventId, bool optIn )**

An interface for opting in and out of an event

### **8.150.3.8 void emberAfEventAction ( EmberAfLoadControlEvent \* event, uint8\_t eventStatus, uint8\_t sequenceNumber, uint8\_t esilIndex )**

Called by the event table when an events status has changed. This handle should be used to inform the ESP(s) and or react to scheduled events. The event table will take care of clearing itself if the event is completed.

### 8.150.3.9 void emAfNoteSignatureFailure ( void )

A routine that prints a message indicating an attempt to append a signature to the event status message has failed.

### 8.150.3.10 void emAfLoadControlEventTablePrint ( uint8\_t endpoint )

Prints the load control event table

### 8.150.3.11 void emAfLoadControlEventTableInit ( uint8\_t endpoint )

Initialization function.

### 8.150.3.12 void emAfLoadControlEventTableClear ( uint8\_t endpoint )

## 8.151 load-control-event-table.h

```

00001 // ****
00002 // * load-control-event-table.h
00003 // *
00004 // * The Demand Response Load Control Event Table is responsible
00005 // * for keeping track of all load control events scheduled
00006 // * by the Energy Service Provider. This module provides
00007 // * interfaces used to schedule and inform load shedding
00008 // * devices of scheduled events.
00009 // *
00010 // * Any code that uses this event table is responsible for
00011 // * providing four things:
00012 // *   1. frequent calls to eventTableTick(), one per millisecond
00013 // *      will do. These calls are used to drive the
00014 // *      table's timing mechanism.
00015 // *   2. A way to get the real time by implementing
00016 // *      getCurrentTime(uint32_t *currentTime);
00017 // *   3. An implementation of eventAction which
00018 // *      will be called whenever event status changes
00019 // *
00020 // * The load control event table expects that currentTime, startTime
00021 // * and randomization are provided in seconds. And that duration is
00022 // * provided in minutes.
00023 // *
00024 // * The implementing code is responsible for over the
00025 // * air communication based on event status changes
00026 // * reported through the eventAction interface
00027 // *
00028 // * Copyright 2007 by Ember Corporation. All rights reserved.
*80*
00029 // ****
00030
00031 #ifndef __LOAD_CONTROL_EVENT_TABLE_H__
00032 #define __LOAD_CONTROL_EVENT_TABLE_H__
00033
00034 // include global header for public LoadControlEvent struct
00035 #include "../../../../include/af.h"
00036
00037 #define RANDOMIZE_START_TIME_FLAG      1
00038 #define RANDOMIZE_DURATION_TIME_FLAG  2
00039
00040 #define CANCEL_WITH_RANDOMIZATION     1
00041
00042 // Table entry status
00043 enum {
00044     ENTRY_VOID,
00045     ENTRY_SCHEDULED,
00046     ENTRY_STARTED,
00047     ENTRY_IS_SUPERSEDED_EVENT,
00048     ENTRY_IS_CANCELLED_EVENT
00049 };
00050

```

```

00051 enum {
00052     EVENT_OPT_FLAG_OPT_IN                      = 0x01,
00053     EVENT_OPT_FLAG_PARTIAL                     = 0x02
00054 };
00055
00056
00057 // EVENT TABLE API
00058
00059 void afLoadControlEventTableInit(uint8_t endpoint);
00060
00061
00073 void emAfScheduleLoadControlEvent(uint8_t endpoint,
00074                                     EmberAfLoadControlEvent
00075                                     *event);
00075
00081 void emAfLoadControlEventTableTick(uint8_t
00082                                         endpoint);
00082
00089 bool emAfCancelAllLoadControlEvents(uint8_t
00090                                         endpoint,
00091                                         uint8_t cancelControl);
00091
00097 void emAfCancelLoadControlEvent(uint8_t endpoint,
00098                                     uint32_t eventId,
00099                                     uint8_t cancelControl,
00100                                     uint32_t effectiveTime);
00101
00127 void afScheduleCancelEvent(EmberAfLoadControlEvent
00128                                     *e);
00128
00132 void emAfLoadControlEventOptInOrOut(uint8_t
00133                                         endpoint,
00134                                         uint32_t eventId,
00135                                         bool optIn);
00135
00136 // The module using this table is responsible for providing the following
00137 // functions.
00145 void emberAfEventAction(EmberAfLoadControlEvent
00146                                     *event,
00147                                     uint8_t eventStatus,
00148                                     uint8_t sequenceNumber,
00149                                     uint8_t esiIndex);
00149
00154 void emAfNoteSignatureFailure(void);
00155
00158 void emAfLoadControlEventTablePrint(uint8_t
00159                                         endpoint);
00159
00163 void emAfLoadControlEventTableInit(uint8_t
00164                                         endpoint);
00164
00165 /*
00166  * Clear the event table.
00167  */
00168 void emAfLoadControlEventTableClear(uint8_t
00169                                         endpoint);
00169
00170 #endif //__LOAD_CONTROL_EVENT_TABLE_H__
00171

```

## 8.152 lv-shutdown.h File Reference

### Functions

- `uint16_t emberAfPluginLowVoltageShutdownGetVoltage (void)`
- `void emberAfPluginLowVoltageShutdownEnable (bool enable)`
- `bool emberAfPluginLowVoltageShutdownEnabled (void)`
- `void emberAfPluginLowVoltageShutdownForceShutdown (void)`

#### 8.152.1 Function Documentation

- 8.152.1.1 `uint16_t emberAfPluginLowVoltageShutdownGetVoltage ( void )`
- 8.152.1.2 `void emberAfPluginLowVoltageShutdownEnable ( bool enable )`
- 8.152.1.3 `bool emberAfPluginLowVoltageShutdownEnabled ( void )`
- 8.152.1.4 `void emberAfPluginLowVoltageShutdownForceShutdown ( void )`

## 8.153 lv-shutdown.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 // Obtain a single reading of the VDD voltage (used to check for shutdown)
00004 // Result is in millivolts.
00005 uint16_t emberAfPluginLowVoltageShutdownGetVoltage
    (void);
00006
00007 // Enable or disable shutdown logic at runtime for testing purposes
00008 void emberAfPluginLowVoltageShutdownEnable
    (bool enable);
00009
00010 // Check whether the shutdown logic has is enabled at runtime (as it can be
00011 // artificially disabled)
00012 bool emberAfPluginLowVoltageShutdownEnabled
    (void);
00013
00014 // Force a shutdown event (regardless of VDD) for testing
00015 void emberAfPluginLowVoltageShutdownForceShutdown
    (void);

```

## 8.154 manufacturing-library-cli-plugin.h File Reference

### Functions

- `bool emberAfMfglibRunning (void)`
- `bool emberAfMfglibEnabled (void)`

### 8.154.1 Function Documentation

#### 8.154.1.1 `bool emberAfMfglibRunning ( void )`

Returns a true if the manufacturing library is currently running.

Function to return whether the manufacturing library is currently running. Code that initiates scan/join behavoir should not do so if the manufacturing library is currently running as this will cause a conflict and may result in a fatal error.

#### Returns

A ::bool value that is true if the manufacturing library is running, and false if it is not.

#### 8.154.1.2 `bool emberAfMfglibEnabled ( void )`

Returns a true if the manufacturing library token has been set.

Function to return whether the manufacturing library token has currently been set. Reference designs are programmed to initiate off scan/join behavoir as soon as the device has been powered up. Certain sleepy devices, such as security sensors, may also use the UART for manufacturing, which becomes inactive during normal operation. Setting this token will allow the device to stay awake or hold off on normal joining behavior for a few seconds to allow manufacturing mode to be enabled. The last step in the manufacturing process would be to disable this token.

Note: this token is disabled by default. If you wish to enable it by default in your application, you must edit the file `app/framework/plugin/mfg-lib/mfg-lib-tokens.h`.

## Returns

A ::bool value that is true if the manufacturing library token has been set and false if it has not been set.

## 8.155 manufacturing-library-cli-plugin.h

## 8.156 manufacturing-library-cli-tokens.h File Reference

## Macros

- #define CREATOR MFG LIB ENABLED

## 8.156.1 Macro Definition Documentation

#### 8.156.1.1 #define CREATOR\_MFG\_LIB\_ENABLED

## Custom Application Tokens

Definition at line 11 of file [manufacturing-library-cli-tokens.h](#).

8.157 manufacturing-library-cli-tokens.h

```
00001 // ****
00002 // * mfg-lib-tokens.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // * *****
```

```

00007
00011 #define CREATOR_MFG_LIB_ENABLED (0x000d)
00012
00013 #ifdef DEFINETYPES
00014 // Include or define any typedef for tokens here
00015 #endif //DEFINETYPES
00016 #ifdef DEFINETOKENS
00017 // Define the actual token storage information here
00018
00019 DEFINE_BASIC_TOKEN(MFG_LIB_ENABLED, uint8_t, 0)
00020 //DEFINE_BASIC_TOKEN(REBOOT_MONITOR, uint32_t, 0)
00021
00022 #endif //DEFINETOKENS
00023
00024

```

## 8.158 messaging-client.h File Reference

### Macros

- `#define ZCL_MESSAGING_CLUSTER_TRANSMISSION_MASK`
- `#define ZCL_MESSAGING_CLUSTER_IMPORTANCE_MASK`
- `#define ZCL_MESSAGING_CLUSTER_CONFIRMATION_MASK`
- `#define ZCL_MESSAGING_CLUSTER_START_TIME_NOW`
- `#define ZCL_MESSAGING_CLUSTER_END_TIME_NEVER`
- `#define ZCL_MESSAGING_CLUSTER_DURATION_UNTIL_CHANGED`

### Functions

- `void emAfPluginMessagingClientClearMessage (uint8_t endpoint)`
- `void emAfPluginMessagingClientPrintInfo (uint8_t endpoint)`
- `EmberAfStatus emberAfPluginMessagingClientConfirmMessage (uint8_t endpoint)`

#### 8.158.1 Macro Definition Documentation

##### 8.158.1.1 `#define ZCL_MESSAGING_CLUSTER_TRANSMISSION_MASK`

Definition at line 12 of file [messaging-client.h](#).

##### 8.158.1.2 `#define ZCL_MESSAGING_CLUSTER_IMPORTANCE_MASK`

Definition at line 13 of file [messaging-client.h](#).

##### 8.158.1.3 `#define ZCL_MESSAGING_CLUSTER_CONFIRMATION_MASK`

Definition at line 14 of file [messaging-client.h](#).

##### 8.158.1.4 `#define ZCL_MESSAGING_CLUSTER_START_TIME_NOW`

Definition at line 16 of file [messaging-client.h](#).

### 8.158.1.5 #define ZCL\_MESSAGING\_CLUSTER\_END\_TIME\_NEVER

Definition at line 17 of file [messaging-client.h](#).

### 8.158.1.6 #define ZCL\_MESSAGING\_CLUSTER\_DURATION\_UNTIL\_CHANGED

Definition at line 18 of file [messaging-client.h](#).

## 8.158.2 Function Documentation

### 8.158.2.1 void emAfPluginMessagingClientClearMessage ( uint8\_t *endpoint* )

Clear the message.

This function can be used to manually deactivate or clear the message.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

### 8.158.2.2 void emAfPluginMessagingClientPrintInfo ( uint8\_t *endpoint* )

Prints information about the message.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

### 8.158.2.3 EmberAfStatus emberAfPluginMessagingClientConfirmMessage ( uint8\_t *endpoint* )

Confirm a message.

This function can be used to confirm a message. The Messaging client plugin will send the confirmation command to the endpoint on the node that sent the message.

#### Returns

[EMBER\\_ZCL\\_STATUS\\_SUCCESS](#) if the confirmation was sent, [EMBER\\_ZCL\\_STATUS\\_FAILURE](#) if an error occurred, or [EMBER\\_ZCL\\_STATUS\\_NOT\\_FOUND](#) if the message does not exist.

## 8.159 messaging-client.h

```

0001 // ****
0002 // * messaging-client.h
0003 // *
0004 // *
0005 // * Copyright 2010 by Ember Corporation. All rights reserved.
0006 // *80*
0006 // ****
0007
0008 // -----
0009 // Message Control byte
0010 // -----

```

```

00011
00012 #define ZCL_MESSAGING_CLUSTER_TRANSMISSION_MASK (BIT(1) | BIT(0))
00013 #define ZCL_MESSAGING_CLUSTER_IMPORTANCE_MASK (BIT(3) | BIT(2))
00014 #define ZCL_MESSAGING_CLUSTER_CONFIRMATION_MASK BIT(7)
00015
00016 #define ZCL_MESSAGING_CLUSTER_START_TIME_NOW 0x00000000UL
00017 #define ZCL_MESSAGING_CLUSTER_END_TIME_NEVER 0xFFFFFFFFFUL
00018 #define ZCL_MESSAGING_CLUSTER_DURATION_UNTIL_CHANGED 0xFFFF
00019
00028 void emAfPluginMessagingClientClearMessage
    (uint8_t endpoint);
00029
00036 void emAfPluginMessagingClientPrintInfo(
    uint8_t endpoint);
00037
00049 EmberAfStatus emberAfPluginMessagingClientConfirmMessage
    (uint8_t endpoint);
00050

```

## 8.160 messaging-server.h File Reference

### Data Structures

- struct [EmberAfPluginMessagingServerMessage](#)  
*The message and metadata used by the Messaging server plugin.*

### Macros

- #define [ZCL\\_MESSAGING\\_CLUSTER\\_TRANSMISSION\\_MASK](#)
- #define [ZCL\\_MESSAGING\\_CLUSTER\\_IMPORTANCE\\_MASK](#)
- #define [ZCL\\_MESSAGING\\_CLUSTER\\_RESERVED\\_MASK](#)
- #define [ZCL\\_MESSAGING\\_CLUSTER\\_CONFIRMATION\\_MASK](#)
- #define [ZCL\\_MESSAGING\\_CLUSTER\\_START\\_TIME\\_NOW](#)
- #define [ZCL\\_MESSAGING\\_CLUSTER\\_END\\_TIME\\_NEVER](#)
- #define [ZCL\\_MESSAGING\\_CLUSTER\\_DURATION\\_UNTIL\\_CHANGED](#)

### Functions

- bool [emberAfPluginMessagingServerGetMessage](#) (uint8\_t endpoint, [EmberAfPluginMessagingServerMessage](#) \*message)
- void [emberAfPluginMessagingServerSetMessage](#) (uint8\_t endpoint, const [EmberAfPluginMessagingServerMessage](#) \*message)
- void [emAfPluginMessagingServerPrintInfo](#) (uint8\_t endpoint)
- void [emberAfPluginMessagingServerDisplayMessage](#) ([EmberNodeId](#) nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint)
- void [emberAfPluginMessagingServerCancelMessage](#) ([EmberNodeId](#) nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint)

#### 8.160.1 Macro Definition Documentation

##### 8.160.1.1 #define ZCL\_MESSAGING\_CLUSTER\_TRANSMISSION\_MASK

Definition at line 12 of file [messaging-server.h](#).

### 8.160.1.2 #define ZCL\_MESSAGING\_CLUSTER\_IMPORTANCE\_MASK

Definition at line 13 of file [messaging-server.h](#).

### 8.160.1.3 #define ZCL\_MESSAGING\_CLUSTER\_RESERVED\_MASK

Definition at line 14 of file [messaging-server.h](#).

### 8.160.1.4 #define ZCL\_MESSAGING\_CLUSTER\_CONFIRMATION\_MASK

Definition at line 15 of file [messaging-server.h](#).

### 8.160.1.5 #define ZCL\_MESSAGING\_CLUSTER\_START\_TIME\_NOW

Definition at line 17 of file [messaging-server.h](#).

### 8.160.1.6 #define ZCL\_MESSAGING\_CLUSTER\_END\_TIME\_NEVER

Definition at line 18 of file [messaging-server.h](#).

### 8.160.1.7 #define ZCL\_MESSAGING\_CLUSTER\_DURATION\_UNTIL\_CHANGED

Definition at line 19 of file [messaging-server.h](#).

## 8.160.2 Function Documentation

### 8.160.2.1 bool emberAfPluginMessagingServerGetMessage ( uint8\_t endpoint, EmberAfPluginMessagingServerMessage \* message )

Get the message used by the Messaging server plugin.

This function can be used to get the message and metadata that the plugin will send to clients. For "start now" messages that are current or scheduled, the duration is adjusted to reflect how many minutes remain for the message. Otherwise, the start time and duration of "start now" messages reflect the actual start and the original duration.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>message</i>	The <a href="#">EmberAfPluginMessagingServerMessage</a> structure describing the message.

#### Returns

true if the message is valid or false if the message does not exist or is expired.

### 8.160.2.2 void emberAfPluginMessagingServerSetMessage ( uint8\_t endpoint, const EmberAfPluginMessagingServerMessage \* message )

Set the message used by the Messaging server plugin.

This function can be used to set the message and metadata that the plugin will send to clients. Setting the start time to zero instructs clients to start the message now. For "start now" messages, the plugin will automatically adjust the duration reported to clients based on the original start time of the message.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>message</i>	The <a href="#">EmberAfPluginMessagingServerMessage</a> structure describing the message. If NULL, the message is removed from the server.

**8.160.2.3 void emAfPluginMessagingServerPrintInfo ( uint8\_t *endpoint* )**

**8.160.2.4 void emberAfPluginMessagingServerDisplayMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )**

**8.160.2.5 void emberAfPluginMessagingServerCancelMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )**

## 8.161 messaging-server.h

```

00001 // ****
00002 // * messaging-server.h
00003 // *
00004 // *
00005 // * Copyright 2010 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 // -----
00009 // Message Control byte
00010 // -----
00011
00012 #define ZCL_MESSAGING_CLUSTER_TRANSMISSION_MASK (BIT(1) | BIT(0))
00013 #define ZCL_MESSAGING_CLUSTER_IMPORTANCE_MASK (BIT(3) | BIT(2))
00014 #define ZCL_MESSAGING_CLUSTER_RESERVED_MASK (BIT(6) | BIT(5) | BIT(4))
00015 #define ZCL_MESSAGING_CLUSTER_CONFIRMATION_MASK BIT(7)
00016
00017 #define ZCL_MESSAGING_CLUSTER_START_TIME_NOW 0x00000000UL
00018 #define ZCL_MESSAGING_CLUSTER_END_TIME_NEVER 0xFFFFFFFFFUL
00019 #define ZCL_MESSAGING_CLUSTER_DURATION_UNTIL_CHANGED 0xFFFF
00020
00021
00022 typedef struct {
00023     uint32_t messageId;
00024     uint8_t messageControl;
00025     uint32_t startTime;
00026     uint16_t durationInMinutes;
00027     uint8_t message[EMBER_AF_PLUGIN_MESSAGING_SERVER_MESSAGE_SIZE + 1];
00028     uint8_t extendedMessageControl;
00029 } EmberAfPluginMessagingServerMessage;
00030
00031
00032 bool emberAfPluginMessagingServerGetMessage
00033     (uint8_t endpoint,
00034
00035     EmberAfPluginMessagingServerMessage *message
00036 );
00037
00038 void emberAfPluginMessagingServerSetMessage
00039     (uint8_t endpoint,
00040
00041     const
00042     EmberAfPluginMessagingServerMessage *message
00043 );
00044
00045
00046 void emAfPluginMessagingServerPrintInfo(
00047     uint8_t endpoint);
00048 void emberAfPluginMessagingServerDisplayMessage
00049     (EmberNodeId nodeId,
00050
00051             uint8_t srcEndpoint,
00052             uint8_t dstEndpoint);

```

```

00083 void emberAfPluginMessagingServerCancelMessage
    (EmberNodeId nodeId,
     uint8_t srcEndpoint,
00084                                     uint8_t dstEndpoint);
00085

```

## 8.162 meter-mirror.h File Reference

### Macros

- #define EM\_AF\_APPLICATION\_MANUFACTURER\_CODE
- #define EM\_AF\_MIRROR\_ENDPOINT\_END

### Functions

- uint8\_t emAfPluginMeterMirrorGetMirrorsAllocated (void)
- bool emberAfPluginMeterMirrorGetEui64ByEndpoint (uint8\_t endpoint, EmberEUI64 returnEui64)
- bool emberAfPluginMeterMirrorIsMirrorUsed (uint8\_t endpoint)
- bool emberAfPluginMeterMirrorGetEndpointByEui64 (EmberEUI64 eui64, uint8\_t \*returnEndpoint)
- uint16\_t emberAfPluginMeterMirrorRequestMirror (EmberEUI64 requestingDeviceIeeeAddress)
- uint16\_t emberAfPluginMeterMirrorRemoveMirror (EmberEUI64 requestingDeviceIeeeAddress)

### Variables

- EmberEUI64 nullEui64

#### 8.162.1 Macro Definition Documentation

##### 8.162.1.1 #define EM\_AF\_APPLICATION\_MANUFACTURER\_CODE

Definition at line 8 of file [meter-mirror.h](#).

##### 8.162.1.2 #define EM\_AF\_MIRROR\_ENDPOINT\_END

Definition at line 14 of file [meter-mirror.h](#).

#### 8.162.2 Function Documentation

##### 8.162.2.1 uint8\_t emAfPluginMeterMirrorGetMirrorsAllocated ( void )

##### 8.162.2.2 bool emberAfPluginMeterMirrorGetEui64ByEndpoint ( uint8\_t endpoint, EmberEUI64 returnEui64 )

##### 8.162.2.3 bool emberAfPluginMeterMirrorIsMirrorUsed ( uint8\_t endpoint )

##### 8.162.2.4 bool emberAfPluginMeterMirrorGetEndpointByEui64 ( EmberEUI64 eui64, uint8\_t \* returnEndpoint )

8.162.2.5 `uint16_t emberAfPluginMeterMirrorRequestMirror ( EmberEUI64 requestingDeviceIeeeAddress )`

8.162.2.6 `uint16_t emberAfPluginMeterMirrorRemoveMirror ( EmberEUI64 requestingDeviceIeeeAddress )`

### 8.162.3 Variable Documentation

8.162.3.1 `EmberEUI64 nullEui64`

## 8.163 meter-mirror.h

```

00001 // meter-mirror.h
00002
00003
00004 // A bit confusing, the EMBER_AF_MANUFACTURER_CODE is actually the manufacturer
00005 // code defined in AppBuilder. This is usually the specific vendor of
00006 // the local application. It does not have to be "Ember's" (Silabs)
00007     manufacturer
00008 #define EM_AF_APPLICATION_MANUFACTURER_CODE EMBER_AF_MANUFACTURER_CODE
00009
00010 uint8_t emAfPluginMeterMirrorGetMIRRORSAllocated
00011     (void);
00012 extern EmberEUI64 nullEui64;
00013
00014 #define EM_AF_MIRROR_ENDPOINT_END \
00015     (EMBER_AF_PLUGIN_METER_MIRROR_ENDPOINT_START \
00016     + EMBER_AF_PLUGIN_METER_MIRROR_MAX_MIRRORS)
00017
00018 bool emberAfPluginMeterMirrorGetEui64ByEndpoint
00019     (uint8_t endpoint,
00020         EmberEUI64
00021             returnEui64);
00020 bool emberAfPluginMeterMirrorIsMirrorUsed(
00021     uint8_t endpoint);
00021 bool emberAfPluginMeterMirrorGetEndpointByEui64
00022     (EmberEUI64 eui64,
00023         uint8_t *returnEndpoint);
00023 uint16_t emberAfPluginMeterMirrorRequestMirror
00024     (EmberEUI64 requestingDeviceIeeeAddress);
00024 uint16_t emberAfPluginMeterMirrorRemoveMirror
00025     (EmberEUI64 requestingDeviceIeeeAddress);

```

## 8.164 meter-snapshot-storage.h File Reference

### Data Structures

- struct `EmberAfSnapshotPayload`
- struct `EmberAfSnapshotSchedulePayload`

### Macros

- `#define INVALID_SNAPSHOT_SCHEDULE_ID`
- `#define INVALID_SNAPSHOT_ID`
- `#define SNAPSHOT_SCHEDULE_PAYLOAD_SIZE`
- `#define SNAPSHOT_CAUSE_MANUAL`
- `#define SUMMATION_TIERS`
- `#define BLOCK_TIERS`

- #define **SNAPSHOT\_PAYLOAD\_SIZE**

### **8.164.1 Macro Definition Documentation**

#### **8.164.1.1 #define INVALID\_SNAPSHOT\_SCHEDULE\_ID**

Definition at line 1 of file [meter-snapshot-storage.h](#).

#### **8.164.1.2 #define INVALID\_SNAPSHOT\_ID**

Definition at line 4 of file [meter-snapshot-storage.h](#).

#### **8.164.1.3 #define SNAPSHOT\_SCHEDULE\_PAYLOAD\_SIZE**

Definition at line 6 of file [meter-snapshot-storage.h](#).

#### **8.164.1.4 #define SNAPSHOT\_CAUSE\_MANUAL**

Definition at line 8 of file [meter-snapshot-storage.h](#).

#### **8.164.1.5 #define SUMMATION\_TIERS**

Definition at line 10 of file [meter-snapshot-storage.h](#).

#### **8.164.1.6 #define BLOCK\_TIERS**

Definition at line 11 of file [meter-snapshot-storage.h](#).

#### **8.164.1.7 #define SNAPSHOT\_PAYLOAD\_SIZE**

Definition at line 12 of file [meter-snapshot-storage.h](#).

## **8.165 meter-snapshot-storage.h**

```

0001 #define INVALID_SNAPSHOT_SCHEDULE_ID 0
0002
0003 // 0 is technically valid, but we'll designate it to be our "invalid" id for
     init purposes
0004 #define INVALID_SNAPSHOT_ID 0
0005
0006 #define SNAPSHOT_SCHEDULE_PAYLOAD_SIZE 15
0007
0008 #define SNAPSHOT_CAUSE_MANUAL 0x00000400
0009
0010 #define SUMMATION_TIERS
     EMBER_AF_PLUGIN_METER_SNAPSHOT_STORAGE_SUM_TIERS_SUPPORTED
0011 #define BLOCK_TIERS
     EMBER_AF_PLUGIN_METER_SNAPSHOT_STORAGE_BLOCK_TIERS_SUPPORTED
0012 #define SNAPSHOT_PAYLOAD_SIZE SUMMATION_TIERS + BLOCK_TIERS + 94
0013
0014 typedef struct {
0015     uint8_t tierSummation[SUMMATION_TIERS * 6];
0016     uint8_t tierBlockSummation[BLOCK_TIERS * 6];

```

```

00017     uint8_t currentSummation[6];
00018     uint32_t billToDate;
00019     uint32_t billToDateTimeStamp;
00020     uint32_t projectedBill;
00021     uint32_t projectedBillTimeStamp;
00022     uint32_t snapshotId;
00023     uint32_t snapshotTime;
00024     uint32_t snapshotCause;
00025     EmberNodeId requestingId;
00026     uint8_t tiersInUse;
00027     uint8_t tiersAndBlocksInUse;
00028     uint8_t srcEndpoint;
00029     uint8_t dstEndpoint;
00030     uint8_t billTrailingDigit;
00031     uint8_t payloadType;
00032 } EmberAfSnapshotPayload;
00033
00034 typedef struct {
00035     uint32_t snapshotStartDate;
00036     uint32_t snapshotSchedule;
00037     uint32_t snapshotCause;
00038     EmberNodeId requestingId;
00039     uint8_t srcEndpoint;
00040     uint8_t dstEndpoint;
00041     uint8_t snapshotPayloadType;
00042     uint8_t snapshotScheduleId;
00043 } EmberAfSnapshotSchedulePayload;
00044

```

## 8.166 mn-price-passthrough.h File Reference

### Data Structures

- struct [EmberAfScheduledPrice](#)

*The price and metadata used by the MnPricePassthrough plugin.*

### Macros

- #define [ZCL\\_PRICE\\_CLUSTER\\_RESERVED\\_MASK](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_DURATION\\_UNTIL\\_CHANGED](#)

### Functions

- void [emAfPluginMnPricePassthroughStartPollAndForward](#) (void)
- void [emAfPluginMnPricePassthroughStopPollAndForward](#) (void)
- void [emAfPluginMnPricePassthroughRoutingSetup](#) (EmberNodeId fwdId, uint8\_t fwdEndpoint, uint8\_t esiEndpoint)
- void [emAfPluginMnPricePassthroughPrintCurrentPrice](#) (void)

#### 8.166.1 Macro Definition Documentation

##### 8.166.1.1 #define ZCL\_PRICE\_CLUSTER\_RESERVED\_MASK

Definition at line 41 of file [mn-price-passthrough.h](#).

##### 8.166.1.2 #define ZCL\_PRICE\_CLUSTER\_DURATION\_UNTIL\_CHANGED

Definition at line 42 of file [mn-price-passthrough.h](#).

## 8.166.2 Function Documentation

- 8.166.2.1 void emAfPluginMnPricePassthroughStartPollAndForward ( void )
- 8.166.2.2 void emAfPluginMnPricePassthroughStopPollAndForward ( void )
- 8.166.2.3 void emAfPluginMnPricePassthroughRoutingSetup ( EmberNodeId fwdId, uint8\_t fwdEndpoint, uint8\_t esiEndpoint )
- 8.166.2.4 void emAfPluginMnPricePassthroughPrintCurrentPrice ( void )

## 8.167 mn-price-passthrough.h

```

00001 // ****
00002 // * mn-price-passthrough.h
00003 // *
00004 // *
00005 // * Copyright 2012 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 void emAfPluginMnPricePassthroughStartPollAndForward
00009   (void);
00010 void emAfPluginMnPricePassthroughStopPollAndForward
00011   (void);
00012 void emAfPluginMnPricePassthroughRoutingSetup
00013   (EmberNodeId fwdId,
00014           uint8_t fwdEndpoint,
00015           uint8_t esiEndpoint);
00016
00017 void emAfPluginMnPricePassthroughPrintCurrentPrice
00018   (void);
00019
00020 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER
00021
00022 typedef struct {
00023     uint32_t providerId;
00024     uint8_t rateLabel[ZCL_PRICE_CLUSTER_MAXIMUM_RATE_LABEL_LENGTH
00025     + 1];
00026     uint32_t issuerEventID;
00027     uint8_t unitOfMeasure;
00028     uint16_t currency;
00029     uint8_t priceTrailingDigitAndTier;
00030     uint8_t numberOfPriceTiersAndTier; // added later
00031     in errata
00032     uint32_t startTime;
00033     uint16_t duration; // in minutes
00034     uint32_t price;
00035     uint8_t priceRatio;
00036     uint32_t generationPrice;
00037     uint8_t generationPriceRatio;
00038     uint32_t alternateCostDelivered;
00039     uint8_t alternateCostUnit;
00040     uint8_t alternateCostTrailingDigit;
00041     uint8_t numberofBlockThresholds;
00042     uint8_t priceControl;
00043 } EmberAfScheduledPrice;
00044
00045 #define ZCL_PRICE_CLUSTER_RESERVED_MASK          0xFE
00046 #define ZCL_PRICE_CLUSTER_DURATION_UNTIL_CHANGED 0xFFFF
00047
00048 #endif // EMBER_AF_PLUGIN_PRICE_SERVER
00049

```

## 8.168 network-cli.h File Reference

## Variables

- EmberCommandEntry `networkCommands` [ ]
- uint8\_t `emAfCliNetworkIndex`

### 8.168.1 Variable Documentation

#### 8.168.1.1 EmberCommandEntry `networkCommands`[ ]

#### 8.168.1.2 uint8\_t `emAfCliNetworkIndex`

## 8.169 network-cli.h

```

00001 // File: network-cli.h
00002 //
00003 // Copyright 2007 by Ember Corporation. All rights reserved.
00004 *80*
00005 extern EmberCommandEntry networkCommands[];
00006 extern uint8_t emAfCliNetworkIndex;

```

## 8.170 network-creator-composite.h File Reference

```
#include "app/framework/include/af.h"
```

## Data Structures

- struct `EmAfPluginNetworkCreatorChannelComposite`

## Macros

- #define `EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_INVALID_RSSI`
- #define `EMBER_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_BEACONS_THRESHOLD`
- #define `emAfPluginNetworkCreatorChannelCompositeIsAboveThreshold(composite)`
- #define `EM_AF_PLUGIN_NETWORK_CREATOR_CHANNELS_TO_CONSIDER`

## Typedefs

- typedef uint8\_t `EmAfPluginNetworkCreatorChannelCompositeMetric`

## Enumerations

- enum { `EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_METRIC_BEACONS`, `EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_METRIC_RSSI` }

### 8.170.1 Macro Definition Documentation

8.170.1.1 `#define EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_INVALID_RSSI`

Definition at line 17 of file [network-creator-composite.h](#).

8.170.1.2 `#define EMBER_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_BEACONS_THRESHOLD`

Definition at line 31 of file [network-creator-composite.h](#).

8.170.1.3 `#define emAfPluginNetworkCreatorChannelCompositelsAboveThreshold( composite )`

Definition at line 34 of file [network-creator-composite.h](#).

8.170.1.4 `#define EM_AF_PLUGIN_NETWORK_CREATOR_CHANNELS_TO_CONSIDER`

Definition at line 43 of file [network-creator-composite.h](#).

### 8.170.2 Typedef Documentation

8.170.2.1 `typedef uint8_t EmAfPluginNetworkCreatorChannelCompositeMetric`

Definition at line 23 of file [network-creator-composite.h](#).

### 8.170.3 Enumeration Type Documentation

8.170.3.1 anonymous enum

Enumerator:

`EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_METRIC_BEACONS`  
`EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_METRIC_RSSI`

Definition at line 19 of file [network-creator-composite.h](#).

## 8.171 network-creator-composite.h

```
00001 // Copyright 2015 Silicon Laboratories, Inc.
00002
00003 #ifndef __NETWORK_CREATOR_COMPOSITE_H__
00004 #define __NETWORK_CREATOR_COMPOSITE_H__
00005
00006 #include "app/framework/include/af.h"
00007
00008 // A composite struct for how "friendly" a channel is. This struct is used by
00009 // the network creator to decide on which channel it should form a network.
00010 // The lower the values, the better the channel.
00011 typedef struct {
00012     uint8_t beaconsHeard;
00013     int8_t maxRssiHeard;
00014 } EmAfPluginNetworkCreatorChannelComposite
00015 ;
00016 // The minimum for a signed 8 bit integer.
```

```

00017 #define EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_INVALID_RSSI (-128)
00018
00019 enum {
00020     EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_METRIC_BEACONS
00021         = 0,
00022     EM_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_COMPOSITE_METRIC_RSSI
00023         = 1,
00024 };
00025 // Here are the threshold values for the channel composite struct. These enable
00026 // the network creator to use discrete logic to find the best channel on which
00027 // to form a network. If a channel has a composite where one of the values is
00028 // higher than the corresponding threshold, then the network creator will not
00029 // form a network on this channel.
00030 #ifndef EMBER_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_BEACONS_THRESHOLD
00031     #define EMBER_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_BEACONS_THRESHOLD 5
00032 #endif
00033
00034 #define emAfPluginNetworkCreatorChannelCompositeIsAboveThreshold(composite) \
00035     (((composite).beaconsHeard > EMBER_AF_PLUGIN_NETWORK_CREATOR_CHANNEL_BEACONS_THRESHOLD))
00036
00037
00038 // This is the number of 802.15.4 channels that the internal logic
00039 // looks at in the 'form' part of the formation process. It is recommended
00040 // that this level is not set too low, since that leads to a higher probability
00041 // that a lot of coordinators would form a network on the same channel if they
00042 // acted at the same time.
00043 #define EM_AF_PLUGIN_NETWORK_CREATOR_CHANNELS_TO_CONSIDER 3
00044
00045
00046 #endif /* __NETWORK_CREATOR_COMPOSITE_H__ */

```

## 8.172 network-creator-security.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_NETWORK_CREATOR_SECURITY_PLUGIN_NAME`

### Functions

- `EmberStatus emberAfPluginNetworkCreatorSecurityStart (bool centralizedNetwork)`
- `EmberStatus emberAfPluginNetworkCreatorSecurityOpenNetwork (void)`
- `EmberStatus emberAfPluginNetworkCreatorSecurityCloseNetwork (void)`

#### 8.172.1 Macro Definition Documentation

##### 8.172.1.1 `#define EMBER_AF_PLUGIN_NETWORK_CREATOR_SECURITY_PLUGIN_NAME`

Definition at line 6 of file [network-creator-security.h](#).

#### 8.172.2 Function Documentation

##### 8.172.2.1 `EmberStatus emberAfPluginNetworkCreatorSecurityStart ( bool centralizedNetwork )`

Start.

This API initializes the security needed for forming and then operating on a network. The centralized-Network parameter allows the caller to specify whether or not the network that they plan to form will use centralized or distributed security.

**Parameters**

<i>centralized-Network</i>	Whether or not the network that the caller plans to form will use centralized or distributed security.
----------------------------	--

**Returns**

Status of the commencement of the network creator process.

**8.172.2.2 EmberStatus emberAfPluginNetworkCreatorSecurityOpenNetwork ( void )**

Open Network.

This API will open a network for joining. It broadcasts a permit join to the network, as well as adds a transient link key of ZigBeeAlliance09 if this device is a trust center.

**Returns**

An [EmberStatus](#) value describing the success or failure of the network opening procedure. If this node is not currently on a network, then this will return [EMBER\\_ERR\\_FATAL](#).

**8.172.2.3 EmberStatus emberAfPluginNetworkCreatorSecurityCloseNetwork ( void )**

Close Network.

This API will close the network for joining. It broadcasts a permit join to the network with time 0, as well as clears any transient link keys in the stack.

**Returns**

An [EmberStatus](#) value describing closing the network. If this node is not currently on a network, then this will return [EMBER\\_ERR\\_FATAL](#). This API will also return an error code based on the success or failure of the broadcasted permit join.

**8.173 network-creator-security.h**

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002 //
00003 //
-----+
00004 // Constants
00005
00006 #define EMBER_AF_PLUGIN_NETWORK_CREATOR_SECURITY_PLUGIN_NAME "NWK Creator
    Security"
00007
00008 //
-----+
00009 // API
00010
00023 EmberStatus emberAfPluginNetworkCreatorSecurityStart
    (bool centralizedNetwork);
00024
00035 EmberStatus emberAfPluginNetworkCreatorSecurityOpenNetwork
    (void);
00036
00048 EmberStatus emberAfPluginNetworkCreatorSecurityCloseNetwork
    (void);

```

## 8.174 network-creator.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_NETWORK_CREATOR_PLUGIN_NAME`

### Functions

- `EmberStatus emberAfPluginNetworkCreatorStart (bool centralizedNetwork)`
- `void emberAfPluginNetworkCreatorStop (void)`

### Variables

- `uint32_t emAfPluginNetworkCreatorPrimaryChannelMask`
- `uint32_t emAfPluginNetworkCreatorSecondaryChannelMask`

#### 8.174.1 Macro Definition Documentation

##### 8.174.1.1 `#define EMBER_AF_PLUGIN_NETWORK_CREATOR_PLUGIN_NAME`

Definition at line 9 of file [network-creator.h](#).

#### 8.174.2 Function Documentation

##### 8.174.2.1 `EmberStatus emberAfPluginNetworkCreatorStart ( bool centralizedNetwork )`

Start.

Commands the network creator to form a network with the following qualities.

#### Parameters

<code>centralized-Network</code>	Whether or not to form a network usingn centralized security. If this argument is false, then a network with distributed security will be formed.
----------------------------------	---

#### Returns

Status of the commencement of the network creator process.

##### 8.174.2.2 `void emberAfPluginNetworkCreatorStop ( void )`

Stop.

Stops the network creator formation process.

#### 8.174.3 Variable Documentation

##### 8.174.3.1 `uint32_t emAfPluginNetworkCreatorPrimaryChannelMask`

### 8.174.3.2 uint32\_t emAfPluginNetworkCreatorSecondaryChannelMask

## 8.175 network-creator.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002
00003 #ifndef __NETWORK_CREATOR_H__
00004 #define __NETWORK_CREATOR_H__
00005
00006 //
-----+
00007 // Constants
00008
00009 #define EMBER_AF_PLUGIN_NETWORK_CREATOR_PLUGIN_NAME "NWK Creator"
00010
00011 //
-----+
00012 // Globals
00013
00014 extern uint32_t emAfPluginNetworkCreatorPrimaryChannelMask
00015 ;
00016 extern uint32_t emAfPluginNetworkCreatorSecondaryChannelMask
00017 ;
00018 //
-----+
00019 // API
00020
00030 EmberStatus emberAfPluginNetworkCreatorStart
00021 (bool centralizedNetwork);
00031
00036 void emberAfPluginNetworkCreatorStop(void);
00037
00038 #endif /* __NETWORK_CREATOR_H__ */

```

## 8.176 network-steering-internal.h File Reference

```
#include "app/framework/plugin/network-steering/network-steering.h"
```

### Macros

- #define emAfPluginNetworkSteeringStateUsesInstallCodes()
- #define emAfPluginNetworkSteeringStateUsesCentralizedKey()
- #define emAfPluginNetworkSteeringStateUsesDistributedKey()
- #define emAfPluginNetworkSteeringStateSetUpdateTclk()
- #define emAfPluginNetworkSteeringStateUpdateTclk()
- #define emAfPluginNetworkSteeringStateClearUpdateTclk()
- #define emAfPluginNetworkSteeringStateSetVerifyTclk()
- #define emAfPluginNetworkSteeringStateVerifyTclk()
- #define emAfPluginNetworkSteeringStateClearVerifyTclk()

### Functions

- uint8\_t emAfPluginNetworkSteeringGetMaxPossiblePanIds (void)
- void emAfPluginNetworkSteeringClearStoredPanIds (void)
- uint16\_t \* emAfPluginNetworkSteeringGetStoredPanIdPointer (uint8\_t index)
- void emberAfPluginNetworkSteeringCompleteCallback (EmberStatus status, uint8\_t totalBeacons, uint8\_t joinAttempts, uint8\_t finalState)

## Variables

- PGM\_P `emAfPluginNetworkSteeringStateNames` []
- uint8\_t `emAfPluginNetworkSteeringPanIdIndex`
- uint8\_t `emAfPluginNetworkSteeringCurrentChannel`
- uint8\_t `emAfPluginNetworkSteeringTotalBeacons`
- uint8\_t `emAfPluginNetworkSteeringJoinAttempts`
- `EmberAfPluginNetworkSteeringJoiningState` `emAfPluginNetworkSteeringState`

### 8.176.1 Macro Definition Documentation

**8.176.1.1 #define emAfPluginNetworkSteeringStateUsesInstallCodes( )**

Definition at line 22 of file [network-steering-internal.h](#).

**8.176.1.2 #define emAfPluginNetworkSteeringStateUsesCentralizedKey( )**

Definition at line 28 of file [network-steering-internal.h](#).

**8.176.1.3 #define emAfPluginNetworkSteeringStateUsesDistributedKey( )**

Definition at line 34 of file [network-steering-internal.h](#).

**8.176.1.4 #define emAfPluginNetworkSteeringStateSetUpdateTclk( )**

Definition at line 40 of file [network-steering-internal.h](#).

**8.176.1.5 #define emAfPluginNetworkSteeringStateUpdateTclk( )**

Definition at line 43 of file [network-steering-internal.h](#).

**8.176.1.6 #define emAfPluginNetworkSteeringStateClearUpdateTclk( )**

Definition at line 46 of file [network-steering-internal.h](#).

**8.176.1.7 #define emAfPluginNetworkSteeringStateSetVerifyTclk( )**

Definition at line 50 of file [network-steering-internal.h](#).

**8.176.1.8 #define emAfPluginNetworkSteeringStateVerifyTclk( )**

Definition at line 53 of file [network-steering-internal.h](#).

**8.176.1.9 #define emAfPluginNetworkSteeringStateClearVerifyTclk( )**

Definition at line 56 of file [network-steering-internal.h](#).

## 8.176.2 Function Documentation

- 8.176.2.1 `uint8_t emAfPluginNetworkSteeringGetMaxPossiblePanIds ( void )`
- 8.176.2.2 `void emAfPluginNetworkSteeringClearStoredPanIds ( void )`
- 8.176.2.3 `uint16_t* emAfPluginNetworkSteeringGetStoredPanIdPointer ( uint8_t index )`
- 8.176.2.4 `void emberAfPluginNetworkSteeringCompleteCallback ( EmberStatus status, uint8_t totalBeacons, uint8_t joinAttempts, uint8_t finalState )`

## 8.176.3 Variable Documentation

- 8.176.3.1 `PGM_P emAfPluginNetworkSteeringStateNames[]`
- 8.176.3.2 `uint8_t emAfPluginNetworkSteeringPanIdIndex`
- 8.176.3.3 `uint8_t emAfPluginNetworkSteeringCurrentChannel`
- 8.176.3.4 `uint8_t emAfPluginNetworkSteeringTotalBeacons`
- 8.176.3.5 `uint8_t emAfPluginNetworkSteeringJoinAttempts`
- 8.176.3.6 `EmberAfPluginNetworkSteeringJoiningState emAfPluginNetworkSteeringState`

## 8.177 network-steering-internal.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002
00003 #include "app/framework/plugin/network-steering/network-steering.h"
00004
00005 extern PGM_P emAfPluginNetworkSteeringStateNames
00006 [];
00007 extern uint8_t emAfPluginNetworkSteeringPanIdIndex
00008 ;
00009 extern uint8_t emAfPluginNetworkSteeringCurrentChannel
00010 ;
00011 extern uint8_t emAfPluginNetworkSteeringTotalBeacons
00012 ;
00013 extern uint8_t emAfPluginNetworkSteeringJoinAttempts
00014 ;
00015
00016 uint8_t emAfPluginNetworkSteeringGetMaxPossiblePanIds
00017     (void);
00018 void emAfPluginNetworkSteeringClearStoredPanIds
00019     (void);
00020 uint16_t* emAfPluginNetworkSteeringGetStoredPanIdPointer
00021     (uint8_t index);
00022
00023 void emberAfPluginNetworkSteeringCompleteCallback
00024     (EmberStatus status,
00025         uint8_t totalBeacons,
00026         uint8_t joinAttempts,
00027         uint8_t finalState);
00028
00029 extern EmberAfPluginNetworkSteeringJoiningState
00030     emAfPluginNetworkSteeringState;
00031
00032 #define emAfPluginNetworkSteeringStateUsesInstallCodes()
00033     ((emAfPluginNetworkSteeringState)
00034         == EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_INSTALL_CODE) \
00035     || ((emAfPluginNetworkSteeringState)
00036         == EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_INSTALL_CODE) \
00037
00038

```

```

00028 #define emAfPluginNetworkSteeringStateUsesCentralizedKey() \
00029   (((emAfPluginNetworkSteeringState) \
00030     == EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_CENTRALIZED) \
00031   || ((emAfPluginNetworkSteeringState) \
00032     == EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_CENTRALIZED)) \
00033 \
00034 #define emAfPluginNetworkSteeringStateUsesDistributedKey() \
00035   (((emAfPluginNetworkSteeringState) \
00036     == EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_DISTRIBUTED) \
00037   || ((emAfPluginNetworkSteeringState) \
00038     == EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_DISTRIBUTED)) \
00039 \
00040 #define emAfPluginNetworkSteeringStateSetUpdateTclk() \
00041   ((emAfPluginNetworkSteeringState) \
00042   |= EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_UPDATE_TCLK) \
00043 #define emAfPluginNetworkSteeringStateUpdateTclk() \
00044   ((emAfPluginNetworkSteeringState) \
00045   & EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_UPDATE_TCLK) \
00046 #define emAfPluginNetworkSteeringStateClearUpdateTclk() \
00047   ((emAfPluginNetworkSteeringState) \
00048   &= ~EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_UPDATE_TCLK) \
00049 \
00050 #define emAfPluginNetworkSteeringStateSetVerifyTclk() \
00051   ((emAfPluginNetworkSteeringState) \
00052   |= EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_VERIFY_TCLK) \
00053 #define emAfPluginNetworkSteeringStateVerifyTclk() \
00054   ((emAfPluginNetworkSteeringState) \
00055   & EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_VERIFY_TCLK) \
00056 #define emAfPluginNetworkSteeringStateClearVerifyTclk() \
00057   ((emAfPluginNetworkSteeringState) \
00058   &= ~EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_VERIFY_TCLK)

```

## 8.178 network-steering.h File Reference

### Typedefs

- `typedef uint8_t EmberAfPluginNetworkSteeringJoiningState`
- `typedef uint8_t EmberAfPluginNetworkSteeringOptions`

### Enumerations

- `enum { EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_NONE, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_INSTALL_CODE, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_INSTALL_CODE, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_CENTRALIZED, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_CENTRALIZED, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_DISTRIBUTED, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_DISTRIBUTED, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_FINISHED, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_UPDATE_TCLK, EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_VERIFY_TCLK }`
- `enum { EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIONS_NONE, EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIONS_NO_TCLK_UPDATE }`

### Functions

- `EmberStatus emberAfPluginNetworkSteeringStart (void)`
- `EmberStatus emberAfPluginNetworkSteeringStop (void)`

## Variables

- PGM uint8\_t emAfNetworkSteeringPluginName [ ]
- [EmberAfPluginNetworkSteeringOptions](#) emAfPluginNetworkSteeringOptionsMask
- uint32\_t [emAfPluginNetworkSteeringPrimaryChannelMask](#)
- uint32\_t [emAfPluginNetworkSteeringSecondaryChannelMask](#)

### 8.178.1 Typedef Documentation

#### 8.178.1.1 [typedef uint8\\_t EmberAfPluginNetworkSteeringJoiningState](#)

Definition at line [27](#) of file [network-steering.h](#).

#### 8.178.1.2 [typedef uint8\\_t EmberAfPluginNetworkSteeringOptions](#)

Definition at line [33](#) of file [network-steering.h](#).

### 8.178.2 Enumeration Type Documentation

#### 8.178.2.1 anonymous enum

Enumerator:

```
EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_NONE
EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_INSTALL_CODE

EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_INSTALL_CODE

EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_CENTRALIZED
EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_CENTRALIZED

EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_DISTRIBUTED
EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_DISTRIBUTED

EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_FINISHED
EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_UPDATE_TCLK
EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_VERIFY_TCLK
```

Definition at line [14](#) of file [network-steering.h](#).

#### 8.178.2.2 anonymous enum

Enumerator:

```
EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIONS_NONE
EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIONS_NO_TCLK_UPDATE
```

Definition at line [29](#) of file [network-steering.h](#).

### 8.178.3 Function Documentation

#### 8.178.3.1 EmberStatus `emberAfPluginNetworkSteeringStart( void )`

Start.

Initiate a network-steering procedure.

If the node is currently on a network, it will perform network steering for node on a network, in which it opens up the network with a broadcasted permit join message.

If the node is not on a network, it will scan a series of primary channels (see [emAfPluginNetworkSteeringPrimaryChannelMask](#)) to try to find possible networks to join. If it is unable to join any of those networks, it will try scanning on a set of secondary channels (see [emAfPluginNetworkSteeringSecondaryChannelMask](#)). Upon completion of this process, the plugin will call [emberAfPluginNetworkSteeringCompleteCallback](#) with information regarding the success or failure of the procedure.

This procedure will try to join networks using install codes, the centralized default key, and the distributed default key.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the initiating of the network steering process.

#### 8.178.3.2 EmberStatus `emberAfPluginNetworkSteeringStop( void )`

Stop.

Stop the network steering procedure.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the initiating of the network steering process.

### 8.178.4 Variable Documentation

#### 8.178.4.1 PGM `uint8_t emAfNetworkSteeringPluginName[ ]`

#### 8.178.4.2 EmberAfPluginNetworkSteeringOptions `emAfPluginNetworkSteeringOptionsMask`

#### 8.178.4.3 uint32\_t `emAfPluginNetworkSteeringPrimaryChannelMask`

The first set of channels on which to search for joinable networks.

#### 8.178.4.4 uint32\_t `emAfPluginNetworkSteeringSecondaryChannelMask`

The second set of channels on which to search for joinable networks.

## 8.179 network-steering.h

00001 // Copyright 2015 Silicon Laboratories, Inc.

```

00002
00003 #ifndef __NETWORK_STEERING_H__
00004 #define __NETWORK_STEERING_H__
00005 //
00006 // -----
00007 // Constants
00008
00009 extern PGM uint8_t emAfNetworkSteeringPluginName[]
;
00010
00011 // -----
00012 // Types
00013
00014 enum {
00015     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_NONE
        = 0x00,
00016     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_INSTALL_CODE
        = 0x01,
00017     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_INSTALL_CODE
        = 0x02,
00018     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_CENTRALIZED
        = 0x03,
00019     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_CENTRALIZED
        = 0x04,
00020     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_PRIMARY_DISTRIBUTED
        = 0x05,
00021     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_SECONDARY_DISTRIBUTED
        = 0x06,
00022     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_SCAN_FINISHED
        = 0x07,
00023
00024     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_UPDATE_TCLK
        = 0x10,
00025     EMBER_AF_PLUGIN_NETWORK_STEERING_STATE_VERIFY_TCLK
        = 0x20,
00026 };
00027 typedef uint8_t EmberAfPluginNetworkSteeringJoiningState
;
00028
00029 enum {
00030     EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIONS_NONE
        = 0x00,
00031     EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIONS_NO_TCLK_UPDATE
        = 0x01,
00032 };
00033 typedef uint8_t EmberAfPluginNetworkSteeringOptions
;
00034
00035 extern EmberAfPluginNetworkSteeringOptions
emAfPluginNetworkSteeringOptionsMask;
00036
00037 // -----
00038 // Globals
00039
00041 extern uint32_t emAfPluginNetworkSteeringPrimaryChannelMask
;
00043 extern uint32_t emAfPluginNetworkSteeringSecondaryChannelMask
;
00044
00045 // -----
00046 // API
00047
00071 EmberStatus emberAfPluginNetworkSteeringStart
    (void);
00072
00080 EmberStatus emberAfPluginNetworkSteeringStop
    (void);
00081
00082 #endif /* __NETWORK_STEERING_H__ */

```

## 8.180 on-off.h File Reference

## Macros

- #define `emberAfOnOffSetValue`

### 8.180.1 Macro Definition Documentation

#### 8.180.1.1 #define `emberAfOnOffSetValue`

Definition at line 9 of file `on-off.h`.

## 8.181 on-off.h

```
00001 // ****
00002 // * on-off.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // *80*
00007
00008 // DEPRECATED.
00009 #define emberAfOnOffSetValue emberAfOnOffClusterSetValueCallback
```

## 8.182 option-cli.h File Reference

### Functions

- void `emAfCliServiceDiscoveryCallback` (const `EmberAfServiceDiscoveryResult` \**result*)

### Variables

- `EmberCommandEntry emAfOptionCommands []`

### 8.182.1 Function Documentation

#### 8.182.1.1 void `emAfCliServiceDiscoveryCallback` ( const `EmberAfServiceDiscoveryResult` \* *result* )

### 8.182.2 Variable Documentation

#### 8.182.2.1 `EmberCommandEntry emAfOptionCommands[]`

## 8.183 option-cli.h

```
00001 //
00002 // ****
00003 // * option-cli.h
00004 // *
00005 // * Copyright 2012 by Ember Corporation. All rights reserved.
00006 // *80*
00007
00008 #if !defined(OPTION_CLI_H)
```

```

00009 #define OPTION_CLI_H
0010
0011 extern EmberCommandEntry emAfOptionCommands[];
0012
0013 void emAfCliServiceDiscoveryCallback(const
0014     EmberAfServiceDiscoveryResult* result);
0015 #endif

```

## 8.184 ota-bootload-ncp.h File Reference

### Functions

- bool `emAfStartNcpBootloaderCommunications` (void)
- void `emAfPostNcpBootload` (bool success)
- bool `emAfRebootNcpAfterBootload` (void)
- bool `emAfBootloadSendData` (const uint8\_t \*data, uint16\_t length)
- bool `emAfBootloadSendByte` (uint8\_t byte)
- bool `emAfBootloadWaitChar` (uint8\_t \*data, bool expect, uint8\_t expected)

#### 8.184.1 Function Documentation

- 8.184.1.1 bool `emAfStartNcpBootloaderCommunications` ( void )
- 8.184.1.2 void `emAfPostNcpBootload` ( bool *success* )
- 8.184.1.3 bool `emAfRebootNcpAfterBootload` ( void )
- 8.184.1.4 bool `emAfBootloadSendData` ( const uint8\_t \* *data*, uint16\_t *length* )
- 8.184.1.5 bool `emAfBootloadSendByte` ( uint8\_t *byte* )
- 8.184.1.6 bool `emAfBootloadWaitChar` ( uint8\_t \* *data*, bool *expect*, uint8\_t *expected* )

## 8.185 ota-bootload-ncp.h

```

00001 // ****
00002 // * ota-bootload-ncp.h
00003 // *
00004 // * SPI/UART Interface to bootloading the NCP from a connected host.
00005 // *
00006 // * Copyright 2010 by Ember Corporation. All rights reserved.
00007 // *80*
00008 //
00009
0010 bool emAfStartNcpBootloaderCommunications(
0011     void);
0012 void emAfPostNcpBootload(bool success);
0013 bool emAfRebootNcpAfterBootload(void);
0014 // These primitives are called by the Xmodem code to pass data via
0015 // the specific mechanism (UART or SPI).
0016 bool emAfBootloadSendData(const uint8_t *data, uint16_t
0017     length);
0018 bool emAfBootloadSendByte(uint8_t byte);
0019 bool emAfBootloadWaitChar(uint8_t *data, bool expect,
0020     uint8_t expected);

```

## 8.186 ota-bootload-xmodem.h File Reference

### Functions

- void `emAfInitXmodemState` (bool startImmediately)
- bool `emAfSendXmodemData` (const uint8\_t \*data, uint16\_t length, bool finished)

#### 8.186.1 Function Documentation

8.186.1.1 void `emAfInitXmodemState ( bool startImmediately )`

8.186.1.2 bool `emAfSendXmodemData ( const uint8_t * data, uint16_t length, bool finished )`

## 8.187 ota-bootload-xmodem.h

```

00001 // ****
00002 // * ota-bootload-xmodem.c
00003 // *
00004 // * Routines for sending data via xmodem
00005 // *
00006 // * Copyright 2010 by Ember Corporation. All rights reserved.
00007 // *80*
00008 // ****
00009 // Initialize xmodem state machine for a new transfer
00010 // If startImmediately is set, will not wait for an initial 'C' character
00011 // to be received before sending the first block of data
00012 void emAfInitXmodemState(bool startImmediately);
00013
00014 // Send a chunk of data via xmodem. Arbitrary lengths of data may be passed,
00015 // it will be broken up into appropriate sized chunks for transmission.
00016 // Xmodem
00017 // itself transfers data in 128 byte chunks
00018 // Note: This function will block for the duration of time required to send
00019 // the data that is passed in.
00020 // The "finished" flag should be set when called with the final chunk to be
00021 bool emAfSendXmodemData(const uint8_t *data, uint16_t length,
00022 // finished);

```

## 8.188 ota-cli.h File Reference

### Macros

- #define `OTA_COMMON_COMMANDS`
- #define `OTA_CLIENT_COMMANDS`
- #define `OTA_SERVER_COMMANDS`

### Functions

- void `emAfOtaPrintAllImages` (void)
- `EmberAfOtaImageId emAfOtaFindImageIdByIndex` (uint8\_t index)
- void `emAfOtaReloadStorageDevice` (void)
- void `otaFindServerCommand` (void)
- void `otaQueryServerCommand` (void)
- void `otaUsePageRequestCommand` (void)

- void [otaQuerySpecificFileCommand](#) (void)
- void [otaSendUpgradeCommand](#) (void)
- void [emAfOtaImageDelete](#) (void)
- void [otaImageNotifyCommand](#) (void)

### **8.188.1 Macro Definition Documentation**

#### **8.188.1.1 #define OTA\_COMMON\_COMMANDS**

Definition at line [18](#) of file [ota-cli.h](#).

#### **8.188.1.2 #define OTA\_CLIENT\_COMMANDS**

Definition at line [29](#) of file [ota-cli.h](#).

#### **8.188.1.3 #define OTA\_SERVER\_COMMANDS**

Definition at line [42](#) of file [ota-cli.h](#).

### **8.188.2 Function Documentation**

#### **8.188.2.1 void emAfOtaPrintAllImages ( void )**

#### **8.188.2.2 EmberAfOtaImageId emAfOtaFindImageIdByIndex ( uint8\_t index )**

#### **8.188.2.3 void emAfOtaReloadStorageDevice ( void )**

#### **8.188.2.4 void otaFindServerCommand ( void )**

#### **8.188.2.5 void otaQueryServerCommand ( void )**

#### **8.188.2.6 void otaUsePageRequestCommand ( void )**

#### **8.188.2.7 void otaQuerySpecificFileCommand ( void )**

#### **8.188.2.8 void otaSendUpgradeCommand ( void )**

#### **8.188.2.9 void emAfOtaImageDelete ( void )**

#### **8.188.2.10 void otaImageNotifyCommand ( void )**

### **8.189 ota-cli.h**

```

00001 // ****
00002 // * ota-cli.h
00003 // *
00004 // * Zigbee Over-the-air bootload cluster for upgrading firmware and
00005 // * downloading specific file. This is the CLI to interact with the
00006 // * main cluster code.
00007 // *
00008 // * Copyright 2009 by Ember Corporation. All rights reserved.
*80*

```

```

00009 // ****
00010
00011
00012 // Common CLI interface
00013
00014 void emAfOtaPrintAllImages(void);
00015 EmberAfOtaImageId emAfOtaFindImageIdByIndex
    (uint8_t index);
00016 void emAfOtaReloadStorageDevice(void);
00017
00018 #define OTA_COMMON_COMMANDS \
00019     emberCommandEntryAction("printImages", emAfOtaPrintAllImages, "", ""), \
00020     emberCommandEntryAction("delete", (CommandAction)emAfOtaImageDelete, \
        "", ""),
00021     emberCommandEntryAction("reload", emAfOtaReloadStorageDevice, ""),
00022     emberCommandEntryAction("storage-info", emAfOtaStorageInfoPrint, ""),
00023     emberCommandEntryTerminator(),
00024
00025
00026 // Client CLI interface
00027
00028 #if !defined (EMBER_AF_PLUGIN_OTA_CLIENT)
00029     #define OTA_CLIENT_COMMANDS
00030 #endif
00031
00032 void otaFindServerCommand(void);
00033 void otaQueryServerCommand(void);
00034 void otaUsePageRequestCommand(void);
00035 void otaQuerySpecificFileCommand(void);
00036 void otaSendUpgradeCommand(void);
00037 void emAfOtaImageDelete(void);
00038
00039 // Server CLI interface
00040
00041 #if !defined (EMBER_AF_PLUGIN_OTA_SERVER)
00042     #define OTA_SERVER_COMMANDS
00043 #endif
00044
00045 void otaImageNotifyCommand(void);

```

## 8.190 ota-client-page-request-test.h File Reference

### Functions

- void [pageRequestTest](#) (void)

#### 8.190.1 Function Documentation

##### 8.190.1.1 void [pageRequestTest](#) ( void )

## 8.191 ota-client-page-request-test.h

```

00001
00002
00003 void pageRequestTest (void);

```

## 8.192 ota-client-page-request.h File Reference

### Macros

- #define [EM\\_AF\\_PAGE\\_REQUEST\\_BLOCK\\_SIZE](#)

## Typedefs

- `typedef uint8_t EmAfPageRequestClientStatus`

## Enumerations

- `enum {  
 EM_AF_NO_PAGE_REQUEST, EM_AF_WAITING_PAGE_REQUEST_REPLIES, EM_AF_R-  
 ETRY_MISSED_PACKETS, EM_AF_PAGE_REQUEST_COMPLETE,  
 EM_AF_BLOCK_ALREADY_RECEIVED, EM_AF_PAGE_REQUEST_ERROR }  
}`

## Functions

- `uint32_t emAfInitPageRequestClient (uint32_t offsetForPageRequest, uint32_t totalImageSize)`
- `void emAfPageRequestTimerExpired (void)`
- `bool emAfHandlingPageRequestClient (void)`
- `EmAfPageRequestClientStatus emAfGetCurrentPageRequestStatus (void)`
- `EmAfPageRequestClientStatus emAfNoteReceivedBlockForPageRequestClient (uint32_t offset)`
- `EmAfPageRequestClientStatus emAfNextMissedBlockRequestOffset (uint32_t *nextOffset)`
- `uint32_t emAfGetPageRequestMissedPacketDelayMs (void)`
- `uint32_t emAfGetFinishedPageRequestOffset (void)`
- `void emAfAbortPageRequest (void)`

### 8.192.1 Macro Definition Documentation

#### 8.192.1.1 `#define EM_AF_PAGE_REQUEST_BLOCK_SIZE`

Definition at line 21 of file `ota-client-page-request.h`.

### 8.192.2 Typedef Documentation

#### 8.192.2.1 `typedef uint8_t EmAfPageRequestClientStatus`

Definition at line 19 of file `ota-client-page-request.h`.

### 8.192.3 Enumeration Type Documentation

#### 8.192.3.1 anonymous enum

Enumerator:

```
EM_AF_NO_PAGE_REQUEST
EM_AF_WAITING_PAGE_REQUEST_REPLIES
EM_AF_RETRY_MISSED_PACKETS
EM_AF_PAGE_REQUEST_COMPLETE
EM_AF_BLOCK_ALREADY_RECEIVED
EM_AF_PAGE_REQUEST_ERROR
```

Definition at line 11 of file `ota-client-page-request.h`.

#### 8.192.4 Function Documentation

- 8.192.4.1 `uint32_t emAfInitPageRequestClient ( uint32_t offsetForPageRequest, uint32_t totalImageSize )`
- 8.192.4.2 `void emAfPageRequestTimerExpired ( void )`
- 8.192.4.3 `bool emAfHandlingPageRequestClient ( void )`
- 8.192.4.4 `EmAfPageRequestClientStatus emAfGetCurrentPageRequestStatus ( void )`
- 8.192.4.5 `EmAfPageRequestClientStatus emAfNoteReceivedBlockForPageRequestClient ( uint32_t offset )`
- 8.192.4.6 `EmAfPageRequestClientStatus emAfNextMissedBlockRequestOffset ( uint32_t * nextOffset )`
- 8.192.4.7 `uint32_t emAfGetPageRequestMissedPacketDelayMs ( void )`
- 8.192.4.8 `uint32_t emAfGetFinishedPageRequestOffset ( void )`
- 8.192.4.9 `void emAfAbortPageRequest ( void )`

#### 8.193 ota-client-page-request.h

```

00001 /**
00002  * ota-client-page-request.h
00003 */
00004 /* Zigbee Over-the-air bootload cluster for upgrading firmware and
00005  * downloading device specific file.
00006  * This file handles the page request feature for the client.
00007 */
00008 /* Copyright 2010 by Ember Corporation. All rights reserved.
00009 */
00010
00011 enum {
00012     EM_AF_NO_PAGE_REQUEST = 0,
00013     EM_AF_WAITING_PAGE_REQUEST_REPLIES = 1,
00014     EM_AF_RETRY_MISSED_PACKETS = 2,
00015     EM_AF_PAGE_REQUEST_COMPLETE = 3,
00016     EM_AF_BLOCK_ALREADY_RECEIVED = 4,
00017     EM_AF_PAGE_REQUEST_ERROR = 0xFF
00018 };
00019 typedef uint8_t EmAfPageRequestClientStatus;
00020
00021 #define EM_AF_PAGE_REQUEST_BLOCK_SIZE 32
00022
00023 // This routine returns a timer indicating how long we should wait for
00024 // the page request responses to come in. 0 if there was an error.
00025 uint32_t emAfInitPageRequestClient(uint32_t
00026                                     offsetForPageRequest,
00027                                     uint32_t totalImageSize);
00028 void emAfPageRequestTimerExpired(void);
00029 bool emAfHandlingPageRequestClient(void);
00030 EmAfPageRequestClientStatus
00031 EmAfPageRequestClientStatus
00032     emAfNoteReceivedBlockForPageRequestClient
00033     (uint32_t offset);
00034 EmAfPageRequestClientStatus
00035     emAfNextMissedBlockRequestOffset (uint32_t*
00036                                     nextOffset);
00037
00038 uint32_t emAfGetPageRequestMissedPacketDelayMs
00039     (void);
00040 uint32_t emAfGetFinishedPageRequestOffset (void)

```

```

;
00035 void emAfAbortPageRequest(void);
00036
00037

```

## 8.194 ota-client-policy.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_POLICY\_IMAGE\_TYPE\_ID
- #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_POLICY\_FIRMWARE\_VERSION
- #define SECONDS\_IN\_MS
- #define MINUTES\_IN\_MS
- #define HOURS\_IN\_MS
- #define EMBER\_AF\_INVALID\_HARDWARE\_VERSION
- #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_POLICY\_HARDWARE\_VERSION

#### 8.194.1 Macro Definition Documentation

##### 8.194.1.1 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_POLICY\_IMAGE\_TYPE\_ID

Definition at line 17 of file [ota-client-policy.h](#).

##### 8.194.1.2 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_POLICY\_FIRMWARE\_VERSION

Definition at line 21 of file [ota-client-policy.h](#).

##### 8.194.1.3 #define SECONDS\_IN\_MS

Definition at line 24 of file [ota-client-policy.h](#).

##### 8.194.1.4 #define MINUTES\_IN\_MS

Definition at line 25 of file [ota-client-policy.h](#).

##### 8.194.1.5 #define HOURS\_IN\_MS

Definition at line 26 of file [ota-client-policy.h](#).

##### 8.194.1.6 #define EMBER\_AF\_INVALID\_HARDWARE\_VERSION

Definition at line 33 of file [ota-client-policy.h](#).

##### 8.194.1.7 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_POLICY\_HARDWARE\_VERSION

Definition at line 35 of file [ota-client-policy.h](#).

## 8.195 ota-client-policy.h

```

00001 // ****
00002 // * ota-client-policy.h
00003 // *
00004 // * Config for Zigbee Over-the-air bootload cluster for upgrading firmware and
00005 // * downloading device specific file.
00006 // *
00007 // * This file defines the interface for the customer's application to
00008 // * control the behavior of the OTA client.
00009 // *
00010 // * Copyright 2009 by Ember Corporation. All rights reserved.
00011 // *80*
00012 //
00013
00014 // Note: EMBER_AF_MANUFACTURER_CODE defined in client's config
00015
00016 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_POLICY_IMAGE_TYPE_ID)
00017     #define EMBER_AF_PLUGIN_OTA_CLIENT_POLICY_IMAGE_TYPE_ID      0x5678
00018 #endif
00019
00020 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_POLICY_FIRMWARE_VERSION)
00021     #define EMBER_AF_PLUGIN_OTA_CLIENT_POLICY_FIRMWARE_VERSION 0x00000005L
00022 #endif
00023
00024 #define SECONDS_IN_MS (1000L)
00025 #define MINUTES_IN_MS (60 * SECONDS_IN_MS)
00026 #define HOURS_IN_MS (60 * MINUTES_IN_MS)
00027
00028 // By default if hardware version is not defined, it is not used.
00029 // Most products do not limit upgrade images based on the version.
00030 // Instead they have different images for different hardware. However
00031 // this can provide support for an image that only supports certain hardware
00032 // revision numbers.
00033 #define EMBER_AF_INVALID_HARDWARE_VERSION 0xFFFF
00034 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_POLICY_HARDWARE_VERSION)
00035     #define EMBER_AF_PLUGIN_OTA_CLIENT_POLICY_HARDWARE_VERSION
00036         EMBER_AF_INVALID_HARDWARE_VERSION
00036 #endif

```

## 8.196 ota-client-signature-verify.h File Reference

### Macros

- `#define MAX_DIGEST_CALCULATIONS_PER_CALL`

### Functions

- `EmberAfImageVerifyStatus emAfOtaImageSignatureVerify (uint16_t maxHashCalculations, const EmberAfOtaImageId *id, bool newVerification)`
- `void emAfOtaVerifyStoredDataFinish (EmberAfImageVerifyStatus status)`
- `void emAfOtaClientSignatureVerifyPrintSigners (void)`

### 8.196.1 Macro Definition Documentation

#### 8.196.1.1 `#define MAX_DIGEST_CALCULATIONS_PER_CALL`

Definition at line 27 of file `ota-client-signature-verify.h`.

## 8.196.2 Function Documentation

- 8.196.2.1 `EmberAfImageVerifyStatus emAfOtaImageSignatureVerify ( uint16_t maxHashCalculations, const EmberAfOtaImageId * id, bool newVerification )`
- 8.196.2.2 `void emAfOtaVerifyStoredDataFinish ( EmberAfImageVerifyStatus status )`
- 8.196.2.3 `void emAfOtaClientSignatureVerifyPrintSigners ( void )`

## 8.197 ota-client-signature-verify.h

```

00001
00002
00003 // Hashing a file can be expensive for small processors. The
00004 // determines how many iterations are made before returning back to the caller.
00005 // A value of 0 indicates to completely calculate the digest before returning.
00006 // A value greater than 0 means that a number of hashes will be performed and
00007 // then the routine will return EMBER_AF_IMAGE_VERIFY_IN_PROGRESS. In that
00008 // case it is expected that this function must be called repeatedly until it
00009 // returns another status code.
00010 // When EMBER_AF_IMAGE_VERIFY_WAIT is returned then no further calls
00011 // are necessary. The verify code will fire the callback
00012 // emAfOtaVerifyStoredDataFinish() when it has a result.
00013 EmberAfImageVerifyStatus emAfOtaImageSignatureVerify
00014     (uint16_t maxHashCalculations,
00015             const EmberAfOtaImageId
00016             * id,
00017             bool newVerification);
00018
00019 // This is the maximum number of digest calculations we perform per call to
00020 // emAfOtaImageSignatureVerify(). Arbitrary chosen value to limit
00021 // time spent in this routine. A value of 0 means we will NOT return
00022 // until we are completely done with our digest calculations.
00023 // Empirically waiting until digest calculations are complete can
00024 // take quite a while for EZSP hosts (~40 seconds for a UART connected host).
00025 // So we want to make sure that other parts of the framework can run during
00026 // this time. On SOC systems a similar problem occurs. If we set this to 0
00027 // then emberTick() will not fire and therefore the watchdog timer will not be
00028 // serviced.
00029 #define MAX_DIGEST_CALCULATIONS_PER_CALL 5
00030
00031 void emAfOtaVerifyStoredDataFinish(
00032     EmberAfImageVerifyStatus status);
00033 void emAfOtaClientSignatureVerifyPrintSigners
00034     (void);

```

## 8.198 ota-client.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_OTA_CLIENT_DOWNLOAD_DELAY_MS`
- `#define EMBER_AF_OTA_SERVER_DISCOVERY_DELAY_MS`
- `#define EMBER_AF_OTA_QUERY_DELAY_MS`
- `#define EMBER_AF_PLUGIN_OTA_CLIENT_QUERY_ERROR_THRESHOLD`
- `#define EMBER_AF_PLUGIN_OTA_CLIENT_DOWNLOAD_ERROR_THRESHOLD`
- `#define EMBER_AF_RUN_UPGRADE_REQUEST_DELAY_MS`
- `#define EMBER_AF_PLUGIN_OTA_CLIENT_UPGRADE_WAIT_THRESHOLD`
- `#define EMBER_AF_PLUGIN_OTA_CLIENT_PAGE_REQUEST_SIZE`
- `#define EMBER_AF_OTA_CLIENT_PAGE_REQUEST_SPACING_MS`
- `#define EMBER_AF_PLUGIN_OTA_CLIENT_VERIFY_DELAY_MS`

- #define `NULL_EUI64`
- #define `EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI0`
- #define `EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI1`
- #define `EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI2`

## Functions

- void `emAfOtaClientStop` (void)
- void `emAfOtaClientPrintState` (void)
- void `emAfSendImageBlockRequestTest` (void)
- void `emAfSetPageRequest` (bool pageRequest)
- bool `emAfUsingPageRequest` (void)
- void `emAfOtaBootloadClusterClientResumeAfterErase` (bool success)
- void `emberAfOtaServerSendUpgradeRequest` ()

## Variables

- uint8\_t `emAfOtaClientStopDownloadPercentage`

### 8.198.1 Macro Definition Documentation

#### 8.198.1.1 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_DOWNLOAD\_DELAY\_MS

Definition at line 15 of file `ota-client.h`.

#### 8.198.1.2 #define EMBER\_AF\_OTA\_SERVER\_DISCOVERY\_DELAY\_MS

Definition at line 25 of file `ota-client.h`.

#### 8.198.1.3 #define EMBER\_AF\_OTA\_QUERY\_DELAY\_MS

Definition at line 34 of file `ota-client.h`.

#### 8.198.1.4 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_QUERY\_ERROR\_THRESHOLD

Definition at line 40 of file `ota-client.h`.

#### 8.198.1.5 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_DOWNLOAD\_ERROR\_THRESHOLD

Definition at line 46 of file `ota-client.h`.

#### 8.198.1.6 #define EMBER\_AF\_RUN\_UPGRADE\_REQUEST\_DELAY\_MS

Definition at line 55 of file `ota-client.h`.

8.198.1.7 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_UPGRADE\_WAIT\_THRESHOLD

Definition at line 62 of file [ota-client.h](#).

8.198.1.8 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_PAGE\_REQUEST\_SIZE

Definition at line 66 of file [ota-client.h](#).

8.198.1.9 #define EMBER\_AF\_OTA\_CLIENT\_PAGE\_REQUEST\_SPACING\_MS

Definition at line 72 of file [ota-client.h](#).

8.198.1.10 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_VERIFY\_DELAY\_MS

Definition at line 80 of file [ota-client.h](#).

8.198.1.11 #define NULL\_EUI64

Definition at line 83 of file [ota-client.h](#).

8.198.1.12 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_SIGNER\_EUI0

Definition at line 87 of file [ota-client.h](#).

8.198.1.13 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_SIGNER\_EUI1

Definition at line 91 of file [ota-client.h](#).

8.198.1.14 #define EMBER\_AF\_PLUGIN\_OTA\_CLIENT\_SIGNER\_EUI2

Definition at line 95 of file [ota-client.h](#).

## 8.198.2 Function Documentation

8.198.2.1 void emAfOtaClientStop ( void )

8.198.2.2 void emAfOtaClientPrintState ( void )

8.198.2.3 void emAfSendImageBlockRequestTest ( void )

8.198.2.4 void emAfSetPageRequest ( bool *pageRequest* )

8.198.2.5 bool emAfUsingPageRequest ( void )

8.198.2.6 void emAfOtaBootloadClusterClientResumeAfterErase ( bool *success* )

8.198.2.7 void emberAfOtaServerSendUpgradeRequest ( )

### 8.198.3 Variable Documentation

#### 8.198.3.1 uint8\_t emAfOtaClientStopDownloadPercentage

## 8.199 ota-client.h

```

00001
00002 void emAfOtaClientStop(void);
00003 void emAfOtaClientPrintState(void);
00004 void emAfSendImageBlockRequestTest(void);
00005
00006 void emAfSetPageRequest(bool pageRequest);
00007 bool emAfUsingPageRequest(void);
00008
00009 void emAfOtaBootloadClusterClientResumeAfterErase
    (bool success);
00010
00011 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_DOWNLOAD_DELAY_MS)
00012     // How often the client will ask for a piece of an upgrade image being
00013     // actively downloaded. A rate of 0 means the client will pull down the data
00014     // as fast as it can.
00015     #define EMBER_AF_PLUGIN_OTA_CLIENT_DOWNLOAD_DELAY_MS 0L
00016 #endif
00017
00018 // How often the OTA client looks for an OTA server when there is NOT
00019 // one present in the network. Once it has found one, it queries the
00020 // same one forever (or until it reboots).
00021 #if defined(EMBER_AF_PLUGIN_OTA_CLIENT_SERVER_DISCOVERY_DELAY_MINUTES)
00022     #define EMBER_AF_OTA_SERVER_DISCOVERY_DELAY_MS \
00023         (EMBER_AF_PLUGIN_OTA_CLIENT_SERVER_DISCOVERY_DELAY_MINUTES * MINUTES_IN_MS)
00024 #else
00025     #define EMBER_AF_OTA_SERVER_DISCOVERY_DELAY_MS      (2 * MINUTES_IN_MS)
00026 #endif
00027
00028 // How often the OTA client asks the OTA server if there is a new image
00029 // available
00030 #if defined(EMBER_AF_PLUGIN_OTA_CLIENT_QUERY_DELAY_MINUTES)
00031     #define EMBER_AF_OTA_QUERY_DELAY_MS \
00032         (EMBER_AF_PLUGIN_OTA_CLIENT_QUERY_DELAY_MINUTES * MINUTES_IN_MS)
00033 #else
00034     #define EMBER_AF_OTA_QUERY_DELAY_MS (5 * MINUTES_IN_MS)
00035 #endif
00036
00037 // The number of query errors before re-discovery of an OTA
00038 // server is discovered.
00039 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_QUERY_ERROR_THRESHOLD)
00040     #define EMBER_AF_PLUGIN_OTA_CLIENT_QUERY_ERROR_THRESHOLD 10
00041 #endif
00042
00043 // The maximum number of sequential errors when downloading that will trigger
00044 // the OTA client to abort the download.
00045 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_DOWNLOAD_ERROR_THRESHOLD)
00046     #define EMBER_AF_PLUGIN_OTA_CLIENT_DOWNLOAD_ERROR_THRESHOLD 10
00047 #endif
00048
00049 // The delay between attempts to request to initiate the bootload
00050 // of a successfully downloaded file.
00051 #if defined(EMBER_AF_PLUGIN_OTA_CLIENT_RUN_UPGRADE_REQUEST_DELAY_MINUTES)
00052     #define EMBER_AF_RUN_UPGRADE_REQUEST_DELAY_MS \
00053         (EMBER_AF_PLUGIN_OTA_CLIENT_RUN_UPGRADE_REQUEST_DELAY_MINUTES * \
00054             MINUTES_IN_MS)
00055 #else
00056     #define EMBER_AF_RUN_UPGRADE_REQUEST_DELAY_MS (10 * MINUTES_IN_MS)
00057 #endif
00058 // The maximum number of sequential errors when asking the OTA Server when to
00059 // upgrade that will cause the OTA client to apply the upgrade without the
00060 // server telling it to do so.
00061 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_UPGRADE_WAIT_THRESHOLD)
00062     #define EMBER_AF_PLUGIN_OTA_CLIENT_UPGRADE_WAIT_THRESHOLD 10
00063 #endif
00064
00065 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_PAGE_REQUEST_SIZE)
00066     #define EMBER_AF_PLUGIN_OTA_CLIENT_PAGE_REQUEST_SIZE 1024
00067 #endif
00068

```

```

00069 // The spacing requested by the client between the image blocks sent by the
00070 // server to the client during a page request.
00071 #if !defined(EMBER_AF_OTA_CLIENT_PAGE_REQUEST_SPACING_MS)
00072     #define EMBER_AF_OTA_CLIENT_PAGE_REQUEST_SPACING_MS 50L
00073 #endif
00074
00075 // This is the time delay between calls to emAfOtaImageDownloadVerify().
00076 // Verification can take a while (especially in the case of signature
00077 // checking for Smart Energy) so this provides the ability for other
00078 // parts of the system to run.
00079 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_VERIFY_DELAY_MS)
00080     #define EMBER_AF_PLUGIN_OTA_CLIENT_VERIFY_DELAY_MS    10L
00081 #endif
00082
00083 #define NULL_EUI64 { 0, 0, 0, 0, 0, 0, 0, 0 }
00084
00085 // A NULL eui64 is an invalid signer. It will never match.
00086 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI0)
00087     #define EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI0 NULL_EUI64
00088 #endif
00089
00090 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI1)
00091     #define EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI1 NULL_EUI64
00092 #endif
00093
00094 #if !defined(EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI2)
00095     #define EMBER_AF_PLUGIN_OTA_CLIENT_SIGNER_EUI2 NULL_EUI64
00096 #endif
00097
00098
00099 // TODO: ungate this when the facilities are in place to do so
00100 // for generated CLI
00101 //#if defined(EMBER_TEST)
00102 extern uint8_t emAfOtaClientStopDownloadPercentage
00103 ;
00104 //#endif
00105 void emberAfOtaServerSendUpgradeRequest();

```

## 8.200 ota-server-policy.h File Reference

### Functions

- void [emAfOtaServerPolicyPrint](#) (void)
- void [emAfOtaServerSetQueryPolicy](#) (uint8\_t value)
- void [emAfOtaServerSetBlockRequestPolicy](#) (uint8\_t value)
- void [emAfOtaServerSetUpgradePolicy](#) (uint8\_t value)
- bool [emAfServerPageRequestTickCallback](#) (uint16\_t relativeOffset, uint8\_t blockSize)
- void [emAfSetPageRequestMissedBlockModulus](#) (uint16\_t modulus)
- void [emAfOtaServerSetPageRequestPolicy](#) (uint8\_t value)
- void [emAfOtaServerPolicySetMinBlockRequestPeriod](#) (uint16\_t minBlockRequestPeriodMS)
- uint8\_t [emAfOtaServerImageBlockRequestCallback](#) (EmberAfImageBlockRequestCallbackStruct \*data)

### 8.200.1 Function Documentation

**8.200.1.1 void emAfOtaServerPolicyPrint ( void )**

**8.200.1.2 void emAfOtaServerSetQueryPolicy ( uint8\_t value )**

**8.200.1.3 void emAfOtaServerSetBlockRequestPolicy ( uint8\_t value )**

**8.200.1.4 void emAfOtaServerSetUpgradePolicy ( uint8\_t value )**

- 8.200.1.5 bool emAfServerPageRequestTickCallback ( uint16\_t *relativeOffset*, uint8\_t *blockSize* )
- 8.200.1.6 void emAfSetPageRequestMissedBlockModulus ( uint16\_t *modulus* )
- 8.200.1.7 void emAfOtaServerSetPageRequestPolicy ( uint8\_t *value* )
- 8.200.1.8 void emAfOtaServerPolicySetMinBlockRequestPeriod ( uint16\_t *minBlockRequestPeriodMS* )
- 8.200.1.9 uint8\_t emAfOtaServerImageBlockRequestCallback ( EmberAfImageBlockRequestCallbackStruct \* *data* )

## 8.201 ota-server-policy.h

```

00001 // ****
00002 // * ota-server-policy.h
00003 // *
00004 // * A sample policy file that implements the callbacks for the
00005 // * Zigbee Over-the-air bootload cluster server.
00006 // *
00007 // * Copyright 2010 by Ember Corporation. All rights reserved.
00008 // ****
00009
00010 void emAfOtaServerPolicyPrint(void);
00011
00012 void emAfOtaServerSetQueryPolicy(uint8_t value);
00013 void emAfOtaServerSetBlockRequestPolicy(
    uint8_t value);
00014 void emAfOtaServerSetUpgradePolicy(uint8_t value);
00015
00016 bool emAfServerPageRequestTickCallback(
    uint16_t relativeOffset, uint8_t blockSize);
00017 void emAfSetPageRequestMissedBlockModulus(
    uint16_t modulus);
00018 void emAfOtaServerSetPageRequestPolicy(uint8_t
    value);
00019 void emAfOtaServerPolicySetMinBlockRequestPeriod
    (uint16_t minBlockRequestPeriodMS);
00020 uint8_t emAfOtaServerImageBlockRequestCallback
    (EmberAfImageBlockRequestCallbackStruct *
    data);

```

## 8.202 ota-server.h File Reference

### Functions

- uint8\_t **emAfOtaServerGetBlockSize** (void)
- uint8\_t **emAfOtaImageBlockRequestHandler** (EmberAfImageBlockRequestCallbackStruct \*callbackData)
- bool **emAfOtaPageRequestErrorHandler** (void)
- void **emAfOtaPageRequestTick** (uint8\_t endpoint)
- uint8\_t **emAfOtaPageRequestHandler** (uint8\_t clientEndpoint, uint8\_t serverEndpoint, const EmberAfOtaImageId \*id, uint32\_t offset, uint8\_t maxDataSize, uint16\_t pageSize, uint16\_t responseSpacing)
- bool **emAfOtaServerHandlingPageRequest** (void)
- void **emberAfOtaServerSendUpgradeCommandCallback** (EmberNodeId dest, uint8\_t endpoint, const EmberAfOtaImageId \*id)

### 8.202.1 Function Documentation

- 8.202.1.1 `uint8_t emAfOtaServerGetBlockSize ( void )`
- 8.202.1.2 `uint8_t emAfOtaImageBlockRequestHandler ( EmberAfImageBlockRequestCallbackStruct * callbackData )`
- 8.202.1.3 `bool emAfOtaPageRequestErrorHandler ( void )`
- 8.202.1.4 `void emAfOtaPageRequestTick ( uint8_t endpoint )`
- 8.202.1.5 `uint8_t emAfOtaPageRequestHandler ( uint8_t clientEndpoint, uint8_t serverEndpoint, const EmberAfOtaImageId * id, uint32_t offset, uint8_t maxPageSize, uint16_t pageSize, uint16_t responseSpacing )`
- 8.202.1.6 `bool emAfOtaServerHandlingPageRequest ( void )`
- 8.202.1.7 `void emberAfOtaServerSendUpgradeCommandCallback ( EmberNodeId dest, uint8_t endpoint, const EmberAfOtaImageId * id )`

## 8.203 ota-server.h

```

0001 // ****
0002 /* ota-server.h
0003 */
0004 /*
0005 * Copyright 2010 by Ember Corporation. All rights reserved.
0006 */
0007
0008 uint8_t emAfOtaServerGetBlockSize(void);
0009 uint8_t emAfOtaImageBlockRequestHandler(
0010     EmberAfImageBlockRequestCallbackStruct*
0011     callbackData);
0012
0013 bool emAfOtaPageRequestErrorHandler(void);
0014
0015 void emAfOtaPageRequestTick(uint8_t endpoint);
0016
0017 // Returns the status code to the request.
0018 uint8_t emAfOtaPageRequestHandler(uint8_t
0019     clientEndpoint,
0020             uint8_t serverEndpoint,
0021             const EmberAfOtaImageId* id,
0022             uint32_t offset,
0023             uint8_t maxPageSize,
0024             uint16_t pageSize,
0025             uint16_t responseSpacing);
0026
0027 bool emAfOtaServerHandlingPageRequest(void);
0028
0029 // This will eventually be moved into a Plugin specific callbacks file.
0030 void emberAfOtaServerSendUpgradeCommandCallback
0031     (EmberNodeId dest,
0032             uint8_t endpoint,
0033             const EmberAfOtaImageId
0034             * id);
0035
0036 #if defined(EMBER_TEST) && !defined(EM_AF_TEST_HARNESS_CODE)
0037     #define EM_AF_TEST_HARNESS_CODE
0038 #endif
0039

```

## 8.204 ota-static-file-data.h File Reference

### Macros

- #define STATIC\_IMAGE\_DATA
- #define STATIC\_IMAGE\_DATA\_SIZE

#### 8.204.1 Macro Definition Documentation

##### 8.204.1.1 #define STATIC\_IMAGE\_DATA

Definition at line 47 of file [ota-static-file-data.h](#).

##### 8.204.1.2 #define STATIC\_IMAGE\_DATA\_SIZE

Definition at line 73 of file [ota-static-file-data.h](#).

## 8.205 ota-static-file-data.h

```

00001 // Auto-generated C header created by ota-static-file.pl
00002 // Input file:
00003 //   app/framework/plugin/ota-storage-simple-ram/ota-static-sample.ota
00004 //   image-builder (C) 2010 by Ember Corporation.
00005 //   Version: 1.0
00006 //   ECC signature support present.
00007 //
00008 //
00009 //   File: app/framework/plugin/ota-storage-simple-ram/ota-static-sample.ota
00010 //   Magic Number:          0x0BEEF11E
00011 //   Header Version:       0x0100
00012 //   Header Length:        56 bytes
00013 //   Field Control:        0x0000
00014 //   Manufacturer ID:     0x1002
00015 //   Image Type:           0x5678
00016 //   Firmware Version:    0x00000005
00017 //   Stack Version:         0x0002
00018 //   Header String:        The latest and greatest upgrade.
00019 //   Total Image Size:     182 bytes
00020 //   Total Tags:            3
00021 //   ID:                  0xF000  (Manufacturer Specific)
00022 //   Length:                10 bytes
00023 //
00024 //   ID:                  0x0002  (ECDSA Signing Certificate)
00025 //   Length:                48 bytes
00026 //   Subject: (>)000D6F0000198B36
00027 //   Issuer:  (>)5445535453454341 (Certicom TEST CA)
00028 //
00029 //   ID:                  0x0001  (ECDSA Signature)
00030 //   Length:                50 bytes
00031 //   Signer:  (>)000D6F0000198B36
00032 //   Data:      01C2C31CB8C40064 EABB3189AD8969EA
00033 //               C25893183A023BD2 8D5FB2134D3E07B9
00034 //               2E06A258E478D20C 7ACC
00035 //
00036 //
00037 //   Using Certicom TEST CA issued certificate.
00038 //
00039 //   Message Digest: E26A886E8030458DA084586F2DCB08A2
00040 //
00041 //   Signature is valid
00042 //
00043 //
00044 //   Found 1 files.
00045

```

```

00046
00047 #define STATIC_IMAGE_DATA { \
00048 0x1e, 0xf1, 0xee, 0xb, 0x0, 0x1, 0x38, 0x0, \
00049 0x0, 0x0, 0x2, 0x10, 0x78, 0x56, 0x5, 0x0, \
00050 0x0, 0x0, 0x2, 0x0, 0x54, 0x68, 0x65, 0x20, \
00051 0x6c, 0x61, 0x74, 0x65, 0x73, 0x74, 0x20, 0x61, \
00052 0x6e, 0x64, 0x20, 0x67, 0x72, 0x65, 0x61, 0x74, \
00053 0x65, 0x73, 0x74, 0x20, 0x75, 0x70, 0x67, 0x72, \
00054 0x61, 0x64, 0x65, 0x2e, 0xb6, 0x0, 0x0, 0x0, \
00055 0x0, 0xF0, 0xa, 0x0, 0x0, 0x0, 0x0, 0x0, 0x01, \
00056 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08, 0x09, \
00057 0x02, 0x00, 0x30, 0x0, 0x0, 0x0, 0x03, 0x07, \
00058 0x79, 0x29, 0x47, 0xb3, 0x85, 0xa, 0x95, 0x85, \
00059 0xbff, 0x8e, 0x25, 0xc1, 0x9d, 0x8e, 0x86, 0x78, \
00060 0x43, 0x4f, 0x58, 0x36, 0x0, 0x0d, 0x6f, 0x0, \
00061 0x0, 0x19, 0xb8, 0x36, 0x54, 0x45, 0x53, 0x54, \
00062 0x53, 0x45, 0x43, 0x41, 0x01, 0x09, 0x0, 0x0, \
00063 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, 0x0, \
00064 0x32, 0x0, 0x0, 0x0, 0x36, 0x8b, 0x19, 0x0, \
00065 0x0, 0x6f, 0xd, 0x0, 0x0, 0x1, 0xc2, 0xc3, 0x1c, \
00066 0xb8, 0xc4, 0x0, 0x64, 0xea, 0xbb, 0x31, 0x89, \
00067 0xad, 0x89, 0x69, 0xea, 0xc2, 0x58, 0x93, 0x18, \
00068 0x3a, 0x02, 0x3b, 0xd2, 0x8d, 0x5f, 0xb2, 0x13, \
00069 0x4d, 0x3e, 0x07, 0xb9, 0x2e, 0x06, 0xa2, 0x58, \
00070 0xe4, 0x78, 0xd2, 0x0c, 0x7a, 0xcc, \
00071 }
00072
00073 #define STATIC_IMAGE_DATA_SIZE 182L

```

## 8.206 ota-storage-eeprom.h File Reference

### Macros

- #define SOC\_BOOTLOADING\_SUPPORT\_ENABLED
- #define SOC\_BOOTLOADING\_SUPPORT\_TEXT
- #define READ MODIFY\_WRITE SUPPORT\_TEXT
- #define EEPROM\_START
- #define EEPROM\_END
- #define SAVE\_RATE
- #define MAX\_IMAGE\_INFO\_AND\_OTA\_HEADER\_SIZE
- #define IMAGE\_INFO\_START
- #define MAGIC\_NUMBER\_INDEX
- #define MAGIC\_NUMBER\_SIZE
- #define VERSION\_NUMBER\_INDEX
- #define VERSION\_NUMBER\_SIZE
- #define MAGIC\_NUMBER
- #define VERSION\_NUMBER
- #define EBL\_START\_OFFSET\_INDEX
- #define EBL\_START\_OFFSET\_SIZE
- #define SAVED\_DOWNLOAD\_OFFSET\_INDEX
- #define MAX\_BYTEMASK\_LENGTH
- #define OTA\_HEADER\_INDEX
- #define MINIMUM\_FILE\_SIZE\_TO\_STORE\_OFFSET
- #define debugPrint(...)
- #define debugFlush()

## Functions

- void `emAfOtaStorageWriteInt32uToEeprom` (uint32\_t value, uint32\_t realOffset)
- uint32\_t `emAfOtaStorageReadInt32uFromEeprom` (uint32\_t realOffset)
- void `emAfStorageEepromUpdateDownloadOffset` (uint32\_t offset, bool finalOffset)
- bool `emAfOtaStorageDriverGetRealOffset` (uint32\_t \*offset, uint32\_t \*length)
- bool `emAfOtaStorageCheckDownloadMetaData` (void)
- void `emAfOtaStorageWriteDownloadMetaData` (void)
- void `emAfOtaStorageEepromInit` (void)
- uint8\_t `emAfOtaStorageDriverGetWordSize` (void)

## Variables

- EmberEventControl `emberAfPluginOtaStorageSimpleEepromPageEraseEventControl`

### 8.206.1 Macro Definition Documentation

#### 8.206.1.1 #define SOC\_BOOTLOADING\_SUPPORT\_ENABLED

Definition at line [97](#) of file `ota-storage-eeprom.h`.

#### 8.206.1.2 #define SOC\_BOOTLOADING\_SUPPORT\_TEXT

Definition at line [98](#) of file `ota-storage-eeprom.h`.

#### 8.206.1.3 #define READ MODIFY WRITE SUPPORT\_TEXT

Definition at line [104](#) of file `ota-storage-eeprom.h`.

#### 8.206.1.4 #define EEPROM\_START

Definition at line [108](#) of file `ota-storage-eeprom.h`.

#### 8.206.1.5 #define EEPROM\_END

Definition at line [109](#) of file `ota-storage-eeprom.h`.

#### 8.206.1.6 #define SAVE\_RATE

Definition at line [110](#) of file `ota-storage-eeprom.h`.

#### 8.206.1.7 #define MAX\_IMAGE\_INFO\_AND\_OTA\_HEADER\_SIZE

Definition at line [116](#) of file `ota-storage-eeprom.h`.

**8.206.1.8 #define IMAGE\_INFO\_START**

Definition at line 120 of file [ota-storage-eeprom.h](#).

**8.206.1.9 #define MAGIC\_NUMBER\_INDEX**

Definition at line 125 of file [ota-storage-eeprom.h](#).

**8.206.1.10 #define MAGIC\_NUMBER\_SIZE**

Definition at line 126 of file [ota-storage-eeprom.h](#).

**8.206.1.11 #define VERSION\_NUMBER\_INDEX**

Definition at line 127 of file [ota-storage-eeprom.h](#).

**8.206.1.12 #define VERSION\_NUMBER\_SIZE**

Definition at line 128 of file [ota-storage-eeprom.h](#).

**8.206.1.13 #define MAGIC\_NUMBER**

Definition at line 133 of file [ota-storage-eeprom.h](#).

**8.206.1.14 #define VERSION\_NUMBER**

Definition at line 140 of file [ota-storage-eeprom.h](#).

**8.206.1.15 #define EBL\_START\_OFFSET\_INDEX**

Definition at line 149 of file [ota-storage-eeprom.h](#).

**8.206.1.16 #define EBL\_START\_OFFSET\_SIZE**

Definition at line 150 of file [ota-storage-eeprom.h](#).

**8.206.1.17 #define SAVED\_DOWNLOAD\_OFFSET\_INDEX**

Definition at line 157 of file [ota-storage-eeprom.h](#).

**8.206.1.18 #define MAX\_BYTEMASK\_LENGTH**

Definition at line 171 of file [ota-storage-eeprom.h](#).

**8.206.1.19 #define OTA\_HEADER\_INDEX**

Definition at line 173 of file [ota-storage-eeprom.h](#).

**8.206.1.20 #define MINIMUM\_FILE\_SIZE\_TO\_STORE\_OFFSET**

Definition at line 177 of file [ota-storage-eeprom.h](#).

**8.206.1.21 #define debugPrint( ... )**

Definition at line 204 of file [ota-storage-eeprom.h](#).

**8.206.1.22 #define debugFlush( )**

Definition at line 205 of file [ota-storage-eeprom.h](#).

**8.206.2 Function Documentation****8.206.2.1 void emAfOtaStorageWriteInt32uToEeprom ( uint32\_t value, uint32\_t realOffset )****8.206.2.2 uint32\_t emAfOtaStorageReadInt32uFromEeprom ( uint32\_t realOffset )****8.206.2.3 void emAfStorageEepromUpdateDownloadOffset ( uint32\_t offset, bool finalOffset )****8.206.2.4 bool emAfOtaStorageDriverGetRealOffset ( uint32\_t \* offset, uint32\_t \* length )****8.206.2.5 bool emAfOtaStorageCheckDownloadMetaData ( void )****8.206.2.6 void emAfOtaStorageWriteDownloadMetaData ( void )****8.206.2.7 void emAfOtaStorageEepromInit ( void )****8.206.2.8 uint8\_t emAfOtaStorageDriverGetWordSize ( void )****8.206.3 Variable Documentation****8.206.3.1 EmberEventControl emberAfPluginOtaStorageSimpleEepromPageEraseEventControl****8.207 ota-storage-eeprom.h**

```

0001 // Layout of the EEPROM data for OTA is dependent upon whether SOC Bootloading
      support is
0002 // enabled. When it is NOT enabled, the layout of data is pretty
0003 // straightforward:
0004
0005 // LAYOUT 1
0006 //
0007 // EEPROM Start          -----
0008 // Image Info Meta-data |   Info   |
0009 //                      -----
0010 // OTA Header (offset 0 for the |   OTA   |
0011 //           OTA storage module) |   Header  |
0012 //                                -----
0013 // Rest of OTA image          |         |

```

```

00014 // (upgrade image data)           |   EBL    |
00015 //                                |   +     |
00016 //                                | Signature |
00017 // End of OTA image              -----
00018 //
00019 // ... (unused) ...
00020 //
00021 // EEPROM End                  -----
00022
00023
00024 // For SOC Bootloading, we must put the EBL at the top of the EEPROM
00025 // since existing bootloaders have no knowledge of OTA headers.
00026
00027 // LAYOUT 2
00028 //
00029 // EEPROM Start                -----
00030 // Beginning of EBL file       |   EBL    |
00031 // (upgrade image data)       |   +     |
00032 //
00033 // End of EBL data            |
00034 //
00035 // Other OTA image data      |   Signature |
00036 // (e.g. signature)          |
00037 //
00038 // End of OTA image          -----
00039 //
00040 // ... (unused) ...
00041 //
00042 //
00043 // Image Info Meta-data     |   Info   |
00044 //
00045 // OTA Header (offset 0 for the |   OTA    |
00046 //             OTA storage module) |   Header  |
00047 // ...extra space...
00048 // EEPROM End                 -----
00049
00050
00051 // The Image Info Meta-data is DIFFERENT than previous versions of this plugin.
00052 // The meta-data NOW contains the following data:
00053 //   Ember Magic Number (8 bytes)
00054 //     [different than the OTA file magic number]
00055 //   Version Tag (2 bytes)
00056 //   EBL Start offset within OTA file (4 bytes)
00057 //   Saved Download Offset data (100 bytes)
00058 //     This comes in 2 flavors:
00059 //       1. For read-modify-write flash drivers this will be a simple 4-byte
00060 //           counter indicating the last downloaded offset. It will only be
00061 //           updated
00062 //           based on the plugin option...
00063 //           EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_DOWNLOAD_OFFSET_SAVE_RATE
00064 //           Rest of the space is unused.
00065 //     2. For flash drivers without read-modify-write support, we will use
00066 //         a byte-mask indicating the last full flash page of written data.
00067 //         The byte-mask will have negative logic (0xFF means flash page not
00068 //         downloaded) and requires one byte per page of the EEPROM space
00069 //         allocated for the OTA code.
00070 //         In other words if the client is given 200k of download space within
00071 //         the EEPROM, and a flash page is 4k, then we need 50 bytes for the
00072 //         byte-mask.
00073 #if !defined(OTA_STORAGE_EEPROM_INTERNAL_HEADER)
00074 #error "Do not include this header with files outside of app/framework/
00075 ota-storage-simple-eeprom/"
00076 #endif
00077 #if defined(EMBER_TEST)
00078 // So that we don't need separately configured applications, we play games
00079 // with the #defines generated by App Builder. We still need to compile
00080 // different applications, but that can be more easily done by passing
00081 // in -D parameters globally.
00082
00083 #if defined(EMBER_TEST_OTA_EEPROM_PAGE_ERASE)
00084 #undef EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_READ MODIFY_WRITE_SUPPORT
00085 #endif
00086
00087 #if defined(EMBER_TEST_OTA_EEPROM_SOC_BOOTLOAD)
00088 #define EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_SOC_BOOTLOADING_SUPPORT
00089 #endif
00090 #endif
00091

```

```

00092 #if defined(EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_SOC_BOOTLOADING_SUPPORT)
00093     #define SOC_BOOTLOADING_SUPPORT
00094     #define SOC_BOOTLOADING_SUPPORT_ENABLED true
00095     #define SOC_BOOTLOADING_SUPPORT_TEXT "yes"
00096 #else
00097     #define SOC_BOOTLOADING_SUPPORT_ENABLED false
00098     #define SOC_BOOTLOADING_SUPPORT_TEXT "no"
00099 #endif
00100
00101 #if
00102     defined(EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_READ MODIFY_WRITE_SUPPORT)
00103     #define READ MODIFY WRITE SUPPORT TEXT "yes"
00104 #else
00105     #define READ MODIFY WRITE SUPPORT TEXT "no"
00106 #endif
00107
00108 // I like shorter names, so redefine the App. Builder names.
00109 #define EEPROM_START EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_STORAGE_START
00110 #define EEPROM_END   EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_STORAGE_END
00110 #define SAVE_RATE
00111     EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_DOWNLOAD_OFFSET_SAVE_RATE
00112 #if
00113     defined(EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_READ MODIFY_WRITE_SUPPORT)
00114 #define READ MODIFY WRITE SUPPORT
00115     EMBER_AF_PLUGIN_OTA_STORAGE_SIMPLE_EEPROM_READ MODIFY_WRITE SUPPORT
00116 #endif
00117
00118 #define MAX_IMAGE_INFO_AND_OTA_HEADER_SIZE 1024           // bytes
00119 #if defined(SOC_BOOTLOADING_SUPPORT)
00120     #define IMAGE_INFO_START (EEPROM_END - MAX_IMAGE_INFO_AND_OTA_HEADER_SIZE)
00121 #else
00122     #define IMAGE_INFO_START (EEPROM_START)
00123 #endif
00124
00125 // The following indexes are all relative to the start of the Image Info
00126 // section
00127
00128 #define MAGIC_NUMBER_INDEX    0
00129 #define MAGIC_NUMBER_SIZE     8
00130 #define VERSION_NUMBER_INDEX (MAGIC_NUMBER_INDEX + MAGIC_NUMBER_SIZE)
00131 #define VERSION_NUMBER_SIZE    2
00132
00133 // Magic number to indicate that the stored download meta-data is valid.
00134 // Magic Number = 1-951-0200 (Ember's main phone number in hex)
00135 // Version = 0x00 0x01 (big endian).
00136 #define MAGIC_NUMBER 0x01, 0x09, 0x05, 0x01, 0x02, 0x00, 0x00
00137
00138 // Version number information
00139 // Ox0001 - Addition of the Page-erase required support
00140 // 0x0002 - Support for 2-byte word sizes (previously 1-byte was assumed)
00141 // We changed the size of the bytemask to 512 to support Local Storage.
00142 // which means bumping the version number.
00143 #define VERSION_NUMBER 0x00, 0x02
00144
00145 // The Offset within the OTA file (relative to offset 0) where the
00146 // EBL data starts. We assume EBL data starts right after the 1st
00147 // tag meta-data. However OTA headers are variable in size so we
00148 // must keep track of how big the header is.
00149 // This #define is actually the LOCATION where that offset is stored,
00150 // not the actual offset.
00151 #define EBL_START_OFFSET_INDEX      (VERSION_NUMBER_INDEX +
00152     VERSION_NUMBER_SIZE)
00153 #define EBL_START_OFFSET_SIZE       4
00154
00155 // The last recorded offset we downloaded. This may not be the same as the
00156 // value stored in RAM by the OTA cluster itself. This value will be
00157 // the absolute offset of the file, regardless of the re-mapping
00158 // this code does. It is an offset understood by the OTA storage interfaces
00159 // relative to the start of the OTA file.
00160 #define SAVED_DOWNLOAD_OFFSET_INDEX (EBL_START_OFFSET_INDEX +
00161     EBL_START_OFFSET_SIZE)
00162
00163 // If we are using a Bytemask (Page erase required mode), then this is the
00164 // maximum size.
00165 // The bytemask limits the maximum size of the download image because it
00166 // determines
00167 // how many pages we can record as "fully downloaded". This allows the code to

```

```

00162 // recover from a reboot in the middle of the download. A further complication
00163 // is
00164 // that this must be related to the word size of the EEPROM and the page size.
00165 // In a perfect world we would size this based on the part but because the
00166 // EEPROM
00167 // info is likely contained within the bootloader we can't determine this
00168 // except
00169 // at runtime. This is sized for the worst case scenario as follows:
00170 // 512k image size (3588) / 2048 page size (local storage bootloader)
00171 //      = 256 bytes * 2-byte word size = 512
00172 // Most other parts use a 2048 or 4096 page size and are not 2-byte word sizes,
00173 // so we don't need this many bytes.
00174 #define MAX_BYTEMASK_LENGTH 512
00175 #define OTA_HEADER_INDEX (SAVED_DOWNLOAD_OFFSET_INDEX + MAX_BYTEMASK_LENGTH)
00176 // The minimum offset we will write that determines if we store the current
00177 // download offset persistently. This is equal to the minimum OTA header size.
00178 #define MINIMUM_FILE_SIZE_TO_STORE_OFFSET (OTA_MINIMUM_HEADER_LENGTH)
00179
00180 void emAfOtaStorageWriteInt32uToEeprom(
00181     uint32_t value, uint32_t realOffset);
00182 uint32_t emAfOtaStorageReadInt32uFromEeprom(
00183     uint32_t realOffset);
00184 void emAfStorageEepromUpdateDownloadOffset
00185     (uint32_t offset, bool finalOffset);
00186
00187 bool emAfOtaStorageDriverGetRealOffset(
00188     uint32_t* offset,
00189                 uint32_t* length);
00190
00191 extern EmberEventControl
00192     emberAfPluginOtaStorageSimpleEepromPageEraseEventControl
00193 ;
00194
00195 bool emAfOtaStorageCheckDownloadMetaData(
00196     void);
00197 void emAfOtaStorageWriteDownloadMetaData(
00198     void);
00199 void emAfOtaStorageEepromInit(void);
00200 uint8_t emAfOtaStorageDriverGetWordSize(void);
00201
00202 #if defined(SOC_BOOTLOADING_SUPPORT)
00203 uint32_t emAfGetEblStartOffset(void);
00204 #endif
00205
00206 // Very very verbose debug printing.
00207 // #define DEBUG_PRINT
00208 #if defined(DEBUG_PRINT)
00209     #define debugPrint(...) otaPrintln(__VA_ARGS__)
00210     #define debugFlush() emberAfCoreFlush()
00211 #else
00212     #define debugPrint(...)
00213     #define debugFlush()
00214 #endif
00215
00216 // End of file.

```

## 8.208 ota-storage-linux.h File Reference

### Data Structures

- struct [EmAfOtaStorageLinuxConfig](#)

### Typedefs

- [typedef void\( EmAfOtaStorageFileAddedHandler \)](#)(const [EmberAfOtaHeader](#) \*)

## Functions

- void `emAfOtaStorageGetConfig` (`EmAfOtaStorageLinuxConfig` \*`currentConfig`)
- void `emAfOtaStorageSetConfig` (`const EmAfOtaStorageLinuxConfig` \*`newConfig`)

### 8.208.1 Typedef Documentation

#### 8.208.1.1 `typedef void( EmAfOtaStorageFileAddedHandler)(const EmberAfOtaHeader *)`

Definition at line 3 of file `ota-storage-linux.h`.

### 8.208.2 Function Documentation

#### 8.208.2.1 `void emAfOtaStorageGetConfig ( EmAfOtaStorageLinuxConfig * currentConfig )`

#### 8.208.2.2 `void emAfOtaStorageSetConfig ( const EmAfOtaStorageLinuxConfig * newConfig )`

## 8.209 ota-storage-linux.h

```
00001 // Internal definitions for the OTA storage Linux.
00002
00003 typedef void (EmAfOtaStorageFileAddedHandler) (
00004     const EmberAfOtaHeader*);
00005 typedef struct {
00006     bool memoryDebug;
00007     bool fileDebug;
00008     bool fieldDebug;
00009     bool ignoreFilesWithUnderscorePrefix;
00010     bool printFileDiscoveryOrRemoval;
00011     EmAfOtaStorageFileAddedHandler*
00012         fileAddedHandler;
00013     } EmAfOtaStorageLinuxConfig;
00014 void emAfOtaStorageGetConfig(EmAfOtaStorageLinuxConfig
00015     * currentConfig);
00016 void emAfOtaStorageSetConfig(const
00017     EmAfOtaStorageLinuxConfig* newConfig);
00018
```

## 8.210 ota-storage-ram.h File Reference

## Functions

- void `emAfOtaStorageDriverCorruptImage` (`uint16_t index`)
- `uint16_t emAfOtaStorageDriveGetImageSize` (`void`)

### 8.210.1 Function Documentation

#### 8.210.1.1 `void emAfOtaStorageDriverCorruptImage ( uint16_t index )`

#### 8.210.1.2 `uint16_t emAfOtaStorageDriveGetImageSize ( void )`

## 8.211 ota-storage-ram.h

```
00001 // Internal routines for the OTA storage RAM plugin.
00002
00003 void emAfOtaStorageDriverCorruptImage(uint16_t
index);
00004 uint16_t emAfOtaStorageDriveGetImageSize(void);
```

## 8.212 ota-storage-simple-custom.h File Reference

### Functions

- bool `emberAfCustomStorageInitCallback` (void)
- bool `emberAfCustomStorageReadCallback` (uint32\_t offset, uint32\_t length, uint8\_t \*returnData)
- bool `emberAfCustomStorageWriteCallback` (const uint8\_t \*dataToWrite, uint32\_t offset, uint32\_t length)

### 8.212.1 Function Documentation

8.212.1.1 bool `emberAfCustomStorageInitCallback` ( void )

8.212.1.2 bool `emberAfCustomStorageReadCallback` ( uint32\_t offset, uint32\_t length, uint8\_t \* returnData )

8.212.1.3 bool `emberAfCustomStorageWriteCallback` ( const uint8\_t \* dataToWrite, uint32\_t offset, uint32\_t length )

## 8.213 ota-storage-simple-custom.h

```
00001 //
***** *
00002 // * ota-storage-custom.h
00003 // *
00004 // * This defines the custom storage interface used by ota-storage-simple.c
00005 // * to interact with the actual hardware where the images are stored.
00006 // *
00007 // * Copyright 2010 by Ember Corporation. All rights reserved.
00008 // *80*
00009 //
***** *
00010 bool emberAfCustomStorageInitCallback(void);
00011 bool emberAfCustomStorageReadCallback(uint32_t
offset,
00012                               uint32_t length,
00013                               uint8_t* returnData);
00014 bool emberAfCustomStorageWriteCallback(const
00015                               uint8_t* dataToWrite,
00016                               uint32_t offset,
00017                               uint32_t length);
```

## 8.214 ota-storage-simple-driver.h File Reference

### Functions

- bool `emberAfCustomStorageInitCallback` (void)
- bool `emberAfCustomStorageReadCallback` (uint32\_t offset, uint32\_t length, uint8\_t \*returnData)

- bool `emberAfCustomStorageWriteCallback` (const uint8\_t \**dataToWrite*, uint32\_t *offset*, uint32\_t *length*)
- void `emAfOtaLoadFileCommand` (void)

### 8.214.1 Function Documentation

8.214.1.1 bool `emberAfCustomStorageInitCallback` ( void )

8.214.1.2 bool `emberAfCustomStorageReadCallback` ( uint32\_t *offset*, uint32\_t *length*, uint8\_t \* *returnData* )

8.214.1.3 bool `emberAfCustomStorageWriteCallback` ( const uint8\_t \* *dataToWrite*, uint32\_t *offset*, uint32\_t *length* )

8.214.1.4 void `emAfOtaLoadFileCommand` ( void )

## 8.215 ota-storage-simple-driver.h

```

00001 // ****
00002 // * ota-storage-simple-driver.h
00003 // *
00004 // * The Simple Storage Module driver interface. In other words, primitives
00005 // * for reading / writing and storing data about the OTA file that is stored,
00006 // * or is in the process of being downloaded and stored.
00007 // *
00008 // * Copyright 2010 by Ember Corporation. All rights reserved.
00009 // * *80*
00010 ****
00011 bool emberAfCustomStorageInitCallback(void);
00012
00013 bool emberAfCustomStorageReadCallback(uint32_t
00014 offset,
00015           uint32_t length,
00016           uint8_t* returnData);
00017
00017 bool emberAfCustomStorageWriteCallback(const
00018         uint8_t* dataToWrite,
00019           uint32_t offset,
00020           uint32_t length);
00021
00022 // TODO: put this gating back in once we have that mechanism in place for
00023 // the generated CLI
00024 // #if defined(EMBER_TEST)
00025 void emAfOtaLoadFileCommand(void);
00026 // #endif

```

### 8.216 ota-storage.h File Reference

#### Macros

- #define `OTA_MINIMUM_HEADER_LENGTH`
- #define `OTA_MAXIMUM_HEADER_LENGTH`
- #define `OTA_MAXIMUM_HEADER_LENGTH_2_BYTE_ALIGNED`
- #define `OTA_FILE_MAGIC_NUMBER`
- #define `MAGIC_NUMBER_OFFSET`
- #define `HEADER_VERSION_OFFSET`

- #define HEADER\_LENGTH\_OFFSET
- #define FIELD\_CONTROL\_OFFSET
- #define MANUFACTURER\_ID\_OFFSET
- #define IMAGE\_TYPE\_ID\_OFFSET
- #define VERSION\_OFFSET
- #define STACK\_VERSION\_OFFSET
- #define HEADER\_STRING\_OFFSET
- #define IMAGE\_SIZE\_OFFSET
- #define OPTIONAL\_FIELDS\_OFFSET
- #define HEADER\_LENGTH\_FIELD\_LENGTH
- #define TAG\_OVERHEAD
- #define OTA\_HEADER\_VERSION
- #define SECURITY\_CREDENTIAL\_VERSION\_FIELD\_PRESENT\_MASK
- #define DEVICE\_SPECIFIC\_FILE\_PRESENT\_MASK
- #define HARDWARE\_VERSIONS\_PRESENT\_MASK
- #define headerHasSecurityCredentials(header)
- #define headerHasUpgradeFileDest(header)
- #define headerHasHardwareVersions(header)
- #define SIGNATURE\_TAG\_DATA\_SIZE
- #define SIGNATURE\_283K1\_TAG\_DATA\_SIZE
- #define INVALID\_MANUFACTURER\_ID
- #define INVALID\_DEVICE\_ID
- #define INVALID\_FIRMWARE\_VERSION
- #define INVALID\_EUI64
- #define INVALID\_OTA\_IMAGE\_ID

## Functions

- EmberAfOtaStorageStatus emAfOtaStorageSetDevice (const void \*device)
- void emAfOtaStorageClose (void)
- const char \* emAfOtaStorageGetFilepath (const EmberAfOtaImageId \*id)
- EmberAfOtaStorageStatus emAfOtaStorageAddImageFile (const char \*filename)
- EmberAfOtaStorageStatus emAfOtaStorageCreateImage (EmberAfOtaHeader \*header, const char \*filename)
- EmberAfOtaStorageStatus emAfOtaStorageAppendImageData (const char \*filename, uint32\_t length, const uint8\_t \*data)
- EmberAfOtaStorageStatus emAfOtaStorageGetHeaderLengthAndImageSize (const EmberAfOtaImageId \*id, uint32\_t \*returnHeaderLength, uint32\_t \*returnImageSize)
- EmberAfOtaImageId emAfOtaStorageGetImageIdFromHeader (const EmberAfOtaHeader \*header)
- EmberAfOtaStorageStatus emAfOtaStorageGetTagOffsetAndSize (const EmberAfOtaImageId \*id, uint16\_t tag, uint32\_t \*returnTagOffset, uint32\_t \*returnTagSize)
- EmberAfOtaStorageStatus emAfOtaStorageGetTagDataFromImage (const EmberAfOtaImageId \*id, uint16\_t tag, uint8\_t \*returnData, uint32\_t \*returnDataLength, uint32\_t maxReturnDataLength)
- EmberAfOtaStorageStatus emAfOtaStorageGetRawHeaderData (const EmberAfOtaImageId \*id, uint8\_t \*returnData, uint32\_t \*returnDataLength, uint32\_t maxReturnDataLength)
- EmberAfOtaStorageStatus emAfOtaStorageReadAllTagInfo (const EmberAfOtaImageId \*id, EmberAfTagData \*tagInfo, uint16\_t maxTags, uint16\_t \*totalTags)
- bool emberAfIsOtaImageIdValid (const EmberAfOtaImageId \*idToCompare)
- EmberAfOtaStorageStatus emberAfOtaStorageDeleteImageCallback (const EmberAfOtaImageId \*id)
- void emAfOtaStorageInfoPrint (void)
- void emAfOtaStorageDriverInfoPrint (void)
- uint32\_t emberAfOtaStorageDriverMaxDownloadSizeCallback (void)
- int remainingAllocations (void)

### 8.216.1 Macro Definition Documentation

8.216.1.1 `#define OTA_MINIMUM_HEADER_LENGTH`

Definition at line 12 of file [ota-storage.h](#).

8.216.1.2 `#define OTA_MAXIMUM_HEADER_LENGTH`

Definition at line 14 of file [ota-storage.h](#).

8.216.1.3 `#define OTA_MAXIMUM_HEADER_LENGTH_2_BYTE_ALIGNED`

Definition at line 18 of file [ota-storage.h](#).

8.216.1.4 `#define OTA_FILE_MAGIC_NUMBER`

Definition at line 20 of file [ota-storage.h](#).

8.216.1.5 `#define MAGIC_NUMBER_OFFSET`

Definition at line 22 of file [ota-storage.h](#).

8.216.1.6 `#define HEADER_VERSION_OFFSET`

Definition at line 23 of file [ota-storage.h](#).

8.216.1.7 `#define HEADER_LENGTH_OFFSET`

Definition at line 24 of file [ota-storage.h](#).

8.216.1.8 `#define FIELD_CONTROL_OFFSET`

Definition at line 25 of file [ota-storage.h](#).

8.216.1.9 `#define MANUFACTURER_ID_OFFSET`

Definition at line 26 of file [ota-storage.h](#).

8.216.1.10 `#define IMAGE_TYPE_ID_OFFSET`

Definition at line 27 of file [ota-storage.h](#).

8.216.1.11 `#define VERSION_OFFSET`

Definition at line 28 of file [ota-storage.h](#).

**8.216.1.12 #define STACK\_VERSION\_OFFSET**

Definition at line 29 of file [ota-storage.h](#).

**8.216.1.13 #define HEADER\_STRING\_OFFSET**

Definition at line 30 of file [ota-storage.h](#).

**8.216.1.14 #define IMAGE\_SIZE\_OFFSET**

Definition at line 31 of file [ota-storage.h](#).

**8.216.1.15 #define OPTIONAL\_FIELDS\_OFFSET**

Definition at line 32 of file [ota-storage.h](#).

**8.216.1.16 #define HEADER\_LENGTH\_FIELD\_LENGTH**

Definition at line 35 of file [ota-storage.h](#).

**8.216.1.17 #define TAG\_OVERHEAD**

Definition at line 37 of file [ota-storage.h](#).

**8.216.1.18 #define OTA\_HEADER\_VERSION**

Definition at line 39 of file [ota-storage.h](#).

**8.216.1.19 #define SECURITY\_CREDENTIAL\_VERSION\_FIELD\_PRESENT\_MASK**

Definition at line 41 of file [ota-storage.h](#).

**8.216.1.20 #define DEVICE\_SPECIFIC\_FILE\_PRESENT\_MASK**

Definition at line 42 of file [ota-storage.h](#).

**8.216.1.21 #define HARDWARE\_VERSIONS\_PRESENT\_MASK**

Definition at line 43 of file [ota-storage.h](#).

**8.216.1.22 #define headerHasSecurityCredentials( *header* )**

Definition at line 45 of file [ota-storage.h](#).

8.216.1.23 `#define headerHasUpgradeFileDest( header )`

Definition at line [47](#) of file [ota-storage.h](#).

8.216.1.24 `#define headerHasHardwareVersions( header )`

Definition at line [49](#) of file [ota-storage.h](#).

8.216.1.25 `#define SIGNATURE_TAG_DATA_SIZE`

Definition at line [54](#) of file [ota-storage.h](#).

8.216.1.26 `#define SIGNATURE_283K1_TAG_DATA_SIZE`

Definition at line [55](#) of file [ota-storage.h](#).

8.216.1.27 `#define INVALID_MANUFACTURER_ID`

Definition at line [57](#) of file [ota-storage.h](#).

8.216.1.28 `#define INVALID_DEVICE_ID`

Definition at line [58](#) of file [ota-storage.h](#).

8.216.1.29 `#define INVALID_FIRMWARE_VERSION`

Definition at line [59](#) of file [ota-storage.h](#).

8.216.1.30 `#define INVALID_EUI64`

Definition at line [60](#) of file [ota-storage.h](#).

8.216.1.31 `#define INVALID_OTA_IMAGE_ID`

Definition at line [62](#) of file [ota-storage.h](#).

## 8.216.2 Function Documentation

8.216.2.1 `EmberAfOtaStorageStatus emAfOtaStorageSetDevice ( const void * device )`

8.216.2.2 `void emAfOtaStorageClose ( void )`

8.216.2.3 `const char* emAfOtaStorageGetFilepath ( const EmberAfOtaImageId * id )`

8.216.2.4 `EmberAfOtaStorageStatus emAfOtaStorageAddImageFile ( const char * filename )`

- 8.216.2.5 EmberAfOtaStorageStatus emAfOtaStorageCreateImage ( EmberAfOtaHeader \* *header*, const char \* *filename* )
- 8.216.2.6 EmberAfOtaStorageStatus emAfOtaStorageAppendImageData ( const char \* *filename*, uint32\_t *length*, const uint8\_t \* *data* )
- 8.216.2.7 EmberAfOtaStorageStatus emAfOtaStorageGetHeaderLengthAndImageSize ( const EmberAfOtaImageId \* *id*, uint32\_t \* *returnHeaderLength*, uint32\_t \* *returnImageSize* )
- 8.216.2.8 EmberAfOtaImageId emAfOtaStorageGetImageIdFromHeader ( const EmberAfOtaHeader \* *header* )
- 8.216.2.9 EmberAfOtaStorageStatus emAfOtaStorageGetTagOffsetAndSize ( const EmberAfOtaImageId \* *id*, uint16\_t *tag*, uint32\_t \* *returnTagOffset*, uint32\_t \* *returnTagSize* )
- 8.216.2.10 EmberAfOtaStorageStatus emAfOtaStorageGetTagDataFromImage ( const EmberAfOtaImageId \* *id*, uint16\_t *tag*, uint8\_t \* *returnData*, uint32\_t \* *returnDataLength*, uint32\_t *maxReturnDataLength* )
- 8.216.2.11 EmberAfOtaStorageStatus emAfOtaStorageGetRawHeaderData ( const EmberAfOtaImageId \* *id*, uint8\_t \* *returnData*, uint32\_t \* *returnDataLength*, uint32\_t *maxReturnDataLength* )
- 8.216.2.12 EmberAfOtaStorageStatus emAfOtaStorageReadAllTagInfo ( const EmberAfOtaImageId \* *id*, EmberAfTagData \* *tagInfo*, uint16\_t *maxTags*, uint16\_t \* *totalTags* )
- 8.216.2.13 bool emberAfIsOtaImageIdValid ( const EmberAfOtaImageId \* *idToCompare* )
- 8.216.2.14 EmberAfOtaStorageStatus emberAfOtaStorageDeleteImageCallback ( const EmberAfOtaImageId \* *id* )
- 8.216.2.15 void emAfOtaStorageInfoPrint ( void )
- 8.216.2.16 void emAfOtaStorageDriverInfoPrint ( void )
- 8.216.2.17 uint32\_t emberAfOtaStorageDriverMaxDownloadSizeCallback ( void )
- 8.216.2.18 int remainingAllocations ( void )

## 8.217 ota-storage.h

```

00001 // ****
00002 // * ota-storage.h
00003 // *
00004 // * This file defines the interface to a Over-the-air (OTA) storage device.
00005 // * can be used by either a server or client. The server can store 0 or more
00006 // * files that are indexed uniquely by an identifier made up of their Version
00007 // * Number, Manufacturer ID, and Device ID.
00008 // *
00009 // * Copyright 2009 by Ember Corporation. All rights reserved.
00010 // ****
00011
00012 #define OTA_MINIMUM_HEADER_LENGTH (20 + 32 + 4)
00013 // Optional fields are: security credentials, upgrade dest, and HW versions

```

```

00014 #define OTA_MAXIMUM_HEADER_LENGTH (OTA_MINIMUM_HEADER_LENGTH + 1 + 8 + 4)
00015
00016 // For EEPROM parts with 2-byte word sizes we need to make sure we read
00017 // on word boundaries.
00018 #define OTA_MAXIMUM_HEADER_LENGTH_2_BYTE_ALIGNED (OTA_MAXIMUM_HEADER_LENGTH +
00019     1)
00020 #define OTA_FILE_MAGIC_NUMBER          0x0BEEF11EL
00021
00022 #define MAGIC_NUMBER_OFFSET         0
00023 #define HEADER_VERSION_OFFSET       4
00024 #define HEADER_LENGTH_OFFSET        6
00025 #define FIELD_CONTROL_OFFSET        8
00026 #define MANUFACTURER_ID_OFFSET      10
00027 #define IMAGE_TYPE_ID_OFFSET        12
00028 #define VERSION_OFFSET             14
00029 #define STACK_VERSION_OFFSET        18
00030 #define HEADER_STRING_OFFSET        20
00031 #define IMAGE_SIZE_OFFSET           52
00032 #define OPTIONAL_FIELDS_OFFSET      56
00033 // The rest are optional fields.
00034
00035 #define HEADER_LENGTH_FIELD_LENGTH 2
00036
00037 #define TAG_OVERHEAD (2 + 4)      // 2 bytes for the tag ID, 4 bytes for the
00038 length
00039 #define OTA_HEADER_VERSION 0x0100
00040
00041 #define SECURITY_CREDENTIAL_VERSION_FIELD_PRESENT_MASK 0x0001
00042 #define DEVICE_SPECIFIC_FILE_PRESENT_MASK                 0x0002
00043 #define HARDWARE_VERSIONS_PRESENT_MASK                   0x0004
00044
00045 #define headerHasSecurityCredentials(header) \
00046     ((header)->fieldControl & SECURITY_CREDENTIAL_VERSION_FIELD_PRESENT_MASK)
00047 #define headerHasUpgradeFileDest(header) \
00048     ((header)->fieldControl & DEVICE_SPECIFIC_FILE_PRESENT_MASK)
00049 #define headerHasHardwareVersions(header) \
00050     ((header)->fieldControl & HARDWARE_VERSIONS_PRESENT_MASK)
00051
00052
00053 // This size does NOT include the tag overhead.
00054 #define SIGNATURE_TAG_DATA_SIZE          (EUI64_SIZE + EMBER_SIGNATURE_SIZE)
00055 #define SIGNATURE_283K1_TAG_DATA_SIZE    (EUI64_SIZE + EMBER_SIGNATURE_283K1_SIZE)
00056
00057 #define INVALID_MANUFACTURER_ID 0xFFFF
00058 #define INVALID_DEVICE_ID        0xFFFF
00059 #define INVALID_FIRMWARE_VERSION 0xFFFFFFFFFF
00060 #define INVALID_EUI64 { 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00 }
00061
00062 #define INVALID_OTA_IMAGE_ID    \
00063     { INVALID_MANUFACTURER_ID, \
00064         INVALID_DEVICE_ID, \
00065         INVALID_FIRMWARE_VERSION, \
00066         INVALID_EUI64, \
00067     }
00068
00069 // -----
00070
00071 // Initialization
00072 // (For the POSIX implementation the device will be a file or directory)
00073 EmberAfOtaStorageStatus emAfOtaStorageSetDevice
00074     (const void* device);
00075
00076 const char* emAfOtaStorageGetFilepath(const
00077     EmberAfOtaImageId* id);
00078
00079 EmberAfOtaStorageStatus emAfOtaStorageAddImageFile
00080     (const char* filename);
00081
00082 // Creating (two options)
00083 // - Create a file based on a passed "EmberAfOtaHeader" structure, stored
00084 //     at the filename passed to the function. This is usually done by a
00085 //     PC tool.
00086 // - Create a file based on raw data (presumably received over the air)
00087 //     This will be stored in a single static temp file.
00088 EmberAfOtaStorageStatus emAfOtaStorageCreateImage

```

```

00088     (EmberAfOtaHeader* header,
00089      const char* filename);
00090 EmberAfOtaStorageStatus emAfOtaStorageAppendImageData
00091     (const char* filename,
00092      uint32_t length,
00093      const uint8_t* data);
00094 // -----
00095 // Generic routines that are independent of the actual storage mechanism.
00096 EmberAfOtaStorageStatus
00097     emAfOtaStorageGetHeaderLengthAndImageSize
00098     (const EmberAfOtaImageId* id,
00099      returnHeaderLength,
00100      returnImageSize);
00101 EmberAfOtaImageId emAfOtaStorageGetImageIdFromHeader
00102     (const EmberAfOtaHeader* header);
00103 // Returns the offset and size of the actual data (does not include
00104 // tag meta-data) in the specified tag.
00105 EmberAfOtaStorageStatus
00106     emAfOtaStorageGetTagOffsetAndSize(const EmberAfOtaImageId* id,
00107      uint16_t tag,
00108      uint32_t*
00109      returnTagOffset,
00110      returnTagSize);
00111 EmberAfOtaStorageStatus
00112     emAfOtaStorageGetTagDataFromImage(const EmberAfOtaImageId* id,
00113      uint16_t tag,
00114      uint8_t* returnData,
00115      uint32_t*
00116      returnDataLength,
00117      uint32_t
00118      maxReturnDataLength);
00119 // This gets the OTA header as it is formatted in the file, including
00120 // the magic number.
00121 EmberAfOtaStorageStatus emAfOtaStorageGetRawHeaderData
00122     (const EmberAfOtaImageId* id,
00123      uint8_t* returnData,
00124      uint32_t*
00125      returnDataLength,
00126      uint32_t
00127      maxReturnDataLength);
00128 // This retrieves a list of all tags in the file and their lengths.
00129 // It will read at most 'maxTags' and return that array data in tagInfo.
00130 EmberAfOtaStorageStatus emAfOtaStorageReadAllTagInfo
00131     (const EmberAfOtaImageId* id,
00132      EmberAfTagData
00133      * tagInfo,
00134      uint16_t maxTags,
00135      uint16_t* totalTags);
00136
00137 bool emberAfIsOtaImageIdValid(const EmberAfOtaImageId
00138     * idToCompare);
00139 // This should be moved into the plugin callbacks file.
00140 EmberAfOtaStorageStatus
00141     emberAfOtaStorageDeleteImageCallback(const
00142     EmberAfOtaImageId* id);
00143
00144 void emAfOtaStorageInfoPrint(void);
00145 void emAfOtaStorageDriverInfoPrint(void);
00146
00147 uint32_t emberAfOtaStorageDriverMaxDownloadSizeCallback
00148     (void);
00149 //
00150 // -----
00151 // Internal (for debugging malloc() and free())
00152 int remainingAllocations(void);
00153

```

## 8.218 ota.h File Reference

### Macros

- #define OTA\_UPGRADE\_END\_RESPONSE\_RUN\_NOW
- #define MFG\_ID\_WILD\_CARD
- #define IMAGE\_TYPE\_WILD\_CARD
- #define IMAGE\_TYPE\_SECURITY
- #define IMAGE\_TYPE\_CONFIG
- #define IMAGE\_TYPE\_LOG
- #define FILE\_VERSION\_WILD\_CARD
- #define ZIGBEE\_2006\_STACK\_VERSION
- #define ZIGBEE\_2007\_STACK\_VERSION
- #define ZIGBEE\_PRO\_STACK\_VERSION
- #define OTA\_HW\_VERSION\_BIT\_MASK
- #define OTA\_NODE\_EUI64\_BIT\_MASK
- #define OTA\_MINIMUM\_BLOCK\_REQUEST\_PERIOD\_ATTRIBUTE\_MASK
- #define OTA\_TAG\_UPGRADE\_IMAGE
- #define OTA\_TAG\_ECDSA\_SIGNATURE
- #define OTA\_TAG\_ECDSA\_SIGNING\_CERTIFICATE
- #define OTA\_TAG\_IMAGE\_INTEGRITY\_CODE
- #define OTA\_TAG\_PICTURE\_DATA
- #define OTA\_TAG\_ECDSA\_SIGNATURE\_283K1
- #define OTA\_TAG\_ECDSA\_SIGNING\_CERTIFICATE\_283K1
- #define OTA\_TAG\_RESERVED\_START
- #define OTA\_TAG\_RESERVED\_END
- #define OTA\_TAG\_MANUFACTURER\_SPECIFIC\_START
- #define OTA\_TAG\_MANUFACTURER\_SPECIFIC\_END
- #define EM\_AF\_OTA\_MAX\_COMMAND\_ID
- #define otaPrintln(...)
- #define otaPrint(...)
- #define otaPrintFlush()
- #define emAfPrintPercentageSetStartAndEnd(x, y)
- #define emAfPrintPercentageUpdate(x, y, z)
- #define emAfCalculatePercentage(x, y)

### Enumerations

- enum { OTA\_USE\_OFFSET\_TIME, OTA\_USE\_UTC\_TIME }
- enum {
 OTA\_UPGRADE\_STATUS\_NORMAL, OTA\_UPGRADE\_STATUS\_DOWNLOAD\_IN\_PROGRESS,
 OTA\_UPGRADE\_STATUS\_DOWNLOAD\_COMPLETE, OTA\_UPGRADE\_STATUS\_WAIT,
 OTA\_UPGRADE\_STATUS\_COUNTDOWN, OTA\_UPGRADE\_STATUS\_WAIT\_FOR\_MORE,
 OTA\_UPGRADE\_STATUS\_WAIT\_TO\_UPGRADE\_VIA\_OUT\_OF\_BAND }

## Functions

- `EmberAfOtaImageId emAfOtaCreateEmberAfOtaImageIdStruct (uint16_t manufacturerId, uint16_t imageType, uint32_t fileVersion)`
- `uint8_t emAfOtaParseImageIdFromMessage (EmberAfOtaImageId *returnId, const uint8_t *buffer, uint8_t length)`

## Variables

- `EmberNodeId upgradeServerNodeId`
- `PGM uint8_t emAfOtaMinMessageLengths []`

### 8.218.1 Macro Definition Documentation

#### 8.218.1.1 `#define OTA_UPGRADE_END_RESPONSE_RUN_NOW`

Definition at line 11 of file [ota.h](#).

#### 8.218.1.2 `#define MFG_ID_WILD_CARD`

Definition at line 13 of file [ota.h](#).

#### 8.218.1.3 `#define IMAGE_TYPE_WILD_CARD`

Definition at line 14 of file [ota.h](#).

#### 8.218.1.4 `#define IMAGE_TYPE_SECURITY`

Definition at line 15 of file [ota.h](#).

#### 8.218.1.5 `#define IMAGE_TYPE_CONFIG`

Definition at line 16 of file [ota.h](#).

#### 8.218.1.6 `#define IMAGE_TYPE_LOG`

Definition at line 17 of file [ota.h](#).

#### 8.218.1.7 `#define FILE_VERSION_WILD_CARD`

Definition at line 18 of file [ota.h](#).

#### 8.218.1.8 `#define ZIGBEE_2006_STACK_VERSION`

Definition at line 20 of file [ota.h](#).

8.218.1.9 #define ZIGBEE\_2007\_STACK\_VERSION

Definition at line 21 of file [ota.h](#).

8.218.1.10 #define ZIGBEE\_PRO\_STACK\_VERSION

Definition at line 22 of file [ota.h](#).

8.218.1.11 #define OTA\_HW\_VERSION\_BIT\_MASK

Definition at line 25 of file [ota.h](#).

8.218.1.12 #define OTA\_NODE\_EUI64\_BIT\_MASK

Definition at line 26 of file [ota.h](#).

8.218.1.13 #define OTA\_MINIMUM\_BLOCK\_REQUEST\_PERIOD\_ATTRIBUTE\_MASK

Definition at line 27 of file [ota.h](#).

8.218.1.14 #define OTA\_TAG\_UPGRADE\_IMAGE

Definition at line 40 of file [ota.h](#).

8.218.1.15 #define OTA\_TAG\_ECDSA\_SIGNATURE

Definition at line 41 of file [ota.h](#).

8.218.1.16 #define OTA\_TAG\_ECDSA\_SIGNING\_CERTIFICATE

Definition at line 42 of file [ota.h](#).

8.218.1.17 #define OTA\_TAG\_IMAGE\_INTEGRITY\_CODE

Definition at line 43 of file [ota.h](#).

8.218.1.18 #define OTA\_TAG\_PICTURE\_DATA

Definition at line 44 of file [ota.h](#).

8.218.1.19 #define OTA\_TAG\_ECDSA\_SIGNATURE\_283K1

Definition at line 45 of file [ota.h](#).

8.218.1.20 #define OTA\_TAG\_ECDSA\_SIGNING\_CERTIFICATE\_283K1

Definition at line [46](#) of file [ota.h](#).

8.218.1.21 #define OTA\_TAG\_RESERVED\_START

Definition at line [47](#) of file [ota.h](#).

8.218.1.22 #define OTA\_TAG\_RESERVED\_END

Definition at line [48](#) of file [ota.h](#).

8.218.1.23 #define OTA\_TAG\_MANUFACTURER\_SPECIFIC\_START

Definition at line [49](#) of file [ota.h](#).

8.218.1.24 #define OTA\_TAG\_MANUFACTURER\_SPECIFIC\_END

Definition at line [50](#) of file [ota.h](#).

8.218.1.25 #define EM\_AF\_OTA\_MAX\_COMMAND\_ID

Definition at line [56](#) of file [ota.h](#).

8.218.1.26 #define otaPrintIn( ... )

Definition at line [59](#) of file [ota.h](#).

8.218.1.27 #define otaPrint( ... )

Definition at line [60](#) of file [ota.h](#).

8.218.1.28 #define otaPrintFlush( )

Definition at line [61](#) of file [ota.h](#).

8.218.1.29 #define emAfPrintPercentageSetStartAndEnd( x, y )

Definition at line [81](#) of file [ota.h](#).

8.218.1.30 #define emAfPrintPercentageUpdate( x, y, z )

Definition at line [82](#) of file [ota.h](#).

8.218.1.31 #define emAfCalculatePercentage( *x*, *y* )

Definition at line 83 of file [ota.h](#).

## 8.218.2 Enumeration Type Documentation

8.218.2.1 anonymous enum

Enumerator:

*OTA\_USE\_OFFSET\_TIME*  
*OTA\_USE\_UTC\_TIME*

Definition at line 7 of file [ota.h](#).

8.218.2.2 anonymous enum

Enumerator:

*OTA\_UPGRADE\_STATUS\_NORMAL*  
*OTA\_UPGRADE\_STATUS\_DOWNLOAD\_IN\_PROGRESS*  
*OTA\_UPGRADE\_STATUS\_DOWNLOAD\_COMPLETE*  
*OTA\_UPGRADE\_STATUS\_WAIT*  
*OTA\_UPGRADE\_STATUS\_COUNTDOWN*  
*OTA\_UPGRADE\_STATUS\_WAIT\_FOR\_MORE*  
*OTA\_UPGRADE\_STATUS\_WAIT\_TO\_UPGRADE\_VIA\_OUT\_OF\_BAND*

Definition at line 30 of file [ota.h](#).

## 8.218.3 Function Documentation

8.218.3.1 EmberAfOtaImageId emAfOtaCreateEmberAfOtaImageIdStruct ( uint16\_t *manufacturerId*,  
 uint16\_t *imageType*, uint32\_t *fileVersion* )

8.218.3.2 uint8\_t emAfOtaParseImageIdFromMessage ( EmberAfOtaImageId \* *returnId*, const uint8\_t \*  
*buffer*, uint8\_t *length* )

## 8.218.4 Variable Documentation

8.218.4.1 EmberNodeId upgradeServerNodeId

8.218.4.2 PGM uint8\_t emAfOtaMinMessageLengths[]

## 8.219 ota.h

```
00001 // ****
00002 // * ota.h
00003 // *
00004 // *
00005 // * Copyright 2009 by Ember Corporation. All rights reserved.
```

```

*80*
00006 // ****
00007 enum {
00008     OTA_USE_OFFSET_TIME,
00009     OTA_USE_UTC_TIME
00010 };
00011 #define OTA_UPGRADE_END_RESPONSE_RUN_NOW 0x00
00012
00013 #define MFG_ID_WILD_CARD          0xFFFF
00014 #define IMAGE_TYPE_WILD_CARD      0xFFFF
00015 #define IMAGE_TYPE_SECURITY       0xFFC0
00016 #define IMAGE_TYPE_CONFIG         0xFFC1
00017 #define IMAGE_TYPE_LOG            0xFFC2
00018 #define FILE_VERSION_WILD_CARD    0xFFFFFFFF
00019
00020 #define ZIGBEE_2006_STACK_VERSION 0x0000
00021 #define ZIGBEE_2007_STACK_VERSION 0x0001
00022 #define ZIGBEE_PRO_STACK_VERSION 0x0002
00023
00024 // These apply to the field control of the Over-the-air messages
00025 #define OTA_HW_VERSION_BIT_MASK   0x01
00026 #define OTA_NODE_EUI64_BIT_MASK    0x01
00027 #define OTA_MINIMUM_BLOCK_REQUEST_PERIOD_ATTRIBUTE_MASK 0x02
00028
00029 // OTA Upgrade status as defined by OTA cluster spec.
00030 enum {
00031     OTA_UPGRADE_STATUS_NORMAL,
00032     OTA_UPGRADE_STATUS_DOWNLOAD_IN_PROGRESS
00033     OTA_UPGRADE_STATUS_DOWNLOAD_COMPLETE,
00034     OTA_UPGRADE_STATUS_WAIT,
00035     OTA_UPGRADE_STATUS_COUNTDOWN,
00036     OTA_UPGRADE_STATUS_WAIT_FOR_MORE,
00037     OTA_UPGRADE_STATUS_WAIT_TO_UPGRADE_VIA_OUT_OF_BAND
00038 };
00039
00040 #define OTA_TAG_UPGRADE_IMAGE           0x0000
00041 #define OTA_TAG_ECDSA_SIGNATURE         0x0001
00042 #define OTA_TAG_ECDSA_SIGNING_CERTIFICATE 0x0002
00043 #define OTA_TAG_IMAGE_INTEGRITY_CODE    0x0003 // unused
00044 #define OTA_TAG_PICTURE_DATA           0x0004 // unused
00045 #define OTA_TAG_ECDSA_SIGNATURE_283K1   0x0005
00046 #define OTA_TAG_ECDSA_SIGNING_CERTIFICATE_283K1 0x0006
00047 #define OTA_TAG_RESERVED_START         0x0007
00048 #define OTA_TAG_RESERVED_END           0xEFFF
00049 #define OTA_TAG_MANUFACTURER_SPECIFIC_START 0xF000
00050 #define OTA_TAG_MANUFACTURER_SPECIFIC_END 0xFFFF
00051
00052
00053 extern EmberNodeId upgradeServerNodeId;
00054 extern PGM uint8_t emAfOtaMinMessageLengths[];
00055
00056 #define EM_AF_OTA_MAX_COMMAND_ID ZCL_QUERY_SPECIFIC_FILE_RESPONSE_COMMAND_ID
00057
00058 // Create a shorter name for printing to make the code more readable.
00059 #define otaPrintln(...) emberAfOtaBootloadClusterPrintln(__VA_ARGS__)
00060 #define otaPrint(...)   emberAfOtaBootloadClusterPrint (__VA_ARGS__)
00061 #define otaPrintFlush() emberAfOtaBootloadClusterFlush()
00062
00063 // -----
00064 // Common to both client and server
00065 // -----
00066 EmberAfOtaImageId emAfOtaCreateEmberAfOtaImageIdStruct
00067     (uint16_t manufacturerId,
00068                  uint16_t imageType,
00069                  uint32_t fileVersion);
00070
00070 uint8_t emAfOtaParseImageIdFromMessage(
00071     EmberAfOtaImageId* returnId,
00072                           const uint8_t* buffer,
00073                           uint8_t length);
00073
00074 #if defined(EMBER_AF_PRINT_CORE)
00075 void emAfPrintPercentageSetStartAndEnd(
00076     uint32_t startingOffset, uint32_t endOffset);
00076 uint8_t emAfPrintPercentageUpdate(PGM_P prefixString,
00077                                     uint8_t updateFrequency,
00078                                     uint32_t currentOffset);
00079 uint8_t emAfCalculatePercentage(uint32_t currentOffset,

```

```

        uint32_t imageSize);
00080 #else
00081     #define emAfPrintPercentageSetStartAndEnd(x,y)
00082     #define emAfPrintPercentageUpdate(x,y,z)
00083     #define emAfCalculatePercentage(x,y) (0)
00084 #endif

```

## 8.220 partner-link-key-exchange.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_TIMEOUT\_MILLISECONDS

### Variables

- bool emAfAllowPartnerLinkKey

#### 8.220.1 Macro Definition Documentation

##### 8.220.1.1 #define EMBER\_AF\_PLUGIN\_PARTNER\_LINK\_KEY\_EXCHANGE\_TIMEOUT\_MILLISECONDS

Definition at line 9 of file [partner-link-key-exchange.h](#).

#### 8.220.2 Variable Documentation

##### 8.220.2.1 bool emAfAllowPartnerLinkKey

## 8.221 partner-link-key-exchange.h

```

00001 // ****
00002 // * partner-link-key-exchange.h
00003 // *
00004 // * Support of requesting link keys with another device.
00005 // *
00006 // * Copyright 2008 by Ember Corporation. All rights reserved.
00007 // *80*
00008 // ****
00009 #define EMBER_AF_PLUGIN_PARTNER_LINK_KEY_EXCHANGE_TIMEOUT_MILLISECONDS \
00010     (EMBER_AF_PLUGIN_PARTNER_LINK_KEY_EXCHANGE_TIMEOUT_SECONDS * \
00011      MILLISECOND_TICKS_PER_SECOND)
00012 extern bool emAfAllowPartnerLinkKey;

```

## 8.222 plugin-cli.h File Reference

```
#include <ATTRIBUTE_STORAGE_CONFIGURATION>
```

### Macros

- #define EMBER\_AF\_PLUGIN\_COMMANDS

### 8.222.1 Macro Definition Documentation

#### 8.222.1.1 #define EMBER\_AF\_PLUGIN\_COMMANDS

Definition at line 15 of file [plugin-cli.h](#).

## 8.223 plugin-cli.h

```
00001 // ****
00002 // * plugin-cli.h
00003 // *
00004 // *
00005 // * Copyright 2010 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 #include ATTRIBUTE_STORAGE_CONFIGURATION
00009
00010 #ifdef EMBER_AF_GENERATED_PLUGIN_COMMAND_DECLARATIONS
00011     #define EMBER_AF_PLUGIN_COMMANDS {"plugin", NULL,
00012                                         (PGM_P)emberAfPluginCommands},
00012     extern EmberCommandEntry emberAfPluginCommands[];
00013 EMBER_AF_GENERATED_PLUGIN_COMMAND_DECLARATIONS
00014 #else
00015     #define EMBER_AF_PLUGIN_COMMANDS
00016 #endif
```

## 8.224 poll-control-client.h File Reference

### Functions

- void [emAfSetFastPollingMode](#) (bool mode)
- void [emAfSetFastPollingTimeout](#) (uint16\_t timeout)
- void [emAfSetResponseMode](#) (bool mode)
- void [emAfPollControlClientPrint](#) (void)

### 8.224.1 Function Documentation

- 8.224.1.1 void [emAfSetFastPollingMode](#) ( bool *mode* )
- 8.224.1.2 void [emAfSetFastPollingTimeout](#) ( uint16\_t *timeout* )
- 8.224.1.3 void [emAfSetResponseMode](#) ( bool *mode* )
- 8.224.1.4 void [emAfPollControlClientPrint](#) ( void )

## 8.225 poll-control-client.h

```
00001 // ****
00002 // * poll-control-client.h
00003 // *
00004 // *
00005 // * Copyright 2012 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 // Set fast polling mode
```

```

00009 void emAfSetFastPollingMode(bool mode);
00010
00011 // Set fast polling timeout
00012 void emAfSetFastPollingTimeout(uint16_t timeout);
00013
00014 // Set response mode
00015 void emAfSetResponseMode(bool mode);
00016
00017 // Print mode and timeout
00018 void emAfPollControlClientPrint(void);

```

## 8.226 prepayment-client.h File Reference

### Functions

- void `emberAfPluginPrepaymentClientChangePaymentMode` (`EmberNodeId` nodeId, `uint8_t` srcEndpoint, `uint8_t` dstEndpoint, `uint32_t` providerId, `uint32_t` issuerEventId, `uint32_t` implementationDateTime, `uint16_t` proposedPaymentControlConfiguration, `uint32_t` cutOffValue)
- bool `emberAfPluginPrepaymentClusterChangePaymentModeResponseCallback` (`uint8_t` friendlyCredit, `uint32_t` friendlyCreditCalendarId, `uint32_t` emergencyCreditLimit, `uint32_t` emergencyCreditThreshold)

### 8.226.1 Function Documentation

- 8.226.1.1 void `emberAfPluginPrepaymentClientChangePaymentMode` ( `EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint32_t providerId, uint32_t issuerEventId, uint32_t implementationDateTime, uint16_t proposedPaymentControlConfiguration, uint32_t cutOffValue` )
- 8.226.1.2 bool `emberAfPluginPrepaymentClusterChangePaymentModeResponseCallback` ( `uint8_t friendlyCredit, uint32_t friendlyCreditCalendarId, uint32_t emergencyCreditLimit, uint32_t emergencyCreditThreshold` )

## 8.227 prepayment-client.h

```

00001 #ifndef _PREPAYMENT_CLIENT_H_
00002 #define _PREPAYMENT_CLIENT_H_
00003
00004
00005 void emberAfPluginPrepaymentClientChangePaymentMode
00006   ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00007     uint32_t providerId, uint32_t issuerEventId, uint32_t implementationDateTime,
00008     uint16_t proposedPaymentControlConfiguration, uint32_t cutOffValue );
00009
00010
00011 bool emberAfPluginPrepaymentClusterChangePaymentModeResponseCallback
00012   ( uint8_t friendlyCredit, uint32_t friendlyCreditCalendarId, uint32_t
00013     emergencyCreditLimit, uint32_t emergencyCreditThreshold );
00014
00015
00016 #endif // #ifndef _PREPAYMENT_CLIENT_H_
00017

```

## 8.228 prepayment-debt-log.h File Reference

### Enumerations

- enum { `DEBT_TYPE_1`, `DEBT_TYPE_2`, `DEBT_TYPE_3`, `DEBT_TYPE_ALL` }

## Functions

- void `emberAfPluginPrepaymentServerInitDebtLog` (void)
- void `emberAfPluginUpdateDebtOnCollectionEvent` (uint8\_t endpoint, uint8\_t debtType)
- void `emberAfPluginPrepaymentPrintDebtLogIndex` (uint8\_t index)
- void `emberAfPluginPrepaymentPrintDebtAttributes` (uint8\_t endpoint, uint8\_t index)
- void `emberAfPluginSendPublishDebtLog` (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint32\_t latestEndTime, uint8\_t numberOfDebts, uint8\_t debtType)
- uint32\_t `emberAfPluginPrepaymentGetDebtRecoveryTopUpPercentage` (uint8\_t endpoint, uint32\_t topUpValue)

### 8.228.1 Enumeration Type Documentation

#### 8.228.1.1 anonymous enum

Enumerator:

*DEBT\_TYPE\_1*  
*DEBT\_TYPE\_2*  
*DEBT\_TYPE\_3*  
*DEBT\_TYPE\_ALL*

Definition at line 23 of file [prepayment-debt-log.h](#).

### 8.228.2 Function Documentation

#### 8.228.2.1 void `emberAfPluginPrepaymentServerInitDebtLog` ( void )

Initialize the debt log.

#### 8.228.2.2 void `emberAfPluginUpdateDebtOnCollectionEvent` ( uint8\_t *endpoint*, uint8\_t *debtType* )

Updates the debt collection attributes for the specified debt index (DEBT\_INDEX\_1, 2, or 3).

##### Parameters

<i>endpoint</i>	The endpoint number of the prepayment server.
<i>debtIndex</i>	The debt index whose collection attributes should be updated

#### 8.228.2.3 void `emberAfPluginPrepaymentPrintDebtLogIndex` ( uint8\_t *index* )

Print the information in the debt log at the specified index.

##### Parameters

<i>index</i>	The index into the debt log whose contents should be printed.
--------------	---

#### 8.228.2.4 void emberAfPluginPrepaymentPrintDebtAttributes ( uint8\_t *endpoint*, uint8\_t *index* )

Print the debt attribute set specified by the index parameter.

##### Parameters

<i>endpoint</i>	The endpoint number of the prepayment server.
<i>index</i>	Specifies which of the 3 debt attribute sets should be printed.

#### 8.228.2.5 void emberAfPluginSendPublishDebtLog ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint32\_t *latestEndTime*, uint8\_t *numberOfDebts*, uint8\_t *debtType* )

Called to request sending a Publish Debt Log command.

##### Parameters

<i>nodeId</i>	The address of the destination node to whom the Publish Debt Log command should be sent.
<i>srcEndpoint</i>	The endpoint of the sender that supports the prepayment server.
<i>dstEndpoint</i>	The endpoint on the destination node that supports the prepayment client.
<i>latestEndTime</i>	The latest collection time of debt repayment records to be returned in the Publish Debt Log command.
<i>numberOfDebts</i>	The maximum number of debt repayment records to send in the command.
<i>debtType</i>	Identifies the type of debt record(s) to include in the command.

#### 8.228.2.6 uint32\_t emberAfPluginPrepaymentGetDebtRecoveryTopUpPercentage ( uint8\_t *endpoint*, uint32\_t *topUpValue* )

Calculates the percentage of a top up amount that should be applied towards debt reduction.

##### Parameters

<i>endpoint</i>	The endpoint number of the prepayment server
<i>topUpValue</i>	The top up value amount.

##### Returns

Returns the amount of the top up value that should be applied to debt reduction.

## 8.229 prepayment-debt-log.h

```

00001 // ****
00002 // * prepayment-debt-log-table.h
00003 // *
00004 // * Implemented routines for interacting with the debt log.
00005 // *
00006 // * Copyright 2014 by Silicon Laboratories, Inc.
00007 //
00008 ****
00009
00010

```

```

00011 #ifndef _PREPAYMENT_DEBT_LOG_H_
00012 #define _PREPAYMENT_DEBT_LOG_H_
00013
00014
00019 void emberAfPluginPrepaymentServerInitDebtLog
    ( void );
00020
00021
00022
00023 enum{
00024     DEBT_TYPE_1    = 0x00,
00025     DEBT_TYPE_2    = 0x01,
00026     DEBT_TYPE_3    = 0x02,
00027     DEBT_TYPE_ALL  = 0xFF
00028 };
00029
00030
00037 void emberAfPluginUpdateDebtOnCollectionEvent
    ( uint8_t endpoint, uint8_t debtType );
00038
00039
00040
00046 void emberAfPluginPrepaymentPrintDebtLogIndex
    ( uint8_t index );
00047
00048
00055 void emberAfPluginPrepaymentPrintDebtAttributes
    ( uint8_t endpoint, uint8_t index );
00056
00057
00068 void emberAfPluginSendPublishDebtLog(
    EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00069                                uint32_t latestEndTime, uint8_t
    numberOfDebts, uint8_t debtType );
00070
00071
00078 uint32_t emberAfPluginPrepaymentGetDebtRecoveryTopUpPercentage
    ( uint8_t endpoint, uint32_t topUpValue );
00079
00080
00081 #endif // #ifndef _PREPAYMENT_DEBT_LOG_H_
00082

```

## 8.230 prepayment-debt-schedule.h File Reference

### Data Structures

- struct [emDebtScheduleEntry](#)

### Functions

- void [emberAfPluginPrepaymentServerInitDebtSchedule](#) (void)
- void [emberAfPluginPrepaymentServerScheduleDebtRepayment](#) (uint8\_t endpoint, uint32\_t issuerEventId, uint8\_t debtType, uint16\_t collectionTime, uint32\_t startTime, uint8\_t collectionFrequency)
- void [emberAfPrepaymentServerSetDebtMode](#) (uint8\_t endpoint, uint32\_t timeNowUtc)
- uint32\_t [emberAfPrepaymentServerSecondsUntilDebtCollectionEvent](#) (uint32\_t timeNowUtc)

#### 8.230.1 Function Documentation

##### 8.230.1.1 void [emberAfPluginPrepaymentServerInitDebtSchedule](#) ( void )

Initializes the debt schedule.

**8.230.1.2 void emberAfPluginPrepaymentServerScheduleDebtRepayment ( uint8\_t endpoint, uint32\_t issuerEventId, uint8\_t debtType, uint16\_t collectionTime, uint32\_t startTime, uint8\_t collectionFrequency )**

Schedules a received debt repayment event.

#### Parameters

<i>endpoint</i>	The endpoint number of the prepayment server.
<i>issuerEventId</i>	The issuerEventId sent in the received Change Debt command.
<i>debtType</i>	Indicates if the debt applies to Debt #1, #2, or #3 attributes.
<i>collectionTime</i>	The time offset (in minutes) relative to midnight when debt collection should take place.
<i>startTime</i>	The UTC time that denotes the time at which the debt collection should start, subject to the collectionTime.
<i>collectionFrequency</i>	Specifies the period over which each collection should take place (hourly, daily, weekly, etc).

**8.230.1.3 void emberAfPrepaymentServerSetDebtMode ( uint8\_t endpoint, uint32\_t timeNowUtc )**

Checks all debt schedules to see if any debt collections must be performed.

#### Parameters

<i>endpoint</i>	The endpoint number of the prepayment server.
<i>timeNowUtc</i>	Specifies the current UTC time.

**8.230.1.4 uint32\_t emberAfPrepaymentServerSecondsUntilDebtCollectionEvent ( uint32\_t timeNowUtc )**

Determines the number of seconds until the next debt collection event will occur.

#### Parameters

<i>timeNowUtc</i>	Specifies the current UTC time.
-------------------	---------------------------------

## 8.231 prepayment-debt-schedule.h

```

00001 #ifndef _PREPAYMENT_DEBT_SCHEDULE_H_
00002 #define _PREPAYMENT_DEBT_SCHEDULE_H_
00003
00004
00005 typedef struct{
00006     uint32_t issuerEventId;
00007     uint16_t collectionTime;
00008     uint32_t nextCollectionTimeUtc;
00009     uint32_t firstCollectionTimeSec; // Time of first
00010     collection
00011     uint8_t collectionFrequency; // Time between
00012     collections (hour, day, week, month, etc)
00013     uint8_t debtType;
00014     uint8_t endpoint;
00015 } emDebtScheduleEntry;
00016
00017
00018 void emberAfPluginPrepaymentServerInitDebtSchedule
00019     ( void );
00020
00021
00022

```

```

00033 void emberAfPluginPrepaymentServerScheduleDebtRepayment
    ( uint8_t endpoint, uint32_t issuerEventId, uint8_t debtType, uint16_t
    collectionTime, uint32_t startTime, uint8_t collectionFrequency );
00034
00035
00042 void emberAfPrepaymentServerSetDebtMode(
    uint8_t endpoint, uint32_t timeNowUtc );
00043
00044
00050 uint32_t emberAfPrepaymentServerSecondsUntilDebtCollectionEvent
    ( uint32_t timeNowUtc );
00051
00052
00053
00054
00055
00056 #endif // #ifndef _PREPAYMENT_DEBT_SCHEDULE_H_
00057
00058

```

## 8.232 prepayment-modes-table.h File Reference

### Functions

- void [emInitPrepaymentModesTable](#) (void)
- void [emberAfPrepaymentSchedulePrepaymentMode](#) (uint8\_t endpoint, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t dateUTC, uint16\_t paymentControlConfig)
- uint32\_t [emberAfPrepaymentServerSecondsUntilPaymentModeEvent](#) (uint32\_t timeNowUTC)
- void [emberAfPrepaymentServerSetPaymentMode](#) (uint8\_t endpoint)

#### 8.232.1 Function Documentation

##### 8.232.1.1 void emInitPrepaymentModesTable ( void )

Initializes the prepayment mode table.

##### 8.232.1.2 void emberAfPrepaymentSchedulePrepaymentMode ( uint8\_t endpoint, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t dateUTC, uint16\_t paymentControlConfig )

Schedules a prepayment mode at some current or future time.

#### Parameters

<i>endpoint</i>	The endpoint of the device that supports the prepayment server.
<i>providerId</i>	A unique identifier for the commodity supplier to whom this command relates.
<i>issuerEventId</i>	A unique identifier that identifies this prepayment mode event. Newer events should have a larger issuerEventId than older events.
<i>dateUTC</i>	The UTC time that indicates when the payment mode change should be applied. A value of 0x00000000 indicates the command should be executed immediately. A value of 0xFFFFFFFF indicates an existing change payment mode command with the same provider ID and issuer event ID should be cancelled.
<i>paymentControlConfig</i>	A bitmap that indicates which actions should be taken when switching the payment mode.

### 8.232.1.3 `uint32_t emberAfPrepaymentServerSecondsUntilPaymentModeEvent ( uint32_t timeNowUtc )`

Determines the number of remaining seconds until the next prepayment mode event is scheduled to occur.

#### Parameters

<code>timeNowUtc</code>	The current UTC time.
-------------------------	-----------------------

#### Returns

Returns the number of remaining seconds until the next prepayment mode event.

### 8.232.1.4 `void emberAfPrepaymentServerSetPaymentMode ( uint8_t endpoint )`

Sets the current payment mode on the prepayment server.

#### Parameters

<code>endpoint</code>	The endpoint of the prepayment server.
-----------------------	--

## 8.233 prepayment-modes-table.h

```

00001 // ****
00002 // * prepayment-modes-table.h
00003 // *
00004 // * Implemented routines for storing future prepayment modes.
00005 // *
00006 // * Copyright 2014 by Silicon Laboratories, Inc.
00007 //
00008 ****
00009 #ifndef _PREPAYMENT_MODES_TABLE_H_
00010 #define _PREPAYMENT_MODES_TABLE_H_
00011
00012
00013 void emInitPrepaymentModesTable( void );
00014
00015
00016 void emberAfPrepaymentSchedulePrepaymentMode
00017   ( uint8_t endpoint, uint32_t providerId, uint32_t issuerEventId, uint32_t
00018     dateTmeUtc, uint16_t paymentControlConfig );
00019
00020
00021
00022 uint32_t emberAfPrepaymentServerSecondsUntilPaymentModeEvent
00023   ( uint32_t timeNowUtc );
00024
00025
00026 void emberAfPrepaymentServerSetPaymentMode
00027   ( uint8_t endpoint );
00028
00029
00030
00031
00032
00033
00034
00035
00036
00037
00038
00039
00040
00041
00042
00043
00044
00045
00046
00047
00048
00049
00050 //void updatePaymentControlConfiguration( uint8_t endpoint, uint16_t
00051   paymentControlConfig );
00052
00053
00054 #endif // #ifndef _PREPAYMENT_MODES_TABLE_H_
00055
00056

```

## 8.234 prepayment-server.h File Reference

### Macros

- `#define SNAPSHOT_PAYLOAD_LEN`

### Enumerations

- `enum { SNAPSHOT_PAYLOAD_TYPE_DEBT_OR_CREDIT_STATUS }`

### Functions

- `void emberAfPluginPrepaymentServerPublishPrepaySnapshot (EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint32_t snapshotId, uint32_t snapshotTime, uint8_t totalSnapshotsFound, uint8_t commandIndex, uint8_t totalNumberOfCommands, uint32_t snapshotCause, uint8_t snapshotPayloadType, uint8_t *snapshotPayload)`
- `void emberAfPluginPrepaymentServerPublishTopUpLog (EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t commandIndex, uint8_t totalNumberOfCommands, TopUpPayload *topUpPayload)`
- `void emberAfPluginPrepaymentServerPublishDebtLog (EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t commandIndex, uint8_t totalNumberOfCommands, DebtPayload *debtPayload)`

#### 8.234.1 Macro Definition Documentation

##### 8.234.1.1 `#define SNAPSHOT_PAYLOAD_LEN`

Definition at line 10 of file `prepayment-server.h`.

#### 8.234.2 Enumeration Type Documentation

##### 8.234.2.1 anonymous enum

Enumerator:

##### `SNAPSHOT_PAYLOAD_TYPE_DEBT_OR_CREDIT_STATUS`

Definition at line 6 of file `prepayment-server.h`.

#### 8.234.3 Function Documentation

##### 8.234.3.1 `void emberAfPluginPrepaymentServerPublishPrepaySnapshot ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint32_t snapshotId, uint32_t snapshotTime, uint8_t totalSnapshotsFound, uint8_t commandIndex, uint8_t totalNumberOfCommands, uint32_t snapshotCause, uint8_t snapshotPayloadType, uint8_t * snapshotPayload )`

Sends a Publish Prepay Snapshot command, sent in response to the Get Prepay Snapshot command..

**Parameters**

<i>nodeId</i>	The short address of the destination device.
<i>srcEndpoint</i>	The source endpoint used in the ZigBee transmission.
<i>dstEndpoint</i>	The destination endpoint used in the ZigBee transmission.
<i>snapshotId</i>	A unique identifier allocated by the device that created the snapshot.
<i>snapshotTime</i>	The UTC time when the snapshot was taken.
<i>totalSnapshots-Found</i>	The number of snapshots that matched the criteria in the received Get Prepay Snapshot command.
<i>commandIndex</i>	Indicates a fragment number if the entire payload won't fit into 1 message.
<i>totalNumber-OfCommands</i>	The total number of subcommands that will be sent.
<i>snapshotCause</i>	A 32-bit bitmap that indicates the cause of the snapshot.
<i>snapshot-PayloadType</i>	An 8-bit enum that defines the format of the snapshot payload.
<i>snapshot-Payload</i>	Data that was created with the snapshot.

```
8.234.3.2 void emberAfPluginPrepaymentServerPublishTopUpLog ( EmberNodeId nodeId, uint8_t
srcEndpoint, uint8_t dstEndpoint, uint8_t commandIndex, uint8_t totalNumberOfCommands,
TopUpPayload * topUpPayload )
```

Sends a Publish Top Up Log command, sent when a top up is performed, or in response to a Get Top Up Log command.

**Parameters**

<i>nodeId</i>	The short address of the destination device.
<i>srcEndpoint</i>	The source endpoint used in the ZigBee transmission.
<i>dstEndpoint</i>	The destination endpoint used in the ZigBee transmission.
<i>commandIndex</i>	Indicates a fragment number if the entire payload won't fit into 1 message.
<i>totalNumber-OfCommands</i>	The total number of subcommands that will be sent.
<i>topUpPayload</i>	Information that is sent from each top up log entry.

```
8.234.3.3 void emberAfPluginPrepaymentServerPublishDebtLog ( EmberNodeId nodeId, uint8_t
srcEndpoint, uint8_t dstEndpoint, uint8_t commandIndex, uint8_t totalNumberOfCommands,
DebtPayload * debtPayload )
```

Sends a Publish Debt Log command.

**Parameters**

<i>nodeId</i>	The short address of the destination device.
<i>srcEndpoint</i>	The source endpoint used in the ZigBee transmission.
<i>dstEndpoint</i>	The destination endpoint used in the ZigBee transmission.
<i>commandIndex</i>	Indicates a fragment number if the entire payload won't fit into 1 message.
<i>totalNumber-OfCommands</i>	The total number of subcommands that will be sent.
<i>debtPayload</i>	Includes the contents of a debt record from the log.

## 8.235 prepayment-server.h

```

00001 #ifndef _PREPAYMENT_SERVER_H_
00002 #define _PREPAYMENT_SERVER_H_
00003
00004
00005 // Snapshot payload type, D7.2.4.2.2 - Publish Prepay Snapshot Command
00006 enum{
00007     SNAPSHOT_PAYLOAD_TYPE_DEBT_OR_CREDIT_STATUS
00008         = 0x00,
00009 };
00010 #define SNAPSHOT_PAYLOAD_LEN 24
00011
00012
00013
00029 void emberAfPluginPrepaymentServerPublishPrepaySnapshot
00030     ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00031                     uint32_t snapshotId,
00032                     uint32_t snapshotTime,
00033                     uint8_t totalSnapshotsFound, uint8_t commandIndex,
00034                     uint8_t totalNumberOfCommands,
00035                     uint32_t snapshotCause
00036                     ,
00037                     uint8_t snapshotPayloadType,
00038                     uint8_t *snapshotPayload );
00039
00048 void emberAfPluginPrepaymentServerPublishTopUpLog
00049     ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00050                     uint8_t commandIndex,
00051                     uint8_t totalNumberOfCommands,
00052                     TopUpPayload *topUpPayload
00053 );
00054
00062 void emberAfPluginPrepaymentServerPublishDebtLog
00063     ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00064                     uint8_t commandIndex, uint8_t
00065                     totalNumberOfCommands,
00066                     DebtPayload *debtPayload );
00067 #endif // #ifndef _PREPAYMENT_SERVER_H_
00068

```

## 8.236 prepayment-snapshot-storage.h File Reference

### Data Structures

- struct [EmberAfPrepaymentSnapshotPayload](#)
- struct [EmberAfPrepaymentSnapshotSchedulePayload](#)

### Macros

- #define [INVALID\\_SNAPSHOT\\_ID](#)
- #define [INVALID\\_SNAPSHOT\\_SCHEDULE\\_ID](#)
- #define [SNAPSHOT\\_CAUSE\\_ALL\\_SNAPSHOTS](#)

## Enumerations

- enum {
 **SNAPSHOT\_CAUSE\_GENERAL**, **SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD**, **SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFO**, **SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX**,  
**SNAPSHOT\_CAUSE\_MANUALLY\_TRIGGERED\_FROM\_CLIENT**, **SNAPSHOT\_CAUSE\_CHANGE\_OF\_TENANCY**, **SNAPSHOT\_CAUSE\_CHANGE\_OF\_SUPPLIER**, **SNAPSHOT\_CAUSE\_CHANGE\_OF\_METER\_MODE**,  
**SNAPSHOT\_CAUSE\_TOP\_UP\_ADDITION**, **SNAPSHOT\_CAUSE\_DEBT\_OR\_CREDIT\_ADDITION** }

## Functions

- void **emberAfPluginPrepaymentSnapshotStorageInitCallback** (uint8\_t endpoint)
- uint32\_t **emberAfPluginPrepaymentSnapshotStorageTakeSnapshot** (uint8\_t endpoint, uint32\_t snapshotCause)
- uint8\_t **emberAfPluginPrepaymentServerGetSnapshotCallback** (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint32\_t startTime, uint32\_t endTime, uint8\_t snapshotOffset, uint32\_t snapshotCause)
- **EmberStatus** **emberAfPluginPrepaymentSnapshotStoragePublishSnapshot** (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint32\_t snapshotTableIndex)

### 8.236.1 Macro Definition Documentation

#### 8.236.1.1 #define INVALID\_SNAPSHOT\_ID

Definition at line 6 of file [prepayment-snapshot-storage.h](#).

#### 8.236.1.2 #define INVALID\_SNAPSHOT\_SCHEDULE\_ID

Definition at line 7 of file [prepayment-snapshot-storage.h](#).

#### 8.236.1.3 #define SNAPSHOT\_CAUSE\_ALL\_SNAPSHOTS

Definition at line 35 of file [prepayment-snapshot-storage.h](#).

### 8.236.2 Enumeration Type Documentation

#### 8.236.2.1 anonymous enum

Defined snapshot causes.

Enumerator:

**SNAPSHOT\_CAUSE\_GENERAL**  
**SNAPSHOT\_CAUSE\_END\_OF\_BILLING\_PERIOD**  
**SNAPSHOT\_CAUSE\_CHANGE\_OF\_TARIFF\_INFO**  
**SNAPSHOT\_CAUSE\_CHANGE\_OF\_PRICE\_MATRIX**

```
SNAPSHOT_CAUSE_MANUALLY_TRIGGERED_FROM_CLIENT
SNAPSHOT_CAUSE_CHANGE_OF_TENANCY
SNAPSHOT_CAUSE_CHANGE_OF_SUPPLIER
SNAPSHOT_CAUSE_CHANGE_OF_METER_MODE
SNAPSHOT_CAUSE_TOP_UP_ADDITION
SNAPSHOT_CAUSE_DEBT_OR_CREDIT_ADDITION
```

Definition at line 23 of file [prepayment-snapshot-storage.h](#).

### 8.236.3 Function Documentation

- 8.236.3.1 `void emberAfPluginPrepaymentSnapshotStorageInitCallback ( uint8_t endpoint )`
- 8.236.3.2 `uint32_t emberAfPluginPrepaymentSnapshotStorageTakeSnapshot ( uint8_t endpoint, uint32_t snapshotCause )`
- 8.236.3.3 `uint8_t emberAfPluginPrepaymentServerGetSnapshotCallback ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint32_t startTime, uint32_t endTime, uint8_t snapshotOffset, uint32_t snapshotCause )`
- 8.236.3.4 `EmberStatus emberAfPluginPrepaymentSnapshotStoragePublishSnapshot ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint32_t snapshotTableIndex )`

## 8.237 prepayment-snapshot-storage.h

```
00001 #ifndef _PREPAYMENT_SNAPSHOT_STORAGE_H_
00002 #define _PREPAYMENT_SNAPSHOT_STORAGE_H_
00003
00004
00005 // 0 is technically valid, but we'll designate it to be our "invalid" value.
00006 #define INVALID_SNAPSHOT_ID          0
00007 #define INVALID_SNAPSHOT_SCHEDULE_ID  0
00008
00009
00010 void emberAfPluginPrepaymentSnapshotStorageInitCallback
00011   ( uint8_t endpoint );
00012
00013 uint32_t emberAfPluginPrepaymentSnapshotStorageTakeSnapshot
00014   ( uint8_t endpoint, uint32_t snapshotCause );
00015
00016 uint8_t emberAfPluginPrepaymentServerGetSnapshotCallback
00017   ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00018     uint32_t startTime,
00019     uint32_t endTime,
00020     uint8_t snapshotOffset
00021   ,
00022     uint32_t snapshotCause
00023 );
00024
00025 enum{
00026   SNAPSHOT_CAUSE_GENERAL           = ( ((
00027     uint32_t)1) << 0 ),
00028   SNAPSHOT_CAUSE_END_OF_BILLING_PERIOD
00029     = ( ((uint32_t)1) << 1 ),
00030   SNAPSHOT_CAUSE_CHANGE_OF_TARIFF_INFO
00031     = ( ((uint32_t)1) << 3 ),
00032   SNAPSHOT_CAUSE_CHANGE_OF_PRICE_MATRIX
00033     = ( ((uint32_t)1) << 4 ),
00034   SNAPSHOT_CAUSE_MANUALLY_TRIGGERED_FROM_CLIENT
00035     = ( ((uint32_t)1) << 10 ),
00036   SNAPSHOT_CAUSE_CHANGE_OF_TENANCY
00037     = ( ((uint32_t)1) << 12 ),
```

```

00030     SNAPSHOT_CAUSE_CHANGE_OF_SUPPLIER
00031     = ( ((uint32_t)1) << 13 ),
00032     SNAPSHOT_CAUSE_CHANGE_OF_METER_MODE
00033     = ( ((uint32_t)1) << 14 ),
00034     SNAPSHOT_CAUSE_TOP_UP_ADDITION
00035     = ( ((uint32_t)1) << 18 ),
00036     SNAPSHOT_CAUSE_DEBT_OR_CREDIT_ADDITION
00037     = ( ((uint32_t)1) << 19 ),
00038 };
00039 #define SNAPSHOT_CAUSE_ALL_SNAPSHOTS 0xFFFFFFFF
00040
00041
00042
00043
00044
00045
00046 // For now, only 1 snapshot type exists (Debt/Credit), so there is only 1
00047 // payload.
00048     int32_t accumulatedDebt;
00049     uint32_t type1DebtRemaining;
00050     uint32_t type2DebtRemaining;
00051     uint32_t type3DebtRemaining;
00052     int32_t emergencyCreditRemaining;
00053
00054 } EmberAfPrepaymentSnapshotPayload;
00055
00056
00057 typedef struct{
00058     // Stores fields needed to schedule a new snapshot.
00059     uint32_t snapshotScheduleId;
00060     uint32_t snapshotStartTime;
00061     uint32_t snapshotCauseBitmap;
00062     EmberNodeId requestingId;
00063     uint8_t srcEndpoint;
00064     uint8_t dstEndpoint;
00065     uint8_t snapshotPayloadType;
00066 } EmberAfPrepaymentSnapshotSchedulePayload
00067 ;
00068 EmberStatus emberAfPluginPrepaymentSnapshotStoragePublishSnapshot
00069     (EmberNodeId nodeId,
00070      srcEndpoint,                                uint8_t
00071      dstEndpoint,                                uint8_t
00072      snapshotTableIndex);                        uint32_t
00073
00074 #endif // #ifndef _PREPAYMENT_SNAPSHOT_STORAGE_H_
00075

```

## 8.238 prepayment-tick.h File Reference

### Macros

- #define EVENT\_TIME\_NO\_PENDING\_EVENTS

## Enumerations

- enum {
 PREPAYMENT\_TICK\_CHANGE\_DEBT\_EVENT, PREPAYMENT\_TICK\_EMERGENCY\_CREDIT\_EVENT, PREPAYMENT\_TICK\_CREDIT\_ADJUSTMENT\_EVENT, PREPAYMENT\_TICK\_CHANGE\_PAYMENT\_MODE\_EVENT,
 PREPAYMENT\_TICK\_MAX\_CREDIT\_LIMIT\_EVENT, PREPAYMENT\_TICK\_DEBT\_CAP\_EVENT }

## Functions

- void `emberAfPrepaymentClusterScheduleTickCallback` (uint8\_t endpoint, uint16\_t event)
- void `emberAfPrepaymentClusterClearPendingEvent` (uint16\_t event)

### 8.238.1 Macro Definition Documentation

#### 8.238.1.1 #define EVENT\_TIME\_NO\_PENDING\_EVENTS

Definition at line 14 of file `prepayment-tick.h`.

### 8.238.2 Enumeration Type Documentation

#### 8.238.2.1 anonymous enum

Enumerator:

*PREPAYMENT\_TICK\_CHANGE\_DEBT\_EVENT*  
*PREPAYMENT\_TICK\_EMERGENCY\_CREDIT\_EVENT*  
*PREPAYMENT\_TICK\_CREDIT\_ADJUSTMENT\_EVENT*  
*PREPAYMENT\_TICK\_CHANGE\_PAYMENT\_MODE\_EVENT*  
*PREPAYMENT\_TICK\_MAX\_CREDIT\_LIMIT\_EVENT*  
*PREPAYMENT\_TICK\_DEBT\_CAP\_EVENT*

Definition at line 5 of file `prepayment-tick.h`.

### 8.238.3 Function Documentation

#### 8.238.3.1 void `emberAfPrepaymentClusterScheduleTickCallback` ( uint8\_t endpoint, uint16\_t event )

Sets the event flag and schedules the prepayment tick based on the next expiring pending event.

##### Parameters

<i>endpoint</i>	The endpoint of the device that supports the prepayment server. The event bit that should be set when scheduling the next tick.
-----------------	---

### 8.238.3.2 void emberAfPrepaymentClusterClearPendingEvent ( uint16\_t event )

This function clears an event flag from the pending events bitmask. The event bit that should be cleared.

## 8.239 prepayment-tick.h

```

00001 #ifndef _PREPAYMENT_TICK_H_
00002 #define _PREPAYMENT_TICK_H_
00003
00004 /**
00005 enum{
00006     PREPAYMENT_TICK_CHANGE_DEBT_EVENT      =
00007         (1 << 0),
00008     PREPAYMENT_TICK_EMERGENCY_CREDIT_EVENT   =
00009         (1 << 1),
00010     PREPAYMENT_TICK_CREDIT_ADJUSTMENT_EVENT  =
00011         (1 << 2),
00012     PREPAYMENT_TICK_CHANGE_PAYMENT_MODE_EVENT =
00013         (1 << 3),
00014     PREPAYMENT_TICK_MAX_CREDIT_LIMIT_EVENT    =
00015         (1 << 4),
00016     PREPAYMENT_TICK_DEBT_CAP_EVENT           = (1
00017         << 5),
00018 };
00019
00020 #define EVENT_TIME_NO_PENDING_EVENTS 0xFFFFFFFF
00021
00022 void emberAfPrepaymentClusterScheduleTickCallback
00023     ( uint8_t endpoint, uint16_t event );
00024
00025 void emberAfPrepaymentClusterClearPendingEvent
00026     ( uint16_t event );
00027
00028
00029
00030 #endif // #ifndef _PREPAYMENT_TICK_H_
00031
00032
00033
00034 #endif // #ifndef _PREPAYMENT_TICK_H_
00035

```

## 8.240 prepayment-topup.h File Reference

### Functions

- void [emberAfPluginSendPublishTopUpLog](#) (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint32\_t latestEndTime, uint8\_t numberOfRecords)
- void [emberAfPluginPrepaymentServerPublishTopUpLog](#) (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t commandIndex, uint8\_t totalNumberOfCommands, TopUpPayload \*topUpPayload)

### 8.240.1 Function Documentation

#### 8.240.1.1 void emberAfPluginSendPublishTopUpLog ( EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint32\_t latestEndTime, uint8\_t numberOfRecords )

Formats top up payload data needed by the Publish Top Up Log command.

#### Parameters

<i>nodeId</i>	The address of the destination node to whom the Publish Top Up Log command should be sent.
---------------	--

<i>srcEndpoint</i>	The endpoint of the sender that supports the prepayment cluster.
<i>dstEndpoint</i>	The endpoint on the destination node that supports the prepayment client.
<i>latestEndTime</i>	The latest top up time of top up records to be returned in the Publish Top Up Log command(s).
<i>numberOfRecords</i>	The maximum number of records to return in the Publish Top Up Log command(s).

**8.240.1.2 void emberAfPluginPrepaymentServerPublishTopUpLog ( EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t commandIndex, uint8\_t totalNumberOfCommands, TopUpPayload \*topUpPayload )**

Sends a Publish Top Up Log command.

#### Parameters

<i>nodeId</i>	The address of the destination node to whom the Publish Top Up Log command should be sent.
<i>srcEndpoint</i>	The endpoint of the sender that supports the prepayment cluster.
<i>dstEndpoint</i>	The endpoint on the destination node that supports the prepayment client.
<i>commandIndex</i>	Indicates which payload fragment is being sent. Set to 0xFE if this is the last expected command.
<i>totalNumberOfCommands</i>	If the payload does not fit into 1 command, this indicates the total number of sub-commands in the message.
<i>topUpPayload</i>	An array of Tup Up Payload structures, containing the payload that should be included in the Publish Top Up Log command.

## 8.241 prepayment-topup.h

```

00001
00002 #ifndef _PREPAYMENT_TOP_UP_H_
00003 #define _PREPAYMENT_TOP_UP_H_
00004
00005
00015 void emberAfPluginSendPublishTopUpLog(
    EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00016                                uint32_t latestEndTime, uint8_t
    numberOfRecords );
00017
00028 void emberAfPluginPrepaymentServerPublishTopUpLog
    ( EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint,
00029                                uint8_t commandIndex,
    uint8_t totalNumberOfCommands,
00030                                TopUpPayload *topUpPayload
    );
00031
00032
00033 #endif // #ifndef _PREPAYMENT_TOP_UP_H_
00034

```

## 8.242 price-client.h File Reference

#### Data Structures

- struct [EmberAfPriceClientCommonInfo](#)

- struct `EmberAfPriceClientBillingPeriod`
- struct `EmberAfPriceClientBlockPeriod`
- struct `EmberAfPriceClientBlockThreshold`
- struct `EmberAfPriceClientCalorificValue`
- struct `EmberAfPriceClientCo2Value`
- struct `EmberAfPriceClientConversionFactor`
- struct `EmberAfPriceClientCppEvent`
- struct `EmberAfPriceClientCreditPayment`
- struct `EmberAfPriceClientCurrencyConversion`
- struct `EmberAfPriceClientTierLabels`
- struct `EmberAfPriceClientBillingPeriodTable`
- struct `EmberAfPriceClientBlockPeriodTable`
- struct `EmberAfPriceClientBlockThresholdTable`
- struct `EmberAfPriceClientCalorificValueTable`
- struct `EmberAfPriceClientCo2ValueTable`
- struct `EmberAfPriceClientConversionFactorTable`
- struct `EmberAfPriceClientCppEventTable`
- struct `EmberAfPriceClientCreditPaymentTable`
- struct `EmberAfPriceClientCurrencyConversionTable`
- struct `EmberAfPriceClientTierLabelsTable`
- struct `EmberAfPriceClientInfo`

## Macros

- #define `EMBER_AF_PLUGIN_PRICE_CLIENT_TABLE_SIZE`
- #define `ZCL_PRICE_CLUSTER_PRICE_ACKNOWLEDGEMENT_MASK`
- #define `ZCL_PRICE_CLUSTER_RESERVED_MASK`
- #define `ZCL_PRICE_CLUSTER_DURATION_UNTIL_CHANGED`
- #define `ZCL_PRICE_CLUSTER_PRICE_RATIO_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_GENERATION_PRICE_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_GENERATION_PRICE_RATIO_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_ALTERNATE_COST_DELIVERED_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_ALTERNATE_COST_UNIT_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_ALTERNATE_COST_TRAILING_DIGIT_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_NUMBER_OF_BLOCK_THRESHOLDS_NOT_USED`
- #define `ZCL_PRICE_CLUSTER_PRICE_CONTROL_NOT_USED`
- #define `UNSPECIFIED_PROVIDER_ID`
- #define `UNSPECIFIED_DURATION`
- #define `EMBER_AF_PLUGIN_PRICE_CLUSTER_MAX_CREDIT_PAYMENT_REF_LENGTH`

## Functions

- void `emAfPluginPriceClientPrintInfo` (uint8\_t endpoint)
- void `emAfPluginPriceClientPrintByEventId` (uint8\_t endpoint, uint32\_t issuerEventId)
- void `emAfPriceClearPriceTable` (uint8\_t endpoint)
- uint8\_t `emAfPriceGetBlockPeriodTableIndexByEventId` (uint8\_t endpoint, uint32\_t issuerEventId)
- void `emAfPricePrintBlockPeriodTableIndex` (uint8\_t endpoint, uint8\_t index)
- uint8\_t `emAfPriceGetConversionFactorIndexByEventId` (uint8\_t endpoint, uint32\_t issuerEventId)
- void `emAfPricePrintConversionFactorEntryIndex` (uint8\_t endpoint, uint8\_t index)

- `uint8_t emAfPriceGetCalorificValueIndexByEventId (uint8_t endpoint, uint32_t issuerEventId)`
- `void emAfPricePrintCalorificValueEntryIndex (uint8_t endpoint, uint8_t index)`
- `void emberAfPriceInitConsolidatedBillsTable (uint8_t endpoint)`
- `uint8_t emberAfPriceClusterGetActiveCo2ValueIndex (uint8_t endpoint)`
- `uint8_t emAfPriceGetActiveTierLabelTableIndexByTariffId (uint8_t endpoint, uint32_t tariffId)`
- `void emAfPricePrintTierLabelTableEntryIndex (uint8_t endpoint, uint8_t index)`
- `void emAfPricePrintCo2ValueTablePrintIndex (uint8_t endpoint, uint8_t index)`
- `uint8_t emAfPriceConsolidatedBillTableGetIndexWithEventId (uint8_t endpoint, uint32_t issuerEventId)`
- `uint8_t emAfPriceConsolidatedBillTableGetCurrentIndex (uint8_t endpoint)`
- `void emAfPricePrintConsolidatedBillTableIndex (uint8_t endpoint, uint8_t index)`
- `void emberAfPricePrintCppEvent (uint8_t endpoint)`
- `uint8_t emAfPriceCreditPaymentTableGetIndexWithEventId (uint8_t endpoint, uint32_t issuerEventId)`
- `void emAfPricePrintCreditPaymentTableEventId (uint32_t issuerEventId)`
- `void emAfPricePrintCreditPaymentTableIndex (uint8_t endpoint, uint8_t index)`
- `uint8_t emberAfPriceClusterCurrencyConversionTableGetIndexByEventId (uint8_t endpoint, uint32_t issuerEventId)`
- `void emAfPricePrintCurrencyConversionTableIndex (uint8_t endpoint, uint8_t index)`
- `uint8_t emberAfPriceClusterGetActiveCurrencyIndex (uint8_t endpoint)`
- `uint8_t emAfPriceGetActiveBillingPeriodIndex (uint8_t endpoint)`
- `void emAfPricePrintBillingPeriodTableEntryIndex (uint8_t endpoint, uint8_t index)`

## 8.242.1 Macro Definition Documentation

### 8.242.1.1 #define EMBER\_AF\_PLUGIN\_PRICE\_CLIENT\_TABLE\_SIZE

Definition at line 12 of file [price-client.h](#).

### 8.242.1.2 #define ZCL\_PRICE\_CLUSTER\_PRICE\_ACKNOWLEDGEMENT\_MASK

Definition at line 15 of file [price-client.h](#).

### 8.242.1.3 #define ZCL\_PRICE\_CLUSTER\_RESERVED\_MASK

Definition at line 16 of file [price-client.h](#).

### 8.242.1.4 #define ZCL\_PRICE\_CLUSTER\_DURATION\_UNTIL\_CHANGED

Definition at line 18 of file [price-client.h](#).

### 8.242.1.5 #define ZCL\_PRICE\_CLUSTER\_PRICE\_RATIO\_NOT\_USED

Definition at line 19 of file [price-client.h](#).

### 8.242.1.6 #define ZCL\_PRICE\_CLUSTER\_GENERATION\_PRICE\_NOT\_USED

Definition at line 20 of file [price-client.h](#).

8.242.1.7 #define ZCL\_PRICE\_CLUSTER\_GENERATION\_PRICE\_RATIO\_NOT\_USED

Definition at line 21 of file [price-client.h](#).

8.242.1.8 #define ZCL\_PRICE\_CLUSTER\_ALTERNATE\_COST\_DELIVERED\_NOT\_USED

Definition at line 22 of file [price-client.h](#).

8.242.1.9 #define ZCL\_PRICE\_CLUSTER\_ALTERNATE\_COST\_UNIT\_NOT\_USED

Definition at line 23 of file [price-client.h](#).

8.242.1.10 #define ZCL\_PRICE\_CLUSTER\_ALTERNATE\_COST\_TRAILING\_DIGIT\_NOT\_USED

Definition at line 24 of file [price-client.h](#).

8.242.1.11 #define ZCL\_PRICE\_CLUSTER\_NUMBER\_OF\_BLOCK\_THRESHOLDS\_NOT\_USED

Definition at line 25 of file [price-client.h](#).

8.242.1.12 #define ZCL\_PRICE\_CLUSTER\_PRICE\_CONTROL\_NOT\_USED

Definition at line 26 of file [price-client.h](#).

8.242.1.13 #define UNSPECIFIED\_PROVIDER\_ID

Definition at line 30 of file [price-client.h](#).

8.242.1.14 #define UNSPECIFIED\_DURATION

Definition at line 31 of file [price-client.h](#).

8.242.1.15 #define EMBER\_AF\_PLUGIN\_PRICE\_CLUSTER\_MAX\_CREDIT\_PAYMENT\_REF\_LENGTH

Definition at line 103 of file [price-client.h](#).

## 8.242.2 Function Documentation

8.242.2.1 void emAfPluginPriceClientPrintInfo ( uint8\_t *endpoint* )

8.242.2.2 void emAfPluginPriceClientPrintByEventId ( uint8\_t *endpoint*, uint32\_t *issuerEventId* )

8.242.2.3 void emAfPriceClearPriceTable ( uint8\_t *endpoint* )

**8.242.2.4 uint8\_t emAfPriceGetBlockPeriodTableIndexByEventId ( uint8\_t endpoint, uint32\_t issuerEventId )**

Returns the block period table index with a matching eventId.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>issuerEventId</i>	The eventId that should be searched for in the block period table.

#### Returns

The index with a valid matching event ID.

**8.242.2.5 void emAfPricePrintBlockPeriodTableIndex ( uint8\_t endpoint, uint8\_t index )**

Prints the information at the specified index of the block period table.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>index</i>	The index whose data should be printed.

**8.242.2.6 uint8\_t emAfPriceGetConversionFactorIndexByEventId ( uint8\_t endpoint, uint32\_t issuerEventId )**

Returns the conversion factor table index with a matching eventId.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>issuerEventId</i>	The eventId that should be searched for in the conversion factor table.

#### Returns

The index with a valid matching event ID.

**8.242.2.7 void emAfPricePrintConversionFactorEntryIndex ( uint8\_t endpoint, uint8\_t index )**

Prints the information at the specified index of the conversion factor table.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

### 8.242.2.8 `uint8_t emAfPriceGetCalorificValueIndexByEventId ( uint8_t endpoint, uint32_t issuerEventId )`

Returns the calorific value table index with a matching eventId.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>issuerEventId</i>	The eventId that should be searched for in the calorific value table.

#### Returns

The index with a valid matching event ID.

### 8.242.2.9 `void emAfPricePrintCalorificValueEntryIndex ( uint8_t endpoint, uint8_t index )`

Prints the information at the specified index of the calorific value table.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

### 8.242.2.10 `void emberAfPriceInitConsolidatedBillsTable ( uint8_t endpoint )`

Initializes the consolidated bills table.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

### 8.242.2.11 `uint8_t emberAfPriceClusterGetActiveCo2ValueIndex ( uint8_t endpoint )`

Returns the index of the currently active CO2 entry, or 0xFF if no active entry can be found.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

#### Returns

The index of the active CO2 entry.

### 8.242.2.12 `uint8_t emAfPriceGetActiveTierLabelTableIndexByTariffId ( uint8_t endpoint, uint32_t tariffId )`

Returns the index of the currently active tier label table entry, or 0xFF if no active entry can be found.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

### Returns

The index of the active tier label table entry.

#### **8.242.2.13 void emAfPricePrintTierLabelTableEntryIndex ( uint8\_t endpoint, uint8\_t index )**

Prints the information at the specified index of the tier label table.

### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

#### **8.242.2.14 void emAfPricePrintCo2ValueTablePrintIndex ( uint8\_t endpoint, uint8\_t index )**

Prints the information at the specified index of the CO2 value table.

### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

#### **8.242.2.15 uint8\_t emAfPriceConsolidatedBillTableGetIndexWithEventId ( uint8\_t endpoint, uint32\_t issuerEventId )**

Prints the tier label table.

Returns the consolidated bill table index with a matching eventId.

### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>issuerEventId</i>	The eventId that should be searched for in the consolidated bill table.

### Returns

The index with a valid matching event ID.

#### **8.242.2.16 uint8\_t emAfPriceConsolidatedBillTableGetCurrentIndex ( uint8\_t endpoint )**

Returns the index of the active consolidated bill table.

### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

### Returns

The index of the consolidated bills table with a valid matching event ID, or 0xFF if no valid match is found.

**8.242.2.17 void emAfPricePrintConsolidatedBillTableIndex ( uint8\_t *endpoint*, uint8\_t *index* )**

Prints the information at the specified index of the consolidated bill table.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

**8.242.2.18 void emberAfPricePrintCppEvent ( uint8\_t *endpoint* )**

Prints information about the CPP event.

**Parameters**

<i>endpoint</i>	THe relevant endpoint.
-----------------	------------------------

**8.242.2.19 uint8\_t emAfPriceCreditPaymentTableGetIndexWithEventId ( uint8\_t *endpoint*, uint32\_t *issuerEventId* )**

Returns the credit payment table index with a matching eventId.

**Parameters**

<i>issuerEventId</i>	The eventId that should be searched for in the credit payment table.
----------------------	--

**Returns**

The index with a valid matching event ID.

**8.242.2.20 void emAfPricePrintCreditPaymentTableEventId ( uint32\_t *issuerEventId* )**

Prints the credit payment table entry data of the index with a valid matching eventId.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>issuerEventId</i>	The eventId that should be found in the credit payment table.

**8.242.2.21 void emAfPricePrintCreditPaymentTableIndex ( uint8\_t *endpoint*, uint8\_t *index* )**

Prints the information at the specified index of the credit payment table.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

**8.242.2.22 uint8\_t emberAfPriceClusterCurrencyConversionTableGetIndexByEventId ( uint8\_t endpoint, uint32\_t issuerEventId )**

Returns the currency conversion table index with a matching eventId.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>issuerEventId</i>	The eventId that should be searched for in the currency conversion table.

#### Returns

The index with a valid matching event ID.

**8.242.2.23 void emAfPricePrintCurrencyConversionTableIndex ( uint8\_t endpoint, uint8\_t index )**

Prints the information at the specified index of the currency conversion table.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

**8.242.2.24 uint8\_t emberAfPriceClusterGetActiveCurrencyIndex ( uint8\_t endpoint )**

Returns the index of the currently active currency conversion entry, or 0xFF if no active entry can be found.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

#### Returns

The index of the active currency conversion entry.

**8.242.2.25 uint8\_t emAfPriceGetActiveBillingPeriodIndex ( uint8\_t endpoint )**

Returns the index of the currently active billing period entry, or 0xFF if no active entry can be found.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

#### Returns

The index of the active billing period entry.

### 8.242.2.26 void emAfPricePrintBillingPeriodTableEntryIndex ( uint8\_t endpoint, uint8\_t index )

Prints the information at the specified index of the billing period table.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index whose data should be printed.

## 8.243 price-client.h

```

0001 // ****
0002 // * price-client.h
0003 // *
0004 // *
0005 // * Copyright 2010 by Ember Corporation. All rights reserved.
0006 // ****
0007
0008 #ifndef _PRICE_CLIENT_H_
0009 #define _PRICE_CLIENT_H_
0010
0011 #ifndef EMBER_AF_PLUGIN_PRICE_CLIENT_TABLE_SIZE
0012 #define EMBER_AF_PLUGIN_PRICE_CLIENT_TABLE_SIZE 2
0013 #endif //EMBER_AF_PLUGIN_PRICE_CLIENT_TABLE_SIZE
0014
0015 #define ZCL_PRICE_CLUSTER_PRICE_ACKNOWLEDGEMENT_MASK 0x01
0016 #define ZCL_PRICE_CLUSTER_RESERVED_MASK 0xFE
0017
0018 #define ZCL_PRICE_CLUSTER_DURATION_UNTIL_CHANGED 0xFFFF
0019 #define ZCL_PRICE_CLUSTER_PRICE_RATIO_NOT_USED 0xFF
0020 #define ZCL_PRICE_CLUSTER_GENERATION_PRICE_NOT_USED 0xFFFFFFFFFUL
0021 #define ZCL_PRICE_CLUSTER_GENERATION_PRICE_RATIO_NOT_USED 0xFF
0022 #define ZCL_PRICE_CLUSTER_ALTERNATE_COST_DELIVERED_NOT_USED 0xFFFFFFFFFUL
0023 #define ZCL_PRICE_CLUSTER_ALTERNATE_COST_UNIT_NOT_USED 0xFF
0024 #define ZCL_PRICE_CLUSTER_ALTERNATE_COST_TRAILING_DIGIT_NOT_USED 0xFF
0025 #define ZCL_PRICE_CLUSTER_NUMBER_OF_BLOCK_THRESHOLDS_NOT_USED 0xFF
0026 #define ZCL_PRICE_CLUSTER_PRICE_CONTROL_NOT_USED 0x00
0027
0028 // Price Client Command Common Structure - common elements used in most price
0029 // commands
0030 // =====
0031 #define UNSPECIFIED_PROVIDER_ID 0xFFFFFFFF // Used to initialize provider ID
0032 // for commands that don't support it.
0033 #define UNSPECIFIED_DURATION 0xFFFFFFFF
0034
0035 typedef struct{
0036     uint32_t providerId; // Unique identifier for the commodity
0037     provider.
0038     uint32_t issuerEventId; // Unique identifier for the
0039     transaction, generated by the commodity provider.
0040     uint32_t startTime; // The UTC time when the event should take
0041     effect.
0042     uint32_t durationSec; // Duration of the event, in seconds.
0043     bool valid; // Specifies whether the data at this index is
0044     valid or not.
0045 } EmberAfPriceClientCommonInfo;
0046
0047 /* FOR PASTING INTO NEW CODE:
0048 info.commonInfos[].providerId = UNSPECIFIED_PROVIDER_ID;
0049 info.commonInfos[].issuerEventId =
0050 info.commonInfos[].startTime =
0051 info.commonInfos[].durationSec = UNSPECIFIED_DURATION;
0052 info.commonInfos[].valid = true;
0053 */
0054
0055 // Price Client Command Specific Structures
0056 // =====
0057
0058 typedef struct{
0059     uint32_t billingPeriodStartTime;

```

```

00056     uint32_t billingPeriodDuration;
00057     uint8_t billingPeriodDurationType;
00058     uint8_t tariffType;
00059 } EmberAfPriceClientBillingPeriod;
00060
00061 typedef struct{
00062     uint32_t blockPeriodStartTime; // Raw start time, before
00063     // adjustments made by blockPeriodDurationType.
00064     uint32_t blockPeriodDuration; // Raw duration, units
00065     // specified by blockPeriodDurationType.
00066     uint8_t blockPeriodControl;
00067     uint8_t blockPeriodDurationType;
00068     uint8_t tariffType;
00069     uint8_t tariffResolutionPeriod;
00070 } EmberAfPriceClientBlockPeriod;
00071
00072 typedef struct{
00073     uint32_t issuerTariffId;
00074     uint8_t subPayloadControl;
00075     uint8_t tierNumberOfBlockThresholds[
00076         EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_BLOCK_THRESHOLDS];
00077     uint8_t blockThreshold[ EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_TIERS + 1 ][
00078         6 * (EMBER_AF_PLUGIN_PRICE_CLIENT_MAX_NUMBER_BLOCK_THRESHOLDS+1) ];
00079 } EmberAfPriceClientBlockThreshold;
00080
00081 typedef struct{
00082     uint32_t calorificValue;
00083     uint8_t calorificValueUnit;
00084     uint8_t calorificValueTrailingDigit;
00085 } EmberAfPriceClientCalorificValue;
00086
00087 typedef struct{
00088     uint8_t tariffType;
00089     uint32_t co2Value;
00090     uint8_t co2ValueUnit;
00091     uint8_t co2ValueTrailingDigit;
00092 } EmberAfPriceClientCo2Value;
00093
00094 typedef struct{
00095     uint32_t conversionFactor;
00096     uint8_t conversionFactorTrailingDigit;
00097 } EmberAfPriceClientConversionFactor;
00098
00099 typedef struct{
00100     uint16_t durationInMinutes;
00101     uint8_t tariffType;
00102     uint8_t cppPriceTier;
00103     uint8_t cppAuth;
00104 } EmberAfPriceClientCppEvent;
00105
00106 #define EMBER_AF_PLUGIN_PRICE_CLUSTER_MAX_CREDIT_PAYMENT_REF_LENGTH 20
00107
00108 typedef struct{
00109     uint32_t creditPaymentDueDate;
00110     uint32_t creditPaymentOverDueAmount;
00111     uint8_t creditPaymentStatus;
00112     uint32_t creditPayment;
00113     uint32_t creditPaymentDate;
00114     uint8_t creditPaymentRef[
00115         EMBER_AF_PLUGIN_PRICE_CLUSTER_MAX_CREDIT_PAYMENT_REF_LENGTH
00116         + 1 ];
00117 } EmberAfPriceClientCreditPayment;
00118
00119 typedef struct{
00120     uint32_t conversionFactor;
00121     uint32_t currencyChangeControlFlags;
00122     uint16_t newCurrency;
00123     uint8_t conversionFactorTrailingDigit;
00124 } EmberAfPriceClientCurrencyConversion;
00125
00126
00127
00128 // Price Client Command Tables
00129 // =====

```

```

00130
00131 typedef struct{
00132     EmberAfPriceClientCommonInfo commonInfos[
00133         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00134             EMBER_AF_PLUGIN_PRICE_CLIENT_BILLING_PERIOD_TABLE_SIZE];
00135     EmberAfPriceClientBillingPeriod billingPeriod[
00136         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00137             EMBER_AF_PLUGIN_PRICE_CLIENT_BILLING_PERIOD_TABLE_SIZE];
00138 } EmberAfPriceClientBillingPeriodTable;
00139
00140
00141 typedef struct{
00142     EmberAfPriceClientCommonInfo commonInfos[
00143         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00144             EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_PERIOD_TABLE_SIZE];
00145     EmberAfPriceClientBlockPeriod blockPeriod[
00146         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00147             EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_PERIOD_TABLE_SIZE];
00148 } EmberAfPriceClientBlockPeriodTable;
00149
00150
00151 typedef struct{
00152     EmberAfPriceClientCommonInfo commonInfos[
00153         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00154             EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_THRESHOLD_TABLE_SIZE];
00155     EmberAfPriceClientBlockThreshold
00156         blockThreshold[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00157             EMBER_AF_PLUGIN_PRICE_CLIENT_BLOCK_THRESHOLD_TABLE_SIZE];
00158 } EmberAfPriceClientBlockThresholdTable;
00159
00160
00161 typedef struct{
00162     EmberAfPriceClientCommonInfo commonInfos[
00163         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00164             EMBER_AF_PLUGIN_PRICE_CLIENT_CALORIFIC_VALUE_TABLE_SIZE];
00165     EmberAfPriceClientCalorificValue
00166         calorificValue[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00167             EMBER_AF_PLUGIN_PRICE_CLIENT_CALORIFIC_VALUE_TABLE_SIZE];
00168 } EmberAfPriceClientCalorificValueTable;
00169
00170
00171 typedef struct{
00172     EmberAfPriceClientCommonInfo commonInfos[
00173         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00174             EMBER_AF_PLUGIN_PRICE_CLIENT_CO2_TABLE_SIZE];
00175     EmberAfPriceClientCo2Value
00176         co2Value[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][EMBER_AF_PLUGIN_PRICE_CLIENT_CO2_TABLE_SIZE];
00177 } EmberAfPriceClientCo2ValueTable;
00178
00179
00180 typedef struct{
00181     EmberAfPriceClientCommonInfo commonInfos[
00182         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00183             EMBER_AF_PLUGIN_PRICE_CLIENT_CONVERSION_FACTOR_TABLE_SIZE];
00184     EmberAfPriceClientConversionFactor
00185         conversionFactor[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00186             EMBER_AF_PLUGIN_PRICE_CLIENT_CONVERSION_FACTOR_TABLE_SIZE];
00187 } EmberAfPriceClientConversionFactorTable
00188 ;
00189
00190
00191 typedef struct{
00192     EmberAfPriceClientCommonInfo commonInfos[
00193         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT];
00194     EmberAfPriceClientCppEvent
00195         cppEvent[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT];
00196 } EmberAfPriceClientCppEventTable;
00197
00198
00199 typedef struct{
00200     EmberAfPriceClientCommonInfo commonInfos[
00201         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00202             EMBER_AF_PLUGIN_PRICE_CLIENT_CREDIT_PAYMENT_TABLE_SIZE];
00203     EmberAfPriceClientCreditPayment
00204         creditPayment[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00205             EMBER_AF_PLUGIN_PRICE_CLIENT_CREDIT_PAYMENT_TABLE_SIZE];
00206 } EmberAfPriceClientCreditPaymentTable;
00207
00208
00209 typedef struct{
00210     EmberAfPriceClientCommonInfo commonInfos[
00211         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00212             EMBER_AF_PLUGIN_PRICE_CLIENT_CURRENCY_CONVERSION_TABLE_SIZE];
00213     EmberAfPriceClientCurrencyConversion
00214         currencyConversion[EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00215             EMBER_AF_PLUGIN_PRICE_CLIENT_CURRENCY_CONVERSION_TABLE_SIZE];
00216 } EmberAfPriceClientCurrencyConversionTable
00217 ;
00218
00219

```

```

00175
00176 typedef struct{
00177     EmberAfPriceClientCommonInfo commonInfos[
00178         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00179             EMBER_AF_PLUGIN_PRICE_CLIENT_TIER_LABELS_TABLE_SIZE];
00180     EmberAfPriceClientTierLabels tierLabels[
00181         EMBER_AF_PRICE_CLUSTER_CLIENT_ENDPOINT_COUNT][
00182             EMBER_AF_PLUGIN_PRICE_CLIENT_TIER_LABELS_TABLE_SIZE];
00183 } EmberAfPriceClientLabelsTable;
00184
00185 // Singular Price Client Structure for storing pricing information
00186 // =====
00187 typedef struct{
00188     EmberAfPriceClientBillingPeriodTable
00189         billingPeriodTable;
00190     EmberAfPriceClientBlockPeriodTable
00191         blockPeriodTable;
00192     EmberAfPriceClientBlockThresholdTable
00193         blockThresholdTable;
00194     EmberAfPriceClientCalorificValueTable
00195         calorificValueTable;
00196     EmberAfPriceClientCo2ValueTable
00197         co2ValueTable;
00198     EmberAfPriceClientConversionFactorTable
00199         conversionFactorTable;
00200     EmberAfPriceClientCppEventTable
00201         cppEventTable;
00202     EmberAfPriceClientCreditPaymentTable
00203         creditPaymentTable;
00204     EmberAfPriceClientCurrencyConversionTable
00205         currencyConversionTable;
00206     EmberAfPriceClientTierLabelsTable
00207         tierLabelsTable;
00208 } EmberAfPriceClientInfo;
00209
00210
00211
00212 //void emberAfPriceClusterClientInitCallback(uint8_t endpoint);
00213
00214 void emAfPluginPriceClientPrintInfo(uint8_t
00215     endpoint);
00216
00217 void emAfPluginPriceClientPrintByEventId(
00218     uint8_t endpoint, uint32_t issuerEventId );
00219 void emAfPriceClearPriceTable(uint8_t endpoint);
00220
00221
00222
00223 uint8_t emAfPriceGetBlockPeriodTableIndexByEventId
00224     ( uint8_t endpoint, uint32_t issuerEventId );
00225
00226
00227
00228 void emAfPricePrintBlockPeriodTableIndex(
00229     uint8_t endpoint, uint8_t index );
00230
00231
00232
00233 uint8_t emAfPriceGetConversionFactorIndexByEventId
00234     ( uint8_t endpoint, uint32_t issuerEventId );
00235
00236
00237
00238 void emAfPricePrintConversionFactorEntryIndex
00239     ( uint8_t endpoint, uint8_t index );
00240
00241
00242
00243 uint8_t emAfPriceGetCalorificValueIndexByEventId
00244     ( uint8_t endpoint, uint32_t issuerEventId );
00245
00246
00247
00248 void emAfPricePrintCalorificValueEntryIndex
00249     ( uint8_t endpoint, uint8_t index );
00250
00251
00252
00253 void emberAfPriceInitConsolidatedBillsTable
00254     ( uint8_t endpoint );
00255
00256
00257
00258 void emAfPricePrintCalorificValueEntryIndex
00259     ( uint8_t endpoint, uint8_t index );
00260
00261
00262
00263 void emberAfPriceInitActiveCo2ValueIndex
00264     ( uint8_t endpoint );
00265
00266
00267
00268 uint8_t emberAfPriceClusterGetActiveCo2ValueIndex
00269     ( uint8_t endpoint );
00270
00271
00272
00273 uint8_t emAfPriceGetActiveTierLabelTableIndexByTariffId
00274     ( uint8_t endpoint, uint32_t tariffId );
00275
00276
00277
00278 void emAfPricePrintTierLabelTableEntryIndex
00279     ( uint8_t endpoint, uint8_t index );
00280
00281
00282
00283
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00288
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00299
00300
00301

```

```

00309 void emAfPricePrintCo2ValueTablePrintIndex
    ( uint8_t endpoint, uint8_t index );
00310
00315 //void emAfPriceClientPrintTierLabelTable( void );
00316
00325 uint8_t emAfPriceConsolidatedBillTableGetIndexWithEventId
    ( uint8_t endpoint, uint32_t issuerEventId );
00326
00334 uint8_t emAfPriceConsolidatedBillTableGetCurrentIndex
    ( uint8_t endpoint );
00335
00343 void emAfPricePrintConsolidatedBillTableIndex
    ( uint8_t endpoint, uint8_t index );
00344
00351 void emberAfPricePrintCppEvent( uint8_t endpoint );
00352
00360 uint8_t emAfPriceCreditPaymentTableGetIndexWithEventId
    ( uint8_t endpoint, uint32_t issuerEventId );
00361
00369 void emAfPricePrintCreditPaymentTableEventId
    ( uint32_t issuerEventId );
00370
00378 void emAfPricePrintCreditPaymentTableIndex
    ( uint8_t endpoint, uint8_t index );
00379
00388 uint8_t emberAfPriceClusterCurrencyConversionTableGetIndexByEventId
    ( uint8_t endpoint, uint32_t issuerEventId );
00389
00397 void emAfPricePrintCurrencyConversionTableIndex
    ( uint8_t endpoint, uint8_t index );
00398
00406 uint8_t emberAfPriceClusterGetActiveCurrencyIndex
    ( uint8_t endpoint );
00407
00415 uint8_t emAfPriceGetActiveBillingPeriodIndex
    ( uint8_t endpoint );
00416
00424 void emAfPricePrintBillingPeriodTableEntryIndex
    ( uint8_t endpoint, uint8_t index );
00425
00426
00427 #endif // #ifndef _PRICE_CLIENT_H_
00428

```

## 8.244 price-common-time.h File Reference

### Enumerations

- enum { START\_OF\_TIMEBASE, END\_OF\_TIMEBASE }
- enum {
 DURATION\_TYPE\_MINS, DURATION\_TYPE\_DAYS\_START, DURATION\_TYPE\_DAYS\_-  
 END, DURATION\_TYPE\_WEEKS\_START,  
 DURATION\_TYPE\_WEEKS\_END, DURATION\_TYPE\_MONTHS\_START, DURATION\_TY-  
 PE\_MONTHS\_END }

### Functions

- uint32\_t **emberAfPluginPriceCommonClusterConvertDurationToSeconds** (uint32\_t startTimeUtc, uint32\_-  
 \_t duration, uint8\_t durationType)
- uint32\_t **emberAfPluginPriceCommonClusterGetAdjustedStartTime** (uint32\_t startTimeUtc, uint8-  
 \_t durationType)

#### 8.244.1 Enumeration Type Documentation

#### 8.244.1.1 anonymous enum

Enumerator:

*START\_OF\_TIMEBASE*  
*END\_OF\_TIMEBASE*

Definition at line 4 of file [price-common-time.h](#).

#### 8.244.1.2 anonymous enum

Enumerator:

*DURATION\_TYPE\_MINS*  
*DURATION\_TYPE\_DAYS\_START*  
*DURATION\_TYPE\_DAYS\_END*  
*DURATION\_TYPE\_WEEKS\_START*  
*DURATION\_TYPE\_WEEKS\_END*  
*DURATION\_TYPE\_MONTHS\_START*  
*DURATION\_TYPE\_MONTHS\_END*

Definition at line 9 of file [price-common-time.h](#).

### 8.244.2 Function Documentation

#### 8.244.2.1 uint32\_t emberAfPluginPriceCommonClusterConvertDurationToSeconds ( *uint32\_t startTimeUtc*, *uint32\_t duration*, *uint8\_t durationType* )

Converts the duration to a number of seconds based on the duration type parameter.

#### 8.244.2.2 uint32\_t emberAfPluginPriceCommonClusterGetAdjustedStartTime ( *uint32\_t startTimeUtc*, *uint8\_t durationType* )

Calculates a new UTC start time value based on the duration type parameter.

## 8.245 price-common-time.h

```
00001 #ifndef _PRICE_COMMON_TIME_H_
00002 #define _PRICE_COMMON_TIME_H_
00003
00004 enum{
00005     START_OF_TIMEBASE = 0x00,
00006     END_OF_TIMEBASE = 0x01
00007 };
00008
00009 enum{
00010     DURATION_TYPE_MINS = 0x00,
00011     DURATION_TYPE_DAYS_START = 0x01,
00012     DURATION_TYPE_DAYS_END = 0x11,
00013     DURATION_TYPE_WEEKS_START = 0x02,
00014     DURATION_TYPE_WEEKS_END = 0x12,
00015     DURATION_TYPE_MONTHS_START = 0x03,
00016     DURATION_TYPE_MONTHS_END = 0x13,
00017 };
```

```

00018
00023 uint32_t emberAfPluginPriceCommonClusterConvertDurationToSeconds
    ( uint32_t startTimeUtc, uint32_t duration, uint8_t durationType );
00024
00029 uint32_t emberAfPluginPriceCommonClusterGetAdjustedStartTime
    (uint32_t startTimeUtc, uint8_t durationType);
00030
00031 #endif // #ifndef _PRICE_COMMON_TIME_H_

```

## 8.246 price-common.h File Reference

```
#include "price-common-time.h"
```

### Data Structures

- struct [EmberAfPriceCommonInfo](#)

### Macros

- #define EMBER\_AF\_PRICE\_CLUSTER\_SERVER\_ENDPOINT\_COUNT
- #define EVENT\_ID\_UNSPECIFIED
- #define TARIFF\_TYPE\_UNSPECIFIED
- #define ZCL\_PRICE\_CLUSTER\_DURATION16\_UNTIL\_CHANGED
- #define ZCL\_PRICE\_CLUSTER\_DURATION\_SEC\_UNTIL\_CHANGED
- #define ZCL\_PRICE\_CLUSTER\_END\_TIME\_NEVER
- #define ZCL\_PRICE\_CLUSTER\_NUMBER\_OF\_EVENTS\_ALL
- #define ZCL\_PRICE\_CLUSTER\_START\_TIME\_NOW
- #define ZCL\_PRICE\_CLUSTER\_WILDCARD\_ISSUER\_ID
- #define ZCL\_PRICE\_INVALID\_ENDPOINT\_INDEX
- #define ZCL\_PRICE\_INVALID\_INDEX

### Functions

- uint8\_t [emberAfPluginPriceCommonGetCommonMatchingOrUnusedIndex](#) (EmberAfPriceCommonInfo \*commonInfos, uint8\_t numberOfEntries, uint32\_t newIssuerEventId, uint32\_t newStartTime, bool expireTimedOut)
- void [emberAfPluginPriceCommonSort](#) (EmberAfPriceCommonInfo \*commonInfos, uint8\_t \*dataArray, uint16\_t dataArrayBlockSizeInByte, uint16\_t dataArraySize)
- void [emberAfPluginPriceCommonUpdateDurationForOverlappingEvents](#) (EmberAfPriceCommonInfo \*commonInfos, uint8\_t numberOfEntries)
- uint32\_t [emberAfPluginPriceCommonSecondsUntilSecondIndexActive](#) (EmberAfPriceCommonInfo \*commonInfos, uint8\_t numberOfEntries)
- uint8\_t [emberAfPluginPriceCommonFindValidEntries](#) (uint8\_t \*validEntries, uint8\_t numberOfEntries, EmberAfPriceCommonInfo \*commonInfos, uint32\_t earliestStartTime, uint32\_t minIssuerEventId, uint8\_t numberOfRequestedCommands)
- uint8\_t [emberAfPluginPriceCommonServerGetActiveIndex](#) (EmberAfPriceCommonInfo \*commonInfos, uint8\_t numberOfEntries)
- uint8\_t [emberAfPluginPriceCommonServerGetFutureIndex](#) (EmberAfPriceCommonInfo \*commonInfos, uint8\_t numberOfEntries, uint32\_t \*secUntilFutureEvent)

### 8.246.1 Macro Definition Documentation

8.246.1.1 `#define EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT`

Definition at line 7 of file [price-common.h](#).

8.246.1.2 `#define EVENT_ID_UNSPECIFIED`

Definition at line 10 of file [price-common.h](#).

8.246.1.3 `#define TARIFF_TYPE_UNSPECIFIED`

Definition at line 11 of file [price-common.h](#).

8.246.1.4 `#define ZCL_PRICE_CLUSTER_DURATION16_UNTIL_CHANGED`

Definition at line 12 of file [price-common.h](#).

8.246.1.5 `#define ZCL_PRICE_CLUSTER_DURATION_SEC_UNTIL_CHANGED`

Definition at line 13 of file [price-common.h](#).

8.246.1.6 `#define ZCL_PRICE_CLUSTER_END_TIME_NEVER`

Definition at line 14 of file [price-common.h](#).

8.246.1.7 `#define ZCL_PRICE_CLUSTER_NUMBER_OF_EVENTS_ALL`

Definition at line 15 of file [price-common.h](#).

8.246.1.8 `#define ZCL_PRICE_CLUSTER_START_TIME_NOW`

Definition at line 16 of file [price-common.h](#).

8.246.1.9 `#define ZCL_PRICE_CLUSTER_WILDCARD_ISSUER_ID`

Definition at line 17 of file [price-common.h](#).

8.246.1.10 `#define ZCL_PRICE_INVALID_ENDPOINT_INDEX`

Definition at line 18 of file [price-common.h](#).

8.246.1.11 `#define ZCL_PRICE_INVALID_INDEX`

Definition at line 19 of file [price-common.h](#).

## 8.246.2 Function Documentation

**8.246.2.1** `uint8_t emberAfPluginPriceCommonGetCommonMatchingOrUnusedIndex ( EmberAfPriceCommonInfo * commonInfos, uint8_t numberOfEntries, uint32_t newIssuerEventId, uint32_t newStartTime, bool expireTimedOut )`

Return the best matching or other index to use for inserting new data.

### Parameters

<code>commonInfos</code>	An array of <a href="#">EmberAfPriceCommonInfo</a> structures whose data is used to find the best available index.
<code>numberOfEntries</code>	The number of entries in the <a href="#">EmberAfPriceCommonInfo</a> array.
<code>newIssuerEventId</code>	The issuerEventId of the new data. This is used to see if a match is present.
<code>newStartTime</code>	The startTime of the new data.
<code>expireTimedOut</code>	Treats any timed-out entries as invalid if set to true.

### Returns

The best index - either a matching index, if found, or an invalid or timed out index.

**8.246.2.2** `void emberAfPluginPriceCommonSort ( EmberAfPriceCommonInfo * commonInfos, uint8_t * dataArray, uint16_t dataArrayBlockSizeInByte, uint16_t dataArraySize )`

Sort Price related data structures.

This semi-generic sorting function can be used to sort all structures that utilizes the [EmberAfPriceCommonInfo](#) data type.

### Parameters

<code>commonInfos</code>	The destination address to which the command should be sent.
<code>dataArray</code>	The source endpoint used in the transmission.
<code>dataArrayBlockSizeInByte</code>	The source endpoint used in the transmission.
<code>dataArraySize</code>	The source endpoint used in the transmission.

**8.246.2.3** `void emberAfPluginPriceCommonUpdateDurationForOverlappingEvents ( EmberAfPriceCommonInfo * commonInfos, uint8_t numberOfEntries )`

Update durations to avoid overlapping next event.

### Parameters

<code>commonInfos</code>	An array of <a href="#">EmberAfPriceCommonInfo</a> structures that will be evaluated.
<code>numberOfEntries</code>	The number of entries in the <a href="#">EmberAfPriceCommonInfo</a> array.

**8.246.2.4 uint32\_t emberAfPluginPriceCommonSecondsUntilSecondIndexActive ( EmberAfPriceCommonInfo \* commonInfos, uint8\_t numberOfEntries )**

Determine time until the next index becomes active.

This function assumes the commonInfos[] array is already sorted by startTime from earliest to latest.

#### Parameters

<i>commonInfos</i>	An array of <a href="#">EmberAfPriceCommonInfo</a> structures that will be evaluated.
<i>numberOfEntries</i>	The number of entries in the <a href="#">EmberAfPriceCommonInfo</a> array.

**8.246.2.5 uint8\_t emberAfPluginPriceCommonFindValidEntries ( uint8\_t \* validEntries, uint8\_t numberOfEntries, EmberAfPriceCommonInfo \* commonInfos, uint32\_t earliestStartTime, uint32\_t minIssuerEventId, uint8\_t numberOfRequestedCommands )**

Find valid entries in the [EmberAfPriceCommonInfo](#) structure array.

#### Parameters

<i>validEntries</i>	An array of the same size as the <a href="#">EmberAfPriceCommonInfo</a> array that will store the valid flag for each entry (true or false).
<i>numberOfEntries</i>	The number of entries in the validEntries array and the commonInfos array.
<i>commonInfos</i>	The <a href="#">EmberAfPriceCommonInfo</a> array that will be searched for valid entries.
<i>earliestStartTime</i>	A minimum start time such that all valid entries have a start time greater than or equal to this value. A minimum event ID such that all valid entries have an issuerEventId greater than or equal to this. The maximum number of valid entries to be returned.

#### Returns

The number of valid commands found in the commonInfos array.

**8.246.2.6 uint8\_t emberAfPluginPriceCommonServerGetActiveIndex ( EmberAfPriceCommonInfo \* commonInfos, uint8\_t numberOfEntries )**

Returns the index of the active entry in the [EmberAfPriceCommonInfo](#) array.

Search through array for the most recent active entry. "Issuer Event Id" has higher priority than "start time".

#### Parameters

<i>commonInfos</i>	The <a href="#">EmberAfPriceCommonInfo</a> array that will be searched for an active entry.
<i>numberOfEntries</i>	The number of entries in the commonInfo array.

#### Returns

The index of the active entry, or 0xFF if an active entry is not found.

### 8.246.2.7 uint8\_t emberAfPluginPriceCommonServerGetFutureIndex ( EmberAfPriceCommonInfo \* commonInfos, uint8\_t numberOfEntries, uint32\_t \* secUntilFutureEvent )

Returns the index to the most recent entry that will become active in the future.

#### Parameters

<i>commonInfos</i>	The <code>EmberAfPriceCommonInfo</code> array that will be searched for the entry. The number of entries in the <code>commonInfo</code> array. The output pointer to the number of seconds until the next active entry.
--------------------	---

#### Returns

The index of the next-active entry, or 0xFF if an active entry is not found.

## 8.247 price-common.h

```

00001 #ifndef _PRICE_COMMON_H_
00002 #define _PRICE_COMMON_H_
00003
00004 #include "price-common-time.h"
00005
00006 #ifndef EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00007     #define EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT (1)
00008 #endif
00009
00010 #define EVENT_ID_UNSPECIFIED          (0xFFFFFFFF)
00011 #define TARIFF_TYPE_UNSPECIFIED       (0xFF)
00012 #define ZCL_PRICE_CLUSTER_DURATION16_UNTIL_CHANGED (0xFFFF)
00013 #define ZCL_PRICE_CLUSTER_DURATION_SEC_UNTIL_CHANGED (0xFFFFFFFFFUL)
00014 #define ZCL_PRICE_CLUSTER_END_TIME_NEVER    (0xFFFFFFFFFUL)
00015 #define ZCL_PRICE_CLUSTER_NUMBER_OF_EVENTS_ALL (0x00)
00016 #define ZCL_PRICE_CLUSTER_START_TIME_NOW   (0x00000000UL)
00017 #define ZCL_PRICE_CLUSTER_WILDCARD_ISSUER_ID (0xFFFFFFFFFUL)
00018 #define ZCL_PRICE_INVALID_ENDPOINT_INDEX (0xFF)
00019 #define ZCL_PRICE_INVALID_INDEX          (0xFF)
00020
00021 typedef struct {
00022     uint32_t startTime;
00023
00024     /* Using uint32_t since int24u doesn't exist. MEASURED IN SECONDS.
00025      * FOREVER or UNTIL_CHANGED should set this to
00026      * ZCL_PRICE_CLUSTER_DURATION_SEC_UNTIL_CHANGED.
00027      * Some commands might not use this field.
00028      */
00029     uint32_t durationSec;
00030
00031     uint32_t issuerEventId;
00032     bool valid;
00033
00034     /* flag showing if actions are required by the current entry, such
00035      * as updating attributes and etc, are still pending. Usage of this flag is
00036      * optional for the moment.
00037      */
00038     bool actionsPending;
00039 } EmberAfPriceCommonInfo;
00040
00051 uint8_t emberAfPluginPriceCommonGetCommonMatchingOrUnusedIndex
00052     (EmberAfPriceCommonInfo *commonInfos,
00053         uint8_t      numberOfEntries,
00054         uint32_t     newIssuerEventId,
00055         uint32_t     newStartTime,
00056         bool        expireTimedOut );
00069 void emberAfPluginPriceCommonSort(
00070     EmberAfPriceCommonInfo * commonInfos,
00071         uint8_t * dataArray,
00072         uint16_t  dataArrayBlockSizeInByte,
00073         uint16_t  dataArraySize );

```

```

00081 void emberAfPluginPriceCommonUpdateDurationForOverlappingEvents
00082     (EmberAfPriceCommonInfo *commonInfos,
00083                                     uint8_t
00084     numberOfEntries);
00085
00086 uint32_t emberAfPluginPriceCommonSecondsUntilSecondIndexActive
00087     (EmberAfPriceCommonInfo *commonInfos,
00088                                     uint8_t
00089     numberOfEntries );
00090
00091 uint8_t emberAfPluginPriceCommonFindValidEntries
00092     (uint8_t* validEntries,
00093                                     uint8_t numberOfEntries,
00094     EmberAfPriceCommonInfo
00095     * commonInfos,
00096                                     uint32_t earliestStartTime,
00097     uint32_t minIssuerEventId,
00098     uint8_t
00099     numberOfRequestedCommands );
00100
00101 uint8_t emberAfPluginPriceCommonServerGetActiveIndex
00102     (EmberAfPriceCommonInfo *commonInfos,
00103                                     uint8_t numberOfEntries );
00104
00105 uint8_t emberAfPluginPriceCommonServerGetFutureIndex
00106     ( EmberAfPriceCommonInfo *commonInfos,
00107                                     uint8_t numberOfEntries,
00108     uint32_t * secUntilFutureEvent);
00109
00110 #endif // #ifndef _PRICE_COMMON_H_
00111
00112
00113
00114
00115
00116
00117
00118
00119
00120
00121
00122
00123
00124
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00126
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00144
00145
00146

```

## 8.248 price-server-tick.h File Reference

### Macros

- `#define PRICE_EVENT_TIME_NO_PENDING_EVENTS`

### Enumerations

- `enum EmberAfPriceServerPendingEvents {  
EMBER_AF_PRICE_SERVER_NO_PRICES_EVENT_MASK, EMBER_AF_PRICE_SERVER_-  
GET_SCHEDULED_PRICES_EVENT_MASK, EMBER_AF_PRICE_SERVER_CHANGE_BIL-  
LING_PERIOD_EVENT_MASK, EMBER_AF_PRICE_SERVER_CHANGE_BLOCK_PERIOD-  
_EVENT_MASK,  
EMBER_AF_PRICE_SERVER_CHANGE_CALORIFIC_VALUE_EVENT_MASK, EMBER_A-  
F_PRICE_SERVER_CHANGE_CO2_VALUE_EVENT_MASK, EMBER_AF_PRICE_SERVER_-  
CHANGE_CONVERSION_FACTOR_EVENT_MASK, EMBER_AF_PRICE_SERVER_CHAN-  
GE_TARIFF_INFORMATION_EVENT_MASK,  
EMBER_AF_PRICE_SERVER_ACTIVATED_PRICE_MATRIX_EVENT_MASK, EMBER_AF-  
_PRICE_SERVER_ACTIVATED_BLOCK_THRESHOLD_EVENT_MASK }`

### Functions

- `void emberAfPriceClusterServerInitTick (void)`
- `void emberAfPriceClusterScheduleTickCallback (uint8_t endpoint, EmberAfPriceServerPending-  
Events event)`
- `void emberAfPriceClusterClearPendingEvent (EmberAfPriceServerPendingEvents event)`

## 8.248.1 Macro Definition Documentation

### 8.248.1.1 #define PRICE\_EVENT\_TIME\_NO\_PENDING\_EVENTS

Definition at line 18 of file [price-server-tick.h](#).

## 8.248.2 Enumeration Type Documentation

### 8.248.2.1 enum EmberAfPriceServerPendingEvents

Enumerator:

```
EMBER_AF_PRICE_SERVER_NO_PRICES_EVENT_MASK
EMBER_AF_PRICE_SERVER_GET_SCHEDULED_PRICES_EVENT_MASK
EMBER_AF_PRICE_SERVER_CHANGE_BILLING_PERIOD_EVENT_MASK
EMBER_AF_PRICE_SERVER_CHANGE_BLOCK_PERIOD_EVENT_MASK
EMBER_AF_PRICE_SERVER_CHANGE_CALORIFIC_VALUE_EVENT_MASK
EMBER_AF_PRICE_SERVER_CHANGE_CO2_VALUE_EVENT_MASK
EMBER_AF_PRICE_SERVER_CHANGE_CONVERSION_FACTOR_EVENT_MASK
EMBER_AF_PRICE_SERVER_CHANGE_TARIFF_INFORMATION_EVENT_MASK
EMBER_AF_PRICE_SERVER_ACTIVATED_PRICE_MATRIX_EVENT_MASK
EMBER_AF_PRICE_SERVER_ACTIVATED_BLOCK_THRESHOLD_EVENT_MASK
```

Definition at line 4 of file [price-server-tick.h](#).

## 8.248.3 Function Documentation

### 8.248.3.1 void emberAfPriceClusterServerInitTick ( void )

Initializes data used by the price server tick.

### 8.248.3.2 void emberAfPriceClusterScheduleTickCallback ( uint8\_t endpoint, EmberAfPriceServerPendingEvents event )

Sets the event flag and schedules the price tick based on the next expiring pending event.

#### Parameters

<i>endpoint</i>	The endpoint of the device that supports the price server. The event bit that should be set when scheduling the next tick.
-----------------	--

### 8.248.3.3 void emberAfPriceClusterClearPendingEvent ( EmberAfPriceServerPendingEvents event )

This function clears an event flag from the pending events bitmask. The event bit that should be cleared.

## 8.249 price-server-tick.h

```

00001 #ifndef _PRICE_SERVER_TICK_H_
00002 #define _PRICE_SERVER_TICK_H_
00003
00004 typedef enum
00005 {
00006     EMBER_AF_PRICE_SERVER_NO_PRICES_EVENT_MASK
00007         = (0 << 0),
00008     EMBER_AF_PRICE_SERVER_GET_SCHEDULED_PRICES_EVENT_MASK
00009         = (1 << 0),
00010     EMBER_AF_PRICE_SERVER_CHANGE_BILLING_PERIOD_EVENT_MASK
00011         = (1 << 1),
00012     EMBER_AF_PRICE_SERVER_CHANGE_BLOCK_PERIOD_EVENT_MASK
00013         = (1 << 2),
00014     EMBER_AF_PRICE_SERVER_CHANGE_CALORIFIC_VALUE_EVENT_MASK
00015         = (1 << 3),
00016     EMBER_AF_PRICE_SERVER_CHANGE_CO2_VALUE_EVENT_MASK
00017         = (1 << 4),
00018     EMBER_AF_PRICE_SERVER_CHANGE_CONVERSION_FACTOR_EVENT_MASK
00019         = (1 << 5),
00020     EMBER_AF_PRICE_SERVER_CHANGE_TARIFF_INFORMATION_EVENT_MASK
00021         = (1 << 6),
00022     EMBER_AF_PRICE_SERVER_ACTIVATED_PRICE_MATRIX_EVENT_MASK
00023         = (1 << 7),
00024     EMBER_AF_PRICE_SERVER_ACTIVATED_BLOCK_THRESHOLD_EVENT_MASK
00025         = (1 << 8),
00026 } EmberAfPriceServerPendingEvents;
00027
00028 #define PRICE_EVENT_TIME_NO_PENDING_EVENTS 0xFFFFFFFF
00029
00030 void emberAfPriceClusterServerInitTick( void )
00031 ;
00032
00033 void emberAfPriceClusterScheduleTickCallback
00034     ( uint8_t endpoint, EmberAfPriceServerPendingEvents
00035         event );
00036
00037 void emberAfPriceClusterClearPendingEvent(
00038     EmberAfPriceServerPendingEvents event );
00039
00040
00041
00042
00043
00044
00045 #endif // #ifndef _PRICE_SERVER_TICK_H_
00046

```

## 8.250 price-server.h File Reference

```
#include "app/framework/plugin/price-common/price-common.h"
```

### Data Structures

- struct [EmberAfPriceBlockPeriod](#)  
*The price and metadata used by the Price server plugin.*
- struct [EmberAfPriceBillingPeriod](#)
- struct [EmberAfPriceCppEvent](#)
- struct [EmberAfPriceConsolidatedBills](#)
- struct [EmberAfPriceCreditPayment](#)
- struct [EmberAfPriceConversionFactor](#)
- struct [EmberAfPriceCalorificValue](#)
- struct [EmberAfPriceCancelTariff](#)
- struct [EmberAfPriceCo2Value](#)

- struct [EmberAfPriceCurrencyConversion](#)
- struct [EmberAfPriceTierLabelValue](#)
- struct [EmberAfPriceTierLabelTable](#)
- struct [EmberAfPriceBlockPeriodTable](#)
- struct [EmberAfPriceBillingPeriodTable](#)
- struct [EmberAfPriceCppTable](#)
- struct [EmberAfPriceConsolidatedBillsTable](#)
- struct [EmberAfPriceCreditPaymentTable](#)
- struct [EmberAfPriceConversionFactorTable](#)
- struct [EmberAfPriceCalorificValueTable](#)
- struct [EmberAfPriceCO2Table](#)
- struct [EmberAfPriceCurrencyConversionTable](#)
- struct [EmberAfPriceCancelTariffTable](#)
- struct [EmberAfScheduledPrice](#)  
*The price and metadata used by the MnPricePassthrough plugin.*
- struct [EmberAfScheduledBlockThresholds](#)
- struct [EmberAfScheduledBlockThresholdsTable](#)
- struct [EmberAfScheduledTariff](#)
- struct [EmberAfScheduledTariffTable](#)
- struct [EmberAfScheduledPriceMatrix](#)
- struct [EmberAfScheduledPriceMatrixTable](#)
- struct [EmberAfPriceServerInfo](#)

## Macros

- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_PRICE\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_TARIFF\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_BILLING\\_PERIOD\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_MAX\\_TIERS\\_PER\\_TARIFF](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_TIER\\_LABELS\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_BLOCK\\_PERIOD\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CONSOLIDATED\\_BILL\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CREDIT\\_PAYMENT\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CALORIFIC\\_VALUE\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CO2\\_VALUE\\_TABLE\\_SIZE](#)
- #define [EMBER\\_AF\\_PLUGIN\\_PRICE\\_SERVER\\_CONVERSION\\_FACTOR\\_TABLE\\_SIZE](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_PRICE\\_ACKNOWLEDGEMENT\\_MASK](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_RESERVED\\_MASK](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_BLOCK\\_THRESHOLDS\\_PAYLOAD\\_SIZE](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_PRICE\\_MATRIX\\_SUBPAYLOAD\\_BLOCK\\_SIZE](#)
- #define [fieldLength\(field\)](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_MAX\\_TOU\\_BLOCKS](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_MAX\\_TOU\\_BLOCK\\_TIERS](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_MAX\\_TOU\\_TIERS](#)
- #define [ZCL\\_PRICE\\_CLUSTER\\_PRICE\\_MATRIX\\_SUB\\_PAYLOAD\\_ENTRY\\_SIZE](#)
- #define [CURRENT](#)
- #define [FUTURE](#)
- #define [PUBLISHED](#)
- #define [TARIFF\\_TYPE\\_MASK](#)

- #define CHARGING\_SCHEME\_MASK
- #define tariffIsCurrent(tariff)
- #define tariffIsFuture(tariff)
- #define tariffIsPublished(tariff)
- #define priceMatrixIsCurrent(pm)
- #define priceMatrixIsFuture(pm)
- #define priceMatrixIsPublished(pm)
- #define blockThresholdsIsCurrent(bt)
- #define blockThresholdsIsFuture(bt)
- #define blockThresholdsIsPublished(bt)
- #define CREDIT\_PAYMENT\_REF\_STRING\_LEN
- #define TIER\_LABEL\_SIZE

## Typedefs

- typedef uint8\_t emAfPriceBlockThreshold [ZCL\_PRICE\_CLUSTER\_BLOCK\_THRESHOLDS\_-PAYLOAD\_SIZE]

## Functions

- void emberAfPriceServerSendGetScheduledPrices (uint8\_t endpoint)
- uint32\_t emberAfPriceServerSecondsUntilGetScheduledPricesEvent (void)
- void emberAfPriceClearPriceTable (uint8\_t endpoint)
- void emberAfPriceClearTariffTable (uint8\_t endpoint)
- void emberAfPriceClearPriceMatrixTable (uint8\_t endpoint)
- void emberAfPriceClearBlockThresholdsTable (uint8\_t endpoint)
- bool emberAfPriceGetPriceTableEntry (uint8\_t endpoint, uint8\_t index, EmberAfScheduledPrice \*price)
- void emberAfPluginPriceServerBlockPeriodAdd (uint8\_t endpoint, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t blockPeriodStartTime, uint32\_t blockPeriodDuration, uint8\_t blockPeriodControl, uint8\_t blockPeriodDurationType, uint32\_t thresholdMultiplier, uint32\_t thresholdDivisor, uint8\_t tariffType, uint8\_t tariffResolutionPeriod)
- void emberAfPluginPriceServerBlockPeriodPub (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index)
- void emberAfPluginPriceServerBlockPeriodPrint (uint8\_t endpoint, uint8\_t index)
- uint32\_t emberAfPriceServerSecondsUntilBlockPeriodEvent (uint8\_t endpoint)
- void emberAfPriceServerRefreshBlockPeriod (uint8\_t endpoint, bool repeat)
- bool emberAfPriceGetTariffTableEntry (uint8\_t endpoint, uint8\_t index, EmberAfPriceCommonInfo \*info, EmberAfScheduledTariff \*tariff)
- bool emberAfPriceGetPriceMatrix (uint8\_t endpoint, uint8\_t index, EmberAfPriceCommonInfo \*inf, EmberAfScheduledPriceMatrix \*pm)
- bool emberAfPriceGetBlockThresholdsTableEntry (uint8\_t endpoint, uint8\_t index, EmberAfScheduledBlockThresholds \*bt)
- bool emberAfPriceGetTariffByIssuerTariffId (uint8\_t endpoint, uint32\_t issuerTariffId, EmberAfPriceCommonInfo \*info, EmberAfScheduledTariff \*tariff)
- bool emberAfPriceGetPriceMatrixByIssuerTariffId (uint8\_t endpoint, uint32\_t issuerTariffId, EmberAfPriceCommonInfo \*inf, EmberAfScheduledPriceMatrix \*pm)
- bool emberAfPriceGetBlockThresholdsByIssuerTariffId (uint8\_t endpoint, uint32\_t issuerTariffId, EmberAfPriceCommonInfo \*inf, EmberAfScheduledBlockThresholds \*bt)

- `bool emberAfPriceSetPriceTableEntry (uint8_t endpoint, uint8_t index, const EmberAfScheduledPrice *price)`
- `bool emberAfPriceSetTariffTableEntry (uint8_t endpoint, uint8_t index, EmberAfPriceCommonInfo *info, const EmberAfScheduledTariff *tariff)`
- `bool emberAfPriceSetPriceMatrix (uint8_t endpoint, uint8_t index, EmberAfPriceCommonInfo *inf, const EmberAfScheduledPriceMatrix *pm)`
- `bool emberAfPriceSetBlockThresholdsTableEntry (uint8_t endpoint, uint8_t index, const EmberAfPriceCommonInfo *inf, const EmberAfScheduledBlockThresholds *bt)`
- `bool emberAfGetCurrentPrice (uint8_t endpoint, EmberAfScheduledPrice *price)`
- `uint8_t emberAfPriceFindFreePriceIndex (uint8_t endpoint)`
- `void emberAfPricePrint (const EmberAfScheduledPrice *price)`
- `void emberAfPricePrintPriceTable (uint8_t endpoint)`
- `void emberAfPricePrintTariff (const EmberAfPriceCommonInfo *info, const EmberAfScheduledTariff *tariff)`
- `void emberAfPricePrintTariffTable (uint8_t endpoint)`
- `void emberAfPricePrintPriceMatrix (uint8_t endpoint, const EmberAfPriceCommonInfo *inf, const EmberAfScheduledPriceMatrix *pm)`
- `void emberAfPricePrintPriceMatrixTable (uint8_t endpoint)`
- `void emberAfPricePrintBlockThresholds (uint8_t endpoint, const EmberAfPriceCommonInfo *inf, const EmberAfScheduledBlockThresholds *bt)`
- `void emberAfPricePrintBlockThresholdsTable (uint8_t endpoint)`
- `void emberAfPluginPriceServerPublishPriceMessage (EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t priceIndex)`
- `EmberAfStatus emberAfPluginPriceServerConversionFactorAdd (uint8_t endpoint, uint32_t issuerEventId, uint32_t startTime, uint32_t conversionFactor, uint8_t conversionFactorTrailingDigit)`
- `void emberAfPluginPriceServerConversionFactorClear (uint8_t endpoint)`
- `void emberAfPluginPriceServerConversionFactorPub (uint8_t tableIndex, EmberNodeId dstAddr, uint8_t srcEndpoint, uint8_t dstEndpoint)`
- `uint32_t emberAfPriceServerSecondsUntilConversionFactorEvent (uint8_t endpoint)`
- `void emberAfPriceServerRefreshConversionFactor (uint8_t endpoint)`
- `EmberAfStatus emberAfPluginPriceServerCalorificValueAdd (uint8_t endpoint, uint32_t issuerEventId, uint32_t startTime, uint32_t calorificValue, uint8_t calorificValueUnit, uint8_t calorificValueTrailingDigit)`
- `uint32_t emberAfPriceServerSecondsUntilCalorificValueEvent (uint8_t endpoint)`
- `void emberAfPriceServerRefreshCalorificValue (uint8_t endpoint)`
- `void emberAfPluginPriceServerCalorificValueClear (uint8_t endpoint)`
- `void emberAfPluginPriceServerPublishTariffMessage (EmberNodeId nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t tariffIndex)`
- `void emberAfPrintConversionTable (uint8_t endpoint)`
- `void emberAfPrintCalorificValuesTable (uint8_t endpoint)`
- `uint32_t emberAfPriceServerSecondsUntilCO2ValueEvent (uint8_t endpoint)`
- `void emberAfPriceServerRefreshCO2Value (uint8_t endpoint)`
- `void emberAfPluginPriceServerCo2ValueAdd (uint8_t endpoint, uint32_t issuerEventId, uint32_t startTime, uint32_t providerId, uint8_t tariffType, uint32_t co2Value, uint8_t co2ValueUnit, uint8_t co2ValueTrailingDigit)`
- `void emberAfPluginPriceServerCo2ValueClear (uint8_t endpoint)`
- `void emberAfPrintCo2ValuesTable (uint8_t endpoint)`
- `void emberAfPluginPriceServerCo2LabelPub (uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index)`
- `void emberAfPluginPriceServerTierLabelSet (uint8_t endpoint, uint8_t index, uint8_t valid, uint32_t providerId, uint32_t issuerEventId, uint32_t issuerTariffId, uint8_t tierId, uint8_t *tierLabel)`

- void [emberAfPrintPrintTierLabelsTable](#) (void)
- void [emberAfPluginPriceServerTierLabelAddLabel](#) (uint8\_t endpoint, uint32\_t issuerTariffId, uint8\_t tierId, uint8\_t \*tierLabel)
- void [emberAfPrintTierLabelsTable](#) (uint8\_t endpoint)
- void [emberAfPluginPriceServerTierLabelPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index)
- uint32\_t [emberAfPriceServerSecondsUntilBillingPeriodEvent](#) (uint8\_t endpoint)
- void [emberAfPriceServerRefreshBillingPeriod](#) (uint8\_t endpoint, bool force)
- EmberStatus [emberAfPluginPriceServerBillingPeriodAdd](#) (uint8\_t endpoint, uint32\_t startTime, uint32\_t issuerEventId, uint32\_t providerId, uint32\_t billingPeriodDuration, uint8\_t billingPeriodDurationType, uint8\_t tariffType)
- void [emberAfPluginPriceServerBillingPeriodPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index)
- void [emberAfPrintBillingPeriodTable](#) (uint8\_t endpoint)
- void [emberAfPrintConsolidatedBillTableEntry](#) (uint8\_t endpoint, uint8\_t index)
- void [emberAfPluginPriceServerConsolidatedBillAdd](#) (uint8\_t endpoint, uint32\_t startTime, uint32\_t issuerEventId, uint32\_t providerId, uint32\_t billingPeriodDuration, uint8\_t billingPeriodDurationType, uint8\_t tariffType, uint32\_t consolidatedBill, uint16\_t currency, uint8\_t billTrailingDigit)
- void [emberAfPluginPriceServerConsolidatedBillPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index)
- void [emberAfPluginPriceServerCppEventSet](#) (uint8\_t endpoint, uint8\_t valid, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t startTime, uint16\_t durationInMinutes, uint8\_t tariffType, uint8\_t cppPriceTier, uint8\_t cppAuth)
- void [emberAfPluginPriceServerCppEventPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint)
- void [emberAfPluginPriceServerCppEventPrint](#) (uint8\_t endpoint)
- void [emberAfPluginPriceServerCreditPaymentPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index)
- void [emberAfPluginPriceServerCreditPaymentSet](#) (uint8\_t endpoint, uint8\_t index, uint8\_t valid, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t creditPaymentDueDate, uint32\_t creditPaymentOverdueAmount, uint8\_t creditPaymentStatus, uint32\_t creditPayment, uint32\_t creditPaymentDate, uint8\_t \*creditPaymentRef)
- void [emberAfPluginPriceServerCurrencyConversionPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint)
- void [emberAfPluginPriceServerCurrencyConversionSet](#) (uint8\_t endpoint, uint8\_t valid, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t startTime, uint16\_t oldCurrency, uint16\_t newCurrency, uint32\_t conversionFactor, uint8\_t conversionFactorTrailingDigit, uint32\_t currencyChangeControlFlags)
- void [emberAfPluginPriceServerTariffCancellationSet](#) (uint8\_t endpoint, uint8\_t valid, uint32\_t providerId, uint32\_t issuerTariffId, uint8\_t tariffType)
- void [emberAfPluginPriceServerTariffCancellationPub](#) (uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint)
- uint32\_t [emberAfPriceServerSecondsUntilTariffInfoEvent](#) (uint8\_t endpoint)
- void [emberAfPriceServerRefreshTariffInformation](#) (uint8\_t endpoint)
- bool [emberAfPriceAddTariffTableEntry](#) (uint8\_t endpoint, EmberAfPriceCommonInfo \*curInfo, const EmberAfScheduledTariff \*curTariff)
- bool [emberAfPriceAddPriceMatrixRaw](#) (uint8\_t endpoint, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t startTime, uint32\_t issuerTariffId, uint8\_t commandIndex, uint8\_t numberOfCommands, uint8\_t subPayloadControl, uint8\_t \*payload)
- bool [emberAfPriceAddPriceMatrix](#) (uint8\_t endpoint, EmberAfPriceCommonInfo \*inf, EmberAfScheduledPriceMatrix \*pm)

- `bool emberAfPriceAddBlockThresholdsTableEntry (uint8_t endpoint, uint32_t providerId, uint32_t issuerEventId, uint32_t startTime, uint32_t issuerTariffId, uint8_t commandIndex, uint8_t numberOfCommands, uint8_t subpayloadControl, uint8_t *payload)`
- `void emberAfPriceClearBlockPeriodTable (uint8_t endpoint)`
- `void sendValidCmdEntries (uint8_t cmdId, uint8_t ep, uint8_t *validEntries, uint8_t validEntryCount)`
- `void emberAfPluginPriceServerPriceUpdateBindings (void)`
- `uint32_t emberAfPriceServerSecondsUntilActivePriceMatrixEvent (uint8_t endpoint)`
- `void emberAfPriceServerRefreshPriceMatrixInformation (uint8_t endpoint)`
- `uint32_t emberAfPriceServerSecondsUntilActiveBlockThresholdsEvent (uint8_t endpoint)`
- `void emberAfPriceServerRefreshBlockThresholdsInformation (uint8_t endpoint)`

## Variables

- `EmberAfPriceServerInfo info`
- `bool emAfPluginPriceServerBillingPeriodRepeat`

### 8.250.1 Macro Definition Documentation

#### 8.250.1.1 `#define EMBER_AF_PLUGIN_PRICE_SERVER_PRICE_TABLE_SIZE`

Definition at line 13 of file `price-server.h`.

#### 8.250.1.2 `#define EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE`

Definition at line 17 of file `price-server.h`.

#### 8.250.1.3 `#define EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE`

Definition at line 21 of file `price-server.h`.

#### 8.250.1.4 `#define EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF`

Definition at line 25 of file `price-server.h`.

#### 8.250.1.5 `#define EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE`

Definition at line 29 of file `price-server.h`.

#### 8.250.1.6 `#define EMBER_AF_PLUGIN_PRICE_SERVER_BLOCK_PERIOD_TABLE_SIZE`

Definition at line 33 of file `price-server.h`.

#### 8.250.1.7 `#define EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE`

Definition at line 37 of file `price-server.h`.

8.250.1.8 #define EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CREDIT\_PAYMENT\_TABLE\_SIZE

Definition at line 41 of file [price-server.h](#).

8.250.1.9 #define EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CALORIFIC\_VALUE\_TABLE\_SIZE

Definition at line 45 of file [price-server.h](#).

8.250.1.10 #define EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CO2\_VALUE\_TABLE\_SIZE

Definition at line 49 of file [price-server.h](#).

8.250.1.11 #define EMBER\_AF\_PLUGIN\_PRICE\_SERVER\_CONVERSION\_FACTOR\_TABLE\_SIZE

Definition at line 53 of file [price-server.h](#).

8.250.1.12 #define ZCL\_PRICE\_CLUSTER\_PRICE\_ACKNOWLEDGEMENT\_MASK

Definition at line 56 of file [price-server.h](#).

8.250.1.13 #define ZCL\_PRICE\_CLUSTER\_RESERVED\_MASK

Definition at line 57 of file [price-server.h](#).

8.250.1.14 #define ZCL\_PRICE\_CLUSTER\_BLOCK\_THRESHOLDS\_PAYLOAD\_SIZE

Definition at line 58 of file [price-server.h](#).

8.250.1.15 #define ZCL\_PRICE\_CLUSTER\_PRICE\_MATRIX\_SUBPAYLOAD\_BLOCK\_SIZE

Definition at line 59 of file [price-server.h](#).

8.250.1.16 #define fieldLength( *field* )

Definition at line 61 of file [price-server.h](#).

8.250.1.17 #define ZCL\_PRICE\_CLUSTER\_MAX\_TOU\_BLOCKS

Definition at line 64 of file [price-server.h](#).

8.250.1.18 #define ZCL\_PRICE\_CLUSTER\_MAX\_TOU\_BLOCK\_TIERS

Definition at line 65 of file [price-server.h](#).

8.250.1.19 #define ZCL\_PRICE\_CLUSTER\_MAX\_TOU\_TIERS

Definition at line 66 of file [price-server.h](#).

8.250.1.20 #define ZCL\_PRICE\_CLUSTER\_PRICE\_MATRIX\_SUB\_PAYLOAD\_ENTRY\_SIZE

Definition at line 67 of file [price-server.h](#).

8.250.1.21 #define CURRENT

Definition at line 71 of file [price-server.h](#).

8.250.1.22 #define FUTURE

Definition at line 72 of file [price-server.h](#).

8.250.1.23 #define PUBLISHED

Definition at line 73 of file [price-server.h](#).

8.250.1.24 #define TARIFF\_TYPE\_MASK

Definition at line 75 of file [price-server.h](#).

8.250.1.25 #define CHARGING\_SCHEME\_MASK

Definition at line 76 of file [price-server.h](#).

8.250.1.26 #define tariffIsCurrent( *tariff* )

Definition at line 78 of file [price-server.h](#).

8.250.1.27 #define tariffIsFuture( *tariff* )

Definition at line 79 of file [price-server.h](#).

8.250.1.28 #define tariffIsPublished( *tariff* )

Definition at line 80 of file [price-server.h](#).

8.250.1.29 #define priceMatrixIsCurrent( *pm* )

Definition at line 81 of file [price-server.h](#).

**8.250.1.30 #define priceMatrixIsFuture( *pm* )**

Definition at line [82](#) of file [price-server.h](#).

**8.250.1.31 #define priceMatrixIsPublished( *pm* )**

Definition at line [83](#) of file [price-server.h](#).

**8.250.1.32 #define blockThresholdsIsCurrent( *bt* )**

Definition at line [84](#) of file [price-server.h](#).

**8.250.1.33 #define blockThresholdsIsFuture( *bt* )**

Definition at line [85](#) of file [price-server.h](#).

**8.250.1.34 #define blockThresholdsIsPublished( *bt* )**

Definition at line [86](#) of file [price-server.h](#).

**8.250.1.35 #define CREDIT\_PAYMENT\_REF\_STRING\_LEN**

Definition at line [144](#) of file [price-server.h](#).

**8.250.1.36 #define TIER\_LABEL\_SIZE**

Definition at line [190](#) of file [price-server.h](#).

## 8.250.2 Typedef Documentation

**8.250.2.1 typedef uint8\_t emAfPriceBlockThreshold[ZCL\_PRICE\_CLUSTER\_BLOCK\_THRESHOLDS\_PAYLOAD\_SIZE]**

Definition at line [283](#) of file [price-server.h](#).

## 8.250.3 Function Documentation

**8.250.3.1 void emberAfPriceServerSendGetScheduledPrices ( uint8\_t *endpoint* )**

Called to send the next Get Scheduled Prices command.

### Parameters

<i>endpoint</i>	The endpoint in question.
-----------------	---------------------------

### **8.250.3.2 uint32\_t emberAfPriceServerSecondsUntilGetScheduledPricesEvent ( void )**

Return the number of seconds until the next Get Scheduled Prices command should be sent.

#### **Returns**

The number of seconds until the next Get Scheduled Prices command should be sent.

### **8.250.3.3 void emberAfPriceClearPriceTable ( uint8\_t endpoint )**

Clear all prices in the price table.

#### **Parameters**

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

### **8.250.3.4 void emberAfPriceClearTariffTable ( uint8\_t endpoint )**

Clear all tariffs in the tariff table.

#### **Parameters**

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

### **8.250.3.5 void emberAfPriceClearPriceMatrixTable ( uint8\_t endpoint )**

Clear all price matrices in the price matrix table.

#### **Parameters**

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

### **8.250.3.6 void emberAfPriceClearBlockThresholdsTable ( uint8\_t endpoint )**

Clear all block thresholds in the block thresholds table.

#### **Parameters**

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

### **8.250.3.7 bool emberAfPriceGetPriceTableEntry ( uint8\_t endpoint, uint8\_t index, EmberAfScheduledPrice \* price )**

Get a price used by the Price server plugin.

This function can be used to get a price and metadata that the plugin will send to clients. For "start now" prices that are current or scheduled, the duration is adjusted to reflect how many minutes remain for the price. Otherwise, the start time and duration of "start now" prices reflect the actual start and the original duration.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the price table.
<i>price</i>	The <a href="#">EmberAfScheduledPrice</a> structure describing the price.

**Returns**

true if the price was found or false if the index is invalid.

```
8.250.3.8 void emberAfPluginPriceServerBlockPeriodAdd ( uint8_t endpoint, uint32_t providerId,
uint32_t issuerEventId, uint32_t blockPeriodStartTime, uint32_t blockPeriodDuration, uint8_t
blockPeriodControl, uint8_t blockPeriodDurationType, uint32_t thresholdMultiplier, uint32_t
thresholdDivisor, uint8_t tariffType, uint8_t tariffResolutionPeriod )
```

Sets values in the Block Period table.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>issuerEventId</i>	The event ID of the block period data.
<i>blockPeriod- StartTime</i>	Time at which the block period data is valid.
<i>blockPeriod- Duration</i>	The block period duration. Units are specified by the blockPeriodDurationType.
<i>blockPeriod- Control</i>	Identifies additional control options for the block period command.
<i>blockPeriod- DurationType</i>	A bitmap that indicates the units used in the block period.
<i>tariffType</i>	Bitmap identifying the type of tariff published in this command.
<i>tariff- Resolution- Period</i>	The resolution period for the block tariff.

```
8.250.3.9 void emberAfPluginPriceServerBlockPeriodPub ( uint16_t nodeId, uint8_t srcEndpoint, uint8_t
dstEndpoint, uint8_t index )
```

Sends a Publish Block Period command.

**Parameters**

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>index</i>	The index of the table whose data will be used in the command.

```
8.250.3.10 void emberAfPluginPriceServerBlockPeriodPrint ( uint8_t endpoint, uint8_t index )
```

Prints the data in the specified index of the Block Period table.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index of the table whose index will be printed.

**8.250.3.11 uint32\_t emberAfPriceServerSecondsUntilBlockPeriodEvent ( uint8\_t *endpoint* )**

Returns the number of seconds until the next block period event will occur.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
-----------------	------------------------

**Returns**

Returns the number of seconds until the next block period event.

**8.250.3.12 void emberAfPriceServerRefreshBlockPeriod ( uint8\_t *endpoint*, bool *repeat* )**

Updates block period attributes to match the current block period.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>repeat</i>	Whether or not to try to repeat the current block period in the next block period. This is also controlled by a bit in the blockPeriodControl, saying whether or not the block period should repeat on expiry.

**8.250.3.13 bool emberAfPriceGetTariffTableEntry ( uint8\_t *endpoint*, uint8\_t *index*, EmberAfPriceCommonInfo \* *info*, EmberAfScheduledTariff \* *tariff* )**

Get a tariff used by the Price server plugin.

This function can be used to get a tariff and associated metadata that the plugin will send to clients.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the tariff table.
<i>info</i>	The <a href="#">EmberAfPriceCommonInfo</a> structure describing the tariff.
<i>tariff</i>	The <a href="#">EmberAfScheduledTariff</a> structure describing the tariff.

**Returns**

true if the tariff was found

**8.250.3.14 bool emberAfPriceGetPriceMatrix ( uint8\_t *endpoint*, uint8\_t *index*, EmberAfPriceCommonInfo \* *inf*, EmberAfScheduledPriceMatrix \* *pm* )**

Retrieve a price matrix entry by index.

This function can be used to get a price matrix and associated metadata that the plugin will send to clients.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the price matrix table.
<i>pm</i>	The <a href="#">EmberAfScheduledPriceMatrix</a> structure describing the price matrix.

#### Returns

true if the price matrix was found

**8.250.3.15 bool emberAfPriceGetBlockThresholdsTableEntry ( uint8\_t *endpoint*, uint8\_t *index*, EmberAfScheduledBlockThresholds \* *bt* )**

Get the block thresholds used by the Price server plugin.

This function can be used to get the block thresholds and associated metadata that the plugin will send to clients.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the block thresholds table.
<i>bt</i>	The <a href="#">EmberAfScheduledBlockThresholds</a> structure describing the block thresholds.

#### Returns

true if the block thresholds was found

**8.250.3.16 bool emberAfPriceGetTariffByIssuerTariffId ( uint8\_t *endpoint*, uint32\_t *issuerTariffId*, EmberAfPriceCommonInfo \* *info*, EmberAfScheduledTariff \* *tariff* )**

Get a tariff by issuer tariff ID and endpoint.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>issuerTariffId</i>	The issuer tariff ID.
<i>info</i>	The <a href="#">EmberAfPriceCommonInfo</a> structure describing the tariff.
<i>tariff</i>	The <a href="#">EmberAfScheduledTariff</a> structure describing the tariff.

#### Returns

true if the tariff was found

**8.250.3.17 bool emberAfPriceGetPriceMatrixByIssuerTariffId ( uint8\_t *endpoint*, uint32\_t *issuerTariffId*, EmberAfPriceCommonInfo \* *inf*, EmberAfScheduledPriceMatrix \* *pm* )**

Get a price matrix by issuer tariff ID and endpoint.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>issuerTariffId</i>	The issuer tariff ID.
<i>pm</i>	The <a href="#">EmberAfScheduledPriceMatrix</a> structure describing the price matrix.

**Returns**

true if the price matrix was found

```
8.250.3.18 bool emberAfPriceGetBlockThresholdsByIssuerTariffId ( uint8_t endpoint, uint32_t
issuerTariffId, EmberAfPriceCommonInfo * inf, EmberAfScheduledBlockThresholds *
bt )
```

Get the block thresholds by issuer tariff ID and endpoint.

**Parameters**

<i>endpoint</i>	The relevant endpoint.
<i>issuerTariffId</i>	The issuer tariff ID.
<i>bt</i>	The <a href="#">EmberAfScheduledBlockThresholds</a> structure describing the block thresholds.

**Returns**

true if the block thresholds was found

```
8.250.3.19 bool emberAfPriceSetPriceTableEntry ( uint8_t endpoint, uint8_t index, const
EmberAfScheduledPrice * price )
```

Set a price used by the Price server plugin.

This function can be used to set a price and metadata that the plugin will send to clients. Setting the start time to zero instructs clients to start the price now. For "start now" prices, the plugin will automatically adjust the duration reported to clients based on the original start time of the price.

**Parameters**

<i>endpoint</i>	The relevant endpoint
<i>index</i>	The index in the price table.
<i>price</i>	The <a href="#">EmberAfScheduledPrice</a> structure describing the price. If NULL, the price is removed from the server.

**Returns**

true if the price was set or removed or false is the index is invalid.

```
8.250.3.20 bool emberAfPriceSetTariffTableEntry ( uint8_t endpoint, uint8_t index,
EmberAfPriceCommonInfo * info, const EmberAfScheduledTariff * tariff )
```

Set a tariff used by the Price server plugin.

This function can be used to set a tariff and metadata that the plugin will send to clients.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the tariff table.
<i>tariff</i>	The <a href="#">EmberAfScheduledTariff</a> structure describing the tariff. If NULL, the tariff is removed from the server.

#### Returns

true if the tariff was set or removed, or false if the index is invalid.

**8.250.3.21 bool emberAfPriceSetPriceMatrix ( uint8\_t *endpoint*, uint8\_t *index*, EmberAfPriceCommonInfo \* *inf*, const EmberAfScheduledPriceMatrix \* *pm* )**

Set a price matrix entry by index.

This function can be used to set a price matrix and metadata that the plugin will send to clients.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the price matrix table.
<i>pm</i>	The <a href="#">EmberAfScheduledPriceMatrix</a> structure describing the price matrix. If NULL, the price matrix is removed from the server.

#### Returns

true if the price matrix was set or removed, or false if the index is invalid.

**8.250.3.22 bool emberAfPriceSetBlockThresholdsTableEntry ( uint8\_t *endpoint*, uint8\_t *index*, const EmberAfPriceCommonInfo \* *inf*, const EmberAfScheduledBlockThresholds \* *bt* )**

Set the block thresholds used by the Price server plugin.

This function can be used to set the block thresholds and metadata that the plugin will send to clients.

#### Parameters

<i>endpoint</i>	The relevant endpoint.
<i>index</i>	The index in the block thresholds table.
<i>bt</i>	The <a href="#">EmberAfScheduledBlockThresholds</a> structure describing the block thresholds. If NULL, the block thresholds entry is removed from the table.

#### Returns

true if the block thresholds was set or removed, or false if the index is invalid.

### 8.250.3.23 bool emberAfGetCurrentPrice ( uint8\_t *endpoint*, EmberAfScheduledPrice \* *price* )

Get the current price used by the Price server plugin.

This function can be used to get the current price and metadata that the plugin will send to clients. For "start now" prices, the duration is adjusted to reflect how many minutes remain for the price. Otherwise, the start time and duration reflect the actual start and the original duration.

#### Parameters

<i>endpoint</i>	The relevant endpoint
<i>price</i>	The <a href="#">EmberAfScheduledPrice</a> structure describing the price.

#### Returns

true if the current price was found or false is there is no current price.

### 8.250.3.24 uint8\_t emberAfPriceFindFreePriceIndex ( uint8\_t *endpoint* )

Find the first free index in the price table.

This function looks through the price table and determines whether the entry is in-use or scheduled to be in use; if not, it's considered "free" for the purposes of the user adding a new price entry to the server's table, and the index is returned.

#### Parameters

<i>endpoint</i>	The relevant endpoint
-----------------	-----------------------

#### Returns

The index of the first free (unused/unscheduled) entry in the requested endpoint's price table, or ZCL\_PRICE\_INVALID\_INDEX if no available entry could be found.

### 8.250.3.25 void emberAfPricePrint ( const EmberAfScheduledPrice \* *price* )

### 8.250.3.26 void emberAfPricePrintPriceTable ( uint8\_t *endpoint* )

### 8.250.3.27 void emberAfPricePrintTariff ( const EmberAfPriceCommonInfo \* *info*, const EmberAfScheduledTariff \* *tariff* )

### 8.250.3.28 void emberAfPricePrintTariffTable ( uint8\_t *endpoint* )

### 8.250.3.29 void emberAfPricePrintPriceMatrix ( uint8\_t *endpoint*, const EmberAfPriceCommonInfo \* *inf*, const EmberAfScheduledPriceMatrix \* *pm* )

### 8.250.3.30 void emberAfPricePrintPriceMatrixTable ( uint8\_t *endpoint* )

### 8.250.3.31 void emberAfPricePrintBlockThresholds ( uint8\_t *endpoint*, const EmberAfPriceCommonInfo \* *inf*, const EmberAfScheduledBlockThresholds \* *bt* )

### 8.250.3.32 void emberAfPricePrintBlockThresholdsTable ( uint8\_t *endpoint* )

**8.250.3.33 void emberAfPluginPriceServerPublishPriceMessage ( EmberNodeId *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *priceIndex* )**

**8.250.3.34 EmberAfStatus emberAfPluginPriceServerConversionFactorAdd ( uint8\_t *endpoint*, uint32\_t *issuerEventId*, uint32\_t *startTime*, uint32\_t *conversionFactor*, uint8\_t *conversionFactorTrailingDigit* )**

Sets parameters in the conversion factors table.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>issuerEventId</i>	The event ID of the conversion factor data.
<i>startTime</i>	The time when the conversion factor data is valid.
<i>conversionFactor</i>	Accounts for changes in the volume of gas based on temperature and pressure.
<i>conversionFactorTrailingDigit</i>	Determines where the decimal point is located in the conversion factor.

**8.250.3.35 void emberAfPluginPriceServerConversionFactorClear ( uint8\_t *endpoint* )**

Clears the conversion factors table and invalidates all entries.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

**8.250.3.36 void emberAfPluginPriceServerConversionFactorPub ( uint8\_t *tableIndex*, EmberNodeId *dstAddr*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )**

Sends a Publish Conversion Factor command using the data at the specified table index.

#### Parameters

<i>tableIndex</i>	The index of the conversion factor table whose data should be used in the publish conversion factor command.
<i>dstAddr</i>	The destination address to which the command should be sent.
<i>srcEp</i>	The source endpoint used in the transmission.
<i>dstEp</i>	The destination endpoint used in the transmission.

**8.250.3.37 uint32\_t emberAfPriceServerSecondsUntilConversionFactorEvent ( uint8\_t *endpoint* )**

Returns the number of seconds until the next conversion factor event will become active.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

## Returns

The number of seconds until the next conversion factor event becomes active.

### 8.250.3.38 void emberAfPriceServerRefreshConversionFactor ( *uint8\_t endpoint* )

Refreshes conversion factor information if necessary. If the second conversion factor event is active, the first is inactivated and the array is re-sorted.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

### 8.250.3.39 EmberAfStatus emberAfPluginPriceServerCalorificValueAdd ( *uint8\_t endpoint, uint32\_t issuerEventId, uint32\_t startTime, uint32\_t calorificValue, uint8\_t calorificValueUnit, uint8\_t calorificValueTrailingDigit* )

Sets values in the Calorific Value table.

#### Parameters

<i>endpoint</i>	The endpoint in question The event ID of the calorific value data. The time at which the calorific value data is valid. The amount of heat generated when a given mass of fuel is burned. Determines where the decimal point is located in the calorific value.
-----------------	---

### 8.250.3.40 uint32\_t emberAfPriceServerSecondsUntilCalorificValueEvent ( *uint8\_t endpoint* )

Returns the number of seconds until the next calorific value event will become active.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

## Returns

The number of seconds until the next calorific value event becomes active.

### 8.250.3.41 void emberAfPriceServerRefreshCalorificValue ( *uint8\_t endpoint* )

Refreshes calorific value information if necessary. If the second calorific value event is active, the first is inactivated and the array is re-sorted.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.42 void emberAfPluginPriceServerCalorificValueClear ( *uint8\_t endpoint* )

Clears the calorific value table and invalidates all entries.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.43 void emberAfPluginPriceServerPublishTariffMessage ( *EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t tariffIndex* )

Sends a Publish Tariff Information command.

##### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>tariffIndex</i>	The index of the tariff table whose data will be used in the Publish Tariff Information command.

#### 8.250.3.44 void emberAfPrintConversionTable ( *uint8\_t endpoint* )

Prints the data in the conversion factor table.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.45 void emberAfPrintCalorificValuesTable ( *uint8\_t endpoint* )

Prints the data in the calorific values table.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.46 uint32\_t emberAfPriceServerSecondsUntilCO2ValueEvent ( *uint8\_t endpoint* )

Returns the number of seconds until the next CO2 value event will become active.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

##### Returns

The number of seconds until the next CO2 value event becomes active.

#### 8.250.3.47 void emberAfPriceServerRefreshCO2Value ( *uint8\_t endpoint* )

Refreshes CO2 value information if necessary. If the second CO2 value event is active, the first is inactivated and the array is re-sorted.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.48 void emberAfPluginPriceServerCo2ValueAdd ( *uint8\_t endpoint, uint32\_t issuerEventId, uint32\_t startTime, uint32\_t providerId, uint8\_t tariffType, uint32\_t co2Value, uint8\_t co2ValueUnit, uint8\_t co2ValueTrailingDigit* )

Sets values in the Co2 Value table.

##### Parameters

<i>endpoint</i>	The endpoint in question
<i>issuerEventId</i>	The event ID of the Co2 value table data.
<i>startTime</i>	The time at which the Co2 value data is valid.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>tariffType</i>	Bitmap identifying the type of tariff published in this command
<i>co2Value</i>	Used to calculate the amount of carbon dioxide produced from energy use.
<i>co2ValueUnit</i>	Enum which defines the unit of the co2Value attribute.
<i>co2Value-TrailingDigit</i>	Determines where the decimal point is located in the co2Value.

#### 8.250.3.49 void emberAfPluginPriceServerCo2ValueClear ( *uint8\_t endpoint* )

Clears the Co2 value table and invalidates all entries.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.50 void emberAfPrintCo2ValuesTable ( *uint8\_t endpoint* )

Prints the data in the CO2 values table.

##### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### 8.250.3.51 void emberAfPluginPriceServerCo2LabelPub ( *uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index* )

Sends a Publish CO2 Value command.

**Parameters**

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>index</i>	The index of the CO2 values table whose data will be used in the command.

**8.250.3.52 void emberAfPluginPriceServerTierLabelSet ( uint8\_t *endpoint*, uint8\_t *index*, uint8\_t *valid*, uint32\_t *providerId*, uint32\_t *issuerEventId*, uint32\_t *issuerTariffId*, uint8\_t *tierId*, uint8\_t \* *tierLabel* )**

Sets values in the Tier Label table.

**Parameters**

<i>endpoint</i>	The endpoint in question
<i>index</i>	The index of the billing period table whose data will be modified.
<i>valid</i>	Indicates if the data at this index is valid or not.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>issuerEventId</i>	The event ID of the tier labels table data.
<i>issuerTariffId</i>	Unique identifier that identifies which tariff the labels apply to.
<i>tierId</i>	The tier number that associated tier label applies to.
<i>tierLabel</i>	Character string descriptor for this tier.

**8.250.3.53 void emberAfPrintPrintTierLabelsTable ( void )**

**8.250.3.54 void emberAfPluginPriceServerTierLabelAddLabel ( uint8\_t *endpoint*, uint32\_t *issuerTariffId*, uint8\_t *tierId*, uint8\_t \* *tierLabel* )**

Adds a tier label to the specified tier label table.

**Parameters**

<i>endpoint</i>	The endpoint in question
<i>issuerTariffId</i>	Unique identifier that identifies which tariff the labels apply to.
<i>tierId</i>	The tier number that associated tier label applies to.
<i>tierLabel</i>	Character string descriptor for this tier.

**8.250.3.55 void emberAfPrintTierLabelsTable ( uint8\_t *endpoint* )**

Prints the tier labels table.

**Parameters**

<i>endpoint</i>	The endpoint in question
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**8.250.3.56 void emberAfPluginPriceServerTierLabelPub ( uint16\_t *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *index* )**

Sends a Publish Tier Labels command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>index</i>	The index of the tier labels table whose data will be used in the Publish Tier Labels command.

**8.250.3.57 uint32\_t emberAfPriceServerSecondsUntilBillingPeriodEvent ( uint8\_t *endpoint* )**

Returns the number of seconds until the next billing period event will become active.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

#### Returns

The number of seconds until the next billing period event becomes active.

**8.250.3.58 void emberAfPriceServerRefreshBillingPeriod ( uint8\_t *endpoint*, bool *force* )**

Refreshes billing period information if necessary. If the second billing period event is active, the first is inactivated and the array is re-sorted. If the force argument is set to true, then the billing period will be forced to refresh.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>force</i>	Whether or not the billing period should be forced to refresh.

**8.250.3.59 EmberStatus emberAfPluginPriceServerBillingPeriodAdd ( uint8\_t *endpoint*, uint32\_t *startTime*, uint32\_t *issuerEventId*, uint32\_t *providerId*, uint32\_t *billingPeriodDuration*, uint8\_t *billingPeriodDurationType*, uint8\_t *tariffType* )**

Sets values in the billing period table.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>startTime</i>	The time at which the billing period data is valid.
<i>issuerEventId</i>	The event ID of the billing period data.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>billingPeriodDuration</i>	The billing period duration. Units are specified by the <i>billingPeriodDurationType</i> .

<i>billingPeriodDurationType</i>	A bitmap that indicates the units used in the billing period.
<i>tariffType</i>	Bitmap identifying the type of tariff published in this command.

**8.250.3.60 void emberAfPluginPriceServerBillingPeriodPub ( uint16\_t *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *index* )**

Semds a Publish Billing Period command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>index</i>	The index of the table whose data will be used in the command.

**8.250.3.61 void emberAfPrintBillingPeriodTable ( uint8\_t *endpoint* )**

Prints the data in the billing period table for the specified endpoint.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

**8.250.3.62 void emberAfPrintConsolidatedBillTableEntry ( uint8\_t *endpoint*, uint8\_t *index* )**

Prints the data in the consolidated bills table at the specified index.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>index</i>	The index of the consolidated bills table whose data should be printed.

**8.250.3.63 void emberAfPluginPriceServerConsolidatedBillAdd ( uint8\_t *endpoint*, uint32\_t *startTime*, uint32\_t *issuerEventId*, uint32\_t *providerId*, uint32\_t *billingPeriodDuration*, uint8\_t *billingPeriodDurationType*, uint8\_t *tariffType*, uint32\_t *consolidatedBill*, uint16\_t *currency*, uint8\_t *billTrailingDigit* )**

Sets values in the consolidated bills table.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>startTime</i>	The time at which the consolidated bills data is valid.
<i>issuerEventId</i>	The event ID of the consolidated bills data.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>billingPeriodDuration</i>	The billing period duration. Units are specified by the <i>billingPeriodDurationType</i> .

<i>billingPeriod-DurationType</i>	A bitmap that indicates the units used in the billing period.
<i>tariffType</i>	Bitmap identifying the type of tariff published in this command.
<i>consolidated-Bill</i>	The consolidated bill value for the specified billing period.
<i>currency</i>	The currency used in the consolidatedBill field.
<i>billTrailing-Digit</i>	Determines where the decimal point is located in the consolidatedBill field.

**8.250.3.64 void emberAfPluginPriceServerConsolidatedBillPub ( uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, uint8\_t index )**

Sends a Publish Consolidated Bill command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>index</i>	The index of the table whose data will be used in the command.

**8.250.3.65 void emberAfPluginPriceServerCppEventSet ( uint8\_t endpoint, uint8\_t valid, uint32\_t providerId, uint32\_t issuerEventId, uint32\_t startTime, uint16\_t durationInMinutes, uint8\_t tariffType, uint8\_t cppPriceTier, uint8\_t cppAuth )**

Sets values of the Cpp Event.

#### Parameters

<i>endpoint</i>	The endpoint in question.
<i>valid</i>	Indicates if the Cpp Event data is valid or not.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>issuerEventId</i>	The event ID of the Cpp Event.
<i>startTime</i>	The time at which the Cpp Event data is valid.
<i>durationIn-Minutes</i>	Defines the duration of the Cpp Event.
<i>tariffType</i>	Bitmap identifying the type of tariff published in this command.
<i>cppPriceTier</i>	Indicates which CPP price tier should be used for the event.
<i>cppAuth</i>	The status of the CPP event.

**8.250.3.66 void emberAfPluginPriceServerCppEventPub ( uint16\_t nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint )**

Sends a Publish CPP Event command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.

### 8.250.3.67 void emberAfPluginPriceServerCppEventPrint ( uint8\_t *endpoint* )

Prints the data in the CPP Event.

#### Parameters

<i>endpoint</i>	The endpoint in question
-----------------	--------------------------

### 8.250.3.68 void emberAfPluginPriceServerCreditPaymentPub ( uint16\_t *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint*, uint8\_t *index* )

Sends a Publish Credit Payment command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.
<i>index</i>	The index of the table whose data will be used in the command.

### 8.250.3.69 void emberAfPluginPriceServerCreditPaymentSet ( uint8\_t *endpoint*, uint8\_t *index*, uint8\_t *valid*, uint32\_t *providerId*, uint32\_t *issuerEventId*, uint32\_t *creditPaymentDueDate*, uint32\_t *creditPaymentOverdueAmount*, uint8\_t *creditPaymentStatus*, uint32\_t *creditPayment*, uint32\_t *creditPaymentDate*, uint8\_t \* *creditPaymentRef* )

Sets values in the credit payment table.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>index</i>	The index of the credit payment table whose data will be modified.
<i>valid</i>	Indicates if the data at this index is valid or not.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>issuerEventId</i>	The event ID of the credit payment data.
<i>creditPayment-DueDate</i>	The time the next credit payment is due.
<i>creditPayment-Overdue-Amount</i>	The current amount that is overdue from the customer.
<i>creditPayment-Status</i>	Indicates the current credit payment status.
<i>creditPayment</i>	The amount of the last credit payment.
<i>creditPayment-Date</i>	The time at which the last credit payment was made.
<i>creditPayment-Ref</i>	A string used to denote the last credit payment reference used by the energy supplier.

**8.250.3.70 void emberAfPluginPriceServerCurrencyConversionPub ( uint16\_t *nodeId*, uint8\_t *srcEndpoint*, uint8\_t *dstEndpoint* )**

Sends a Publish Currency Conversion command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.

**8.250.3.71 void emberAfPluginPriceServerCurrencyConversionSet ( uint8\_t *endpoint*, uint8\_t *valid*, uint32\_t *providerId*, uint32\_t *issuerEventId*, uint32\_t *startTime*, uint16\_t *oldCurrency*, uint16\_t *newCurrency*, uint32\_t *conversionFactor*, uint8\_t *conversionFactorTrailingDigit*, uint32\_t *currencyChangeControlFlags* )**

Sets values for the Currency Conversion command.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>valid</i>	Indicates if the currency conversion data is valid or not.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>issuerEventId</i>	The event ID of the currency conversion data.
<i>startTime</i>	The time at which the currency conversion data is valid.
<i>oldCurrency</i>	Information about the old unit of currency.
<i>newCurrency</i>	Information about the new unit of currency.
<i>conversionFactor</i>	Accounts for changes in the volume of gas based on temperature and pressure.
<i>conversionFactorTrailingDigit</i>	Determines where the decimal point is located in the conversion factor.
<i>currencyChangeControlFlags</i>	Denotes functions that are required to be carried out by the client.

**8.250.3.72 void emberAfPluginPriceServerTariffCancellationSet ( uint8\_t *endpoint*, uint8\_t *valid*, uint32\_t *providerId*, uint32\_t *issuerTariffId*, uint8\_t *tariffType* )**

Sets values in the tariff cancellation command.

#### Parameters

<i>endpoint</i>	The endpoint in question
<i>valid</i>	Indicates if the tariff cancellation command is valid or not.
<i>providerId</i>	A unique identifier for the commodity provider.
<i>issuerTariffId</i>	Unique identifier that identifies which tariff should be cancelled.
<i>tariffType</i>	Bitmap identifying the type of tariff to be cancelled.

8.250.3.73 void emberAfPluginPriceServerTariffCancellationPub ( *uint16\_t nodeId*, *uint8\_t srcEndpoint*,  
*uint8\_t dstEndpoint* )

Sends a Cancel Tariff command.

#### Parameters

<i>nodeId</i>	The destination address to which the command should be sent.
<i>srcEndpoint</i>	The source endpoint used in the transmission.
<i>dstEndpoint</i>	The destination endpoint used in the transmission.

8.250.3.74 *uint32\_t* emberAfPriceServerSecondsUntilTariffInfoEvent ( *uint8\_t endpoint* )

8.250.3.75 void emberAfPriceServerRefreshTariffInformation ( *uint8\_t endpoint* )

8.250.3.76 bool emberAfPriceAddTariffTableEntry ( *uint8\_t endpoint*, EmberAfPriceCommonInfo \*  
*curlInfo*, const EmberAfScheduledTariff \**curTariff* )

8.250.3.77 bool emberAfPriceAddPriceMatrixRaw ( *uint8\_t endpoint*, *uint32\_t providerId*, *uint32\_t issuerEventId*,  
*uint32\_t startTime*, *uint32\_t issuerTariffId*, *uint8\_t commandIndex*, *uint8\_t numberOfCommands*,  
*uint8\_t subPayloadControl*, *uint8\_t \* payload* )

8.250.3.78 bool emberAfPriceAddPriceMatrix ( *uint8\_t endpoint*, EmberAfPriceCommonInfo \**inf*,  
EmberAfScheduledPriceMatrix \**pm* )

8.250.3.79 bool emberAfPriceAddBlockThresholdsTableEntry ( *uint8\_t endpoint*, *uint32\_t providerId*,  
*uint32\_t issuerEventId*, *uint32\_t startTime*, *uint32\_t issuerTariffId*, *uint8\_t commandIndex*,  
*uint8\_t numberOfCommands*, *uint8\_t subpayloadControl*, *uint8\_t \* payload* )

8.250.3.80 void emberAfPriceClearBlockPeriodTable ( *uint8\_t endpoint* )

8.250.3.81 void sendValidCmdEntries ( *uint8\_t cmdId*, *uint8\_t ep*, *uint8\_t \* validEntries*, *uint8\_t validEntryCount* )

8.250.3.82 void emberAfPluginPriceServerPriceUpdateBindings ( *void* )

8.250.3.83 *uint32\_t* emberAfPriceServerSecondsUntilActivePriceMatrixEvent ( *uint8\_t endpoint* )

8.250.3.84 void emberAfPriceServerRefreshPriceMatrixInformation ( *uint8\_t endpoint* )

8.250.3.85 *uint32\_t* emberAfPriceServerSecondsUntilActiveBlockThresholdsEvent ( *uint8\_t endpoint* )

8.250.3.86 void emberAfPriceServerRefreshBlockThresholdsInformation ( *uint8\_t endpoint* )

### 8.250.4 Variable Documentation

8.250.4.1 EmberAfPriceServerInfo info

8.250.4.2 bool emAfPluginPriceServerBillingPeriodRepeat

## 8.251 price-server.h

```

00001 // ****
00002 // * price-server.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007 #ifndef _PRICE_SERVER_H_
00008 #define _PRICE_SERVER_H_
00009
00010 #include "app/framework/plugin/price-common/price-common.h"
00011
00012 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_PRICE_TABLE_SIZE
00013     #define EMBER_AF_PLUGIN_PRICE_SERVER_PRICE_TABLE_SIZE (5)
00014 #endif
00015
00016 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
00017     #define EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE (2)
00018 #endif
00019
00020 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE
00021     #define EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE (2)
00022 #endif
00023
00024 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF
00025     #define EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF (2)
00026 #endif
00027
00028 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE
00029     #define EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE (2)
00030 #endif
00031
00032 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_BLOCK_PERIOD_TABLE_SIZE
00033     #define EMBER_AF_PLUGIN_PRICE_SERVER_BLOCK_PERIOD_TABLE_SIZE (2)
00034 #endif
00035
00036 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE
00037     #define EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE (5)
00038 #endif
00039
00040 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_CREDIT_PAYMENT_TABLE_SIZE
00041     #define EMBER_AF_PLUGIN_PRICE_SERVER_CREDIT_PAYMENT_TABLE_SIZE (5)
00042 #endif
00043
00044 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_CALORIFIC_VALUE_TABLE_SIZE
00045     #define EMBER_AF_PLUGIN_PRICE_SERVER_CALORIFIC_VALUE_TABLE_SIZE (2)
00046 #endif
00047
00048 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_CO2_VALUE_TABLE_SIZE
00049     #define EMBER_AF_PLUGIN_PRICE_SERVER_CO2_VALUE_TABLE_SIZE (2)
00050 #endif
00051
00052 #ifndef EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE
00053     #define EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE (2)
00054 #endif
00055
00056 #define ZCL_PRICE_CLUSTER_PRICE_ACKNOWLEDGEMENT_MASK 0x01
00057 #define ZCL_PRICE_CLUSTER_RESERVED_MASK                 0xFE
00058 #define ZCL_PRICE_CLUSTER_BLOCK_THRESHOLDS_PAYLOAD_SIZE (6)
00059 #define ZCL_PRICE_CLUSTER_PRICE_MATRIX_SUBPAYLOAD_BLOCK_SIZE (5)
00060
00061 #define fieldLength(field) \
00062     (emberAfCurrentCommand()->bufLen - (field - \
00063         emberAfCurrentCommand()->buffer));
00064 #define ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS 15
00065 #define ZCL_PRICE_CLUSTER_MAX_TOU_BLOCK_TIERS 15
00066 #define ZCL_PRICE_CLUSTER_MAX_TOU_TIERS 48
00067 #define ZCL_PRICE_CLUSTER_PRICE_MATRIX_SUB_PAYLOAD_ENTRY_SIZE 5
00068
00069 // To help keep track of the status of the tariffs in the table
00070 // (also, corresponding price matrices).
00071 #define CURRENT      BIT(1)
00072 #define FUTURE       BIT(2)
00073 #define PUBLISHED    BIT(3)
00074

```

```

00075 #define TARIFF_TYPE_MASK (0x0F)
00076 #define CHARGING_SCHEME_MASK (0xF0)
00077
00078 #define tariffIsCurrent(tariff) ((tariff)->status & CURRENT)
00079 #define tariffIsFuture(tariff) ((tariff)->status & FUTURE)
00080 #define tariffIsPublished(tariff) ((tariff)->status & PUBLISHED)
00081 #define priceMatrixIsCurrent(pm) ((pm)->status & CURRENT)
00082 #define priceMatrixIsFuture(pm) ((pm)->status & FUTURE)
00083 #define priceMatrixIsPublished(pm) ((pm)->status & PUBLISHED)
00084 #define blockThresholdsIsCurrent(bt) ((bt)->status & CURRENT)
00085 #define blockThresholdsIsFuture(bt) ((bt)->status & FUTURE)
00086 #define blockThresholdsIsPublished(bt) ((bt)->status & PUBLISHED)
00087
00101 typedef struct{
00102     uint32_t providerId;
00103     uint32_t rawBlockPeriodStartTime;
00104     uint32_t blockPeriodDuration;
00105     // The "thresholdMultiplier" and "thresholdDivisor" are included in this
00106     // structure
00107     // since these should be specified with the block period.
00108     // These values are stored as the "Threshold Multiplier" and "Threshold
00109     // Divisor"
00110     uint32_t thresholdMultiplier;
00111     uint32_t thresholdDivisor;
00112     uint8_t blockPeriodControl;
00113     uint8_t blockPeriodDurationType;
00114     uint8_t tariffType;
00115 } EmberAfPriceBlockPeriod;
00116
00117 typedef struct {
00118     uint32_t providerId;
00119     uint32_t rawBillingPeriodStartTime;
00120     uint32_t billingPeriodDuration;
00121     uint8_t billingPeriodDurationType;
00122     uint8_t tariffType;
00123 } EmberAfPriceBillingPeriod;
00124
00125 typedef struct{
00126     uint32_t providerId;
00127     uint32_t durationInMinutes;
00128     uint8_t tariffType;
00129     uint8_t cppPriceTier;
00130     uint8_t cppAuth;
00131 } EmberAfPriceCppEvent;
00132
00133 typedef struct{
00134     uint32_t providerId;
00135     uint32_t rawStartTimeUtc;    // start time as received from
00136     caller, prior to any adjustments
00137     uint32_t billingPeriodDuration;
00138     uint32_t consolidatedBill;
00139     uint16_t currency;
00140     uint8_t billingPeriodDurationType;
00141     uint8_t tariffType;
00142     uint8_t billTrailingDigit;
00143 } EmberAfPriceConsolidatedBills;
00144
00145 #define CREDIT_PAYMENT_REF_STRING_LEN 20
00146 typedef struct{
00147     uint32_t providerId;
00148     uint32_t creditPaymentDueDate;
00149     uint32_t creditPaymentAmountOverdue;
00150     uint32_t creditPayment;
00151     uint32_t creditPaymentDate;
00152     uint8_t creditPaymentStatus;
00153     uint8_t creditPaymentRef[ CREDIT_PAYMENT_REF_STRING_LEN
00154     + 1 ];
00155 } EmberAfPriceCreditPayment;
00156
00157 typedef struct {
00158     uint32_t conversionFactor;
00159     uint8_t conversionFactorTrailingDigit;
00160 } EmberAfPriceConversionFactor;
00161
00162 typedef struct {
00163     uint32_t calorificValue;
00164     uint8_t calorificValueUnit;
00165     uint8_t calorificValueTrailingDigit;

```

```

00164 } EmberAfPriceCalorificValue;
00165
00166 typedef struct{
00167     uint32_t providerId;
00168     uint32_t issuerTariffId;
00169     uint8_t tariffType;
00170     bool valid;
00171 } EmberAfPriceCancelTariff;
00172
00173 typedef struct {
00174     uint32_t providerId;
00175     uint32_t co2Value;
00176     uint8_t tariffType;
00177     uint8_t co2ValueUnit;
00178     uint8_t co2ValueTrailingDigit;
00179 } EmberAfPriceCo2Value;
00180
00181 typedef struct{
00182     uint32_t providerId;
00183     uint16_t oldCurrency;
00184     uint16_t newCurrency;
00185     uint32_t conversionFactor;
00186     uint8_t conversionFactorTrailingDigit;
00187     uint32_t currencyChangeControlFlags;
00188 } EmberAfPriceCurrencyConversion;
00189
00190 #define TIER_LABEL_SIZE 12
00191 typedef struct{
00192     uint32_t providerId;
00193     uint32_t issuerEventId;
00194     uint32_t issuerTariffId;
00195     uint8_t valid;
00196     uint8_t numberOfTiers;
00197     uint8_t tierIds[EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF
00198 ];
00199     uint8_t tierLabels[EMBER_AF_PLUGIN_PRICE_SERVER_MAX_TIERS_PER_TARIFF
00200 ][TIER_LABEL_SIZE+1];
00201 } EmberAfPriceTierLabelValue;
00202
00203 typedef struct {
00204     EmberAfPriceTierLabelValue entry[
00205         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00206     ][EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE
00207 ];
00208
00209 //    uint8_t valid[EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE];
00210 //    uint32_t providerId[EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE];
00211 //    uint32_t
00212 //        issuerEventId[EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE];
00213 //    uint32_t
00214 //        issuerTariffId[EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE];
00215 //    uint8_t tierId[EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE];
00216 //    uint8_t tierLabel[EMBER_AF_PLUGIN_PRICE_SERVER_TIER_LABELS_TABLE_SIZE][13];
00217 } EmberAfPriceTierLabelTable ;
00218
00219 typedef struct{
00220     EmberAfPriceCommonInfo commonInfos[
00221         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00222     ][EMBER_AF_PLUGIN_PRICE_SERVER_BLOCK_PERIOD_TABLE_SIZE
00223 ];
00224 } EmberAfPriceBlockPeriodTable;
00225
00226 typedef struct {
00227     EmberAfPriceCommonInfo commonInfos[
00228         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00229     ][EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE
00230 ];
00231
00232     EmberAfPriceBillingPeriod billingPeriods[
00233         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00234     ][EMBER_AF_PLUGIN_PRICE_SERVER_BILLING_PERIOD_TABLE_SIZE
00235 ];
00236 } EmberAfPriceBillingPeriodTable;
00237
00238
00239 typedef struct{
00240     EmberAfPriceCommonInfo commonInfos[
00241         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00242 ];

```

```

];
00224 EmberAfPriceCppEvent cppEvent[
    EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
];
00225 } EmberAfPriceCppTable;
00226
00227
00228 typedef struct {
00229     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE
];
00230     EmberAfPriceConsolidatedBills consolidatedBills[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CONSOLIDATED_BILL_TABLE_SIZE
];
00231 } EmberAfPriceConsolidatedBillsTable;
00232
00233 typedef struct{
00234     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CREDIT_PAYMENT_TABLE_SIZE
];
00235     EmberAfPriceCreditPayment creditPayment[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CREDIT_PAYMENT_TABLE_SIZE
];
00236 } EmberAfPriceCreditPaymentTable;
00237
00238 typedef struct {
00239     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE
];
00240     EmberAfPriceConversionFactor
priceConversionFactors[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
][EMBER_AF_PLUGIN_PRICE_SERVER_CONVERSION_FACTOR_TABLE_SIZE
];
00241 } EmberAfPriceConversionFactorTable;
00242
00243 typedef struct {
00244     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CALORIFIC_VALUE_TABLE_SIZE
];
00245     EmberAfPriceCalorificValue calorificValues[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CALORIFIC_VALUE_TABLE_SIZE
];
00246 } EmberAfPriceCalorificValueTable;
00247
00248 typedef struct {
00249     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CO2_VALUE_TABLE_SIZE
];
00250     EmberAfPriceCo2Value co2Values[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_CO2_VALUE_TABLE_SIZE
];
00251 } EmberAfPriceCO2Table;
00252
00253 typedef struct{
00254     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
];
00255     EmberAfPriceCurrencyConversion
currencyConversion[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
];
00256 } EmberAfPriceCurrencyConversionTable;
00257
00258 typedef struct{
00259     EmberAfPriceCancelTariff cancelTariff[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
];
00260 } EmberAfPriceCancelTariffTable;
00261
00262 typedef struct {
00263     uint8_t    rateLabel[ZCL_PRICE_CLUSTER_MAXIMUM_RATE_LABEL_LENGTH
+ 1];

```

```

00264     uint32_t providerId;
00265     uint32_t issuerEventID;
00266     uint32_t startTime;
00267     uint32_t price;
00268     uint32_t generationPrice;
00269     uint32_t alternateCostDelivered;
00270     uint16_t currency;
00271     uint16_t duration; // in minutes
00272     uint8_t unitOfMeasure;
00273     uint8_t priceTrailingDigitAndTier;
00274     uint8_t numberOfPriceTiersAndTier; // added later in errata
00275     uint8_t priceRatio;
00276     uint8_t generationPriceRatio;
00277     uint8_t alternateCostUnit;
00278     uint8_t alternateCostTrailingDigit;
00279     uint8_t numberOfBlockThresholds;
00280     uint8_t priceControl;
00281 } EmberAfScheduledPrice;
00282
00283 typedef uint8_t emAfPriceBlockThreshold[
    ZCL_PRICE_CLUSTER_BLOCK_THRESHOLDS_PAYLOAD_SIZE
];
00284 typedef struct {
00285     union {
00286         emAfPriceBlockThreshold blockAndTier[
            ZCL_PRICE_CLUSTER_MAX_TOU_BLOCK_TIERS][
            ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS-1];
00287         emAfPriceBlockThreshold block[
            ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS-1];
00288     } thresholds;
00289     uint32_t providerId;
00290     uint32_t issuerTariffId;
00291     uint8_t status;
00292 } EmberAfScheduledBlockThresholds;
00293
00294 typedef struct {
00295     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
    ];
00296     EmberAfScheduledBlockThresholds
scheduledBlockThresholds[EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
    ];
00297 } EmberAfScheduledBlockThresholdsTable;
00298
00299 typedef struct {
00300     uint32_t providerId;
00301     uint32_t issuerTariffId;
00302     uint8_t status;
00303     uint8_t tariffTypeChargingScheme;
00304
// below fields have corresponding zcl attributes.
00305     uint8_t tariffLabel[ZCL_PRICE_CLUSTER_MAXIMUM_RATE_LABEL_LENGTH
+ 1];
00306     uint8_t numberOfPriceTiersInUse;
00307     uint8_t numberOfBlockThresholdsInUse;
00308     uint8_t tierBlockMode;
00309     uint8_t unitOfMeasure;
00310     uint16_t currency;
00311     uint8_t priceTrailingDigit;
00312     uint32_t standingCharge;
00313     uint32_t blockThresholdMultiplier;
00314     uint32_t blockThresholdDivisor;
00315
00316 } EmberAfScheduledTariff;
00317
00318
00319 typedef struct {
00320     EmberAfPriceCommonInfo commonInfos[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
    ];
00321     EmberAfScheduledTariff scheduledTariffs[
        EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
    ][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
    ];
00322 } EmberAfScheduledTariffTable;
00323
00324 typedef struct {
00325     union {

```

```

00326     uint32_t blockAndTier[ZCL_PRICE_CLUSTER_MAX_TOU_BLOCK_TIERS
00327     ][ZCL_PRICE_CLUSTER_MAX_TOU_BLOCKS];
00328     uint32_t tier[ZCL_PRICE_CLUSTER_MAX_TOU_TIERS
00329     ];
00330     } matrix;
00331     uint32_t providerId;
00332     uint32_t issuerTariffId;
00333     uint8_t status;
00334 } EmberAfScheduledPriceMatrix;
00335
00336 typedef struct {
00337     EmberAfPriceCommonInfo commonInfos[
00338         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00339         ][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
00340     ];
00341     EmberAfScheduledPriceMatrix scheduledPriceMatrix[
00342         EMBER_AF_PRICE_CLUSTER_SERVER_ENDPOINT_COUNT
00343         ][EMBER_AF_PLUGIN_PRICE_SERVER_TARIFF_TABLE_SIZE
00344     ];
00345 } EmberAfScheduledPriceMatrixTable;
00346
00347 typedef struct {
00348     EmberAfPriceBlockPeriodTable blockPeriodTable
00349     ;
00350     EmberAfPriceConversionFactorTable
00351     conversionFactorTable;
00352     EmberAfPriceCalorificValueTable
00353     calorificValueTable;
00354     EmberAfPriceCO2Table co2ValueTable;
00355     EmberAfPriceTierLabelTable tierLabelTable
00356     ;
00357     EmberAfPriceBillingPeriodTable
00358     billingPeriodTable;
00359     EmberAfPriceConsolidatedBillsTable
00360     consolidatedBillsTable;
00361     EmberAfPriceCppTable cppTable;
00362     EmberAfPriceCreditPaymentTable
00363     creditPaymentTable;
00364     EmberAfPriceCurrencyConversionTable
00365     currencyConversionTable;
00366     EmberAfPriceCancelTariffTable cancelTariffTable
00367     ;
00368     EmberAfScheduledTariffTable scheduledTariffTable
00369     ;
00370     EmberAfScheduledBlockThresholdsTable
00371     scheduledBlockThresholdsTable;
00372     EmberAfScheduledPriceMatrixTable
00373     scheduledPriceMatrixTable;
00374 } EmberAfPriceServerInfo;
00375
00376 extern EmberAfPriceServerInfo info;
00377
00378 extern bool emAfPluginPriceServerBillingPeriodRepeat
00379     ;
00380
00381 void emberAfPriceServerSendGetScheduledPrices
00382     (uint8_t endpoint);
00383
00384 uint32_t emberAfPriceServerSecondsUntilGetScheduledPricesEvent
00385     (void);
00386
00387
00388 void emberAfPriceClearPriceTable(uint8_t endpoint);
00389
00390 void emberAfPriceClearTariffTable(uint8_t endpoint)
00391     ;
00392
00393 void emberAfPriceClearPriceMatrixTable(uint8_t
00394     endpoint);
00395
00396 void emberAfPriceClearBlockThresholdsTable
00397     (uint8_t endpoint);
00398
00399 bool emberAfPriceGetPriceTableEntry(uint8_t
00400     endpoint,
00401             uint8_t index,
00402             EmberAfScheduledPrice
00403             *price);

```

```

00422
00437 void emberAfPluginPriceServerBlockPeriodAdd
    ( uint8_t endpoint, uint32_t providerId, uint32_t issuerEventId,
00438                               uint32_t blockPeriodStartTime,
00439                               uint32_t blockPeriodDuration,
00440                               uint8_t blockPeriodDurationType,
00441                               uint32_t thresholdDivisor,
00442                               uint32_t thresholdMultiplier,
00443                               uint8_t tariffType, uint8_t
00444                               tariffResolutionPeriod );
00445
00446
00447 void emberAfPluginPriceServerBlockPeriodPub
    ( uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index );
00448
00449
00450 void emberAfPluginPriceServerBlockPeriodPrint
    ( uint8_t endpoint, uint8_t index );
00451
00452
00453 uint32_t emberAfPriceServerSecondsUntilBlockPeriodEvent
    ( uint8_t endpoint );
00454
00455
00456 void emberAfPriceServerRefreshBlockPeriod(
    uint8_t endpoint, bool repeat );
00457
00458
00459
00460 bool emberAfPriceGetTariffTableEntry(uint8_t
00461     endpoint,
00462                               uint8_t index,
00463                               EmberAfPriceCommonInfo
00464                               *info,
00465                               EmberAfScheduledTariff
00466                               *tariff);
00467
00468
00469 bool emberAfPriceGetPriceMatrix(uint8_t endpoint,
00470                               uint8_t index,
00471                               EmberAfPriceCommonInfo
00472                               * inf,
00473                               EmberAfScheduledPriceMatrix
00474                               *pm);
00475
00476
00477 bool emberAfPriceGetBlockThresholdsTableEntry
00478     (uint8_t endpoint,
00479                               uint8_t index,
00480                               EmberAfScheduledBlockThresholds *bt);
00481
00482
00483 bool emberAfPriceGetTariffByIssuerTariffId
00484     (uint8_t endpoint,
00485                               uint32_t issuerTariffId,
00486                               EmberAfPriceCommonInfo
00487                               *info,
00488                               EmberAfScheduledTariff
00489                               *tariff);
00490
00491
00492 bool emberAfPriceGetPriceMatrixByIssuerTariffId
00493     (uint8_t endpoint,
00494                               uint32_t issuerTariffId,
00495                               EmberAfPriceCommonInfo
00496                               * inf,
00497                               EmberAfScheduledPriceMatrix
00498                               *pm);
00499
00500
00501 bool emberAfPriceGetBlockThresholdsByIssuerTariffId
00502     (uint8_t endpoint,
00503                               uint32_t issuerTariffId,
00504                               EmberAfPriceCommonInfo
00505                               *inf,
00506                               EmberAfScheduledBlockThresholds *bt);
00507
00508
00509 bool emberAfPriceSetPriceTableEntry(uint8_t
00510     endpoint,
00511                               uint8_t index,
00512                               const EmberAfScheduledPrice
00513                               *price);
00514
00515
00516
00517
00518
00519
00520
00521
00522
00523
00524
00525
00526
00527
00528
00529
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00585
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00587
00588
00589
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00591
00592
00593
00594
00595

```

```

00609 bool emberAfPriceSetTariffTableEntry(uint8_t
00610     endpoint,
00611             uint8_t index,
00612             * info,
00613             const EmberAfPriceCommonInfo
00614             *tariff);
00615
00628 bool emberAfPriceSetPriceMatrix(uint8_t endpoint,
00629             uint8_t index,
00630             EmberAfPriceCommonInfo
00631             * inf,
00632             const EmberAfScheduledPriceMatrix
00633             *pm);
00632
00647 bool emberAfPriceSetBlockThresholdsTableEntry
00648     (uint8_t endpoint,
00649             uint8_t index,
00650             const EmberAfPriceCommonInfo
00651             *inf,
00652             const
00653             EmberAfScheduledBlockThresholds *bt);
00651
00665 bool emberAfGetCurrentPrice(uint8_t endpoint,
00666     EmberAfScheduledPrice *price);
00666
00680 uint8_t emberAfPriceFindFreePriceIndex(uint8_t
00681     endpoint);
00681
00682 void emberAfPricePrint(const EmberAfScheduledPrice
00683     *price);
00683 void emberAfPricePrintPriceTable(uint8_t endpoint);
00684 void emberAfPricePrintTariff(const
00685     EmberAfPriceCommonInfo *info,
00686             const EmberAfScheduledTariff
00687             *tariff);
00686
00687 void emberAfPricePrintTariffTable(uint8_t endpoint)
00688 ;
00687
00688 void emberAfPricePrintPriceMatrix(uint8_t endpoint,
00689             const EmberAfPriceCommonInfo
00690             *inf,
00691             const EmberAfScheduledPriceMatrix
00692             *pm);
00690 void emberAfPricePrintPriceMatrixTable(uint8_t
00691     endpoint);
00691 void emberAfPricePrintBlockThresholds(uint8_t
00692     endpoint,
00693             const EmberAfPriceCommonInfo
00694             * inf,
00695             const EmberAfScheduledBlockThresholds
00696             *bt);
00694
00695 void emberAfPricePrintBlockThresholdsTable
00696     (uint8_t endpoint);
00697 void emberAfPluginPriceServerPublishPriceMessage
00698     (EmberNodeId nodeId,
00699             uint8_t srcEndpoint,
00700             uint8_t dstEndpoint,
00701             uint8_t priceIndex);
00700
00709 EmberAfStatus emberAfPluginPriceServerConversionFactorAdd
00710     (uint8_t endpoint,
00711             uint32_t
00712             issuerEventId,
00713             uint32_t startTime,
00714             uint32_t
00715             conversionFactor,
00716             uint8_t
00717             conversionFactorTrailingDigit);
00720 void emberAfPluginPriceServerConversionFactorClear
00721     ( uint8_t endpoint );
00722
00732 void emberAfPluginPriceServerConversionFactorPub
00733     (uint8_t tableIndex,
00734             EmberNodeId dstAddr
00735             ,
00736             uint8_t srcEndpoint,
00737             uint8_t dstEndpoint);
00736
00737

```

```

00745 uint32_t emberAfPriceServerSecondsUntilConversionFactorEvent
    ( uint8_t endpoint );
00746
00747
00755 void emberAfPriceServerRefreshConversionFactor
    ( uint8_t endpoint );
00756
00757
00768 EmberAfStatus emberAfPluginPriceServerCalorificValueAdd
    (uint8_t endpoint,
     uint32_t issuerEventId,
     uint32_t startTime,
     uint32_t calorificValue
00769     ,
00770     calorificValueUnit,
00771     uint8_t
00772     calorificValueTrailingDigit);
00773     uint8_t
00774
00782 uint32_t emberAfPriceServerSecondsUntilCalorificValueEvent
    ( uint8_t endpoint );
00783
00784
00792 void emberAfPriceServerRefreshCalorificValue
    ( uint8_t endpoint );
00793
00794
00801 void emberAfPluginPriceServerCalorificValueClear
    ( uint8_t endpoint );
00802
00812 void emberAfPluginPriceServerPublishTariffMessage
    (EmberNodeId nodeId,
     uint8_t srcEndpoint,
     uint8_t dstEndpoint,
     uint8_t tariffIndex);
00816
00823 void emberAfPrintConversionTable( uint8_t endpoint )
    ;
00824
00831 void emberAfPrintCalorificValuesTable( uint8_t
    endpoint );
00832
00840 uint32_t emberAfPriceServerSecondsUntilCO2ValueEvent
    ( uint8_t endpoint );
00841
00842
00850 void emberAfPriceServerRefreshCO2Value(
    uint8_t endpoint );
00851
00852
00866 void emberAfPluginPriceServerCo2ValueAdd(
    uint8_t endpoint,
    uint32_t issuerEventId,
    uint32_t startTime,
    uint32_t providerId,
    uint8_t tariffType,
    uint32_t co2Value,
    uint8_t co2ValueUnit,
    uint8_t co2ValueTrailingDigit);
00874
00881 void emberAfPluginPriceServerCo2ValueClear
    ( uint8_t endpoint );
00882
00889 void emberAfPrintCo2ValuesTable( uint8_t endpoint );
00890
00900 void emberAfPluginPriceServerCo2LabelPub(
    uint16_t nodeId,
    uint8_t srcEndpoint,
    uint8_t dstEndpoint,
    uint8_t index);
00904
00918 void emberAfPluginPriceServerTierLabelSet(
    uint8_t endpoint,
    uint8_t index,
    uint8_t valid,
    uint32_t providerId,
    uint32_t issuerEventId,
    uint32_t issuerTariffId,
    uint8_t tierId,
    uint8_t* tierLabel);
00919
00920
00921
00922
00923
00924
00925

```

```

00926 void emberAfPrintPrintTierLabelsTable(void);
00927
00937 void emberAfPluginPriceServerTierLabelAddLabel
    ( uint8_t endpoint,
        uint32_t issuerTariffId,
00939                                uint8_t tierId,
00940                                uint8_t *tierLabel );
00941
00948 void emberAfPrintTierLabelsTable( uint8_t endpoint )
    ;
00949
00959 void emberAfPluginPriceServerTierLabelPub(
    uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index );
00960
00961
00969 uint32_t emberAfPriceServerSecondsUntilBillingPeriodEvent
    ( uint8_t endpoint );
00970
00971
00981 void emberAfPriceServerRefreshBillingPeriod
    ( uint8_t endpoint, bool force );
00982
00983
00984
00997 EmberStatus emberAfPluginPriceServerBillingPeriodAdd
    (uint8_t endpoint,
        uint32_t startTime,
00999                                uint32_t issuerEventId,
01000                                uint32_t providerId,
01001                                uint32_t
        billingPeriodDuration,
01002                                uint8_t
        billingPeriodDurationType,
01003                                uint8_t tariffType);
01013 void emberAfPluginPriceServerBillingPeriodPub
    (uint16_t nodeId, uint8_t srcEndpoint,
        uint8_t dstEndpoint, uint8_t
        index);
01015
01022 void emberAfPrintBillingPeriodTable( uint8_t
    endpoint );
01023
01024
01032 void emberAfPrintConsolidatedBillTableEntry
    ( uint8_t endpoint, uint8_t index );
01033
01034
01050 void emberAfPluginPriceServerConsolidatedBillAdd
    ( uint8_t endpoint, uint32_t startTime,
        uint32_t issuerEventId,
01051                                uint32_t providerId,
01052                                uint32_t
        billingPeriodDuration, uint8_t billingPeriodDurationType,
01053                                uint8_t tariffType, uint32_t
        consolidatedBill,
01054                                uint16_t currency, uint8_t
        billTrailingDigit );
01055
01065 void emberAfPluginPriceServerConsolidatedBillPub
    ( uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index );
01066
01067
01082 void emberAfPluginPriceServerCppEventSet(
    uint8_t endpoint, uint8_t valid, uint32_t providerId, uint32_t issuerEventId,
    uint32_t startTime,
        uint16_t durationInMinutes, uint8_t
        tariffType, uint8_t cppPriceTier, uint8_t cppAuth );
01084
01093 void emberAfPluginPriceServerCppEventPub(
    uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint );
01094
01101 void emberAfPluginPriceServerCppEventPrint
    ( uint8_t endpoint );
01102
01112 void emberAfPluginPriceServerCreditPaymentPub
    (uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint, uint8_t index);
01113
01130 void emberAfPluginPriceServerCreditPaymentSet
    ( uint8_t endpoint, uint8_t index, uint8_t valid,
        uint32_t providerId, uint32_t

```

```

    issuerEventId,
01132          uint32_t creditPaymentOverdueAmount,
01133          uint32_t creditPayment,
01134          uint32_t creditPaymentDate,
01135          uint8_t *creditPaymentRef );
01136 //void emberAfPluginPriceServerCreditPaymentPrint( void );
01137
01146 void emberAfPluginPriceServerCurrencyConversionPub
01147   ( uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint );
01147
01163 void emberAfPluginPriceServerCurrencyConversionSet
01164   ( uint8_t endpoint, uint8_t valid,
01164     uint32_t providerId,
01165     uint32_t issuerEventId,
01165     uint32_t startTime,
01166     uint16_t oldCurrency, uint16_t newCurrency,
01166     uint32_t conversionFactor,
01167     uint8_t conversionFactorTrailingDigit,
01167     uint32_t currencyChangeControlFlags );
01168
01179 void emberAfPluginPriceServerTariffCancellationSet
01180   ( uint8_t endpoint, uint8_t valid, uint32_t providerId,
01180     uint32_t issuerTariffId,
01181     uint8_t tariffType );
01190 void emberAfPluginPriceServerTariffCancellationPub
01191   ( uint16_t nodeId, uint8_t srcEndpoint, uint8_t dstEndpoint );
01192
01192 uint32_t emberAfPriceServerSecondsUntilTariffInfoEvent
01193   (uint8_t endpoint);
01194 void emberAfPriceServerRefreshTariffInformation
01195   (uint8_t endpoint);
01196 bool emberAfPriceAddTariffTableEntry(uint8_t
01197   endpoint,
01197     EmberAfPriceCommonInfo
01198     *curInfo,
01198     const EmberAfScheduledTariff
01199     *curTariff);
01200
01201 bool emberAfPriceAddPriceMatrixRaw(uint8_t
01202   endpoint,
01202     uint32_t providerId,
01203     uint32_t issuerEventId,
01204     uint32_t startTime,
01205     uint32_t issuerTariffId,
01206     uint8_t commandIndex,
01207     uint8_t numberOfCommands,
01208     uint8_t subPayloadControl,
01209     uint8_t* payload);
01210
01211 bool emberAfPriceAddPriceMatrix(uint8_t endpoint,
01212     EmberAfPriceCommonInfo
01213     * inf,
01213     EmberAfScheduledPriceMatrix
01214     * pm);
01215
01215 bool emberAfPriceAddBlockThresholdsTableEntry
01216   (uint8_t endpoint,
01216     uint32_t providerId,
01217     uint32_t issuerEventId,
01218     uint32_t startTime,
01219     uint32_t issuerTariffId,
01220     uint8_t commandIndex,
01221     uint8_t numberOfCommands,
01222     uint8_t subpayloadControl,
01223     uint8_t* payload);
01224
01225 void emberAfPriceClearBlockPeriodTable(uint8_t
01226   endpoint);
01226 void sendValidCmdEntries(uint8_t cmdId,
01227     uint8_t ep,
01228     uint8_t* validEntries,
01229     uint8_t validEntryCount);

```

```

01230 void emberAfPluginPriceServerPriceUpdateBindings
        (void);
01231
01232 uint32_t emberAfPriceServerSecondsUntilActivePriceMatrixEvent
        (uint8_t endpoint);
01233 void emberAfPriceServerRefreshPriceMatrixInformation
        (uint8_t endpoint);
01234 uint32_t emberAfPriceServerSecondsUntilActiveBlockThresholdsEvent
        (uint8_t endpoint);
01235 void emberAfPriceServerRefreshBlockThresholdsInformation
        (uint8_t endpoint);
01236
01237 #endif // #ifndef __PRICE_SERVER_H__
01238

```

## 8.252 relative-humidity-measurement-server.h File Reference

### Functions

- void `emberAfPluginRelativeHumidityMeasurementServerSetMeasurementRate` (uint32\_t measurementRateS)

#### 8.252.1 Function Documentation

##### 8.252.1.1 void `emberAfPluginRelativeHumidityMeasurementServerSetMeasurementRate` ( uint32\_t measurementRateS )

Set the hardware read interval.

This function will set the amount of time to wait (in seconds) between polls of the humidity sensor. This function will never set the measurement interval to be greater than the plugin specified maximum measurement interval. If a value of 0 is given, the plugin specified maximum measurement interval will be used for the polling interval.

## 8.253 relative-humidity-measurement-server.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
      *80*
00002
00003 #ifndef __HUMIDITY_MEASUREMENT_SERVER_H__
00004 #define __HUMIDITY_MEASUREMENT_SERVER_H__
00005
00006 //
-----+
00007 // Plugin public function declarations
00008
00009 void emberAfPluginRelativeHumidityMeasurementServerSetMeasurementRate
(
00010     uint32_t measurementRateS);
00011
00012 #endif // __HUMIDITY_MEASUREMENT_SERVER_H__

```

## 8.254 relay-control-client.h File Reference

### Functions

- void `emberAfPluginRelayControlClientSendSetRelayState` (EmberNodeId nodeId, uint8\_t srcEndpoint, uint8\_t dstEndpoint, bool isEnabled, uint32\_t magicNumber)

### 8.254.1 Function Documentation

8.254.1.1 void `emberAfPluginRelayControlClientSendSetRelayState` ( `EmberNodeId nodeId`, `uint8_t srcEndpoint`, `uint8_t dstEndpoint`, `bool isEnabled`, `uint32_t magicNumber` )

## 8.255 relay-control-client.h

```
00001 // ****
00002 // * relay-control-client.h
00003 // *
00004 // *
00005 // * Copyright 2012 by Ember Corporation. All rights reserved.
00006 // *80*
00007 // ****
00008 // Convenience method to send a set message to the server
00009 void emberAfPluginRelayControlClientSendSetRelayState
00010 ( EmberNodeId nodeId,
00011           uint8_t srcEndpoint,
00012           uint8_t dstEndpoint,
00013           bool isEnabled,
00014           uint32_t magicNumber );
```

## 8.256 reporting.h File Reference

### Data Structures

- struct `EmAfPluginReportVolatileData`

### Functions

- `EmberAfStatus emberAfPluginReportingConfigureReportedAttribute` (const `EmberAfPluginReportingEntry` \*`newEntry`)
- void `emAfPluginReportingGetEntry` (`uint8_t index`, `EmberAfPluginReportingEntry` \*`result`)
- void `emAfPluginReportingSetEntry` (`uint8_t index`, `EmberAfPluginReportingEntry` \*`value`)
- `EmberStatus emAfPluginReportingRemoveEntry` (`uint8_t index`)

### Variables

- `EmAfPluginReportVolatileData emAfPluginReportVolatileData [ ]`

### 8.256.1 Function Documentation

8.256.1.1 `EmberAfStatus emberAfPluginReportingConfigureReportedAttribute` ( const `EmberAfPluginReportingEntry` \* `newEntry` )

8.256.1.2 void `emAfPluginReportingGetEntry` ( `uint8_t index`, `EmberAfPluginReportingEntry` \* `result` )

8.256.1.3 void `emAfPluginReportingSetEntry` ( `uint8_t index`, `EmberAfPluginReportingEntry` \* `value` )

8.256.1.4 `EmberStatus emAfPluginReportingRemoveEntry` ( `uint8_t index` )

## 8.256.2 Variable Documentation

### 8.256.2.1 EmAfPluginReportVolatileData emAfPluginReportVolatileData[]

## 8.257 reporting.h

```

00001 // ****
00002 // * reporting.h
00003 // *
00004 // *
00005 // * Copyright 2011 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 typedef struct {
00009     uint32_t lastReportTimeMs;
00010     uint32_t lastReportValue;
00011     bool reportableChange;
00012 } EmAfPluginReportVolatileData;
00013 extern EmAfPluginReportVolatileData
00014     emAfPluginReportVolatileData[];
00015 EmberAfStatus emberAfPluginReportingConfigureReportedAttribute
00016     (const EmberAfPluginReportingEntry *newEntry);
00017 void emAfPluginReportingGetEntry(uint8_t index,
00018     EmberAfPluginReportingEntry *result);
00019 void emAfPluginReportingSetEntry(uint8_t index,
00020     EmberAfPluginReportingEntry *value);
00021 EmberStatus emAfPluginReportingRemoveEntry
00022     (uint8_t index);

```

## 8.258 rf4ce-gdp-attributes.h File Reference

### Data Structures

- struct [EmAfRf4ceGdpAttributeDescriptor](#)
- struct [EmAfRf4ceGdpAttributes](#)

### Macros

- #define [MAX\\_COMMAND\\_ATTRIBUTES](#)
- #define [APL\\_GDP\\_VERSION\\_DEFAULT](#)
- #define [APL\\_GDP\\_KEY\\_EXCHANGE\\_TRANSFER\\_COUNT\\_DEFAULT](#)
- #define [APL\\_GDP\\_POWER\\_STATUS\\_DEFAULT](#)
- #define [APL\\_GDP\\_MAX\\_PAIRING\\_CANDIDATES\\_DEFAULT](#)
- #define [APL\\_GDP\\_AUTO\\_CHECK\\_VALIDATION\\_PERIOD\\_DEFAULT](#)
- #define [APL\\_GDP\\_LINK\\_LOST\\_WAIT\\_TIME\\_DEFAULT](#)
- #define [APL\\_GDP\\_IDENTIFICATION\\_CAPABILITIES\\_DEFAULT](#)
- #define [APL\\_GDP\\_BINDING\\_RECIPIENT\\_VALIDATION\\_WAIT\\_TIME\\_DEFAULT](#)
- #define [APL\\_GDP\\_BINDING\\_ORIGINATOR\\_VALIDATION\\_WAIT\\_TIME\\_DEFAULT](#)
- #define [APL\\_GDP\\_VERSION\\_SIZE](#)
- #define [APL\\_GDP\\_CAPABILITIES\\_SIZE](#)
- #define [APL\\_GDP\\_KEY\\_EXCHANGE\\_TRANSFER\\_COUNT\\_SIZE](#)
- #define [APL\\_GDP\\_POWER\\_STATUS\\_SIZE](#)
- #define [APL\\_GDP\\_POLL\\_CONSTRAINTS\\_SIZE](#)
- #define [APL\\_GDP\\_POLL\\_CONFIGURATION\\_SIZE](#)
- #define [APL\\_GDP\\_MAX\\_PAIRING\\_CANDIDATES\\_SIZE](#)
- #define [APL\\_GDP\\_AUTO\\_CHECK\\_VALIDATION\\_PERIOD\\_SIZE](#)

- #define APL\_GDP\_BINDING\_RECIPIENT\_VALIDATION\_WAIT\_TIME\_SIZE
- #define APL\_GDP\_BINDING\_ORIGINATOR\_VALIDATION\_WAIT\_TIME\_SIZE
- #define APL\_GDP\_LINK\_LOST\_WAIT\_TIME\_SIZE
- #define APL\_GDP\_IDENTIFICATION\_CAPABILITIES\_SIZE
- #define MAX\_GDP\_ATTRIBUTE\_SIZE
- #define GDP\_ATTRIBUTES\_COUNT
- #define MIN\_GDP\_ATTRIBUTE\_ID
- #define MAX\_GDP\_ATTRIBUTE\_ID
- #define POLL\_CONSTRAINT\_RECORD\_NUMBER\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_NUMBER\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_POLLING\_METHOD\_ID\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_POLLING\_METHOD\_ID\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_POLLING\_TRIGGER\_CAPABILITIES\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_POLLING\_TRIGGER\_CAPABILITIES\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_KEY\_PRESS\_COUNT\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_KEY\_PRESS\_COUNT\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_KEY\_PRESS\_COUNT\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_KEY\_PRESS\_COUNT\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_OFFSET
- #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_LENGTH
- #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_LOWER\_BOUND
- #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_UPPER\_BOUND
- #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_LOWER\_BOUND
- #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_UPPER\_BOUND
- #define POLL\_CONFIGURATION\_POLLING\_METHOD\_ID\_OFFSET
- #define POLL\_CONFIGURATION\_POLLING\_METHOD\_ID\_LENGTH
- #define POLL\_CONFIGURATION\_POLLING\_TRIGGER\_CONFIG\_OFFSET
- #define POLL\_CONFIGURATION\_POLLING\_TRIGGER\_CONFIG\_LENGTH
- #define POLL\_CONFIGURATION\_POLLING\_KEY\_PRESS\_COUNTER\_OFFSET
- #define POLL\_CONFIGURATION\_POLLING\_KEY\_PRESS\_COUNTER\_LENGTH
- #define POLL\_CONFIGURATION\_POLLING\_TIME\_INTERVAL\_OFFSET
- #define POLL\_CONFIGURATION\_POLLING\_TIME\_INTERVAL\_LENGTH
- #define POLL\_CONFIGURATION\_POLLING\_TIMEOUT\_OFFSET
- #define POLL\_CONFIGURATION\_POLLING\_TIMEOUT\_LENGTH
- #define MIN\_POLLING\_KEY\_PRESS\_COUNTER
- #define MAX\_POLLING\_KEY\_PRESS\_COUNTER
- #define SUPPORTED\_TRIGGERS
- #define APL\_POLL\_CONSTRAINTS\_DEFAULT
- #define IDENTIFICATION\_CAPABILITIES\_RESERVED\_MASK
- #define IDENTIFICATION\_CAPABILITIES\_SUPPORT\_FLASH\_LIGHT\_BIT
- #define IDENTIFICATION\_CAPABILITIES\_SUPPORT\_MAKE\_SOUND\_BIT
- #define IDENTIFICATION\_CAPABILITIES\_SUPPORT\_VIBRATE\_BIT

- #define ATTRIBUTE\_HAS\_REMOTE\_GET\_ACCESS\_BIT
- #define ATTRIBUTE\_HAS\_REMOTE\_SET\_ACCESS\_BIT
- #define ATTRIBUTE\_HAS\_REMOTE\_PUSH\_ACCESS\_BIT
- #define ATTRIBUTE\_HAS\_REMOTE\_PULL\_ACCESS\_BIT
- #define ATTRIBUTE\_IS\_TWO\_DIMENSIONAL\_ARRAYED
- #define IS\_ARRAY\_ATTRIBUTE(attributeId)
- #define GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST\_SIZE
- #define GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST\_DIMENSION
- #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_SIZE
- #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_FIRST\_DIMENSION
- #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_SECOND\_DIMENSION
- #define WRITE\_ACCESS
- #define READ\_ACCESS
- #define emAfRf4ceGdpSetLocalAttribute(attrId, entryId, val)
- #define emAfRf4ceGdpGetLocalAttribute(attrId, entryId, val)
- #define emAfRf4ceGdpSetRemoteAttribute(attrId, entryId, val)
- #define emAfRf4ceGdpGetRemoteAttribute(attrId, entryId, val)

## Functions

- void emAfRf4ceGdpClearRemoteAttributes (void)
- void emAfRf4ceGdpGetOrSetAttribute (EmAfRf4ceGdpAttributes \*attributes, uint8\_t attrId, uint16\_t entryId, bool isGet, uint8\_t \*val)

## Variables

- EmAfRf4ceGdpAttributes emAfRf4ceGdpLocalNodeAttributes
- EmAfRf4ceGdpAttributes emAfRf4ceGdpRemoteNodeAttributes

### 8.258.1 Macro Definition Documentation

#### 8.258.1.1 #define MAX\_COMMAND\_ATTRIBUTES

Definition at line 9 of file rf4ce-gdp-attributes.h.

#### 8.258.1.2 #define APL\_GDP\_VERSION\_DEFAULT

Definition at line 12 of file rf4ce-gdp-attributes.h.

#### 8.258.1.3 #define APL\_GDP\_KEY\_EXCHANGE\_TRANSFER\_COUNT\_DEFAULT

Definition at line 13 of file rf4ce-gdp-attributes.h.

#### 8.258.1.4 #define APL\_GDP\_POWER\_STATUS\_DEFAULT

Definition at line 14 of file rf4ce-gdp-attributes.h.

**8.258.1.5 #define APL\_GDP\_MAX\_PAIRING\_CANDIDATES\_DEFAULT**

Definition at line 15 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.6 #define APL\_GDP\_AUTO\_CHECK\_VALIDATION\_PERIOD\_DEFAULT**

Definition at line 16 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.7 #define APL\_GDP\_LINK\_LOST\_WAIT\_TIME\_DEFAULT**

Definition at line 17 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.8 #define APL\_GDP\_IDENTIFICATION\_CAPABILITIES\_DEFAULT**

Definition at line 18 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.9 #define APL\_GDP\_BINDING\_RECIPIENT\_VALIDATION\_WAIT\_TIME\_DEFAULT**

Definition at line 19 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.10 #define APL\_GDP\_BINDING\_ORIGINATOR\_VALIDATION\_WAIT\_TIME\_DEFAULT**

Definition at line 30 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.11 #define APL\_GDP\_VERSION\_SIZE**

Definition at line 34 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.12 #define APL\_GDP\_CAPABILITIES\_SIZE**

Definition at line 35 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.13 #define APL\_GDP\_KEY\_EXCHANGE\_TRANSFER\_COUNT\_SIZE**

Definition at line 36 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.14 #define APL\_GDP\_POWER\_STATUS\_SIZE**

Definition at line 37 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.15 #define APL\_GDP\_POLL\_CONSTRAINTS\_SIZE**

Definition at line 42 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.16 #define APL\_GDP\_POLL\_CONFIGURATION\_SIZE**

Definition at line 43 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.17 #define APL\_GDP\_MAX\_PAIRING\_CANDIDATES\_SIZE**

Definition at line 44 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.18 #define APL\_GDP\_AUTO\_CHECK\_VALIDATION\_PERIOD\_SIZE**

Definition at line 45 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.19 #define APL\_GDP\_BINDING\_RECIPIENT\_VALIDATION\_WAIT\_TIME\_SIZE**

Definition at line 46 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.20 #define APL\_GDP\_BINDING\_ORIGINATOR\_VALIDATION\_WAIT\_TIME\_SIZE**

Definition at line 47 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.21 #define APL\_GDP\_LINK\_LOST\_WAIT\_TIME\_SIZE**

Definition at line 48 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.22 #define APL\_GDP\_IDENTIFICATION\_CAPABILITIES\_SIZE**

Definition at line 49 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.23 #define MAX\_GDP\_ATTRIBUTE\_SIZE**

Definition at line 52 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.24 #define GDP\_ATTRIBUTES\_COUNT**

Definition at line 57 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.25 #define MIN\_GDP\_ATTRIBUTE\_ID**

Definition at line 60 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.26 #define MAX\_GDP\_ATTRIBUTE\_ID**

Definition at line 61 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.27 #define POLL\_CONSTRAINT\_RECORD\_NUMBER\_OFFSET**

Definition at line 63 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.28 #define POLL\_CONSTRAINT\_RECORD\_NUMBER\_LENGTH**

Definition at line 64 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.29 #define POLL\_CONSTRAINT\_RECORD\_OFFSET**

Definition at line 65 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.30 #define POLL\_CONSTRAINT\_RECORD\_LENGTH**

Definition at line 66 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.31 #define POLL\_CONSTRAINT\_RECORD\_POLLING\_METHOD\_ID\_OFFSET**

Definition at line 69 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.32 #define POLL\_CONSTRAINT\_RECORD\_POLLING\_METHOD\_ID\_LENGTH**

Definition at line 70 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.33 #define POLL\_CONSTRAINT\_RECORD\_POLLING\_TRIGGER\_CAPABILITIES\_OFFSET**

Definition at line 71 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.34 #define POLL\_CONSTRAINT\_RECORD\_POLLING\_TRIGGER\_CAPABILITIES\_LENGTH**

Definition at line 72 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.35 #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_KEY\_PRESS\_COUNT\_OFFSET**

Definition at line 73 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.36 #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_KEY\_PRESS\_COUNT\_LENGTH**

Definition at line 74 of file [rf4ce-gdp-attributes.h](#).

**8.258.1.37 #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_KEY\_PRESS\_COUNT\_OFFSET**

Definition at line 75 of file [rf4ce-gdp-attributes.h](#).

8.258.1.38 #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_KEY\_PRESS\_COUNT\_LENGTH

Definition at line 76 of file [rf4ce-gdp-attributes.h](#).

8.258.1.39 #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_OFFSET

Definition at line 77 of file [rf4ce-gdp-attributes.h](#).

8.258.1.40 #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_LENGTH

Definition at line 78 of file [rf4ce-gdp-attributes.h](#).

8.258.1.41 #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_OFFSET

Definition at line 79 of file [rf4ce-gdp-attributes.h](#).

8.258.1.42 #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_LENGTH

Definition at line 80 of file [rf4ce-gdp-attributes.h](#).

8.258.1.43 #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_LOWER\_BOUND

Definition at line 82 of file [rf4ce-gdp-attributes.h](#).

8.258.1.44 #define POLL\_CONSTRAINT\_RECORD\_MIN\_POLLING\_TIME\_INTERVAL\_UPPER\_BOUND

Definition at line 83 of file [rf4ce-gdp-attributes.h](#).

8.258.1.45 #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_LOWER\_BOUND

Definition at line 84 of file [rf4ce-gdp-attributes.h](#).

8.258.1.46 #define POLL\_CONSTRAINT\_RECORD\_MAX\_POLLING\_TIME\_INTERVAL\_UPPER\_BOUND

Definition at line 85 of file [rf4ce-gdp-attributes.h](#).

8.258.1.47 #define POLL\_CONFIGURATION\_POLLING\_METHOD\_ID\_OFFSET

Definition at line 88 of file [rf4ce-gdp-attributes.h](#).

8.258.1.48 #define POLL\_CONFIGURATION\_POLLING\_METHOD\_ID\_LENGTH

Definition at line 89 of file [rf4ce-gdp-attributes.h](#).

8.258.1.49 #define POLL\_CONFIGURATION\_POLLING\_TRIGGER\_CONFIG\_OFFSET

Definition at line 90 of file [rf4ce-gdp-attributes.h](#).

8.258.1.50 #define POLL\_CONFIGURATION\_POLLING\_TRIGGER\_CONFIG\_LENGTH

Definition at line 91 of file [rf4ce-gdp-attributes.h](#).

8.258.1.51 #define POLL\_CONFIGURATION\_POLLING\_KEY\_PRESS\_COUNTER\_OFFSET

Definition at line 92 of file [rf4ce-gdp-attributes.h](#).

8.258.1.52 #define POLL\_CONFIGURATION\_POLLING\_KEY\_PRESS\_COUNTER\_LENGTH

Definition at line 93 of file [rf4ce-gdp-attributes.h](#).

8.258.1.53 #define POLL\_CONFIGURATION\_POLLING\_TIME\_INTERVAL\_OFFSET

Definition at line 94 of file [rf4ce-gdp-attributes.h](#).

8.258.1.54 #define POLL\_CONFIGURATION\_POLLING\_TIME\_INTERVAL\_LENGTH

Definition at line 95 of file [rf4ce-gdp-attributes.h](#).

8.258.1.55 #define POLL\_CONFIGURATION\_POLLING\_TIMEOUT\_OFFSET

Definition at line 96 of file [rf4ce-gdp-attributes.h](#).

8.258.1.56 #define POLL\_CONFIGURATION\_POLLING\_TIMEOUT\_LENGTH

Definition at line 97 of file [rf4ce-gdp-attributes.h](#).

8.258.1.57 #define MIN\_POLLING\_KEY\_PRESS\_COUNTER

Definition at line 102 of file [rf4ce-gdp-attributes.h](#).

8.258.1.58 #define MAX\_POLLING\_KEY\_PRESS\_COUNTER

Definition at line 103 of file [rf4ce-gdp-attributes.h](#).

8.258.1.59 #define SUPPORTED\_TRIGGERS

Definition at line 104 of file [rf4ce-gdp-attributes.h](#).

8.258.1.60 #define APL\_POLL\_CONSTRAINTS\_DEFAULT

Definition at line 109 of file [rf4ce-gdp-attributes.h](#).

8.258.1.61 #define IDENTIFICATION\_CAPABILITIES\_RESERVED\_MASK

Definition at line 125 of file [rf4ce-gdp-attributes.h](#).

8.258.1.62 #define IDENTIFICATION\_CAPABILITIES\_SUPPORT\_FLASH\_LIGHT\_BIT

Definition at line 126 of file [rf4ce-gdp-attributes.h](#).

8.258.1.63 #define IDENTIFICATION\_CAPABILITIES\_SUPPORT\_MAKE\_SOUND\_BIT

Definition at line 127 of file [rf4ce-gdp-attributes.h](#).

8.258.1.64 #define IDENTIFICATION\_CAPABILITIES\_SUPPORT\_VIBRATE\_BIT

Definition at line 128 of file [rf4ce-gdp-attributes.h](#).

8.258.1.65 #define ATTRIBUTE\_HAS\_REMOTE\_GET\_ACCESS\_BIT

Definition at line 139 of file [rf4ce-gdp-attributes.h](#).

8.258.1.66 #define ATTRIBUTE\_HAS\_REMOTE\_SET\_ACCESS\_BIT

Definition at line 140 of file [rf4ce-gdp-attributes.h](#).

8.258.1.67 #define ATTRIBUTE\_HAS\_REMOTE\_PUSH\_ACCESS\_BIT

Definition at line 141 of file [rf4ce-gdp-attributes.h](#).

8.258.1.68 #define ATTRIBUTE\_HAS\_REMOTE\_PULL\_ACCESS\_BIT

Definition at line 142 of file [rf4ce-gdp-attributes.h](#).

8.258.1.69 #define ATTRIBUTE\_IS\_TWO\_DIMENSIONAL\_ARRAYED

Definition at line 143 of file [rf4ce-gdp-attributes.h](#).

8.258.1.70 #define IS\_ARRAY\_ATTRIBUTE( attributeld )

Definition at line 157 of file [rf4ce-gdp-attributes.h](#).

8.258.1.71 #define GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST\_SIZE

Definition at line 162 of file [rf4ce-gdp-attributes.h](#).

8.258.1.72 #define GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST\_DIMENSION

Definition at line 163 of file [rf4ce-gdp-attributes.h](#).

8.258.1.73 #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_SIZE

Definition at line 164 of file [rf4ce-gdp-attributes.h](#).

8.258.1.74 #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_FIRST\_DIMENSION

Definition at line 165 of file [rf4ce-gdp-attributes.h](#).

8.258.1.75 #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_SECOND\_DIMENSION

Definition at line 166 of file [rf4ce-gdp-attributes.h](#).

8.258.1.76 #define WRITE\_ACCESS

Definition at line 190 of file [rf4ce-gdp-attributes.h](#).

8.258.1.77 #define READ\_ACCESS

Definition at line 191 of file [rf4ce-gdp-attributes.h](#).

8.258.1.78 #define emAfRf4ceGdpSetLocalAttribute( attrId, entryId, val )

Definition at line 201 of file [rf4ce-gdp-attributes.h](#).

8.258.1.79 #define emAfRf4ceGdpGetLocalAttribute( attrId, entryId, val )

Definition at line 208 of file [rf4ce-gdp-attributes.h](#).

8.258.1.80 #define emAfRf4ceGdpSetRemoteAttribute( attrId, entryId, val )

Definition at line 215 of file [rf4ce-gdp-attributes.h](#).

8.258.1.81 #define emAfRf4ceGdpGetRemoteAttribute( attrId, entryId, val )

Definition at line 222 of file [rf4ce-gdp-attributes.h](#).

## 8.258.2 Function Documentation

- 8.258.2.1 void emAfRf4ceGdpClearRemoteAttributes ( void )
- 8.258.2.2 void emAfRf4ceGdpGetOrSetAttribute ( EmAfRf4ceGdpAttributes \* *attributes*, uint8\_t *attrId*, uint16\_t *entryId*, bool *isGet*, uint8\_t \* *val* )

## 8.258.3 Variable Documentation

- 8.258.3.1 EmAfRf4ceGdpAttributes emAfRf4ceGdpLocalNodeAttributes
- 8.258.3.2 EmAfRf4ceGdpAttributes emAfRf4ceGdpRemoteNodeAttributes

## 8.259 rf4ce-gdp-attributes.h

```

0001 // Copyright 2014 Silicon Laboratories, Inc.
0002
0003
0004 #ifndef __RF4CE_GDP_ATTRIBUTES_H__
0005 #define __RF4CE_GDP_ATTRIBUTES_H__
0006
0007 // Defines the maximum number of attributes records contained in any
0008 // attribute-related command.
0009 #define MAX_COMMAND_ATTRIBUTES 5
0010
0011 // These are specified in Table 9.
0012 #define APL_GDP_VERSION_DEFAULT 0x0200
0013 #define APL_GDP_KEY_EXCHANGE_TRANSFER_COUNT_DEFAULT 3
0014 #define APL_GDP_POWER_STATUS_DEFAULT 0
0015 #define APL_GDP_MAX_PAIRING_CANDIDATES_DEFAULT 3
0016 #define APL_GDP_AUTO_CHECK_VALIDATION_PERIOD_DEFAULT 500 // msec
0017 #define APL_GDP_LINK_LOST_WAIT_TIME_DEFAULT 5000 // msec
0018 #define APL_GDP_IDENTIFICATION_CAPABILITIES_DEFAULT 0x00
0019 #define APL_GDP_BINDING_RECIPIENT_VALIDATION_WAIT_TIME_DEFAULT 15000 // msec
0020
0021 // If the Binding Originator does not support extended validation (see section
0022 // 7.2.7, this value shall be set to aplcMaxNormalValidationDuration. If the
0023 // Binding Originator supports extended validation,
0024 // aplBindingOriginatorValidationWaitTime shall be set to
0025 // aplcMaxExtendedValidationDuration.
0026 #if defined(EMBER_AF_PLUGIN_RF4CE_GDP_EXTENDED_VALIDATION)
0027 #define APL_GDP_BINDING_ORIGINATOR_VALIDATION_WAIT_TIME_DEFAULT
\ APLC_MAX_EXTENDED_VALIDATION_DURATION_MS
0029 #else
0030 #define APL_GDP_BINDING_ORIGINATOR_VALIDATION_WAIT_TIME_DEFAULT
\ APLC_MAX_NORMAL_VALIDATION_DURATION_MS
0032 #endif
0033
0034 #define APL_GDP_VERSION_SIZE 2
0035 #define APL_GDP_CAPABILITIES_SIZE 4
0036 #define APL_GDP_KEY_EXCHANGE_TRANSFER_COUNT_SIZE 1
0037 #define APL_GDP_POWER_STATUS_SIZE 1
0038 // See section 6.2.5 (for now we have only one record since there is only one
0039 // polling method defined).
0040 // number of polling methods supports (1 byte)
0041 // + polling constraint record (13 bytes)
0042 #define APL_GDP_POLL_CONSTRAINTS_SIZE 14
0043 #define APL_GDP_POLL_CONFIGURATION_SIZE 9
0044 #define APL_GDP_MAX_PAIRING_CANDIDATES_SIZE 1
0045 #define APL_GDP_AUTO_CHECK_VALIDATION_PERIOD_SIZE 2
0046 #define APL_GDP_BINDING_RECIPIENT_VALIDATION_WAIT_TIME_SIZE 2
0047 #define APL_GDP_BINDING_ORIGINATOR_VALIDATION_WAIT_TIME_SIZE 2
0048 #define APL_GDP_LINK_LOST_WAIT_TIME_SIZE 2
0049 #define APL_GDP_IDENTIFICATION_CAPABILITIES_SIZE 1
0050
0051 // Make sure to keep these updated.
0052 #define MAX_GDP_ATTRIBUTE_SIZE 13
0053
0054 #if defined(EMBER_SCRIPTED_TEST)

```

```

00055 #define GDP_ATTRIBUTES_COUNT      12 + 4
00056 #else
00057 #define GDP_ATTRIBUTES_COUNT      12
00058 #endif
00059
00060 #define MIN_GDP_ATTRIBUTE_ID          0x80
00061 #define MAX_GDP_ATTRIBUTE_ID          0x8B
00062
00063 #define POLL_CONSTRAINT_RECORD_NUMBER_OFFSET    0
00064 #define POLL_CONSTRAINT_RECORD_NUMBER_LENGTH     1
00065 #define POLL_CONSTRAINT_RECORD_OFFSET           1
00066 #define POLL_CONSTRAINT_RECORD_LENGTH            13
00067
00068 // Poll constraint record related macros
00069 #define POLL_CONSTRAINT_RECORD_POLLING_METHOD_ID_OFFSET  (0
00070   + POLL_CONSTRAINT_RECORD_OFFSET)
00071 #define POLL_CONSTRAINT_RECORD_POLLING_METHOD_ID_LENGTH    1
00072 #define POLL_CONSTRAINT_RECORD_POLLING_TRIGGER_CAPABILITIES_OFFSET (1
00073   + POLL_CONSTRAINT_RECORD_OFFSET)
00074 #define POLL_CONSTRAINT_RECORD_MIN_POLLING_KEY_PRESS_COUNT_LENGTH 2
00075 #define POLL_CONSTRAINT_RECORD_MAX_POLLING_KEY_PRESS_COUNT_OFFSET (3
00076   + POLL_CONSTRAINT_RECORD_OFFSET)
00077 #define POLL_CONSTRAINT_RECORD_MIN_POLLING_TIME_INTERVAL_OFFSET (4
00078   + POLL_CONSTRAINT_RECORD_OFFSET)
00079 #define POLL_CONSTRAINT_RECORD_MAX_POLLING_TIME_INTERVAL_OFFSET (5
00080   + POLL_CONSTRAINT_RECORD_OFFSET)
00081
00082 #define POLL_CONSTRAINT_RECORD_MIN_POLLING_TIME_INTERVAL_LOWER_BOUND 50
00083 #define POLL_CONSTRAINT_RECORD_MIN_POLLING_TIME_INTERVAL_UPPER_BOUND 3600000
00084 #define POLL_CONSTRAINT_RECORD_MAX_POLLING_TIME_INTERVAL_LOWER_BOUND 60000
00085 #define POLL_CONSTRAINT_RECORD_MAX_POLLING_TIME_INTERVAL_UPPER_BOUND 86400000
00086
00087 // Poll configuration attribute related macros
00088 #define POLL_CONFIGURATION_POLLING_METHOD_ID_OFFSET        0
00089 #define POLL_CONFIGURATION_POLLING_METHOD_ID_LENGTH         1
00090 #define POLL_CONFIGURATION_POLLING_TRIGGER_CONFIG_OFFSET    1
00091 #define POLL_CONFIGURATION_POLLING_TRIGGER_CONFIG_LENGTH    2
00092 #define POLL_CONFIGURATION_POLLING_KEY_PRESS_COUNTER_OFFSET 3
00093 #define POLL_CONFIGURATION_POLLING_KEY_PRESS_COUNTER_LENGTH 1
00094 #define POLL_CONFIGURATION_POLLING_TIME_INTERVAL_OFFSET     4
00095 #define POLL_CONFIGURATION_POLLING_TIME_INTERVAL_LENGTH     4
00096 #define POLL_CONFIGURATION_POLLING_TIMEOUT_OFFSET           8
00097 #define POLL_CONFIGURATION_POLLING_TIMEOUT_LENGTH            1
00098
00099 // TODO: poll triggers and min/max values should be set in AppBuilder (only if
00100 // the node is a poll client, this values are meaningless for a poll server).
00101
00102 #define MIN_POLLING_KEY_PRESS_COUNTER      1
00103 #define MAX_POLLING_KEY_PRESS_COUNTER      255
00104 #define SUPPORTED_TRIGGERS
00105   (EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_TIME_BASED_POLLING_ENABLED \
00106   | \
00107   EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_POLLING_ON_KEY_PRESS_ENABLED)
00108
00109 // By default we set the poll client to support the heartbeat method and to
00110 // support time-based and key press triggers.
00111 #define APL_POLL_CONSTRAINTS_DEFAULT        {0x01, /*number of methods supported
00112 */ \
00113   EMBER_AF_RF4CE_GDP_POLLING_METHOD_HEARTBEAT, \
00114   LOW_BYTE(SUPPORTED_TRIGGERS), \
00115   HIGH_BYTE(SUPPORTED_TRIGGERS), \
00116   MIN_POLLING_KEY_PRESS_COUNTER, \
00117   MAX_POLLING_KEY_PRESS_COUNTER, \
00118   BYTE_0(EMBER_AF_PLUGIN_RF4CE_GDP_MIN_POLLING_INTERVAL_MS), \
00119   \
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0017   BYTE_1 (EMBER_AF_PLUGIN_RF4CE_GDP_MIN_POLLING_INTERVAL_MS), \
0018   BYTE_2 (EMBER_AF_PLUGIN_RF4CE_GDP_MIN_POLLING_INTERVAL_MS), \
0019   BYTE_3 (EMBER_AF_PLUGIN_RF4CE_GDP_MIN_POLLING_INTERVAL_MS), \
0020   BYTE_0 (EMBER_AF_PLUGIN_RF4CE_GDP_MAX_POLLING_INTERVAL_MS), \
0021   BYTE_1 (EMBER_AF_PLUGIN_RF4CE_GDP_MAX_POLLING_INTERVAL_MS), \
0022   BYTE_2 (EMBER_AF_PLUGIN_RF4CE_GDP_MAX_POLLING_INTERVAL_MS), \
0023   BYTE_3 (EMBER_AF_PLUGIN_RF4CE_GDP_MAX_POLLING_INTERVAL_MS) \
0024 // Identification capabilities attribute related macros
0025 #define IDENTIFICATION_CAPABILITIES_RESERVED_MASK
0026     0x1
0027 #define IDENTIFICATION_CAPABILITIES_SUPPORT_FLASH_LIGHT_BIT
0028     0x2
0029 #define IDENTIFICATION_CAPABILITIES_SUPPORT_MAKE_SOUND_BIT
0030     0x4
0031 #define IDENTIFICATION_CAPABILITIES_SUPPORT_VIBRATE_BIT
0032     0x8
0033
0034 // We maintain an info table for each GDP attribute defined in Table 9.
0035 typedef struct {
0036     uint8_t id;
0037     uint8_t size;
0038     uint8_t bitmask;
0039     uint16_t dimension; // only for arrayed attributes
0040 } EmAfRf4ceGdpAttributeDescriptor;
0041
0042 // Bitmask field definitions.
0043 #define ATTRIBUTE_HAS_REMOTE_GET_ACCESS_BIT           0x01
0044 #define ATTRIBUTE_HAS_REMOTE_SET_ACCESS_BIT           0x02
0045 #define ATTRIBUTE_HAS_REMOTE_PUSH_ACCESS_BIT          0x04
0046 #define ATTRIBUTE_HAS_REMOTE_PULL_ACCESS_BIT          0x08
0047 #define ATTRIBUTE_IS_TWO_DIMENSIONAL_ARRAYED         0x10
0048
0049 // The following attributes are not currently included in the attribute struct,
0050 // they have no remote access and we treat them as constants, some of them
0051 // configurable from the plugin options.
0052 // - aplKeyExchangeTransferCount
0053 // - aplMaxPairingCandidates
0054 // - aplBindingRecipientValidationWaitTime
0055 // - aplBindingOriginatorValidationWaitTime
0056
0057 // Array attributes are in the range 0x90--0x9F for GDP and 0xC0--0xDF for the
0058 // other profiles. This means that all array attributes have bit 7 set; bit 5
0059 // clear; and bits 4 or 6 or both set. Note that this macro is just a tad not
0060 // safe because it uses the parameter attributeId twice.
0061 #define IS_ARRAY_ATTRIBUTE(attributeId) \
0062     (READBITS((attributeId), BIT(7) | BIT(5)) == BIT(7) \
0063      && READBITS((attributeId), BIT(4) | BIT(6)) != 0x00)
0064
0065 // Test related stuff
0066 #define GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST_SIZE           2
0067 #define GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST_DIMENSION        3
0068 #define GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_SIZE            4
0069 #define GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_FIRST_DIMENSION 4
0070 #define GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_SECOND_DIMENSION 5
0071
0072 typedef struct {
0073     uint16_t gdpVersion;
0074     uint32_t gdpCapabilities;
0075     uint8_t powerStatus;
0076     uint8_t pollConstraints[APL_GDP_POLL_CONSTRAINTS_SIZE];
0077 };
0078     uint8_t pollConfiguration[APL_GDP_POLL_CONFIGURATION_SIZE];
0079     uint16_t autoCheckValidationPeriod;
0080     uint16_t linkLostWaitTime;
0081     uint8_t identificationCapabilities;
0082
0083 // Test arrayed attributes
0084 #if defined(EMBER_SCRIPTED_TEST)
0085     uint16_t settableScalarTest1;
0086     uint16_t settableScalarTest2;
0087     uint16_t oneDimensionalTestAttribute[
0088         GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST_DIMENSION

```

```

];
00183     uint32_t twoDimensionalTestAttribute[
00184         GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_FIRST_DIMENSION
00185     ][GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_SECOND_DIMENSION
00186 ];
00187 #endif
00188 } EmAfRf4ceGdpAttributes;
00189
00190 extern EmAfRf4ceGdpAttributes
00191     emAfRf4ceGdpLocalNodeAttributes;
00192 extern EmAfRf4ceGdpAttributes
00193     emAfRf4ceGdpRemoteNodeAttributes;
00194
00195 #define WRITE_ACCESS true
00196 #define READ_ACCESS false
00197
00198 void emAfRf4ceGdpClearRemoteAttributes(void);
00199
00200 void emAfRf4ceGdpGetOrSetAttribute(
00201     EmAfRf4ceGdpAttributes *attributes,
00202         uint8_t attrId,
00203         uint16_t entryId,
00204         bool isGet,
00205         uint8_t *val);
00206
00207 #define emAfRf4ceGdpSetLocalAttribute(attrId, entryId, val)
00208     emAfRf4ceGdpGetOrSetAttribute(&emAfRf4ceGdpLocalNodeAttributes,
00209         (attrId),
00210         (entryId),
00211         false,
00212         (uint8_t*) (val))
00213
00214 #define emAfRf4ceGdpGetLocalAttribute(attrId, entryId, val)
00215     emAfRf4ceGdpGetOrSetAttribute(&emAfRf4ceGdpLocalNodeAttributes,
00216         (attrId),
00217         (entryId),
00218         true,
00219         (uint8_t*) (val))
00220
00221 #define emAfRf4ceGdpSetRemoteAttribute(attrId, entryId, val)
00222     emAfRf4ceGdpGetOrSetAttribute(&emAfRf4ceGdpRemoteNodeAttributes,
00223         (attrId),
00224         (entryId),
00225         false,
00226         (uint8_t*) (val))
00227
00228 #endif //__RF4CE_GDP_ATTRIBUTES_H__

```

## 8.260 rf4ce-gdp-identification-client.h File Reference

### Functions

- void `emberAfRf4ceGdpIdentificationClientDetectedUserInteraction` (void)

## 8.261 rf4ce-gdp-identification-client.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_GDP_IDENTIFICATION_CLIENT_H__
00004 #define __RF4CE_GDP_IDENTIFICATION_CLIENT_H__
00005
00043 void emberAfRf4ceGdpIdentificationClientDetectedUserInteraction
        (void);
00044
00045 #endif /* __RF4CE_GDP_IDENTIFICATION_CLIENT_H__ */
00046
00047 // END addtogroup
```

## 8.262 rf4ce-gdp-identification-server.h File Reference

### Functions

- `EmberStatus emberAfRf4ceGdpIdentificationServerIdentify` (uint8\_t pairingIndex, `EmberAfRf4ceGdpClientNotificationIdentifyFlags` flags, uint16\_t timeS)

## 8.263 rf4ce-gdp-identification-server.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_GDP_IDENTIFICATION_SERVER__
00004 #define __RF4CE_GDP_IDENTIFICATION_SERVER__
00005
00044 EmberStatus emberAfRf4ceGdpIdentificationServerIdentify
        (uint8_t pairingIndex,
         EmberAfRf4ceGdpClientNotificationIdentifyFlags
         flags,
         uint16_t timeS);
00046
00047
00048
00049 #endif /* __RF4CE_GDP_IDENTIFICATION_SERVER__ */
00050
00051 // END addtogroup
```

## 8.264 rf4ce-gdp-identification.h File Reference

### Macros

- `#define IDENTIFICATION_PROCEDURE_DELAY_MSEC`
- `#define IDENTIFICATION_PROCEDURE_AFTER_FAILURE_DELAY_SEC`
- `#define IDENTIFICATION_PROCEDURE_CLIENT_MAX_RETRIES`

## Functions

- void `emAfRf4ceGdpIdentificationNotifyBindingComplete` (uint8\_t pairingIndex)
- void `emAfRf4ceGdpIncomingIdentifyCallback` (EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16\_t timeS)

### 8.264.1 Macro Definition Documentation

#### 8.264.1.1 #define IDENTIFICATION PROCEDURE\_DELAY\_MSEC

Definition at line 6 of file `rf4ce-gdp-identification.h`.

#### 8.264.1.2 #define IDENTIFICATION PROCEDURE\_AFTER\_FAILURE\_DELAY\_SEC

Definition at line 10 of file `rf4ce-gdp-identification.h`.

#### 8.264.1.3 #define IDENTIFICATION PROCEDURE\_CLIENT\_MAX\_RETIRES

Definition at line 14 of file `rf4ce-gdp-identification.h`.

### 8.264.2 Function Documentation

#### 8.264.2.1 void emAfRf4ceGdpIdentificationNotifyBindingComplete ( uint8\_t pairingIndex )

#### 8.264.2.2 void emAfRf4ceGdpIncomingIdentifyCallback ( EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16\_t timeS )

## 8.265 rf4ce-gdp-identification.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 // We delay the procedure in case the enhanced security procedure or the
00004 // polling
00005 // negotiation procedure take place, which should happen after binding has
00006 // completed.
00006 #define IDENTIFICATION PROCEDURE_DELAY_MSEC      500
00007
00008 // If the identification procedure fails, we wait a longer delay before trying
00009 // again.
00010 #define IDENTIFICATION PROCEDURE_AFTER_FAILURE_DELAY_SEC    60
00011
00012 // This defines how many times the identification procedure is started again
00013 // after it failed.
00014 #define IDENTIFICATION PROCEDURE_CLIENT_MAX_RETIRES      3
00015
00016
00017 extern void emAfRf4ceGdpIdentificationNotifyBindingComplete
00018     (uint8_t pairingIndex);
00019 extern void emAfRf4ceGdpIncomingIdentifyCallback
00020     (EmberAfRf4ceGdpClientNotificationIdentifyFlags
00021         flags,
00022             uint16_t timeS);
00021

```

### 8.266 rf4ce-gdp-internal.h File Reference

## Data Structures

- struct EmAfGdpPairingCandidat
- struct EmAfDiscoveryOrPairRequestData
- struct EmAfBindingInfo

## Macros

- #define NWK\_DISCOVERY\_REPETITION\_INTERVAL\_MS
- #define NWK\_MAX\_DISCOVERY\_REPETITIONS
- #define NWK\_MAX\_REPORTED\_NODE\_DESCRIPTORS
- #define NWK\_DISCOVERY\_LQI\_THRESHOLD
- #define APL\_MAX\_PAIRING\_CANDIDATES
- #define APLC\_CONFIG\_BLACKOUT\_TIME\_MS
- #define BLACKOUT\_TIME\_DELTA\_MS
- #define BLACKOUT\_TIME\_ORIGINATOR\_MS
- #define BLACKOUT\_TIME\_RECIPIENT\_MS
- #define APLC\_BIND\_WINDOW\_DURATION\_MS
- #define APLC\_MAX\_AUTO\_CHECK\_VALIDATION\_PERIOD\_MS
- #define APLC\_MAX\_CONFIG\_WAIT\_TIME\_MS
- #define APLC\_MAX\_NORMAL\_VALIDATION\_DURATION\_MS
- #define APLC\_MAX\_EXTENDED\_VALIDATION\_DURATION\_MS
- #define APLC\_MAX\_POLLING\_TIMEOUT\_MS
- #define APLC\_MAX\_RX\_ON\_WAIT\_TIME\_MS
- #define APLC\_MAX\_RESPONSE\_WAIT\_TIME\_MS
- #define APLC\_MIN\_KEY\_EXCHANGE\_TRANSFER\_COUNT
- #define GDP\_HEADER\_LENGTH
- #define GDP\_HEADER\_FRAME\_CONTROL\_OFFSET
- #define GDP\_HEADER\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK
- #define GDP\_HEADER\_FRAME\_CONTROL\_GDP\_COMMAND\_FRAME\_MASK
- #define GDP\_HEADER\_FRAME\_CONTROL\_DATA\_PENDING\_MASK
- #define GDP\_PAYLOAD\_OFFSET
- #define GENERIC\_RESPONSE\_LENGTH
- #define GENERIC\_RESPONSE\_RESPONSE\_CODE\_OFFSET
- #define CONFIGURATION\_COMPLETE\_LENGTH
- #define CONFIGURATION\_COMPLETE\_STATUS\_OFFSET
- #define HEARTBEAT\_LENGTH
- #define HEARTBEAT\_TRIGGER\_OFFSET
- #define GET\_ATTRIBUTES\_LENGTH
- #define GET\_ATTRIBUTES\_RESPONSE\_LENGTH
- #define PUSH\_ATTRIBUTES\_LENGTH
- #define SET\_ATTRIBUTES\_LENGTH
- #define PULL\_ATTRIBUTES\_LENGTH
- #define PULL\_ATTRIBUTES\_RESPONSE\_LENGTH
- #define CHECK\_VALIDATION\_LENGTH
- #define CHECK\_VALIDATION\_SUBTYPE\_OFFSET
- #define CHECK\_VALIDATION\_PAYLOAD\_OFFSET
- #define CHECK\_VALIDATION\_SUBTYPE\_REQUEST\_LENGTH
- #define CHECK\_VALIDATION\_SUBTYPE\_REQUEST\_CONTROL\_OFFSET
- #define CHECK\_VALIDATION\_SUBTYPE\_RESPONSE\_LENGTH

- #define CHECK\_VALIDATION\_SUBTYPE\_RESPONSE\_STATUS\_OFFSET
- #define CLIENT\_NOTIFICATION\_LENGTH
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_OFFSET
- #define CLIENT\_NOTIFICATION\_PAYLOAD\_OFFSET
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_LENGTH
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_PAYLOAD\_LENGTH
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_PAYLOAD\_FLAGS\_OFFSET
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_PAYLOAD\_TIME\_OFFSET
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_POLL\_NEGOTIATION\_LENGTH
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_POLL\_NEGOTIATION\_PAYLOAD\_LENGTH
- #define KEY\_EXCHANGE\_LENGTH
- #define KEY\_EXCHANGE\_SUBTYPE\_OFFSET
- #define KEY\_EXCHANGE\_PAYLOAD\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_LENGTH
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_FLAGS\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE RAND\_A\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_LENGTH
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_FLAGS\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE RAND\_B\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_TAG\_B\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_RESPONSE\_LENGTH
- #define KEY\_EXCHANGE\_SUBTYPE\_RESPONSE\_TAG\_A\_OFFSET
- #define KEY\_EXCHANGE\_SUBTYPE\_CONFIRM\_LENGTH
- #define COMMAND\_CODE\_MAXIMUM
- #define GDP\_CAPABILITIES\_SUPPORT\_EXTENDED\_VALIDATION\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_EXTENDED\_VALIDATION\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_SERVER\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_SERVER\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_CLIENT\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_CLIENT\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_SERVER\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_SERVER\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_CLIENT\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_CLIENT\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_ENHANCED\_SECURITY\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_ENHANCED\_SECURITY\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_LOCAL\_VENDOR\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_LOCAL\_VENDOR\_OFFSET
- #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_REMOTE\_VENDOR\_BIT
- #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_REMOTE\_VENDOR\_OFFSET
- #define GDP\_STANDARD\_SHARED\_SECRET
- #define GDP\_SHARED\_SECRET\_SIZE
- #define USER\_STRING\_APPLICATION\_SPECIFIC\_USER\_STRING\_OFFSET
- #define USER\_STRING\_APPLICATION\_SPECIFIC\_USER\_STRING\_LENGTH
- #define USER\_STRING\_NULL\_BYTE\_OFFSET
- #define USER\_STRING\_DISC\_REQUEST\_VENDOR\_ID\_FILTER\_OFFSET
- #define USER\_STRING\_DISC\_REQUEST\_VENDOR\_ID\_FILTER\_LENGTH

- #define **USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_OFFSET**
- #define **USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MIN\_CLASS\_NUM\_-MASK**
- #define **USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MIN\_CLASS\_NUM\_-OFFSET**
- #define **USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MAX\_CLASS\_NUM\_-MASK**
- #define **USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MAX\_CLASS\_NUM\_-OFFSET**
- #define **USER\_STRING\_DISC\_REQUEST\_MIN\_LQI\_FILTER\_OFFSET**
- #define **USER\_STRING\_DISC\_REQUEST\_RESERVED\_BYTES\_OFFSET**
- #define **USER\_STRING\_DISC\_REQUEST\_RESERVED\_BYTES\_LENGTH**
- #define **USER\_STRING\_DISC\_RESPONSE\_RESERVED\_BYTES\_OFFSET**
- #define **USER\_STRING\_DISC\_RESPONSE\_RESERVED\_BYTES\_LENGTH**
- #define **USER\_STRING\_DISC\_RESPONSE\_TERTIARY\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **USER\_STRING\_DISC\_RESPONSE\_SECONDARY\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **USER\_STRING\_DISC\_RESPONSE\_PRIMARY\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **USER\_STRING\_DISC\_RESPONSE\_DISCOVERY\_LQI\_THRESHOLD\_OFFSET**
- #define **USER\_STRING\_PAIR\_REQUEST\_ADVANCED\_BINDING\_SUPPORT\_OFFSET**
- #define **USER\_STRING\_PAIR\_REQUEST\_RESERVED\_BYTES\_OFFSET**
- #define **USER\_STRING\_PAIR\_REQUEST\_RESERVED\_BYTES\_LENGTH**
- #define **ADVANCED\_BINDING\_SUPPORT\_FIELD\_BINDING\_PROXY\_SUPPORTED\_BIT**
- #define **CLASS\_DESCRIPTOR\_NUMBER\_MASK**
- #define **CLASS\_DESCRIPTOR\_NUMBER\_OFFSET**
- #define **CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_MASK**
- #define **CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_OFFSET**
- #define **CLASS\_DESCRIPTOR\_RESERVED\_MASK**
- #define **CLASS\_NUMBER\_PRE\_COMMISSIONED**
- #define **CLASS\_NUMBER\_BUTTON\_PRESS\_INDICATION**
- #define **CLASS\_NUMBER\_DISCOVERABLE\_ONLY**
- #define **CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_AS\_IS**
- #define **CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_RECLASSIFY**
- #define **CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_ABORT**
- #define **CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_RESERVED**
- #define **AS\_IS**
- #define **RECLASSIFY**
- #define **ABORT**
- #define **GDP\_VERSION\_NONE**
- #define **GDP\_VERSION\_1\_X**
- #define **GDP\_VERSION\_2\_0**
- #define **GDP\_1\_X\_BASED\_PROFILE\_ID\_LIST**
- #define **GDP\_1\_X\_BASED\_PROFILE\_ID\_LIST\_LENGTH**
- #define **GDP\_2\_0\_BASED\_PROFILE\_ID\_LIST**
- #define **GDP\_2\_0\_BASED\_PROFILE\_ID\_LIST\_LENGTH**
- #define **PUBLIC\_STATE\_MASK**
- #define **INTERNAL\_STATE\_MASK**
- #define **INTERNAL\_STATE\_OFFSET**
- #define **INTERNAL\_STATE\_NONE**
- #define **INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_PUSH\_PENDING**
- #define **INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_GET\_PENDING**

- #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_PULL\_PENDING
- #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_COMPLETE\_PENDING
- #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_PROFILES\_CONFIG
- #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_VALIDATION
- #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_KEY\_EXCHANGE\_BLACKOUT\_PENDIN-G
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_STACK\_STATUS\_NETWORK\_UP\_PENDING
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_RESTORE\_PAIRING\_ENTRY\_PENDING
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_PUSH
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_GET
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_PULL
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_COMPLETE
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_PROFILES\_CONFIG
- #define INTERNAL\_STATE\_RECIPIENT\_GDP\_VALIDATION
- #define INTERNAL\_STATE\_GDP\_SECURITY\_KEY\_CHALLENGE\_PENDING
- #define INTERNAL\_STATE\_GDP\_SECURITY\_KEY\_RESPONSE\_PENDING
- #define INTERNAL\_STATE\_GDP\_POLL\_CONFIG\_CLIENT\_PUSH\_PENDING
- #define INTERNAL\_STATE\_GDP\_POLL\_CONFIG\_CLIENT\_PULL\_PENDING
- #define INTERNAL\_STATE\_GDP\_IDENTIFICATION\_CLIENT\_PUSH\_PENDING
- #define INTERNAL\_STATE\_GDP\_POLL\_CLIENT\_HEARTBEAT\_PENDING
- #define publicBindState()
- #define internalGdpState()
- #define setPublicState(state, init)
- #define setInternalState(state)
- #define isInternalStateBindingOriginator()
- #define isInternalStateBindingRecipient()
- #define isInternalStateSecurity()
- #define isInternalStatePollNegotiation()
- #define isInternalStateIdentification()
- #define CANDIDATE\_INFO\_ENTRY\_IN\_USE\_BIT
- #define CANDIDATE\_INFO\_ENTRY\_IN\_USE\_OFFSET
- #define CANDIDATE\_INFO\_PAIRING\_ATTEMPTED\_BIT
- #define CANDIDATE\_INFO\_PAIRING\_ATTEMPTED\_OFFSET
- #define CANDIDATE\_INFO\_PROXY\_CANDIDATE\_BIT
- #define CANDIDATE\_INFO\_PROXY\_CANDIDATE\_OFFSET
- #define PAIRING\_ENTRY\_BINDING\_STATUS\_MASK
- #define PAIRING\_ENTRY\_BINDING\_STATUS\_OFFSET
- #define PAIRING\_ENTRY\_BINDING\_STATUS\_NOT\_BOUND
- #define PAIRING\_ENTRY\_BINDING\_STATUS\_BOUND\_ORIGINATOR
- #define PAIRING\_ENTRY\_BINDING\_STATUS\_BOUND\_RECIPIENT
- #define PAIRING\_ENTRY\_BINDING\_COMPLETE\_BIT
- #define PAIRING\_ENTRY\_BINDING\_COMPLETE\_OFFSET
- #define PAIRING\_ENTRY\_POLLING\_ACTIVE\_BIT
- #define PAIRING\_ENTRY\_POLLING\_ACTIVE\_OFFSET
- #define PAIRING\_ENTRY\_IDENTIFICATION\_ACTIVE\_BIT
- #define PAIRING\_ENTRY\_IDENTIFICATION\_ACTIVE\_OFFSET
- #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_ENHANCED\_SECURITY\_BIT
- #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_ENHANCED\_SECURITY\_OFFSET
- #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_IDENTIFICATION\_BIT

- #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_IDENTIFICATION\_OFFSET
- #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_POLLING\_BIT
- #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_POLLING\_OFFSET
- #define emAfrf4ceGdpIsBusy()
- #define GDP\_SET\_VALUE\_BINDING\_ORIGINATOR\_PARAMETERS\_BYTES\_LENGTH
- #define GDP\_SET\_VALUE\_BINDING\_RECIPIENT\_PARAMETERS\_BYTES\_LENGTH
- #define GDP\_SET\_VALUE\_FLAG\_LENGTH
- #define emAfrf4ceGdpOutgoingCommandsSetPendingFlag()
- #define emAfrf4ceGdpOutgoingCommandsClearPendingFlag()
- #define debugDiscoveryResponseDrop(reason)
- #define debugCandidateAdded(reason)
- #define debugScriptCheck(reason)

## Functions

- bool emAfIsProfileGdpBased (uint8\_t profileId, uint8\_t gdpCheckVersion)
- bool emAfrf4ceIsProfileSupported (uint8\_t profileId, const uint8\_t \*profileIdList, uint8\_t profileIdListLength)
- uint8\_t emAfCheckDeviceTypeAndProfileIdMatch (uint8\_t checkDeviceType, uint8\_t \*compareDevTypeList, uint8\_t compareDevTypeListLength, uint8\_t \*checkProfileIdList, uint8\_t checkProfileIdListLength, uint8\_t \*compareProfileIdList, uint8\_t compareProfileIdListLength, uint8\_t \*matchingProfileIdList)
- bool emAfrf4ceGdpMaybeStartNextProfileSpecificConfigurationProcedure (bool isOriginator, const uint8\_t \*remoteProfileIdList, uint8\_t remoteProfileIdListLength)
- void emAfrf4ceGdpNotifyBindingCompleteToProfiles (EmberAfrf4ceGdpBindingStatus status, uint8\_t pairingIndex, const uint8\_t \*remoteProfileIdList, uint8\_t remoteProfileIdListLength)
- EmberStatus emAfrf4ceGdpInitiateKeyExchangeInternal (uint8\_t pairingIndex, bool intCall)
- void emAfrf4ceGdpNoteProfileSpecificConfigurationStart (void)
- void emAfGdpAddToProfileIdList (uint8\_t \*srcProfileIdList, uint8\_t srcProfileIdListLength, EmberRf4ceApplicationInfo \*destAppInfo, uint8\_t gdpVersion)
- uint8\_t emAfrf4ceGdpGetGdpVersion (const uint8\_t \*profileIdList, uint8\_t profileIdListLength)
- void emAfrf4ceGdpRecipientInitCallback (void)
- void emAfrf4ceGdpOriginatorStackStatusCallback (EmberStatus status)
- void emAfrf4ceGdpRecipientStackStatusCallback (EmberStatus status)
- void emAfrf4ceGdpUpdatePublicStatus (bool init)
- uint8\_t emAfrf4ceGdpGetPairingBindStatus (uint8\_t pairingIndex)
- void emAfrf4ceGdpSetPairingBindStatus (uint8\_t pairingIndex, uint8\_t status)
- void emAfrf4ceGdpGetPairingKey (uint8\_t pairingIndex, EmberKeyData \*key)
- void emAfrf4ceGdpSetPairingKey (uint8\_t pairingIndex, EmberKeyData \*key)
- bool emAfrf4ceGdpSecurityGetRandomString (EmberAfrf4ceGdpRand \*rn)
- void emAfrf4ceGdpSecurityValidationCompleteCallback (uint8\_t pairingIndex)
- void emAfrf4ceGdpAttributesInitCallback (void)
- void emAfrf4ceGdpIncomingGenericResponse (EmberAfrf4ceGdpResponseCode responseCode)
- void emAfrf4ceGdpIncomingConfigurationComplete (EmberAfrf4ceGdpStatus status)
- void emAfrf4ceGdpIncomingHeartbeat (EmberAfrf4ceGdpHeartbeatTrigger trigger)
- void emAfrf4ceGdpIncomingGetAttributes (void)
- void emAfrf4ceGdpIncomingGetAttributesResponse (void)
- void emAfrf4ceGdpIncomingPushAttributes (void)
- void emAfrf4ceGdpIncomingSetAttributes (void)
- void emAfrf4ceGdpIncomingPullAttributes (void)

- void `emAfRf4ceGdpIncomingPullAttributesResponse` (void)
- void `emAfRf4ceGdpIncomingCheckValidationRequest` (uint8\_t control)
- void `emAfRf4ceGdpIncomingCheckValidationResponse` (EmberAfRf4ceGdpCheckValidationStatus status)
- void `emAfRf4ceGdpCheckValidationResponseSent` (EmberStatus status)
- void `emAfRf4ceGdpHeartbeatSent` (EmberStatus status)
- void `emAfRf4ceGdpIncomingKeyExchangeChallenge` (EmberAfRf4ceGdpKeyExchangeFlags flags, const EmberAfRf4ceGdpRand \*randA)
- void `emAfRf4ceGdpIncomingKeyExchangeChallengeResponse` (EmberAfRf4ceGdpKeyExchangeFlags flags, const EmberAfRf4ceGdpRand \*randB, const EmberAfRf4ceGdpTag \*tagB)
- void `emAfRf4ceGdpIncomingKeyExchangeResponse` (const EmberAfRf4ceGdpTag \*tagA)
- void `emAfRf4ceGdpKeyExchangeResponseSent` (EmberStatus status)
- void `emAfRf4ceGdpIncomingKeyExchangeConfirm` (bool secured)
- void `emAfRf4ceGdpIncomingClientNotification` (EmberAfRf4ceGdpClientNotificationSubtype subtype, const uint8\_t \*clientNotificationPayload, uint8\_t clientNotificationPayloadLength)
- void `emAfRf4ceZrcIncomingGenericResponse` (EmberAfRf4ceGdpResponseCode responseCode)
- void `emAfRf4ceZrcIncomingConfigurationComplete` (EmberAfRf4ceGdpStatus status)
- void `emAfRf4ceZrcIncomingGetAttributes` (void)
- void `emAfRf4ceZrcIncomingGetAttributesResponse` (void)
- void `emAfRf4ceZrcIncomingPushAttributes` (void)
- void `emAfRf4ceZrcIncomingSetAttributes` (void)
- void `emAfRf4ceZrcIncomingPullAttributes` (void)
- void `emAfRf4ceZrcIncomingPullAttributesResponse` (void)
- void `emAfRf4ceZrcIncomingClientNotification` (EmberAfRf4ceGdpClientNotificationSubtype subtype, const uint8\_t \*clientNotificationPayload, uint8\_t clientNotificationPayloadLength)
- bool `emAfRf4ceGdpHasAttributeRecord` (void)
- bool `emAfRf4ceGdpAppendAttributeIdentificationRecord` (const EmberAfRf4ceGdpAttributeIdentificationRecord \*record)
- bool `emAfRf4ceGdpFetchAttributeIdentificationRecord` (EmberAfRf4ceGdpAttributeIdentificationRecord \*record)
- bool `emAfRf4ceGdpAppendAttributeStatusRecord` (const EmberAfRf4ceGdpAttributeStatusRecord \*record)
- bool `emAfRf4ceGdpFetchAttributeStatusRecord` (EmberAfRf4ceGdpAttributeStatusRecord \*record)
- bool `emAfRf4ceGdpAppendAttributeRecord` (const EmberAfRf4ceGdpAttributeRecord \*record)
- bool `emAfRf4ceGdpFetchAttributeRecord` (EmberAfRf4ceGdpAttributeRecord \*record)
- void `emAfRf4ceGdpResetFetchAttributeFinger` (void)
- void `emAfRf4ceGdpStartAttributesCommand` (EmberAfRf4ceGdpCommandCode commandCode)
- EmberStatus `emAfRf4ceGdpSendAttributesCommand` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId)
- EmberStatus `emAfRf4ceGdpSetDiscoveryResponseAppInfo` (bool pushButton, uint8\_t gdpVersion)
- EmberStatus `emAfRf4ceGdpSetPairResponseAppInfo` (const EmberRf4ceApplicationInfo \*pairRequestAppInfo)
- EmberStatus `emAfRf4ceGdpSendProfileSpecificCommand` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption txOptions, uint8\_t commandId, uint8\_t \*commandPayload, uint8\_t commandPayloadLength, uint8\_t \*messageTag)
- EmberStatus `emAfRf4ceGdpKeyExchangeChallenge` (uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpKeyExchangeFlags flags, const EmberAfRf4ceGdpRand \*randA)
- EmberStatus `emAfRf4ceGdpKeyExchangeChallengeResponse` (uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpKeyExchangeFlags flags, const EmberAfRf4ceGdpRand \*randB, const EmberAfRf4ceGdpTag \*tagB)

- `EmberStatus emAfRf4ceGdpKeyExchangeResponse (uint8_t pairingIndex, uint16_t vendorId, const EmberAfRf4ceGdpTag *tagA)`
- `EmberStatus emAfRf4ceGdpKeyExchangeConfirm (uint8_t pairingIndex, uint16_t vendorId)`
- `void emAfRf4ceGdpSetPushButtonPendingReceivedFlag (bool set)`
- `void emAfRf4ceGdpSetProxyBindingFlag (bool set)`
- `void emAfGdpStartBlackoutTimer (uint8_t state)`
- `void emAfGdpStartCommandPendingTimer (uint8_t state, uint16_t timeMs)`

## Variables

- `const uint8_t emAfRf4ceGdpApplicationSpecificUserString [USER_STRING_APPLICATION_SPECIFIC_USER_STRING_LENGTH]`
- `const uint8_t emAfGdp1xProfiles []`
- `const uint8_t emAfGdp20Profiles []`
- `uint8_t emAfTemporaryPairingIndex`
- `uint8_t emAfCurrentProfileSpecificIndex`
- `uint16_t emAfGdpState`
- `uint32_t emberAfPluginRf4ceGdpCapabilities`
- `EmberEventControl emberAfPluginRf4ceGdpPendingCommandEventControl`
- `EmberEventControl emberAfPluginRf4ceGdpBlackoutTimeEventControl`
- `EmberEventControl emberAfPluginRf4ceGdpValidationEventControl`
- `EmAfBindingInfo emAfGdpPeerInfo`
- `uint8_t emAfRf4ceGdpOutgoingCommandFrameControl`

### 8.266.1 Macro Definition Documentation

#### 8.266.1.1 #define NWK\_DISCOVERY\_REPEATITION\_INTERVAL\_MS

Definition at line 3 of file [rf4ce-gdp-internal.h](#).

#### 8.266.1.2 #define NWK\_MAX\_DISCOVERY\_REPEATITIONS

Definition at line 4 of file [rf4ce-gdp-internal.h](#).

#### 8.266.1.3 #define NWK\_MAX\_REPORTED\_NODE\_DESCRIPTOROS

Definition at line 5 of file [rf4ce-gdp-internal.h](#).

#### 8.266.1.4 #define NWK\_DISCOVERY\_LQI\_THRESHOLD

Definition at line 9 of file [rf4ce-gdp-internal.h](#).

#### 8.266.1.5 #define APL\_MAX\_PAIRING\_CANDIDATES

Definition at line 14 of file [rf4ce-gdp-internal.h](#).

**8.266.1.6 #define APLC\_CONFIG\_BLACKOUT\_TIME\_MS**

Definition at line 19 of file [rf4ce-gdp-internal.h](#).

**8.266.1.7 #define BLACKOUT\_TIME\_DELTA\_MS**

Definition at line 21 of file [rf4ce-gdp-internal.h](#).

**8.266.1.8 #define BLACKOUT\_TIME\_ORIGINATOR\_MS**

Definition at line 25 of file [rf4ce-gdp-internal.h](#).

**8.266.1.9 #define BLACKOUT\_TIME\_RECIPIENT\_MS**

Definition at line 28 of file [rf4ce-gdp-internal.h](#).

**8.266.1.10 #define APLC\_BIND\_WINDOW\_DURATION\_MS**

Definition at line 33 of file [rf4ce-gdp-internal.h](#).

**8.266.1.11 #define APLC\_MAX\_AUTO\_CHECK\_VALIDATION\_PERIOD\_MS**

Definition at line 36 of file [rf4ce-gdp-internal.h](#).

**8.266.1.12 #define APLC\_MAX\_CONFIG\_WAIT\_TIME\_MS**

Definition at line 40 of file [rf4ce-gdp-internal.h](#).

**8.266.1.13 #define APLC\_MAX\_NORMAL\_VALIDATION\_DURATION\_MS**

Definition at line 44 of file [rf4ce-gdp-internal.h](#).

**8.266.1.14 #define APLC\_MAX\_EXTENDED\_VALIDATION\_DURATION\_MS**

Definition at line 48 of file [rf4ce-gdp-internal.h](#).

**8.266.1.15 #define APLC\_MAX\_POLLING\_TIMEOUT\_MS**

Definition at line 52 of file [rf4ce-gdp-internal.h](#).

**8.266.1.16 #define APLC\_MAX\_RX\_ON\_WAIT\_TIME\_MS**

Definition at line 57 of file [rf4ce-gdp-internal.h](#).

8.266.1.17 #define APLC\_MAX\_RESPONSE\_WAIT\_TIME\_MS

Definition at line 61 of file [rf4ce-gdp-internal.h](#).

8.266.1.18 #define APLC\_MIN\_KEY\_EXCHANGE\_TRANSFER\_COUNT

Definition at line 65 of file [rf4ce-gdp-internal.h](#).

8.266.1.19 #define GDP\_HEADER\_LENGTH

Definition at line 69 of file [rf4ce-gdp-internal.h](#).

8.266.1.20 #define GDP\_HEADER\_FRAME\_CONTROL\_OFFSET

Definition at line 70 of file [rf4ce-gdp-internal.h](#).

8.266.1.21 #define GDP\_HEADER\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK

Definition at line 71 of file [rf4ce-gdp-internal.h](#).

8.266.1.22 #define GDP\_HEADER\_FRAME\_CONTROL\_GDP\_COMMAND\_FRAME\_MASK

Definition at line 72 of file [rf4ce-gdp-internal.h](#).

8.266.1.23 #define GDP\_HEADER\_FRAME\_CONTROL\_DATA\_PENDING\_MASK

Definition at line 73 of file [rf4ce-gdp-internal.h](#).

8.266.1.24 #define GDP\_PAYLOAD\_OFFSET

Definition at line 74 of file [rf4ce-gdp-internal.h](#).

8.266.1.25 #define GENERIC\_RESPONSE\_LENGTH

Definition at line 78 of file [rf4ce-gdp-internal.h](#).

8.266.1.26 #define GENERIC\_RESPONSE\_RESPONSE\_CODE\_OFFSET

Definition at line 79 of file [rf4ce-gdp-internal.h](#).

8.266.1.27 #define CONFIGURATION\_COMPLETE\_LENGTH

Definition at line 83 of file [rf4ce-gdp-internal.h](#).

**8.266.1.28 #define CONFIGURATION\_COMPLETE\_STATUS\_OFFSET**

Definition at line 84 of file [rf4ce-gdp-internal.h](#).

**8.266.1.29 #define HEARTBEAT\_LENGTH**

Definition at line 88 of file [rf4ce-gdp-internal.h](#).

**8.266.1.30 #define HEARTBEAT\_TRIGGER\_OFFSET**

Definition at line 89 of file [rf4ce-gdp-internal.h](#).

**8.266.1.31 #define GET\_ATTRIBUTES\_LENGTH**

Definition at line 96 of file [rf4ce-gdp-internal.h](#).

**8.266.1.32 #define GET\_ATTRIBUTES\_RESPONSE\_LENGTH**

Definition at line 106 of file [rf4ce-gdp-internal.h](#).

**8.266.1.33 #define PUSH\_ATTRIBUTES\_LENGTH**

Definition at line 115 of file [rf4ce-gdp-internal.h](#).

**8.266.1.34 #define SET\_ATTRIBUTES\_LENGTH**

Definition at line 124 of file [rf4ce-gdp-internal.h](#).

**8.266.1.35 #define PULL\_ATTRIBUTES\_LENGTH**

Definition at line 131 of file [rf4ce-gdp-internal.h](#).

**8.266.1.36 #define PULL\_ATTRIBUTES\_RESPONSE\_LENGTH**

Definition at line 141 of file [rf4ce-gdp-internal.h](#).

**8.266.1.37 #define CHECK\_VALIDATION\_LENGTH**

Definition at line 146 of file [rf4ce-gdp-internal.h](#).

**8.266.1.38 #define CHECK\_VALIDATION\_SUBTYPE\_OFFSET**

Definition at line 147 of file [rf4ce-gdp-internal.h](#).

**8.266.1.39 #define CHECK\_VALIDATION\_PAYLOAD\_OFFSET**

Definition at line 148 of file [rf4ce-gdp-internal.h](#).

**8.266.1.40 #define CHECK\_VALIDATION\_SUBTYPE\_REQUEST\_LENGTH**

Definition at line 149 of file [rf4ce-gdp-internal.h](#).

**8.266.1.41 #define CHECK\_VALIDATION\_SUBTYPE\_REQUEST\_CONTROL\_OFFSET**

Definition at line 150 of file [rf4ce-gdp-internal.h](#).

**8.266.1.42 #define CHECK\_VALIDATION\_SUBTYPE\_RESPONSE\_LENGTH**

Definition at line 151 of file [rf4ce-gdp-internal.h](#).

**8.266.1.43 #define CHECK\_VALIDATION\_SUBTYPE\_RESPONSE\_STATUS\_OFFSET**

Definition at line 152 of file [rf4ce-gdp-internal.h](#).

**8.266.1.44 #define CLIENT\_NOTIFICATION\_LENGTH**

Definition at line 157 of file [rf4ce-gdp-internal.h](#).

**8.266.1.45 #define CLIENT\_NOTIFICATION\_SUBTYPE\_OFFSET**

Definition at line 158 of file [rf4ce-gdp-internal.h](#).

**8.266.1.46 #define CLIENT\_NOTIFICATION\_PAYLOAD\_OFFSET**

Definition at line 159 of file [rf4ce-gdp-internal.h](#).

**8.266.1.47 #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_LENGTH**

Definition at line 160 of file [rf4ce-gdp-internal.h](#).

**8.266.1.48 #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_PAYLOAD\_LENGTH**

Definition at line 161 of file [rf4ce-gdp-internal.h](#).

**8.266.1.49 #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY\_PAYLOAD\_FLAGS\_OFFSET**

Definition at line 162 of file [rf4ce-gdp-internal.h](#).

8.266.1.50 #define CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTITY\_PAYLOAD\_TIME\_OFFSET

Definition at line 163 of file [rf4ce-gdp-internal.h](#).

8.266.1.51 #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_POLL\_NEGOTIATION\_LENGTH

Definition at line 164 of file [rf4ce-gdp-internal.h](#).

8.266.1.52 #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_POLL\_NEGOTIATION\_PAYLOAD\_LENGTH

Definition at line 165 of file [rf4ce-gdp-internal.h](#).

8.266.1.53 #define KEY\_EXCHANGE\_LENGTH

Definition at line 170 of file [rf4ce-gdp-internal.h](#).

8.266.1.54 #define KEY\_EXCHANGE\_SUBTYPE\_OFFSET

Definition at line 171 of file [rf4ce-gdp-internal.h](#).

8.266.1.55 #define KEY\_EXCHANGE\_PAYLOAD\_OFFSET

Definition at line 172 of file [rf4ce-gdp-internal.h](#).

8.266.1.56 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_LENGTH

Definition at line 173 of file [rf4ce-gdp-internal.h](#).

8.266.1.57 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_FLAGS\_OFFSET

Definition at line 174 of file [rf4ce-gdp-internal.h](#).

8.266.1.58 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE RAND\_A\_OFFSET

Definition at line 175 of file [rf4ce-gdp-internal.h](#).

8.266.1.59 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_LENGTH

Definition at line 176 of file [rf4ce-gdp-internal.h](#).

8.266.1.60 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_FLAGS\_OFFSET

Definition at line 177 of file [rf4ce-gdp-internal.h](#).

8.266.1.61 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_RAND\_B\_OFFSET

Definition at line 178 of file [rf4ce-gdp-internal.h](#).

8.266.1.62 #define KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE\_TAG\_B\_OFFSET

Definition at line 179 of file [rf4ce-gdp-internal.h](#).

8.266.1.63 #define KEY\_EXCHANGE\_SUBTYPE\_RESPONSE\_LENGTH

Definition at line 180 of file [rf4ce-gdp-internal.h](#).

8.266.1.64 #define KEY\_EXCHANGE\_SUBTYPE\_RESPONSE\_TAG\_A\_OFFSET

Definition at line 181 of file [rf4ce-gdp-internal.h](#).

8.266.1.65 #define KEY\_EXCHANGE\_SUBTYPE\_CONFIRM\_LENGTH

Definition at line 182 of file [rf4ce-gdp-internal.h](#).

8.266.1.66 #define COMMAND\_CODE\_MAXIMUM

Definition at line 184 of file [rf4ce-gdp-internal.h](#).

8.266.1.67 #define GDP\_CAPABILITIES\_SUPPORT\_EXTENDED\_VALIDATION\_BIT

Definition at line 187 of file [rf4ce-gdp-internal.h](#).

8.266.1.68 #define GDP\_CAPABILITIES\_SUPPORT\_EXTENDED\_VALIDATION\_OFFSET

Definition at line 188 of file [rf4ce-gdp-internal.h](#).

8.266.1.69 #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_SERVER\_BIT

Definition at line 189 of file [rf4ce-gdp-internal.h](#).

8.266.1.70 #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_SERVER\_OFFSET

Definition at line 190 of file [rf4ce-gdp-internal.h](#).

8.266.1.71 #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_CLIENT\_BIT

Definition at line 191 of file [rf4ce-gdp-internal.h](#).

**8.266.1.72 #define GDP\_CAPABILITIES\_SUPPORT\_POLL\_CLIENT\_OFFSET**

Definition at line 192 of file [rf4ce-gdp-internal.h](#).

**8.266.1.73 #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_SERVER\_BIT**

Definition at line 193 of file [rf4ce-gdp-internal.h](#).

**8.266.1.74 #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_SERVER\_OFFSET**

Definition at line 194 of file [rf4ce-gdp-internal.h](#).

**8.266.1.75 #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_CLIENT\_BIT**

Definition at line 195 of file [rf4ce-gdp-internal.h](#).

**8.266.1.76 #define GDP\_CAPABILITIES\_SUPPORT\_IDENTIFICATION\_CLIENT\_OFFSET**

Definition at line 196 of file [rf4ce-gdp-internal.h](#).

**8.266.1.77 #define GDP\_CAPABILITIES\_SUPPORT\_ENHANCED\_SECURITY\_BIT**

Definition at line 197 of file [rf4ce-gdp-internal.h](#).

**8.266.1.78 #define GDP\_CAPABILITIES\_SUPPORT\_ENHANCED\_SECURITY\_OFFSET**

Definition at line 198 of file [rf4ce-gdp-internal.h](#).

**8.266.1.79 #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_LOCAL\_VENDOR\_BIT**

Definition at line 199 of file [rf4ce-gdp-internal.h](#).

**8.266.1.80 #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_LOCAL\_VENDOR\_OFFSET**

Definition at line 200 of file [rf4ce-gdp-internal.h](#).

**8.266.1.81 #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_REMOTE\_VENDOR\_BIT**

Definition at line 201 of file [rf4ce-gdp-internal.h](#).

**8.266.1.82 #define GDP\_CAPABILITIES\_SUPPORT\_SHARED\_SECRET\_OF\_REMOTE\_VENDOR\_OFFSET**

Definition at line 202 of file [rf4ce-gdp-internal.h](#).

8.266.1.83 #define GDP\_STANDARD\_SHARED\_SECRET

Definition at line 206 of file [rf4ce-gdp-internal.h](#).

8.266.1.84 #define GDP\_SHARED\_SECRET\_SIZE

Definition at line 209 of file [rf4ce-gdp-internal.h](#).

8.266.1.85 #define USER\_STRING\_APPLICATION\_SPECIFIC\_USER\_STRING\_OFFSET

Definition at line 212 of file [rf4ce-gdp-internal.h](#).

8.266.1.86 #define USER\_STRING\_APPLICATION\_SPECIFIC\_USER\_STRING\_LENGTH

Definition at line 213 of file [rf4ce-gdp-internal.h](#).

8.266.1.87 #define USER\_STRING\_NULL\_BYTE\_OFFSET

Definition at line 218 of file [rf4ce-gdp-internal.h](#).

8.266.1.88 #define USER\_STRING\_DISC\_REQUEST\_VENDOR\_ID\_FILTER\_OFFSET

Definition at line 221 of file [rf4ce-gdp-internal.h](#).

8.266.1.89 #define USER\_STRING\_DISC\_REQUEST\_VENDOR\_ID\_FILTER\_LENGTH

Definition at line 222 of file [rf4ce-gdp-internal.h](#).

8.266.1.90 #define USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_OFFSET

Definition at line 223 of file [rf4ce-gdp-internal.h](#).

8.266.1.91 #define USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MIN\_CLASS\_NUM\_MASK

Definition at line 224 of file [rf4ce-gdp-internal.h](#).

8.266.1.92 #define USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MIN\_CLASS\_NUM\_OFFSET

Definition at line 225 of file [rf4ce-gdp-internal.h](#).

8.266.1.93 #define USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MAX\_CLASS\_NUM\_MASK

Definition at line 226 of file [rf4ce-gdp-internal.h](#).

8.266.1.94 #define USER\_STRING\_DISC\_REQUEST\_MIN\_MAX\_CLASS\_FILTER\_MAX\_CLASS\_NUM\_OFFSET

Definition at line 227 of file [rf4ce-gdp-internal.h](#).

8.266.1.95 #define USER\_STRING\_DISC\_REQUEST\_MIN\_LQI\_FILTER\_OFFSET

Definition at line 228 of file [rf4ce-gdp-internal.h](#).

8.266.1.96 #define USER\_STRING\_DISC\_REQUEST\_RESERVED\_BYTES\_OFFSET

Definition at line 229 of file [rf4ce-gdp-internal.h](#).

8.266.1.97 #define USER\_STRING\_DISC\_REQUEST\_RESERVED\_BYTES\_LENGTH

Definition at line 230 of file [rf4ce-gdp-internal.h](#).

8.266.1.98 #define USER\_STRING\_DISC\_RESPONSE\_RESERVED\_BYTES\_OFFSET

Definition at line 233 of file [rf4ce-gdp-internal.h](#).

8.266.1.99 #define USER\_STRING\_DISC\_RESPONSE\_RESERVED\_BYTES\_LENGTH

Definition at line 234 of file [rf4ce-gdp-internal.h](#).

8.266.1.100 #define USER\_STRING\_DISC\_RESPONSE\_TERTIARY\_CLASS\_DESCRIPTOR\_OFFSET

Definition at line 235 of file [rf4ce-gdp-internal.h](#).

8.266.1.101 #define USER\_STRING\_DISC\_RESPONSE\_SECONDARY\_CLASS\_DESCRIPTOR\_OFFSET

Definition at line 236 of file [rf4ce-gdp-internal.h](#).

8.266.1.102 #define USER\_STRING\_DISC\_RESPONSE\_PRIMARY\_CLASS\_DESCRIPTOR\_OFFSET

Definition at line 237 of file [rf4ce-gdp-internal.h](#).

8.266.1.103 #define USER\_STRING\_DISC\_RESPONSE\_DISCOVERY\_LQI\_THRESHOLD\_OFFSET

Definition at line 238 of file [rf4ce-gdp-internal.h](#).

8.266.1.104 #define USER\_STRING\_PAIR\_REQUEST\_ADVANCED\_BINDING\_SUPPORT\_OFFSET

Definition at line 239 of file [rf4ce-gdp-internal.h](#).

8.266.1.105 #define USER\_STRING\_PAIR\_REQUEST\_RESERVED\_BYTES\_OFFSET

Definition at line 240 of file [rf4ce-gdp-internal.h](#).

8.266.1.106 #define USER\_STRING\_PAIR\_REQUEST\_RESERVED\_BYTES\_LENGTH

Definition at line 241 of file [rf4ce-gdp-internal.h](#).

8.266.1.107 #define ADVANCED\_BINDING\_SUPPORT\_FIELD\_BINDING\_PROXY\_SUPPORTED\_BIT

Definition at line 244 of file [rf4ce-gdp-internal.h](#).

8.266.1.108 #define CLASS\_DESCRIPTOR\_NUMBER\_MASK

Definition at line 248 of file [rf4ce-gdp-internal.h](#).

8.266.1.109 #define CLASS\_DESCRIPTOR\_NUMBER\_OFFSET

Definition at line 249 of file [rf4ce-gdp-internal.h](#).

8.266.1.110 #define CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_MASK

Definition at line 250 of file [rf4ce-gdp-internal.h](#).

8.266.1.111 #define CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_OFFSET

Definition at line 251 of file [rf4ce-gdp-internal.h](#).

8.266.1.112 #define CLASS\_DESCRIPTOR\_RESERVED\_MASK

Definition at line 252 of file [rf4ce-gdp-internal.h](#).

8.266.1.113 #define CLASS\_NUMBER\_PRE\_COMMISIONED

Definition at line 254 of file [rf4ce-gdp-internal.h](#).

8.266.1.114 #define CLASS\_NUMBER\_BUTTON\_PRESS\_INDICATION

Definition at line 255 of file [rf4ce-gdp-internal.h](#).

8.266.1.115 #define CLASS\_NUMBER\_DISCOVERABLE\_ONLY

Definition at line 257 of file [rf4ce-gdp-internal.h](#).

8.266.1.116 #define CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_AS\_IS

Definition at line 260 of file [rf4ce-gdp-internal.h](#).

8.266.1.117 #define CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_RECLASSIFY

Definition at line 261 of file [rf4ce-gdp-internal.h](#).

8.266.1.118 #define CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_ABORT

Definition at line 262 of file [rf4ce-gdp-internal.h](#).

8.266.1.119 #define CLASS\_DESCRIPTOR\_DUPLICATE\_HANDLING\_RESERVED

Definition at line 263 of file [rf4ce-gdp-internal.h](#).

8.266.1.120 #define AS\_IS

Definition at line 266 of file [rf4ce-gdp-internal.h](#).

8.266.1.121 #define RECLASSIFY

Definition at line 267 of file [rf4ce-gdp-internal.h](#).

8.266.1.122 #define ABORT

Definition at line 268 of file [rf4ce-gdp-internal.h](#).

8.266.1.123 #define GDP\_VERSION\_NONE

Definition at line 270 of file [rf4ce-gdp-internal.h](#).

8.266.1.124 #define GDP\_VERSION\_1\_X

Definition at line 271 of file [rf4ce-gdp-internal.h](#).

8.266.1.125 #define GDP\_VERSION\_2\_0

Definition at line 272 of file [rf4ce-gdp-internal.h](#).

8.266.1.126 #define GDP\_1\_X\_BASED\_PROFILE\_ID\_LIST

Definition at line 276 of file [rf4ce-gdp-internal.h](#).

8.266.1.127 #define GDP\_1\_X\_BASED\_PROFILE\_ID\_LIST\_LENGTH

Definition at line 278 of file [rf4ce-gdp-internal.h](#).

8.266.1.128 #define GDP\_2\_0\_BASED\_PROFILE\_ID\_LIST

Definition at line 282 of file [rf4ce-gdp-internal.h](#).

8.266.1.129 #define GDP\_2\_0\_BASED\_PROFILE\_ID\_LIST\_LENGTH

Definition at line 284 of file [rf4ce-gdp-internal.h](#).

8.266.1.130 #define PUBLIC\_STATE\_MASK

Definition at line 336 of file [rf4ce-gdp-internal.h](#).

8.266.1.131 #define INTERNAL\_STATE\_MASK

Definition at line 337 of file [rf4ce-gdp-internal.h](#).

8.266.1.132 #define INTERNAL\_STATE\_OFFSET

Definition at line 338 of file [rf4ce-gdp-internal.h](#).

8.266.1.133 #define INTERNAL\_STATE\_NONE

Definition at line 341 of file [rf4ce-gdp-internal.h](#).

8.266.1.134 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_PUSH\_PENDING

Definition at line 343 of file [rf4ce-gdp-internal.h](#).

8.266.1.135 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_GET\_PENDING

Definition at line 344 of file [rf4ce-gdp-internal.h](#).

8.266.1.136 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_PULL\_PENDING

Definition at line 345 of file [rf4ce-gdp-internal.h](#).

8.266.1.137 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_CONFIG\_COMPLETE\_PENDING

Definition at line 346 of file [rf4ce-gdp-internal.h](#).

8.266.1.138 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_PROFILES\_CONFIG

Definition at line 347 of file [rf4ce-gdp-internal.h](#).

8.266.1.139 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_VALIDATION

Definition at line 348 of file [rf4ce-gdp-internal.h](#).

8.266.1.140 #define INTERNAL\_STATE\_ORIGINATOR\_GDP\_KEY\_EXCHANGE\_BLACKOUT\_PENDING

Definition at line 349 of file [rf4ce-gdp-internal.h](#).

8.266.1.141 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_STACK\_STATUS\_NETWORK\_UP\_PENDING

Definition at line 351 of file [rf4ce-gdp-internal.h](#).

8.266.1.142 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_RESTORE\_PAIRING\_ENTRY\_PENDING

Definition at line 352 of file [rf4ce-gdp-internal.h](#).

8.266.1.143 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_PUSH

Definition at line 353 of file [rf4ce-gdp-internal.h](#).

8.266.1.144 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_GET

Definition at line 354 of file [rf4ce-gdp-internal.h](#).

8.266.1.145 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_PULL

Definition at line 355 of file [rf4ce-gdp-internal.h](#).

8.266.1.146 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_CONFIG\_WAITING\_FOR\_COMPLETE

Definition at line 356 of file [rf4ce-gdp-internal.h](#).

8.266.1.147 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_PROFILES\_CONFIG

Definition at line 357 of file [rf4ce-gdp-internal.h](#).

8.266.1.148 #define INTERNAL\_STATE\_RECIPIENT\_GDP\_VALIDATION

Definition at line 358 of file [rf4ce-gdp-internal.h](#).

8.266.1.149 #define INTERNAL\_STATE\_GDP\_SECURITY\_KEY\_CHALLENGE\_PENDING

Definition at line 360 of file [rf4ce-gdp-internal.h](#).

8.266.1.150 #define INTERNAL\_STATE\_GDP\_SECURITY\_KEY\_CHALLENGE\_RESPONSE\_PENDING

Definition at line 361 of file [rf4ce-gdp-internal.h](#).

8.266.1.151 #define INTERNAL\_STATE\_GDP\_SECURITY\_KEY\_RESPONSE\_PENDING

Definition at line 362 of file [rf4ce-gdp-internal.h](#).

8.266.1.152 #define INTERNAL\_STATE\_GDP\_POLL\_CONFIG\_CLIENT\_PUSH\_PENDING

Definition at line 364 of file [rf4ce-gdp-internal.h](#).

8.266.1.153 #define INTERNAL\_STATE\_GDP\_POLL\_CONFIG\_CLIENT\_PULL\_PENDING

Definition at line 365 of file [rf4ce-gdp-internal.h](#).

8.266.1.154 #define INTERNAL\_STATE\_GDP\_IDENTIFICATION\_CLIENT\_PUSH\_PENDING

Definition at line 367 of file [rf4ce-gdp-internal.h](#).

8.266.1.155 #define INTERNAL\_STATE\_GDP\_POLL\_CLIENT\_HEARTBEAT\_PENDING

Definition at line 369 of file [rf4ce-gdp-internal.h](#).

8.266.1.156 #define publicBindState( )

Definition at line 371 of file [rf4ce-gdp-internal.h](#).

8.266.1.157 #define internalGdpState( )

Definition at line 372 of file [rf4ce-gdp-internal.h](#).

8.266.1.158 #define setPublicState( state, init )

Definition at line 375 of file [rf4ce-gdp-internal.h](#).

8.266.1.159 #define setInternalState( state )

Definition at line 389 of file [rf4ce-gdp-internal.h](#).

8.266.1.160 #define isInternalStateBindingOriginator( )

Definition at line 398 of file rf4ce-gdp-internal.h.

8.266.1.161 #define isInternalStateBindingRecipient( )

Definition at line 402 of file rf4ce-gdp-internal.h.

8.266.1.162 #define isInternalStateSecurity( )

Definition at line 406 of file rf4ce-gdp-internal.h.

8.266.1.163 #define isInternalStatePollNegotiation( )

Definition at line 410 of file rf4ce-gdp-internal.h.

8.266.1.164 #define isInternalStateIdentification( )

Definition at line 414 of file rf4ce-gdp-internal.h.

8.266.1.165 #define CANDIDATE\_INFO\_ENTRY\_IN\_USE\_BIT

Definition at line 419 of file rf4ce-gdp-internal.h.

8.266.1.166 #define CANDIDATE\_INFO\_ENTRY\_IN\_USE\_OFFSET

Definition at line 420 of file rf4ce-gdp-internal.h.

8.266.1.167 #define CANDIDATE\_INFO\_PAIRING\_ATTEMPTED\_BIT

Definition at line 421 of file rf4ce-gdp-internal.h.

8.266.1.168 #define CANDIDATE\_INFO\_PAIRING\_ATTEMPTED\_OFFSET

Definition at line 422 of file rf4ce-gdp-internal.h.

8.266.1.169 #define CANDIDATE\_INFO\_PROXY\_CANDIDATE\_BIT

Definition at line 423 of file rf4ce-gdp-internal.h.

8.266.1.170 #define CANDIDATE\_INFO\_PROXY\_CANDIDATE\_OFFSET

Definition at line 424 of file rf4ce-gdp-internal.h.

8.266.1.171 #define PAIRING\_ENTRY\_BINDING\_STATUS\_MASK

Definition at line 455 of file rf4ce-gdp-internal.h.

8.266.1.172 #define PAIRING\_ENTRY\_BINDING\_STATUS\_OFFSET

Definition at line 456 of file rf4ce-gdp-internal.h.

8.266.1.173 #define PAIRING\_ENTRY\_BINDING\_STATUS\_NOT\_BOUND

Definition at line 457 of file rf4ce-gdp-internal.h.

8.266.1.174 #define PAIRING\_ENTRY\_BINDING\_STATUS\_BOUND\_ORIGINATOR

Definition at line 458 of file rf4ce-gdp-internal.h.

8.266.1.175 #define PAIRING\_ENTRY\_BINDING\_STATUS\_BOUND\_RECIPIENT

Definition at line 459 of file rf4ce-gdp-internal.h.

8.266.1.176 #define PAIRING\_ENTRY\_BINDING\_COMPLETE\_BIT

Definition at line 460 of file rf4ce-gdp-internal.h.

8.266.1.177 #define PAIRING\_ENTRY\_BINDING\_COMPLETE\_OFFSET

Definition at line 461 of file rf4ce-gdp-internal.h.

8.266.1.178 #define PAIRING\_ENTRY\_POLLING\_ACTIVE\_BIT

Definition at line 462 of file rf4ce-gdp-internal.h.

8.266.1.179 #define PAIRING\_ENTRY\_POLLING\_ACTIVE\_OFFSET

Definition at line 463 of file rf4ce-gdp-internal.h.

8.266.1.180 #define PAIRING\_ENTRY\_IDENTIFICATION\_ACTIVE\_BIT

Definition at line 464 of file rf4ce-gdp-internal.h.

8.266.1.181 #define PAIRING\_ENTRY\_IDENTIFICATION\_ACTIVE\_OFFSET

Definition at line 465 of file rf4ce-gdp-internal.h.

8.266.1.182 #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_ENHANCED\_SECURITY\_BIT

Definition at line 466 of file [rf4ce-gdp-internal.h](#).

8.266.1.183 #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_ENHANCED\_SECURITY\_OFFSET

Definition at line 467 of file [rf4ce-gdp-internal.h](#).

8.266.1.184 #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_IDENTIFICATION\_BIT

Definition at line 468 of file [rf4ce-gdp-internal.h](#).

8.266.1.185 #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_IDENTIFICATION\_OFFSET

Definition at line 469 of file [rf4ce-gdp-internal.h](#).

8.266.1.186 #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_POLLING\_BIT

Definition at line 470 of file [rf4ce-gdp-internal.h](#).

8.266.1.187 #define PAIRING\_ENTRY\_REMOTE\_NODE\_SUPPORTS\_POLLING\_OFFSET

Definition at line 471 of file [rf4ce-gdp-internal.h](#).

8.266.1.188 #define emAfRf4ceGdplsBusy( )

Definition at line 485 of file [rf4ce-gdp-internal.h](#).

8.266.1.189 #define GDP\_SET\_VALUE\_BINDING\_ORIGINATOR\_PARAMETERS\_BYTES\_LENGTH

Definition at line 577 of file [rf4ce-gdp-internal.h](#).

8.266.1.190 #define GDP\_SET\_VALUE\_BINDING\_RECIPIENT\_PARAMETERS\_BYTES\_LENGTH

Definition at line 581 of file [rf4ce-gdp-internal.h](#).

8.266.1.191 #define GDP\_SET\_VALUE\_FLAG\_LENGTH

Definition at line 583 of file [rf4ce-gdp-internal.h](#).

8.266.1.192 #define emAfRf4ceGdpOutgoingCommandsSetPendingFlag( )

Definition at line 597 of file [rf4ce-gdp-internal.h](#).

8.266.1.193 `#define emAfRf4ceGdpOutgoingCommandsClearPendingFlag( )`

Definition at line 599 of file [rf4ce-gdp-internal.h](#).

8.266.1.194 `#define debugDiscoveryResponseDrop( reason )`

Definition at line 617 of file [rf4ce-gdp-internal.h](#).

8.266.1.195 `#define debugCandidateAdded( reason )`

Definition at line 618 of file [rf4ce-gdp-internal.h](#).

8.266.1.196 `#define debugScriptCheck( reason )`

Definition at line 619 of file [rf4ce-gdp-internal.h](#).

## 8.266.2 Function Documentation

8.266.2.1 `bool emAfIsProfileGdpBased ( uint8_t profileId, uint8_t gdpCheckVersion )`

8.266.2.2 `bool emAfRf4ceIsProfileSupported ( uint8_t profileId, const uint8_t * profileIdList, uint8_t profileIdListLength )`

8.266.2.3 `uint8_t emAfCheckDeviceTypeAndProfileIdMatch ( uint8_t checkDeviceType, uint8_t * compareDevTypeList, uint8_t compareDevTypeListLength, uint8_t * checkProfileIdList, uint8_t checkProfileIdListLength, uint8_t * compareProfileIdList, uint8_t compareProfileIdListLength, uint8_t * matchingProfileIdList )`

8.266.2.4 `bool emAfRf4ceGdpMaybeStartNextProfileSpecificConfigurationProcedure ( bool isOriginator, const uint8_t * remoteProfileIdList, uint8_t remoteProfileIdListLength )`

8.266.2.5 `void emAfRf4ceGdpNotifyBindingCompleteToProfiles ( EmberAfRf4ceGdpBindingStatus status, uint8_t pairingIndex, const uint8_t * remoteProfileIdList, uint8_t remoteProfileIdListLength )`

8.266.2.6 `EmberStatus emAfRf4ceGdpInitiateKeyExchangeInternal ( uint8_t pairingIndex, bool intCall )`

8.266.2.7 `void emAfRf4ceGdpNoteProfileSpecificConfigurationStart ( void )`

8.266.2.8 `void emAfGdpAddToProfileIdList ( uint8_t * srcProfileIdList, uint8_t srcProfileIdListLength, EmberRf4ceApplicationInfo * destApplInfo, uint8_t gdpVersion )`

8.266.2.9 `uint8_t emAfRf4ceGdpGetGdpVersion ( const uint8_t * profileIdList, uint8_t profileIdListLength )`

8.266.2.10 `void emAfRf4ceGdpRecipientInitCallback ( void )`

8.266.2.11 `void emAfRf4ceGdpOriginatorStackStatusCallback ( EmberStatus status )`

8.266.2.12 `void emAfRf4ceGdpRecipientStackStatusCallback ( EmberStatus status )`

- 8.266.2.13 void emAfRf4ceGdpUpdatePublicStatus ( bool *init* )
- 8.266.2.14 uint8\_t emAfRf4ceGdpGetPairingBindStatus ( uint8\_t *pairingIndex* )
- 8.266.2.15 void emAfRf4ceGdpSetPairingBindStatus ( uint8\_t *pairingIndex*, uint8\_t *status* )
- 8.266.2.16 void emAfRf4ceGdpGetPairingKey ( uint8\_t *pairingIndex*, EmberKeyData \* *key* )
- 8.266.2.17 void emAfRf4ceGdpSetPairingKey ( uint8\_t *pairingIndex*, EmberKeyData \* *key* )
- 8.266.2.18 bool emAfRf4ceGdpSecurityGetRandomString ( EmberAfRf4ceGdpRand \* *rn* )
- 8.266.2.19 void emAfRf4ceGdpSecurityValidationCompleteCallback ( uint8\_t *pairingIndex* )
- 8.266.2.20 void emAfRf4ceGdpAttributesInitCallback ( void )
- 8.266.2.21 void emAfRf4ceGdpIncomingGenericResponse ( EmberAfRf4ceGdpResponseCode *responseCode* )
- 8.266.2.22 void emAfRf4ceGdpIncomingConfigurationComplete ( EmberAfRf4ceGdpStatus *status* )
- 8.266.2.23 void emAfRf4ceGdpIncomingHeartbeat ( EmberAfRf4ceGdpHeartbeatTrigger *trigger* )
- 8.266.2.24 void emAfRf4ceGdpIncomingGetAttributes ( void )
- 8.266.2.25 void emAfRf4ceGdpIncomingGetAttributesResponse ( void )
- 8.266.2.26 void emAfRf4ceGdpIncomingPushAttributes ( void )
- 8.266.2.27 void emAfRf4ceGdpIncomingSetAttributes ( void )
- 8.266.2.28 void emAfRf4ceGdpIncomingPullAttributes ( void )
- 8.266.2.29 void emAfRf4ceGdpIncomingPullAttributesResponse ( void )
- 8.266.2.30 void emAfRf4ceGdpIncomingCheckValidationRequest ( uint8\_t *control* )
- 8.266.2.31 void emAfRf4ceGdpIncomingCheckValidationResponse ( EmberAfRf4ceGdpCheckValidationStatus *status* )
- 8.266.2.32 void emAfRf4ceGdpCheckValidationResponseSent ( EmberStatus *status* )
- 8.266.2.33 void emAfRf4ceGdpHeartbeatSent ( EmberStatus *status* )
- 8.266.2.34 void emAfRf4ceGdpIncomingKeyExchangeChallenge ( EmberAfRf4ceGdpKeyExchangeFlags *flags*, const EmberAfRf4ceGdpRand \* *randA* )
- 8.266.2.35 void emAfRf4ceGdpIncomingKeyExchangeChallengeResponse ( EmberAfRf4ceGdpKeyExchangeFlags *flags*, const EmberAfRf4ceGdpRand \* *randB*, const EmberAfRf4ceGdpTag \* *tagB* )

- 8.266.2.36 void emAfRf4ceGdpIncomingKeyExchangeResponse ( const EmberAfRf4ceGdpTag \* *tagA* )
- 8.266.2.37 void emAfRf4ceGdpKeyExchangeResponseSent ( EmberStatus *status* )
- 8.266.2.38 void emAfRf4ceGdpIncomingKeyExchangeConfirm ( bool *secured* )
- 8.266.2.39 void emAfRf4ceGdpIncomingClientNotification ( EmberAfRf4ceGdpClient-NotificationSubtype *subType*, const uint8\_t \* *clientNotificationPayload*, uint8\_t *clientNotificationPayloadLength* )
- 8.266.2.40 void emAfRf4ceZrcIncomingGenericResponse ( EmberAfRf4ceGdpResponseCode *responseCode* )
- 8.266.2.41 void emAfRf4ceZrcIncomingConfigurationComplete ( EmberAfRf4ceGdpStatus *status* )
- 8.266.2.42 void emAfRf4ceZrcIncomingGetAttributes ( void )
- 8.266.2.43 void emAfRf4ceZrcIncomingGetAttributesResponse ( void )
- 8.266.2.44 void emAfRf4ceZrcIncomingPushAttributes ( void )
- 8.266.2.45 void emAfRf4ceZrcIncomingSetAttributes ( void )
- 8.266.2.46 void emAfRf4ceZrcIncomingPullAttributes ( void )
- 8.266.2.47 void emAfRf4ceZrcIncomingPullAttributesResponse ( void )
- 8.266.2.48 void emAfRf4ceZrcIncomingClientNotification ( EmberAfRf4ceGdpClient-NotificationSubtype *subType*, const uint8\_t \* *clientNotificationPayload*, uint8\_t *clientNotificationPayloadLength* )
- 8.266.2.49 bool emAfRf4ceGdpHasAttributeRecord ( void )
- 8.266.2.50 bool emAfRf4ceGdpAppendAttributelIdentificationRecord ( const EmberAfRf4ceGdpAttributeIdentificationRecord \* *record* )
- 8.266.2.51 bool emAfRf4ceGdpFetchAttributelIdentificationRecord ( EmberAfRf4ceGdpAttribute-IdentificationRecord \* *record* )
- 8.266.2.52 bool emAfRf4ceGdpAppendAttributeStatusRecord ( const EmberAfRf4ceGdpAttribute-StatusRecord \* *record* )
- 8.266.2.53 bool emAfRf4ceGdpFetchAttributeStatusRecord ( EmberAfRf4ceGdpAttributeStatus-Record \* *record* )
- 8.266.2.54 bool emAfRf4ceGdpAppendAttributeRecord ( const EmberAfRf4ceGdpAttributeRecord \* *record* )
- 8.266.2.55 bool emAfRf4ceGdpFetchAttributeRecord ( EmberAfRf4ceGdpAttributeRecord \* *record* )
- 8.266.2.56 void emAfRf4ceGdpResetFetchAttributeFinger ( void )

- 8.266.2.57 void emAfRf4ceGdpStartAttributesCommand ( EmberAfRf4ceGdpCommandCode *commandCode* )
- 8.266.2.58 EmberStatus emAfRf4ceGdpSendAttributesCommand ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId* )
- 8.266.2.59 EmberStatus emAfRf4ceGdpSetDiscoveryResponseApplInfo ( bool *pushButton*, uint8\_t *gdpVersion* )
- 8.266.2.60 EmberStatus emAfRf4ceGdpSetPairResponseApplInfo ( const EmberRf4ceApplicationInfo \* *pairRequestApplInfo* )
- 8.266.2.61 EmberStatus emAfRf4ceGdpSendProfileSpecificCommand ( uint8\_t *pairingIndex*, uint8\_t *profileId*, uint16\_t *vendorId*, EmberRf4ceTxOption *txOptions*, uint8\_t *commandId*, uint8\_t \* *commandPayload*, uint8\_t *commandPayloadLength*, uint8\_t \* *messageTag* )
- 8.266.2.62 EmberStatus emAfRf4ceGdpKeyExchangeChallenge ( uint8\_t *pairingIndex*, uint16\_t *vendorId*, EmberAfRf4ceGdpKeyExchangeFlags *flags*, const EmberAfRf4ceGdpRand \* *randA* )
- 8.266.2.63 EmberStatus emAfRf4ceGdpKeyExchangeChallengeResponse ( uint8\_t *pairingIndex*, uint16\_t *vendorId*, EmberAfRf4ceGdpKeyExchangeFlags *flags*, const EmberAfRf4ceGdpRand \* *randB*, const EmberAfRf4ceGdpTag \* *tagB* )
- 8.266.2.64 EmberStatus emAfRf4ceGdpKeyExchangeResponse ( uint8\_t *pairingIndex*, uint16\_t *vendorId*, const EmberAfRf4ceGdpTag \* *tagA* )
- 8.266.2.65 EmberStatus emAfRf4ceGdpKeyExchangeConfirm ( uint8\_t *pairingIndex*, uint16\_t *vendorId* )
- 8.266.2.66 void emAfRf4ceGdpSetPushButtonPendingReceivedFlag ( bool *set* )
- 8.266.2.67 void emAfRf4ceGdpSetProxyBindingFlag ( bool *set* )
- 8.266.2.68 void emAfGdpStartBlackoutTimer ( uint8\_t *state* )
- 8.266.2.69 void emAfGdpStartCommandPendingTimer ( uint8\_t *state*, uint16\_t *timeMs* )

### 8.266.3 Variable Documentation

- 8.266.3.1 const uint8\_t emAfRf4ceGdpApplicationSpecificUserString[USER\_STRING\_APPLICATION\_SPECIFIC\_USER\_STRING\_LENGTH]
- 8.266.3.2 const uint8\_t emAfGdp1xProfiles[]
- 8.266.3.3 const uint8\_t emAfGdp20Profiles[]
- 8.266.3.4 uint8\_t emAfTemporaryPairingIndex
- 8.266.3.5 uint8\_t emAfCurrentProfileSpecificIndex
- 8.266.3.6 uint16\_t emAfGdpState
- 8.266.3.7 uint32\_t emberAfPluginRf4ceGdpCapabilities

### 8.266.3.8 EmberEventControl emberAfPluginRf4ceGdpPendingCommandEventControl

### 8.266.3.9 EmberEventControl emberAfPluginRf4ceGdpBlackoutTimeEventControl

### 8.266.3.10 EmberEventControl emberAfPluginRf4ceGdpValidationEventControl

### 8.266.3.11 EmAfBindingInfo emAfGdpPeerInfo

### 8.266.3.12 uint8\_t emAfRf4ceGdpOutgoingCommandFrameControl

## 8.267 rf4ce-gdp-internal.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #define NWK_DISCOVERY_REPEAT_INTERVAL_MS 500
00004 #define NWK_MAX_DISCOVERY_REPETITIONS 2
00005 #define NWK_MAX_REPORTED_NODE_DESCRIPTORS 0xFF
00006
00007 // TODO: according to the specs, this parameter is implementation specific,
00008 // therefore it will eventually become one of the plugin options.
00009 #define NWK_DISCOVERY_LQI_THRESHOLD 0x01
00010
00011 // TODO: according to the specs, this value defaults to 3, however it can still
00012 // be configured by the application, therefore it will eventually become one of
00013 // the plugin options.
00014 #define APL_MAX_PAIRING_CANDIDATES 3
00015
00016 // The length of time after completing the pairing procedure or a configuration
00017 // phase of a profile during which no packets shall be sent to allow the remote
00018 // nodes to perform internal housekeeping tasks.
00019 #define APLC_CONFIG_BLACKOUT_TIME_MS 100
00020
00021 #define BLACKOUT_TIME_DELTA_MS 5
00022
00023 // At the originator the blackout time is increased by a delta value, to ensure
00024 // that the recipient is already on listening for packets.
00025 #define BLACKOUT_TIME_ORIGINATOR_MS (APLC_CONFIG_BLACKOUT_TIME_MS +
    BLACKOUT_TIME_DELTA_MS)
00026 // At the recipient the blackout time is reduced by a delta value, to ensure
00027 // that we are listening for incoming packets from the originator.
00028 #define BLACKOUT_TIME_RECIPIENT_MS (APLC_CONFIG_BLACKOUT_TIME_MS -
    BLACKOUT_TIME_DELTA_MS)
00029
00030 // The duration of the binding window. On a Binding Originator, section 7.2.1
00031 // describes how this constant is used. On the Binding Recipient, section
00032 // 7.2.3.2 describes how this constant is used.
00033 #define APLC_BIND_WINDOW_DURATION_MS (30 * MILLISECOND_TICKS_PER_SECOND)
00034
00035 // The maximum allowed value for the aplMaxAutoCheckValidationPeriod attribute.
00036 #define APLC_MAX_AUTO_CHECK_VALIDATION_PERIOD_MS (10 *
    MILLISECOND_TICKS_PER_SECOND)
00037
00038 // The maximum time the Binding Recipient shall wait to receive a command frame
00039 // from a Binding Originator during its configuration phase.
00040 #define APLC_MAX_CONFIG_WAIT_TIME_MS 100
00041
00042 // The maximal time the validation can take in normal validation mode (see
00043 // section 7.2.7).
00044 #define APLC_MAX_NORMAL_VALIDATION_DURATION_MS 25000
00045
00046 // The maximal time the validation can take in extended validation mode (see
00047 // section 7.2.7).
00048 #define APLC_MAX_EXTENDED_VALIDATION_DURATION_MS 65000
00049
00050 // The maximum allowed value to configure the polling timeout in the
00051 // aplPollConfiguration attribute.
00052 #define APLC_MAX_POLLING_TIMEOUT_MS 100
00053
00054 // The maximum time a node shall leave its receiver on in order to receive data
00055 // indicated via the data pending subfield of the frame control field of an
00056 // incoming frame.
00057 #define APLC_MAX_RX_ON_WAIT_TIME_MS 100
00058

```

```

00059 // The maximum time a node shall wait for a response command frame following a
00060 // request command frame.
00061 #define APLC_MAX_RESPONSE_WAIT_TIME_MS 100
00062
00063 // The minimum value of the KeyExchangeTransferCount parameter passed to the
00064 // pair request primitive during the validation based pairing procedure.
00065 #define APLC_MIN_KEY_EXCHANGE_TRANSFER_COUNT 3
00066
00067 // GDP header
00068 // - Frame control (1 byte)
00069 #define GDP_HEADER_LENGTH 1
00070 #define GDP_HEADER_FRAME_CONTROL_OFFSET 0
00071 #define GDP_HEADER_FRAME_CONTROL_COMMAND_CODE_MASK 0x0F
00072 #define GDP_HEADER_FRAME_CONTROL_GDP_COMMAND_FRAME_MASK 0x40
00073 #define GDP_HEADER_FRAME_CONTROL_DATA_PENDING_MASK 0x80
00074 #define GDP_PAYLOAD_OFFSET 1
00075
00076 // Generic Response
00077 // - Response code (1 byte)
00078 #define GENERIC_RESPONSE_LENGTH (GDP_HEADER_LENGTH + 1)
00079 #define GENERIC_RESPONSE_RESPONSE_CODE_OFFSET (GDP_HEADER_LENGTH)
00080
00081 // Configuration Complete
00082 // - Status (1 byte)
00083 #define CONFIGURATION_COMPLETE_LENGTH (GDP_HEADER_LENGTH + 1)
00084 #define CONFIGURATION_COMPLETE_STATUS_OFFSET (GDP_HEADER_LENGTH)
00085
00086 // Heartbeat
00087 // - Trigger (1 byte)
00088 #define HEARTBEAT_LENGTH (GDP_HEADER_LENGTH + 1)
00089 #define HEARTBEAT_TRIGGER_OFFSET (GDP_HEADER_LENGTH)
00090
00091 // Get Attributes
00092 // - Attribute identification record (1/3 bytes)
00093 // - Attribute identifier (1 byte)
00094 // - Entry identifier (0/2 bytes)
00095 // ...
00096 #define GET_ATTRIBUTES_LENGTH (GDP_HEADER_LENGTH + 1)
00097
00098 // Get Attributes Response
00099 // - Attribute status record (n bytes)
00100 // - Attribute identifier (1 byte)
00101 // - Entry identifier (0/2 bytes)
00102 // - Attribute status (1 byte)
00103 // - Attribute length (0/1 byte)
00104 // - Attribute value (n bytes)
00105 // ...
00106 #define GET_ATTRIBUTES_RESPONSE_LENGTH (GDP_HEADER_LENGTH + 2)
00107
00108 // Push Attributes
00109 // - Attribute record (n bytes)
00110 // - Attribute identifier (1 byte)
00111 // - Entry identifier (0/2 bytes)
00112 // - Attribute length (1 byte)
00113 // - Attribute value (n bytes)
00114 // ...
00115 #define PUSH_ATTRIBUTES_LENGTH (GDP_HEADER_LENGTH + 2)
00116
00117 // Set Attributes
00118 // - Attribute record (n bytes)
00119 // - Attribute identifier (1 byte)
00120 // - Entry identifier (0/2 bytes)
00121 // - Attribute length (1 byte)
00122 // - Attribute value (n bytes)
00123 // ...
00124 #define SET_ATTRIBUTES_LENGTH (GDP_HEADER_LENGTH + 2)
00125
00126 // Pull Attributes
00127 // - Attribute identification record (1/3 bytes)
00128 // - Attribute identifier (1 byte)
00129 // - Entry identifier (0/2 bytes)
00130 // ...
00131 #define PULL_ATTRIBUTES_LENGTH (GDP_HEADER_LENGTH + 1)
00132
00133 // Pull Attributes Response
00134 // - Attribute record (n bytes)
00135 // - Attribute identifier (1 byte)
00136 // - Entry identifier (0/2 bytes)
00137 // - Attribute status (1 byte)
00138 // - Attribute length (0/1 byte)

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00139 // - Attribute value (n bytes)
00140 // - ...
00141 #define PULL_ATTRIBUTES_RESPONSE_LENGTH (GDP_HEADER_LENGTH + 2)
00142
00143 // Check Validation
00144 // - Check validation subtype (1 byte)
00145 // - Check validation payload (n bytes)
00146 #define CHECK_VALIDATION_LENGTH (GDP_HEADER_LENGTH + 1)
00147 #define CHECK_VALIDATION_SUBTYPE_OFFSET (GDP_HEADER_LENGTH)
00148 #define CHECK_VALIDATION_PAYLOAD_OFFSET (GDP_HEADER_LENGTH + 1)
00149 #define CHECK_VALIDATION_SUBTYPE_REQUEST_LENGTH (GDP_HEADER_LENGTH + 2)
00150 #define CHECK_VALIDATION_SUBTYPE_REQUEST_CONTROL_OFFSET (GDP_HEADER_LENGTH + 1)
00151 #define CHECK_VALIDATION_SUBTYPE_RESPONSE_LENGTH (GDP_HEADER_LENGTH + 2)
00152 #define CHECK_VALIDATION_SUBTYPE_RESPONSE_STATUS_OFFSET (GDP_HEADER_LENGTH + 1)
00153
00154 // Client Notification
00155 // - Client notification subtype (1 byte)
00156 // - Client notification payload (n bytes)
00157 #define CLIENT_NOTIFICATION_LENGTH (GDP_HEADER_LENGTH + 1)
00158 #define CLIENT_NOTIFICATION_SUBTYPE_OFFSET (GDP_HEADER_LENGTH)
00159 #define CLIENT_NOTIFICATION_PAYLOAD_OFFSET (GDP_HEADER_LENGTH + 1)
00160 #define CLIENT_NOTIFICATION_SUBTYPE_IDENTITY_LENGTH (GDP_HEADER_LENGTH + 4)
00161 #define CLIENT_NOTIFICATION_SUBTYPE_IDENTITY_PAYLOAD_LENGTH 3
00162 #define CLIENT_NOTIFICATION_SUBTYPE_IDENTITY_PAYLOAD_FLAGS_OFFSET 0
00163 #define CLIENT_NOTIFICATION_SUBTYPE_IDENTITY_PAYLOAD_TIME_OFFSET 1
00164 #define CLIENT_NOTIFICATION_SUBTYPE_REQUEST_POLL_NEGOTIATION_LENGTH (GDP_HEADER_LENGTH + 1)
00165 #define CLIENT_NOTIFICATION_SUBTYPE_REQUEST_POLL_NEGOTIATION_PAYLOAD_LENGTH 0
00166
00167 // Key Exchange
00168 // - Key exchange subtype (1 byte)
00169 // - Key exchange payload (n bytes)
00170 #define KEY_EXCHANGE_LENGTH (GDP_HEADER_LENGTH + 1)
00171 #define KEY_EXCHANGE_SUBTYPE_OFFSET (GDP_HEADER_LENGTH)
00172 #define KEY_EXCHANGE_PAYLOAD_OFFSET (GDP_HEADER_LENGTH + 1)
00173 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_LENGTH (GDP_HEADER_LENGTH + 11)
00174 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_FLAGS_OFFSET (GDP_HEADER_LENGTH + 1)
00175 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_RAND_A_OFFSET (GDP_HEADER_LENGTH + 3)
00176 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_RESPONSE_LENGTH (GDP_HEADER_LENGTH + 15)
00177 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_RESPONSE_FLAGS_OFFSET (GDP_HEADER_LENGTH + 1)
00178 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_RESPONSE_RAND_B_OFFSET (GDP_HEADER_LENGTH + 3)
00179 #define KEY_EXCHANGE_SUBTYPE_CHALLENGE_RESPONSE_TAG_B_OFFSET (GDP_HEADER_LENGTH + 11)
00180 #define KEY_EXCHANGE_SUBTYPE_RESPONSE_LENGTH (GDP_HEADER_LENGTH + 5)
00181 #define KEY_EXCHANGE_SUBTYPE_RESPONSE_TAG_A_OFFSET (GDP_HEADER_LENGTH + 1)
00182 #define KEY_EXCHANGE_SUBTYPE_CONFIRM_LENGTH (GDP_HEADER_LENGTH + 1)
00183
00184 #define COMMAND_CODE_MAXIMUM EMBER_AF_RF4CE_GDP_COMMAND_KEY_EXCHANGE
00185
00186 // GDP capabilities
00187 #define GDP_CAPABILITIES_SUPPORT_EXTENDED_VALIDATION_BIT 0x00000001
00188 #define GDP_CAPABILITIES_SUPPORT_EXTENDED_VALIDATION_OFFSET 0
00189 #define GDP_CAPABILITIES_SUPPORT_POLL_SERVER_BIT 0x00000002
00190 #define GDP_CAPABILITIES_SUPPORT_POLL_SERVER_OFFSET 1
00191 #define GDP_CAPABILITIES_SUPPORT_POLL_CLIENT_BIT 0x00000004
00192 #define GDP_CAPABILITIES_SUPPORT_POLL_CLIENT_OFFSET 2
00193 #define GDP_CAPABILITIES_SUPPORT_IDENTIFICATION_SERVER_BIT 0x00000008
00194 #define GDP_CAPABILITIES_SUPPORT_IDENTIFICATION_SERVER_OFFSET 3
00195 #define GDP_CAPABILITIES_SUPPORT_IDENTIFICATION_CLIENT_BIT

```

```

0x00000010
00196 #define GDP_CAPABILITIES_SUPPORT_IDENTIFICATION_CLIENT_OFFSET 4
00197 #define GDP_CAPABILITIES_SUPPORT_ENHANCED_SECURITY_BIT
0x00000020
00198 #define GDP_CAPABILITIES_SUPPORT_ENHANCED_SECURITY_OFFSET 5
00199 #define GDP_CAPABILITIES_SUPPORT_SHARED_SECRET_OF_LOCAL_VENDOR_BIT
0x00000040
00200 #define GDP_CAPABILITIES_SUPPORT_SHARED_SECRET_OF_LOCAL_VENDOR_OFFSET 6
00201 #define GDP_CAPABILITIES_SUPPORT_SHARED_SECRET_OF_REMOTE_VENDOR_BIT
0x00000080
00202 #define GDP_CAPABILITIES_SUPPORT_SHARED_SECRET_OF_REMOTE_VENDOR_OFFSET 7
00203
00204 // Bits 8-31 are reserved
00205
00206 #define GDP_STANDARD_SHARED_SECRET {0x00, 0x11, 0x22, 0x33, 0x44, 0x55, 0x66,
00207 \
00208 \
00209 #define GDP_SHARED_SECRET_SIZE 16
00210
00211 // Application specific user string.
00212 #define USER_STRING_APPLICATION_SPECIFIC_USER_STRING_OFFSET 0
00213 #define USER_STRING_APPLICATION_SPECIFIC_USER_STRING_LENGTH 8
00214
00215 extern const uint8_t emAfRf4ceGdpApplicationSpecificUserString
[USER_STRING_APPLICATION_SPECIFIC_USER_STRING_LENGTH
];
00216
00217 // Null byte delimiter
00218 #define USER_STRING_NULL_BYTE_OFFSET 8
00219
00220 // Discovery request user string bytes.
00221 #define USER_STRING_DISC_REQUEST_VENDOR_ID_FILTER_OFFSET 9
00222 #define USER_STRING_DISC_REQUEST_VENDOR_ID_FILTER_LENGTH 2
00223 #define USER_STRING_DISC_REQUEST_MIN_MAX_CLASS_FILTER_OFFSET 11
00224 #define USER_STRING_DISC_REQUEST_MIN_MAX_CLASS_FILTER_MIN_CLASS_NUM_MASK
0x0F
00225 #define USER_STRING_DISC_REQUEST_MIN_MAX_CLASS_FILTER_MIN_CLASS_NUM_OFFSET 0
00226 #define USER_STRING_DISC_REQUEST_MIN_MAX_CLASS_FILTER_MAX_CLASS_NUM_MASK
0xFO
00227 #define USER_STRING_DISC_REQUEST_MIN_MAX_CLASS_FILTER_MAX_CLASS_NUM_OFFSET 4
00228 #define USER_STRING_DISC_REQUEST_MIN_LQI_FILTER_OFFSET 12
00229 #define USER_STRING_DISC_REQUEST_RESERVED_BYTES_OFFSET 13
00230 #define USER_STRING_DISC_REQUEST_RESERVED_BYTES_LENGTH 2
00231
00232 // Discovery response user string bytes.
00233 #define USER_STRING_DISC_RESPONSE_RESERVED_BYTES_OFFSET 9
00234 #define USER_STRING_DISC_RESPONSE_RESERVED_BYTES_LENGTH 2
00235 #define USER_STRING_DISC_RESPONSE_TERTIARY_CLASS_DESCRIPTOR_OFFSET 11
00236 #define USER_STRING_DISC_RESPONSE_SECONDARY_CLASS_DESCRIPTOR_OFFSET 12
00237 #define USER_STRING_DISC_RESPONSE_PRIMARY_CLASS_DESCRIPTOR_OFFSET 13
00238 #define USER_STRING_DISC_RESPONSE_DISCOVERY_LQI_THRESHOLD_OFFSET 14
00239 #define USER_STRING_PAIR_REQUEST_ADVANCED_BINDING_SUPPORT_OFFSET 9
00240 #define USER_STRING_PAIR_REQUEST_RESERVED_BYTES_OFFSET 10
00241 #define USER_STRING_PAIR_REQUEST_RESERVED_BYTES_LENGTH 5
00242
00243 // Advanced binding support field
00244 #define ADVANCED_BINDING_SUPPORT_FIELD_BINDING_PROXY_SUPPORTED_BIT
0x01
00245 // Bits 1-7 are reserved
00246
00247 // Class descriptor
00248 #define CLASS_DESCRIPTOR_NUMBER_MASK
0x0F
00249 #define CLASS_DESCRIPTOR_NUMBER_OFFSET 0
00250 #define CLASS_DESCRIPTOR_DUPLICATE_HANDLING_MASK
0x30
00251 #define CLASS_DESCRIPTOR_DUPLICATE_HANDLING_OFFSET 4
00252 #define CLASS_DESCRIPTOR_RESERVED_MASK
0xC0
00253 // Class numbers.
00254 #define CLASS_NUMBER_PRE_COMMISSIONED
0x00
00255 #define CLASS_NUMBER_BUTTON_PRESS_INDICATION
0x01
00256 // Values 0x2-0xE are implementation specific.
00257 #define CLASS_NUMBER_DISCOVERABLE_ONLY
0x0F
00258

```

```

00259 // Class descriptor duplicate handling criteria.
00260 #define CLASS_DESCRIPTOR_DUPLICATE_HANDLING_AS_IS
00261     0x00
00261 #define CLASS_DESCRIPTOR_DUPLICATE_HANDLING_RECLASSIFY
00262     0x01
00262 #define CLASS_DESCRIPTOR_DUPLICATE_HANDLING_ABORT
00263     0x02
00263 #define CLASS_DESCRIPTOR_DUPLICATE_HANDLING_RESERVED
00264     0x03
00264
00265 // These are used in App Builder.
00266 #define AS_IS          CLASS_DESCRIPTOR_DUPLICATE_HANDLING_AS_IS
00267 #define RECLASSIFY      CLASS_DESCRIPTOR_DUPLICATE_HANDLING_RECLASSIFY
00268 #define ABORT          CLASS_DESCRIPTOR_DUPLICATE_HANDLING_ABORT
00269
00270 #define GDP_VERSION_NONE    0x00
00271 #define GDP_VERSION_1_X     0x01
00272 #define GDP_VERSION_2_0     0x02
00273
00274 // For now the only GDP 1.x based profile is ZID
00275 // When adding new profile IDs to this list, make sure the list stays sorted.
00276 #define GDP_1_X_BASED_PROFILE_ID_LIST
00276 \
00277     {EMBER_AF_RF4CE_PROFILE_INPUT_DEVICE_1_0}
00278 #define GDP_1_X_BASED_PROFILE_ID_LIST_LENGTH           1
00279
00280 // For now the only GDP 2.0 based profile is ZRC 2.0
00281 // When adding new profile IDs to this list, make sure the list stays sorted.
00282 #define GDP_2_0_BASED_PROFILE_ID_LIST
00282 \
00283     {EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_2_0}
00284 #define GDP_2_0_BASED_PROFILE_ID_LIST_LENGTH           1
00285
00286 extern const uint8_t emAfGdp1xProfiles[];
00287 extern const uint8_t emAfGdp20Profiles[];
00288
00289 bool emAfIsProfileGdpBased(uint8_t profileId, uint8_t
00290                               gdpCheckVersion);
00290
00291 bool emAfRf4ceIsProfileSupported(uint8_t profileId,
00292                                     const uint8_t *profileIdList,
00293                                     uint8_t profileIdListLength);
00294
00295 uint8_t emAfCheckDeviceTypeAndProfileIdMatch
00295     (uint8_t checkDeviceType,
00296      uint8_t *compareDevTypeList,
00297      uint8_t compareDevTypeListLength,
00298      uint8_t *checkProfileIdList,
00299      uint8_t checkProfileIdListLength,
00300      uint8_t *compareProfileIdList,
00301      uint8_t compareProfileIdListLength,
00302      uint8_t *matchingProfileIdList);
00303
00304 bool emAfRf4ceGdpMaybeStartNextProfileSpecificConfigurationProcedure
00304     (bool isOriginator,
00305      const
00305      uint8_t *remoteProfileIdList,
00306      uint8_t remoteProfileIdListLength);
00307
00308 void emAfRf4ceGdpNotifyBindingCompleteToProfiles
00308     (EmberAfRf4ceGdpBindingStatus status,
00309      const uint8_t *
00310      remoteProfileIdList,
00311      uint8_t
00312      remoteProfileIdListLength);
00313 EmberStatus emAfRf4ceGdpInitiateKeyExchangeInternal
00313     (uint8_t pairingIndex,
00314      bool intCall);
00315
00316 void emAfRf4ceGdpNoteProfileSpecificConfigurationStart
00316     (void);
00317
00318 void emAfGdpAddToProfileIdList(uint8_t *
00318     srcProfileIdList,
00319     uint8_t srcProfileIdListLength,
00320     EmberRf4ceApplicationInfo *destAppInfo,
00321     uint8_t gdpVersion);

```

```

00322
00323 uint8_t emAfRf4ceGdpGetGdpVersion(const uint8_t *
00324     profileIdList,
00325                 uint8_t profileIdListLength);
00326 extern uint8_t emAfTemporaryPairingIndex;
00327 extern uint8_t emAfCurrentProfileSpecificIndex;
00328 extern uint16_t emAfGdpState;
00329 extern uint32_t emberAfPluginRf4ceGdpCapabilities
00330 ;
00330 extern EmberEventControl
00331     emberAfPluginRf4ceGdpPendingCommandEventControl
00331 ;
00331 extern EmberEventControl
00332     emberAfPluginRf4ceGdpBlackoutTimeEventControl
00332 ;
00332 extern EmberEventControl
00333     emberAfPluginRf4ceGdpValidationEventControl
00333 ;
00333
00334 // We use the emAfGdpState to store both the public (dormant, not-bound,
00335 // binding and bound) state and the internal states.
00336 #define PUBLIC_STATE_MASK 0x03
00337 #define INTERNAL_STATE_MASK 0xFFFF
00338 #define INTERNAL_STATE_OFFSET 2
00339
00340 // Internal states
00341 #define INTERNAL_STATE_NONE (0x00 <<
00341     INTERNAL_STATE_OFFSET)
00342 // Originator binding states
00343 #define INTERNAL_STATE_ORIGINATOR_GDP_CONFIG_PUSH_PENDING (0x01 <<
00343     INTERNAL_STATE_OFFSET)
00344 #define INTERNAL_STATE_ORIGINATOR_GDP_CONFIG_GET_PENDING (0x02 <<
00344     INTERNAL_STATE_OFFSET)
00345 #define INTERNAL_STATE_ORIGINATOR_GDP_CONFIG_PULL_PENDING (0x03 <<
00345     INTERNAL_STATE_OFFSET)
00346 #define INTERNAL_STATE_ORIGINATOR_GDP_CONFIG_COMPLETE_PENDING (0x04 <<
00346     INTERNAL_STATE_OFFSET)
00347 #define INTERNAL_STATE_ORIGINATOR_GDP_PROFILES_CONFIG (0x05 <<
00347     INTERNAL_STATE_OFFSET)
00348 #define INTERNAL_STATE_ORIGINATOR_GDP_VALIDATION (0x06 <<
00348     INTERNAL_STATE_OFFSET)
00349 #define INTERNAL_STATE_ORIGINATOR_GDP_KEY_EXCHANGE_BLACKOUT_PENDING (0x07 <<
00349     INTERNAL_STATE_OFFSET)
00350 // Recipient binding states
00351 #define INTERNAL_STATE_RECIPIENT_GDP_STACK_STATUS_NETWORK_UP_PENDING (0x08 <<
00351     INTERNAL_STATE_OFFSET)
00352 #define INTERNAL_STATE_RECIPIENT_GDP_RESTORE_PAIRING_ENTRY_PENDING (0x09 <<
00352     INTERNAL_STATE_OFFSET)
00353 #define INTERNAL_STATE_RECIPIENT_GDP_CONFIG_WAITING_FOR_PUSH (0x0A <<
00353     INTERNAL_STATE_OFFSET)
00354 #define INTERNAL_STATE_RECIPIENT_GDP_CONFIG_WAITING_FOR_GET (0x0B <<
00354     INTERNAL_STATE_OFFSET)
00355 #define INTERNAL_STATE_RECIPIENT_GDP_CONFIG_WAITING_FOR_PULL (0x0C <<
00355     INTERNAL_STATE_OFFSET)
00356 #define INTERNAL_STATE_RECIPIENT_GDP_CONFIG_WAITING_FOR_COMPLETE (0x0D <<
00356     INTERNAL_STATE_OFFSET)
00357 #define INTERNAL_STATE_RECIPIENT_GDP_PROFILES_CONFIG (0x0E <<
00357     INTERNAL_STATE_OFFSET)
00358 #define INTERNAL_STATE_RECIPIENT_GDP_VALIDATION (0x0F <<
00358     INTERNAL_STATE_OFFSET)
00359 // Security key exchange procedure states
00360 #define INTERNAL_STATE_GDP_SECURITY_KEY_CHALLENGE_PENDING (0x10 <<
00360     INTERNAL_STATE_OFFSET)
00361 #define INTERNAL_STATE_GDP_SECURITY_KEY_CHALLENGE_RESPONSE_PENDING (0x11 <<
00361     INTERNAL_STATE_OFFSET)
00362 #define INTERNAL_STATE_GDP_SECURITY_KEY_RESPONSE_PENDING (0x12 <<
00362     INTERNAL_STATE_OFFSET)
00363 // Poll negotiation procedure states
00364 #define INTERNAL_STATE_GDP_POLL_CONFIG_CLIENT_PUSH_PENDING (0x13 <<
00364     INTERNAL_STATE_OFFSET)
00365 #define INTERNAL_STATE_GDP_POLL_CONFIG_CLIENT_PULL_PENDING (0x14 <<
00365     INTERNAL_STATE_OFFSET)
00366 // Identification procedure states
00367 #define INTERNAL_STATE_GDP_IDENTIFICATION_CLIENT_PUSH_PENDING (0x15 <<
00367     INTERNAL_STATE_OFFSET)
00368 // Poll states
00369 #define INTERNAL_STATE_GDP_POLL_CLIENT_HEARTBEAT_PENDING (0x16 <<
00369     INTERNAL_STATE_OFFSET)
00370

```

```

00371 #define publicBindState()      (emAfGdpState & PUBLIC_STATE_MASK)
00372 #define internalGdpState()    (emAfGdpState & INTERNAL_STATE_MASK)
00373
00374 // Setting the public state clears the internal state (implicitly set to NONE).
00375 #define setPublicState(state, init)
00376 \
00377     do {
00378 \
00379         emAfGdpState = (state);
00380 \
00381         if (!init) {
00382 \
00383             emberAfRf4ceRxEnable(EMBER_AF_RF4CE_PROFILE_GENERIC_DEVICE, false);
00384 \
00385         }
00386 \
00387     } while(0)
00388
00389 // For any state other than NONE we keep the receiver ON.
00390 // The "STACK_STATUS_NETWORK_UP_PENDING" is a special state that is set in the
00391 // init function at the recipient. Since we can not control the order of the
00392 // plugin init functions calls, we might end up calling the RxEnable before the
00393 // profile plugin has been initialized. For this reason, we don't call the
00394 // RxEnable() in this state.
00395 #define setInternalState(state)
00396 \
00397     do {
00398 \
00399         emAfGdpState = ((emAfGdpState & PUBLIC_STATE_MASK) | (state));
00400 \
00401         if ((state) != INTERNAL_STATE_RECIPIENT_GDP_STACK_STATUS_NETWORK_UP_PENDING) { \
00402             emberAfRf4ceRxEnable(EMBER_AF_RF4CE_PROFILE_GENERIC_DEVICE,
00403 \
00404                 ((state) != INTERNAL_STATE_NONE));
00405 \
00406     } while(0)
00407
00408 #define isInternalStateBindingOriginator()
00409 \
00410     (internalGdpState() >= INTERNAL_STATE_ORIGINATOR_GDP_CONFIG_PUSH_PENDING \
00411     && internalGdpState() <=
00412         INTERNAL_STATE_ORIGINATOR_GDP_KEY_EXCHANGE_BLACKOUT_PENDING)
00413
00414 #define isInternalStateBindingRecipient()
00415 \
00416     (internalGdpState() >=
00417         INTERNAL_STATE_RECIPIENT_GDP_STACK_STATUS_NETWORK_UP_PENDING \
00418     && internalGdpState() <= INTERNAL_STATE_RECIPIENT_GDP_VALIDATION)
00419
00420 #define isInternalStateSecurity()
00421 \
00422     (internalGdpState() >= INTERNAL_STATE_GDP_SECURITY_KEY_CHALLENGE_PENDING \
00423     && internalGdpState() <= INTERNAL_STATE_GDP_SECURITY_KEY_RESPONSE_PENDING)
00424
00425 #define isInternalStatePollNegotiation()
00426 \
00427     (internalGdpState() >= INTERNAL_STATE_GDP_POLL_CONFIG_CLIENT_PUSH_PENDING \
00428     && internalGdpState() <= INTERNAL_STATE_GDP_POLL_CONFIG_CLIENT_PULL_PENDING)
00429
00430 #define isInternalStateIdentification()
00431 \
00432     (internalGdpState() == INTERNAL_STATE_GDP_IDENTIFICATION_CLIENT_PUSH_PENDING)
00433
00434 // Pairing candidate info byte.
00435
00436 #define CANDIDATE_INFO_ENTRY_IN_USE_BIT          0x01
00437 #define CANDIDATE_INFO_ENTRY_IN_USE_OFFSET        0
00438 #define CANDIDATE_INFO_PAIRING_ATTEMPTED_BIT      0x02
00439 #define CANDIDATE_INFO_PAIRING_ATTEMPTED_OFFSET   1
00440 #define CANDIDATE_INFO_PROXY_CANDIDATE_BIT        0x04
00441 #define CANDIDATE_INFO_PROXY_CANDIDATE_OFFSET      2
00442
00443 typedef struct {
00444     EmberEUI64 ieeeAddr;

```

```

00428     EmberPanId panId;
00429     uint8_t supportedProfiles[EMBER_RF4CE_APPLICATION_PROFILE_ID_LIST_MAX_LENGTH]
00430     ;
00430     uint8_t supportedProfilesLength;
00431     uint8_t channel;
00432     uint8_t primaryClassDescriptor;
00433     uint8_t secondaryClassDescriptor;
00434     uint8_t tertiaryClassDescriptor;
00435     uint8_t rxLqi;
00436     uint8_t info;
00437 } EmAfGdpPairingCandidat;
00438
00439 typedef struct {
00440     EmberEUI64 srcIEEEAddr;
00441     uint8_t nodeCapabilities;
00442     EmberRf4ceVendorInfo vendorInfo;
00443     EmberRf4ceApplicationInfo appInfo;
00444     uint8_t searchDevType;
00445 } EmAfDiscoveryOrPairrequestData;
00446
00447 typedef struct {
00448     uint8_t localConfigurationStatus;
00449     uint8_t candidateIndex;
00450 } EmAfBindingInfo;
00451
00452 extern EmAfBindingInfo emAfGdpPeerInfo;
00453
00454 // Pairing table entry bind status
00455 #define PAIRING_ENTRY_BINDING_STATUS_MASK 0x03
00456 #define PAIRING_ENTRY_BINDING_STATUS_OFFSET 0
00457 #define PAIRING_ENTRY_BINDING_STATUS_NOT_BOUND 0x00
00458 #define PAIRING_ENTRY_BINDING_STATUS_BOUND_ORIGINATOR 0x01
00459 #define PAIRING_ENTRY_BINDING_STATUS_BOUND_RECIPIENT 0x02
00460 #define PAIRING_ENTRY_BINDING_COMPLETE_BIT 0x04
00461 #define PAIRING_ENTRY_BINDING_COMPLETE_OFFSET 2
00462 #define PAIRING_ENTRY_POLLING_ACTIVE_BIT 0x08
00463 #define PAIRING_ENTRY_POLLING_ACTIVE_OFFSET 3
00464 #define PAIRING_ENTRY_IDENTIFICATION_ACTIVE_BIT 0x10
00465 #define PAIRING_ENTRY_IDENTIFICATION_ACTIVE_OFFSET 4
00466 #define PAIRING_ENTRY_REMOTE_NODE_SUPPORTS_ENHANCED_SECURITY_BIT 0x20
00467 #define PAIRING_ENTRY_REMOTE_NODE_SUPPORTS_ENHANCED_SECURITY_OFFSET 5
00468 #define PAIRING_ENTRY_REMOTE_NODE_SUPPORTS_IDENTIFICATION_BIT 0x40
00469 #define PAIRING_ENTRY_REMOTE_NODE_SUPPORTS_IDENTIFICATION_OFFSET 6
00470 #define PAIRING_ENTRY_REMOTE_NODE_SUPPORTS_POLLING_BIT 0x80
00471 #define PAIRING_ENTRY_REMOTE_NODE_SUPPORTS_POLLING_OFFSET 7
00472
00473 void emAfRf4ceGdpRecipientInitCallback(void);
00474 void emAfRf4ceGdpOriginatorStackStatusCallback
    (EmberStatus status);
00475 void emAfRf4ceGdpRecipientStackStatusCallback
    (EmberStatus status);
00476
00477 void emAfRf4ceGdpUpdatePublicStatus(bool init);
00478
00479 uint8_t emAfRf4ceGdpGetPairingBindStatus(
    uint8_t pairingIndex);
00480 void emAfRf4ceGdpSetPairingBindStatus(uint8_t
    pairingIndex, uint8_t status);
00481 void emAfRf4ceGdpGetPairingKey(uint8_t pairingIndex,
    EmberKeyData *key);
00482 void emAfRf4ceGdpSetPairingKey(uint8_t pairingIndex,
    EmberKeyData *key);
00483
00484 // returns true if the GDP plugin is busy doing something, false otherwise.
00485 #define emAfRf4ceGdpIsBusy() (internalGdpState() != INTERNAL_STATE_NONE)
00486
00487 bool emAfRf4ceGdpSecurityGetRandomString(
    EmberAfRf4ceGdpRand *rn);
00488
00489 void emAfRf4ceGdpSecurityValidationCompleteCallback
    (uint8_t pairingIndex);
00490
00491 void emAfRf4ceGdpAttributesInitCallback(void)
    ;
00492 void emAfRf4ceGdpIncomingGenericResponse(
    EmberAfRf4ceGdpResponseCode responseCode);
00493 void emAfRf4ceGdpIncomingConfigurationComplete
    (EmberAfRf4ceGdpStatus status);
00494 void emAfRf4ceGdpIncomingHeartbeat(
    EmberAfRf4ceGdpHeartbeatTrigger trigger);

```

```

00495 void emAfRf4ceGdpIncomingGetAttributes(void);
00496 void emAfRf4ceGdpIncomingGetAttributesResponse
    (void);
00497 void emAfRf4ceGdpIncomingPushAttributes(void)
    ;
00498 void emAfRf4ceGdpIncomingSetAttributes(void);
00499 void emAfRf4ceGdpIncomingPullAttributes(void)
    ;
00500 void emAfRf4ceGdpIncomingPullAttributesResponse
    (void);
00501 void emAfRf4ceGdpIncomingCheckValidationRequest
    (uint8_t control);
00502 void emAfRf4ceGdpIncomingCheckValidationResponse
    (EmberAfRf4ceGdpCheckValidationStatus status
     );
00503 void emAfRf4ceGdpCheckValidationResponseSent
    (EmberStatus status);
00504 void emAfRf4ceGdpHeartbeatSent(EmberStatus
    status);
00505 void emAfRf4ceGdpIncomingKeyExchangeChallenge
    (EmberAfRf4ceGdpKeyExchangeFlags flags,
00506                                     const EmberAfRf4ceGdpRand
    *randA);
00507 void emAfRf4ceGdpIncomingKeyExchangeChallengeResponse
    (EmberAfRf4ceGdpKeyExchangeFlags flags,
00508                                     const EmberAfRf4ceGdpRand
    *randB,
00509                                     const EmberAfRf4ceGdpTag
    *tagB);
00510 void emAfRf4ceGdpIncomingKeyExchangeResponse
    (const EmberAfRf4ceGdpTag *tagA);
00511 void emAfRf4ceGdpKeyExchangeResponseSent(
    EmberStatus status);
00512 void emAfRf4ceGdpIncomingKeyExchangeConfirm
    (bool secured);
00513 void emAfRf4ceGdpIncomingClientNotification
    (EmberAfRf4ceGdpClientNotificationSubtype
     subType,
00514                                     const uint8_t *
    clientNotificationPayload,
00515                                     uint8_t
    clientNotificationPayloadLength);
00516
00517 void emAfRf4ceZrcIncomingGenericResponse(
    EmberAfRf4ceGdpResponseCode responseCode);
00518 void emAfRf4ceZrcIncomingConfigurationComplete
    (EmberAfRf4ceGdpStatus status);
00519 void emAfRf4ceZrcIncomingGetAttributes(void);
00520 void emAfRf4ceZrcIncomingGetAttributesResponse
    (void);
00521 void emAfRf4ceZrcIncomingPushAttributes(void)
    ;
00522 void emAfRf4ceZrcIncomingSetAttributes(void);
00523 void emAfRf4ceZrcIncomingPullAttributes(void)
    ;
00524 void emAfRf4ceZrcIncomingPullAttributesResponse
    (void);
00525 void emAfRf4ceZrcIncomingClientNotification
    (EmberAfRf4ceGdpClientNotificationSubtype
     subType,
00526                                     const uint8_t *
    clientNotificationPayload,
00527                                     uint8_t
    clientNotificationPayloadLength);
00528
00529 bool emAfRf4ceGdpHasAttributeRecord(void);
00530 bool emAfRf4ceGdpAppendAttributeIdentificationRecord
    (const EmberAfRf4ceGdpAttributeIdentificationRecord
     *record);
00531 bool emAfRf4ceGdpFetchAttributeIdentificationRecord
    (EmberAfRf4ceGdpAttributeIdentificationRecord
     *record);
00532 bool emAfRf4ceGdpAppendAttributeStatusRecord
    (const EmberAfRf4ceGdpAttributeStatusRecord
     *record);
00533 bool emAfRf4ceGdpFetchAttributeStatusRecord
    (EmberAfRf4ceGdpAttributeStatusRecord *
     record);
00534 bool emAfRf4ceGdpAppendAttributeRecord(const
    EmberAfRf4ceGdpAttributeRecord *record);

```

```

00535 bool emAfRf4ceGdpFetchAttributeRecord(
00536     EmberAfRf4ceGdpAttributeRecord *record);
00537 void emAfRf4ceGdpResetFetchAttributeFinger
00538     (void);
00539 void emAfRf4ceGdpStartAttributesCommand(
00540     EmberAfRf4ceGdpCommandCode commandCode);
00541 EmberStatus emAfRf4ceGdpSendAttributesCommand
00542     (uint8_t pairingIndex,
00543         uint8_t profileId,
00544         uint16_t vendorId);
00545
00546 EmberStatus emAfRf4ceGdpSetDiscoveryResponseAppInfo
00547     (bool pushButton,
00548         uint8_t gdpVersion);
00549 EmberStatus emAfRf4ceGdpSetPairResponseAppInfo
00550     (const EmberRf4ceApplicationInfo *pairRequestAppInfo);
00551
00552 EmberStatus emAfRf4ceGdpSendProfileSpecificCommand
00553     (uint8_t pairingIndex,
00554         uint8_t profileId,
00555         uint16_t vendorId,
00556         EmberRf4ceTxOption txOptions
00557     ,
00558         uint8_t commandId,
00559         uint8_t *commandPayload,
00560         uint8_t commandPayloadLength
00561     ,
00562         uint8_t *messageTag);
00563
00564 EmberStatus emAfRf4ceGdpKeyExchangeChallenge
00565     (uint8_t pairingIndex,
00566         uint16_t vendorId,
00567         EmberAfRf4ceGdpKeyExchangeFlags
00568         flags,
00569         const EmberAfRf4ceGdpRand
00570         *randA);
00571
00572 EmberStatus emAfRf4ceGdpKeyExchangeChallengeResponse
00573     (uint8_t pairingIndex,
00574         uint16_t vendorId,
00575         EmberAfRf4ceGdpKeyExchangeFlags flags,
00576         const EmberAfRf4ceGdpRand
00577         *randB,
00578         const EmberAfRf4ceGdpTag
00579         *tagB);
00580
00581 EmberStatus emAfRf4ceGdpKeyExchangeResponse
00582     (uint8_t pairingIndex,
00583         uint16_t vendorId,
00584         const EmberAfRf4ceGdpTag
00585         *tagA);
00586
00587 EmberStatus emAfRf4ceGdpKeyExchangeConfirm
00588     (uint8_t pairingIndex,
00589         uint16_t vendorId);
00590
00591 // Host stuff
00592
00593 // Vendor ID filter (2 bytes) + minMaxClassFilter (1 byte)
00594 // + minLqiFilter (1 byte)
00595 #define GDP_SET_VALUE_BINDING_ORIGINATOR_PARAMETERS_BYTES_LENGTH
00596     4
00597
00598 // Primary class descriptor (1 byte) + secondary class descriptor (1 byte)
00599 // + tertiary class descriptor (1 byte) + discovery LQI threshold (1 byte)
00600 #define GDP_SET_VALUE_BINDING_RECIPIENT_PARAMETERS_BYTES_LENGTH
00601     4
00602
00603 #define GDP_SET_VALUE_FLAG_LENGTH
00604     1
00605
00606 void emAfRf4ceGdpSetPushButtonPendingReceivedFlag
00607     (bool set);
00608 void emAfRf4ceGdpSetProxyBindingFlag(bool set);
00609
00610 // Starts the blackout timer, turns the radio off and sets the internal state
00611 // the the passed state.
00612 void emAfGdpStartBlackoutTimer(uint8_t state);
00613

```

```

00592 // Starts the command pending timer, turns the radio on and sets the internal
00593 // state the the passed state.
00594 void emAfGdpStartCommandPendingTimer(uint8_t
00595     state, uint16_t timeMs);
00596 extern uint8_t emAfRf4ceGdpOutgoingCommandFrameControl
00597 ;
00598 #define emAfRf4ceGdpOutgoingCommandsSetPendingFlag()
00599 \
00600     (emAfRf4ceGdpOutgoingCommandFrameControl |=
00601         GDP_HEADER_FRAME_CONTROL_DATA_PENDING_MASK)
00602 #define emAfRf4ceGdpOutgoingCommandsClearPendingFlag()
00603 \
00604     (emAfRf4ceGdpOutgoingCommandFrameControl &=
00605         ~GDP_HEADER_FRAME_CONTROL_DATA_PENDING_MASK)
00606
00607 #if defined(EMBER_SCRIPTED_TEST)
00608 #include "stack/core/ember-stack.h"
00609 #include "core/scripted-stub.h"
00610
00611 #define debugDiscoveryResponseDrop(reason)
00612 \
00613     simpleScriptCheck("discoveryResponseDrop", "discoveryResponseDrop: " reason,
00614     "")
00615 void setBindOriginatorState(uint8_t state);
00616 #else
00617 #define debugDiscoveryResponseDrop(reason)
00618 #define debugCandidateAdded(reason)
00619 #define debugScriptCheck(reason)
00620 #endif // EMBER_SCRIPTED_TEST

```

## 8.268 rf4ce-gdp-poll.h File Reference

### Macros

- #define POLLING\_NEGOTIATION\_PROCEDURE\_DELAY\_MSEC
- #define POLLING\_NEGOTIATION\_PROCEDURE\_AFTER\_FAILURE\_DELAY\_SEC
- #define POLLING\_NEGOTIATION\_PROCEDURE\_CLIENT\_MAX\_RETRIES
- #define POLLING\_NEGOTIATION\_PROCEDURE\_SERVER\_PULL\_TIMEOUT\_MSEC
- #define emAfRf4ceGdpIsPollTriggerValid(trigger)

### Functions

- void emAfRf4ceGdpPollingStackStatusCallback (EmberStatus status)
- void emAfRf4ceGdpPollingNotifyBindingComplete (uint8\_t pairingIndex)
- void emAfRf4ceGdpPollingIncomingCommandCallback (bool framePending)
- void emAfRf4ceGdpGetPollConfigurationAttribute (uint8\_t pairingIndex, uint8\_t \*pollConfiguration)
- void emAfRf4ceGdpSetPollConfigurationAttribute (uint8\_t pairingIndex, const uint8\_t \*pollConfiguration)

#### 8.268.1 Macro Definition Documentation

##### 8.268.1.1 #define POLLING\_NEGOTIATION\_PROCEDURE\_DELAY\_MSEC

Definition at line 5 of file [rf4ce-gdp-poll.h](#).

8.268.1.2 #define POLLING\_NEGOTIATION PROCEDURE AFTER FAILURE DELAY SEC

Definition at line 9 of file [rf4ce-gdp-poll.h](#).

#### 8.268.1.3 #define POLLING\_NEGOTIATION PROCEDURE\_CLIENT\_MAX RETRIES

Definition at line 13 of file [rf4ce-gdp-poll.h](#).

8.268.1.4 #define POLLING NEGOTIATION PROCEDURE SERVER PULL TIMEOUT MSEC

Definition at line 17 of file [rf4ce-gdp-poll.h](#).

8.268.1.5 #define emAfRf4ceGdplsPollTriggerValid( trigger )

Definition at line 31 of file [rf4ce-gdp-poll.h](#).

## 8.268.2 Function Documentation

- 8.268.2.1 void emAfRf4ceGdpPollingStackStatusCallback ( EmberStatus status )
  - 8.268.2.2 void emAfRf4ceGdpPollingNotifyBindingComplete ( uint8\_t pairingIndex )
  - 8.268.2.3 void emAfRf4ceGdpPollingIncomingCommandCallback ( bool framePending )
  - 8.268.2.4 void emAfRf4ceGdpGetPollConfigurationAttribute ( uint8\_t pairingIndex, uint8\_t \* pollConfiguration )
  - 8.268.2.5 void emAfRf4ceGdpSetPollConfigurationAttribute ( uint8\_t pairingIndex, const uint8\_t \* pollConfiguration )

## 8.269 rf4ce-qdp-poll.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 // We delay the procedure in case the enhanced security procedure takes place,
00004 // which should happen right after binding has completed.
00005 #define POLLING_NEGOTIATION_PROCEDURE_DELAY_MSEC      500
00006
00007 // If the poll negotiation procedure fails, we wait a longer delay before
00008 // trying
00009 // again.
00010
00011 // This defines how many times the poll negotiation procedure is started again
00012 // after it failed.
00013 #define POLLING_NEGOTIATION_PROCEDURE_CLIENT_MAX_RETIRIES   3
00014
00015 // The server will wait for this time for a PullAttributes() from the server
00016 // prior to declaring the poll negotiation procedure a failure.
00017 #define POLLING_NEGOTIATION_PROCEDURE_SERVER_PULL_TIMEOUT_MSEC  500
00018
00019 extern void emAfRf4ceGdpPollingStackStatusCallback
00020     (EmberStatus status);
00021
00022 extern void emAfRf4ceGdpPollingNotifyBindingComplete
00023     (uint8_t pairingIndex);
00024
00025 extern void emAfRf4ceGdpPollingIncomingCommandCallback
```

```

        (bool framePending);
00024 extern void emAfRf4ceGdpGetPollConfigurationAttribute
00025     (uint8_t pairingIndex,
00026         uint8_t * pollConfiguration);
00027 extern void emAfRf4ceGdpSetPollConfigurationAttribute
00028     (uint8_t pairingIndex,
00029         const uint8_t * pollConfiguration);
00030 #define emAfRf4ceGdpIsPollTriggerValid(trigger)
00031 \
00032     (trigger <=
EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_POLLING_ON_OTHER_USER_ACTIVITY)

```

## 8.270 rf4ce-gdp-test.h File Reference

```
#include "rf4ce-gdp-types.h"
```

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_PROFILE\_VENDOR\_ID
- #define EMBER\_AF\_RF4CE\_NODE\_TYPE\_TARGET
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_ENHANCED\_SECURITY
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_STANDARD\_SHARED\_SECRET
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_VENDOR\_SPECIFIC\_SECRETS
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_POLL\_SUPPORT
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_EXTENDED\_VALIDATION
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_PRIMARY\_CLASS\_NUMBER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_SECONDARY\_CLASS\_NUMBER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_TERTIARY\_CLASS\_NUMBER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_PRIMARY\_CLASS\_DUPLICATE\_HANDLING
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_SECONDARY\_CLASS\_DUPLICATE\_HANDLING
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_TERTIARY\_CLASS\_DUPLICATE\_HANDLING
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_DISCOVERY\_RESPONSE\_LQI\_THRESHOLD
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_VENDOR\_ID\_FILTER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MIN\_CLASS\_FILTER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MAX\_CLASS\_FILTER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MIN\_LQI\_FILTER
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MIN\_POLLING\_INTERVAL\_MS
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MAX\_POLLING\_INTERVAL\_MS
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CAPABILITIES
- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_APPLICATION\_SPECIFIC\_USER\_STRING
- #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_1
- #define GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_1\_SIZE
- #define GDP\_ATTRIBUTE\_SCALAR\_TEST\_1\_DEFAULT
- #define SCALAR\_SETTABLE\_ATTRIBUTE\_TEST\_1
- #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_2
- #define GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_2\_SIZE
- #define GDP\_ATTRIBUTE\_SCALAR\_TEST\_2\_DEFAULT

- #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST
- #define GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST\_DEFAULT
- #define ONE\_DIMENSION\_ARRAYED\_ATTRIBUTE\_TEST
- #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST
- #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_DEFAULT
- #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_DIMENSION
- #define TWO\_DIMENSION\_ARRAYED\_ATTRIBUTE\_TEST
- #define SCALAR\_SETTABLE\_ATTRIBUTE\_TEST\_2

## Functions

- bool emberAfPluginRf4ceGdpZrc20StartConfigurationCallback (bool isOriginator, uint8\_t pairingIndex)
- void emberAfPluginRf4ceGdpBindingCompleteCallback (EmberStatus status, uint8\_t pairingIndex)
- void emberAfPluginRf4ceGdpZrc20BindingCompleteCallback (EmberAfRf4ceGdpBindingStatus status, uint8\_t pairingIndex)
- void emberAfPluginRf4ceGdpKeyExchangeCompleteCallback (uint8\_t pairingIndex)
- void emberAfPluginRf4ceGdpStartValidationCallback (uint8\_t pairingIndex)
- void emberAfPluginRf4ceGdpIdentifyCallback (EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16\_t timeS)
- bool emberAfPluginRf4ceGdpIncomingBindProxyCallback (const EmberEUI64 sourceIeeeAddr)
- bool emberAfPluginRf4ceGdpVendorSpecificKeyExchangeCallback (uint8\_t initiatorVendorSpecificParam, uint8\_t \*responderVendorSpecificParam, uint8\_t \*sharedSecret)
- void emberAfPluginRf4ceGdpHeartbeatPollingEstablishedCallback (uint8\_t pairingIndex, EmberAfRf4ceGdpHeartbeatTrigger pollingTriggers)
- void emberAfPluginRf4ceGdpIdentifyClientFoundCallback (EmberAfRf4ceGdpClientNotificationIdentifyFlags flags)

### 8.270.1 Macro Definition Documentation

#### 8.270.1.1 #define EMBER\_AF\_PLUGIN\_RF4CE\_PROFILE\_VENDOR\_ID

Definition at line 7 of file rf4ce-gdp-test.h.

#### 8.270.1.2 #define EMBER\_AF\_RF4CE\_NODE\_TYPE\_TARGET

Definition at line 8 of file rf4ce-gdp-test.h.

#### 8.270.1.3 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_ENHANCED\_SECURITY

Definition at line 9 of file rf4ce-gdp-test.h.

#### 8.270.1.4 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_STANDARD\_SHARED\_SECRET

Definition at line 10 of file rf4ce-gdp-test.h.

#### 8.270.1.5 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_VENDOR\_SPECIFIC\_SECRETS

Definition at line 11 of file rf4ce-gdp-test.h.

**8.270.1.6 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_POLL\_SUPPORT**

Definition at line 12 of file [rf4ce-gdp-test.h](#).

**8.270.1.7 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_EXTENDED\_VALIDATION**

Definition at line 13 of file [rf4ce-gdp-test.h](#).

**8.270.1.8 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_PRIMARY\_CLASS\_NUMBER**

Definition at line 15 of file [rf4ce-gdp-test.h](#).

**8.270.1.9 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_SECONDARY\_CLASS\_NUMBER**

Definition at line 16 of file [rf4ce-gdp-test.h](#).

**8.270.1.10 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_TERTIARY\_CLASS\_NUMBER**

Definition at line 17 of file [rf4ce-gdp-test.h](#).

**8.270.1.11 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_PRIMARY\_CLASS\_DUPLICATE\_HANDLING**

Definition at line 19 of file [rf4ce-gdp-test.h](#).

**8.270.1.12 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_SECONDARY\_CLASS\_DUPLICATE\_HANDLING**

Definition at line 20 of file [rf4ce-gdp-test.h](#).

**8.270.1.13 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_TERTIARY\_CLASS\_DUPLICATE\_HANDLING**

Definition at line 21 of file [rf4ce-gdp-test.h](#).

**8.270.1.14 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_DISCOVERY\_RESPONSE\_LQI\_THRESHOLD**

Definition at line 23 of file [rf4ce-gdp-test.h](#).

**8.270.1.15 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_VENDOR\_ID\_FILTER**

Definition at line 24 of file [rf4ce-gdp-test.h](#).

**8.270.1.16 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MIN\_CLASS\_FILTER**

Definition at line 25 of file [rf4ce-gdp-test.h](#).

8.270.1.17 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MAX\_CLASS\_FILTER

Definition at line 26 of file [rf4ce-gdp-test.h](#).

8.270.1.18 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MIN\_LQI\_FILTER

Definition at line 27 of file [rf4ce-gdp-test.h](#).

8.270.1.19 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MIN\_POLLING\_INTERVAL\_MS

Definition at line 29 of file [rf4ce-gdp-test.h](#).

8.270.1.20 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_MAX\_POLLING\_INTERVAL\_MS

Definition at line 30 of file [rf4ce-gdp-test.h](#).

8.270.1.21 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_IDENTIFICATION\_CAPABILITIES

Definition at line 32 of file [rf4ce-gdp-test.h](#).

8.270.1.22 #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_APPLICATION\_SPECIFIC\_USER\_STRING

Definition at line 34 of file [rf4ce-gdp-test.h](#).

8.270.1.23 #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_1

Definition at line 66 of file [rf4ce-gdp-test.h](#).

8.270.1.24 #define GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_1\_SIZE

Definition at line 67 of file [rf4ce-gdp-test.h](#).

8.270.1.25 #define GDP\_ATTRIBUTE\_SCALAR\_TEST\_1\_DEFAULT

Definition at line 68 of file [rf4ce-gdp-test.h](#).

8.270.1.26 #define SCALAR\_SETTABLE\_ATTRIBUTE\_TEST\_1

Definition at line 70 of file [rf4ce-gdp-test.h](#).

8.270.1.27 #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_2

Definition at line 77 of file [rf4ce-gdp-test.h](#).

**8.270.1.28 #define GDP\_ATTRIBUTE\_SETTABLE\_SCALAR\_TEST\_2\_SIZE**

Definition at line 78 of file [rf4ce-gdp-test.h](#).

**8.270.1.29 #define GDP\_ATTRIBUTE\_SCALAR\_TEST\_2\_DEFAULT**

Definition at line 79 of file [rf4ce-gdp-test.h](#).

**8.270.1.30 #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST**

Definition at line 81 of file [rf4ce-gdp-test.h](#).

**8.270.1.31 #define GDP\_ATTRIBUTE\_ONE\_DIMENSIONAL\_ARRAY\_TEST\_DEFAULT**

Definition at line 82 of file [rf4ce-gdp-test.h](#).

**8.270.1.32 #define ONE\_DIMENSION\_ARRAYED\_ATTRIBUTE\_TEST**

Definition at line 84 of file [rf4ce-gdp-test.h](#).

**8.270.1.33 #define EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST**

Definition at line 91 of file [rf4ce-gdp-test.h](#).

**8.270.1.34 #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_DEFAULT**

Definition at line 92 of file [rf4ce-gdp-test.h](#).

**8.270.1.35 #define GDP\_ATTRIBUTE\_TWO\_DIMENSIONAL\_ARRAY\_TEST\_DIMENSION**

Definition at line 93 of file [rf4ce-gdp-test.h](#).

**8.270.1.36 #define TWO\_DIMENSION\_ARRAYED\_ATTRIBUTE\_TEST**

Definition at line 97 of file [rf4ce-gdp-test.h](#).

**8.270.1.37 #define SCALAR\_SETTABLE\_ATTRIBUTE\_TEST\_2**

Definition at line 105 of file [rf4ce-gdp-test.h](#).

## 8.270.2 Function Documentation

**8.270.2.1 bool emberAfPluginRf4ceGdpZrc20StartConfigurationCallback ( bool *isOriginator*, uint8\_t *pairingIndex* )**

- 8.270.2.2 void emberAfPluginRf4ceGdpBindingCompleteCallback ( EmberStatus *status*, uint8\_t *pairingIndex* )
- 8.270.2.3 void emberAfPluginRf4ceGdpZrc20BindingCompleteCallback ( EmberAfRf4ceGdpBinding-Status *status*, uint8\_t *pairingIndex* )
- 8.270.2.4 void emberAfPluginRf4ceGdpKeyExchangeCompleteCallback ( uint8\_t *pairingIndex* )
- 8.270.2.5 void emberAfPluginRf4ceGdpStartValidationCallback ( uint8\_t *pairingIndex* )
- 8.270.2.6 void emberAfPluginRf4ceGdpIdentifyCallback ( EmberAfRf4ceGdpClientNotification-IdentifyFlags *flags*, uint16\_t *timeS* )
- 8.270.2.7 bool emberAfPluginRf4ceGdpIncomingBindProxyCallback ( const EmberEUI64 *sourceeeeAddr* )
- 8.270.2.8 bool emberAfPluginRf4ceGdpVendorSpecificKeyExchangeCallback ( uint8\_t *initiatorVendorSpecificParam*, uint8\_t \* *responderVendorSpecificParam*, uint8\_t \* *sharedSecret* )
- 8.270.2.9 void emberAfPluginRf4ceGdpHeartbeatPollingEstablishedCallback ( uint8\_t *pairingIndex*, EmberAfRf4ceGdpHeartbeatTrigger *pollingTriggers* )
- 8.270.2.10 void emberAfPluginRf4ceGdpIdentifyClientFoundCallback ( EmberAfRf4ceGdpClient-NotificationIdentifyFlags *flags* )

## 8.271 rf4ce-gdp-test.h

```

00001 // defines that are generated by app framework.
00002 // Forward declarations to avoid warnings in scripted tests (usually found in
00003 // the callback header file, that also generated by app framework).
00004
00005 #include "rf4ce-gdp-types.h"
00006
00007 #define EMBER_AF_PLUGIN_RF4CE_PROFILE_VENDOR_ID
0xABCDEF
00008 #define EMBER_AF_RF4CE_NODE_TYPE_TARGET
00009 #define EMBER_AF_PLUGIN_RF4CE_GDP_ENHANCED_SECURITY
00010 #define EMBER_AF_PLUGIN_RF4CE_GDP_STANDARD_SHARED_SECRET
00011 #define EMBER_AF_PLUGIN_RF4CE_GDP_VENDOR_SPECIFIC_SECRETS
00012 #define EMBER_AF_PLUGIN_RF4CE_GDP_POLL_SUPPORT POLL_CLIENT
00013 #define EMBER_AF_PLUGIN_RF4CE_GDP_EXTENDED_VALIDATION
00014
00015 #define EMBER_AF_PLUGIN_RF4CE_GDP_PRIMARY_CLASS_NUMBER 0x02
00016 #define EMBER_AF_PLUGIN_RF4CE_GDP_SECONDARY_CLASS_NUMBER 0x03
00017 #define EMBER_AF_PLUGIN_RF4CE_GDP_TERTIARY_CLASS_NUMBER 0x04
00018
00019 #define EMBER_AF_PLUGIN_RF4CE_GDP_PRIMARY_CLASS_DUPLICATE_HANDLING 0x00
00020 #define EMBER_AF_PLUGIN_RF4CE_GDP_SECONDARY_CLASS_DUPLICATE_HANDLING 0x00
00021 #define EMBER_AF_PLUGIN_RF4CE_GDP_TERTIARY_CLASS_DUPLICATE_HANDLING 0x00
00022
00023 #define EMBER_AF_PLUGIN_RF4CE_GDP_DISCOVERY_RESPONSE_LQI_THRESHOLD 0x00
00024 #define EMBER_AF_PLUGIN_RF4CE_GDP_VENDOR_ID_FILTER 0xFFFF
00025 #define EMBER_AF_PLUGIN_RF4CE_GDP_MIN_CLASS_FILTER 0x00
00026 #define EMBER_AF_PLUGIN_RF4CE_GDP_MAX_CLASS_FILTER 0x0E
00027 #define EMBER_AF_PLUGIN_RF4CE_GDP_MIN_LQI_FILTER 0x00
00028
00029 #define EMBER_AF_PLUGIN_RF4CE_GDP_MIN_POLLING_INTERVAL_MS 5000
00030 #define EMBER_AF_PLUGIN_RF4CE_GDP_MAX_POLLING_INTERVAL_MS 60000
00031
00032 #define EMBER_AF_PLUGIN_RF4CE_GDP_IDENTIFICATION_CAPABILITIES 0x08
00033
00034 #define EMBER_AF_PLUGIN_RF4CE_GDP_APPLICATION_SPECIFIC_USER_STRING
00035 \
{0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00}

```

```

00036
00037 bool emberAfPluginRf4ceGdpZrc20StartConfigurationCallback
00038   (bool isOriginator,
00039    pairingIndex);                                uint8_t
00040 void emberAfPluginRf4ceGdpBindingCompleteCallback
00041   (EmberStatus status,
00042    pairingIndex);                                uint8_t pairingIndex);
00043 void emberAfPluginRf4ceGdpZrc20BindingCompleteCallback
00044   (EmberAfRf4ceGdpBindingStatus status,
00045    pairingIndex);                                uint8_t pairingIndex);
00046 void emberAfPluginRf4ceGdpKeyExchangeCompleteCallback
00047   (uint8_t pairingIndex);
00048 void emberAfPluginRf4ceGdpStartValidationCallback
00049   (uint8_t pairingIndex);
00050 void emberAfPluginRf4ceGdpIdentifyCallback
00051   (EmberAfRf4ceGdpClientNotificationIdentifyFlags
00052    flags,
00053     uint16_t timeS);
00054
00055 bool emberAfPluginRf4ceGdpIncomingBindProxyCallback
00056   (const EmberEUI64 sourceIeeeAddr);
00057
00058 bool emberAfPluginRf4ceGdpVendorSpecificKeyExchangeCallback
00059   (uint8_t initiatorVendorSpecificParam,
00060    responderVendorSpecificParam,                      uint8_t *
00061    sharedSecret);                                uint8_t *
00062
00063 void emberAfPluginRf4ceGdpHeartbeatPollingEstablishedCallback
00064   (uint8_t pairingIndex,
00065    EmberAfRf4ceGdpHeartbeatTrigger pollingTriggers)
00066 ;
00067
00068 void emberAfPluginRf4ceGdpIdentifyClientFoundCallback
00069   (EmberAfRf4ceGdpClientNotificationIdentifyFlags
00070    flags);
00071
00072 // Test attributes definitions
00073
00074 #define EMBER_AF_RF4CE_GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_1      0x10
00075 #define GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_1_SIZE                  2
00076 #define GDP_ATTRIBUTE_SCALAR_TEST_1_DEFAULT                      0x5555
00077
00078 #define SCALAR_SETTABLE_ATTRIBUTE_TEST_1
00079   \
00080   {EMBER_AF_RF4CE_GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_1,
00081    \
00082    GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_1_SIZE,
00083    \
00084    (ATTRIBUTE_HAS_REMOTE_GET_ACCESS_BIT
00085     \
00086     | ATTRIBUTE_HAS_REMOTE_SET_ACCESS_BIT),
00087    \
00088    0}
00089
00090 #define EMBER_AF_RF4CE_GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_2      0x11
00091 #define GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_2_SIZE                  2
00092 #define GDP_ATTRIBUTE_SCALAR_TEST_2_DEFAULT                      0x6666
00093
00094 #define EMBER_AF_RF4CE_GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST 0x90
00095 #define GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST_DEFAULT        0xB BBBB
00096
00097 #define ONE_DIMENSION_ARRAYED_ATTRIBUTE_TEST
00098   \
00099   {EMBER_AF_RF4CE_GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST,
00100    \
00101    GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST_SIZE,
00102    \
00103    (ATTRIBUTE_HAS_REMOTE_GET_ACCESS_BIT
00104     \
00105     | ATTRIBUTE_HAS_REMOTE_SET_ACCESS_BIT),
00106    \
00107    0}

```

```

00089     GDP_ATTRIBUTE_ONE_DIMENSIONAL_ARRAY_TEST_DIMENSION}
00090
00091 #define EMBER_AF_RF4CE_GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST           0x91
00092 #define GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_DEFAULT
00093 #define GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_DIMENSION
00094     \
00095     (GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_FIRST_DIMENSION
00096     \
00097     | (GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_SECOND_DIMENSION << 8))
00098 #define TWO_DIMENSION_ARRAYED_ATTRIBUTE_TEST
00099 \
00100 {EMBER_AF_RF4CE_GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST,
00101 \
00102     GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_SIZE,
00103 \
00104     (ATTRIBUTE_HAS_REMOTE_GET_ACCESS_BIT
00105 \
00106     | ATTRIBUTE_HAS_REMOTE_SET_ACCESS_BIT
00107 \
00108     | ATTRIBUTE_IS_TWO_DIMENSIONAL_ARRAYED),
00109 \
00110     GDP_ATTRIBUTE_TWO_DIMENSIONAL_ARRAY_TEST_DIMENSION}
00111
00112 #define SCALAR_SETTABLE_ATTRIBUTE_TEST_2
00113 \
00114 {EMBER_AF_RF4CE_GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_2,
00115 \
00116     GDP_ATTRIBUTE_SETTABLE_SCALAR_TEST_2_SIZE,
00117 \
00118     (ATTRIBUTE_HAS_REMOTE_GET_ACCESS_BIT
00119 \
00120     | ATTRIBUTE_HAS_REMOTE_SET_ACCESS_BIT),
00121 \
00122     0}
00123 #if defined (POLLING_NEGOTIATION_PROCEDURE_CLIENT_MAX_RETIRES)
00124 #undef POLLING_NEGOTIATION_PROCEDURE_CLIENT_MAX_RETIRES
00125 #define POLLING_NEGOTIATION_PROCEDURE_CLIENT_MAX_RETIRES 10
00126 #endif

```

## 8.272 rf4ce-gdp-tokens.h File Reference

```
#include "rf4ce-gdp-attributes.h"
```

### Macros

- #define **CREATOR\_PLUGIN\_RF4CE\_GDP\_BIND\_TABLE**
- #define **CREATOR\_PLUGIN\_RF4CE\_GDP\_PAIRING\_KEY\_TABLE**
- #define **CREATOR\_PLUGIN\_RF4CE\_GDP\_POLLING\_CONFIGURATION\_TABLE**

#### 8.272.1 Macro Definition Documentation

##### 8.272.1.1 #define CREATOR\_PLUGIN\_RF4CE\_GDP\_BIND\_TABLE

Definition at line 8 of file [rf4ce-gdp-tokens.h](#).

##### 8.272.1.2 #define CREATOR\_PLUGIN\_RF4CE\_GDP\_PAIRING\_KEY\_TABLE

Definition at line 11 of file [rf4ce-gdp-tokens.h](#).

### 8.272.1.3 #define CREATOR\_PLUGIN\_RF4CE\_GDP\_POLLING\_CONFIGURATION\_TABLE

Definition at line 13 of file [rf4ce-gdp-tokens.h](#).

## 8.273 rf4ce-gdp-tokens.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #include "rf4ce-gdp-attributes.h"
00004
00005 // For each pairing entry we maintain a status byte initialized to 0x00. This
00006 // is
00007 // shared between originator and recipient code (which can run both at once on
00008 // a
00009 // device).
00010 // define CREATOR_PLUGIN_RF4CE_GDP_BIND_TABLE 0x8730
00011 // For each pairing entry we need to remember the original link key that was
00012 // established during pairing.
00013 // define CREATOR_PLUGIN_RF4CE_GDP_PAIRING_KEY_TABLE 0x8731
00014 // We maintain the polling configuration attribute for each pairing entry.
00015 // define CREATOR_PLUGIN_RF4CE_GDP_POLLING_CONFIGURATION_TABLE 0x8733
00016
00017 #ifndef DEFINETYPES
00018     typedef uint8_t tokTypePairingKey[EMBER_ENCRYPTION_KEY_SIZE
00019 ];
00020     typedef uint8_t tokTypePollConfiguration[APL_GDP_POLL_CONFIGURATION_SIZE
00021 ];
00022 #endif // DEFINETYPES
00023
00024 #ifndef DEFINETOKENS
00025     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_GDP_BIND_TABLE,
00026         uint8_t,
00027         EMBER_RF4CE_PAIRING_TABLE_SIZE,
00028         0x00)
00029     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_GDP_PAIRING_KEY_TABLE,
00030         tokTypePairingKey,
00031         EMBER_RF4CE_PAIRING_TABLE_SIZE,
00032         {0,})
00033 #endif // DEFINETOKENS

```

## 8.274 rf4ce-gdp-types.h File Reference

### Data Structures

- struct [EmberAfRf4ceGdpAttributeIdentificationRecord](#)  
*RF4CE GDP attribute identification record for Get Attributes and Pull Attributes messages.*
- struct [EmberAfRf4ceGdpAttributeStatusRecord](#)  
*RF4CE GDP attribute identification record for Get Attributes Response and Pull Attributes Response messages.*
- struct [EmberAfRf4ceGdpAttributeRecord](#)  
*RF4CE GDP attribute identification record for Set Attributes and Push Attributes messages.*
- struct [EmberAfRf4ceGdpRand](#)  
*This data structure contains the GDP random byte string that is passed into various other functions.*
- struct [EmberAfRf4ceGdpTag](#)  
*This data structure contains the GDP tag value that is passed into various other functions.*

## Macros

- #define EMBER\_AF\_RF4CE\_GDP RAND\_SIZE
- #define EMBER\_AF\_RF4CE\_GDP TAG\_SIZE

## Typedefs

- typedef void(\* EmberAfRf4ceGdpHeartbeatCallback )(uint8\_t, EmberAfRf4ceGdpHeartbeatTrigger)

## Enumerations

- enum EmberAfRf4ceGdpCommandCode {
 EMBER\_AF\_RF4CE\_GDP\_COMMAND\_GENERIC\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_CONFIGURATION\_COMPLETE, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_HEARTBEAT, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_GET\_ATTRIBUTES, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_GET\_ATTRIBUTES\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_PUSH\_ATTRIBUTES, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_SET\_ATTRIBUTES, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_PULL\_ATTRIBUTES, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_PULL\_ATTRIBUTES\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_CHECK\_VALIDATION, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_CLIENT\_NOTIFICATION, EMBER\_AF\_RF4CE\_GDP\_COMMAND\_KEY\_EXCHANGE
 }
- enum EmberAfRf4ceGdpResponseCode { EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_SUCCESSFUL, EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_UNSUPPORTED\_REQUEST, EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_INVALID\_PARAMETER, EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_CONFIGURATION\_FAILURE }
- enum EmberAfRf4ceGdpStatus { EMBER\_AF\_RF4CE\_GDP\_STATUS\_SUCCESSFUL, EMBER\_AF\_RF4CE\_GDP\_STATUS\_CONFIGURATION\_FAILURE }
- enum EmberAfRf4ceGdpHeartbeatTrigger {
 EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_GENERIC\_ACTIVITY, EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_TIME\_BASED\_POLLING, EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_KEY\_PRESS, EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_PICKUP, EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_RESET, EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_MICROPHONE\_ACTIVITY, EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_OTHER\_USER\_ACTIVITY
 }
- enum EmberAfRf4ceGdpAttributeId {
 EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_VERSION, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_CAPABILITIES, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_KEY\_EXCHANGE\_TRANSFER\_COUNT, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_POWER\_STATUS, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_POLL\_CONSTRAINTS, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_POLL\_CONFIGURATION, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_MAX\_PAIRING\_CANDIDATES, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_AUTO\_CHECK\_VALIDATION\_PERIOD, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_BINDING\_RECIPIENT\_VALIDATION\_WAIT\_TIME, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_BINDING\_INITIATOR\_VALIDATION\_WAIT\_TIME, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_LINK\_LOST\_WAIT\_TIME, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_IDENTIFICATION\_CAPABILITIES
 }

- enum EmberAfRf4ceGdpAttributeStatus {
 EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_SUCCESS, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_UNSUPPORTED\_ATTRIBUTE, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_ILLEGAL\_REQUEST, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_INVALID\_ID\_ENTRY,
 EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_NO\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_INVALID\_RESPONSE
 }
- enum EmberAfRf4ceGdpCheckValidationSubtype { EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_SUBTYPE\_REQUEST, EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_SUBTYPE\_RESPONSE }
- enum EmberAfRf4ceGdpCheckValidationStatus { EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_SUCCESS, EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_PENDING, EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_TIMEOUT, EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_FAILURE }
- enum EmberAfRf4ceGdpClientNotificationSubtype { EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTIFY, EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_POLL\_NEGOTIATION }
- enum EmberAfRf4ceGdpClientNotificationIdentifyFlags { EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTIFY\_FLAG\_STOP\_ON\_ACTION, EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTIFY\_FLAG\_FLASH\_LIGHT, EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTIFY\_FLAG\_MAKE\_SOUND, EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTIFY\_FLAG\_VIBRATE }
- enum EmberAfRf4ceGdpKeyExchangeSubtype { EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE, EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_CONFIRM }
- enum EmberAfRf4ceGdpKeyExchangeFlags {
 EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_FLAG\_STANDARD\_SHARED\_SECRET, EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_FLAG\_INITIATOR\_VENDOR\_SPECIFIC\_SECRET, EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_FLAG\_RESPONDER\_VENDOR\_SPECIFIC\_SECRET, EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_FLAG\_VENDOR\_SPECIFIC\_PARAMETER\_MASK,
 EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_FLAG\_VENDOR\_SPECIFIC\_PARAMETER\_OFFSET
 }
- enum EmberAfRf4ceGdpBindingState { EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATE\_DORMANT, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATE\_NOT\_BOUND, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATE\_BINDING, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATE\_BOUND }
- enum EmberAfRf4ceGdpBindingStatus {
 EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_SUCCESS, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_DUPLICATE\_CLASS\_ABORT, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_NO\_VALID\_RESPONSE, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_PAIRING\_FAILED,
 EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_CONFIG\_FAILED, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_PROFILE\_SPECIFIC\_CONFIG\_FAILED, EMBER\_AF\_RF4CE\_GDP\_BINDING\_STATUS\_VALIDATION\_FAILED
 }
- enum EmberAfRf4ceGdpPollingTrigger {
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_TIME\_BASED POLLING\_ENABLED, EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_KEY\_PRESS\_ENABLED, EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_PICK\_UP\_ENABLED, EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_RESET\_ENABLED,
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_MICROPHONE\_ACTIVITY\_ENABLED, EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_OTHER\_USER\_ACTIVITY\_ENABLED
 }

- enum `EmberAfRf4ceGdpPollingMethod` { `EMBER_AF_RF4CE_GDP_POLLING_METHOD_DISABLED`, `EMBER_AF_RF4CE_GDP_POLLING_METHOD_HEARTBEAT` }

### 8.274.1 Macro Definition Documentation

#### 8.274.1.1 `#define EMBER_AF_RF4CE_GDP_RAND_SIZE`

Size of the GDP random byte string in bytes (8).

Definition at line 259 of file `rf4ce-gdp-types.h`.

#### 8.274.1.2 `#define EMBER_AF_RF4CE_GDP_TAG_SIZE`

Size of the GDP tag value in in bytes (4).

Definition at line 273 of file `rf4ce-gdp-types.h`.

### 8.274.2 Typedef Documentation

#### 8.274.2.1 `typedef void(* EmberAfRf4ceGdpHeartbeatCallback)(uint8_t, EmberAfRf4ceGdpHeartbeatTrigger)`

RF4CE GDP heartbeat callback. Any module can subscribe to incoming heartbeat commands by using the `emberAfRf4ceGdpSubscribeToHeartbeat()` API. The first parameter is the pairing index, the second parameter is the heartbeat trigger.

Definition at line 85 of file `rf4ce-gdp-types.h`.

### 8.274.3 Enumeration Type Documentation

#### 8.274.3.1 `enum EmberAfRf4ceGdpCommandCode`

RF4CE GDP command codes.

Enumerator:

```
EMBER_AF_RF4CE_GDP_COMMAND_GENERIC_RESPONSE
EMBER_AF_RF4CE_GDP_COMMAND_CONFIGURATION_COMPLETE
EMBER_AF_RF4CE_GDP_COMMAND_HEARTBEAT
EMBER_AF_RF4CE_GDP_COMMAND_GET_ATTRIBUTES
EMBER_AF_RF4CE_GDP_COMMAND_GET_ATTRIBUTES_RESPONSE
EMBER_AF_RF4CE_GDP_COMMAND_PUSH_ATTRIBUTES
EMBER_AF_RF4CE_GDP_COMMAND_SET_ATTRIBUTES
EMBER_AF_RF4CE_GDP_COMMAND_PULL_ATTRIBUTES
EMBER_AF_RF4CE_GDP_COMMAND_PULL_ATTRIBUTES_RESPONSE
EMBER_AF_RF4CE_GDP_COMMAND_CHECK_VALIDATION
EMBER_AF_RF4CE_GDP_COMMAND_CLIENT_NOTIFICATION
EMBER_AF_RF4CE_GDP_COMMAND_KEY_EXCHANGE
```

Definition at line 10 of file `rf4ce-gdp-types.h`.

### 8.274.3.2 enum EmberAfRf4ceGdpResponseCode

RF4CE GDP response codes.

Enumerator:

- EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_SUCCESSFUL*
- EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_UNSUPPORTED\_REQUEST*
- EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_INVALID\_PARAMETER*
- EMBER\_AF\_RF4CE\_GDP\_RESPONSE\_CODE\_CONFIGURATION\_FAILURE*

Definition at line 34 of file [rf4ce-gdp-types.h](#).

### 8.274.3.3 enum EmberAfRf4ceGdpStatus

RF4CE GDP statuses.

Enumerator:

- EMBER\_AF\_RF4CE\_GDP\_STATUS\_SUCCESSFUL*
- EMBER\_AF\_RF4CE\_GDP\_STATUS\_CONFIGURATION\_FAILURE*

Definition at line 50 of file [rf4ce-gdp-types.h](#).

### 8.274.3.4 enum EmberAfRf4ceGdpHeartbeatTrigger

RF4CE GDP heartbeat triggers.

Enumerator:

- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_GENERIC\_ACTIVITY*
- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_TIME\_BASED\_POLLING*
- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_KEY\_PRESS*
- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_PICKUP*
- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_RESET*
- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_MICROPHONE\_ACTIVITY*
  
- EMBER\_AF\_RF4CE\_GDP\_HEARTBEAT\_TRIGGER\_POLLING\_ON\_OTHER\_USER\_ACTIVITY*

Definition at line 64 of file [rf4ce-gdp-types.h](#).

### 8.274.3.5 enum EmberAfRf4ceGdpAttributeId

RF4CE GDP attribute ids.

Enumerator:

- EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_VERSION*

*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_CAPABILITIES*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_KEY\_EXCHANGE\_TRANSFER\_COUNT*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_POWER\_STATUS*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_POLL\_CONSTRAINTS*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_POLL\_CONFIGURATION*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_MAX\_PAIRING\_CANDIDATES*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_AUTO\_CHECK\_VALIDATION\_PERIOD*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_BINDING\_RECIPIENT\_VALIDATION\_WAIT\_TIME*  
  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_BINDING\_INITIATOR\_VALIDATION\_WAIT\_TIME*  
  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_LINK\_LOST\_WAIT\_TIME*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_IDENTIFICATION\_CAPABILITIES*

Definition at line 91 of file [rf4ce-gdp-types.h](#).

#### 8.274.3.6 enum EmberAfRf4ceGdpAttributeStatus

RF4CE GDP attribute statuses.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_SUCCESS*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_UNSUPPORTED\_ATTRIBUTE*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_ILLEGAL\_REQUEST*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_INVALID\_ENTRY*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_NO\_RESPONSE*  
*EMBER\_AF\_RF4CE\_GDP\_ATTRIBUTE\_STATUS\_INVALID\_RESPONSE*

Definition at line 115 of file [rf4ce-gdp-types.h](#).

#### 8.274.3.7 enum EmberAfRf4ceGdpCheckValidationSubtype

RF4CE GDP Check Validation subtypes.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_SUBTYPE\_REQUEST*  
*EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_SUBTYPE\_RESPONSE*

Definition at line 167 of file [rf4ce-gdp-types.h](#).

### 8.274.3.8 enum EmberAfRf4ceGdpCheckValidationStatus

RF4CE GDP Check Validation statuses.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_SUCCESS  
 EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_PENDING  
 EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_TIMEOUT  
 EMBER\_AF\_RF4CE\_GDP\_CHECK\_VALIDATION\_STATUS\_FAILURE*

Definition at line 181 of file [rf4ce-gdp-types.h](#).

### 8.274.3.9 enum EmberAfRf4ceGdpClientNotificationSubtype

RF4CE GDP Client Notification subtypes.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_SUBTYPE\_IDENTITY  
 EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_POLL\_NEGOTIATION*

Definition at line 197 of file [rf4ce-gdp-types.h](#).

### 8.274.3.10 enum EmberAfRf4ceGdpClientNotificationIdentifyFlags

RF4CE GDP Client Notification Identify flags.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTITY\_FLAG\_STOP\_ON\_ACTION  
 EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTITY\_FLAG\_FLASH\_LIGHT  
 EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTITY\_FLAG\_MAKE\_SOUND  
 EMBER\_AF\_RF4CE\_GDP\_CLIENT\_NOTIFICATION\_IDENTITY\_FLAG\_VIBRATE*

Definition at line 211 of file [rf4ce-gdp-types.h](#).

### 8.274.3.11 enum EmberAfRf4ceGdpKeyExchangeSubtype

RF4CE GDP Key Exchange subtypes.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE  
 EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_CHALLENGE\_RESPONSE  
 EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_RESPONSE  
 EMBER\_AF\_RF4CE\_GDP\_KEY\_EXCHANGE\_SUBTYPE\_CONFIRM*

Definition at line 227 of file [rf4ce-gdp-types.h](#).

### 8.274.3.12 enum EmberAfRf4ceGdpKeyExchangeFlags

RF4CE GDP Key Exchange flags.

Enumerator:

```
EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_STANDARD_SHARED_SECRET
EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_INITIATOR_VENDOR_SPECIFIC_SECRET

EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_RESPONDER_VENDOR_SPECIFIC_SECRET

EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_VENDOR_SPECIFIC_PARAMETER_MASK

EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_VENDOR_SPECIFIC_PARAMETER_OFFSET
```

Definition at line 243 of file [rf4ce-gdp-types.h](#).

### 8.274.3.13 enum EmberAfRf4ceGdpBindingState

RF4CE GDP binding states.

Enumerator:

```
EMBER_AF_RF4CE_GDP_BINDING_STATE_DORMANT
EMBER_AF_RF4CE_GDP_BINDING_STATE_NOT_BOUND
EMBER_AF_RF4CE_GDP_BINDING_STATE_BINDING
EMBER_AF_RF4CE_GDP_BINDING_STATE_BOUND
```

Definition at line 288 of file [rf4ce-gdp-types.h](#).

### 8.274.3.14 enum EmberAfRf4ceGdpBindingStatus

RF4CE GDP binding statuses.

Enumerator:

```
EMBER_AF_RF4CE_GDP_BINDING_STATUS_SUCCESS
EMBER_AF_RF4CE_GDP_BINDING_STATUS_DUPLICATE_CLASS_ABORT
EMBER_AF_RF4CE_GDP_BINDING_STATUS_NO_VALID_RESPONSE
EMBER_AF_RF4CE_GDP_BINDING_STATUS_PAIRING_FAILED
EMBER_AF_RF4CE_GDP_BINDING_STATUS_CONFIG_FAILED
EMBER_AF_RF4CE_GDP_BINDING_STATUS_PROFILE_SPECIFIC_CONFIG_FAILED
EMBER_AF_RF4CE_GDP_BINDING_STATUS_VALIDATION_FAILED
```

Definition at line 304 of file [rf4ce-gdp-types.h](#).

### 8.274.3.15 enum EmberAfRf4ceGdpPollingTrigger

RF4CE GDP polling triggers.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_TIME\_BASED\_POLLING\_ENABLED  
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_KEY\_PRESS\_ENABLED  
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_PICK\_UP\_ENABLED  
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_RESET\_ENABLED  
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_MICROPHONE\_ACTIVITY\_ENABLED  
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_TRIGGER\_POLLING\_ON\_OTHER\_USER\_ACTIVITY\_ENABLED*

Definition at line 323 of file [rf4ce-gdp-types.h](#).

### 8.274.3.16 enum EmberAfRf4ceGdpPollingMethod

RF4CE GDP polling methods.

Enumerator:

*EMBER\_AF\_RF4CE\_GDP\_POLLING\_METHOD\_DISABLED  
 EMBER\_AF\_RF4CE\_GDP\_POLLING\_METHOD\_HEARTBEAT*

Definition at line 341 of file [rf4ce-gdp-types.h](#).

## 8.275 rf4ce-gdp-types.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_GDP_TYPES_H__
00004 #define __RF4CE_GDP_TYPES_H__
00005
00009 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00010 enum EmberAfRf4ceGdpCommandCode
00011 #else
00012 typedef uint8_t EmberAfRf4ceGdpCommandCode;
00013 enum
00014 #endif
00015 {
00016     EMBER_AF_RF4CE_GDP_COMMAND_GENERIC_RESPONSE
00017         = 0x00,
00018     EMBER_AF_RF4CE_GDP_COMMAND_CONFIGURATION_COMPLETE
00019         = 0x01,
00020     EMBER_AF_RF4CE_GDP_COMMAND_HEARTBEAT
00021         = 0x02,
00022     EMBER_AF_RF4CE_GDP_COMMAND_GET_ATTRIBUTES
00023         = 0x03,
00024     EMBER_AF_RF4CE_GDP_COMMAND_GET_ATTRIBUTES_RESPONSE
00025         = 0x04,
00026     EMBER_AF_RF4CE_GDP_COMMAND_PUSH_ATTRIBUTES
00027         = 0x05,
00028     EMBER_AF_RF4CE_GDP_COMMAND_SET_ATTRIBUTES
00029         = 0x06,
00030     EMBER_AF_RF4CE_GDP_COMMAND_PULL_ATTRIBUTES
00031         = 0x07,
00032     EMBER_AF_RF4CE_GDP_COMMAND_PULL_ATTRIBUTES_RESPONSE
00033         = 0x08,
```

```

00025     EMBER_AF_RF4CE_GDP_COMMAND_CHECK_VALIDATION
00026         = 0x09,
00027     EMBER_AF_RF4CE_GDP_COMMAND_CLIENT_NOTIFICATION
00028         = 0x0A,
00029     EMBER_AF_RF4CE_GDP_COMMAND_KEY_EXCHANGE
00030         = 0x0B,
00031 };
00032 #endif DOXYGEN_SHOULD_SKIP_THIS
00033 enum EmberAfRf4ceGdpResponseCode
00034 #else
00035 typedef uint8_t EmberAfRf4ceGdpResponseCode;
00036 enum
00037 #endif
00038 {
00039     EMBER_AF_RF4CE_GDP_RESPONSE_CODE_SUCCESSFUL
00040         = 0x00,
00041     EMBER_AF_RF4CE_GDP_RESPONSE_CODE_UNSUPPORTED_REQUEST
00042         = 0x01,
00043     EMBER_AF_RF4CE_GDP_RESPONSE_CODE_INVALID_PARAMETER
00044         = 0x02,
00045     EMBER_AF_RF4CE_GDP_RESPONSE_CODE_CONFIGURATION_FAILURE
00046         = 0x03,
00047 };
00048 #endif DOXYGEN_SHOULD_SKIP_THIS
00049 enum EmberAfRf4ceGdpStatus
00050 #else
00051 typedef uint8_t EmberAfRf4ceGdpStatus;
00052 enum
00053 #endif
00054 {
00055     EMBER_AF_RF4CE_GDP_STATUS_SUCCESSFUL
00056         = 0x00,
00057     EMBER_AF_RF4CE_GDP_STATUS_CONFIGURATION_FAILURE
00058         = 0x03,
00059 };
00060 #endif DOXYGEN_SHOULD_SKIP_THIS
00061 enum EmberAfRf4ceGdpHeartbeatTrigger
00062 #else
00063 typedef uint8_t EmberAfRf4ceGdpHeartbeatTrigger;
00064 enum
00065 #endif
00066 {
00067     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_GENERIC_ACTIVITY
00068         = 0x00,
00069     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_TIME_BASED_POLLING
00070         = 0x01,
00071     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_POLLING_ON_KEY_PRESS
00072         = 0x02,
00073     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_POLLING_ON_PICKUP
00074         = 0x03,
00075     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_POLLING_ON_RESET
00076         = 0x04,
00077     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_POLLING_ON_MICROPHONE_ACTIVITY
00078         = 0x05,
00079     EMBER_AF_RF4CE_GDP_HEARTBEAT_TRIGGER_POLLING_ON_OTHER_USER_ACTIVITY
00080         = 0x06,
00081 };
00082 #endif DOXYGEN_SHOULD_SKIP_THIS
00083 typedef void (*EmberAfRf4ceGdpHeartbeatCallback
00084 ) (uint8_t, EmberAfRf4ceGdpHeartbeatTrigger);
00085 #endif DOXYGEN_SHOULD_SKIP_THIS
00086 enum EmberAfRf4ceGdpAttributeId
00087 #else
00088 typedef uint8_t EmberAfRf4ceGdpAttributeId;
00089 enum
00090 #endif
00091 {
00092     EMBER_AF_RF4CE_GDP_ATTRIBUTE_VERSION
00093         = 0x80,
00094     EMBER_AF_RF4CE_GDP_ATTRIBUTE_CAPABILITIES
00095         = 0x81,
00096     EMBER_AF_RF4CE_GDP_ATTRIBUTE_KEY_EXCHANGE_TRANSFER_COUNT
00097         = 0x82,
00098     EMBER_AF_RF4CE_GDP_ATTRIBUTE_POWER_STATUS
00099         = 0x83,
00100     EMBER_AF_RF4CE_GDP_ATTRIBUTE_POLL_CONSTRAINTS
00101 
```

```

        = 0x84,
00102 EMBER_AF_RF4CE_GDP_ATTRIBUTE_POLL_CONFIGURATION
        = 0x85,
00103 EMBER_AF_RF4CE_GDP_ATTRIBUTE_MAX_PAIRING_CANDIDATES
        = 0x86,
00104 EMBER_AF_RF4CE_GDP_ATTRIBUTE_AUTO_CHECK_VALIDATION_PERIOD
        = 0x87,
00105 EMBER_AF_RF4CE_GDP_ATTRIBUTE_BINDING_RECIPIENT_VALIDATION_WAIT_TIME
        = 0x88,
00106 EMBER_AF_RF4CE_GDP_ATTRIBUTE_BINDING_INITIATOR_VALIDATION_WAIT_TIME
        = 0x89,
00107 EMBER_AF_RF4CE_GDP_ATTRIBUTE_LINK_LOST_WAIT_TIME
        = 0x8A,
00108 EMBER_AF_RF4CE_GDP_ATTRIBUTE_IDENTIFICATION_CAPABILITIES
        = 0x8B,
00109 };
00110
00114 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00115 enum EmberAfRf4ceGdpAttributeStatus
00116 #else
00117 typedef uint8_t EmberAfRf4ceGdpAttributeStatus;
00118 enum
00119 #endif
00120 {
00121     EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_SUCCESS
        = 0x00,
00122     EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_UNSUPPORTED_ATTRIBUTE
        = 0x01,
00123     EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_ILLEGAL_REQUEST
        = 0x02,
00124     EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_INVALID_ENTRY
        = 0x03,
00125     // Non over-the-air internal values.
00126     EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_NO_RESPONSE
        = 0xF0,
00127     EMBER_AF_RF4CE_GDP_ATTRIBUTE_STATUS_INVALID_RESPONSE
        = 0xF1,
00128 };
00129
00130
00135 typedef struct {
00136     EmberAfRf4ceGdpAttributeId attributeId;
00137     uint16_t entryId;
00138 } EmberAfRf4ceGdpAttributeIdentificationRecord
;
00139
00144 typedef struct {
00145     EmberAfRf4ceGdpAttributeId attributeId;
00146     uint16_t entryId;
00147     EmberAfRf4ceGdpAttributeStatus status;
00148     uint8_t valueLength;
00149     const uint8_t *value;
00150 } EmberAfRf4ceGdpAttributeStatusRecord;
00151
00156 typedef struct {
00157     EmberAfRf4ceGdpAttributeId attributeId;
00158     uint16_t entryId;
00159     uint8_t valueLength;
00160     const uint8_t *value;
00161 } EmberAfRf4ceGdpAttributeRecord;
00162
00166 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00167 enum EmberAfRf4ceGdpCheckValidationSubtype
00168 #else
00169 typedef uint8_t EmberAfRf4ceGdpCheckValidationSubtype
;
00170 enum
00171 #endif
00172 {
00173     EMBER_AF_RF4CE_GDP_CHECK_VALIDATION_SUBTYPE_REQUEST
        = 0x00,
00174     EMBER_AF_RF4CE_GDP_CHECK_VALIDATION_SUBTYPE_RESPONSE
        = 0x01,
00175 };
00176
00180 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00181 enum EmberAfRf4ceGdpCheckValidationStatus
00182 #else
00183 typedef uint8_t EmberAfRf4ceGdpCheckValidationStatus
;

```

```

00184 enum
00185 #endif
00186 {
00187     EMBER_AF_RF4CE_GDP_CHECK_VALIDATION_STATUS_SUCCESS
00188     = 0x00,
00189     EMBER_AF_RF4CE_GDP_CHECK_VALIDATION_STATUS_PENDING
00190     = 0x01,
00191     EMBER_AF_RF4CE_GDP_CHECK_VALIDATION_STATUS_TIMEOUT
00192     = 0x02,
00193     EMBER_AF_RF4CE_GDP_CHECK_VALIDATION_STATUS_FAILURE
00194     = 0x03,
00195 };
00196 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00197 enum EmberAfRf4ceGdpClientNotificationSubtype
00198 #else
00199 typedef uint8_t EmberAfRf4ceGdpClientNotificationSubtype
00200 ;
00201 enum
00202 #endif
00203 {
00204     EMBER_AF_RF4CE_GDP_CLIENT_NOTIFICATION_SUBTYPE_IDENTITY
00205     = 0x00,
00206     EMBER_AF_RF4CE_GDP_CLIENT_NOTIFICATION_SUBTYPE_REQUEST_POLL_NEGOTIATION
00207     = 0x01,
00208 };
00209 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00210 enum EmberAfRf4ceGdpClientNotificationIdentifyFlags
00211 #else
00212 typedef uint8_t EmberAfRf4ceGdpClientNotificationIdentifyFlags
00213 ;
00214 enum
00215 #endif
00216 {
00217     EMBER_AF_RF4CE_GDP_CLIENT_NOTIFICATION_IDENTIFY_FLAG_STOP_ON_ACTION
00218     = 0x01,
00219     EMBER_AF_RF4CE_GDP_CLIENT_NOTIFICATION_IDENTIFY_FLAG_FLASH_LIGHT
00220     = 0x02,
00221     EMBER_AF_RF4CE_GDP_CLIENT_NOTIFICATION_IDENTIFY_FLAG_MAKE_SOUND
00222     = 0x04,
00223     EMBER_AF_RF4CE_GDP_CLIENT_NOTIFICATION_IDENTIFY_FLAG_VIBRATE
00224     = 0x08,
00225 };
00226 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00227 enum EmberAfRf4ceGdpKeyExchangeSubtype
00228 #else
00229 typedef uint8_t EmberAfRf4ceGdpKeyExchangeSubtype
00230 ;
00231 enum
00232 {
00233     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_SUBTYPE_CHALLENGE
00234     = 0x00,
00235     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_SUBTYPE_CHALLENGE_RESPONSE
00236     = 0x01,
00237     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_SUBTYPE_RESPONSE
00238     = 0x02,
00239     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_SUBTYPE_CONFIRM
00240     = 0x03,
00241 };
00242 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00243 enum EmberAfRf4ceGdpKeyExchangeFlags
00244 #else
00245 typedef uint16_t EmberAfRf4ceGdpKeyExchangeFlags
00246 ;
00247 enum
00248 {
00249     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_STANDARD_SHARED_SECRET
00250     = 0x0001,
00251     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_INITIATOR_VENDOR_SPECIFIC_SECRET
00252     = 0x0002,
00253     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_RESPONDER_VENDOR_SPECIFIC_SECRET
00254     = 0x0004,
00255     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_VENDOR_SPECIFIC_PARAMETER_MASK
00256     = 0xFF00,
00257     EMBER_AF_RF4CE_GDP_KEY_EXCHANGE_FLAG_VENDOR_SPECIFIC_PARAMETER_OFFSET

```

```

        = 8,
00254 };
00255
00259 #define EMBER_AF_RF4CE_GDP_RAND_SIZE 8
00260
00265 typedef struct {
00267     uint8_t contents[EMBER_AF_RF4CE_GDP_RAND_SIZE];
00268 } EmberAfRf4ceGdpRand;
00269
00273 #define EMBER_AF_RF4CE_GDP_TAG_SIZE 4
00274
00279 typedef struct {
00281     uint8_t contents[EMBER_AF_RF4CE_GDP_TAG_SIZE];
00282 } EmberAfRf4ceGdpTag;
00283
00287 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00288 enum EmberAfRf4ceGdpBindingState
00289#else
00290 typedef uint8_t EmberAfRf4ceGdpBindingState;
00291 enum
00292#endif
00293{
00294    EMBER_AF_RF4CE_GDP_BINDING_STATE_DORMANT
00295        = 0,
00296    EMBER_AF_RF4CE_GDP_BINDING_STATE_NOT_BOUND
00297        = 1,
00298    EMBER_AF_RF4CE_GDP_BINDING_STATE_BINDING
00299        = 2,
00300    EMBER_AF_RF4CE_GDP_BINDING_STATE_BOUND
00301        = 3,
00302};
00303
00303 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00304 enum EmberAfRf4ceGdpBindingStatus
00305#else
00306 typedef uint8_t EmberAfRf4ceGdpBindingStatus;
00307 enum
00308#endif
00309{
00310    EMBER_AF_RF4CE_GDP_BINDING_STATUS_SUCCESS
00311        = 0x00,
00312    EMBER_AF_RF4CE_GDP_BINDING_STATUS_DUPLICATE_CLASS_ABORT
00313        = 0x01,
00314    EMBER_AF_RF4CE_GDP_BINDING_STATUS_NO_VALID_RESPONSE
00315        = 0x02,
00316    EMBER_AF_RF4CE_GDP_BINDING_STATUS_PAIRING_FAILED
00317        = 0x03,
00318    EMBER_AF_RF4CE_GDP_BINDING_STATUS_CONFIG_FAILED
00319        = 0x04,
00320    EMBER_AF_RF4CE_GDP_BINDING_STATUS_PROFILE_SPECIFIC_CONFIG_FAILED
00321        = 0x05,
00322    EMBER_AF_RF4CE_GDP_BINDING_STATUS_VALIDATION_FAILED
00323        = 0x06,
00324};
00325
00322 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00323 enum EmberAfRf4ceGdpPollingTrigger
00324#else
00325 typedef uint16_t EmberAfRf4ceGdpPollingTrigger;
00326 enum
00327#endif
00328{
00329    EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_TIME_BASED POLLING_ENABLED
00330        = 0x0001,
00331    EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_POLLING_ON_KEY_PRESS_ENABLED
00332        = 0x0002,
00333    EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_POLLING_ON_PICK_UP_ENABLED
00334        = 0x0004,
00335    EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_POLLING_ON_RESET_ENABLED
00336        = 0x0008,
00337    EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_POLLING_ON_MICROPHONE_ACTIVITY_ENABLED
00338        = 0x0010,
00339    EMBER_AF_RF4CE_GDP_POLLING_TRIGGER_POLLING_ON_OTHER_USER_ACTIVITY_ENABLED
00340        = 0x0020,
00341};
00342
00340 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00341 enum EmberAfRf4ceGdpPollingMethod
00342#else
00343 typedef uint8_t EmberAfRf4ceGdpPollingMethod;
00344
```

```

00344 enum
00345 #endif
00346 {
00347     EMBER_AF_RF4CE_GDP_POLLING_METHOD_DISABLED
00348         = 0x00,
00349     EMBER_AF_RF4CE_GDP_POLLING_METHOD_HEARTBEAT
00350         = 0x01,
00351 };
00350
00351 #endif // __RF4CE_GDP_TYPES_H__

```

## 8.276 rf4ce-gdp.h File Reference

```
#include "rf4ce-gdp-types.h"
```

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_GDP\_IS\_ORIGINATOR
- #define POLL\_CLIENT
- #define POLL\_SERVER
- #define IDENTIFICATION\_CLIENT
- #define IDENTIFICATION\_SERVER

### Functions

- uint8\_t \* emberAfRf4ceGdpRandContents (EmberAfRf4ceGdpRand \*rand)
- uint8\_t \* emberAfRf4ceGdpTagContents (EmberAfRf4ceGdpTag \*tag)
- EmberStatus emberAfRf4ceGdpBind (uint8\_t \*profileIdList, uint8\_t profileIdListLength, uint8\_t searchDevType)
- EmberStatus emberAfRf4ceGdpProxyBind (EmberPanId panId, EmberEUI64 ieeeAddr, uint8\_t \*profileIdList, uint8\_t profileIdListLength)
- void emberAfRf4ceGdpConfigurationProcedureComplete (bool success)
- void emberAfRf4ceGdpPushButton (bool setPending)
- void emberAfRf4ceGdpSetValidationStatus (EmberAfRf4ceGdpCheckValidationStatus status)
- EmberStatus emberAfRf4ceGdpInitiateKeyExchange (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceGdpPoll (uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpHeartbeatTrigger trigger)
- bool emberAfRf4ceGdpMessageSent (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const uint8\_t \*message, uint8\_t messageLength, EmberStatus status)
- bool emberAfRf4ceGdpIncomingMessage (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption secured, const uint8\_t \*message, uint8\_t messageLength)
- EmberStatus emberAfRf4ceGdpGetCommandTxOptions (EmberAfRf4ceGdpCommandCode commandCode, uint8\_t pairingIndex, uint16\_t vendorId, EmberRf4ceTxOption \*txOptions)
- EmberStatus emberAfRf4ceGdpGenericResponse (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberAfRf4ceGdpResponseCode responseCode)
- EmberStatus emberAfRf4ceGdpConfigurationComplete (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberAfRf4ceGdpStatus status)
- EmberStatus emberAfRf4ceGdpHeartbeat (uint8\_t pairingIndex, uint16\_t vendorId, EmberAfRf4ceGdpHeartbeatTrigger trigger)
- EmberStatus emberAfRf4ceGdpGetAttributes (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, const EmberAfRf4ceGdpAttributeIdentificationRecord \*records, uint8\_t recordsLength)

- `EmberStatus emberAfRf4ceGdpGetAttributesResponse (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, const EmberAfRf4ceGdpAttributeStatusRecord *records, uint8_t recordsLength)`
- `EmberStatus emberAfRf4ceGdpPushAttributes (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, const EmberAfRf4ceGdpAttributeRecord *records, uint8_t recordsLength)`
- `EmberStatus emberAfRf4ceGdpSetAttributes (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, const EmberAfRf4ceGdpAttributeRecord *records, uint8_t recordsLength)`
- `EmberStatus emberAfRf4ceGdpPullAttributes (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, const EmberAfRf4ceGdpAttributeIdentificationRecord *records, uint8_t recordsLength)`
- `EmberStatus emberAfRf4ceGdpPullAttributesResponse (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, const EmberAfRf4ceGdpAttributeStatusRecord *records, uint8_t recordsLength)`
- `EmberStatus emberAfRf4ceGdpCheckValidationRequest (uint8_t pairingIndex, uint16_t vendorId, uint8_t control)`
- `EmberStatus emberAfRf4ceGdpCheckValidationResponse (uint8_t pairingIndex, uint16_t vendorId, EmberAfRf4ceGdpCheckValidationStatus status)`
- `EmberStatus emberAfRf4ceGdpClientNotificationIdentify (uint8_t pairingIndex, uint16_t vendorId, EmberAfRf4ceGdpClientNotificationIdentifyFlags flags, uint16_t timeS)`
- `EmberStatus emberAfRf4ceGdpClientNotificationRequestPollNegotiation (uint8_t pairingIndex, uint16_t vendorId)`
- `EmberStatus emberAfRf4ceGdpClientNotification (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, uint8_t subtype, const uint8_t *payload, uint8_t payloadLength)`
- `EmberStatus emberAfRf4ceGdpSubscribeToHeartbeat (EmberAfRf4ceGdpHeartbeatCallback callback)`

## 8.277 rf4ce-gdp.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_GDP_H__
00004 #define __RF4CE_GDP_H__
00005
00006 #include "rf4ce-gdp-types.h"
00007
00035 // Controllers and targets can be originators in GDP, but only targets can be
00036 // recipients.
00040 #define EMBER_AF_PLUGIN_RF4CE_GDP_IS_ORIGINATOR
00041 #ifdef EMBER_AF_RF4CE_NODE_TYPE_TARGET
00042
00043 #define EMBER_AF_PLUGIN_RF4CE_GDP_IS_RECIPIENT
00044 #endif
00045
00046 #define POLL_CLIENT 1
00047 #define POLL_SERVER 2
00048
00049 #if EMBER_AF_PLUGIN_RF4CE_GDP_POLL_SUPPORT == POLL_CLIENT
00050
00051 #define EMBER_AF_PLUGIN_RF4CE_GDP_IS_POLL_CLIENT
00052 #elif EMBER_AF_PLUGIN_RF4CE_GDP_POLL_SUPPORT == POLL_SERVER
00053
00054 #define EMBER_AF_PLUGIN_RF4CE_GDP_IS_POLL_SERVER
00055 #endif
00056
00057 #define IDENTIFICATION_CLIENT 1
00058 #define IDENTIFICATION_SERVER 2
00059
00060 #if EMBER_AF_PLUGIN_RF4CE_GDP_IDENTIFICATION_SUPPORT == IDENTIFICATION_CLIENT
00061
00062 #define EMBER_AF_PLUGIN_RF4CE_GDP_IS_IDENTIFICATION_CLIENT
00063 #elif EMBER_AF_PLUGIN_RF4CE_GDP_IDENTIFICATION_SUPPORT == IDENTIFICATION_SERVER
00064
00065 #define EMBER_AF_PLUGIN_RF4CE_GDP_IS_IDENTIFICATION_SERVER
00066 #endif
00067
00075 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00076 uint8_t *emberAfRf4ceGdpRandContents(
    EmberAfRf4ceGdpRand *rand);

```

```

00077 #else
00078 #define emberAfRf4ceGdpRandContents(rand) ((rand)->contents)
00079 #endif
00080
00087 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00088 uint8_t *emberAfRf4ceGdpTagContents(
00089     EmberAfRf4ceGdpTag *tag);
00090 #define emberAfRf4ceGdpTagContents(tag) ((tag)->contents)
00091 #endif
00092
00105 EmberStatus emberAfRf4ceGdpBind(uint8_t *
00106     profileIdList,
00107             uint8_t profileIdListLength,
00108             uint8_t searchDevType);
00121 EmberStatus emberAfRf4ceGdpProxyBind(
00122     EmberPanId panId,
00123             EmberEUI64 ieeeAddr,
00124             uint8_t *profileIdList,
00125             uint8_t profileIdListLength);
00132 void emberAfRf4ceGdpConfigurationProcedureComplete
00133     (bool success);
00139 void emberAfRf4ceGdpPushButton(bool setPending);
00140
00145 void emberAfRf4ceGdpSetValidationStatus(
00146     EmberAfRf4ceGdpCheckValidationStatus status
00147 );
00153 EmberStatus emberAfRf4ceGdpInitiateKeyExchange
00154     (uint8_t pairingIndex);
00168 EmberStatus emberAfRf4ceGdpPoll(uint8_t
00169     pairingIndex,
00170             uint16_t vendorId,
00171             EmberAfRf4ceGdpHeartbeatTrigger
00172             trigger);
00184 bool emberAfRf4ceGdpMessageSent(uint8_t pairingIndex,
00185             uint8_t profileId,
00186             uint16_t vendorId,
00187             const uint8_t *message,
00188             uint8_t messageLength,
00189             EmberStatus status);
00190
00203 bool emberAfRf4ceGdpIncomingMessage(uint8_t
00204     pairingIndex,
00205             uint8_t profileId,
00206             uint16_t vendorId,
00207             EmberRf4ceTxOption secured,
00208             const uint8_t *message,
00209             uint8_t messageLength);
00215 EmberStatus emberAfRf4ceGdpGetCommandTxOptions
00216     (EmberAfRf4ceGdpCommandCode commandCode,
00217             uint8_t pairingIndex,
00218             uint16_t vendorId,
00219             EmberRf4ceTxOption *txOptions);
00237 EmberStatus emberAfRf4ceGdpGenericResponse
00238     (uint8_t pairingIndex,
00239             uint8_t profileId,
00240             uint16_t vendorId,
00241             EmberAfRf4ceGdpResponseCode
00242             responseCode);
00259 EmberStatus emberAfRf4ceGdpConfigurationComplete
00260     (uint8_t pairingIndex,
00261             uint8_t profileId,
00262             uint16_t vendorId,
00263             EmberAfRf4ceGdpStatus
00264             status);
00276 EmberStatus emberAfRf4ceGdpHeartbeat(uint8_t
00277     pairingIndex,
00278             uint16_t vendorId,
00279             EmberAfRf4ceGdpHeartbeatTrigger
00280             trigger);

```

```

00299 EmberStatus emberAfRf4ceGdpGetAttributes
00300     (uint8_t pairingIndex,
00301                                     uint8_t profileId,
00302                                     uint16_t vendorId,
00303                                     const
00304                                     EmberAfRf4ceGdpAttributeIdentificationRecord
00305                                     *records,
00306                                     uint8_t recordsLength);
00307
00324 EmberStatus emberAfRf4ceGdpGetAttributesResponse
00325     (uint8_t pairingIndex,
00326                                     uint8_t profileId,
00327                                     uint16_t vendorId,
00328                                     const
00329                                     EmberAfRf4ceGdpAttributeStatusRecord *
00330                                     records,
00331                                     uint8_t recordsLength);
00332
00349 EmberStatus emberAfRf4ceGdpPushAttributes
00350     (uint8_t pairingIndex,
00351                                     uint8_t profileId,
00352                                     uint16_t vendorId,
00353                                     const EmberAfRf4ceGdpAttributeRecord
00354                                     *records,
00355                                     uint8_t recordsLength);
00356
00374 EmberStatus emberAfRf4ceGdpSetAttributes
00375     (uint8_t pairingIndex,
00376                                     uint8_t profileId,
00377                                     uint16_t vendorId,
00378                                     const EmberAfRf4ceGdpAttributeRecord
00379                                     *records,
00380                                     uint8_t recordsLength);
00381
00399 EmberStatus emberAfRf4ceGdpPullAttributes
00400     (uint8_t pairingIndex,
00401                                     uint8_t profileId,
00402                                     uint16_t vendorId,
00403                                     const
00404                                     EmberAfRf4ceGdpAttributeIdentificationRecord
00405                                     *records,
00406                                     uint8_t recordsLength);
00407
00424 EmberStatus emberAfRf4ceGdpPullAttributesResponse
00425     (uint8_t pairingIndex,
00426                                     uint8_t profileId,
00427                                     uint16_t vendorId,
00428                                     const
00429                                     EmberAfRf4ceGdpAttributeStatusRecord *
00430                                     records,
00431                                     uint8_t recordsLength);
00432
00444 EmberStatus emberAfRf4ceGdpCheckValidationRequest
00445     (uint8_t pairingIndex,
00446                                     uint16_t vendorId,
00447                                     uint8_t control);
00448
00462 EmberStatus emberAfRf4ceGdpCheckValidationResponse
00463     (uint8_t pairingIndex,
00464                                     uint16_t vendorId,
00465                                     EmberAfRf4ceGdpCheckValidationStatus status
00466                                     );
00467
00483 EmberStatus emberAfRf4ceGdpClientNotificationIdentify
00484     (uint8_t pairingIndex,
00485                                     uint16_t vendorId,
00486                                     EmberAfRf4ceGdpClientNotificationIdentifyFlags
00487                                     flags,
00488                                     uint16_t timeS);
00489
00501 EmberStatus emberAfRf4ceGdpClientNotificationRequestPollNegotiation
00502     (uint8_t pairingIndex,
00503                                     uint16_t vendorId);
00504
00522 EmberStatus emberAfRf4ceGdpClientNotification
00523     (uint8_t pairingIndex,
00524                                     uint8_t profileId,

```

```

00524         uint16_t vendorId,
00525         uint8_t subtype,
00526         const uint8_t *payload,
00527         uint8_t payloadLength);
00528
00540 EmberStatus emberAfRf4ceGdpSubscribeToHeartbeat
00541     (EmberAfRf4ceGdpHeartbeatCallback callback);
00542 #endif // __RF4CE_GDP_H__
00543
00544 // @} END addtogroup

```

## 8.278 rf4ce-mso-attributes.h File Reference

```
#include "app/framework/plugin/rf4ce-profile/rf4ce-profile.h"
```

### Data Structures

- struct [EmAfRf4ceMsoAttributeDescriptor](#)
- struct [EmAfRf4ceMsoPeripheralIdEntry](#)
- struct [EmAfRf4ceMsoRibAttributes](#)

### Macros

- #define [MSO\\_RIB\\_ATTRIBUTE\\_PERIPHERAL\\_IDS\\_LENGTH](#)
- #define [MSO\\_RIB\\_ATTRIBUTE\\_RF\\_STATISTICS\\_LENGTH](#)
- #define [MSO\\_RIB\\_ATTRIBUTE\\_VERSIONING\\_LENGTH](#)
- #define [MSO\\_RIB\\_ATTRIBUTE\\_BATTERY\\_STATUS\\_LENGTH](#)
- #define [MSO\\_RIB\\_ATTRIBUTE\\_SHORT\\_RF\\_RETRY\\_PERIOD\\_LENGTH](#)
- #define [MSO\\_RIB\\_ATTRIBUTE\\_VALIDATION\\_CONFIGURATION\\_LENGTH](#)
- #define [MSO\\_RIB\\_ATTRIBUTE\\_GENERAL\\_PURPOSE\\_LENGTH](#)
- #define [MSO\\_ATTRIBUTE\\_HAS\\_REMOTE\\_WRITE\\_ACCESS\\_BIT](#)
- #define [MSO\\_ATTRIBUTE\\_IS\\_ARRAYED\\_BIT](#)
- #define [MSO\\_ATTRIBUTES\\_COUNT](#)
- #define [MSO\\_ATTRIBUTE\\_VERSIONING\\_ENTRIES](#)
- #define [MSO\\_ATTRIBUTE\\_VERSIONING\\_INDEX\\_SOFTWARE](#)
- #define [MSO\\_ATTRIBUTE\\_VERSIONING\\_INDEX\\_HARDWARE](#)
- #define [MSO\\_ATTRIBUTE\\_VERSIONING\\_INDEX\\_IR\\_DATABASE](#)

### Functions

- void [emAfRf4ceMsoInitAttributes](#) (void)
- EmberAfRf4ceStatus [emAfRf4ceMsoSetAttributeRequestCallback](#) (uint8\_t pairingIndex, [EmberAfRf4ceMsoAttributeId](#) attributeId, uint8\_t index, uint8\_t valueLen, const uint8\_t \*value)
- EmberAfRf4ceStatus [emAfRf4ceMsoGetAttributeRequestCallback](#) (uint8\_t pairingIndex, [EmberAfRf4ceMsoAttributeId](#) attributeId, uint8\_t index, uint8\_t \*valueLen, uint8\_t \*value)
- void [emAfRf4ceMsoSetAttributeResponseCallback](#) ([EmberAfRf4ceMsoAttributeId](#) attributeId, uint8\_t index, [EmberAfRf4ceStatus](#) status)
- void [emAfRf4ceMsoGetAttributeResponseCallback](#) ([EmberAfRf4ceMsoAttributeId](#) attributeId, uint8\_t index, [EmberAfRf4ceStatus](#) status, uint8\_t valueLen, const uint8\_t \*value)
- bool [emAfRf4ceMsoAttributeIsSupported](#) ([EmberAfRf4ceMsoAttributeId](#) attrId)

- bool `emAfRf4ceMsoAttributeIsArrayed` (`EmberAfRf4ceMsoAttributeId attrId`)
- bool `emAfRf4ceMsoAttributeIsRemotelyWritable` (`EmberAfRf4ceMsoAttributeId attrId`)
- uint8\_t `emAfRf4ceMsoGetAttributeLength` (`EmberAfRf4ceMsoAttributeId attrId`)
- uint8\_t `emAfRf4ceMsoGetArrayedAttributeDimension` (`EmberAfRf4ceMsoAttributeId attrId`)
- bool `emAfRf4ceMsoArrayedAttributeIndexIsValid` (`uint8_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8_t index, bool isGet`)
- void `emAfRf4ceMsoWriteAttributeRecipient` (`uint8_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8_t index, uint8_t valueLen, const uint8_t *value`)
- void `emAfRf4ceMsoReadAttributeRecipient` (`uint8_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8_t index, uint8_t *valueLen, uint8_t *value`)
- uint8\_t `emAfRf4ceMsoAttributePeripheralIdEntryLookup` (`uint8_t pairingIndex, uint8_t deviceType`)
- uint8\_t `emAfRf4ceMsoAttributeGetUnusedPeripheralIdEntryIndex` (`uint8_t pairingIndex`)

## Variables

- `EmAfRf4ceMsoRibAttributes emAfRf4ceMsoLocalRibAttributes`

### 8.278.1 Macro Definition Documentation

#### 8.278.1.1 #define MSO\_RIB\_ATTRIBUTE\_PERIPHERAL\_IDS\_LENGTH

Definition at line 8 of file `rf4ce-mso-attributes.h`.

#### 8.278.1.2 #define MSO\_RIB\_ATTRIBUTE\_RF\_STATISTICS\_LENGTH

Definition at line 9 of file `rf4ce-mso-attributes.h`.

#### 8.278.1.3 #define MSO\_RIB\_ATTRIBUTE\_VERSIONING\_LENGTH

Definition at line 10 of file `rf4ce-mso-attributes.h`.

#### 8.278.1.4 #define MSO\_RIB\_ATTRIBUTE\_BATTERY\_STATUS\_LENGTH

Definition at line 11 of file `rf4ce-mso-attributes.h`.

#### 8.278.1.5 #define MSO\_RIB\_ATTRIBUTE\_SHORT\_RF\_RETRY\_PERIOD\_LENGTH

Definition at line 12 of file `rf4ce-mso-attributes.h`.

#### 8.278.1.6 #define MSO\_RIB\_ATTRIBUTE\_VALIDATION\_CONFIGURATION\_LENGTH

Definition at line 14 of file `rf4ce-mso-attributes.h`.

#### 8.278.1.7 #define MSO\_RIB\_ATTRIBUTE\_GENERAL\_PURPOSE\_LENGTH

Definition at line 15 of file `rf4ce-mso-attributes.h`.

### 8.278.1.8 #define MSO\_ATTRIBUTE\_HAS\_REMOTE\_WRITE\_ACCESS\_BIT

Definition at line 18 of file [rf4ce-mso-attributes.h](#).

### 8.278.1.9 #define MSO\_ATTRIBUTE\_IS\_ARRAYED\_BIT

Definition at line 19 of file [rf4ce-mso-attributes.h](#).

### 8.278.1.10 #define MSO\_ATTRIBUTES\_COUNT

Definition at line 21 of file [rf4ce-mso-attributes.h](#).

### 8.278.1.11 #define MSO\_ATTRIBUTE\_VERSIONING\_ENTRIES

Definition at line 24 of file [rf4ce-mso-attributes.h](#).

### 8.278.1.12 #define MSO\_ATTRIBUTE\_VERSIONING\_INDEX\_SOFTWARE

Definition at line 25 of file [rf4ce-mso-attributes.h](#).

### 8.278.1.13 #define MSO\_ATTRIBUTE\_VERSIONING\_INDEX\_HARDWARE

Definition at line 26 of file [rf4ce-mso-attributes.h](#).

### 8.278.1.14 #define MSO\_ATTRIBUTE\_VERSIONING\_INDEX\_IR\_DATABASE

Definition at line 27 of file [rf4ce-mso-attributes.h](#).

## 8.278.2 Function Documentation

### 8.278.2.1 void emAfRf4ceMsoInitAttributes ( void )

**8.278.2.2 EmberAfRf4ceStatus emAfRf4ceMsoSetAttributeRequestCallback ( uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen, const uint8\_t \* value )**

**8.278.2.3 EmberAfRf4ceStatus emAfRf4ceMsoGetAttributeRequestCallback ( uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t \* valueLen, uint8\_t \* value )**

**8.278.2.4 void emAfRf4ceMsoSetAttributeResponseCallback ( EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, EmberAfRf4ceStatus status )**

**8.278.2.5 void emAfRf4ceMsoGetAttributeResponseCallback ( EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, EmberAfRf4ceStatus status, uint8\_t valueLen, const uint8\_t \* value )**

**8.278.2.6 bool emAfRf4ceMsoAttributeIsSupported ( EmberAfRf4ceMsoAttributeId attrId )**

- 8.278.2.7 bool emAfRf4ceMsoAttributeIsArrayed ( EmberAfRf4ceMsoAttributeId attrId )
- 8.278.2.8 bool emAfRf4ceMsoAttributeIsRemotelyWritable ( EmberAfRf4ceMsoAttributeId attrId )
- 8.278.2.9 uint8\_t emAfRf4ceMsoGetAttributeLength ( EmberAfRf4ceMsoAttributeId attrId )
- 8.278.2.10 uint8\_t emAfRf4ceMsoGetArrayedAttributeDimension ( EmberAfRf4ceMsoAttributeId attrId )
- 8.278.2.11 bool emAfRf4ceMsoArrayedAttributeIndexIsValid ( uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributId, uint8\_t index, bool isGet )
- 8.278.2.12 void emAfRf4ceMsoWriteAttributeRecipient ( uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributId, uint8\_t index, uint8\_t valueLen, const uint8\_t \* value )
- 8.278.2.13 void emAfRf4ceMsoReadAttributeRecipient ( uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributId, uint8\_t index, uint8\_t \* valueLen, uint8\_t \* value )
- 8.278.2.14 uint8\_t emAfRf4ceMsoAttributePeripheralIdEntryLookup ( uint8\_t pairingIndex, uint8\_t deviceType )
- 8.278.2.15 uint8\_t emAfRf4ceMsoAttributeGetUnusedPeripheralIdEntryIndex ( uint8\_t pairingIndex )

### 8.278.3 Variable Documentation

- 8.278.3.1 EmAfRf4ceMsoRibAttributes emAfRf4ceMsoLocalRibAttributes

## 8.279 rf4ce-mso-attributes.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef _RF4CE_MSO_ATTRIBUTES_H_
00004 #define _RF4CE_MSO_ATTRIBUTES_H_
00005
00006 #include "app/framework/plugin/rf4ce-profile/rf4ce-profile.h"
00007
00008 #define MSO_RIB_ATTRIBUTE_PERIPHERAL_IDS_LENGTH 4
00009 #define MSO_RIB_ATTRIBUTE_RF_STATISTICS_LENGTH 16
00010 #define MSO_RIB_ATTRIBUTE_VERSIONING_LENGTH 2
00011 #define MSO_RIB_ATTRIBUTE_BATTERY_STATUS_LENGTH 11
00012 #define MSO_RIB_ATTRIBUTE_SHORT_RF_RETRY_PERIOD_LENGTH 4
00013 // IR-RF database length has variable length
00014 #define MSO_RIB_ATTRIBUTE_VALIDATION_CONFIGURATION_LENGTH 4
00015 #define MSO_RIB_ATTRIBUTE_GENERAL_PURPOSE_LENGTH 16
00016
00017 // Bitmask field definitions.
00018 #define MSO_ATTRIBUTE_HAS_REMOTE_WRITE_ACCESS_BIT 0x01
00019 #define MSO_ATTRIBUTE_IS_ARRAYED_BIT 0x02
00020
00021 #define MSO_ATTRIBUTES_COUNT 8
00022
00023 // Versioning attribute
00024 #define MSO_ATTRIBUTE_VERSIONING_ENTRIES 3
00025 #define MSO_ATTRIBUTE_VERSIONING_INDEX_SOFTWARE 0x00
00026 #define MSO_ATTRIBUTE_VERSIONING_INDEX_HARDWARE 0x01
00027 #define MSO_ATTRIBUTE_VERSIONING_INDEX_IR_DATABASE 0x02
00028
00029 typedef struct {
00030   EmberAfRf4ceMsoAttributeId id;
00031   uint8_t size;

```

```

00032     uint8_t bitmask;
00033     uint8_t dimension; // only for arrayed attributes
00034 } EmAfRf4ceMsoAttributeDescriptor;
00035
00036 typedef struct {
00037     uint8_t deviceType;
00038     uint8_t peripheralId[MSO_RIB_ATTRIBUTE_PERIPHERAL_IDS_LENGTH
00039 ];
00039 } EmAfRf4ceMsoPeripheralIdEntry;
00040
00041 typedef struct {
00042     EmAfRf4ceMsoPeripheralIdEntry peripheralIds[
00043         EMBER_AF_PLUGIN_RF4CE_MSO_PERIPHERAL_ID_ENTRIES
00044     ];
00043     uint8_t rfStatistics[MSO_RIB_ATTRIBUTE_RF_STATISTICS_LENGTH
00044 ];
00044     uint8_t versioning[MSO_ATTRIBUTE_VERSIONING_ENTRIES
00045         [MSO_RIB_ATTRIBUTE_VERSIONING_LENGTH];
00045     uint8_t batteryStatus[MSO_RIB_ATTRIBUTE_BATTERY_STATUS_LENGTH
00046 ];
00046     uint8_t shortRfRetryPeriod[MSO_RIB_ATTRIBUTE_SHORT_RF_RETRY_PERIOD_LENGTH
00047 ];
00047     // IR-RF database stored by the application
00048     uint8_t validationConfiguration[
00049         MSO_RIB_ATTRIBUTE_VALIDATION_CONFIGURATION_LENGTH
00049 ];
00049     uint8_t generalPurpose[EMBER_AF_PLUGIN_RF4CE_MSO_GENERAL_PURPOSE_ENTRIES
00050         [MSO_RIB_ATTRIBUTE_GENERAL_PURPOSE_LENGTH
00050 ];
00050 } EmAfRf4ceMsoRibAttributes;
00051
00052 // Originator local attributes.
00053 extern EmAfRf4ceMsoRibAttributes
00054     emAfRf4ceMsoLocalRibAttributes;
00055
00055 void emAfRf4ceMsoInitAttributes(void);
00056
00057 EmberAfRf4ceStatus emAfRf4ceMsoSetAttributeRequestCallback
00058     (uint8_t pairingIndex,
00059     EmberAfRf4ceMsoAttributeId attributeId,
00060                                         uint8_t index,
00061                                         uint8_t valueLen,
00061                                         const uint8_t *value
00061 );
00062
00063 EmberAfRf4ceStatus emAfRf4ceMsoGetAttributeRequestCallback
00064     (uint8_t pairingIndex,
00065     EmberAfRf4ceMsoAttributeId attributeId,
00066                                         uint8_t index,
00066                                         uint8_t *valueLen,
00067                                         uint8_t *value);
00068
00069 void emAfRf4ceMsoSetAttributeResponseCallback
00070     (EmberAfRf4ceMsoAttributeId attributeId,
00071                                         uint8_t index,
00071                                         EmberAfRf4ceStatus
00072                                         status);
00072
00073 void emAfRf4ceMsoGetAttributeResponseCallback
00074     (EmberAfRf4ceMsoAttributeId attributeId,
00075                                         uint8_t index,
00075                                         EmberAfRf4ceStatus
00076                                         status,
00076                                         uint8_t valueLen,
00077                                         const uint8_t *value);
00078
00079 bool emAfRf4ceMsoAttributeIsSupported(
00080     EmberAfRf4ceMsoAttributeId attrId);
00080 bool emAfRf4ceMsoAttributeIsArrayed(
00081     EmberAfRf4ceMsoAttributeId attrId);
00081 bool emAfRf4ceMsoAttributeIsRemotelyWritable
00082     (EmberAfRf4ceMsoAttributeId attrId);
00082 uint8_t emAfRf4ceMsoGetAttributeLength(
00083     EmberAfRf4ceMsoAttributeId attrId);
00083 uint8_t emAfRf4ceMsoGetArrayedAttributeDimension
00084     (EmberAfRf4ceMsoAttributeId attrId);
00084 bool emAfRf4ceMsoArrayedAttributeIndexIsValid
00084     (uint8_t pairingIndex,

```

```

00085                         EmberAfRf4ceMsoAttributeId
00086                         uint8_t index,
00087                         bool isGet);
00088
00089 void emAfRf4ceMsoWriteAttributeRecipient(
00090     uint8_t pairingIndex,
00091                         EmberAfRf4ceMsoAttributeId
00092                         attributeId,
00093                         uint8_t index,
00094                         uint8_t valueLen,
00095                         const uint8_t *value);
00096
00097 void emAfRf4ceMsoReadAttributeRecipient(
00098     uint8_t pairingIndex,
00099                         EmberAfRf4ceMsoAttributeId
00100                         attributeId,
00101                         uint8_t index,
00102                         uint8_t *valueLen,
00103                         uint8_t *value);
00104
00105 uint8_t emAfRf4ceMsoAttributePeripheralIdEntryLookup
00106     (uint8_t pairingIndex,
00107      uint8_t deviceType);
00108 uint8_t emAfRf4ceMsoAttributeGetUnusedPeripheralIdEntryIndex
00109     (uint8_t pairingIndex);
00110
00111 #endif // _RF4CE_MSO_ATTRIBUTES_H_

```

## 8.280 rf4ce-mso-internal.h File Reference

```
#include "app/framework/plugin/rf4ce-profile/rf4ce-profile.h"
```

### Data Structures

- struct EmAfMsoPairingCandidate

### Macros

- #define NWK\_DISCOVERY\_LQI\_THRESHOLD
- #define NWK\_DISCOVERY\_REPETITION\_INTERVAL\_MS
- #define NWK\_INDICATE\_DISCOVERY\_REQUEST
- #define NWK\_MAX\_DISCOVERY\_REPETITIONS
- #define NWK\_MAX\_REPORTED\_NODE\_DESCRIPTOROS
- #define APLC\_MAX\_PAIRING\_CANDIDATES
- #define APLC\_MAX\_KEY\_REPEAT\_INTERVAL\_MS
- #define APLC\_MAX\_RIB\_ATTRIBUTE\_SIZE
- #define APLC\_RESPONSE\_IDLE\_TIME\_MS
- #define APLC\_BLACK\_OUT\_TIME\_MS
- #define APLC\_MIN\_KEY\_EXCHANGE\_TRANSFER\_COUNT
- #define NULL\_PAIRING\_INDEX
- #define MSO\_USER\_STRING\_LENGTH
- #define MSO\_DISCOVERY\_REQUEST\_MSO\_USER\_STRING\_OFFSET
- #define MSO\_DISCOVERY\_REQUEST\_MSO\_USER\_STRING\_LENGTH
- #define MSO\_DISCOVERY\_REQUEST\_BINDING\_INITIATION\_INDICATOR\_OFFSET
- #define MSO\_BINDING\_INITIATION\_INDICATOR\_DEDICATED\_KEY\_COMBO\_BIND
- #define MSO\_BINDING\_INITIATION\_INDICATOR\_ANY\_BUTTON\_BIND

- #define **MSO\_DISCOVERY\_RESPONSE\_MS0\_USER\_STRING\_OFFSET**
- #define **MSO\_DISCOVERY\_RESPONSE\_MS0\_USER\_STRING\_LENGTH**
- #define **MSO\_DISCOVERY\_RESPONSE\_TERTIARY\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **MSO\_DISCOVERY\_RESPONSE\_SECONDARY\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **MSO\_DISCOVERY\_RESPONSE\_PRIMARY\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **MSO\_DISCOVERY\_RESPONSE\_STRICT\_LQI\_THRESHOLD\_OFFSET**
- #define **MSO\_DISCOVERY\_RESPONSE\_BASIC\_LQI\_THRESHOLD\_OFFSET**
- #define **MSO\_CLASS\_DESCRIPTOR\_CLASS\_NUMBER\_MASK**
- #define **MSO\_CLASS\_DESCRIPTOR\_CLASS\_NUMBER\_OFFSET**
- #define **MSO\_CLASS\_DESCRIPTOR\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_MASK**
- #define **MSO\_CLASS\_DESCRIPTOR\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_OFFSET**
- #define **MSO\_CLASS\_DESCRIPTOR\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**
- #define **MSO\_CLASS\_DESCRIPTOR\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**
- #define **MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_USE\_NODE\_AS\_IS**
- #define **MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_REMOVE\_NODE\_DESCRIPTOR**
- #define **MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_RECLASSIFY\_NODE\_DESCRIPTOR**
- #define **MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_ABORT\_BINDING**
- #define **USE\_NODE\_DESCRIPTOR\_AS\_IS**
- #define **REMOVE\_NODE\_DESCRIPTOR**
- #define **RECLASSIFY\_NODE\_DESCRIPTOR**
- #define **ABORT\_BINDING**
- #define **MSO\_FULL\_ROLL\_BACK\_ENABLED\_BIT**
- #define **MSO\_PRIMARY\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**
- #define **MSO\_PRIMARY\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**
- #define **MSO\_SECONDARY\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**
- #define **MSO\_SECONDARY\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**
- #define **MSO\_TERTIARY\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**
- #define **MSO\_TERTIARY\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_MASK**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_OFFSET**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_PRIMARY**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_SECONDARY**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_TERTIARY**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_RESERVED**
- #define **MSO\_NODE\_DESCRIPTOR\_CONTROL\_ENTRY\_IN\_USE\_BIT**
- #define **MSO\_HEADER\_LENGTH**
- #define **MSO\_HEADER\_FRAME\_CONTROL\_OFFSET**
- #define **MSO\_HEADER\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK**
- #define **USER\_CONTROL\_PRESSED\_LENGTH**
- #define **USER\_CONTROL\_PRESSED\_RC\_COMMAND\_CODE\_OFFSET**
- #define **USER\_CONTROL\_PRESSED\_RC\_COMMAND\_PAYLOAD\_OFFSET**
- #define **USER\_CONTROL\_REPEAT\_1\_0\_LENGTH**
- #define **USER\_CONTROL\_REPEAT\_1\_1\_LENGTH**
- #define **USER\_CONTROL\_REPEAT\_1\_1\_RC\_COMMAND\_CODE\_OFFSET**

- #define **USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_PAYLOAD\_OFFSET**
- #define **USER\_CONTROL\_RELEASED\_1\_0\_LENGTH**
- #define **USER\_CONTROL\_RELEASED\_1\_1\_LENGTH**
- #define **USER\_CONTROL\_RELEASED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET**
- #define **CHECK\_VALIDATION\_REQUEST\_LENGTH**
- #define **CHECK\_VALIDATION\_REQUEST\_CHECK\_VALIDATION\_CONTROL\_OFFSET**
- #define **CHECK\_VALIDATION\_CONTROL\_REQUEST\_AUTOMATIC\_VALIDATION\_BIT**
- #define **CHECK\_VALIDATION\_RESPONSE\_LENGTH**
- #define **CHECK\_VALIDATION\_RESPONSE\_CHECK\_VALIDATION\_STATUS\_OFFSET**
- #define **SET\_ATTRIBUTE\_REQUEST\_LENGTH**
- #define **SET\_ATTRIBUTE\_REQUEST\_ATTRIBUTE\_ID\_OFFSET**
- #define **SET\_ATTRIBUTE\_REQUEST\_INDEX\_OFFSET**
- #define **SET\_ATTRIBUTE\_REQUEST\_VALUE\_LENGTH\_OFFSET**
- #define **SET\_ATTRIBUTE\_REQUEST\_VALUE\_OFFSET**
- #define **SET\_ATTRIBUTE\_RESPONSE\_LENGTH**
- #define **SET\_ATTRIBUTE\_RESPONSE\_ATTRIBUTE\_ID\_OFFSET**
- #define **SET\_ATTRIBUTE\_RESPONSE\_INDEX\_OFFSET**
- #define **SET\_ATTRIBUTE\_RESPONSE\_STATUS\_OFFSET**
- #define **GET\_ATTRIBUTE\_REQUEST\_LENGTH**
- #define **GET\_ATTRIBUTE\_REQUEST\_ATTRIBUTE\_ID\_OFFSET**
- #define **GET\_ATTRIBUTE\_REQUEST\_INDEX\_OFFSET**
- #define **GET\_ATTRIBUTE\_REQUEST\_VALUE\_LENGTH\_OFFSET**
- #define **GET\_ATTRIBUTE\_RESPONSE\_LENGTH**
- #define **GET\_ATTRIBUTE\_RESPONSE\_ATTRIBUTE\_ID\_OFFSET**
- #define **GET\_ATTRIBUTE\_RESPONSE\_INDEX\_OFFSET**
- #define **GET\_ATTRIBUTE\_RESPONSE\_STATUS\_OFFSET**
- #define **GET\_ATTRIBUTE\_RESPONSE\_VALUE\_LENGTH\_OFFSET**
- #define **GET\_ATTRIBUTE\_RESPONSE\_VALUE\_OFFSET**
- #define **EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_MAXIMUM\_RC\_COMMAND\_PAYLOAD\_LENGTH**
- #define **MAXIMUM\_USER\_CONTROL\_X\_LENGTH**
- #define **EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_MAXIMUM\_PAYLOAD\_LENGTH**
- #define **MSO\_SET\_VALUE\_BINDING\_RECIPIENT\_PARAMETERS\_BYTES\_LENGTH**
- #define **debugScriptCheck(reason)**

## Enumerations

- enum {
 **BINDING\_STATE\_GET\_VALIDATION\_CONFIG\_PENDING**, **BINDING\_STATE\_CHECK\_VALIDATION\_INITIAL**, **BINDING\_STATE\_CHECK\_VALIDATION\_SENDING\_REQUEST**, **BINDING\_STATE\_CHECK\_VALIDATION\_IDLING**, **BINDING\_STATE\_CHECK\_VALIDATION\_WAIT\_FOR\_RESPONSE** }

## Functions

- bool **emAfRf4ceMsoIsBlackedOut** (uint8\_t pairingIndex)
- EmberStatus **emAfRf4ceMsoSend** (uint8\_t pairingIndex)
- EmberStatus **emAfRf4ceMsoSendExtended** (uint8\_t pairingIndex, EmberRf4ceTxOption txOptions)
- void **emAfRf4ceMsoMessageSent** (uint8\_t pairingIndex, **EmberAfRf4ceMsoCommandCode** commandCode, const uint8\_t \*message, uint8\_t messageLength, **EmberStatus** status)

- void [emAfRf4ceMsoIncomingMessage](#) (uint8\_t pairingIndex, [EmberAfRf4ceMsoCommandCode](#) commandCode, const uint8\_t \*message, uint8\_t messageLength)
- void [emAfRf4ceMsoSetValidation](#) (uint8\_t pairingIndex, [EmberAfRf4ceMsoValidationState](#) state, [EmberAfRf4ceMsoCheckValidationStatus](#) status)
- void [emAfRf4ceMsoInitializeValidationStates](#) (void)
- [EmberAfRf4ceMsoValidationState](#) [emAfRf4ceMsoGetValidationState](#) (uint8\_t pairingIndex)
- [EmberAfRf4ceMsoCheckValidationStatus](#) [emAfRf4ceMsoGetValidationStatus](#) (uint8\_t pairingIndex)
- void [emAfPluginRf4ceMsoCheckValidationRequestSentCallback](#) ([EmberStatus](#) status, uint8\_t pairingIndex)
- void [emAfPluginRf4ceMsoIncomingCheckValidationResponseCallback](#) ([EmberAfRf4ceMsoCheckValidationStatus](#) status, uint8\_t pairingIndex)
- void [emAfRf4ceMsoValidationConfigurationResponseCallback](#) ([EmberAfRf4ceStatus](#) status)
- uint8\_t [emAfRf4ceMsoGetActiveBindPairingIndex](#) (void)
- void [emAfRf4ceMsoSetActiveBindPairingIndex](#) (uint8\_t pairingIndex)
- [EmberStatus](#) [emAfRf4ceMsoSetDiscoveryResponseUserString](#) (void)
- void [emAfRf4ceMsoInitCommands](#) (void)

## Variables

- uint8\_t [emAfRf4ceMsoBuffer](#) []
- uint8\_t [emAfRf4ceMsoBufferLength](#)
- [EmberEventControl](#) [emberAfPluginRf4ceMsoUserControlEventControl](#)
- [EmberEventControl](#) [emberAfPluginRf4ceMsoCheckValidationEventControl](#)
- [EmberEventControl](#) [emberAfPluginRf4ceMsoSetGetAttributeEventControl](#)

### 8.280.1 Macro Definition Documentation

#### 8.280.1.1 #define NWK\_DISCOVERY\_LQI\_THRESHOLD

Definition at line 5 of file [rf4ce-mso-internal.h](#).

#### 8.280.1.2 #define NWK\_DISCOVERY\_REPEATITION\_INTERVAL\_MS

Definition at line 6 of file [rf4ce-mso-internal.h](#).

#### 8.280.1.3 #define NWK\_INDICATE\_DISCOVERY\_REQUEST

Definition at line 7 of file [rf4ce-mso-internal.h](#).

#### 8.280.1.4 #define NWK\_MAX\_DISCOVERY\_REPEATITIONS

Definition at line 10 of file [rf4ce-mso-internal.h](#).

#### 8.280.1.5 #define NWK\_MAX\_REPORTED\_NODE\_DESCRIPTOROS

Definition at line 13 of file [rf4ce-mso-internal.h](#).

**8.280.1.6 #define APLC\_MAX\_PAIRING\_CANDIDATES**

Definition at line 17 of file [rf4ce-mso-internal.h](#).

**8.280.1.7 #define APLC\_MAX\_KEY\_REPEAT\_INTERVAL\_MS**

Definition at line 21 of file [rf4ce-mso-internal.h](#).

**8.280.1.8 #define APLC\_MAX\_RIB\_ATTRIBUTE\_SIZE**

Definition at line 26 of file [rf4ce-mso-internal.h](#).

**8.280.1.9 #define APLC\_RESPONSE\_IDLE\_TIME\_MS**

Definition at line 31 of file [rf4ce-mso-internal.h](#).

**8.280.1.10 #define APLC\_BLACK\_OUT\_TIME\_MS**

Definition at line 35 of file [rf4ce-mso-internal.h](#).

**8.280.1.11 #define APLC\_MIN\_KEY\_EXCHANGE\_TRANSFER\_COUNT**

Definition at line 39 of file [rf4ce-mso-internal.h](#).

**8.280.1.12 #define NULL\_PAIRING\_INDEX**

Definition at line 41 of file [rf4ce-mso-internal.h](#).

**8.280.1.13 #define MSO\_USER\_STRING\_LENGTH**

Definition at line 43 of file [rf4ce-mso-internal.h](#).

**8.280.1.14 #define MSO\_DISCOVERY\_REQUEST\_MSO\_USER\_STRING\_OFFSET**

Definition at line 46 of file [rf4ce-mso-internal.h](#).

**8.280.1.15 #define MSO\_DISCOVERY\_REQUEST\_MSO\_USER\_STRING\_LENGTH**

Definition at line 47 of file [rf4ce-mso-internal.h](#).

**8.280.1.16 #define MSO\_DISCOVERY\_REQUEST\_BINDING\_INITIATION\_INDICATOR\_OFFSET**

Definition at line 48 of file [rf4ce-mso-internal.h](#).

8.280.1.17 #define MSO\_BINDING\_INITIATION\_INDICATOR\_DEDICATED\_KEY\_COMBO\_BIND

Definition at line 51 of file [rf4ce-mso-internal.h](#).

8.280.1.18 #define MSO\_BINDING\_INITIATION\_INDICATOR\_ANY\_BUTTON\_BIND

Definition at line 52 of file [rf4ce-mso-internal.h](#).

8.280.1.19 #define MSO\_DISCOVERY\_RESPONSE\_MSO\_USER\_STRING\_OFFSET

Definition at line 55 of file [rf4ce-mso-internal.h](#).

8.280.1.20 #define MSO\_DISCOVERY\_RESPONSE\_MSO\_USER\_STRING\_LENGTH

Definition at line 56 of file [rf4ce-mso-internal.h](#).

8.280.1.21 #define MSO\_DISCOVERY\_RESPONSE\_TERTIARY\_CLASS\_DESCRIPTOR\_OFFSET

Definition at line 57 of file [rf4ce-mso-internal.h](#).

8.280.1.22 #define MSO\_DISCOVERY\_RESPONSE\_SECONDARY\_CLASS\_DESCRIPTOR\_OFFSET

Definition at line 58 of file [rf4ce-mso-internal.h](#).

8.280.1.23 #define MSO\_DISCOVERY\_RESPONSE\_PRIMARY\_CLASS\_DESCRIPTOR\_OFFSET

Definition at line 59 of file [rf4ce-mso-internal.h](#).

8.280.1.24 #define MSO\_DISCOVERY\_RESPONSE\_STRICT\_LQI\_THRESHOLD\_OFFSET

Definition at line 60 of file [rf4ce-mso-internal.h](#).

8.280.1.25 #define MSO\_DISCOVERY\_RESPONSE\_BASIC\_LQI\_THRESHOLD\_OFFSET

Definition at line 61 of file [rf4ce-mso-internal.h](#).

8.280.1.26 #define MSO\_CLASS\_DESCRIPTOR\_CLASS\_NUMBER\_MASK

Definition at line 64 of file [rf4ce-mso-internal.h](#).

8.280.1.27 #define MSO\_CLASS\_DESCRIPTOR\_CLASS\_NUMBER\_OFFSET

Definition at line 65 of file [rf4ce-mso-internal.h](#).

8.280.1.28 #define MSO\_CLASS\_DESCRIPTOR\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_MASK

Definition at line 66 of file [rf4ce-mso-internal.h](#).

8.280.1.29 #define MSO\_CLASS\_DESCRIPTOR\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_OFFSET

Definition at line 67 of file [rf4ce-mso-internal.h](#).

8.280.1.30 #define MSO\_CLASS\_DESCRIPTOR\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT

Definition at line 68 of file [rf4ce-mso-internal.h](#).

8.280.1.31 #define MSO\_CLASS\_DESCRIPTOR\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT

Definition at line 69 of file [rf4ce-mso-internal.h](#).

8.280.1.32 #define MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_USE\_NODE\_AS\_IS

Definition at line 72 of file [rf4ce-mso-internal.h](#).

8.280.1.33 #define MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_REMOVE\_NODE\_DESCRIPTOR

Definition at line 73 of file [rf4ce-mso-internal.h](#).

8.280.1.34 #define MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_RECLASSIFY\_NODE\_DESCRIPTOR

Definition at line 74 of file [rf4ce-mso-internal.h](#).

8.280.1.35 #define MSO\_DUPLICATE\_CLASS\_NUMBER\_HANDLING\_ABORT\_BINDING

Definition at line 75 of file [rf4ce-mso-internal.h](#).

8.280.1.36 #define USE\_NODE\_DESCRIPTOR\_AS\_IS

Definition at line 79 of file [rf4ce-mso-internal.h](#).

8.280.1.37 #define REMOVE\_NODE\_DESCRIPTOR

Definition at line 81 of file [rf4ce-mso-internal.h](#).

8.280.1.38 #define RECLASSIFY\_NODE\_DESCRIPTOR

Definition at line 83 of file [rf4ce-mso-internal.h](#).

**8.280.1.39 #define ABORT\_BINDING**

Definition at line 85 of file [rf4ce-mso-internal.h](#).

**8.280.1.40 #define MSO\_FULL\_ROLL\_BACK\_ENABLED\_BIT**

Definition at line 91 of file [rf4ce-mso-internal.h](#).

**8.280.1.41 #define MSO\_PRIMARY\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**

Definition at line 98 of file [rf4ce-mso-internal.h](#).

**8.280.1.42 #define MSO\_PRIMARY\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**

Definition at line 104 of file [rf4ce-mso-internal.h](#).

**8.280.1.43 #define MSO\_SECONDARY\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**

Definition at line 111 of file [rf4ce-mso-internal.h](#).

**8.280.1.44 #define MSO\_SECONDARY\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**

Definition at line 117 of file [rf4ce-mso-internal.h](#).

**8.280.1.45 #define MSO\_TERTIARY\_APPLY\_STRICT\_LQI\_THRESHOLD\_BIT**

Definition at line 124 of file [rf4ce-mso-internal.h](#).

**8.280.1.46 #define MSO\_TERTIARY\_ENABLE\_REQUEST\_AUTO\_VALIDATION\_BIT**

Definition at line 131 of file [rf4ce-mso-internal.h](#).

**8.280.1.47 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_MASK**

Definition at line 135 of file [rf4ce-mso-internal.h](#).

**8.280.1.48 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_OFFSET**

Definition at line 136 of file [rf4ce-mso-internal.h](#).

**8.280.1.49 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_PRIMARY**

Definition at line 137 of file [rf4ce-mso-internal.h](#).

8.280.1.50 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_SECONDARY

Definition at line 138 of file [rf4ce-mso-internal.h](#).

8.280.1.51 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_TERTIARY

Definition at line 139 of file [rf4ce-mso-internal.h](#).

8.280.1.52 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_CURRENT\_CLASS\_DESCRIPTOR\_RESERVED

Definition at line 140 of file [rf4ce-mso-internal.h](#).

8.280.1.53 #define MSO\_NODE\_DESCRIPTOR\_CONTROL\_ENTRY\_IN\_USE\_BIT

Definition at line 141 of file [rf4ce-mso-internal.h](#).

8.280.1.54 #define MSO\_HEADER\_LENGTH

Definition at line 145 of file [rf4ce-mso-internal.h](#).

8.280.1.55 #define MSO\_HEADER\_FRAME\_CONTROL\_OFFSET

Definition at line 146 of file [rf4ce-mso-internal.h](#).

8.280.1.56 #define MSO\_HEADER\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK

Definition at line 147 of file [rf4ce-mso-internal.h](#).

8.280.1.57 #define USER\_CONTROL\_PRESSED\_LENGTH

Definition at line 152 of file [rf4ce-mso-internal.h](#).

8.280.1.58 #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_CODE\_OFFSET

Definition at line 153 of file [rf4ce-mso-internal.h](#).

8.280.1.59 #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_PAYLOAD\_OFFSET

Definition at line 154 of file [rf4ce-mso-internal.h](#).

8.280.1.60 #define USER\_CONTROL\_REPEATED\_1\_0\_LENGTH

Definition at line 159 of file [rf4ce-mso-internal.h](#).

8.280.1.61 #define USER\_CONTROL\_REPEATED\_1\_1\_LENGTH

Definition at line 160 of file [rf4ce-mso-internal.h](#).

8.280.1.62 #define USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET

Definition at line 161 of file [rf4ce-mso-internal.h](#).

8.280.1.63 #define USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_PAYLOAD\_OFFSET

Definition at line 162 of file [rf4ce-mso-internal.h](#).

8.280.1.64 #define USER\_CONTROL\_RELEASED\_1\_0\_LENGTH

Definition at line 166 of file [rf4ce-mso-internal.h](#).

8.280.1.65 #define USER\_CONTROL\_RELEASED\_1\_1\_LENGTH

Definition at line 167 of file [rf4ce-mso-internal.h](#).

8.280.1.66 #define USER\_CONTROL\_RELEASED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET

Definition at line 168 of file [rf4ce-mso-internal.h](#).

8.280.1.67 #define CHECK\_VALIDATION\_REQUEST\_LENGTH

Definition at line 172 of file [rf4ce-mso-internal.h](#).

8.280.1.68 #define CHECK\_VALIDATION\_REQUEST\_CHECK\_VALIDATION\_CONTROL\_OFFSET

Definition at line 173 of file [rf4ce-mso-internal.h](#).

8.280.1.69 #define CHECK\_VALIDATION\_CONTROL\_REQUEST\_AUTOMATIC\_VALIDATION\_BIT

Definition at line 175 of file [rf4ce-mso-internal.h](#).

8.280.1.70 #define CHECK\_VALIDATION\_RESPONSE\_LENGTH

Definition at line 179 of file [rf4ce-mso-internal.h](#).

8.280.1.71 #define CHECK\_VALIDATION\_RESPONSE\_CHECK\_VALIDATION\_STATUS\_OFFSET

Definition at line 180 of file [rf4ce-mso-internal.h](#).

**8.280.1.72 #define SET\_ATTRIBUTE\_REQUEST\_LENGTH**

Definition at line 187 of file [rf4ce-mso-internal.h](#).

**8.280.1.73 #define SET\_ATTRIBUTE\_REQUEST\_ATTRIBUTE\_ID\_OFFSET**

Definition at line 188 of file [rf4ce-mso-internal.h](#).

**8.280.1.74 #define SET\_ATTRIBUTE\_REQUEST\_INDEX\_OFFSET**

Definition at line 189 of file [rf4ce-mso-internal.h](#).

**8.280.1.75 #define SET\_ATTRIBUTE\_REQUEST\_VALUE\_LENGTH\_OFFSET**

Definition at line 190 of file [rf4ce-mso-internal.h](#).

**8.280.1.76 #define SET\_ATTRIBUTE\_REQUEST\_VALUE\_OFFSET**

Definition at line 191 of file [rf4ce-mso-internal.h](#).

**8.280.1.77 #define SET\_ATTRIBUTE\_RESPONSE\_LENGTH**

Definition at line 197 of file [rf4ce-mso-internal.h](#).

**8.280.1.78 #define SET\_ATTRIBUTE\_RESPONSE\_ATTRIBUTE\_ID\_OFFSET**

Definition at line 198 of file [rf4ce-mso-internal.h](#).

**8.280.1.79 #define SET\_ATTRIBUTE\_RESPONSE\_INDEX\_OFFSET**

Definition at line 199 of file [rf4ce-mso-internal.h](#).

**8.280.1.80 #define SET\_ATTRIBUTE\_RESPONSE\_STATUS\_OFFSET**

Definition at line 200 of file [rf4ce-mso-internal.h](#).

**8.280.1.81 #define GET\_ATTRIBUTE\_REQUEST\_LENGTH**

Definition at line 206 of file [rf4ce-mso-internal.h](#).

**8.280.1.82 #define GET\_ATTRIBUTE\_REQUEST\_ATTRIBUTE\_ID\_OFFSET**

Definition at line 207 of file [rf4ce-mso-internal.h](#).

**8.280.1.83 #define GET\_ATTRIBUTE\_REQUEST\_INDEX\_OFFSET**

Definition at line 208 of file [rf4ce-mso-internal.h](#).

**8.280.1.84 #define GET\_ATTRIBUTE\_REQUEST\_VALUE\_LENGTH\_OFFSET**

Definition at line 209 of file [rf4ce-mso-internal.h](#).

**8.280.1.85 #define GET\_ATTRIBUTE\_RESPONSE\_LENGTH**

Definition at line 217 of file [rf4ce-mso-internal.h](#).

**8.280.1.86 #define GET\_ATTRIBUTE\_RESPONSE\_ATTRIBUTE\_ID\_OFFSET**

Definition at line 218 of file [rf4ce-mso-internal.h](#).

**8.280.1.87 #define GET\_ATTRIBUTE\_RESPONSE\_INDEX\_OFFSET**

Definition at line 219 of file [rf4ce-mso-internal.h](#).

**8.280.1.88 #define GET\_ATTRIBUTE\_RESPONSE\_STATUS\_OFFSET**

Definition at line 220 of file [rf4ce-mso-internal.h](#).

**8.280.1.89 #define GET\_ATTRIBUTE\_RESPONSE\_VALUE\_LENGTH\_OFFSET**

Definition at line 221 of file [rf4ce-mso-internal.h](#).

**8.280.1.90 #define GET\_ATTRIBUTE\_RESPONSE\_VALUE\_OFFSET**

Definition at line 222 of file [rf4ce-mso-internal.h](#).

**8.280.1.91 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_MAXIMUM\_RC\_COMMAND\_PAYLOAD\_LENGTH**

Definition at line 229 of file [rf4ce-mso-internal.h](#).

**8.280.1.92 #define MAXIMUM\_USER\_CONTROL\_X\_LENGTH**

Definition at line 231 of file [rf4ce-mso-internal.h](#).

**8.280.1.93 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_MAXIMUM\_PAYLOAD\_LENGTH**

Definition at line 239 of file [rf4ce-mso-internal.h](#).

8.280.1.94 #define MSO\_SET\_VALUE\_BINDING\_RECIPIENT\_PARAMETERS\_BYTES\_LENGTH

Definition at line 245 of file [rf4ce-mso-internal.h](#).

8.280.1.95 #define debugScriptCheck( *reason* )

Definition at line 314 of file [rf4ce-mso-internal.h](#).

## 8.280.2 Enumeration Type Documentation

8.280.2.1 anonymous enum

Enumerator:

*BINDING\_STATE\_GET\_VALIDATION\_CONFIG\_PENDING*  
*BINDING\_STATE\_CHECK\_VALIDATION\_INITIAL*  
*BINDING\_STATE\_CHECK\_VALIDATION\_SENDING\_REQUEST*  
*BINDING\_STATE\_CHECK\_VALIDATION\_IDLING*  
*BINDING\_STATE\_CHECK\_VALIDATION\_WAIT\_FOR\_RESPONSE*

Definition at line 248 of file [rf4ce-mso-internal.h](#).

## 8.280.3 Function Documentation

8.280.3.1 bool emAfRf4ceMsolsBlackedOut ( uint8\_t *pairingIndex* )

8.280.3.2 EmberStatus emAfRf4ceMsoSend ( uint8\_t *pairingIndex* )

8.280.3.3 EmberStatus emAfRf4ceMsoSendExtended ( uint8\_t *pairingIndex*, EmberRf4ceTxOption *txOptions* )

8.280.3.4 void emAfRf4ceMsoMessageSent ( uint8\_t *pairingIndex*, EmberAfRf4ceMsoCommandCode *commandCode*, const uint8\_t \* *message*, uint8\_t *messageLength*, EmberStatus *status* )

8.280.3.5 void emAfRf4ceMsolIncomingMessage ( uint8\_t *pairingIndex*, EmberAfRf4ceMso-CommandCode *commandCode*, const uint8\_t \* *message*, uint8\_t *messageLength* )

8.280.3.6 void emAfRf4ceMsoSetValidation ( uint8\_t *pairingIndex*, EmberAfRf4ceMsoValidationState *state*, EmberAfRf4ceMsoCheckValidationStatus *status* )

8.280.3.7 void emAfRf4ceMsolInitializeValidationStates ( void )

8.280.3.8 EmberAfRf4ceMsoValidationState emAfRf4ceMsoGetValidationState ( uint8\_t *pairingIndex* )

8.280.3.9 EmberAfRf4ceMsoCheckValidationStatus emAfRf4ceMsoGetValidationStatus ( uint8\_t *pairingIndex* )

8.280.3.10 void emAfPluginRf4ceMsoCheckValidationRequestSentCallback ( EmberStatus *status*, uint8\_t *pairingIndex* )

- 8.280.3.11 void emAfPluginRf4ceMsoIncomingCheckValidationResponseCallback ( EmberAfRf4ceMsoCheckValidationStatus *status*, uint8\_t *pairingIndex* )
- 8.280.3.12 void emAfRf4ceMsoValidationConfigurationResponseCallback ( EmberAfRf4ceStatus *status* )
- 8.280.3.13 uint8\_t emAfRf4ceMsoGetActiveBindPairingIndex ( void )
- 8.280.3.14 void emAfRf4ceMsoSetActiveBindPairingIndex ( uint8\_t *pairingIndex* )
- 8.280.3.15 EmberStatus emAfRf4ceMsoSetDiscoveryResponseUserString ( void )
- 8.280.3.16 void emAfRf4ceMsоТinitCommands ( void )

#### 8.280.4 Variable Documentation

- 8.280.4.1 uint8\_t emAfRf4ceMsoBuffer[]
- 8.280.4.2 uint8\_t emAfRf4ceMsoBufferLength
- 8.280.4.3 EmberEventControl emerAfPluginRf4ceMsoUserControlEventControl
- 8.280.4.4 EmberEventControl emerAfPluginRf4ceMsoCheckValidationEventControl
- 8.280.4.5 EmberEventControl emerAfPluginRf4ceMsoSetGetAttributeEventControl

### 8.281 rf4ce-mso-internal.h

```

00001 // Copyright 2013 Silicon Laboratories, Inc.
00002
00003 #include "app/framework/plugin/rf4ce-profile/rf4ce-profile.h"
00004
00005 #define NWK_DISCOVERY_LQI_THRESHOLD 0
00006 #define NWK_DISCOVERY_REPETITION_INTERVAL_MS 600
00007 #define NWK_INDICATE_DISCOVERY_REQUEST true
00008
00009 // The maximum number of repetitions performed during discovery.
00010 #define NWK_MAX_DISCOVERY_REPETITIONS 2
00011
00012 // The maximum number of node descriptors reported during discovery.
00013 #define NWK_MAX_REPORTED_NODE_DESCRIPTOROS 16
00014
00015 // The maximum number of pairing candidates selected from the node descriptor
00016 // list.
00017 #define APLC_MAX_PAIRING_CANDIDATES 3
00018
00019 // The maximum time between consecutive user control repeated command frame
00020 // transmissions.
00021 #define APLC_MAX_KEY_REPEAT_INTERVAL_MS 120
00022
00023 // The maximum size in octets of the elements of the attributes in the RIB. At
00024 // the same time, the maximum size in octets of the value field in the set
00025 // attribute request and get attribute response command frames.
00026 #define APLC_MAX_RIB_ATTRIBUTE_SIZE 92
00027
00028 // The time a device SHALL wait after the successful transmission of a request
00029 // command frame before enabling its receiver to receive a response command
00030 // frame.
00031 #define APLC_RESPONSE_IDLE_TIME_MS 50
00032
00033 // The time at the start of the validation procedure during which packets shall
00034 // not be transmitted.
00035 #define APLC_BLACK_OUT_TIME_MS 100

```

```

00036
00037 // The minimum value of the KeyExTransferCount parameter passed to the pair
00038 // request primitive during the push button pairing procedure.
00039 #define APLC_MIN_KEY_EXCHANGE_TRANSFER_COUNT 3
00040
00041 #define NULL_PAIRING_INDEX 0xFF
00042
00043 #define MSO_USER_STRING_LENGTH
00044     9
00045 // Discovery request user string fields
00046 #define MSO_DISCOVERY_REQUEST_MS0_USER_STRING_OFFSET          0
00047 #define MSO_DISCOVERY_REQUEST_MS0_USER_STRING_LENGTH
00048     MSO_USER_STRING_LENGTH
00049 #define MSO_DISCOVERY_REQUEST_BINDING_INITIATION_INDICATOR_OFFSET
00050     14
00051 // Binding initiation indicator field
00052 #define MSO_BINDING_INITIATION_INDICATOR_DEDICATED_KEY_COMBO_BIND
00053     0x00
00054 #define MSO_BINDING_INITIATION_INDICATOR_ANY_BUTTON_BIND
00055     0x01
00056 // Discovery response user string fields
00057 #define MSO_DISCOVERY_RESPONSE_MS0_USER_STRING_OFFSET          0
00058 #define MSO_DISCOVERY_RESPONSE_MS0_USER_STRING_LENGTH
00059     MSO_USER_STRING_LENGTH
00060 #define MSO_DISCOVERY_RESPONSE_TERTIARY_CLASS_DESCRIPTOR_OFFSET
00061     10
00062 #define MSO_DISCOVERY_RESPONSE_SECONDARY_CLASS_DESCRIPTOR_OFFSET
00063     11
00064 #define MSO_DISCOVERY_RESPONSE_PRIMARY_CLASS_DESCRIPTOR_OFFSET
00065     12
00066 #define MSO_DISCOVERY_RESPONSE_STRICT_LQI_THRESHOLD_OFFSET
00067     13
00068 #define MSO_DISCOVERY_RESPONSE_BASIC_LQI_THRESHOLD_OFFSET
00069     14
00070
00071 // Class descriptor fields
00072 #define MSO_CLASS_DESCRIPTOR_CLASS_NUMBER_MASK
00073     0x0F
00074 #define MSO_CLASS_DESCRIPTOR_CLASS_NUMBER_OFFSET
00075     0x30
00076 #define MSO_CLASS_DESCRIPTOR_DUPLICATE_CLASS_NUMBER_HANDLING_MASK
00077     0x40
00078 #define MSO_CLASS_DESCRIPTOR_APPLY_STRICT_LQI_THRESHOLD_BIT
00079     0x80
00080 #define MSO_CLASS_DESCRIPTOR_ENABLE_REQUEST_AUTO_VALIDATION_BIT
00081     0x00
00082 // Duplicate class number handling field
00083 #define MSO_DUPLICATE_CLASS_NUMBER_HANDLING_USE_NODE_AS_IS
00084     0x00
00085 #define MSO_DUPLICATE_CLASS_NUMBER_HANDLING_REMOVE_NODE_DESCRIPTOR
00086     0x01
00087 #define MSO_DUPLICATE_CLASS_NUMBER_HANDLING_RECLASSIFY_NODE_DESCRIPTOR
00088     0x02
00089 #define MSO_DUPLICATE_CLASS_NUMBER_HANDLING_ABORT_BINDING
00090     0x03
00091
00092 // These come from the plugin option and need to be translated to appropriate
00093 // values.
00094 #define USE_NODE_DESCRIPTOR_AS_IS \
00095     MSO_DUPLICATE_CLASS_NUMBER_HANDLING_USE_NODE_AS_IS
00096 #define REMOVE_NODE_DESCRIPTOR \
00097     MSO_DUPLICATE_CLASS_NUMBER_HANDLING_REMOVE_NODE_DESCRIPTOR
00098 #define RECLASSIFY_NODE_DESCRIPTOR \
00099     MSO_DUPLICATE_CLASS_NUMBER_HANDLING_RECLASSIFY_NODE_DESCRIPTOR
00100 #define ABORT_BINDING \
00101     MSO_DUPLICATE_CLASS_NUMBER_HANDLING_ABORT_BINDING
00102
00103 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_FULL_ROLL_BACK_ENABLED
00104     #define MSO_FULL_ROLL_BACK_ENABLED_BIT BIT(0)
00105 #else
00106     #define MSO_FULL_ROLL_BACK_ENABLED_BIT 0
00107 #endif
00108
00109 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_PRIMARY_APPLY_STRICT_LQI_THRESHOLD
00110     #define MSO_PRIMARY_APPLY_STRICT_LQI_THRESHOLD_BIT \
00111         MSO_CLASS_DESCRIPTOR_APPLY_STRICT_LQI_THRESHOLD_BIT

```

```

00097 #else
00098     #define MSO_PRIMARY_APPLY_STRICT_LQI_THRESHOLD_BIT 0
00099 #endif
00100 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_PRIMARY_ENABLE_REQUEST_AUTO_VALIDATION
00101     #define MSO_PRIMARY_ENABLE_REQUEST_AUTO_VALIDATION_BIT \
00102         MSO_CLASS_DESCRIPTOR_ENABLE_REQUEST_AUTO_VALIDATION_BIT
00103 #else
00104     #define MSO_PRIMARY_ENABLE_REQUEST_AUTO_VALIDATION_BIT 0
00105 #endif
00106
00107 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_SECONDARY_APPLY_STRICT_LQI_THRESHOLD
00108     #define MSO_SECONDARY_APPLY_STRICT_LQI_THRESHOLD_BIT \
00109         MSO_CLASS_DESCRIPTOR_APPLY_STRICT_LQI_THRESHOLD_BIT
00110 #else
00111     #define MSO_SECONDARY_APPLY_STRICT_LQI_THRESHOLD_BIT 0
00112 #endif
00113 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_SECONDARY_ENABLE_REQUEST_AUTO_VALIDATION
00114     #define MSO_SECONDARY_ENABLE_REQUEST_AUTO_VALIDATION_BIT \
00115         MSO_CLASS_DESCRIPTOR_ENABLE_REQUEST_AUTO_VALIDATION_BIT
00116 #else
00117     #define MSO_SECONDARY_ENABLE_REQUEST_AUTO_VALIDATION_BIT 0
00118 #endif
00119
00120 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_TERTIARY_APPLY_STRICT_LQI_THRESHOLD
00121     #define MSO_TERTIARY_APPLY_STRICT_LQI_THRESHOLD_BIT \
00122         MSO_CLASS_DESCRIPTOR_APPLY_STRICT_LQI_THRESHOLD_BIT
00123 #else
00124     #define MSO_TERTIARY_APPLY_STRICT_LQI_THRESHOLD_BIT 0
00125 #endif
00126
00127 #ifdef EMBER_AF_PLUGIN_RF4CE_MSO_TERTIARY_ENABLE_REQUEST_AUTO_VALIDATION
00128     #define MSO_TERTIARY_ENABLE_REQUEST_AUTO_VALIDATION_BIT \
00129         MSO_CLASS_DESCRIPTOR_ENABLE_REQUEST_AUTO_VALIDATION_BIT
00130 #else
00131     #define MSO_TERTIARY_ENABLE_REQUEST_AUTO_VALIDATION_BIT 0
00132 #endif
00133
00134 // Internal node descriptor control byte.
00135 #define MSO_NODE_DESCRIPTOR_CONTROL_CURRENT_CLASS_DESCRIPTOR_MASK
0x03
00136 #define MSO_NODE_DESCRIPTOR_CONTROL_CURRENT_CLASS_DESCRIPTOR_OFFSET
0
00137 #define MSO_NODE_DESCRIPTOR_CONTROL_CURRENT_CLASS_DESCRIPTOR_PRIMARY
0x00
00138 #define MSO_NODE_DESCRIPTOR_CONTROL_CURRENT_CLASS_DESCRIPTOR_SECONDARY
0x01
00139 #define MSO_NODE_DESCRIPTOR_CONTROL_CURRENT_CLASS_DESCRIPTOR_TERTIARY
0x02
00140 #define MSO_NODE_DESCRIPTOR_CONTROL_CURRENT_CLASS_DESCRIPTOR_RESERVED
0x03
00141 #define MSO_NODE_DESCRIPTOR_CONTROL_ENTRY_IN_USE_BIT
0x04
00142
00143 // MSO header
00144 // - Frame control (1 byte)
00145 #define MSO_HEADER_LENGTH 1
00146 #define MSO_HEADER_FRAME_CONTROL_OFFSET 0
00147 #define MSO_HEADER_FRAME_CONTROL_COMMAND_CODE_MASK 0xFF
00148
00149 // User Control Pressed
00150 // - RC command code (1 byte)
00151 // - RC command payload (n bytes)
00152 #define USER_CONTROL_PRESSED_LENGTH (MSO_HEADER_LENGTH + 1)
00153 #define USER_CONTROL_PRESSED_RC_COMMAND_CODE_OFFSET (MSO_HEADER_LENGTH)
00154 #define USER_CONTROL_PRESSED_RC_COMMAND_PAYLOAD_OFFSET (MSO_HEADER_LENGTH + 1)
00155
00156 // User Control Repeated
00157 // - RC command code (1 byte, 1.1 only)
00158 // - RC command payload (n bytes, 1.1 only)
00159 #define USER_CONTROL_REPEATED_1_0_LENGTH (MSO_HEADER_LENGTH)
00160 #define USER_CONTROL_REPEATED_1_1_LENGTH (MSO_HEADER_LENGTH + 1)
00161 #define USER_CONTROL_REPEATED_1_1_RC_COMMAND_CODE_OFFSET (MSO_HEADER_LENGTH)
00162 #define USER_CONTROL_REPEATED_1_1_RC_COMMAND_PAYLOAD_OFFSET (MSO_HEADER_LENGTH + 1)
00163
00164 // User Control Released
00165 // - RC command code (1 byte, 1.1 only)
00166 #define USER_CONTROL_RELEASED_1_0_LENGTH (MSO_HEADER_LENGTH)
00167 #define USER_CONTROL_RELEASED_1_1_LENGTH (MSO_HEADER_LENGTH + 1)
00168 #define USER_CONTROL_RELEASED_1_1_RC_COMMAND_CODE_OFFSET (MSO_HEADER_LENGTH)

```

```

00169
00170 // Check Validation Request
00171 // - Check validation control (1 byte)
00172 #define CHECK_VALIDATION_REQUEST_LENGTH (MSO_HEADER_LENGTH + 1)
00173 #define CHECK_VALIDATION_REQUEST_CHECK_VALIDATION_CONTROL_OFFSET
      (MSO_HEADER_LENGTH)
00174
00175 #define CHECK_VALIDATION_CONTROL_REQUEST_AUTOMATIC_VALIDATION_BIT
      0x01
00176
00177 // Check Validation Response
00178 // - Check validation status (1 byte)
00179 #define CHECK_VALIDATION_RESPONSE_LENGTH (MSO_HEADER_LENGTH + 1)
00180 #define CHECK_VALIDATION_RESPONSE_CHECK_VALIDATION_STATUS_OFFSET
      (MSO_HEADER_LENGTH)
00181
00182 // Set Attribute Request
00183 // - Attribute id (1 byte)
00184 // - Index (1 byte)
00185 // - Value length (1 byte)
00186 // - Value (n bytes)
00187 #define SET_ATTRIBUTE_REQUEST_LENGTH 4
00188 #define SET_ATTRIBUTE_REQUEST_ATTRIBUTE_ID_OFFSET (MSO_HEADER_LENGTH)
00189 #define SET_ATTRIBUTE_REQUEST_INDEX_OFFSET (MSO_HEADER_LENGTH + 1)
00190 #define SET_ATTRIBUTE_REQUEST_VALUE_LENGTH_OFFSET (MSO_HEADER_LENGTH + 2)
00191 #define SET_ATTRIBUTE_REQUEST_VALUE_OFFSET (MSO_HEADER_LENGTH + 3)
00192
00193 // Set Attribute Response
00194 // - Attribute id (1 byte)
00195 // - Index (1 byte)
00196 // - Status (1 byte)
00197 #define SET_ATTRIBUTE_RESPONSE_LENGTH 4
00198 #define SET_ATTRIBUTE_RESPONSE_ATTRIBUTE_ID_OFFSET (MSO_HEADER_LENGTH)
00199 #define SET_ATTRIBUTE_RESPONSE_INDEX_OFFSET (MSO_HEADER_LENGTH + 1)
00200 #define SET_ATTRIBUTE_RESPONSE_STATUS_OFFSET (MSO_HEADER_LENGTH + 2)
00201
00202 // Get Attribute Request
00203 // - Attribute id (1 byte)
00204 // - Index (1 byte)
00205 // - Value length (1 byte)
00206 #define GET_ATTRIBUTE_REQUEST_LENGTH 4
00207 #define GET_ATTRIBUTE_REQUEST_ATTRIBUTE_ID_OFFSET (MSO_HEADER_LENGTH)
00208 #define GET_ATTRIBUTE_REQUEST_INDEX_OFFSET (MSO_HEADER_LENGTH + 1)
00209 #define GET_ATTRIBUTE_REQUEST_VALUE_LENGTH_OFFSET (MSO_HEADER_LENGTH + 2)
00210
00211 // Get Attribute Response
00212 // - Attribute id (1 byte)
00213 // - Index (1 byte)
00214 // - Status (1 byte)
00215 // - Value length (1 byte)
00216 // - Value (n bytes)
00217 #define GET_ATTRIBUTE_RESPONSE_LENGTH 5
00218 #define GET_ATTRIBUTE_RESPONSE_ATTRIBUTE_ID_OFFSET (MSO_HEADER_LENGTH)
00219 #define GET_ATTRIBUTE_RESPONSE_INDEX_OFFSET (MSO_HEADER_LENGTH + 1)
00220 #define GET_ATTRIBUTE_RESPONSE_STATUS_OFFSET (MSO_HEADER_LENGTH + 2)
00221 #define GET_ATTRIBUTE_RESPONSE_VALUE_LENGTH_OFFSET (MSO_HEADER_LENGTH + 3)
00222 #define GET_ATTRIBUTE_RESPONSE_VALUE_OFFSET (MSO_HEADER_LENGTH + 4)
00223
00224 // The User Control Pressed and User Control Repeated commands theoretically
00225 // take an unbounded additional payload, but the longest additional operand in
00226 // HDMI 1.3a is just four bytes. Still, just in case, leave an opening for the
00227 // user to override the buffer size.
00228 #ifndef EMBER_AF_PLUGIN_RF4CE_MSO_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH
00229     #define EMBER_AF_PLUGIN_RF4CE_MSO_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH 4
00230 #endif
00231 #define MAXIMUM_USER_CONTROL_X_LENGTH
00232     (USER_CONTROL_PRESSED_LENGTH
00233     + EMBER_AF_PLUGIN_RF4CE_MSO_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH)
00234
00235 // Assuming the standard operands are used, the Get Attribute Response command
00236 // is the commands with the longest payload in the MSO profile.
00237 #ifndef EMBER_AF_PLUGIN_RF4CE_MSO_MAXIMUM_PAYLOAD_LENGTH
00238     #if MAXIMUM_USER_CONTROL_X_LENGTH < GET_ATTRIBUTE_RESPONSE_LENGTH +
          APLC_MAX_RIB_ATTRIBUTE_SIZE
00239         #define EMBER_AF_PLUGIN_RF4CE_MSO_MAXIMUM_PAYLOAD_LENGTH
          (GET_ATTRIBUTE_RESPONSE_LENGTH + APLC_MAX_RIB_ATTRIBUTE_SIZE)
00240     #else
00241         #define EMBER_AF_PLUGIN_RF4CE_MSO_MAXIMUM_PAYLOAD_LENGTH
          MAXIMUM_USER_CONTROL_X_LENGTH
00242     #endif

```

```

00243 #endif
00244
00245 #define MSO_SET_VALUE_BINDING_RECIPIENT_PARAMETERS_BYTES_LENGTH
      5
00246
00247 // Internal binding state machine.
00248 enum {
00249   BINDING_STATE_GET_VALIDATION_CONFIG_PENDING
       = 0x00,
00250   BINDING_STATE_CHECK_VALIDATION_INITIAL
       = 0x01,
00251   BINDING_STATE_CHECK_VALIDATION_SENDING_REQUEST
       = 0x02,
00252   BINDING_STATE_CHECK_VALIDATION_IDLING
       = 0x03,
00253   BINDING_STATE_CHECK_VALIDATION_WAIT_FOR_RESPONSE
       = 0x04
00254 };
00255
00256 typedef struct {
00257   uint8_t channel;
00258   EmberPanId panId;
00259   EmberEUI64 ieeeAddr;
00260   uint8_t primaryClassDescriptor;
00261   uint8_t secondaryClassDescriptor;
00262   uint8_t tertiaryClassDescriptor;
00263   uint8_t basicLqiThreshold;
00264   uint8_t strictLqiThreshold;
00265   uint8_t rxLqi;
00266   uint8_t control;
00267 } EmAfMsoPairingCandidate;
00268
00269 extern uint8_t emAfRf4ceMsoBuffer[];
00270 extern uint8_t emAfRf4ceMsoBufferLength;
00271 extern EmberEventControl
      emberAfPluginRf4ceMsoUserControlEventControl
;
00272 extern EmberEventControl
      emberAfPluginRf4ceMsoCheckValidationEventControl
;
00273 extern EmberEventControl
      emberAfPluginRf4ceMsoSetGetAttributeEventControl
;
00274
00275 bool emAfRf4ceMsoIsBlackedOut(uint8_t pairingIndex);
00276 EmberStatus emAfRf4ceMsoSend(uint8_t pairingIndex);
00277 EmberStatus emAfRf4ceMsoSendExtended(uint8_t
      pairingIndex,
      EmberRf4ceTxOption txOptions);
00278 void emAfRf4ceMsoMessageSent(uint8_t pairingIndex,
      EmberAfRf4ceMsoCommandCode
      commandCode,
      const uint8_t *message,
      uint8_t messageLength,
      EmberStatus status);
00284 void emAfRf4ceMsoIncomingMessage(uint8_t
      pairingIndex,
      EmberAfRf4ceMsoCommandCode
      commandCode,
      const uint8_t *message,
      uint8_t messageLength);
00288
00289 void emAfRf4ceMsoSetValidation(uint8_t pairingIndex,
      EmberAfRf4ceMsoValidationState
      state,
      EmberAfRf4ceMsoCheckValidationStatus
      status);
00292 void emAfRf4ceMsoInitializeValidationStates
      (void);
00293 EmberAfRf4ceMsoValidationState
      emAfRf4ceMsoGetValidationState(uint8_t
      pairingIndex);
00294 EmberAfRf4ceMsoCheckValidationStatus
      emAfRf4ceMsoGetValidationStatus(uint8_t
      pairingIndex);
00295 void emAfPluginRf4ceMsoCheckValidationRequestSentCallback
      (EmberStatus status,
      uint8_t pairingIndex)
;
00297 void emAfPluginRf4ceMsoIncomingCheckValidationResponseCallback

```

```

00298     (EmberAfRf4ceMsoCheckValidationStatus status
00299             pairingIndex);                                uint8_t
00300     void emAfRf4ceMsoValidationConfigurationResponseCallback
00301         (EmberAfRf4ceStatus status);
00302     uint8_t emAfRf4ceMsoGetActiveBindPairingIndex
00303         (void);
00304     void emAfRf4ceMsoSetActiveBindPairingIndex
00305         (uint8_t pairingIndex);
00306
00307 #if defined(EMBER_SCRIPTED_TEST)
00308 #include "stack/core/ember-stack.h"
00309 #include "core/scripted-stub.h"
00310
00311 #define debugScriptCheck(reason)
00312     \ simpleScriptCheck("scriptCheck", "scriptCheck: " reason, "")
00313 #else
00314 #define debugScriptCheck(reason)
00315 #endif // EMBER_SCRIPTED_TEST
00316
00317

```

## 8.282 rf4ce-mso-ir-rf-database-originator.h File Reference

### Functions

- EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorGet (EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorSet (EmberAfRf4ceMsoKeyCode keyCode, const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorClear (EmberAfRf4ceMsoKeyCode keyCode)
- void emberAfRf4ceMsoIrRfDatabaseOriginatorClearAll (void)

## 8.283 rf4ce-mso-ir-rf-database-originator.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_MSO_IF_RF_DATABASE_ORIGINATOR_H__
00004 #define __RF4CE_MSO_IF_RF_DATABASE_ORIGINATOR_H__
00005
00035 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00036
00045 EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorGet
00046     (EmberAfRf4ceMsoKeyCode keyCode,
00047      EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00048 #else
00049     #define emberAfRf4ceMsoIrRfDatabaseOriginatorGet \
00050         emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback
00051 #endif
00052
00060 EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorSet
00061     (EmberAfRf4ceMsoKeyCode keyCode,
00062      const
00063      EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00064
00070 EmberStatus emberAfRf4ceMsoIrRfDatabaseOriginatorClear
00071     (EmberAfRf4ceMsoKeyCode keyCode);
00072
00073 void emberAfRf4ceMsoIrRfDatabaseOriginatorClearAll
00074     (void);

```

```

00074
00075 #endif /* __RF4CE_MSO_IF_RF_DATABASE_ORIGINATOR_H__ */
00076
00077 // END addtogroup

```

## 8.284 rf4ce-mso-ir-rf-database-recipient.h File Reference

### Functions

- `EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientAdd (EmberAfRf4ceMsoKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry *entry)`
- `EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientRemove (EmberAfRf4ceMsoKeyCode keyCode)`
- `void emberAfRf4ceMsoIrRfDatabaseRecipientRemoveAll (void)`

## 8.285 rf4ce-mso-ir-rf-database-recipient.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_H__
00004 #define __RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_H__
00005
00046 EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientAdd
    (EmberAfRf4ceMsoKeyCode keyCode,
00047     EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00048
00049
00057 EmberStatus emberAfRf4ceMsoIrRfDatabaseRecipientRemove
    (EmberAfRf4ceMsoKeyCode keyCode);
00058
00059
00061 void emberAfRf4ceMsoIrRfDatabaseRecipientRemoveAll
    (void);
00062
00063
00064 #endif // __RF4CE_MSO_IR_RF_DATABASE_RECIPIENT_H__
00065
00066 // END addtogroup

```

## 8.286 rf4ce-mso-test.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_RF4CE_MSO_KEY_REPEAT_INTERVAL_MS`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_MAX_USER_CONTROL_RECORDS`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_RESPONSE_WAIT_TIME_MS`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_AUTO_CHECK_VALIDATION_PERIOD_MS`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_LINK_LOST_WAIT_TIME_MS`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_MAX_PAIRING_CANDIDATES`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_KEY_EXCHANGE_TRANSFER_COUNT`
- `#define EMBER_AF_PLUGIN_RF4CE_PROFILE_VENDOR_ID`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_PERIPHERAL_ID_ENTRIES`
- `#define EMBER_AF_PLUGIN_RF4CE_MSO_GENERAL_PURPOSE_ENTRIES`

## Functions

- void `emberAfPluginRf4ceMsoBindingCompleteCallback` (`EmberAfRf4ceMsoBindingStatus` status, `uint8_t` pairingIndex)
- void `emberAfPluginRf4ceMsoStartValidationCallback` (`uint8_t` pairingIndex)
- void `emberAfPluginRf4ceMsoUserControlCallback` (`const EmberAfRf4ceMsoUserControlRecord *record`)
- `EmberAfRf4ceStatus` `emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback` (`uint8_t` pairingIndex, `uint8_t` entryIndex, `uint8_t` \*valueLength, `uint8_t` \*value)
- bool `emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback` (`uint8_t` pairingIndex, `uint8_t` entryIndex)
- void `emberAfPluginRf4ceMsoIncomingIrRfDatabaseAttributeCallback` (`uint8_t` pairingIndex, `uint8_t` entryIndex, `uint8_t` valueLength, `const uint8_t` \*value)
- `EmberStatus` `emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback` (`EmberAfRf4ceMsoKeyCode` keyCode, `EmberAfRf4ceMsoIrRfDatabaseEntry` \*entry)

### 8.286.1 Macro Definition Documentation

#### 8.286.1.1 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_KEY\_REPEAT\_INTERVAL\_MS

Definition at line 5 of file `rf4ce-mso-test.h`.

#### 8.286.1.2 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_MAX\_USER\_CONTROL\_RECORDS

Definition at line 6 of file `rf4ce-mso-test.h`.

#### 8.286.1.3 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_RESPONSE\_WAIT\_TIME\_MS

Definition at line 7 of file `rf4ce-mso-test.h`.

#### 8.286.1.4 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_AUTO\_CHECK\_VALIDATION\_PERIOD\_MS

Definition at line 8 of file `rf4ce-mso-test.h`.

#### 8.286.1.5 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_LINK\_LOST\_WAIT\_TIME\_MS

Definition at line 9 of file `rf4ce-mso-test.h`.

#### 8.286.1.6 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_MAX\_PAIRING\_CANDIDATES

Definition at line 10 of file `rf4ce-mso-test.h`.

#### 8.286.1.7 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_KEY\_EXCHANGE\_TRANSFER\_COUNT

Definition at line 11 of file `rf4ce-mso-test.h`.

### 8.286.1.8 #define EMBER\_AF\_PLUGIN\_RF4CE\_PROFILE\_VENDOR\_ID

Definition at line 12 of file [rf4ce-mso-test.h](#).

### 8.286.1.9 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_PERIPHERAL\_ID\_ENTRIES

Definition at line 13 of file [rf4ce-mso-test.h](#).

### 8.286.1.10 #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_GENERAL\_PURPOSE\_ENTRIES

Definition at line 14 of file [rf4ce-mso-test.h](#).

## 8.286.2 Function Documentation

- 8.286.2.1 void `emberAfPluginRf4ceMsoBindingCompleteCallback ( EmberAfRf4ceMsoBindingStatus status, uint8_t pairingIndex )`
- 8.286.2.2 void `emberAfPluginRf4ceMsoStartValidationCallback ( uint8_t pairingIndex )`
- 8.286.2.3 void `emberAfPluginRf4ceMsoUserControlCallback ( const EmberAfRf4ceMsoUserControlRecord * record )`
- 8.286.2.4 EmberAfRf4ceStatus `emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback ( uint8_t pairingIndex, uint8_t entryIndex, uint8_t * valueLength, uint8_t * value )`
- 8.286.2.5 bool `emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback ( uint8_t pairingIndex, uint8_t entryIndex )`
- 8.286.2.6 void `emberAfPluginRf4ceMsolIncomingIrRfDatabaseAttributeCallback ( uint8_t pairingIndex, uint8_t entryIndex, uint8_t valueLength, const uint8_t * value )`
- 8.286.2.7 EmberStatus `emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback ( EmberAfRf4ceKeyCode keyCode, EmberAfRf4ceMsoIrRfDatabaseEntry * entry )`

## 8.287 rf4ce-mso-test.h

```

00001 // defines that are generated by app framework.
00002 // Forward declarations to avoid warnings in scripted tests (usually found in
00003 // the callback header file, that also generated by app framework).
00004
00005 #define EMBER_AF_PLUGIN_RF4CE_MSO_KEY_REPEAT_INTERVAL_MS 120
00006 #define EMBER_AF_PLUGIN_RF4CE_MSO_MAX_USER_CONTROL_RECORDS 1
00007 #define EMBER_AF_PLUGIN_RF4CE_MSO_RESPONSE_WAIT_TIME_MS 100
00008 #define EMBER_AF_PLUGIN_RF4CE_MSO_AUTO_CHECK_VALIDATION_PERIOD_MS 500
00009 #define EMBER_AF_PLUGIN_RF4CE_MSO_LINK_LOST_WAIT_TIME_MS 10000
00010 #define EMBER_AF_PLUGIN_RF4CE_MSO_MAX_PAIRING_CANDIDATES 3
00011 #define EMBER_AF_PLUGIN_RF4CE_MSO_KEY_EXCHANGE_TRANSFER_COUNT 4
00012 #define EMBER_AF_PLUGIN_RF4CE_PROFILE_VENDOR_ID
    0xABCD
00013 #define EMBER_AF_PLUGIN_RF4CE_MSO_PERIPHERAL_ID_ENTRIES 2
00014 #define EMBER_AF_PLUGIN_RF4CE_MSO_GENERAL_PURPOSE_ENTRIES 1
00015
00016 void emberAfPluginRf4ceMsoBindingCompleteCallback
    (EmberAfRf4ceMsoBindingStatus status,
     uint8_t pairingIndex);
00017
00018 void emberAfPluginRf4ceMsoStartValidationCallback

```

```

00020     (uint8_t pairingIndex);
00021 void emberAfPluginRf4ceMsoUserControlCallback
00022     (const EmberAfRf4ceMsoUserControlRecord *record)
00023 ;
00024 EmberAfRf4ceStatus
00025 emberAfPluginRf4ceMsoGetIrRfDatabaseAttributeCallback
00026     (uint8_t pairingIndex,
00027      uint8_t entryIndex,
00028      uint8_t *valueLength,
00029      uint8_t *value);
00030 bool emberAfPluginRf4ceMsoHaveIrRfDatabaseAttributeCallback
00031     (uint8_t pairingIndex,
00032                  uint8_t
00033      entryIndex);
00034 void emberAfPluginRf4ceMsoIncomingIrRfDatabaseAttributeCallback
00035     (uint8_t pairingIndex,
00036                  uint8_t
00037      entryIndex,
00038      uint8_t
00039      valueLength,
00040      const uint8_t *
00041      value);
00042 EmberStatus emberAfPluginRf4ceMsoGetIrRfDatabaseEntryCallback
00043     (EmberAfRf4ceMsoKeyCode keyCode,
00044      EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00045

```

## 8.288 rf4ce-mso-tokens.h File Reference

### 8.289 rf4ce-mso-tokens.h

```

00001 // Copyright 2013 Silicon Laboratories, Inc.
00002
00003 #ifdef EMBER_AF_RF4CE_NODE_TYPE_CONTROLLER
00004     // This token stores the pairing index of the current active bind, if any.
00005     #define CREATOR_PLUGIN_RF4CE_MSO_ACTIVE_BIND_PAIRING_INDEX 0x8726
00006     #ifndef DEFINETOKENS
00007         DEFINE_BASIC_TOKEN(PLUGIN_RF4CE_MSO_ACTIVE_BIND_PAIRING_INDEX,
00008                             uint8_t,
00009                             0xFF)
00010     #endif
00011 #endif
00012
00013 #ifdef EMBER_AF_RF4CE_NODE_TYPE_TARGET
00014     #define CREATOR_PLUGIN_RF4CE_MSO_VALIDATION_TABLE 0x8727
00015     #ifndef DEFINETYPES
00016         #include "rf4ce-mso-types.h"
00017         typedef struct {
00018             EmberAfRf4ceMsoValidationState state;
00019             EmberAfRf4ceMsoCheckValidationStatus
00020             status;
00021             } tokTypePluginRf4ceMsoValidation;
00022     #endif
00023     #ifndef DEFINETOKENS
00024         DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_VALIDATION_TABLE,
00025                             tokTypePluginRf4ceMsoValidation,
00026                             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00027                             {EMBER_AF_RF4CE_MSO_VALIDATION_STATE_NOT_VALIDATED
00028
00029                             ,
00030                             EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FAILURE
00031                             })
00032     #endif
00033     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_PERIPHERAL_IDS
00034     x8728
00035     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_RF_STATISTICS
00036     x8729

```

```

00032     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_VERSIONING          0
00033         x8730
00034     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_BATTERY_STATUS        0
00035         x8731
00036     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_SHOR_RF_RETRY_PERIOD   0
00037         x8732
00038     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_VALIDATION_CONFIGURATION 0
00039         x8733
00040     #define CREATOR_PLUGIN_RF4CE_MSO_ATTRIBUTE_GENERAL_PURPOSE        0
00041         x8734
00042
00043     #ifdef DEFINETYPES
00044         #include "rf4ce-mso-types.h"
00045         #include "rf4ce-mso-attributes.h"
00046     typedef EmAfRf4ceMsoPeripheralIdEntry
00047     tokMsoAttributePeripheralIds[EMBER_AF_PLUGIN_RF4CE_MSO_PERIPHERAL_ID_ENTRIES
00048 ];
00049
00050     typedef uint8_t tokMsoAttributeRfStatistics[
00051         MSO_RIB_ATTRIBUTE_RF_STATISTICS_LENGTH];
00052
00053     typedef uint8_t tokMsoAttributeVersioning[MSO_ATTRIBUTE_VERSIONING_ENTRIES
00054 ];
00055     typedef uint8_t tokMsoAttributeBatteryStatus[
00056         MSO_RIB_ATTRIBUTE_BATTERY_STATUS_LENGTH]
00057 ;
00058     typedef uint8_t tokMsoAttributeShortRfRetryPeriod[
00059         MSO_RIB_ATTRIBUTE_SHORT_RF_RETRY_PERIOD_LENGTH
00060 ];
00061
00062     typedef uint8_t tokMsoAttributeValidationConfiguration[
00063         MSO_RIB_ATTRIBUTE_VALIDATION_CONFIGURATION_LENGTH
00064 ];
00065
00066     typedef uint8_t tokMsoAttributeGeneralPurpose[
00067         EMBER_AF_PLUGIN_RF4CE_MSO_GENERAL_PURPOSE_ENTRIES
00068 ];
00069
00070     #endif
00071     #ifdef DEFINETOKENS
00072
00073     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_PERIPHERAL_IDS,
00074         tokMsoAttributePeripheralIds,
00075             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00076             {{0xFF, {0xFF, 0xFF, 0xFF, 0xFF}}})
00077
00078     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_RF_STATISTICS,
00079         tokMsoAttributeRfStatistics,
00080             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00081             {0, {}})
00082
00083     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_VERSIONING,
00084         tokMsoAttributeVersioning,
00085             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00086             {0, {}})
00087
00088     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_BATTERY_STATUS,
00089         tokMsoAttributeBatteryStatus,
00090             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00091             {0, {}})
00092
00093     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_SHOR_RF_RETRY_PERIOD,
00094         tokMsoAttributeShortRfRetryPeriod,
00095             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00096             {0, {}})
00097
00098     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_VALIDATION_CONFIGURATION,
00099         tokMsoAttributeValidationConfiguration,
00100             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00101             {LOW_BYTE(
00102                 EMBER_AF_PLUGIN_RF4CE_MSO_LINK_LOST_WAIT_TIME_MS
00103             ),
00104                 HIGH_BYTE(
00105                 EMBER_AF_PLUGIN_RF4CE_MSO_LINK_LOST_WAIT_TIME_MS
00106             )),
00107                 LOW_BYTE(
00108                 EMBER_AF_PLUGIN_RF4CE_MSO_AUTO_CHECK_VALIDATION_PERIOD_MS
00109             ),
00110                 HIGH_BYTE(
00111                 EMBER_AF_PLUGIN_RF4CE_MSO_AUTO_CHECK_VALIDATION_PERIOD_MS
00112             )));
00113
00114     DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_MSO_ATTRIBUTE_GENERAL_PURPOSE,
00115         tokMsoAttributeGeneralPurpose,
00116             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00117             {{0, {}}})
00118
00119     #endif
00120
00121     #endif

```

## 8.290 rf4ce-mso-types.h File Reference

### Data Structures

- struct [EmberAfRf4ceMsoUserControlRecord](#)  
*This data structure contains the MSO user control record.*
- struct [EmberAfRf4ceMsoIrRfDatabaseRfDescriptor](#)  
*RF4CE MSO IR-RF database RF descriptor.*
- struct [EmberAfRf4ceMsoIrRfDatabaseIrDescriptor](#)  
*RF4CE MSO IR-RF database IR descriptor.*
- struct [EmberAfRf4ceMsoIrRfDatabaseEntry](#)  
*RF4CE MSO IR-RF database entry.*

### Enumerations

- enum [EmberAfRf4ceMsoBindingState](#) { EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATE\_NOT\_BOUND, EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATE\_BINDING, EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATE\_BOUND }
- enum [EmberAfRf4ceMsoValidationState](#) { EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_NOT\_VALIDATED, EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_REJECTED, EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_VALIDATING, EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_REVALIDATING, EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_VALIDATED }
- enum [EmberAfRf4ceMsoCommandCode](#) { EMBER\_AF\_RF4CE\_MSO\_COMMAND\_USER\_CONTROL\_PRESSED, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_USER\_CONTROL\_REPEAT, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_USER\_CONTROL\_RELEASED, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_CHECK\_VALIDATION\_REQUEST, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_CHECK\_VALIDATION\_RESPONSE, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_SET\_ATTRIBUTE\_REQUEST, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_SET\_ATTRIBUTE\_RESPONSE, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_GET\_ATTRIBUTE\_REQUEST, EMBER\_AF\_RF4CE\_MSO\_COMMAND\_GET\_ATTRIBUTE\_RESPONSE }

- enum EmberAfRf4ceMsoKeyCode {
 EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OK, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_UP\_ARROW, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DOWN\_ARROW, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LEFT\_ARROW, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RIGHT\_ARROW, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MENU, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DVR, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_FAIR, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_EXIT, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_HOME, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_0, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_1, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_2, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_3, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_4, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_5, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_6, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_7, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_8, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DIGIT\_9, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_FULL\_STOP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RETURN, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_CHANNEL\_UP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_CHANNEL\_DOWN, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LAST, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_INPUT\_SELECT, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_INFO, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_HELP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PAGE\_UP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PAGE\_DOWN, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MOTION, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_SEARCH, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LIVE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_HD\_ZOOM, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_SHARE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_TV\_POWER, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_VOLUME\_UP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_VOLUME\_DOWN, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MUTE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PLAY, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_STOP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PAUSE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RECORD, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_REWIND, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_FAST\_FORWARD, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_30\_SECOND\_SKIP\_AHEAD, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_REPLAY, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_SWAP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_ON\_DEMAND, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_GUIDE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PUSH\_TO\_TALK, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_ON\_OFF, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_MOVE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_CHANNEL\_UP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_CHANNEL\_DOWN, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LOCK, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DAY\_UP, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DAY\_DOWN, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PLAY\_PAUSE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_STOP\_VIDEO, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MUTE\_MIC, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_POWER\_TOGGLE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_POWER\_OFF, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_POWER\_ON, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_B, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_BLUE\_SQUARE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_C, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RED\_CIRCLE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_D, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_GREEN\_DIAMOND, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_A, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_TRIANGLE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PROFILE, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_CALL, EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_HOLD

- enum `EmberAfRf4ceMsoCheckValidationControl` { `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_CONTROL_REQUEST_AUTOMATIC_VALIDATION` }
- enum `EmberAfRf4ceMsoCheckValidationStatus` {
 `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_SUCCESS`, `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_PENDING`, `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_TIMEOUT`, `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_COLLISION`,
 `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FAILURE`, `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_ABORT`, `EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FULL_ABORT` }
- enum `EmberAfRf4ceMsoBindingStatus` {
 `EMBER_AF_RF4CE_MSO_BINDING_STATUS_SUCCESS`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_NO_VALID_RESPONSE`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_NO_VALID_CANDIDATE`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_DUPLICATE_CLASS_ABORT`,
 `EMBER_AF_RF4CE_MSO_BINDING_STATUS_PAIRING_FAILED`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_TIMEOUT`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_COLLISION`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_FAILURE`,
 `EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_ABORT`, `EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_FULL_ABORT` }
- enum `EmberAfRf4ceMsoAttributeId` {
 `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_PERIPHERAL_IDS`, `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_RF_STATISTICS`, `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_VERSIONING`, `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_BATTERY_STATUS`,
 `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_SHORT_RF_RETRY_PERIOD`, `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_VALIDATION_CONFIGURATION`, `EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_GENERAL_PURPOSE` }
- enum `EmberAfRf4ceMsoIrRfDatabaseFlags` {
 `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_NONE`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_PRESSED_SPECIFIED`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_REPEAT_SPECIFIED`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_RELEASED_SPECIFIED`,
 `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_IR_SPECIFIED`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_DEVICE_TYPE_MASK`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_PERMANENT` }
- enum `EmberAfRf4ceMsoIrRfDatabaseDeviceType` { `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_DEVICE_TYPE_TV`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_DEVICE_TYPE_AVR` }
- enum `EmberAfRf4ceMsoIrRfDatabaseRfConfig` { `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_MINIMUM_NUMBER_OF_TRANSMISSIONS_MASK`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_SHORT_RETRY` }
- enum `EmberAfRf4ceMsoIrRfDatabaseIrConfig` { `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_IR_CONFIG_MINIMUM_NUMBER_OF_TRANSMISSIONS_MASK`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_IR_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE`, `EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_IR_CONFIG_SHORT_RETRY` }

### 8.290.1 Enumeration Type Documentation

### 8.290.1.1 enum EmberAfRf4ceMsoBindingState

RF4CE MSO binding states.

Enumerator:

*EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATE\_NOT\_BOUND*  
*EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATE\_BINDING*  
*EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATE\_BOUND*

Definition at line 10 of file [rf4ce-mso-types.h](#).

### 8.290.1.2 enum EmberAfRf4ceMsoValidationState

RF4CE MSO validation states.

Enumerator:

*EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_NOT\_VALIDATED*  
*EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_REJECTED*  
*EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_VALIDATING*  
*EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_REVALIDATING*  
*EMBER\_AF\_RF4CE\_MSO\_VALIDATION\_STATE\_VALIDATED*

Definition at line 25 of file [rf4ce-mso-types.h](#).

### 8.290.1.3 enum EmberAfRf4ceMsoCommandCode

RF4CE MSO command codes.

Enumerator:

*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_USER\_CONTROL\_PRESSED*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_USER\_CONTROL\_REPEAT*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_USER\_CONTROL\_RELEASED*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_CHECK\_VALIDATION\_REQUEST*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_CHECK\_VALIDATION\_RESPONSE*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_SET\_ATTRIBUTE\_REQUEST*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_SET\_ATTRIBUTE\_RESPONSE*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_GET\_ATTRIBUTE\_REQUEST*  
*EMBER\_AF\_RF4CE\_MSO\_COMMAND\_GET\_ATTRIBUTE\_RESPONSE*

Definition at line 42 of file [rf4ce-mso-types.h](#).

#### 8.290.1.4 enum EmberAfRf4ceMsoKeyCode

RF4CE MSO key codes.

Enumerator:

```
EMBER_AF_RF4CE_MSO_KEY_CODE_OK
EMBER_AF_RF4CE_MSO_KEY_CODE_UP_ARROW
EMBER_AF_RF4CE_MSO_KEY_CODE_DOWN_ARROW
EMBER_AF_RF4CE_MSO_KEY_CODE_LEFT_ARROW
EMBER_AF_RF4CE_MSO_KEY_CODE_RIGHT_ARROW
EMBER_AF_RF4CE_MSO_KEY_CODE_MENU
EMBER_AF_RF4CE_MSO_KEY_CODE_DVR
EMBER_AF_RF4CE_MSO_KEY_CODE_FAV
EMBER_AF_RF4CE_MSO_KEY_CODE_EXIT
EMBER_AF_RF4CE_MSO_KEY_CODE_HOME
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_0
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_1
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_2
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_3
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_4
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_5
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_6
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_7
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_8
EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_9
EMBER_AF_RF4CE_MSO_KEY_CODE_FULL_STOP
EMBER_AF_RF4CE_MSO_KEY_CODE_RETURN
EMBER_AF_RF4CE_MSO_KEY_CODE_CHANNEL_UP
EMBER_AF_RF4CE_MSO_KEY_CODE_CHANNEL_DOWN
EMBER_AF_RF4CE_MSO_KEY_CODE_LAST
EMBER_AF_RF4CE_MSO_KEY_CODE_LANG
EMBER_AF_RF4CE_MSO_KEY_CODE_INPUT_SELECT
EMBER_AF_RF4CE_MSO_KEY_CODE_INFO
EMBER_AF_RF4CE_MSO_KEY_CODE_HELP
EMBER_AF_RF4CE_MSO_KEY_CODE_PAGE_UP
EMBER_AF_RF4CE_MSO_KEY_CODE_PAGE_DOWN
EMBER_AF_RF4CE_MSO_KEY_CODE_MOTION
EMBER_AF_RF4CE_MSO_KEY_CODE_SEARCH
EMBER_AF_RF4CE_MSO_KEY_CODE_LIVE
EMBER_AF_RF4CE_MSO_KEY_CODE_HD_ZOOM
EMBER_AF_RF4CE_MSO_KEY_CODE_SHARE
EMBER_AF_RF4CE_MSO_KEY_CODE_TV_POWER
```

*EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_VOLUME\_UP  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_VOLUME\_DOWN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MUTE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PLAY  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_STOP  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PAUSE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RECORD  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_REWIND  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_FAST\_FORWARD  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_30\_SECOND\_SKIP\_AHEAD  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_REPEAT  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_SWAP  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_ON\_DEMAND  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_GUIDE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PUSH\_TO\_TALK  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_ON\_OFF  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_MOVE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_CHANNEL\_UP  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PIP\_CHANNEL\_DOWN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LOCK  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DAY\_UP  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DAY\_DOWN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PLAY\_PAUSE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_STOP\_VIDEO  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MUTE\_MIC  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_POWER\_TOGGLE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_POWER\_OFF  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_POWER\_ON  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_B  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_BLUE\_SQUARE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_C  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RED\_CIRCLE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_D  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_GREEN\_DIAMOND  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_OCAP\_A  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_YELLOW\_TRIANGLE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PROFILE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_CALL  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_HOLD  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_END  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_VIEWS*

*EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_SELF\_VIEW  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_ZOOM\_IN  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_ZOOM\_OUT  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_BACKSPACE  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LOCK\_UNLOCK  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_CAPS  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_ALT  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_SPACE  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_WWW\_DOT  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_DOT\_COM  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_A  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_B  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_C  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_D  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_E  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_F  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_G  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_H  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_I  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_J  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_K  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_L  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_M  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_N  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_O  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_P  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_Q  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_R  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_S  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_T  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_U  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_V  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_W  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_X  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_Y  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_CAPITAL\_LETTER\_Z  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_SMALL\_LETTER\_A  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_SMALL\_LETTER\_B  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_SMALL\_LETTER\_C  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_SMALL\_LETTER\_D  
EMBER\_AF\_RF4CE\_MS0\_KEY\_CODE\_LATIN\_SMALL\_LETTER\_E*

*EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_F  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_G  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_H  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_I  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_J  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_K  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_L  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_M  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_N  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_O  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_P  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_Q  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_R  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_S  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_T  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_U  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_V  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_W  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_X  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_Y  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LATIN\_SMALL LETTER\_Z  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_QUESTION\_MARK  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_EXCLAMATION\_MARK  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_NUMBER\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_DOLLAR\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PERCENT\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_AMPERSAND  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_ASTERISK  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_LEFT\_PARENTHESIS  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_RIGHT\_PARENTHESIS  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_PLUS\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_MINUS\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_EQUALS\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_SLASH  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_UNDERSCORE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_QUOTATION\_MARK  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_COLON  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_SEMICOLON  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_AT\_SIGN  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_APOSTROPHE  
EMBER\_AF\_RF4CE\_MSO\_KEY\_CODE\_COMMA*

Definition at line 63 of file [rf4ce-mso-types.h](#).

### 8.290.1.5 enum EmberAfRf4ceMsoCheckValidationControl

RF4CE MSO check validation statuses.

Enumerator:

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_CONTROL\_REQUEST\_AUTOMATIC\_VALIDATION***

Definition at line 235 of file [rf4ce-mso-types.h](#).

### 8.290.1.6 enum EmberAfRf4ceMsoCheckValidationStatus

RF4CE MSO check validation statuses.

Enumerator:

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_SUCCESS*** The validation is successful.

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_PENDING*** The validation is still in progress.

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_TIMEOUT*** The validation timed out, and the binding procedure SHOULD continue with other devices in the list.

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_COLLISION*** The validation was terminated at the target side, as more than one controller tried to pair.

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_FAILURE*** The validation failed, and the binding procedure SHOULD continue with other devices in the list.

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_ABORT*** The validation is aborted, and the binding procedure SHOULD continue with other devices in the list.

***EMBER\_AF\_RF4CE\_MSO\_CHECK\_VALIDATION\_STATUS\_FULL\_ABORT*** The validation is aborted, and the binding procedure SHOULD NOT continue with other devices in the list.

Definition at line 248 of file [rf4ce-mso-types.h](#).

### 8.290.1.7 enum EmberAfRf4ceMsoBindingStatus

Enumerator:

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_SUCCESS***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_NO\_VALID\_RESPONSE***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_NO\_VALID\_CANDIDATE***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_DUPLICATE\_CLASS\_ABORT***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_PAIRING\_FAILED***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_VALIDATION\_TIMEOUT***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_VALIDATION\_COLLISION***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_VALIDATION\_FAILURE***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_VALIDATION\_ABORT***

***EMBER\_AF\_RF4CE\_MSO\_BINDING\_STATUS\_VALIDATION\_FULL\_ABORT***

Definition at line 279 of file [rf4ce-mso-types.h](#).

### 8.290.1.8 enum EmberAfRf4ceMsoAttributeId

RF4CE MSO attribute ids.

Enumerator:

- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_PERIPHERAL\_IDS*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_RF\_STATISTICS*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_VERSIONING*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_BATTERY\_STATUS*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_SHORT\_RF\_RETRY\_PERIOD*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_IR\_RF\_DATABASE*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_VALIDATION\_CONFIGURATION*
- EMBER\_AF\_RF4CE\_MSO\_ATTRIBUTE\_ID\_GENERAL\_PURPOSE*

Definition at line 301 of file [rf4ce-mso-types.h](#).

### 8.290.1.9 enum EmberAfRf4ceMsoIrRfDatabaseFlags

RF4CE MSO IR-RF database entry flags.

Enumerator:

- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_NONE* No flags.
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_RF\_PRESSED\_SPECIFIED* Indicates that an RF pressed descriptor is included in this attribute, and that an RF message should be generated when this key is pressed. If Use Default is set, this field should be ignored (treated as if it was zero).
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_RF\_REPEATED\_SPECIFIED* Indicates that an RF repeated descriptor is included in this attribute, and that an RF message should be generated when this key is kept pressed. If Use Default is set, this field should be ignored (treated as if it was zero).
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_RF\_RELEASED\_SPECIFIED* Indicates that an RF released descriptor is included in this attribute, and that an RF message should be generated when this key is released. If Use Default is set, this field should be ignored (treated as if it was zero).
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_IR\_SPECIFIED* Indicates that an IR descriptor is included in this attribute, and that an IR message should be generated when this key is pressed and kept pressed. If Use Default is set, this field should be ignored (treated as if it was zero).
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_DEVICE\_TYPE\_MASK* Represents the device type of the IR descriptor if the IR Specified flag is set.
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_USE\_DEFAULT* Indicates that the default (known by the RC) RF and IR codes should be used.
- EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_FLAG\_PERMANENT* Indicates that the codes are permanent and can be used for all further presses of this key.

Definition at line 333 of file [rf4ce-mso-types.h](#).

### 8.290.1.10 enum EmberAfRf4ceMsoIrRfDatabaseDeviceType

RF4CE MSO IR-RF database device types.

**Enumerator:**

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_DEVICE\_TYPE\_TV*** The device type of the IR descriptor is for a TV.

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_DEVICE\_TYPE\_AVR*** The device type of the IR descriptor is for ab AVR.

Definition at line 383 of file [rf4ce-mso-types.h](#).

### 8.290.1.11 enum EmberAfRf4ceMsoIrRfDatabaseRfConfig

RF4CE MSO IR-RF database RF config.

**Enumerator:**

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RF\_CONFIG\_MINIMUM\_NUMBER\_OF\_TRANSMISSIONS\_MASK***  
Indicates the minimum number of transmissions for this code. For acknowledged RF transmissions, this field is set to '1'.

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RF\_CONFIG\_KEEP\_TRANSMITTING\_UNTIL\_KEY\_RELEASE***  
Indicates if the code should continue being transmitted after the minimum number of transmissions have taken place, when the key is kept pressed. (This field only applies to RF Repeated frames.)

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_RF\_CONFIG\_SHORT\_RETRY*** Indicates if the RF4CE retry period for UAM messages should be shorted for this code to increase responsiveness of the system.

Definition at line 399 of file [rf4ce-mso-types.h](#).

### 8.290.1.12 enum EmberAfRf4ceMsoIrRfDatabaseIrConfig

RF4CE MSO IR-RF database IR config.

**Enumerator:**

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_IR\_CONFIG\_MINIMUM\_NUMBER\_OF\_TRANSMISSIONS\_MASK***  
Indicates the minimum number of transmissions for the IR repeat frames. Only valid when Tweak Database is set to '1', otherwise follow behavior as defined by database. Special case: when Tweak Database is set to '1', setting this field to 0xF enforces the use of the value from the database.

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_IR\_CONFIG\_KEEP\_TRANSMITTING\_UNTIL\_KEY\_RELEASE***  
Indicates if the repeat frames should continue being transmitted after the minimum number of transmissions as defined by the database have been performed, in case the key remains pressed. Only valid when Tweak Database is set to '1', otherwise follow behavior as defined by database.

***EMBER\_AF\_RF4CE\_MSO\_IR\_RF\_DATABASE\_IR\_CONFIG\_SHORT\_RETRY*** Indicates that database behavior should be tweaked, using the "Minimum number of transmissions" and "Keep Transmitting Until Key Release" fields.

Definition at line 434 of file [rf4ce-mso-types.h](#).

## 8.291 rf4ce-mso-types.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_MSO_TYPES_H__
00004 #define __RF4CE_MSO_TYPES_H__
00005
00009 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00010 enum EmberAfRf4ceMsoBindingState
00011 #else
00012 typedef uint8_t EmberAfRf4ceMsoBindingState;
00013 enum
00014 #endif
00015 {
00016     EMBER_AF_RF4CE_MSO_BINDING_STATE_NOT_BOUND
00017         = 0,
00018     EMBER_AF_RF4CE_MSO_BINDING_STATE_BINDING
00019         = 1,
00020     EMBER_AF_RF4CE_MSO_BINDING_STATE_BOUND
00021         = 2,
00022 };
00023
00024 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00025 enum EmberAfRf4ceMsoValidationState
00026 #else
00027 typedef uint8_t EmberAfRf4ceMsoValidationState;
00028 enum
00029 #endif
00030 {
00031     EMBER_AF_RF4CE_MSO_VALIDATION_STATE_NOT_VALIDATED
00032         = 0,
00033     EMBER_AF_RF4CE_MSO_VALIDATION_STATE_REJECTED
00034         = 1,
00035     EMBER_AF_RF4CE_MSO_VALIDATION_STATE_VALIDATING
00036         = 2,
00037     EMBER_AF_RF4CE_MSO_VALIDATION_STATE_REVALIDATING
00038         = 3,
00039     EMBER_AF_RF4CE_MSO_VALIDATION_STATE_VALIDATED
00040         = 4,
00041 };
00042
00043 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00044 enum EmberAfRf4ceMsoCommandCode
00045 #else
00046 typedef uint8_t EmberAfRf4ceMsoCommandCode;
00047 enum
00048 {
00049     EMBER_AF_RF4CE_MSO_COMMAND_USER_CONTROL_PRESSED
00050         = 0x01,
00051     EMBER_AF_RF4CE_MSO_COMMAND_USER_CONTROL_REPEAT
00052         = 0x02,
00053     EMBER_AF_RF4CE_MSO_COMMAND_USER_CONTROL_RELEASED
00054         = 0x03,
00055     EMBER_AF_RF4CE_MSO_COMMAND_CHECK_VALIDATION_REQUEST
00056         = 0x20,
00057     EMBER_AF_RF4CE_MSO_COMMAND_CHECK_VALIDATION_RESPONSE
00058         = 0x21,
00059     EMBER_AF_RF4CE_MSO_COMMAND_SET_ATTRIBUTE_REQUEST
00060         = 0x22,
00061     EMBER_AF_RF4CE_MSO_COMMAND_SET_ATTRIBUTE_RESPONSE
00062         = 0x23,
00063     EMBER_AF_RF4CE_MSO_COMMAND_GET_ATTRIBUTE_REQUEST
00064         = 0x24,
00065     EMBER_AF_RF4CE_MSO_COMMAND_GET_ATTRIBUTE_RESPONSE
00066         = 0x25,
00067 };
00068
00069 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00070 enum EmberAfRf4ceMsoKeyCode
00071 #else
00072 typedef uint8_t EmberAfRf4ceMsoKeyCode;
00073 enum
00074 #endif
00075 {
00076     EMBER_AF_RF4CE_MSO_KEY_CODE_OK
00077         = 0x00,
00078     EMBER_AF_RF4CE_MSO_KEY_CODE_UP_ARROW
00079         = 0x01,

```

```

00071 EMBER_AF_RF4CE_MSO_KEY_CODE_DOWN_ARROW
                  = 0x02,
00072 EMBER_AF_RF4CE_MSO_KEY_CODE_LEFT_ARROW
                  = 0x03,
00073 EMBER_AF_RF4CE_MSO_KEY_CODE_RIGHT_ARROW
                  = 0x04,
00074 EMBER_AF_RF4CE_MSO_KEY_CODE_MENU
                  = 0x09,
00075 EMBER_AF_RF4CE_MSO_KEY_CODE_DVR
                  = 0x0B,
00076 EMBER_AF_RF4CE_MSO_KEY_CODE_FAV
                  = 0x0C,
00077 EMBER_AF_RF4CE_MSO_KEY_CODE_EXIT
                  = 0x0D,
00078 EMBER_AF_RF4CE_MSO_KEY_CODE_HOME
                  = 0x10,
00079 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_0
                  = 0x20,
00080 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_1
                  = 0x21,
00081 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_2
                  = 0x22,
00082 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_3
                  = 0x23,
00083 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_4
                  = 0x24,
00084 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_5
                  = 0x25,
00085 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_6
                  = 0x26,
00086 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_7
                  = 0x27,
00087 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_8
                  = 0x28,
00088 EMBER_AF_RF4CE_MSO_KEY_CODE_DIGIT_9
                  = 0x29,
00089 EMBER_AF_RF4CE_MSO_KEY_CODE_FULL_STOP
                  = 0x2A,
00090 EMBER_AF_RF4CE_MSO_KEY_CODE_RETURN
                  = 0x2B,
00091 EMBER_AF_RF4CE_MSO_KEY_CODE_CHANNEL_UP
                  = 0x30,
00092 EMBER_AF_RF4CE_MSO_KEY_CODE_CHANNEL_DOWN
                  = 0x31,
00093 EMBER_AF_RF4CE_MSO_KEY_CODE_LAST
                  = 0x32,
00094 EMBER_AF_RF4CE_MSO_KEY_CODE_LANG
                  = 0x33,
00095 EMBER_AF_RF4CE_MSO_KEY_CODE_INPUT_SELECT
                  = 0x34,
00096 EMBER_AF_RF4CE_MSO_KEY_CODE_INFO
                  = 0x35,
00097 EMBER_AF_RF4CE_MSO_KEY_CODE_HELP
                  = 0x36,
00098 EMBER_AF_RF4CE_MSO_KEY_CODE_PAGE_UP
                  = 0x37,
00099 EMBER_AF_RF4CE_MSO_KEY_CODE_PAGE_DOWN
                  = 0x38,
00100 EMBER_AF_RF4CE_MSO_KEY_CODE_MOTION
                  = 0x3B,
00101 EMBER_AF_RF4CE_MSO_KEY_CODE_SEARCH
                  = 0x3C,
00102 EMBER_AF_RF4CE_MSO_KEY_CODE_LIVE
                  = 0x3D,
00103 EMBER_AF_RF4CE_MSO_KEY_CODE_HD_ZOOM
                  = 0x3E,
00104 EMBER_AF_RF4CE_MSO_KEY_CODE_SHARE
                  = 0x3F,
00105 EMBER_AF_RF4CE_MSO_KEY_CODE_TV_POWER
                  = 0x40,
00106 EMBER_AF_RF4CE_MSO_KEY_CODE_VOLUME_UP
                  = 0x41,
00107 EMBER_AF_RF4CE_MSO_KEY_CODE_VOLUME_DOWN
                  = 0x42,
00108 EMBER_AF_RF4CE_MSO_KEY_CODE_MUTE
                  = 0x43,
00109 EMBER_AF_RF4CE_MSO_KEY_CODE_PLAY
                  = 0x44,
00110 EMBER_AF_RF4CE_MSO_KEY_CODE_STOP
                  = 0x45,

```

```

00111 EMBER_AF_RF4CE_MSO_KEY_CODE_PAUSE
00112             = 0x46,
00113 EMBER_AF_RF4CE_MSO_KEY_CODE_RECORD
00114             = 0x47,
00115 EMBER_AF_RF4CE_MSO_KEY_CODE_REWIND
00116             = 0x48,
00117 EMBER_AF_RF4CE_MSO_KEY_CODE_FAST_FORWARD
00118             = 0x49,
00119 EMBER_AF_RF4CE_MSO_KEY_CODE_30_SECOND_SKIP_AHEAD
00120             = 0x4B,
00121 EMBER_AF_RF4CE_MSO_KEY_CODE_REPLY
00122             = 0x4C,
00123 EMBER_AF_RF4CE_MSO_KEY_CODE_SWAP
00124             = 0x51,
00125 EMBER_AF_RF4CE_MSO_KEY_CODE_ON_DEMAND
00126             = 0x52,
00127 EMBER_AF_RF4CE_MSO_KEY_CODE_GUIDE
00128             = 0x53,
00129 EMBER_AF_RF4CE_MSO_KEY_CODE_PUSH_TO_TALK
00130             = 0x57,
00131 EMBER_AF_RF4CE_MSO_KEY_CODE_PIP_ON_OFF
00132             = 0x58,
00133 EMBER_AF_RF4CE_MSO_KEY_CODE_PIP_MOVE
00134             = 0x59,
00135 EMBER_AF_RF4CE_MSO_KEY_CODE_PIP_CHANNEL_UP
00136             = 0x5A,
00137 EMBER_AF_RF4CE_MSO_KEY_CODE_PIP_CHANNEL_DOWN
00138             = 0x5B,
00139 EMBER_AF_RF4CE_MSO_KEY_CODE_LOCK
00140             = 0x5C,
00141 EMBER_AF_RF4CE_MSO_KEY_CODE_DAY_UP
00142             = 0x5D,
00143 EMBER_AF_RF4CE_MSO_KEY_CODE_DAY_DOWN
00144             = 0x5E,
00145 EMBER_AF_RF4CE_MSO_KEY_CODE_PLAY_PAUSE
00146             = 0x61,
00147 EMBER_AF_RF4CE_MSO_KEY_CODE_STOP_VIDEO
00148             = 0x64,
00149 EMBER_AF_RF4CE_MSO_KEY_CODE_MUTE_MIC
00150             = 0x65,
00151 EMBER_AF_RF4CE_MSO_KEY_CODE_POWER_TOGGLE
00152             = 0x66,
00153 EMBER_AF_RF4CE_MSO_KEY_CODE_POWER_OFF
00154             = 0x67,
00155 EMBER_AF_RF4CE_MSO_KEY_CODE_POWER_ON
00156             = 0x68,
00157 EMBER_AF_RF4CE_MSO_KEY_CODE_OCAP_B
00158             = 0x6D,
00159 EMBER_AF_RF4CE_MSO_KEY_CODE_BLUE_SQUARE
00160             = 0x71,
00161 EMBER_AF_RF4CE_MSO_KEY_CODE_OCAP_C
00162             = 0x72,
00163 EMBER_AF_RF4CE_MSO_KEY_CODE_RED_CIRCLE
00164             = 0x72,
00165 EMBER_AF_RF4CE_MSO_KEY_CODE_OCAP_D
00166             = 0x73,
00167 EMBER_AF_RF4CE_MSO_KEY_CODE_GREEN_DIAMOND
00168             = 0x73,
00169 EMBER_AF_RF4CE_MSO_KEY_CODE_OCAP_A
00170             = 0x74,
00171 EMBER_AF_RF4CE_MSO_KEY_CODE_YELLOW_TRIANGLE
00172             = 0x74,
00173 EMBER_AF_RF4CE_MSO_KEY_CODE_PROFILE
00174             = 0xA0,
00175 EMBER_AF_RF4CE_MSO_KEY_CODE_CALL
00176             = 0xA1,
00177 EMBER_AF_RF4CE_MSO_KEY_CODE_HOLD
00178             = 0xA2,
00179 EMBER_AF_RF4CE_MSO_KEY_CODE_END
00180             = 0xA3,
00181 EMBER_AF_RF4CE_MSO_KEY_CODE_VIEWS
00182             = 0xA4,
00183 EMBER_AF_RF4CE_MSO_KEY_CODE_SELF_VIEW
00184             = 0xA5,
00185 EMBER_AF_RF4CE_MSO_KEY_CODE_ZOOM_IN
00186             = 0xA6,
00187 EMBER_AF_RF4CE_MSO_KEY_CODE_ZOOM_OUT
00188             = 0xA7,
00189 EMBER_AF_RF4CE_MSO_KEY_CODE_BACKSPACE
00190             = 0xA8,

```

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00151 EMBER_AF_RF4CE_MSO_KEY_CODE_LOCK_UNLOCK
          = 0xA9,
00152 EMBER_AF_RF4CE_MSO_KEY_CODE_CAPS
          = 0xAA,
00153 EMBER_AF_RF4CE_MSO_KEY_CODE_ALT
          = 0xAB,
00154 EMBER_AF_RF4CE_MSO_KEY_CODE_SPACE
          = 0xAC,
00155 EMBER_AF_RF4CE_MSO_KEY_CODE_WWW_DOT
          = 0xAD,
00156 EMBER_AF_RF4CE_MSO_KEY_CODE_DOT_COM
          = 0xAE,
00157 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_A
          = 0xB0,
00158 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_B
          = 0xB1,
00159 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_C
          = 0xB2,
00160 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_D
          = 0xB3,
00161 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_E
          = 0xB4,
00162 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_F
          = 0xB5,
00163 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_G
          = 0xB6,
00164 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_H
          = 0xB7,
00165 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_I
          = 0xB8,
00166 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_J
          = 0xB9,
00167 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_K
          = 0xBA,
00168 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_L
          = 0xBB,
00169 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_M
          = 0xBC,
00170 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_N
          = 0xBD,
00171 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_O
          = 0xBE,
00172 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_P
          = 0xBF,
00173 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_Q
          = 0xC0,
00174 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_R
          = 0xC1,
00175 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_S
          = 0xC2,
00176 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_T
          = 0xC3,
00177 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_U
          = 0xC4,
00178 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_V
          = 0xC5,
00179 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_W
          = 0xC6,
00180 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_X
          = 0xC7,
00181 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_Y
          = 0xC8,
00182 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_CAPITAL_LETTER_Z
          = 0xC9,
00183 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_A
          = 0xCA,
00184 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_B
          = 0xCB,
00185 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_C
          = 0xCC,
00186 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_D
          = 0xCD,
00187 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_E
          = 0xCE,
00188 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_F
          = 0xCF,
00189 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_G
          = 0xD0,
00190 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL_LETTER_H
          = 0xD1,

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00191 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_I
00192 = 0xD2,
00193 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_J
00194 = 0xD3,
00195 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_K
00196 = 0xD4,
00197 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_L
00198 = 0xD5,
00199 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_M
00200 = 0xD6,
00201 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_N
00202 = 0xD7,
00203 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_O
00204 = 0xD8,
00205 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_P
00206 = 0xD9,
00207 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_Q
00208 = 0xDA,
00209 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_R
00210 = 0xDB,
00211 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_S
00212 = 0xDC,
00213 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_T
00214 = 0xDD,
00215 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_U
00216 = 0xDE,
00217 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_V
00218 = 0xDF,
00219 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_W
00220 = 0xE0,
00221 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_X
00222 = 0xE1,
00223 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_Y
00224 = 0xE2,
00225 EMBER_AF_RF4CE_MSO_KEY_CODE_LATIN_SMALL LETTER_Z
00226 = 0xE3,
00227 EMBER_AF_RF4CE_MSO_KEY_CODE_QUESTION_MARK
00228 = 0xE4,
00229 EMBER_AF_RF4CE_MSO_KEY_CODE_EXCLAMATION_MARK
00230 = 0xE5,
00231 EMBER_AF_RF4CE_MSO_KEY_CODE_NUMBER_SIGN
00232 = 0xE6,
00233 EMBER_AF_RF4CE_MSO_KEY_CODE_DOLLAR_SIGN
00234 = 0xE7,
00235 EMBER_AF_RF4CE_MSO_KEY_CODE_PERCENT_SIGN
00236 = 0xE8,
00237 EMBER_AF_RF4CE_MSO_KEY_CODE_AMPERSAND
00238 = 0xE9,
00239 EMBER_AF_RF4CE_MSO_KEY_CODE_ASTERISK
00240 = 0xEA,
00241 EMBER_AF_RF4CE_MSO_KEY_CODE_LEFT_PARENTHESIS
00242 = 0xEB,
00243 EMBER_AF_RF4CE_MSO_KEY_CODE_RIGHT_PARENTHESIS
00244 = 0xEC,
00245 EMBER_AF_RF4CE_MSO_KEY_CODE_PLUS_SIGN
00246 = 0xED,
00247 EMBER_AF_RF4CE_MSO_KEY_CODE_MINUS_SIGN
00248 = 0xEE,
00249 EMBER_AF_RF4CE_MSO_KEY_CODE_EQUALS_SIGN
00250 = 0xEF,
00251 EMBER_AF_RF4CE_MSO_KEY_CODE_SLASH
00252 = 0xF0,
00253 EMBER_AF_RF4CE_MSO_KEY_CODE_UNDERSCORE
00254 = 0xF1,
00255 EMBER_AF_RF4CE_MSO_KEY_CODE_QUOTATION_MARK
00256 = 0xF2,
00257 EMBER_AF_RF4CE_MSO_KEY_CODE_COLON
00258 = 0xF3,
00259 EMBER_AF_RF4CE_MSO_KEY_CODE_SEMICOLON
00260 = 0xF4,
00261 EMBER_AF_RF4CE_MSO_KEY_CODE_AT_SIGN
00262 = 0xF5,
00263 EMBER_AF_RF4CE_MSO_KEY_CODE_APOSTROPHE
00264 = 0xF6,
00265 EMBER_AF_RF4CE_MSO_KEY_CODE_COMMA
00266 = 0xF7,
00267 };
00268 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00269 enum EmberAfRf4ceMsoCheckValidationControl

```

```

00236 #else
00237 typedef uint8_t EmberAfRf4ceMsoCheckValidationControl
00238 ;
00239 enum
00240 #endif
00241 {
00241   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_CONTROL_REQUEST_AUTOMATIC_VALIDATION
00241   = BIT(0)
00242 };
00243
00247 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00248 enum EmberAfRf4ceMsoCheckValidationStatus
00249 #else
00250 typedef uint8_t EmberAfRf4ceMsoCheckValidationStatus
00251 ;
00251 enum
00252 #endif
00253 {
00255   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_SUCCESS
00255   = 0x00,
00257   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_PENDING
00257   = 0xC0,
00260   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_TIMEOUT
00260   = 0xC1,
00263   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_COLLISION
00263   = 0xC2,
00266   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FAILURE
00266   = 0xC3,
00269   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_ABORT
00269   = 0xC4,
00272   EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FULL_ABORT
00272   = 0xC5,
00273 };
00274
00275 /*
00276 * @brief RF4CE MSO binding statuses.
00277 */
00278 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00279 enum EmberAfRf4ceMsoBindingStatus
00280 #else
00281 typedef uint8_t EmberAfRf4ceMsoBindingStatus;
00282 enum
00283 #endif
00284 {
00285   EMBER_AF_RF4CE_MSO_BINDING_STATUS_SUCCESS
00285   = 0x00,
00286   EMBER_AF_RF4CE_MSO_BINDING_STATUS_NO_VALID_RESPONSE
00286   = 0x01,
00287   EMBER_AF_RF4CE_MSO_BINDING_STATUS_NO_VALID_CANDIDATE
00287   = 0x02,
00288   EMBER_AF_RF4CE_MSO_BINDING_STATUS_DUPLICATE_CLASS_ABORT
00288   = 0x03,
00289   EMBER_AF_RF4CE_MSO_BINDING_STATUS_PAIRING_FAILED
00289   = 0x04,
00290   EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_TIMEOUT
00290   = EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_TIMEOUT
00291
00291   EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_COLLISION
00291   = EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_COLLISION
00292
00292   EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_FAILURE
00292   = EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FAILURE
00293
00293   EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_ABORT
00293   = EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_ABORT
00294
00294   EMBER_AF_RF4CE_MSO_BINDING_STATUS_VALIDATION_FULL_ABORT
00294   = EMBER_AF_RF4CE_MSO_CHECK_VALIDATION_STATUS_FULL_ABORT
00295 };
00296
00300 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00301 enum EmberAfRf4ceMsoAttributeId
00302 #else
00303 typedef uint8_t EmberAfRf4ceMsoAttributeId;
00304 enum
00305 #endif
00306 {
00307   EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_PERIPHERAL_IDS
00307   = 0x00,

```

```

00308     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_RF_STATISTICS
00309         = 0x01,
00310     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_VERSIONING
00311         = 0x02,
00312     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_BATTERY_STATUS
00313         = 0x03,
00314     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_SHORT_RF_RETRY_PERIOD
00315         = 0x04,
00316     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_IR_RF_DATABASE
00317         = 0xDB,
00318     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_VALIDATION_CONFIGURATION
00319         = 0xDC,
00320     EMBER_AF_RF4CE_MSO_ATTRIBUTE_ID_GENERAL_PURPOSE
00321         = 0xFF,
00322 };
00323
00324 typedef struct {
00325     uint8_t pairingIndex;
00326     EmberAfRf4ceMsoCommandCode commandCode;
00327     EmberAfRf4ceMsoKeyCode rcCommandCode;
00328     const uint8_t *rcCommandPayload;
00329     uint8_t rcCommandPayloadLength;
00330     uint16_t timeMs;
00331 } EmberAfRf4ceMsoUserControlRecord;
00332
00333 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00334 enum EmberAfRf4ceMsoIrRfDatabaseFlags
00335 #else
00336 typedef uint8_t EmberAfRf4ceMsoIrRfDatabaseFlags
00337 ;
00338
00339 {
00340     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_NONE
00341         = 0x00,
00342     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_PRESSED_SPECIFIED
00343         = 0x01,
00344     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_REPEAT_SPECIFIED
00345         = 0x02,
00346     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_RELEASED_SPECIFIED
00347         = 0x04,
00348     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_IR_SPECIFIED
00349         = 0x08,
00350     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_DEVICE_TYPE_MASK
00351         = 0x48,
00352     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT
00353         = 0x40,
00354     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_PERMANENT
00355         = 0x80,
00356 };
00357
00358 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00359 enum EmberAfRf4ceMsoIrRfDatabaseDeviceType
00360 #else
00361 typedef uint8_t EmberAfRf4ceMsoIrRfDatabaseDeviceType
00362 ;
00363
00364 enum
00365 #endif
00366 {
00367     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_DEVICE_TYPE_TV
00368         = 0x00,
00369     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_DEVICE_TYPE_AVR
00370         = 0x20,
00371 };
00372
00373 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00374 enum EmberAfRf4ceMsoIrRfDatabaseRfConfig
00375 #else
00376 typedef uint8_t EmberAfRf4ceMsoIrRfDatabaseRfConfig
00377 ;
00378
00379 enum
00380 #endif
00381 {
00382     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_MINIMUM_NUMBER_OF_TRANSMISSIONS_MASK
00383         = 0x0F,
00384     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE
00385         = 0x10,

```

```

00417     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_SHORT_RETRY
00418     = 0x20,
00419
00420     typedef struct {
00421         EmberAfRf4ceMsoIrRfDatabaseRfConfig
00422             rfConfig;
00423         EmberRf4ceTxOption txOptions;
00424         uint8_t payloadLength;
00425         const uint8_t *payload;
00426     } EmberAfRf4ceMsoIrRfDatabaseRfDescriptor
00427 ;
00428
00429 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00430     enum EmberAfRf4ceMsoIrRfDatabaseIrConfig
00431 #else
00432     typedef uint8_t EmberAfRf4ceMsoIrRfDatabaseIrConfig
00433 ;
00434 enum
00435 #endif
00436 {
00437
00438     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_IR_CONFIG_MINIMUM_NUMBER_OF_TRANSMISSIONS_MASK
00439     = 0x0F,
00440
00441     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_IR_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE
00442     = 0x10,
00443     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_IR_CONFIG_SHORT_RETRY
00444     = 0x40,
00445 };
00446
00447     typedef struct {
00448         EmberAfRf4ceMsoIrRfDatabaseIrConfig
00449             irConfig;
00450         uint8_t irCodeLength;
00451         const uint8_t *irCode;
00452     } EmberAfRf4ceMsoIrRfDatabaseIrDescriptor
00453 ;
00454
00455     typedef struct {
00456         EmberAfRf4ceMsoIrRfDatabaseFlags flags;
00457         EmberAfRf4ceMsoIrRfDatabaseRfDescriptor
00458             rfPressedDescriptor;
00459         EmberAfRf4ceMsoIrRfDatabaseRfDescriptor
00460             rfRepeatedDescriptor;
00461         EmberAfRf4ceMsoIrRfDatabaseRfDescriptor
00462             rfReleasedDescriptor;
00463         EmberAfRf4ceMsoIrRfDatabaseIrDescriptor
00464             irDescriptor;
00465     } EmberAfRf4ceMsoIrRfDatabaseEntry;
00466
00467 #endif // __RF4CE_MSO_TYPES_H__

```

## 8.292 rf4ce-mso.h File Reference

```
#include "rf4ce-mso-types.h"
```

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_MSO\_IS\_RECIPIENT

### Functions

- EmberStatus emberAfRf4ceMsoBind (void)
- EmberStatus emberAfRf4ceMsoWatchdogKick (uint16\_t validationWatchdogTimeMs)
- EmberStatus emberAfRf4ceMsoValidate (void)

- EmberStatus emberAfRf4ceMsoTerminateValidation (void)
- EmberStatus emberAfRf4ceMsoAbortValidation (bool fullAbort)
- EmberStatus emberAfRf4ceMsoUserControlPress (uint8\_t pairingIndex, EmberAfRf4ceMsoKeyCode rcCommandCode, const uint8\_t \*rcCommandPayload, uint8\_t rcCommandPayloadLength, bool atomic)
- EmberStatus emberAfRf4ceMsoUserControlRelease (uint8\_t pairingIndex, EmberAfRf4ceMsoKeyCode rcCommandCode)
- EmberStatus emberAfRf4ceMsoSetAttributeRequest (uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen, const uint8\_t \*value)
- EmberStatus emberAfRf4ceMsoGetAttributeRequest (uint8\_t pairingIndex, EmberAfRf4ceMsoAttributeId attributeId, uint8\_t index, uint8\_t valueLen)
- bool emberAfRf4ceMsoIrRfDatabaseEntryUseDefault (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfPressedDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfRepeatedDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfReleasedDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)
- uint8\_t emberAfRf4ceMsoIrRfDatabaseEntryGetMinimumNumberOfTransmissions (const EmberAfRf4ceMsoIrRfDescriptor \*rfDescriptor)
- bool emberAfRf4ceMsoIrRfDatabaseEntryShouldTransmitUntilRelease (const EmberAfRf4ceMsoIrRfDescriptor \*rfDescriptor)
- bool emberAfRf4ceMsoIrRfDatabaseEntryHasIrDescriptor (const EmberAfRf4ceMsoIrRfDatabaseEntry \*entry)

## 8.293 rf4ce-mso.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_MSO_H__
00004 #define __RF4CE_MSO_H__
00005
00006 #include "rf4ce-mso-types.h"
00007
00008 // Only controllers can be originators in MSO and only targets can be
00009 // recipients.
00010 #ifdef EMBER_AF_RF4CE_NODE_TYPE_CONTROLLER
00011     #define EMBER_AF_PLUGIN_RF4CE_MSO_IS_ORIGINATOR
00012 #else
00013     #define EMBER_AF_PLUGIN_RF4CE_MSO_IS_RECIPIENT
00014 #endif
00015
00016 EmberStatus emberAfRf4ceMsoBind(void);
00017
00018 EmberStatus emberAfRf4ceMsoWatchdogKick(
    uint16_t validationWatchdogTimeMs);
00019
00020 EmberStatus emberAfRf4ceMsoValidate(void);
00021
00022 EmberStatus emberAfRf4ceMsoTerminateValidation
    (void);
00023
00024 EmberStatus emberAfRf4ceMsoAbortValidation
    (bool fullAbort);
00025
00026 EmberStatus emberAfRf4ceMsoUserControlPress
    (uint8_t pairingIndex,
        EmberAfRf4ceMsoKeyCode
        rcCommandCode,
        const uint8_t *rcCommandPayload,
00027

```

```

00218                     uint8_t rcCommandPayloadLength,
00219                     bool atomic);
00220
00235 EmberStatus emberAfRf4ceMsoUserControlRelease
00236     (uint8_t pairingIndex,
00237         EmberAfRf4ceMsoKeyCode
00238     rcCommandCode);
00239
00258 EmberStatus emberAfRf4ceMsoSetAttributeRequest
00260     (uint8_t pairingIndex,
00261         EmberAfRf4ceMsoAttributeId
00262         attributeId,
00263         uint8_t index,
00264         uint8_t valueLen,
00265         const uint8_t *value);
00266
00283 EmberStatus emberAfRf4ceMsoGetAttributeRequest
00284     (uint8_t pairingIndex,
00285         EmberAfRf4ceMsoAttributeId
00286         attributeId,
00287         uint8_t index,
00288         uint8_t valueLen);
00289
00288 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00290
00296     bool emberAfRf4ceMsoIrRfDatabaseEntryUseDefault
00297     (const EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00298 #else
00299     #define emberAfRf4ceMsoIrRfDatabaseEntryUseDefault(entry) \
00300         (READBITS((entry)->flags, \
00301             EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT) \
00302             == EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT)
00303 #endif
00304
00304 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00305
00313     bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfPressedDescriptor
00314     (const EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00314 #else
00315     #define emberAfRf4ceMsoIrRfDatabaseEntryHasRfPressedDescriptor(entry) \
00316         (READBITS((entry)->flags, \
00317             (EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_PRESSED_SPECIFIED \
00318                 | EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT) \
00319                 == EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_PRESSED_SPECIFIED)
00320 #endif
00321
00322 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00323
00331     bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfRepeatedDescriptor
00332     (const EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00332 #else
00333     #define emberAfRf4ceMsoIrRfDatabaseEntryHasRfRepeatedDescriptor(entry) \
00334         (READBITS((entry)->flags, \
00335             (EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_REPEAT_SPECIFIED \
00336                 | EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT) \
00337                 == EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_REPEAT_SPECIFIED)
00338 #endif
00339
00340 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00341
00349     bool emberAfRf4ceMsoIrRfDatabaseEntryHasRfReleasedDescriptor
00350     (const EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00350 #else
00351     #define emberAfRf4ceMsoIrRfDatabaseEntryHasRfReleasedDescriptor(entry) \
00352         (READBITS((entry)->flags, \
00353             (EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_RELEASED_SPECIFIED \
00354                 | EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT) \
00355                 == EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_RF_RELEASED_SPECIFIED)
00356 #endif
00357
00358 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00359
00366     uint8_t emberAfRf4ceMsoIrRfDatabaseEntryGetMinimumNumberOfTransmissions
00367     (const EmberAfRf4ceMsoIrRfDatabaseRfDescriptor
00368         *rfDescriptor);
00367 #else
00368     #define emberAfRf4ceMsoIrRfDatabaseEntryGetMinimumNumberOfTransmissions(rfDescriptor) \
00369         READBITS((rfDescriptor)->rfConfig,
00370             \

```

```

00370     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_MINIMUM_NUMBER_OF_TRANSMISSIONS_MASK)
00371 #endif
00372
00373 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00374
00383     bool emberAfRf4ceMsoIrRfDatabaseEntryShouldTransmitUntilRelease
00384     (const EmberAfRf4ceMsoIrRfDatabaseRfDescriptor
00385      *rfDescriptor);
00384 #else
00385     #define
00386     emberAfRf4ceMsoIrRfDatabaseEntryShouldTransmitUntilRelease(rfDescriptor) \
00386     (READBITS((rfDescriptor)->rfConfig,
00387             \
00387     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE) \
00388     == \
00389     EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_RF_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE)
00389 #endif
00390
00391 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00392
00399     bool emberAfRf4ceMsoIrRfDatabaseEntryHasIrDescriptor
00400     (const EmberAfRf4ceMsoIrRfDatabaseEntry *entry);
00400 #else
00401     #define emberAfRf4ceMsoIrRfDatabaseEntryHasIrDescriptor(entry) \
00402     (READBITS((entry)->flags,
00403             (EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_IR_SPECIFIED \
00404             | EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_USE_DEFAULT)) \
00405             == EMBER_AF_RF4CE_MSO_IR_RF_DATABASE_FLAG_IR_SPECIFIED)
00406 #endif
00407
00408 #endif // __RF4CE_MSO_H__
00409
00410 // END addtogroup

```

## 8.294 rf4ce-profile-internal.h File Reference

### Data Structures

- struct EmAfRf4cePowerSavingState

### Macros

- #define NWKC\_MIN\_CONTROLLER\_PAIRING\_TABLE\_SIZE
- #define NWKC\_MIN\_TARGET\_PAIRING\_TABLE\_SIZE
- #define emAfRf4ceStart
- #define emAfRf4ceSetPowerSavingParameters
- #define emAfRf4ceSetFrequencyAgilityParameters
- #define emAfRf4ceSetDiscoveryLqiThreshold
- #define emAfRf4ceGetBaseChannel
- #define emAfRf4ceDiscovery
- #define emAfRf4ceEnableAutoDiscoveryResponse
- #define emAfRf4cePair
- #define emAfRf4ceSetPairingTableEntry
- #define emAfRf4ceGetPairingTableEntry
- #define emAfRf4ceSetApplicationInfo
- #define emAfRf4ceGetApplicationInfo
- #define emAfRf4ceKeyUpdate
- #define emAfRf4ceSend
- #define emAfRf4ceUnpair
- #define emAfRf4ceStop
- #define emAfRf4ceGetMaxPayload

## Functions

- bool `emAfRf4ceDiscoveryRequestHandler` (EmberEUI64 srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType, uint8\_t rxLinkQuality)
- bool `emAfRf4ceDiscoveryResponseHandler` (bool atCapacity, uint8\_t channel, EmberPanId panId, EmberEUI64 srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- void `emAfRf4ceDiscoveryCompleteHandler` (EmberStatus status)
- void `emAfRf4ceAutoDiscoveryResponseCompleteHandler` (EmberStatus status, EmberEUI64 srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType)
- bool `emAfRf4cePairRequestHandler` (EmberStatus status, uint8\_t pairingIndex, EmberEUI64 srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t keyExchangeTransferCount)
- void `emAfRf4cePairCompleteHandler` (EmberStatus status, uint8\_t pairingIndex, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo)
- void `emAfRf4ceMessageSentHandler` (EmberStatus status, uint8\_t pairingIndex, uint8\_t txOptions, uint8\_t profileId, uint16\_t vendorId, uint8\_t messageTag, uint8\_t messageLength, const uint8\_t \*message)
- void `emAfRf4ceIncomingMessageHandler` (uint8\_t pairingIndex, uint8\_t profileId, uint16\_t vendorId, EmberRf4ceTxOption txOptions, uint8\_t messageLength, const uint8\_t \*message)
- void `emAfRf4ceUnpairHandler` (uint8\_t pairingIndex)
- void `emAfRf4ceUnpairCompleteHandler` (uint8\_t pairingIndex)
- uint8\_t `emAfRf4ceGetBaseChannel` (void)

## Variables

- PGM EmberAfRf4ceProfileId emAfRf4ceProfileIds []
- bool `emAfRf4ceRxOnWhenIdleProfileStates` []
- `EmAfRf4cePowerSavingState` emAfRf4cePowerSavingState

### 8.294.1 Macro Definition Documentation

#### 8.294.1.1 #define NWKC\_MIN\_CONTROLLER\_PAIRING\_TABLE\_SIZE

Definition at line 3 of file `rf4ce-profile-internal.h`.

#### 8.294.1.2 #define NWKC\_MIN\_TARGET\_PAIRING\_TABLE\_SIZE

Definition at line 4 of file `rf4ce-profile-internal.h`.

#### 8.294.1.3 #define emAfRf4ceStart

Definition at line 89 of file `rf4ce-profile-internal.h`.

#### 8.294.1.4 #define emAfRf4ceSetPowerSavingParameters

Definition at line 90 of file `rf4ce-profile-internal.h`.

**8.294.1.5 #define emAfRf4ceSetFrequencyAgilityParameters**

Definition at line 91 of file [rf4ce-profile-internal.h](#).

**8.294.1.6 #define emAfRf4ceSetDiscoveryLqiThreshold**

Definition at line 92 of file [rf4ce-profile-internal.h](#).

**8.294.1.7 #define emAfRf4ceGetBaseChannel**

Definition at line 93 of file [rf4ce-profile-internal.h](#).

**8.294.1.8 #define emAfRf4ceDiscovery**

Definition at line 94 of file [rf4ce-profile-internal.h](#).

**8.294.1.9 #define emAfRf4ceEnableAutoDiscoveryResponse**

Definition at line 95 of file [rf4ce-profile-internal.h](#).

**8.294.1.10 #define emAfRf4cePair**

Definition at line 96 of file [rf4ce-profile-internal.h](#).

**8.294.1.11 #define emAfRf4ceSetPairingTableEntry**

Definition at line 97 of file [rf4ce-profile-internal.h](#).

**8.294.1.12 #define emAfRf4ceGetPairingTableEntry**

Definition at line 98 of file [rf4ce-profile-internal.h](#).

**8.294.1.13 #define emAfRf4ceSetApplicationInfo**

Definition at line 99 of file [rf4ce-profile-internal.h](#).

**8.294.1.14 #define emAfRf4ceGetApplicationInfo**

Definition at line 100 of file [rf4ce-profile-internal.h](#).

**8.294.1.15 #define emAfRf4ceKeyUpdate**

Definition at line 101 of file [rf4ce-profile-internal.h](#).

#### 8.294.1.16 #define emAfRf4ceSend

Definition at line 102 of file [rf4ce-profile-internal.h](#).

#### 8.294.1.17 #define emAfRf4ceUnpair

Definition at line 103 of file [rf4ce-profile-internal.h](#).

#### 8.294.1.18 #define emAfRf4ceStop

Definition at line 104 of file [rf4ce-profile-internal.h](#).

#### 8.294.1.19 #define emAfRf4ceGetMaxPayload

Definition at line 105 of file [rf4ce-profile-internal.h](#).

### 8.294.2 Function Documentation

- 8.294.2.1 `bool emAfRf4ceDiscoveryRequestHandler ( EmberEUI64 srcleeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t searchDevType, uint8_t rxLinkQuality )`
- 8.294.2.2 `bool emAfRf4ceDiscoveryResponseHandler ( bool atCapacity, uint8_t channel, EmberPanId panId, EmberEUI64 srcleeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t rxLinkQuality, uint8_t discRequestLqi )`
- 8.294.2.3 `void emAfRf4ceDiscoveryCompleteHandler ( EmberStatus status )`
- 8.294.2.4 `void emAfRf4ceAutoDiscoveryResponseCompleteHandler ( EmberStatus status, EmberEUI64 srcleeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t searchDevType )`
- 8.294.2.5 `bool emAfRf4cePairRequestHandler ( EmberStatus status, uint8_t pairingIndex, EmberEUI64 srcleeeAddr, uint8_t nodeCapabilities, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo, uint8_t keyExchangeTransferCount )`
- 8.294.2.6 `void emAfRf4cePairCompleteHandler ( EmberStatus status, uint8_t pairingIndex, const EmberRf4ceVendorInfo * vendorInfo, const EmberRf4ceApplicationInfo * appInfo )`
- 8.294.2.7 `void emAfRf4ceMessageSentHandler ( EmberStatus status, uint8_t pairingIndex, uint8_t txOptions, uint8_t profileId, uint16_t vendorId, uint8_t messageTag, uint8_t messageLength, const uint8_t * message )`
- 8.294.2.8 `void emAfRf4ceIncomingMessageHandler ( uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, EmberRf4ceTxOption txOptions, uint8_t messageLength, const uint8_t * message )`
- 8.294.2.9 `void emAfRf4ceUnpairHandler ( uint8_t pairingIndex )`
- 8.294.2.10 `void emAfRf4ceUnpairCompleteHandler ( uint8_t pairingIndex )`

#### 8.294.2.11 uint8\_t emAfRf4ceGetBaseChannel ( void )

### 8.294.3 Variable Documentation

#### 8.294.3.1 PGM\_EMBERAFRF4CEPROFILEID emAfRf4ceProfileIds[ ]

#### 8.294.3.2 bool emAfRf4ceRxOnWhenIdleProfileStates[1]

#### **8.294.3.3 EmAfRf4cePowerSavingState emAfRf4cePowerSavingState**

## 8.295 rf4ce-profile-internal.h

```
00001 // Copyright 2013 Silicon Laboratories, Inc.
00002
00003 #define NWKC_MIN_CONTROLLER_PAIRING_TABLE_SIZE 1
00004 #define NWKC_MIN_TARGET_PAIRING_TABLE_SIZE 5
00005
00006 bool emAfRf4ceDiscoveryRequestHandler(
00007     EmberEUI64 srcIeeeAddr,
00008
00009     uint8_t nodeCapabilities,
00010
00011     const EmberRf4ceVendorInfo *vendorInfo
00012
00013     const EmberRf4ceApplicationInfo *
00014
00015     appInfo,
00016
00017     uint8_t searchDevType,
00018
00019     uint8_t rxLinkQuality);
00020
00021
00022 bool emAfRf4ceDiscoveryResponseHandler(bool
00023     atCapacity,
00024
00025     uint8_t channel,
00026
00027     EmberPanId panId,
00028
00029     EmberEUI64 srcIeeeAddr,
00030
00031     uint8_t nodeCapabilities,
00032
00033     const EmberRf4ceVendorInfo *vendorInfo *
00034
00035     const EmberRf4ceApplicationInfo *
00036
00037     vendorInfo,
00038
00039     appInfo,
00040
00041     uint8_t rxLinkQuality,
00042
00043     uint8_t discRequestLqi);
00044
00045 void emAfRf4ceDiscoveryCompleteHandler(
00046     EmberStatus status);
00047
00048 void emAfRf4ceAutoDiscoveryResponseCompleteHandler
00049     (EmberStatus status,
00050
00051     EmberEUI64 srcIeeeAddr,
00052
00053     uint8_t nodeCapabilities,
00054
00055     const EmberRf4ceVendorInfo *
00056
00057     vendorInfo,
00058
00059     const
00060     EmberRf4ceApplicationInfo *appInfo,
00061
00062     uint8_t searchDevType);
00063
00064 bool emAfRf4cePairRequestHandler(EmberStatus
00065     status,
00066
00067     uint8_t pairingIndex,
00068
00069     EmberEUI64 srcIeeeAddr,
00070
00071     uint8_t nodeCapabilities,
00072
00073     const EmberRf4ceVendorInfo *vendorInfo,
00074
00075     const EmberRf4ceApplicationInfo *appInfo,
00076
00077     uint8_t keyExchangeTransferCount);
00078
00079 void emAfRf4cePairCompleteHandler(EmberStatus
00080     status,
00081
00082     uint8_t pairingIndex,
00083
00084     const EmberRf4ceVendorInfo *vendorInfo,
00085
00086     const EmberRf4ceApplicationInfo *appInfo);
00087
00088 void emAfRf4ceMessageSentHandler(EmberStatus
00089     status,
00090
00091     uint8_t pairingIndex,
00092
00093     uint8_t txOptions.
```

```

00048     uint8_t profileId,
00049     uint16_t vendorId,
00050     uint8_t messageTag,
00051     uint8_t messageLength,
00052     const uint8_t *message);
00053
00054 void emAfRf4ceIncomingMessageHandler(uint8_t
00055     pairingIndex,
00056     uint8_t profileId,
00057     uint16_t vendorId,
00058     EmberRf4ceTxOption txOptions,
00059     uint8_t messageLength,
00060     const uint8_t *message);
00061
00062 void emAfRf4ceUnpairHandler(uint8_t pairingIndex);
00063
00064 void emAfRf4ceUnpairCompleteHandler(uint8_t
00065     pairingIndex);
00066
00067 uint8_t emAfRf4ceGetBaseChannel(void);
00068
00069 #ifdef EZSP_HOST
00070     #define emAfRf4ceStart           ezspRf4ceStart
00071     #define emAfRf4ceSetPowerSavingParameters
00072         ezspRf4ceSetPowerSavingParameters
00073     #define emAfRf4ceSetFrequencyAgilityParameters
00074         ezspRf4ceSetFrequencyAgilityParameters
00075     #define emAfRf4ceSetDiscoveryLqiThreshold(threshold)
00076         ezspSetValue(EZSP_VALUE_RF4CE_DISCOVERY_LQI_THRESHOLD, 1, &(threshold))
00077 // emAfRf4ceGetBaseChannel is a function defined in rf4ce-profile-host.c
00078     #define emAfRf4ceDiscovery        ezspRf4ceDiscovery
00079     #define emAfRf4ceEnableAutoDiscoveryResponse
00080         ezspRf4ceEnableAutoDiscoveryResponse
00081     #define emAfRf4cePair             ezspRf4cePair
00082     #define emAfRf4ceSetPairingTableEntry(pairingIndex, entry)
00083
00084     (entry == NULL) ? ezspRf4ceDeletePairingTableEntry(pairingIndex)
00085
00086     : ezspRf4ceSetPairingTableEntry(pairingIndex, entry)
00087
00088 #else
00089     #define emAfRf4ceStart           emberRf4ceStart
00090     #define emAfRf4ceSetPowerSavingParameters
00091         emberRf4ceSetPowerSavingParameters
00092     #define emAfRf4ceSetFrequencyAgilityParameters
00093         emberRf4ceSetFrequencyAgilityParameters
00094     #define emAfRf4ceSetDiscoveryLqiThreshold
00095         emberRf4ceSetDiscoveryLqiThreshold
00096     #define emAfRf4ceGetBaseChannel   emberRf4ceGetBaseChannel
00097     #define emAfRf4ceDiscovery       emberRf4ceDiscovery
00098     #define emAfRf4ceEnableAutoDiscoveryResponse
00099         emberRf4ceEnableAutoDiscoveryResponse
00100     #define emAfRf4cePair            emberRf4cePair
00101     #define emAfRf4ceSetPairingTableEntry
00102         emberRf4ceSetPairingTableEntry
00103     #define emAfRf4ceGetPairingTableEntry
00104         emberRf4ceGetPairingTableEntry
00105     #define emAfRf4ceSetApplicationInfo
00106         emberRf4ceSetApplicationInfo
00107     #define emAfRf4ceGetApplicationInfo
00108         emberRf4ceGetApplicationInfo
00109     #define emAfRf4ceKeyUpdate       emberRf4ceKeyUpdate
00110     #define emAfRf4ceSend            emberRf4ceSend
00111     #define emAfRf4ceUnpair          emberRf4ceUnpair
00112     #define emAfRf4ceStop            emberRf4ceStop
00113     #define emAfRf4ceGetMaxPayload   emberRf4ceGetMaxPayload
00114 #endif
00115
00116 typedef struct {
00117     uint32_t dutyCycleMs;
00118     uint32_t activePeriodMs;
00119 } EmAfRf4cePowerSavingState;
00120
00121 extern PGM EmberAfRf4ceProfileId emAfRf4ceProfileIds
00122 [];
00123 extern bool emAfRf4ceRxOnWhenIdleProfileStates
00124 [];

```

```
00115 extern EmAfRf4cePowerSavingState
emAfRf4cePowerSavingState;
```

## 8.296 rf4ce-profile-types.h File Reference

### Typedefs

- `typedef void(* EmberAfRf4cePairCompleteCallback )(uint8_t, EmberStatus, const EmberRf4ceVendorInfo *, const EmberRf4ceApplicationInfo *)`

### Enumerations

- `enum EmberAfRf4ceStatus { EMBER_AF_RF4CE_STATUS_SUCCESS, EMBER_AF_RF4CE_STATUS_NO_ORG_CAPACITY, EMBER_AF_RF4CE_STATUS_NO_REC_CAPACITY, EMBER_AF_RF4CE_STATUS_NO_PAIRING, EMBER_AF_RF4CE_STATUS_NO_RESPONSE, EMBER_AF_RF4CE_STATUS_NOT_PERMITTED, EMBER_AF_RF4CE_STATUS_DUPLICATE_PAIRING, EMBER_AF_RF4CE_STATUS_FRAME_COUNTER_EXPIRED, EMBER_AF_RF4CE_STATUS_DISCOVERY_ERROR, EMBER_AF_RF4CE_STATUS_DISCOVERY_TIMEOUT, EMBER_AF_RF4CE_STATUS_SECURITY_TIMEOUT, EMBER_AF_RF4CE_STATUS_SECURITY_FAILURE, EMBER_AF_RF4CE_STATUS_INVALID_PARAMETER, EMBER_AF_RF4CE_STATUS_UNSUPPORTED_ATTRIBUTE, EMBER_AF_RF4CE_STATUS_INVALID_INDEX }`
- `enum EmberAfRf4ceProfileId { EMBER_AF_RF4CE_PROFILE_GENERIC_DEVICE, EMBER_AF_RF4CE_PROFILE_CONSUMER_ELECTRONICS_REMOTE_CONTROL, EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_1_0, EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_1_1, EMBER_AF_RF4CE_PROFILE_INPUT_DEVICE_1_0, EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_2_0, EMBER_AF_RF4CE_PROFILE_MSO, EMBER_AF_RF4CE_PROFILE_WILDCARD }`
- `enum EmberAfRf4ceVendor { EMBER_AF_RF4CE_VENDOR_PANASONIC, EMBER_AF_RF4CE_VENDOR_SONY, EMBER_AF_RF4CE_VENDOR_SAMSUNG, EMBER_AF_RF4CE_VENDOR_PHILIPS, EMBER_AF_RF4CE_VENDOR_FREESCALE, EMBER_AF_RF4CE_VENDOR_OKI_SEMICONDUCTOR, EMBER_AF_RF4CE_VENDOR_TEXAS_INSTRUMENTS, EMBER_AF_RF4CE_VENDOR_TEST_VENDOR_1, EMBER_AF_RF4CE_VENDOR_TEST_VENDOR_2, EMBER_AF_RF4CE_VENDOR_TEST_VENDOR_3 }`

- enum `EmberAfRf4ceDeviceType` {
   
`EMBER_AF_RF4CE_DEVICE_TYPE_RESERVED`, `EMBER_AF_RF4CE_DEVICE_TYPE_REMOTE_CONTROL`, `EMBER_AF_RF4CE_DEVICE_TYPE_TELEVISION`, `EMBER_AF_RF4CE_DEVICE_TYPE_PROJECTOR`,
   
`EMBER_AF_RF4CE_DEVICE_TYPE_PLAYER`, `EMBER_AF_RF4CE_DEVICE_TYPE_RECORDER`, `EMBER_AF_RF4CE_DEVICE_TYPE_VIDEO_PLAYER_RECORDER`, `EMBER_AF_RF4CE_DEVICE_TYPE_AUDIO_PLAYER_RECORDER`,
   
`EMBER_AF_RF4CE_DEVICE_TYPE_AUDIO_VIDEO_RECORDER`, `EMBER_AF_RF4CE_DEVICE_TYPE_SET_TOP_BOX`, `EMBER_AF_RF4CE_DEVICE_TYPE_HOME_THEATER_SYSTEM`, `EMBER_AF_RF4CE_DEVICE_TYPE_MEDIA_CENTER_PC`,
   
`EMBER_AF_RF4CE_DEVICE_TYPE_GAME_CONSOLE`, `EMBER_AF_RF4CE_DEVICE_TYPE_SATELLITE_RADIO_RECEIVER`, `EMBER_AF_RF4CE_DEVICE_TYPE_IR_EXTENDER`,
   
`EMBER_AF_RF4CE_DEVICE_TYPE_MONITOR`,
   
`EMBER_AF_RF4CE_DEVICE_TYPE_GENERIC`, `EMBER_AF_RF4CE_DEVICE_TYPE_WILDCARD` }

## 8.296.1 Typedef Documentation

- 8.296.1.1 `typedef void(* EmberAfRf4cePairCompleteCallback)(uint8_t, EmberStatus, const EmberRf4ceVendorInfo *, const EmberRf4ceApplicationInfo *)`

Function type definition of the pair complete callback.

Definition at line 123 of file `rf4ce-profile-types.h`.

## 8.296.2 Enumeration Type Documentation

- 8.296.2.1 `enum EmberAfRf4ceStatus`

ZigBee RF4CE status.

Enumerator:

```
EMBER_AF_RF4CE_STATUS_SUCCESS
EMBER_AF_RF4CE_STATUS_NO_ORG_CAPACITY
EMBER_AF_RF4CE_STATUS_NO_REC_CAPACITY
EMBER_AF_RF4CE_STATUS_NO_PAIRING
EMBER_AF_RF4CE_STATUS_NO_RESPONSE
EMBER_AF_RF4CE_STATUS_NOT_PERMITTED
EMBER_AF_RF4CE_STATUS_DUPLICATE_PAIRING
EMBER_AF_RF4CE_STATUS_FRAME_COUNTER_EXPIRED
EMBER_AF_RF4CE_STATUS_DISCOVERY_ERROR
EMBER_AF_RF4CE_STATUS_DISCOVERY_TIMEOUT
EMBER_AF_RF4CE_STATUS_SECURITY_TIMEOUT
EMBER_AF_RF4CE_STATUS_SECURITY_FAILURE
EMBER_AF_RF4CE_STATUS_INVALID_PARAMETER
EMBER_AF_RF4CE_STATUS_UNSUPPORTED_ATTRIBUTE
EMBER_AF_RF4CE_STATUS_INVALID_INDEX
```

Definition at line 10 of file `rf4ce-profile-types.h`.

### 8.296.2.2 enum EmberAfRf4ceProfileId

ZigBee RF4CE profile identifier.

**Enumerator:**

***EMBER\_AF\_RF4CE\_PROFILE\_GENERIC\_DEVICE*** Generic Device Profile (GDP) versions 1.-0 and 2.0.

***EMBER\_AF\_RF4CE\_PROFILE\_CONSUMER\_ELECTRONICS\_REMOTE\_CONTROL*** The Consumer Electronics Remote Control (CERC) profile was renamed to the ZigBee Remote Control (ZRC) profile when the specification went from version 1.0 in document 09-4946-00 to version 1.1 in document 09-4946-01. 1.1 is backwards compatible with 1.0. For convenience, the profile can be referred to as CERC, ZRC 1.0, or ZRC 1.1.

***EMBER\_AF\_RF4CE\_PROFILE\_REMOTE\_CONTROL\_1\_0*** A convenience alias for [\*\*\*EMBER\\_AF\\_RF4CE\\_PROFILE\\_CONSUMER\\_ELECTRONICS\\_REMOTE\\_CONTROL\*\*\*](#).

***EMBER\_AF\_RF4CE\_PROFILE\_REMOTE\_CONTROL\_1\_1*** ZigBee Remote Control (ZRC) profile version 1.1.

***EMBER\_AF\_RF4CE\_PROFILE\_INPUT\_DEVICE\_1\_0*** ZigBee Input Device (ZID) profile version 1.0.

***EMBER\_AF\_RF4CE\_PROFILE\_REMOTE\_CONTROL\_2\_0*** ZigBee Remote Control (ZRC) profile version 2.0.

***EMBER\_AF\_RF4CE\_PROFILE\_MSO*** Multiple System Operators (MSO) profile.

***EMBER\_AF\_RF4CE\_PROFILE\_WILDCARD*** Wildcard profile.

Definition at line [37](#) of file [rf4ce-profile-types.h](#).

### 8.296.2.3 enum EmberAfRf4ceVendor

ZigBee RF4CE vendor identifier.

**Enumerator:**

***EMBER\_AF\_RF4CE\_VENDOR\_PANASONIC***  
***EMBER\_AF\_RF4CE\_VENDOR\_SONY***  
***EMBER\_AF\_RF4CE\_VENDOR\_SAMSUNG***  
***EMBER\_AF\_RF4CE\_VENDOR\_PHILIPS***  
***EMBER\_AF\_RF4CE\_VENDOR\_FREESCALE***  
***EMBER\_AF\_RF4CE\_VENDOR\_OKI\_SEMICONDUCTOR***  
***EMBER\_AF\_RF4CE\_VENDOR\_TEXAS\_INSTRUMENTS***  
***EMBER\_AF\_RF4CE\_VENDOR\_TEST\_VENDOR\_1***  
***EMBER\_AF\_RF4CE\_VENDOR\_TEST\_VENDOR\_2***  
***EMBER\_AF\_RF4CE\_VENDOR\_TEST\_VENDOR\_3***

Definition at line [72](#) of file [rf4ce-profile-types.h](#).

#### 8.296.2.4 enum EmberAfRf4ceDeviceType

ZigBee RF4CE device type.

Enumerator:

```
EMBER_AF_RF4CE_DEVICE_TYPE_RESERVED
EMBER_AF_RF4CE_DEVICE_TYPE_REMOTE_CONTROL
EMBER_AF_RF4CE_DEVICE_TYPE_TELEVISION
EMBER_AF_RF4CE_DEVICE_TYPE_PROJECTOR
EMBER_AF_RF4CE_DEVICE_TYPE_PLAYER
EMBER_AF_RF4CE_DEVICE_TYPE_RECORDER
EMBER_AF_RF4CE_DEVICE_TYPE_VIDEO_PLAYER_RECORDER
EMBER_AF_RF4CE_DEVICE_TYPE_AUDIO_PLAYER_RECORDER
EMBER_AF_RF4CE_DEVICE_TYPE_AUDIO_VIDEO_RECORDER
EMBER_AF_RF4CE_DEVICE_TYPE_SET_TOP_BOX
EMBER_AF_RF4CE_DEVICE_TYPE_HOME_THEATER_SYSTEM
EMBER_AF_RF4CE_DEVICE_TYPE_MEDIA_CENTER_PC
EMBER_AF_RF4CE_DEVICE_TYPE_GAME_CONSOLE
EMBER_AF_RF4CE_DEVICE_TYPE_SATELLITE_RADIO_RECEIVER
EMBER_AF_RF4CE_DEVICE_TYPE_IR_EXTENDER
EMBER_AF_RF4CE_DEVICE_TYPE_MONITOR
EMBER_AF_RF4CE_DEVICE_TYPE_GENERIC
EMBER_AF_RF4CE_DEVICE_TYPE_WILDCARD
```

Definition at line 94 of file [rf4ce-profile-types.h](#).

## 8.297 rf4ce-profile-types.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_PROFILE_TYPES_H__
00004 #define __RF4CE_PROFILE_TYPES_H__
00005
00009 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00010 enum EmberAfRf4ceStatus
00011 #else
00012 typedef uint8_t EmberAfRf4ceStatus;
00013 enum
00014 #endif
00015 {
00016     EMBER_AF_RF4CE_STATUS_SUCCESS          =
00017         0x00,
00018     EMBER_AF_RF4CE_STATUS_NO_ORG_CAPACITY =
00019         0xB0,
00020     EMBER_AF_RF4CE_STATUS_NO_REC_CAPACITY =
00021         0xB1,
00022     EMBER_AF_RF4CE_STATUS_NO_PAIRING      =
00023         0xB2,
00024     EMBER_AF_RF4CE_STATUS_NO_RESPONSE    =
00025         0xB3,
00026     EMBER_AF_RF4CE_STATUS_NOT_PERMITTED =
00027         0xB4,
00028     EMBER_AF_RF4CE_STATUS_DUPLICATE_PAIRING =
00029         0xB5,
00030     EMBER_AF_RF4CE_STATUS_FRAME_COUNTER_EXPIRED
```

```

        = 0xB6,
00024    EMBER_AF_RF4CE_STATUS_DISCOVERY_ERROR
        = 0xB7,
00025    EMBER_AF_RF4CE_STATUS_DISCOVERY_TIMEOUT
        = 0xB8,
00026    EMBER_AF_RF4CE_STATUS_SECURITY_TIMEOUT
        = 0xB9,
00027    EMBER_AF_RF4CE_STATUS_SECURITY_FAILURE
        = 0xBA,
00028    EMBER_AF_RF4CE_STATUS_INVALID_PARAMETER
        = 0xE8,
00029    EMBER_AF_RF4CE_STATUS_UNSUPPORTED_ATTRIBUTE
        = 0xF4,
00030    EMBER_AF_RF4CE_STATUS_INVALID_INDEX
        = 0xF9,
00031 };
00032
00036 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00037 enum EmberAfRf4ceProfileId
00038 #else
00039 typedef uint8_t EmberAfRf4ceProfileId;
00040 enum
00041 #endif
00042 {
00044    EMBER_AF_RF4CE_PROFILE_GENERIC_DEVICE
        = 0x00,
00051    EMBER_AF_RF4CE_PROFILE_CONSUMER_ELECTRONICS_REMOTE_CONTROL
        = 0x01,
00055    EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_1_0
        = 0x01,
00057    EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_1_1
        = 0x01,
00059    EMBER_AF_RF4CE_PROFILE_INPUT_DEVICE_1_0
        = 0x02,
00061    EMBER_AF_RF4CE_PROFILE_REMOTE_CONTROL_2_0
        = 0x03,
00063    EMBER_AF_RF4CE_PROFILE_MSO
        = 0xC0,
00065    EMBER_AF_RF4CE_PROFILE_WILDCARD
        = 0xFF,
00066 };
00067
00071 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00072 enum EmberAfRf4ceVendor
00073 #else
00074 typedef uint16_t EmberAfRf4ceVendor;
00075 enum
00076 #endif
00077 {
00078    EMBER_AF_RF4CE_VENDOR_PANASONIC      =
0x0001,
00079    EMBER_AF_RF4CE_VENDOR_SONY          =
0x0002,
00080    EMBER_AF_RF4CE_VENDOR_SAMSUNG       =
0x0003
00081    EMBER_AF_RF4CE_VENDOR_PHILIPS       =
0x0004
00082    EMBER_AF_RF4CE_VENDOR_FREESCALE     =
0x0005,
00083    EMBER_AF_RF4CE_VENDOR_OKI_SEMICONDUCTOR
        = 0x0006,
00084    EMBER_AF_RF4CE_VENDOR_TEXAS_INSTRUMENTS
        = 0x0007,
00085    EMBER_AF_RF4CE_VENDOR_TEST_VENDOR_1
        = 0xFFFF1,
00086    EMBER_AF_RF4CE_VENDOR_TEST_VENDOR_2
        = 0xFFFF2,
00087    EMBER_AF_RF4CE_VENDOR_TEST_VENDOR_3
        = 0xFFFF3,
00088 };
00089
00093 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00094 enum EmberAfRf4ceDeviceType
00095 #else
00096 typedef uint8_t EmberAfRf4ceDeviceType;
00097 enum
00098 #endif
00099 {
00100    EMBER_AF_RF4CE_DEVICE_TYPE_RESERVED
        = 0x00,
00101    EMBER_AF_RF4CE_DEVICE_TYPE_REMOTE_CONTROL

```

```

        = 0x01,
00102 EMBER_AF_RF4CE_DEVICE_TYPE_TELEVISION
        = 0x02,
00103 EMBER_AF_RF4CE_DEVICE_TYPE_PROJECTOR
        = 0x03,
00104 EMBER_AF_RF4CE_DEVICE_TYPE_PLAYER
        = 0x04,
00105 EMBER_AF_RF4CE_DEVICE_TYPE_RECORDER
        = 0x05,
00106 EMBER_AF_RF4CE_DEVICE_TYPE_VIDEO_PLAYER_RECORDER
        = 0x06,
00107 EMBER_AF_RF4CE_DEVICE_TYPE_AUDIO_PLAYER_RECORDER
        = 0x07,
00108 EMBER_AF_RF4CE_DEVICE_TYPE_AUDIO_VIDEO_RECORDER
        = 0x08,
00109 EMBER_AF_RF4CE_DEVICE_TYPE_SET_TOP_BOX
        = 0x09,
00110 EMBER_AF_RF4CE_DEVICE_TYPE_HOME_THEATER_SYSTEM
        = 0xA,
00111 EMBER_AF_RF4CE_DEVICE_TYPE_MEDIA_CENTER_PC
        = 0xB,
00112 EMBER_AF_RF4CE_DEVICE_TYPE_GAME_CONSOLE
        = 0xC,
00113 EMBER_AF_RF4CE_DEVICE_TYPE_SATELLITE_RADIO_RECEIVER
        = 0xD,
00114 EMBER_AF_RF4CE_DEVICE_TYPE_IR_EXTENDER
        = 0xE,
00115 EMBER_AF_RF4CE_DEVICE_TYPE_MONITOR
        = 0xF,
00116 EMBER_AF_RF4CE_DEVICE_TYPE_GENERIC
        = 0xFE,
00117 EMBER_AF_RF4CE_DEVICE_TYPE_WILDCARD
        = 0xFF,
00118 };
00119
00123 typedef void(*EmberAfRf4cePairCompleteCallback)
00124     (uint8_t,
00125      EmberStatus,
00126      const EmberRf4ceVendorInfo*,
00127      const EmberRf4ceApplicationInfo
00128     *);
00127 #endif // __RF4CE_PROFILE_TYPES_H__

```

## 8.298 rf4ce-profile.h File Reference

```
#include "rf4ce-profile-types.h"
```

### Macros

- #define **EMBER\_AF\_RF4CE\_MAXIMUM\_RF4CE\_PAYLOAD\_LENGTH**
- #define **EMBER\_AF\_RF4CE\_MESSAGE\_TAG\_MASK**

### Functions

- bool **emberAfRf4ceIsCurrentNetwork** (void)
- **EmberStatus** **emberAfRf4cePushNetworkIndex** (void)
- **EmberStatus** **emberAfRf4ceStart** (void)
- **EmberStatus** **emberAfRf4ceSetPowerSavingParameters** (**uint32\_t** dutyCycleMs, **uint32\_t** activePeriodMs)
- **EmberStatus** **emberAfRf4ceRxEnable** (**EmberAfRf4ceProfileId** profileId, bool enable)
- **EmberStatus** **emberAfRf4ceSetFrequencyAgilityParameters** (**uint8\_t** rssWindowSz, **uint8\_t** channelChangeReads, **int8\_t** rssThreshold, **uint16\_t** readIntervalS, **uint8\_t** readDuration)

- `EmberStatus emberAfRf4ceSetDiscoveryLqiThreshold (uint8_t threshold)`
- `uint8_t emberAfRf4ceGetBaseChannel (void)`
- `EmberStatus emberAfRf4ceDiscovery (EmberPanId panId, EmberNodeId nodeId, uint8_t searchDevType, uint16_t discDurationMs, uint8_t maxDiscRepetitions, uint8_t discProfileIdListLength, uint8_t *discProfileIdList)`
- `EmberStatus emberAfRf4ceEnableAutoDiscoveryResponse (uint16_t durationMs, uint8_t discProfileIdListLength, uint8_t *discProfileIdList)`
- `EmberStatus emberAfRf4cePair (uint8_t channel, EmberPanId panId, EmberEUI64 ieeeAddr, uint8_t keyExchangeTransferCount, EmberAfRf4cePairCompleteCallback pairCompleteCallback)`
- `uint8_t emberAfRf4ceGetPairingIndex (void)`
- `EmberStatus emberAfRf4ceSetPairingTableEntry (uint8_t pairingIndex, EmberRf4cePairingTableEntry *entry)`
- `EmberStatus emberAfRf4ceGetPairingTableEntry (uint8_t pairingIndex, EmberRf4cePairingTableEntry *entry)`
- `EmberStatus emberAfRf4ceSetApplicationInfo (EmberRf4ceApplicationInfo *appInfo)`
- `EmberStatus emberAfRf4ceGetApplicationInfo (EmberRf4ceApplicationInfo *appInfo)`
- `EmberStatus emberAfRf4ceKeyUpdate (uint8_t pairingIndex, EmberKeyData *key)`
- `EmberStatus emberAfRf4ceSend (uint8_t pairingIndex, uint8_t profileId, uint8_t *message, uint8_t messageLength, uint8_t *messageTag)`
- `EmberStatus emberAfRf4ceSendVendorSpecific (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, uint8_t *message, uint8_t messageLength, uint8_t *messageTag)`
- `EmberStatus emberAfRf4ceSendExtended (uint8_t pairingIndex, uint8_t profileId, uint16_t vendorId, EmberRf4ceTxOption txOptions, uint8_t *message, uint8_t messageLength, uint8_t *messageTag)`
- `EmberStatus emberAfRf4ceGetDefaultTxOptions (uint8_t pairingIndex, EmberRf4ceTxOption *txOptions)`
- `EmberStatus emberAfRf4ceUnpair (uint8_t pairingIndex)`
- `EmberStatus emberAfRf4ceStop (void)`
- `uint8_t emberAfRf4ceGetMaxPayload (uint8_t pairingIndex, EmberRf4ceTxOption txOptions)`
- `uint8_t emberAfRf4ceDeviceTypeListLength (EmberRf4ceApplicationCapabilities capabilities)`
- `uint8_t emberAfRf4ceProfileIdListLength (EmberRf4ceApplicationCapabilities capabilities)`
- `uint16_t emberAfRf4ceVendorId (void)`
- `bool emberAfRf4ceIsDeviceTypeSupported (const EmberRf4ceApplicationInfo *appInfo, EmberAfRf4ceDeviceType deviceType)`
- `bool emberAfRf4ceIsDeviceTypeSupportedLocally (EmberAfRf4ceDeviceType deviceType)`
- `bool emberAfRf4ceIsProfileSupported (const EmberRf4ceApplicationInfo *appInfo, EmberAfRf4ceProfileId profileId)`
- `bool emberAfRf4ceIsProfileSupportedLocally (EmberAfRf4ceProfileId profileId)`
- `bool emberAfRf4cePairingTableEntryIsUnused (const EmberRf4cePairingTableEntry *pairingTableEntry)`
- `bool emberAfRf4cePairingTableEntryIsProvisional (const EmberRf4cePairingTableEntry *pairingTableEntry)`
- `bool emberAfRf4cePairingTableEntryIsActive (const EmberRf4cePairingTableEntry *pairingTableEntry)`
- `bool emberAfRf4cePairingTableEntryHasLinkKey (const EmberRf4cePairingTableEntry *pairingTableEntry)`
- `bool emberAfRf4cePairingTableEntryIsPairingInitiator (const EmberRf4cePairingTableEntry *pairingTableEntry)`
- `bool emberAfRf4cePairingTableEntryHasSecurity (const EmberRf4cePairingTableEntry *pairingTableEntry)`
- `bool emberAfRf4cePairingTableEntryHasChannelNormalization (const EmberRf4cePairingTableEntry *pairingTableEntry)`

## 8.299 rf4ce-profile.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_PROFILE_H__
00004 #define __RF4CE_PROFILE_H__
00005
00006 #include "rf4ce-profile-types.h"
00007
00048 bool emberAfRf4ceIsCurrentNetwork(void);
00049
00063 EmberStatus emberAfRf4cePushNetworkIndex
    (void);
00064
00079 EmberStatus emberAfRf4ceStart(void);
00080
00100 EmberStatus emberAfRf4ceSetPowerSavingParameters
    (uint32_t dutyCycleMs,
00101                                     uint32_t activePeriodMs);
00102
00125 EmberStatus emberAfRf4ceRxEnable(
    EmberAfRf4ceProfileId profileId,
00126                                     bool enable);
00127
00142 EmberStatus emberAfRf4ceSetFrequencyAgilityParameters
    (uint8_t rssiWindowSize,
00143                                     uint8_t
    channelChangeReads,
00144                                     int8_t rssiThreshold,
00145                                     uint16_t readIntervals,
00146                                     uint8_t readDuration);
00147
00162 EmberStatus emberAfRf4ceSetDiscoveryLqiThreshold
    (uint8_t threshold);
00163
00164
00178 uint8_t emberAfRf4ceGetBaseChannel(void);
00179
00199 EmberStatus emberAfRf4ceDiscovery(EmberPanId
    panId,
00200                                     EmberNodeId nodeId,
00201                                     uint8_t searchDevType,
00202                                     uint16_t discDurationMs,
00203                                     uint8_t maxDiscRepetitions,
00204                                     uint8_t discProfileIdListLength,
00205                                     uint8_t *discProfileIdList);
00206
00223 EmberStatus emberAfRf4ceEnableAutoDiscoveryResponse
    (uint16_t durationMs,
00224                                     uint8_t
    discProfileIdListLength,
00225                                     uint8_t *discProfileIdList)
    ;
00226
00243 EmberStatus emberAfRf4cePair(uint8_t channel,
00244                                     EmberPanId panId,
00245                                     EmberEUI64 ieeeAddr,
00246                                     uint8_t keyExchangeTransferCount,
00247                                     EmberAfRf4cePairCompleteCallback
    pairCompleteCallback);
00248
00267 uint8_t emberAfRf4ceGetPairingIndex(void);
00268
00282 EmberStatus emberAfRf4ceSetPairingTableEntry
    (uint8_t pairingIndex,
00283                                     EmberRf4cePairingTableEntry *entry
    );
00284
00298 EmberStatus emberAfRf4ceGetPairingTableEntry
    (uint8_t pairingIndex,
00299                                     EmberRf4cePairingTableEntry *entry
    );
00300
00314 EmberStatus emberAfRf4ceSetApplicationInfo
    (EmberRf4ceApplicationInfo *appInfo);
00315
00329 EmberStatus emberAfRf4ceGetApplicationInfo
    (EmberRf4ceApplicationInfo *appInfo);
00330

```

```

00344 EmberStatus emberAfRf4ceKeyUpdate(uint8_t
00345     pairingIndex, EmberKeyData *key);
00346
00371 EmberStatus emberAfRf4ceSend(uint8_t pairingIndex,
00372                             uint8_t profileId,
00373                             uint8_t *message,
00374                             uint8_t messageLength,
00375                             uint8_t *messageTag);
00376
00402 EmberStatus emberAfRf4ceSendVendorSpecific
00403     (uint8_t pairingIndex,
00404         uint8_t profileId,
00405         uint16_t vendorId,
00406         uint8_t *message,
00407         uint8_t messageLength,
00408         uint8_t *messageTag);
00409
00430 EmberStatus emberAfRf4ceSendExtended(uint8_t
00431     pairingIndex,
00432         uint8_t profileId,
00433         uint16_t vendorId,
00434         EmberRf4ceTxOption txOptions,
00435         uint8_t *message,
00436         uint8_t messageLength,
00437         uint8_t *messageTag);
00438
00451 EmberStatus emberAfRf4ceGetDefaultTxOptions
00452     (uint8_t pairingIndex,
00453         EmberRf4ceTxOption *txOptions);
00454
00468 EmberStatus emberAfRf4ceUnpair(uint8_t
00469     pairingIndex);
00470
00483 EmberStatus emberAfRf4ceStop(void);
00484
00498 uint8_t emberAfRf4ceGetMaxPayload(uint8_t pairingIndex
00499
00500     ,
00501         EmberRf4ceTxOption txOptions);
00502
00509 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00510     uint8_t emberAfRf4ceDeviceTypeListLength(
00511         EmberRf4ceApplicationCapabilities capabilities);
00512 #else
00513     #define emberAfRf4ceDeviceTypeListLength(capabilities)
00514         \
00515         (((capabilities) &
00516             EMBER_RF4CE_APP_CAPABILITIES_SUPPORTED_DEVICE_TYPES_MASK) \
00517             >> EMBER_RF4CE_APP_CAPABILITIES_SUPPORTED_DEVICE_TYPES_OFFSET)
00518 #endif
00519
00520 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00521     uint8_t emberAfRf4ceProfileIdListLength(
00522         EmberRf4ceApplicationCapabilities capabilities);
00523 #else
00524     #define emberAfRf4ceProfileIdListLength(capabilities)
00525         \
00526         (((capabilities) & EMBER_RF4CE_APP_CAPABILITIES_SUPPORTED_PROFILES_MASK) \
00527             >> EMBER_RF4CE_APP_CAPABILITIES_SUPPORTED_PROFILES_OFFSET)
00528 #endif
00529
00530
00531 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00532     uint16_t emberAfRf4ceVendorId(void);
00533 #else
00534     #define emberAfRf4ceVendorId() (emAfRf4ceVendorInfo.vendorId + 0)
00535 #endif
00536
00551 bool emberAfRf4ceIsDeviceTypeSupported(const
00552     EmberRf4ceApplicationInfo *appinfo,
00553         EmberAfRf4ceDeviceType
00554             deviceType);
00555
00556 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00557     bool emberAfRf4ceIsDeviceTypeSupportedLocally
00558         (EmberAfRf4ceDeviceType deviceType);
00559 #else
00560     #define emberAfRf4ceIsDeviceTypeSupportedLocally(deviceType) \
00561         emberAfRf4ceIsDeviceTypeSupported(&emAfRf4ceApplicationInfo, deviceType)

```

```

00570 #endif
00571
00576 bool emberAfRf4ceIsProfileSupported(const
00577     EmberRf4ceApplicationInfo *appInfo,
00578         EmberAfRf4ceProfileId
00579             profileId);
00580
00581 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00582
00583     bool emberAfRf4ceIsProfileSupportedLocally
00584         (EmberAfRf4ceProfileId profileId);
00585 #else
00586     #define emberAfRf4ceIsProfileSupportedLocally(profileId) \
00587         emberAfRf4ceIsProfileSupported(&emAfRf4ceApplicationInfo, profileId)
00588 #endif
00589
00590 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00591
00592     bool emberAfRf4cePairingTableEntryIsUnused
00593         (const EmberRf4cePairingTableEntry *pairingTableEntry);
00594 #else
00595     #define emberAfRf4cePairingTableEntryIsUnused(pairingTableEntry) \
00596         (READBITS((pairingTableEntry)->info, \
00597             EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_STATUS_MASK) \
00598             == EMBER_RF4CE_PAIRING_TABLE_ENTRY_STATUS_UNUSED)
00599 #endif
00600
00601 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00602
00603     bool emberAfRf4cePairingTableEntryIsProvisional
00604         (const EmberRf4cePairingTableEntry *pairingTableEntry);
00605 #else
00606     #define emberAfRf4cePairingTableEntryIsProvisional(pairingTableEntry) \
00607         (READBITS((pairingTableEntry)->info, \
00608             EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_STATUS_MASK) \
00609             == EMBER_RF4CE_PAIRING_TABLE_ENTRY_STATUS_PROVISIONAL)
00610 #endif
00611
00612 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00613
00614     bool emberAfRf4cePairingTableEntryIsActive
00615         (const EmberRf4cePairingTableEntry *pairingTableEntry);
00616 #else
00617     #define emberAfRf4cePairingTableEntryIsActive(pairingTableEntry) \
00618         (READBITS((pairingTableEntry)->info, \
00619             EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_STATUS_MASK) \
00620             == EMBER_RF4CE_PAIRING_TABLE_ENTRY_STATUS_ACTIVE)
00621 #endif
00622
00623 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00624
00625     bool emberAfRf4cePairingTableEntryHasLinkKey
00626         (const EmberRf4cePairingTableEntry *pairingTableEntry);
00627 #else
00628     #define emberAfRf4cePairingTableEntryHasLinkKey(pairingTableEntry) \
00629         (READBITS((pairingTableEntry)->info, \
00630             EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_HAS_LINK_KEY_BIT) \
00631             == EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_HAS_LINK_KEY_BIT)
00632 #endif
00633
00634 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00635
00636     bool emberAfRf4cePairingTableEntryIsPairingInitiator
00637         (const EmberRf4cePairingTableEntry *pairingTableEntry);
00638 #else
00639     #define emberAfRf4cePairingTableEntryIsPairingInitiator(pairingTableEntry) \
00640         (READBITS((pairingTableEntry)->info, \
00641             EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_IS_PAIRING_INITIATOR_BIT) \
00642             == EMBER_RF4CE_PAIRING_TABLE_ENTRY_INFO_IS_PAIRING_INITIATOR_BIT)
00643 #endif
00644
00645 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00646
00647     bool emberAfRf4cePairingTableEntryHasSecurity
00648         (const EmberRf4cePairingTableEntry *pairingTableEntry);
00649 #else
00650     #define emberAfRf4cePairingTableEntryHasSecurity(pairingTableEntry) \
00651         (READBITS((pairingTableEntry)->capabilities, \
00652             EMBER_RF4CE_NODE_CAPABILITIES_SECURITY_BIT) \
00653             == EMBER_RF4CE_NODE_CAPABILITIES_SECURITY_BIT)
00654
00655 #endif

```

```

00684 #endif
00685
00686 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00687
00695     bool emberAfRf4cePairingTableEntryHasChannelNormalization
00696     (const EmberRf4cePairingTableEntry *pairingTableEntry);
00696 #else
00697     #define
00698     emberAfRf4cePairingTableEntryHasChannelNormalization(pairingTableEntry) \
00698         (READBITS((pairingTableEntry)->capabilities,
00699             \
00699             EMBER_RF4CE_NODE_CAPABILITIES_CHANNEL_NORM_BIT)
00700             \
00700             == EMBER_RF4CE_NODE_CAPABILITIES_CHANNEL_NORM_BIT)
00701 #endif
00702
00703 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00704 extern EmberRf4ceVendorInfo emAfRf4ceVendorInfo;
00705 extern EmberRf4ceApplicationInfo emAfRf4ceApplicationInfo;
00706 #endif
00707
00708 // There are a maximum of 128 bytes at the PHY layer, but there is a one-byte
00709 // length and a two-byte CRC, leaving 125 for the PHY payload. The minimum MAC
00710 // header consists of a two-byte frame control, one-byte sequence number, two-
00711 // byte destination pan id, and at least two bytes each for the source and
00712 // destination addresses. That leaves a maximum of 116 bytes for the MAC
00713 // payload, although inter-pan messages or long source or destination addresses
00714 // will reduce that. The minimum NWK header consists of a one-byte frame
00715 // control, four-byte frame counter, and one-byte profile id. That leaves a
00716 // maximum of 110 bytes for the NWK payload, although encrypted or vendor-
00717 // specific messages will reduce that. Use the ::emberAfRf4ceGetMaxPayload()
00718 // API to retrieve the maximum allowed payload for a certain pairing and
00718     certain
00719 // TX options.
00720 #define EMBER_AF_RF4CE_MAXIMUM_RF4CE_PAYLOAD_LENGTH 110
00721
00728 #define EMBER_AF_RF4CE_MESSAGE_TAG_MASK 0x7F
00729
00730 #endif // __RF4CE_PROFILE_H__
00731
00732 // @} END addtogroup

```

## 8.300 rf4ce-zrc11-internal.h File Reference

### Macros

- #define NWK\_MAX\_DISCOVERY\_REPETITIONS
- #define NWK\_MAX\_REPORTED\_NODE\_DESCRIPTORs
- #define APLC\_MAX\_CMD\_DISC\_RX\_ON\_DURATION\_MS
- #define APLC\_MAX\_KEY\_REPEAT\_INTERVAL\_MS
- #define APLC\_MAX\_PAIR\_INDICATION\_WAIT\_TIME\_MS
- #define APLC\_MAX\_RESPONSE\_WAIT\_TIME\_MS
- #define APLC\_MIN\_KEY\_EXCHANGE\_TRANSFER\_COUNT
- #define APLC\_MIN\_TARGET\_BLACKOUT\_PERIOD\_MS
- #define APLC\_DISCOVERY\_DURATION\_MS
- #define APLC\_AUTO\_DISCOVERY\_RESPONSE\_MODE\_DURATION\_MS
- #define ZRC\_FRAME\_CONTROL\_LENGTH
- #define ZRC\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK
- #define ZRC\_OVERHEAD
- #define COMMAND\_CODE\_MINIMUM
- #define COMMAND\_CODE\_MAXIMUM
- #define USER\_CONTROL\_PRESSED\_LENGTH
- #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_CODE\_OFFSET
- #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_PAYLOAD\_OFFSET

- #define `USER_CONTROL_REPEATED_1_0_LENGTH`
- #define `USER_CONTROL_REPEATED_1_1_LENGTH`
- #define `USER_CONTROL_REPEATED_1_1_RC_COMMAND_CODE_OFFSET`
- #define `USER_CONTROL_REPEATED_1_1_RC_COMMAND_PAYLOAD_OFFSET`
- #define `USER_CONTROL_RELEASED_1_0_LENGTH`
- #define `USER_CONTROL_RELEASED_1_1_LENGTH`
- #define `USER_CONTROL_RELEASED_1_1_RC_COMMAND_CODE_OFFSET`
- #define `COMMAND_DISCOVERY_REQUEST_LENGTH`
- #define `COMMANDS_SUPPORTED_LENGTH`
- #define `COMMAND_DISCOVERY_RESPONSE_LENGTH`
- #define `COMMAND_DISCOVERY_RESPONSE_COMMANDS_SUPPORTED_OFFSET`
- #define `EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH`
- #define `MAXIMUM_USER_CONTROL_X_LENGTH`
- #define `EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_PAYLOAD_LENGTH`

## Functions

- void `emAfRf4ceZrc11InitOriginator` (void)
- void `emAfRf4ceZrc11InitRecipient` (void)
- `EmberStatus emAfRf4ceZrc11Send` (uint8\_t pairingIndex)
- void `emAfRf4ceZrc11RxEnable` (void)
- void `emAfRf4ceZrc11IncomingUserControl` (uint8\_t pairingIndex, `EmberAfRf4ceZrcCommandCode` commandCode, const uint8\_t \*message, uint8\_t messageLength)

## Variables

- uint8\_t `emAfRf4ceZrc11Buffer` []
- uint8\_t `emAfRf4ceZrc11BufferLength`
- `EmberEventControl emberAfPluginRf4ceZrc11PairingEventControl`
- `EmberEventControl emberAfPluginRf4ceZrc11IncomingUserControlEventControl`
- `EmberEventControl emberAfPluginRf4ceZrc11OutgoingUserControlEventControl`
- `EmberEventControl emberAfPluginRf4ceZrc11CommandDiscoveryEventControl`

### 8.300.1 Macro Definition Documentation

#### 8.300.1.1 #define NWK\_MAX\_DISCOVERY\_REPEATITIONS

Definition at line 4 of file `rf4ce-zrc11-internal.h`.

#### 8.300.1.2 #define NWK\_MAX\_REPORTED\_NODE\_DESCRIPTOROS

Definition at line 7 of file `rf4ce-zrc11-internal.h`.

#### 8.300.1.3 #define APLC\_MAX\_CMD\_DISC\_RX\_ON\_DURATION\_MS

Definition at line 11 of file `rf4ce-zrc11-internal.h`.

**8.300.1.4 #define APLC\_MAX\_KEY\_REPEAT\_INTERVAL\_MS**

Definition at line 15 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.5 #define APLC\_MAX\_PAIR\_INDICATION\_WAIT\_TIME\_MS**

Definition at line 20 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.6 #define APLC\_MAX\_RESPONSE\_WAIT\_TIME\_MS**

Definition at line 24 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.7 #define APLC\_MIN\_KEY\_EXCHANGE\_TRANSFER\_COUNT**

Definition at line 28 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.8 #define APLC\_MIN\_TARGET\_BLACKOUT\_PERIOD\_MS**

Definition at line 32 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.9 #define APLC\_DISCOVERY\_DURATION\_MS**

Definition at line 35 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.10 #define APLC\_AUTO\_DISCOVERY\_RESPONSE\_MODE\_DURATION\_MS**

Definition at line 38 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.11 #define ZRC\_FRAME\_CONTROL\_LENGTH**

Definition at line 43 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.12 #define ZRC\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK**

Definition at line 44 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.13 #define ZRC\_OVERHEAD**

Definition at line 45 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.14 #define COMMAND\_CODE\_MINIMUM**

Definition at line 47 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.15 #define COMMAND\_CODE\_MAXIMUM**

Definition at line 48 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.16 #define USER\_CONTROL\_PRESSED\_LENGTH**

Definition at line 53 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.17 #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_CODE\_OFFSET**

Definition at line 54 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.18 #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_PAYLOAD\_OFFSET**

Definition at line 55 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.19 #define USER\_CONTROL\_REPEATED\_1\_0\_LENGTH**

Definition at line 60 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.20 #define USER\_CONTROL\_REPEATED\_1\_1\_LENGTH**

Definition at line 61 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.21 #define USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET**

Definition at line 62 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.22 #define USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_PAYLOAD\_OFFSET**

Definition at line 63 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.23 #define USER\_CONTROL\_RELEASED\_1\_0\_LENGTH**

Definition at line 67 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.24 #define USER\_CONTROL\_RELEASED\_1\_1\_LENGTH**

Definition at line 68 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.25 #define USER\_CONTROL\_RELEASED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET**

Definition at line 69 of file [rf4ce-zrc11-internal.h](#).

**8.300.1.26 #define COMMAND\_DISCOVERY\_REQUEST\_LENGTH**

Definition at line [73](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.1.27 #define COMMANDS\_SUPPORTED\_LENGTH**

Definition at line [78](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.1.28 #define COMMAND\_DISCOVERY\_RESPONSE\_LENGTH**

Definition at line [79](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.1.29 #define COMMAND\_DISCOVERY\_RESPONSE\_COMMANDS\_SUPPORTED\_OFFSET**

Definition at line [80](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.1.30 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC11\_MAXIMUM\_RC\_COMMAND\_PAYLOAD\_LENGTH**

Definition at line [87](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.1.31 #define MAXIMUM\_USER\_CONTROL\_X\_LENGTH**

Definition at line [89](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.1.32 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC11\_MAXIMUM\_PAYLOAD\_LENGTH**

Definition at line [97](#) of file [rf4ce-zrc11-internal.h](#).

**8.300.2 Function Documentation****8.300.2.1 void emAfRf4ceZrc11InitOriginator ( void )****8.300.2.2 void emAfRf4ceZrc11InitRecipient ( void )****8.300.2.3 EmberStatus emAfRf4ceZrc11Send ( uint8\_t pairingIndex )****8.300.2.4 void emAfRf4ceZrc11RxEnable ( void )****8.300.2.5 void emAfRf4ceZrc11IncomingUserControl ( uint8\_t pairingIndex, EmberAfRf4ceZrc-  
CommandCode commandCode, const uint8\_t \* message, uint8\_t messageLength  
)****8.300.3 Variable Documentation****8.300.3.1 uint8\_t emAfRf4ceZrc11Buffer[]****8.300.3.2 uint8\_t emAfRf4ceZrc11BufferLength**

### 8.300.3.3 EmberEventControl emberAfPluginRf4ceZrc11PairingEventControl

### 8.300.3.4 EmberEventControl emberAfPluginRf4ceZrc11IncomingUserControlEventControl

### 8.300.3.5 EmberEventControl emberAfPluginRf4ceZrc11OutgoingUserControlEventControl

### 8.300.3.6 EmberEventControl emberAfPluginRf4ceZrc11CommandDiscoveryEventControl

## 8.301 rf4ce-zrc11-internal.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 // The maximum number of repetitions performed during discovery.
00004 #define NWK_MAX_DISCOVERY_REPEATITIONS 30
00005
00006 // The maximum number of node descriptors reported during discovery.
00007 #define NWK_MAX_REPORTED_NODE_DESCRIPTOROS 1
00008
00009 // The maximum duration that the receiver is enabled on a controller after
00010 // pairing to receive any command discovery request command frames.
00011 #define APLC_MAX_CMD_DISC_RX_ON_DURATION_MS 200
00012
00013 // The maximum time between consecutive user control repeated command frame
00014 // transmissions.
00015 #define APLC_MAX_KEY_REPEAT_INTERVAL_MS 100
00016
00017 // The maximum amount of time a device waits after receiving a successful
00018 // NLME-AUTODISCOVERY.confirm primitive for a pair indication to arrive from
00019 // the pairing initiator.
00020 #define APLC_MAX_PAIR_INDICATION_WAIT_TIME_MS MILLISECOND_TICKS_PER_SECOND
00021
00022 // The maximum time a device shall wait for a response command frame following
00023 // a request command frame.
00024 #define APLC_MAX_RESPONSE_WAIT_TIME_MS 200
00025
00026 // The minimum value of the KeyExTransferCount parameter passed to the pair
00027 // request primitive during the push button pairing procedure.
00028 #define APLC_MIN_KEY_EXCHANGE_TRANSFER_COUNT 3
00029
00030 // The minimum amount of time a device must wait after a successful pairing
00031 // attempt with a target before attempting command discovery.
00032 #define APLC_MIN_TARGET_BLACKOUT_PERIOD_MS 500
00033
00034 // The amount of time a device must perform discovery.
00035 #define APLC_DISCOVERY_DURATION_MS 100
00036
00037 // The amount of time a device must wait in automatic discovery response mode.
00038 #define APLC_AUTO_DISCOVERY_RESPONSE_MODE_DURATION_MS \
00039 (30 * MILLISECOND_TICKS_PER_SECOND)
00040
00041 // ZRC header
00042 // - Frame control (1 byte)
00043 #define ZRC_FRAME_CONTROL_LENGTH 1
00044 #define ZRC_FRAME_CONTROL_COMMAND_CODE_MASK 0x1F
00045 #define ZRC_OVERHEAD (ZRC_FRAME_CONTROL_LENGTH)
00046
00047 #define COMMAND_CODE_MINIMUM EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_PRESSED
00048 #define COMMAND_CODE_MAXIMUM
    EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_RESPONSE
00049
00050 // User Control Pressed
00051 // - RC command code (1 byte)
00052 // - RC command payload (n bytes)
00053 #define USER_CONTROL_PRESSED_LENGTH (ZRC_OVERHEAD + 1)
00054 #define USER_CONTROL_PRESSED_RC_COMMAND_CODE_OFFSET (ZRC_OVERHEAD)
00055 #define USER_CONTROL_PRESSED_RC_COMMAND_PAYLOAD_OFFSET (ZRC_OVERHEAD + 1)
00056
00057 // User Control Repeated
00058 // - RC command code (1 byte, 1.1 only)
00059 // - RC command payload (n bytes, 1.1 only)
00060 #define USER_CONTROL_REPEATED_1_0_LENGTH (ZRC_OVERHEAD)
00061 #define USER_CONTROL_REPEATED_1_1_LENGTH (ZRC_OVERHEAD + 1)
00062 #define USER_CONTROL_REPEATED_1_1_RC_COMMAND_CODE_OFFSET (ZRC_OVERHEAD)
00063 #define USER_CONTROL_REPEATED_1_1_RC_COMMAND_PAYLOAD_OFFSET (ZRC_OVERHEAD + 1)

```

```

00064
00065 // User Control Released
00066 // - RC command code (1 byte, 1.1 only)
00067 #define USER_CONTROL_RELEASED_1_0_LENGTH (ZRC_OVERHEAD)
00068 #define USER_CONTROL_RELEASED_1_1_LENGTH (ZRC_OVERHEAD + 1)
00069 #define USER_CONTROL_RELEASED_1_1_RC_COMMAND_CODE_OFFSET (ZRC_OVERHEAD)
00070
00071 // Command Discovery Request
00072 // - Reserved (1 byte)
00073 #define COMMAND_DISCOVERY_REQUEST_LENGTH (ZRC_OVERHEAD + 1)
00074
00075 // Command Discovery Response
00076 // - Reserved (1 byte)
00077 // - Commands supported (32 bytes)
00078 #define COMMANDS_SUPPORTED_LENGTH 32
00079 #define COMMAND_DISCOVERY_RESPONSE_LENGTH (ZRC_OVERHEAD + 1 +
    COMMANDS_SUPPORTED_LENGTH)
00080 #define COMMAND_DISCOVERY_RESPONSE_COMMANDS_SUPPORTED_OFFSET (ZRC_OVERHEAD + 1)
00081
00082 // The User Control Pressed and User Control Repeated commands theoretically
00083 // take an unbounded additional payload, but the longest additional operand in
00084 // HDMI 1.3a is just four bytes. Still, just in case, leave an opening for the
00085 // user to override the buffer size.
00086 #ifndef EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH
00087     #define EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH 4
00088 #endif
00089 #define MAXIMUM_USER_CONTROL_X_LENGTH \
00090     (USER_CONTROL_PRESSED_LENGTH \
00091     + EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_RC_COMMAND_PAYLOAD_LENGTH) \
00092
00093 // Assuming the standard operands are used, the Discovery Response command is
00094 // the command with the longest payload in the ZRC profile.
00095 #ifndef EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_PAYLOAD_LENGTH
00096     #if MAXIMUM_USER_CONTROL_X_LENGTH < COMMAND_DISCOVERY_RESPONSE_LENGTH
00097         #define EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_PAYLOAD_LENGTH \
            COMMAND_DISCOVERY_RESPONSE_LENGTH
00098     #else
00099         #define EMBER_AF_PLUGIN_RF4CE_ZRC11_MAXIMUM_PAYLOAD_LENGTH \
            MAXIMUM_USER_CONTROL_X_LENGTH
00100     #endif
00101 #endif
00102
00103 void emAfRf4ceZrc11InitOriginator(void);
00104 void emAfRf4ceZrc11InitRecipient(void);
00105
00106 extern uint8_t emAfRf4ceZrc11Buffer[];
00107 extern uint8_t emAfRf4ceZrc11BufferLength;
00108 EmberStatus emAfRf4ceZrc11Send(uint8_t
    pairingIndex);
00109
00110 extern EmberEventControl
    emberAfPluginRf4ceZrc11PairingEventControl
    ;
00111 extern EmberEventControl
    emberAfPluginRf4ceZrc11IncomingUserControlEventControl
    ;
00112 extern EmberEventControl
    emberAfPluginRf4ceZrc11OutgoingUserControlEventControl
    ;
00113 extern EmberEventControl
    emberAfPluginRf4ceZrc11CommandDiscoveryEventControl
    ;
00114
00115 void emAfRf4ceZrc11RxEnable(void);
00116
00117 void emAfRf4ceZrc11IncomingUserControl(uint8_t
    pairingIndex,
    EmberAfRf4ceZrcCommandCode
    commandCode,
    const uint8_t *message,
    uint8_t messageLength);
00118
00119
00120

```

## 8.302 rf4ce-zrc11-types.h File Reference

## Data Structures

- struct [EmberAfRf4ceZrcUserControlRecord](#)  
*This data structure contains the ZRC 1.x user control record.*
- struct [EmberAfRf4ceZrcCommandsSupported](#)  
*This data structure contains the ZRC 1.x command discovery data.*

## Macros

- #define [EMBER\\_AF\\_RF4CE\\_ZRC\\_COMMANDS\\_SUPPORTED\\_SIZE](#)

## Enumerations

- enum [EmberAfRf4ceZrcCommandCode](#) {
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_PRESSED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_REPEAT, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_RELEASED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_REQUEST, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_RESPONSE, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_PRESSED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_REPEAT, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_RELEASED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_REQUEST, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_RESPONSE, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_ACTIONS }

- ```
• enum EmberAfRf4ceUserControlCode {
EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT, EMBER_AF_RF4CE_USER_CONTROL_CODE_UP, EMBER_AF_RF4CE_USER_CONTROL_CODE_DOWN, EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT,
EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT, EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT_UP, EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT_DOWN, EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT_UP,
EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT_DOWN, EMBER_AF_RF4CE_USER_CONTROL_CODE_ROOT_MENU, EMBER_AF_RF4CE_USER_CONTROL_CODE_SETUP_MENU, EMBER_AF_RF4CE_USER_CONTROL_CODE_CONTENTS_MENU,
EMBER_AF_RF4CE_USER_CONTROL_CODE_FAVORITE_MENU, EMBER_AF_RF4CE_USER_CONTROL_CODE_EXIT, EMBER_AF_RF4CE_USER_CONTROL_CODE_0, EMBER_AF_RF4CE_USER_CONTROL_CODE_1,
EMBER_AF_RF4CE_USER_CONTROL_CODE_2, EMBER_AF_RF4CE_USER_CONTROL_CODE_3, EMBER_AF_RF4CE_USER_CONTROL_CODE_4, EMBER_AF_RF4CE_USER_CONTROL_CODE_5,
EMBER_AF_RF4CE_USER_CONTROL_CODE_6, EMBER_AF_RF4CE_USER_CONTROL_CODE_7, EMBER_AF_RF4CE_USER_CONTROL_CODE_8, EMBER_AF_RF4CE_USER_CONTROL_CODE_9,
EMBER_AF_RF4CE_USER_CONTROL_CODE_DOT, EMBER_AF_RF4CE_USER_CONTROL_CODE_ENTER, EMBER_AF_RF4CE_USER_CONTROL_CODE_CLEAR, EMBER_AF_RF4CE_USER_CONTROL_CODE_NEXT_FAVORITE,
EMBER_AF_RF4CE_USER_CONTROL_CODE_CHANNEL_UP, EMBER_AF_RF4CE_USER_CONTROL_CODE_CHANNEL_DOWN, EMBER_AF_RF4CE_USER_CONTROL_CODE_PREVIOUS_CHANNEL, EMBER_AF_RF4CE_USER_CONTROL_CODE_SOUND_SELECT,
EMBER_AF_RF4CE_USER_CONTROL_CODE_INPUT_SELECT, EMBER_AF_RF4CE_USER_CONTROL_CODE_DISPLAY_INFORMATION, EMBER_AF_RF4CE_USER_CONTROL_CODE_HELP, EMBER_AF_RF4CE_USER_CONTROL_CODE_PAGE_UP,
EMBER_AF_RF4CE_USER_CONTROL_CODE_PAGE_DOWN, EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER, EMBER_AF_RF4CE_USER_CONTROL_CODE_VOLUME_UP, EMBER_AF_RF4CE_USER_CONTROL_CODE_VOLUME_DOWN,
EMBER_AF_RF4CE_USER_CONTROL_CODE_MUTE, EMBER_AF_RF4CE_USER_CONTROL_CODE_PLAY, EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP, EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE,
EMBER_AF_RF4CE_USER_CONTROL_CODE_RECORD, EMBER_AF_RF4CE_USER_CONTROL_CODE_REWIND, EMBER_AF_RF4CE_USER_CONTROL_CODE_FAST_FORWARD, EMBER_AF_RF4CE_USER_CONTROL_CODE_EJECT,
EMBER_AF_RF4CE_USER_CONTROL_CODE_FORWARD, EMBER_AF_RF4CE_USER_CONTROL_CODE_BACKWARD, EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP_RECORD, EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_RECORD,
EMBER_AF_RF4CE_USER_CONTROL_CODE_ANGLE, EMBER_AF_RF4CE_USER_CONTROL_CODE_SUB_PICTURE, EMBER_AF_RF4CE_USER_CONTROL_CODE_VIDEO_ON_DEMAND, EMBER_AF_RF4CE_USER_CONTROL_CODE ELECTRONIC_PROGRAM_GUIDE,
EMBER_AF_RF4CE_USER_CONTROL_CODE_TIMER_PROGRAMMING, EMBER_AF_RF4CE_USER_CONTROL_CODE_INITIAL_CONFIGURATION, EMBER_AF_RF4CE_USER_CONTROL_CODE_PLAY_FUNCTION, EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE PLAY_FUNCTION,
EMBER_AF_RF4CE_USER_CONTROL_CODE_RECORD_FUNCTION, EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_RECORD_FUNCTION, EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP_FUNCTION, EMBER_AF_RF4CE_USER_CONTROL_CODE_MUTE_FUNCTION,
EMBER_AF_RF4CE_USER_CONTROL_CODE_RESTORE_VOLUME_FUNCTION }
```

### 8.302.1 Macro Definition Documentation

#### 8.302.1.1 #define EMBER\_AF\_RF4CE\_ZRC\_COMMANDS\_SUPPORTED\_SIZE

Size of the ZRC 1.x command discovery data in bytes (32).

Definition at line 128 of file [rf4ce-zrc11-types.h](#).

### 8.302.2 Enumeration Type Documentation

#### 8.302.2.1 enum EmberAfRf4ceZrcCommandCode

RF4CE ZRC 1.1 command codes.

Enumerator:

```
EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_PRESSED
EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_REPEATED
EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_RELEASED
EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_REQUEST
EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_RESPONSE
EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_PRESSED
EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_REPEATED
EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_RELEASED
EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_REQUEST
EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_RESPONSE
EMBER_AF_RF4CE_ZRC_COMMAND_ACTIONS
```

Definition at line 10 of file [rf4ce-zrc11-types.h](#).

#### 8.302.2.2 enum EmberAfRf4ceUserControlCode

RF4CE user control codes from HDMI 1.3a CEC operand [UI Command].

Enumerator:

```
EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT
EMBER_AF_RF4CE_USER_CONTROL_CODE_UP
EMBER_AF_RF4CE_USER_CONTROL_CODE_DOWN
EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT
EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT
EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT_UP
EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT_DOWN
EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT_UP
EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT_DOWN
EMBER_AF_RF4CE_USER_CONTROL_CODE_ROOT_MENU
EMBER_AF_RF4CE_USER_CONTROL_CODE_SETUP_MENU
```

*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_CONTENTS\_MENU*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_FAVORITE\_MENU*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_EXIT*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_0*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_1*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_2*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_3*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_4*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_5*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_6*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_7*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_8*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_9*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_DOT*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_ENTER*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_CLEAR*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_NEXT\_FAVORITE*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_CHANNEL\_UP*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_CHANNEL\_DOWN*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_PREVIOUS\_CHANNEL*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_SOUND\_SELECT*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_INPUT\_SELECT*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_DISPLAY\_INFORMATION*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_HELP*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_PAGE\_UP*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_PAGE\_DOWN*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_POWER*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_VOLUME\_UP*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_VOLUME\_DOWN*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_MUTE*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_PLAY*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_STOP*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_PAUSE*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_RECORD*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_REWIND*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_FAST\_FORWARD*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_EJECT*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_FORWARD*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_BACKWARD*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_STOP\_RECORD*  
*EMBER\_AF\_RF4CE\_USER\_CONTROL\_CODE\_PAUSE\_RECORD*

```

EMBER_AF_RF4CE_USER_CONTROL_CODE_ANGLE
EMBER_AF_RF4CE_USER_CONTROL_CODE_SUB_PICTURE
EMBER_AF_RF4CE_USER_CONTROL_CODE_VIDEO_ON_DEMAND
EMBER_AF_RF4CE_USER_CONTROL_CODE ELECTRONIC_PROGRAM_GUIDE
EMBER_AF_RF4CE_USER_CONTROL_CODE_TIMER_PROGRAMMING
EMBER_AF_RF4CE_USER_CONTROL_CODE_INITIAL_CONFIGURATION
EMBER_AF_RF4CE_USER_CONTROL_CODE_PLAY_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_PLAY_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_RECORD_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_RECORD_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_MUTE_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_RESTORE_VOLUME_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_TUNE_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT_MEDIA_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT_A_V_INPUT_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT_AUDIO_INPUT_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER_TOGGLE_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER_OFF_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER_ON_FUNCTION
EMBER_AF_RF4CE_USER_CONTROL_CODE_F1_BLUE
EMBER_AF_RF4CE_USER_CONTROL_CODE_F2_RED
EMBER_AF_RF4CE_USER_CONTROL_CODE_F3_GREEN
EMBER_AF_RF4CE_USER_CONTROL_CODE_F4_YELLOW
EMBER_AF_RF4CE_USER_CONTROL_CODE_F5
EMBER_AF_RF4CE_USER_CONTROL_CODE_DATA

```

Definition at line 27 of file [rf4ce-zrc11-types.h](#).

### 8.303 rf4ce-zrc11-types.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC11_TYPES_H__
00004 #define __RF4CE_ZRC11_TYPES_H__
00005
00009 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00010 enum EmberAfRf4ceZrcCommandCode
00011 {
00012     typedef uint8_t EmberAfRf4ceZrcCommandCode;
00013     enum
00014     {
00015         EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_PRESSED
00016             = 0x01,
00017         EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_REPEAT
00018             = 0x02,
00019         EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_RELEASED
00020             = 0x03,
00021         EMBER_AF_RF4CE_ZRC_COMMAND_DISCOVERY_REQUEST
00022             = 0x04,

```

```

00020     EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_RESPONSE
00021     = 0x05,
00022 };
00023
00024 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00025 enum EmberAfRf4ceUserControlCode
00026 #else
00027 typedef uint8_t EmberAfRf4ceUserControlCode;
00028 enum
00029 #endif
00030 {
00031
00032     EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT
00033     = 0x00,
00034     EMBER_AF_RF4CE_USER_CONTROL_CODE_UP
00035     = 0x01,
00036     EMBER_AF_RF4CE_USER_CONTROL_CODE_DOWN
00037     = 0x02,
00038     EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT
00039     = 0x03,
00040     EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT
00041     = 0x04,
00042     EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT_UP
00043     = 0x05,
00044     EMBER_AF_RF4CE_USER_CONTROL_CODE_RIGHT_DOWN
00045     = 0x06,
00046     EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT_UP
00047     = 0x07,
00048     EMBER_AF_RF4CE_USER_CONTROL_CODE_LEFT_DOWN
00049     = 0x08,
00050     EMBER_AF_RF4CE_USER_CONTROL_CODE_ROOT_MENU
00051     = 0x09,
00052     EMBER_AF_RF4CE_USER_CONTROL_CODE_SETUP_MENU
00053     = 0x0A,
00054     EMBER_AF_RF4CE_USER_CONTROL_CODE_CONTENTS_MENU
00055     = 0x0B,
00056     EMBER_AF_RF4CE_USER_CONTROL_CODE_FAVORITE_MENU
00057     = 0x0C,
00058     EMBER_AF_RF4CE_USER_CONTROL_CODE_EXIT
00059     = 0x0D,
00060     EMBER_AF_RF4CE_USER_CONTROL_CODE_0
00061     = 0x20,
00062     EMBER_AF_RF4CE_USER_CONTROL_CODE_1
00063     = 0x21,
00064     EMBER_AF_RF4CE_USER_CONTROL_CODE_2
00065     = 0x22,
00066     EMBER_AF_RF4CE_USER_CONTROL_CODE_3
00067     = 0x23,
00068     EMBER_AF_RF4CE_USER_CONTROL_CODE_4
00069     = 0x24,
00070     EMBER_AF_RF4CE_USER_CONTROL_CODE_5
00071     = 0x25,
00072     EMBER_AF_RF4CE_USER_CONTROL_CODE_6
00073     = 0x26,
00074     EMBER_AF_RF4CE_USER_CONTROL_CODE_7
00075     = 0x27,
00076     EMBER_AF_RF4CE_USER_CONTROL_CODE_8
00077     = 0x28,
00078     EMBER_AF_RF4CE_USER_CONTROL_CODE_9
00079     = 0x29,
00080     EMBER_AF_RF4CE_USER_CONTROL_CODE_DOT
00081     = 0x2A,
00082     EMBER_AF_RF4CE_USER_CONTROL_CODE_ENTER
00083     = 0x2B,
00084     EMBER_AF_RF4CE_USER_CONTROL_CODE_CLEAR
00085     = 0x2C,
00086     EMBER_AF_RF4CE_USER_CONTROL_CODE_NEXT_FAVORITE
00087     = 0x2F,
00088     EMBER_AF_RF4CE_USER_CONTROL_CODE_CHANNEL_UP
00089     = 0x30,
00090     EMBER_AF_RF4CE_USER_CONTROL_CODE_CHANNEL_DOWN
00091     = 0x31,
00092     EMBER_AF_RF4CE_USER_CONTROL_CODE_PREVIOUS_CHANNEL
00093     = 0x32,
00094     EMBER_AF_RF4CE_USER_CONTROL_CODE_SOUND_SELECT
00095     = 0x33,
00096     EMBER_AF_RF4CE_USER_CONTROL_CODE_INPUT_SELECT
00097     = 0x34,
00098     EMBER_AF_RF4CE_USER_CONTROL_CODE_DISPLAY_INFORMATION
00099     = 0x35,
00100    EMBER_AF_RF4CE_USER_CONTROL_CODE_HELP

```

```

00068     = 0x36,
00069     EMBER_AF_RF4CE_USER_CONTROL_CODE_PAGE_UP
00070             = 0x37,
00071             = 0x38,
00072     EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER
00073             = 0x40,
00074             = 0x41,
00075     EMBER_AF_RF4CE_USER_CONTROL_CODE_VOLUME_UP
00076             = 0x42,
00077     EMBER_AF_RF4CE_USER_CONTROL_CODE_VOLUME_DOWN
00078             = 0x43,
00079     EMBER_AF_RF4CE_USER_CONTROL_CODE_MUTE
00080             = 0x44,
00081     EMBER_AF_RF4CE_USER_CONTROL_CODE_PLAY
00082             = 0x45,
00083     EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP
00084             = 0x46,
00085     EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE
00086             = 0x47,
00087     EMBER_AF_RF4CE_USER_CONTROL_CODE_RECORD
00088             = 0x48,
00089     EMBER_AF_RF4CE_USER_CONTROL_CODE_FAST_FORWARD
00090             = 0x49,
00091     EMBER_AF_RF4CE_USER_CONTROL_CODE_EJECT
00092             = 0x4A,
00093     EMBER_AF_RF4CE_USER_CONTROL_CODE_FORWARD
00094             = 0x4B,
00095     EMBER_AF_RF4CE_USER_CONTROL_CODE_BACKWARD
00096             = 0x4C,
00097     EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP_RECORD
00098             = 0x4D,
00099     EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_RECORD
00100             = 0x4E,
00101     EMBER_AF_RF4CE_USER_CONTROL_CODE_ANGLE
00102             = 0x50,
00103     EMBER_AF_RF4CE_USER_CONTROL_CODE_SUB_PICTURE
00104             = 0x51,
00105     EMBER_AF_RF4CE_USER_CONTROL_CODE_VIDEO_ON_DEMAND
00106             = 0x52,
00107     EMBER_AF_RF4CE_USER_CONTROL_CODE_ELECTRONIC_PROGRAM_GUIDE
00108             = 0x53,
00109     EMBER_AF_RF4CE_USER_CONTROL_CODE_TIMER_PROGRAMMING
00110             = 0x54,
00111     EMBER_AF_RF4CE_USER_CONTROL_CODE_INITIAL_CONFIGURATION
00112             = 0x55,
00113     EMBER_AF_RF4CE_USER_CONTROL_CODE_PLAY_FUNCTION
00114             = 0x60, // Play Mode - 1 byte
00115     EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_PLAY_FUNCTION
00116             = 0x61,
00117     EMBER_AF_RF4CE_USER_CONTROL_CODE_RECORD_FUNCTION
00118             = 0x62,
00119     EMBER_AF_RF4CE_USER_CONTROL_CODE_PAUSE_RECORD_FUNCTION
00120             = 0x63,
00121     EMBER_AF_RF4CE_USER_CONTROL_CODE_STOP_FUNCTION
00122             = 0x64,
00123     EMBER_AF_RF4CE_USER_CONTROL_CODE_MUTE_FUNCTION
00124             = 0x65,
00125     EMBER_AF_RF4CE_USER_CONTROL_CODE_RESTORE_VOLUME_FUNCTION
00126             = 0x66,
00127     EMBER_AF_RF4CE_USER_CONTROL_CODE_TUNE_FUNCTION
00128             = 0x67, // Channel Identifier - 4 bytes
00129     EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT_MEDIA_FUNCTION
00130             = 0x68, // UI Function Media - 1 byte
00131     EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT_A_V_INPUT_FUNCTION
00132             = 0x69, // UI Function Select A/V Input - 1 byte
00133     EMBER_AF_RF4CE_USER_CONTROL_CODE_SELECT_AUDIO_INPUT_FUNCTION
00134             = 0x6A, // UI Function Select Audio Input - 1 byte
00135     EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER_TOGGLE_FUNCTION
00136             = 0x6B,
00137     EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER_OFF_FUNCTION
00138             = 0x6C,
00139     EMBER_AF_RF4CE_USER_CONTROL_CODE_POWER_ON_FUNCTION
00140             = 0x6D,
00141     EMBER_AF_RF4CE_USER_CONTROL_CODE_F1_BLUE
00142             = 0x71,
00143     EMBER_AF_RF4CE_USER_CONTROL_CODE_F2_RED
00144             = 0x72,
00145     EMBER_AF_RF4CE_USER_CONTROL_CODE_F3_GREEN

```

```

00108     = 0x73,
EMBER_AF_RF4CE_USER_CONTROL_CODE_F4_YELLOW
00109     = 0x74,
EMBER_AF_RF4CE_USER_CONTROL_CODE_F5
00110     = 0x75,
EMBER_AF_RF4CE_USER_CONTROL_CODE_DATA
00111     = 0x76,
00111 };
00112
00116 typedef struct {
00117     uint8_t pairingIndex;
00118     EmberAfRf4ceZrcCommandCode commandCode;
00119     EmberAfRf4ceUserControlCode rcCommandCode
00120     ;
00120     const uint8_t *rcCommandPayload;
00121     uint8_t rcCommandPayloadLength;
00122     uint16_t timeMs;
00123 } EmberAfRf4ceZrcUserControlRecord;
00124
00128 #define EMBER_AF_RF4CE_ZRC_COMMANDS_SUPPORTED_SIZE 32
00129
00133 typedef struct {
00135     uint8_t contents[EMBER_AF_RF4CE_ZRC_COMMANDS_SUPPORTED_SIZE
00136 ];
00136 } EmberAfRf4ceZrcCommandsSupported;
00137
00138 #endif // __RF4CE_ZRC11_TYPES_H__

```

## 8.304 rf4ce-zrc11.h File Reference

```
#include "rf4ce-zrc11-types.h"
```

### Functions

- EmberStatus emberAfRf4ceZrc11Discovery (EmberPanId panId, EmberNodeId nodeId, EmberAfRf4ceDeviceType searchDevType)
- EmberStatus emberAfRf4ceZrc11EnableAutoDiscoveryResponse (void)
- EmberStatus emberAfRf4ceZrc11UserControlPress (uint8\_t pairingIndex, EmberAfRf4ceUserControlCode rcCommandCode, const uint8\_t \*rcCommandPayload, uint8\_t rcCommandPayloadLength, bool atomic)
- EmberStatus emberAfRf4ceZrc11UserControlRelease (uint8\_t pairingIndex, EmberAfRf4ceUserControlCode rcCommandCode)
- EmberStatus emberAfRf4ceZrc11CommandDiscoveryRequest (uint8\_t pairingIndex)
- uint8\_t \*emberAfRf4ceZrcCommandsSupportedContents (EmberAfRf4ceZrcCommandsSupported \*commandsSupported)

## 8.305 rf4ce-zrc11.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC11_H__
00004 #define __RF4CE_ZRC11_H__
00005
00006 #include "rf4ce-zrc11-types.h"
00007
00009 #ifdef EMBER_AF_RF4CE_ZRC_IS_USER_CONTROL_ORIGINATOR
00100
00101     #define EMBER_AF_RF4CE_ZRC_IS_ORIGINATOR
00102 #endif
00103
00104 #ifdef EMBER_AF_RF4CE_ZRC_IS_USER_CONTROL_RECIPIENT
00105

```

```

00106 #define EMBER_AF_RF4CE_ZRC_IS_RECIPIENT
00107 #endif
00108
00127 EmberStatus emberAfRf4ceZrc11Discovery(
00128     EmberPanId panId,
00129             EmberNodeId nodeId,
00130             EmberAfRf4ceDeviceType
00131         searchDevType);
00141 EmberStatus emberAfRf4ceZrc11EnableAutoDiscoveryResponse
00142     (void);
00142
00165 EmberStatus emberAfRf4ceZrc11UserControlPress
00166     (uint8_t pairingIndex,
00167         EmberAfRf4ceUserControlCode
00168     rcCommandCode,
00169             const uint8_t *rcCommandPayload,
00170             uint8_t rcCommandPayloadLength,
00171             bool atomic);
00170
00183 EmberStatus emberAfRf4ceZrc11UserControlRelease
00184     (uint8_t pairingIndex,
00185         EmberAfRf4ceUserControlCode
00186     rcCommandCode);
00185
00198 EmberStatus emberAfRf4ceZrc11CommandDiscoveryRequest
00199     (uint8_t pairingIndex);
00199
00207 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00208     uint8_t *emberAfRf4ceZrcCommandsSupportedContents
00209     (EmberAfRf4ceZrcCommandsSupported *
00210         commandsSupported);
00209
00210 #else
00210     #define emberAfRf4ceZrcCommandsSupportedContents(commandsSupported) \
00211     ((commandsSupported)->contents)
00212 #endif
00213
00214 #endif // __RF4CE_ZRC11_H__
00215
00216 // @} END addtogroup

```

## 8.306 rf4ce-zrc20-action-mapping-client.h File Reference

### Functions

- void `emberAfRf4ceZrc20ActionMappingClientClearAllActionMappings` (void)
- `EmberStatus emberAfRf4ceZrc20ActionMappingClientClearActionMappingsPerPairing` (uint8\_t pairingIndex)
- `EmberStatus emberAfRf4ceZrc20ActionMappingClientClearActionMapping` (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode)
- `EmberStatus emberAfRf4ceZrc20ActionMappingClientGetActionMapping` (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \*actionMapping)
- `EmberStatus emberAfRf4ceZrc20ActionMappingClientLookUpActionMapping` (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \*actionMapping)
- `EmberStatus emberAfRf4ceZrc20ActionMappingClientSetActionMapping` (uint8\_t pairingIndex, EmberAfRf4ceDeviceType actionDeviceType, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcActionMapping \*actionMapping)

## 8.307 rf4ce-zrc20-action-mapping-client.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
```

```

00002
00003 #ifndef __RF4CE_ZRC20_ACTION_MAPPING_CLIENT_H__
00004 #define __RF4CE_ZRC20_ACTION_MAPPING_CLIENT_H__
00005
00058 void emberAfRf4ceZrc20ActionMappingClientClearAllActionMappings
00059   (void);
00068 EmberStatus
00069   emberAfRf4ceZrc20ActionMappingClientClearActionMappingsPerPairing
00070     (uint8_t pairingIndex);
00069
00084 EmberStatus emberAfRf4ceZrc20ActionMappingClientClearActionMapping
00085   (uint8_t pairingIndex,
00085     EmberAfRf4ceDeviceType actionDeviceType,
00086     EmberAfRf4ceZrcActionBank actionBank,
00087     EmberAfRf4ceZrcActionCode actionCode);
00088
00106 EmberStatus emberAfRf4ceZrc20ActionMappingClientGetActionMapping
00107   (uint8_t pairingIndex,
00108     EmberAfRf4ceDeviceType actionDeviceType,
00109     EmberAfRf4ceZrcActionBank actionBank,
00110     EmberAfRf4ceZrcActionCode actionCode,
00110     EmberAfRf4ceZrcActionMapping* actionMapping);
00111
00112 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00113
00134   EmberStatus
00135     emberAfRf4ceZrc20ActionMappingClientLookUpActionMapping(uint8_t pairingIndex,
00136       EmberAfRf4ceDeviceType actionDeviceType,
00137       EmberAfRf4ceZrcActionBank actionBank,
00138       EmberAfRf4ceZrcActionCode actionCode,
00138       EmberAfRf4ceZrcActionMapping* actionMapping);
00139 #else
00140   #define emberAfRf4ceZrc20ActionMappingClientLookUpActionMapping \
00141     emberAfRf4ceZrc20ActionMappingClientGetActionMapping
00142 #endif
00143
00161 EmberStatus emberAfRf4ceZrc20ActionMappingClientSetActionMapping
00162   (uint8_t pairingIndex,
00163     EmberAfRf4ceDeviceType actionDeviceType,
00164     EmberAfRf4ceZrcActionBank actionBank,
00165     EmberAfRf4ceZrcActionCode actionCode,
00165     EmberAfRf4ceZrcActionMapping* actionMapping);
00166
00167 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00168
00169 /* @brief Set selected action mapping.
00170 *
00171 * @param pairingIndex The pairing index the set action mapping command
00172 * should be sent to.
00173 *
00174 * @param entryIndex The entry index of the action mapping to be set.
00175 *
00176 * @param actionMapping The action mapping structure describing the action
00177 * mapping.
00178 *
00179 * @return An ::EmberStatus value indicating whether the set attributes
00180 * command
00181 * was successfully sent out or the reason of failure.
00182 */
00182 EmberStatus emAfRf4ceZrc20ActionMappingClientSetActionMapping(
00183   uint8_t pairingIndex,                                     uint16_t
00184   entryIndex,

```

```

00185     EmberAfRf4ceZrcActionMapping* actionMapping);
00186 /* @brief  Clear selected action mapping on the client.
00187 *
00188 * @param pairingIndex  The pairing index the clear action mapping command
00189 * should be sent to.
00190 *
00191 * @param entryIndex  The entry index of the action mapping to be cleared.
00192 *
00193 * @return An ::EmberStatus value indicating whether the clear action mapping
00194 * command was successfully sent out or the reason of failure.
00195 */
00196 EmberStatus emAfRf4ceZrc20ActionMappingClientClearActionMapping(
00197     uint8_t pairingIndex,
00198   uint16_t
00199     entryIndex);
00200 /* @brief  Get the number of mappable actions on the client.
00201 *
00202 * @return Mappable Action count
00203 */
00204 uint16_t emAfPluginRf4ceZrc20ActionMappingClientGetMappableActionCount(void);
00205 /* @brief  Get mappable action at entryIndex.
00206 *
00207 * @param entryIndex  The entry index of the mappable action to get.
00208 *
00209 * @param mappableAction  The mappable action structure describing the
00210 * mappable
00211 * action.
00212 *
00213 * @return An ::EmberStatus value indicating whether the get mappable action
00214 * command was successfully sent out or the reason of failure.
00215 */
00216 EmberStatus emAfPluginRf4ceZrc20ActionMappingClientGetMappableAction(
00217     uint16_t entryIndex,
00218     EmberAfRf4ceZrcMappableAction *mappableAction);
00219 #endif // DOXYGEN_SHOULD_SKIP_THIS
00220 #endif // __RF4CE_ZRC20_ACTION_MAPPING_CLIENT_H__
00221 // END addtogroup

```

## 8.308 rf4ce-zrc20-action-mapping-server.h File Reference

### Functions

- EmberStatus [emberAfRf4ceZrc20ActionMappingServerRemapAction](#) (EmberAfRf4ceZrcMappableAction \*mappableAction, EmberAfRf4ceZrcActionMapping \*actionMapping)
- EmberStatus [emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAction](#) (EmberAfRf4ceZrcMappableAction \*mappableAction)
- void [emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAllActions](#) (void)
- uint16\_t [emberAfRf4ceZrc20ActionMappingServerGetMappableActionCount](#) (void)

## 8.309 rf4ce-zrc20-action-mapping-server.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC20_ACTION_MAPPING_SERVER_H__
00004 #define __RF4CE_ZRC20_ACTION_MAPPING_SERVER_H__
00005
00058 EmberStatus emberAfRf4ceZrc20ActionMappingServerRemapAction
00059     (EmberAfRf4ceZrcMappableAction* mappableAction,
00060     EmberAfRf4ceZrcActionMapping* actionMapping);
00060

```

```

00069 EmberStatus emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAction
00070     (EmberAfRf4ceZrcMappableAction* mappableAction);
00074 void emberAfRf4ceZrc20ActionMappingServerRestoreDefaultAllActions
00075     (void);
00075
00080 uint16_t emberAfRf4ceZrc20ActionMappingServerGetMappableActionCount
00081     (void);
00081
00082 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00083
00084 /* @brief Clear entries in mapping table that point at serverEntryIndex.
00085 *
00086 * @param serverIndex The index of the mappable action on the server.
00087 *
00088 * @return An ::EmberStatus value indicating whether the clear mapping command
00089 * was successfully sent out or the reason of failure.
00090 */
00091 void emAfRf4ceZrc20ActionMappingServerClearMapping(uint16_t serverIndex);
00092
00093 /* @brief Clear all entries in mapping table.
00094 *
00095 */
00096 void emAfRf4ceZrc20ActionMappingServerClearAllMappings(void);
00097
00098 /* @brief Add entry in mapping table.
00099 *
00100 * @param pairingIndex The pairing index the add mapping command should be
00101 * sent to.
00102 *
00103 * @param entryIndex The entry index of the mappable action on the client.
00104 *
00105 * @param serverIndex The index of the mappable action on the server.
00106 *
00107 * @return An ::EmberStatus value indicating whether the add mapping command
00108 * was successfully sent out or the reason of failure.
00109 */
00110 EmberStatus emAfRf4ceZrc20ActionMappingServerUpdateOrAddMapping(
00111     uint8_t pairingIndex,
00111   uint16_t
00112     entryIndex,
00112   uint16_t
00113     serverIndex);
00113
00114 /* @brief Remove entry from mapping table.
00115 *
00116 * @param pairingIndex The pairing index the remove mapping command should be
00117 * sent to.
00118 *
00119 * @param entryIndex The entry index of the mappable action on the client.
00120 *
00121 * @return An ::EmberStatus value indicating whether the remove mapping
00122 * command
00123 * was successfully sent out or the reason of failure.
00123 */
00124 EmberStatus emAfRf4ceZrc20ActionMappingServerRemoveMapping(uint8_t
00125     pairingIndex,
00125   uint16_t entryIndex)
00126 ;
00126
00127 /* @brief Get entry from mapping table.
00128 *
00129 * @param pairingIndex The pairing index the get mapping command should be
00130 * sent to.
00131 *
00132 * @param entryIndex The entry index of the mappable action on the client.
00133 *
00134 * @param serverIndex Pointer to the index of the mappable action on the
00135 * server.
00136 *
00137 * @return An ::EmberStatus value indicating whether the get mapping command
00138 * was successfully sent out or the reason of failure.
00139 */
00140 EmberStatus emAfRf4ceZrc20ActionMappingServerGetMapping(uint8_t
00141     pairingIndex,
00141   uint16_t entryIndex,
00142   uint16_t *serverIndex);
00143
00144 /* @brief Clear mappable action at index of the table on the server.
00145 */

```

```

00146 * @param index The index the clear mappable action command should be sent
00147 *
00148 * @return An ::EmberStatus value indicating whether the clear mappable action
00149 * command was successfully sent out or the reason of failure.
00150 */
00151 EmberStatus emAfRf4ceZrc20ActionMappingServerClearMappableAction(
    uint16_t index);
00152
00153 /* @brief Clear all mappable actions on the server.
00154 *
00155 */
00156 void emAfRf4ceZrc20ActionMappingServerClearAllMappableActions(void);
00157
00158 /* @brief Set mappable action on the server.
00159 *
00160 * @param index The index of the mappable action to set.
00161 *
00162 * @param mappableAction The mappable action structure describing the
00163 * mappable
00164 * action to write to index location in the table.
00165 *
00166 * @return An ::EmberStatus value indicating whether the set mappable action
00167 * command was successfully sent out or the reason of failure.
00168 */
00169 EmberStatus emAfRf4ceZrc20ActionMappingServerSetMappableAction(
    uint16_t index,
00170     EmberAfRf4ceZrcMappableAction *mappableAction);
00171
00172 /* @brief Get mappable action on the server.
00173 *
00174 * @param index The index of the mappable action to get.
00175 *
00176 * @param mappableAction The mappable action structure describing the
00177 * mappable
00178 * action to read from index location in the table.
00179 *
00180 * @return An ::EmberStatus value indicating whether the get mappable action
00181 * command was successfully sent out or the reason of failure.
00182 */
00183 EmberStatus emAfRf4ceZrc20ActionMappingServerGetMappableAction(
    uint16_t index,
00184     EmberAfRf4ceZrcMappableAction *mappableAction);
00185
00186 /* @brief Look up mappable action on the server.
00187 *
00188 * @param mappableAction Pointer to the mappable action structure describing
00189 * the mappable action to look up.
00190 *
00191 * @param index The index of the mappable action found.
00192 *
00193 * @return An ::EmberStatus value indicating whether the look up mappable
00194 * action command was successfully sent out or the reason of failure.
00195 */
00196 EmberStatus emAfRf4ceZrc20ActionMappingServerLookUpMappableAction(
    EmberAfRf4ceZrcMappableAction *mappableAction,
00197   uint16_t*
00198   index);
00199
00200 /* @brief Clear action mapping on the server.
00201 *
00202 * @param index The index of the action mapping to clear.
00203 *
00204 * @return An ::EmberStatus value indicating whether the clear action mapping
00205 * command was successfully sent out or the reason of failure.
00206 */
00207 EmberStatus emAfRf4ceZrc20ActionMappingServerClearActionMapping(
    uint16_t index);
00208
00209 /* @brief Clear all action mappings on the server.
00210 *
00211 */
00212 void emAfRf4ceZrc20ActionMappingServerClearAllActionMappings(void);
00213
00214 /* @brief Set action mapping on the server.
00215 *
00216 * @param index The index of the action mapping to set.
00217 */

```

```

00215 * @param actionMapping The action mapping structure describing the action
00216 * mapping to write to index location in the table.
00217 *
00218 * @return An ::EmberStatus value indicating whether the set action mapping
00219 * command was successfully sent out or the reason of failure.
00220 */
00221 EmberStatus emAfRf4ceZrc20ActionMappingServerSetActionMapping(
00222     uint16_t index,
00223     EmberAfRf4ceZrcActionMapping *actionMapping);
00224 /* @brief Get action mapping on the server.
00225 *
00226 * @param index The index of the action mapping to get.
00227 *
00228 * @param actionMapping The action mapping structure describing the action
00229 * mapping to read from index location in the table.
00230 *
00231 * @return An ::EmberStatus value indicating whether the get action mapping
00232 * command was successfully sent out or the reason of failure.
00233 */
00234 EmberStatus emAfRf4ceZrc20ActionMappingServerGetActionMapping(
00235     uint16_t index,
00236     EmberAfRf4ceZrcActionMapping *actionMapping);
00237 #endif // DOXYGEN_SHOULD_SKIP_THIS
00238 #endif // __RF4CE_ZRC20_ACTION_MAPPING_SERVER_H__
00240 // END addtogroup
00241

```

## 8.310 rf4ce-zrc20-action-mapping.h File Reference

### Macros

- #define ACTION\_MAPPING\_NEGOTIATION\_PROCEDURE\_DELAY\_MSEC
- #define MAPPABLE\_ACTION\_RECORD\_SIZE

### Functions

- void emAfRf4ceZrcActionMappingBindingCompleteCallback (uint8\_t pairingIndex)
- void emAfRf4ceZrcActionMappingStartNegotiationClient (uint8\_t pairingIndex)

#### 8.310.1 Macro Definition Documentation

##### 8.310.1.1 #define ACTION\_MAPPING\_NEGOTIATION\_PROCEDURE\_DELAY\_MSEC

Definition at line 6 of file rf4ce-zrc20-action-mapping.h.

##### 8.310.1.2 #define MAPPABLE\_ACTION\_RECORD\_SIZE

Definition at line 11 of file rf4ce-zrc20-action-mapping.h.

### 8.310.2 Function Documentation

##### 8.310.2.1 void emAfRf4ceZrcActionMappingBindingCompleteCallback ( uint8\_t pairingIndex )

### 8.310.2.2 void emAfRf4ceZrcActionMappingStartNegotiationClient ( uint8\_t pairingIndex )

## 8.311 rf4ce-zrc20-action-mapping.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003
00004 // We delay the negotiation procedure in case the GDP plugin is busy doing
00005 // something or the ZRC state machine is not in its initial state.
00006 #define ACTION_MAPPING_NEGOTIATION_PROCEDURE_DELAY_MSEC      500
00007
00008
00009 // Attribute ID (1 byte) + entry ID (2 bytes) + Attribute length (1 byte)
00010 // + Attribute value (3 bytes)
00011 #define MAPPABLE_ACTION_RECORD_SIZE                         7
00012
00013 void emAfRf4ceZrcActionMappingBindingCompleteCallback
    (uint8_t pairingIndex);
00014
00015 void emAfRf4ceZrcActionMappingStartNegotiationClient
    (uint8_t pairingIndex);

```

## 8.312 rf4ce-zrc20-attributes.h File Reference

### Data Structures

- struct EmAfRf4ceZrcAttributeDescriptor
- struct EmAfZrcBitmask
- struct EmAfZrcArrayedBitmask
- struct EmAfRf4ceZrcAttributes

### Macros

- #define ZRC\_BITMASK\_SIZE
- #define APL\_ZRC\_PROFILE\_VERSION\_SIZE
- #define APL\_ZRC\_PROFILE\_CAPABILITIES\_SIZE
- #define APL\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_SIZE
- #define APL\_ACTION\_REPEAT\_WAIT\_TIME\_SIZE
- #define APL\_ZRC\_ACTION\_BANKS\_VERSION\_SIZE
- #define APL\_MAPPABLE\_ACTIONS\_SIZE
- #define APL\_ZRC\_PROFILE\_VERSION\_DEFAULT
- #define APL\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_DEFAULT\_MS
- #define APL\_ACTION\_REPEAT\_WAIT\_TIME\_DEFAULT\_MS
- #define APL\_ZRC\_ACTION\_BANKS\_VERSION\_DEFAULT
- #define MAX\_ZRC\_ATTRIBUTE\_SIZE
- #define IRBD\_SUPPORT\_ATTRIBUTES\_COUNT
- #define ACTION\_MAPPING\_ATTRIBUTES\_COUNT
- #define HA\_ATTRIBUTES\_COUNT
- #define ZRC\_ATTRIBUTES\_COUNT
- #define MAPPABLE\_ACTION\_ACTION\_DEVICE\_TYPE\_OFFSET
- #define MAPPABLE\_ACTION\_ACTION\_BANK\_OFFSET
- #define MAPPABLE\_ACTION\_ACTION\_CODE\_OFFSET
- #define ACTION\_MAPPING\_FLAGS\_OFFSET
- #define ACTION\_MAPPING\_IR\_CONFIG\_VENDOR\_SPECIFIC\_BIT

- #define HA\_ATTRIBUTE\_STATUS\_OFFSET
- #define HA\_ATTRIBUTE\_STATUS\_VALUE\_AVAILABLE\_FLAG
- #define HA\_ATTRIBUTE\_VALUE\_OFFSET
- #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_GET\_ACCESS\_BIT
- #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_SET\_ACCESS\_BIT
- #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_PUSH\_ACCESS\_BIT
- #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_PULL\_ACCESS\_BIT
- #define ZRC\_ATTRIBUTE\_IS\_TWO\_DIMENSIONAL\_ARRAYED
- #define ZRC\_ATTRIBUTE\_LOCAL\_NODE\_SUPPORTED
- #define ZRC\_ATTRIBUTE\_REMOTE\_NODE\_SUPPORTED
- #define ZRC20\_CAPABILITIES\_NON\_RESERVED\_BITS\_BITMASK
- #define LOCAL\_NODE\_SUPPORTS\_ACTIONS\_RECIPIENT\_BIT
- #define LOCAL\_NODE\_SUPPORTS\_ACTIONS\_ORIGINATOR\_BIT
- #define LOCAL\_NODE\_IS\_AM\_CLIENT\_BIT
- #define LOCAL\_NODE\_SUPPORTS\_VENDOR\_SPECIFIC\_IRDB\_BIT
- #define LOCAL\_NODE\_IS\_AM\_SERVER\_BIT
- #define LOCAL\_NODE\_INFORM\_BIT
- #define LOCAL\_NODE\_IS\_HA\_ORIGINATOR\_BIT
- #define LOCAL\_NODE\_IS\_HA\_RECIPIENT\_BIT
- #define LOCAL\_NODE\_ZRC\_CAPABILITIES
- #define emAfRf4ceZrcGetLocalNodeCapabilities()
- #define emAfRf4ceZrcGetRemoteNodeCapabilities(pairingIndex)
- #define emAfRf4ceZrcSetRemoteNodeCapabilities(pairingIndex, capabilities)
- #define emAfRf4ceZrcWriteLocalAttribute(attrId, entryIdOrValueLength, val)
- #define emAfRf4ceZrcReadLocalAttribute(attrId, entryId, val)
- #define emAfRf4ceZrcWriteRemoteAttribute(pairingIndex, attrId, entryIdOrValueLength, val)
- #define emAfRf4ceZrcReadRemoteAttribute(pairingIndex, attrId, entryId, val)

## Functions

- uint8\_t \* emAfRf4ceZrcGetArrayedAttributePointer (uint8\_t attrId, uint16\_t entryId, uint8\_t pairingIndex, uint8\_t \*index)
- void emAfRf4ceZrcReadOrWriteAttribute (uint8\_t pairingIndex, uint8\_t attrId, uint16\_t entryIdOrValueLength, bool isRead, uint8\_t \*val)

## Variables

- EmAfRf4ceZrcAttributes emAfRf4ceZrcLocalNodeAttributes
- EmAfRf4ceZrcAttributes emAfRf4ceZrcRemoteNodeAttributes

### 8.312.1 Macro Definition Documentation

#### 8.312.1.1 #define ZRC\_BITMASK\_SIZE

Definition at line 3 of file rf4ce-zrc20-attributes.h.

#### 8.312.1.2 #define APL\_ZRC\_PROFILE\_VERSION\_SIZE

Definition at line 6 of file rf4ce-zrc20-attributes.h.

**8.312.1.3 #define APL\_ZRC\_PROFILE\_CAPABILITIES\_SIZE**

Definition at line 7 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.4 #define APL\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_SIZE**

Definition at line 8 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.5 #define APL\_ACTION\_REPEAT\_WAIT\_TIME\_SIZE**

Definition at line 9 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.6 #define APL\_ZRC\_ACTION\_BANKS\_VERSION\_SIZE**

Definition at line 10 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.7 #define APL\_MAPPABLE\_ACTIONS\_SIZE**

Definition at line 13 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.8 #define APL\_ZRC\_PROFILE\_VERSION\_DEFAULT**

Definition at line 16 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.9 #define APL\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_DEFAULT\_MS**

Definition at line 17 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.10 #define APL\_ACTION\_REPEAT\_WAIT\_TIME\_DEFAULT\_MS**

Definition at line 18 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.11 #define APL\_ZRC\_ACTION\_BANKS\_VERSION\_DEFAULT**

Definition at line 19 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.12 #define MAX\_ZRC\_ATTRIBUTE\_SIZE**

Definition at line 21 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.13 #define IRBD\_SUPPORT\_ATTRIBUTES\_COUNT**

Definition at line 28 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.14 #define ACTION\_MAPPING\_ATTRIBUTES\_COUNT**

Definition at line 34 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.15 #define HA\_ATTRIBUTES\_COUNT**

Definition at line 40 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.16 #define ZRC\_ATTRIBUTES\_COUNT**

Definition at line 43 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.17 #define MAPPABLE\_ACTION\_ACTION\_DEVICE\_TYPE\_OFFSET**

Definition at line 48 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.18 #define MAPPABLE\_ACTION\_ACTION\_BANK\_OFFSET**

Definition at line 49 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.19 #define MAPPABLE\_ACTION\_ACTION\_CODE\_OFFSET**

Definition at line 50 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.20 #define ACTION\_MAPPING\_FLAGS\_OFFSET**

Definition at line 52 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.21 #define ACTION\_MAPPING\_IR\_CONFIG\_VENDOR\_SPECIFIC\_BIT**

Definition at line 53 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.22 #define HA\_ATTRIBUTE\_STATUS\_OFFSET**

Definition at line 55 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.23 #define HA\_ATTRIBUTE\_STATUS\_VALUE\_AVAILABLE\_FLAG**

Definition at line 56 of file [rf4ce-zrc20-attributes.h](#).

**8.312.1.24 #define HA\_ATTRIBUTE\_VALUE\_OFFSET**

Definition at line 57 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.25 #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_GET\_ACCESS\_BIT

Definition at line 60 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.26 #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_SET\_ACCESS\_BIT

Definition at line 61 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.27 #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_PUSH\_ACCESS\_BIT

Definition at line 62 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.28 #define ZRC\_ATTRIBUTE\_HAS\_REMOTE\_PULL\_ACCESS\_BIT

Definition at line 63 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.29 #define ZRC\_ATTRIBUTE\_IS\_TWO\_DIMENSIONAL\_ARRAYED

Definition at line 64 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.30 #define ZRC\_ATTRIBUTE\_LOCAL\_NODE\_SUPPORTED

Definition at line 65 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.31 #define ZRC\_ATTRIBUTE\_REMOTE\_NODE\_SUPPORTED

Definition at line 66 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.32 #define ZRC20\_CAPABILITIES\_NON\_RESERVED\_BITS\_BITMASK

Definition at line 103 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.33 #define LOCAL\_NODE\_SUPPORTS\_ACTIONS\_RECIPIENT\_BIT

Definition at line 109 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.34 #define LOCAL\_NODE\_SUPPORTS\_ACTIONS\_ORIGINATOR\_BIT

Definition at line 115 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.35 #define LOCAL\_NODE\_IS\_AM\_CLIENT\_BIT

Definition at line 126 of file [rf4ce-zrc20-attributes.h](#).

8.312.1.36 #define LOCAL\_NODE\_SUPPORTS\_VENDOR\_SPECIFIC\_IRDB\_BIT

Definition at line 127 of file rf4ce-zrc20-attributes.h.

8.312.1.37 #define LOCAL\_NODE\_IS\_AM\_SERVER\_BIT

Definition at line 133 of file rf4ce-zrc20-attributes.h.

8.312.1.38 #define LOCAL\_NODE\_INFORM\_BIT

Definition at line 139 of file rf4ce-zrc20-attributes.h.

8.312.1.39 #define LOCAL\_NODE\_IS\_HA\_ORIGINATOR\_BIT

Definition at line 145 of file rf4ce-zrc20-attributes.h.

8.312.1.40 #define LOCAL\_NODE\_IS\_HA\_RECIPIENT\_BIT

Definition at line 151 of file rf4ce-zrc20-attributes.h.

8.312.1.41 #define LOCAL\_NODE\_ZRC\_CAPABILITIES

Definition at line 154 of file rf4ce-zrc20-attributes.h.

8.312.1.42 #define emAfRf4ceZrcGetLocalNodeCapabilities( )

Definition at line 169 of file rf4ce-zrc20-attributes.h.

8.312.1.43 #define emAfRf4ceZrcGetRemoteNodeCapabilities( *pairingIndex* )

Definition at line 172 of file rf4ce-zrc20-attributes.h.

8.312.1.44 #define emAfRf4ceZrcSetRemoteNodeCapabilities( *pairingIndex*, *capabilities* )

Definition at line 177 of file rf4ce-zrc20-attributes.h.

8.312.1.45 #define emAfRf4ceZrcWriteLocalAttribute( *attrId*, *entryIdOrValueLength*, *val* )

Definition at line 203 of file rf4ce-zrc20-attributes.h.

8.312.1.46 #define emAfRf4ceZrcReadLocalAttribute( *attrId*, *entryId*, *val* )

Definition at line 210 of file rf4ce-zrc20-attributes.h.

```
8.312.1.47 #define emAfRf4ceZrcWriteRemoteAttribute( pairingIndex, attrId, entryIdOrValueLength, val )
```

Definition at line 217 of file [rf4ce-zrc20-attributes.h](#).

```
8.312.1.48 #define emAfRf4ceZrcReadRemoteAttribute( pairingIndex, attrId, entryId, val )
```

Definition at line 227 of file [rf4ce-zrc20-attributes.h](#).

## 8.312.2 Function Documentation

```
8.312.2.1 uint8_t* emAfRf4ceZrcGetArrayedAttributePointer ( uint8_t attrId, uint16_t entryId, uint8_t pairingIndex, uint8_t * index )
```

```
8.312.2.2 void emAfRf4ceZrcReadOrWriteAttribute ( uint8_t pairingIndex, uint8_t attrId, uint16_t entryIdOrValueLength, bool isRead, uint8_t * val )
```

## 8.312.3 Variable Documentation

```
8.312.3.1 EmAfRf4ceZrcAttributes emAfRf4ceZrcLocalNodeAttributes
```

```
8.312.3.2 EmAfRf4ceZrcAttributes emAfRf4ceZrcRemoteNodeAttributes
```

## 8.313 rf4ce-zrc20-attributes.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #define ZRC_BITMASK_SIZE 32
00004
00005 // Fixed size ZRC attributes size (scalar)
00006 #define API_ZRC_PROFILE_VERSION_SIZE 2
00007 #define API_ZRC_PROFILE_CAPABILITIES_SIZE 4
00008 #define API_ACTION_REPEAT_TRIGGER_INTERVAL_SIZE 1
00009 #define API_ACTION_REPEAT_WAIT_TIME_SIZE 2
00010 #define API_ZRC_ACTION_BANKS_VERSION_SIZE 2
00011
00012 // Fixed size ZRC attributes size (arrayed)
00013 #define API_MAPPABLE_ACTIONS_SIZE 3
00014
00015 // Default values for those that are defined.
00016 #define API_ZRC_PROFILE_VERSION_DEFAULT 0x0200
00017 #define API_ACTION_REPEAT_TRIGGER_INTERVAL_DEFAULT_MS
    (APLC_MAX_ACTION_REPEAT_TRIGGER_INTERVAL_MS / 2)
00018 #define API_ACTION_REPEAT_WAIT_TIME_DEFAULT_MS
    (APLC_MAX_ACTION_REPEAT_TRIGGER_INTERVAL_MS * 2)
00019 #define API_ZRC_ACTION_BANKS_VERSION_DEFAULT 0x0100
00020
00021 #define MAX_ZRC_ATTRIBUTE_SIZE
    EMBER_AF_RF4CE_MAXIMUM_RF4CE_PAYLOAD_LENGTH
00022
00023 #if (defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_LOCAL_IRDB_VENDOR_ATTRIBUTE_SUPPORT) \
\\
00024     ||
    defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_REMOTE_IRDB_VENDOR_ATTRIBUTES_SUPPORT) \
00025     || defined(EMBER_SCRIPTED_TEST))
00026 #define IRBD_SUPPORT_ATTRIBUTES_COUNT 1
00027 #else
00028 #define IRBD_SUPPORT_ATTRIBUTES_COUNT 0
00029 #endif // EMBER_AF_PLUGIN_RF4CE_ZRC20_LOCAL_IRDB_VENDOR_ATTRIBUTE_SUPPORT || \
    EMBER_AF_PLUGIN_RF4CE_ZRC20_REMOTE_IRDB_VENDOR_ATTRIBUTES_SUPPORT
00030
00031 #if defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_CLIENT) ||
    defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_SERVER) ||
    defined(EMBER_SCRIPTED_TEST)
```

```

00032 #define ACTION_MAPPING_ATTRIBUTES_COUNT    2
00033 #else
00034 #define ACTION_MAPPING_ATTRIBUTES_COUNT    0
00035 #endif // EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_ORIGINATOR ||
           EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_SERVER
00036
00037 #if defined(EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_ORIGINATOR) || defined(
           (EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_RECIPIENT) || defined(EMBER_SCRIPTED_TEST)
00038 #define HA_ATTRIBUTES_COUNT    2
00039 #else
00040 #define HA_ATTRIBUTES_COUNT    0
00041 #endif // EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_ORIGINATOR ||
           EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_RECIPIENT
00042
00043 #define ZRC_ATTRIBUTES_COUNT    (9 + IRBD_SUPPORT_ATTRIBUTES_COUNT
00044 \
00045 \
00046 \
00047 // Add here all the other mappable action and action mapping defines as needed.
00048 #define MAPPABLE_ACTION_ACTION_DEVICE_TYPE_OFFSET          0
00049 #define MAPPABLE_ACTION_ACTION_BANK_OFFSET                  1
00050 #define MAPPABLE_ACTION_ACTION_CODE_OFFSET                  2
00051
00052 #define ACTION_MAPPING_FLAGS_OFFSET                      0
00053 #define ACTION_MAPPING_IR_CONFIG_VENDOR_SPECIFIC_BIT    0x01
00054
00055 #define HA_ATTRIBUTE_STATUS_OFFSET                      0
00056 #define HA_ATTRIBUTE_STATUS_VALUE_AVAILABLE_FLAG        0x01
00057 #define HA_ATTRIBUTE_VALUE_OFFSET                      1
00058
00059 // Attribute descriptor bitmask field definitions.
00060 #define ZRC_ATTRIBUTE_HAS_REMOTE_GET_ACCESS_BIT          0x01
00061 #define ZRC_ATTRIBUTE_HAS_REMOTE_SET_ACCESS_BIT          0x02
00062 #define ZRC_ATTRIBUTE_HAS_REMOTE_PUSH_ACCESS_BIT         0x04
00063 #define ZRC_ATTRIBUTE_HAS_REMOTE_PULL_ACCESS_BIT         0x08
00064 #define ZRC_ATTRIBUTE_IS_TWO_DIMENSIONAL_ARRAYED       0x10
00065 #define ZRC_ATTRIBUTE_LOCAL_NODE_SUPPORTED              0x20
00066 #define ZRC_ATTRIBUTE_REMOTE_NODE_SUPPORTED             0x40
00067
00068 typedef struct {
00069     uint8_t id;
00070     uint8_t size;
00071     uint8_t bitmask;
00072 } EmAfRf4ceZrcAttributeDescriptor;
00073
00074 typedef struct {
00075     uint8_t contents[ZRC_BITMASK_SIZE];
00076 } EmAfZrcBitmask;
00077
00078 typedef struct {
00079     bool inUse;
00080     uint8_t entryId;
00081     uint8_t contents[ZRC_BITMASK_SIZE];
00082 } EmAfZrcArrayedBitmask;
00083
00084 typedef struct {
00085     // Scalar
00086     uint16_t zrcProfileVersion;
00087     uint16_t zrcActionBanksVersion;
00088     EmAfZrcBitmask *actionBanksSupportedRx;
00089     EmAfZrcBitmask *actionBanksSupportedTx;
00090 #if (defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_LOCAL_IRDB_VENDOR_ATTRIBUTE_SUPPORT)
00091 \
00092     || defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_REMOTE_IRDB_VENDOR_ATTRIBUTES_SUPPORT) \
00093     || defined(EMBER_SCRIPTED_TEST))
00094     uint16_t *IRDBVendorSupport;
00095 #endif
00096     // Arrayed
00097     EmAfZrcArrayedBitmask *actionCodesSupportedRx
00098     ;
00099     EmAfZrcArrayedBitmask *actionCodesSupportedTx
00100     ;
00101 // Mappable actions, action mappings and HA attributes are stored separately.
00102 } EmAfRf4ceZrcAttributes;
00103

```

```

00103 #define ZRC20_CAPABILITIES_NON_RESERVED_BITS_BITMASK      0x000000FF
00104
00105 // Pre-processing build up of the local node ZRC capabilities.
00106 #if defined(EMBER_AF_RF4CE_ZRC_ACTION_BANKS_RX)
00107 #define LOCAL_NODE_SUPPORTS_ACTIONS_RECIPIENT_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTIONS_RECIPIENT
00108 #else
00109 #define LOCAL_NODE_SUPPORTS_ACTIONS_RECIPIENT_BIT 0
00110 #endif // EMBER_AF_RF4CE_ZRC_ACTION_BANKS_RX
00111
00112 #if defined(EMBER_AF_RF4CE_ZRC_ACTION_BANKS_TX)
00113 #define LOCAL_NODE_SUPPORTS_ACTIONS_ORIGINATOR_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTIONS_ORIGINATOR
00114 #else
00115 #define LOCAL_NODE_SUPPORTS_ACTIONS_ORIGINATOR_BIT 0
00116 #endif // EMBER_AF_RF4CE_ZRC_ACTION_BANKS_RX
00117
00118 #if defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_CLIENT)
00119 #define LOCAL_NODE_IS_AM_CLIENT_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTION_MAPPING_CLIENT
00120 #if defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_LOCAL_IRDB_VENDOR_ATTRIBUTE_SUPPORT)
00121 #define LOCAL_NODE_SUPPORTS_VENDOR_SPECIFIC_IRDB_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_VENDOR_SPECIFIC_IRDB_FORMATS
00122 #else
00123 #define LOCAL_NODE_SUPPORTS_VENDOR_SPECIFIC_IRDB_BIT 0
00124 #endif // EMBER_AF_PLUGIN_RF4CE_ZRC20_LOCAL_IRDB_VENDOR_ATTRIBUTE_SUPPORT
00125 #else
00126 #define LOCAL_NODE_IS_AM_CLIENT_BIT 0
00127 #define LOCAL_NODE_SUPPORTS_VENDOR_SPECIFIC_IRDB_BIT 0
00128 #endif // EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_CLIENT
00129
00130 #if defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_SERVER)
00131 #define LOCAL_NODE_IS_AM_SERVER_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTION_MAPPING_SERVER
00132 #else
00133 #define LOCAL_NODE_IS_AM_SERVER_BIT 0
00134 #endif // EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_SERVER
00135
00136 #if defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_INFORM_ABOUT_SUPPORTED_ACTIONS)
00137 #define LOCAL_NODE_INFORM_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_INFORM_ABOUT_SUPPORTED_ACTIONS
00138 #else
00139 #define LOCAL_NODE_INFORM_BIT 0
00140 #endif // EMBER_AF_PLUGIN_RF4CE_ZRC20_INFORM_ABOUT_SUPPORTED_ACTIONS
00141
00142 #if defined(EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_ORIGINATOR)
00143 #define LOCAL_NODE_IS_HA_ORIGINATOR_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_HA_ACTIONS_ORIGINATOR
00144 #else
00145 #define LOCAL_NODE_IS_HA_ORIGINATOR_BIT 0
00146 #endif // EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_ORIGINATOR
00147
00148 #if defined(EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_RECIPIENT)
00149 #define LOCAL_NODE_IS_HA_RECIPIENT_BIT
    EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_HA_ACTIONS_RECIPIENT
00150 #else
00151 #define LOCAL_NODE_IS_HA_RECIPIENT_BIT 0
00152 #endif // EMBER_AF_RF4CE_ZRC_IS_HA_ACTIONS_RECIPIENT
00153
00154 #define LOCAL_NODE_ZRC_CAPABILITIES
    \
    (0x00000000
00155    \
    | LOCAL_NODE_SUPPORTS_ACTIONS_RECIPIENT_BIT
00156    \
    | LOCAL_NODE_SUPPORTS_ACTIONS_ORIGINATOR_BIT
00157    \
    | LOCAL_NODE_IS_AM_CLIENT_BIT
00158    \
    | LOCAL_NODE_IS_AM_SERVER_BIT
00159    \
    | LOCAL_NODE_SUPPORTS_VENDOR_SPECIFIC_IRDB_BIT
00160    \
    | LOCAL_NODE_INFORM_BIT
00161    \
    | LOCAL_NODE_IS_HA_ORIGINATOR_BIT
00162    \
    | LOCAL_NODE_IS_HA_RECIPIENT_BIT)
00163
00164 #if defined(EMBER_SCRIPTED_TEST)
00165

```

```

00166 extern uint32_t localNodeZrcCapabilities;
00167 #define emAfRf4ceZrcGetLocalNodeCapabilities() (localNodeZrcCapabilities)
00168 #else
00169 #define emAfRf4ceZrcGetLocalNodeCapabilities() (LOCAL_NODE_ZRC_CAPABILITIES)
00170 #endif
00171
00172 #define emAfRf4ceZrcGetRemoteNodeCapabilities(pairingIndex)
00173     \
00174     ((uint32_t) ((emAfRf4ceZrcGetRemoteNodeFlags(pairingIndex)
00175         \
00176         & ZRC_INTERNAL_FLAGS_CAPABILITIES_MASK)
00177         \
00178         >> ZRC_INTERNAL_FLAGS_CAPABILITIES_OFFSET))
00179
00180 #define emAfRf4ceZrcSetRemoteNodeCapabilities(pairingIndex, capabilities)
00181     \
00182     emAfRf4ceZrcSetRemoteNodeFlags((pairingIndex),
00183         \
00184         ((emAfRf4ceZrcGetRemoteNodeFlags(pairingIndex)
00185             \
00186             & ~ZRC_INTERNAL_FLAGS_CAPABILITIES_MASK)
00187             \
00188             | ((capabilities & ZRC20_CAPABILITIES_NON_RESERVED_BITS_BITMASK)
00189                 \
00190                 << ZRC_INTERNAL_FLAGS_CAPABILITIES_OFFSET)))
00191
00192 extern EmAfRf4ceZrcAttributes
00193     emAfRf4ceZrcLocalNodeAttributes;
00194 extern EmAfRf4ceZrcAttributes
00195     emAfRf4ceZrcRemoteNodeAttributes;
00196
00197 // This API returns a pointer to the requested (attribute ID, entry ID) pair
00198 // if it exists. Otherwise it returns NULL. The pairing index is used to
00199 // distinguish between local and remote attributes. If the pairing index is
00200 // 0xFF, then the API will look at the local attributes, otherwise it will look
00201 // at the remote attributes corresponding to the passed pairing index.
00202 uint8_t *emAfRf4ceZrcGetArrayedAttributePointer
00203     (uint8_t attrId,
00204         \
00205         uint16_t entryId,
00206         \
00207         uint8_t pairingIndex,
00208         \
00209         uint8_t *index);
00210
00211 void emAfRf4ceZrcReadOrWriteAttribute(uint8_t
00212     pairingIndex,
00213         \
00214         uint8_t attrId,
00215         \
00216         uint16_t entryIdOrValueLength,
00217         \
00218         bool isRead,
00219         \
00220         uint8_t *val);
00221
00222 #define emAfRf4ceZrcWriteLocalAttribute(attrId, entryIdOrValueLength, val)
00223     \
00224     emAfRf4ceZrcReadOrWriteAttribute(0xFF,
00225         \
00226         (attrId),
00227         \
00228         (entryIdOrValueLength),
00229         \
00230         false,
00231         \
00232         (uint8_t *) (val))
00233
00234 #define emAfRf4ceZrcReadLocalAttribute(attrId, entryId, val)
00235     \
00236     emAfRf4ceZrcReadOrWriteAttribute(0xFF,
00237         \
00238         (attrId),
00239         \
00240         (entryId),
00241         \
00242         true,
00243         \
00244         (uint8_t *) (val))
00245
00246 #define emAfRf4ceZrcWriteRemoteAttribute(pairingIndex,
00247         \
00248         attrId,
00249         \
00250         entryIdOrValueLength,
00251         \
00252         val)
00253

```

```

00221 \
00222 \
00223 \
00224 \
00225 \
00226 \
00227 #define emAfRf4ceZrcReadRemoteAttribute(pairingIndex, attrId, entryId, val)
00228 \
00229 \
00230 \
00231 \
00232

```

## 8.314 rf4ce-zrc20-ha-actions.h File Reference

### Macros

- `#define HA_ACTIONS_ANNOUNCEMENT_PROCEDURE_DELAY_MSEC`
- `#define HA_SUPPORTED_MAX_INSTANCE_ID_INDEX`

### Functions

- `void emAfRf4ceZrcHAActionsBindingCompleteCallback (uint8_t pairingIndex)`
- `void emAfRf4ceZrcStartHomeAutomationAnnouncementClient (uint8_t pairingIndex)`

#### 8.314.1 Macro Definition Documentation

##### 8.314.1.1 #define HA\_ACTIONS\_ANNOUNCEMENT\_PROCEDURE\_DELAY\_MSEC

Definition at line 6 of file `rf4ce-zrc20-ha-actions.h`.

##### 8.314.1.2 #define HA\_SUPPORTED\_MAX\_INSTANCE\_ID\_INDEX

Definition at line 9 of file `rf4ce-zrc20-ha-actions.h`.

### 8.314.2 Function Documentation

#### 8.314.2.1 void emAfRf4ceZrcHAActionsBindingCompleteCallback ( `uint8_t pairingIndex` )

#### 8.314.2.2 void emAfRf4ceZrcStartHomeAutomationAnnouncementClient ( `uint8_t pairingIndex` )

## 8.315 rf4ce-zrc20-ha-actions.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003

```

```

00004 // We delay the announcement procedure in case the GDP plugin is busy doing
00005 // something or the ZRC state machine is not in its initial state.
00006 #define HA_ACTIONS_ANNOUNCEMENT_PROCEDURE_DELAY_MSEC      500
00007
00008 // Action bank 0x80-0x9F
00009 #define HA_SUPPORTED_MAX_INSTANCE_ID_INDEX   31
00010
00011 void emAfRf4ceZrcHAAActionsBindingCompleteCallback
        (uint8_t pairingIndex);
00012
00013 void emAfRf4ceZrcStartHomeAutomationAnnouncementClient
        (uint8_t pairingIndex);

```

## 8.316 rf4ce-zrc20-ha-client.h File Reference

### Macros

- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene`(scene)
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene`(scene)
- #define `emberAfRf4ceZrcHaFillCommandPreviousDestinationGroup()`
- #define `emberAfRf4ceZrcHaFillCommandNextDestinationGroup()`

### Enumerations

- enum `EmberAfThermostatSetpointRaiseLowerMode` { EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_HEAT, EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_COOL, EMBER\_ZCL\_THERMOSTAT\_SETPOINT\_RAISE\_LOWER\_MODE\_BOOTH }

### Functions

- uint16\_t `emAfPluginRf4ceZrc20HaFillExternalBuffer` (PGM\_P format,...)
- `EmberStatus emberAfRf4ceZrcHaSend` (uint8\_t pairingIndex, uint8\_t haInstanceId)

### Scenes Commands

- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene0()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene1()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene2()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene3()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene4()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene5()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene6()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene7()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene8()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene9()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene10()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene11()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene12()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene13()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene14()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene15()`

- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene0()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene1()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene2()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene3()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene4()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene5()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene6()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene7()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene8()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene9()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene10()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene11()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene12()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene13()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene14()`
- #define `emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene15()`

## On/off Commands

- #define `emberAfRf4ceZrcHaFillCommandOnOffClusterOff()`
- #define `emberAfRf4ceZrcHaFillCommandOnOffClusterOn()`
- #define `emberAfRf4ceZrcHaFillCommandOnOffClusterToggle()`

## Level Control Commands

- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevel(level,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMove(moveMode,rate)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStep(stepMode,stepSize,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStop()`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevelWithOnOff(level,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveWithOnOff(moveMode, rate)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStepWithOnOff(stepMode,stepSize,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandLevelControlClusterStopWithOnOff()`

## Door Lock Commands

- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterLockDoor(pinRfidCode)`
- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockDoor(pinRfidCode)`
- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterToggle(pinRfidCode)`
- #define `emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockWithTimeout(timeoutInSeconds,pinRfidCode)`

## Window Covering Commands

- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterUpOpen()`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterDownClose()`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterStop()`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftValue(liftValue)`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftPercentage(percentageLiftValue)`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltValue(tiltValue)`
- #define `emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltPercentage(percentageTiltValue)`

## Thermostat Commands

- #define `emberAfRf4ceZrcHaFillCommandThermostatClusterSetpointRaiseLower(mode,amount)`

## Color Control Commands

- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHue(hue,direction,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveHue(moveMode,rate)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterStepHue(stepMode,stepSize,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToSaturation(saturation,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveSaturation(moveMode, rate)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterStepSaturation(stepMode,stepSize,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHueAndSaturation(hue,saturation,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColor(colorX,colorY,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveColor(rateX,rateY)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterStepColor(stepX,stepY,transitionTime)`
- #define `emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColorTemperature(colorTemperature, transitionTime)`

## IAS ACE Commands

- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterArm(armMode)`
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterBypass(numberOfZones,zoneIds,zoneIdsLen)`
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterEmergency()`
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterFire()`
- #define `emberAfRf4ceZrcHaFillCommandIASACEClusterPanic()`

## 8.317 rf4ce-zrc20-ha-client.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC20_HA_CLIENT_H__
00004 #define __RF4CE_ZRC20_HA_CLIENT_H__
00005
00044 typedef enum {
00045     EMBER_ZCL_THERMOSTAT_SETPOINT_RAISE_LOWER_MODE_HEAT
00046         = 0x00,
00047     EMBER_ZCL_THERMOSTAT_SETPOINT_RAISE_LOWER_MODE_COOL
00048         = 0x01,
00049     EMBER_ZCL_THERMOSTAT_SETPOINT_RAISE_LOWER_MODE_BOTH
00050         = 0x02
00048 } EmberAfThermostatSetpointRaiseLowerMode
00049 ;
00050
00051 uint16_t emAfPluginRf4ceZrc20HaFillExternalBuffer
00052     (PGM_P format, ...);
00053 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (scene)
00054     \
00055             emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00056                 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_ ## scene)
00057 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene (scene)
00058     \
00059             emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00060                 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_ ## scene)
00061
00062 /* Public API. */
00063
00064
00076 EmberStatus emberAfRf4ceZrcHaSend(uint8_t
00077     pairingIndex,
00078                     uint8_t haInstanceId);
00079
00081 // @@
00087 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene0 ()
00088     \
00089             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (0)
00090
00096 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene1 ()
00097     \
00098             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (1)
00099
00105 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene2 ()
00106     \
00107             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (2)
00108
00114 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene3 ()
00115     \
00116             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (3)
00117
00123 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene4 ()
00124     \
00125             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (4)
00126
00132 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene5 ()
00133     \
00134             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (5)
00135
00141 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene6 ()
00142     \
00143             emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene (6)
00144
00150 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene7 ()

```

```

00151 \
00152     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(7)
00153
00154 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene8()
00155 \
00156     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(8)
00157
00158 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene9()
00159 \
00160     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(9)
00161
00162 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene10()
00163 \
00164     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(10)
00165
00166 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene11()
00167 \
00168     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(11)
00169
00170 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene12()
00171 \
00172     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(12)
00173
00174 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene13()
00175 \
00176     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(13)
00177
00178 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene14()
00179 \
00180     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(14)
00181
00182 #define emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene15()
00183 \
00184     emberAfRf4ceZrcHaFillCommandScenesClusterStoreLocalScene(15)
00185
00186 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene0()
00187 \
00188     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(0)
00189
00190 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene1()
00191 \
00192     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(1)
00193
00194 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene2()
00195 \
00196     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(2)
00197
00198 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene3()
00199 \
00200     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(3)
00201
00202 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene4()
00203 \
00204     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(4)
00205
00206 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene5()
00207 \
00208     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(5)
00209
00210 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene6()
00211 \
00212     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(6)
00213
00214 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene7()
00215

```

```

00295 \
00296     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(7)
00297
00303 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene8()
00304 \
00305     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(8)
00306
00312 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene9()
00313 \
00314     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(9)
00315
00321 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene10()
00322 \
00323     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(10)
00324
00330 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene11()
00331 \
00332     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(11)
00333
00339 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene12()
00340 \
00341     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(12)
00342
00348 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene13()
00349 \
00350     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(13)
00351
00357 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene14()
00358 \
00359     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(14)
00360
00366 #define emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene15()
00367 \
00368     emberAfRf4ceZrcHaFillCommandScenesClusterRecallLocalScene(15)
00369
00372 // @{
00378 #define emberAfRf4ceZrcHaFillCommandOnOffClusterOff()
00379 \
00380     emAfPluginRf4ceZrc20HaFillExternalBuffer("u",
00381     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_ON_OFF_OFF)
00382
00388 #define emberAfRf4ceZrcHaFillCommandOnOffClusterOn()
00389 \
00390     emAfPluginRf4ceZrc20HaFillExternalBuffer("u",
00391     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_ON_OFF_ON)
00392
00398 #define emberAfRf4ceZrcHaFillCommandOnOffClusterToggle()
00399 \
00400     emAfPluginRf4ceZrc20HaFillExternalBuffer("u",
00401     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_ON_OFF_TOGGLE)
00402
00405 // @{
00413 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevel(level,
00414 \
00415     transitionTime) \
00416         emAfPluginRf4ceZrc20HaFillExternalBuffer("uuv",
00417         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE_TO_LEVEL, \
00418             level,
00419             \
00420             transitionTime)
00428 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMove(moveMode,
00429 \

```

```

00429 \
00430     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuu", \
00431         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE, \
00432             moveMode, \
00433                 \
00434                 rate)
00435
00436
00437 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStep(stepMode,
00438 \
00439             stepSize, \
00440                 \
00441                 transitionTime)
00442 \
00443     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuuv", \
00444         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STEP, \
00445             stepMode, \
00446                 \
00447                 stepSize, \
00448                     \
00449                     transitionTime)
00450
00451
00452
00453 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStop()
00454 \
00455     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00456         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STOP)
00457
00458
00459 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveToLevelWithOnOff(level,
00460 \
00461             transitionTime) \
00462     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuv", \
00463         \
00464         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE_TO_LEVEL_WITH_ON_OFF, \
00465             level, \
00466                 \
00467                 transitionTime)
00468
00469
00470 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterMoveWithOnOff(moveMode,
00471 \
00472             rate)
00473 \
00474     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuu", \
00475         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE_WITH_ON_OFF, \
00476             moveMode, \
00477                 \
00478                 rate)
00479
00480
00481 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStepWithOnOff(stepMode,
00482 \
00483             stepSize, \
00484                 \
00485                 transitionTime) \
00486     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuuv", \
00487         \
00488         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STEP_WITH_ON_OFF, \
00489             stepMode, \
00490                 \
00491                 stepSize, \
00492                     \
00493                     transitionTime)
00494
00495
00496 #define emberAfRf4ceZrcHaFillCommandLevelControlClusterStopWithOnOff()
00497 \
00498     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00499         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STOP_WITH_ON_OFF)

```

```

00520
00524 // @{
00531 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterLockDoor(pinRfidCode)
00532 \
00533     emAfPluginRf4ceZrc20HaFillExternalBuffer("us", \
00534         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_LOCK_DOOR, \
00535             pinRfidCode)
00536
00537
00543 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockDoor(pinRfidCode)
00544 \
00545     emAfPluginRf4ceZrc20HaFillExternalBuffer("us", \
00546         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_UNLOCK_DOOR, \
00547             pinRfidCode)
00548
00549
00555 #define emberAfRf4ceZrcHaFillCommandDoorLockClusterToggle(pinRfidCode)
00556 \
00557     emAfPluginRf4ceZrc20HaFillExternalBuffer("us", \
00558         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_TOGGLE, \
00559             pinRfidCode)
00560
00561
00568 #define
00569     emberAfRf4ceZrcHaFillCommandDoorLockClusterUnlockWithTimeout(timeoutInSeconds, \
00570         pinRfidCode) \
00571     emAfPluginRf4ceZrc20HaFillExternalBuffer("uvs", \
00572         \
00573         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_TOGGLE, \
00574             timeoutInSeconds, \
00575                 \
00576                 pinRfidCode)
00577
00578 // @{
00584 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterUpOpen()
00585 \
00586     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00587         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_UP_OPEN)
00588
00594 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterDownClose()
00595 \
00596     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00597         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_DOWN_CLOSE)
00598
00604 #define emberAfRf4ceZrcHaFillCommandWindowCoveringClusterStop()
00605 \
00606     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00607         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_STOP)
00608
00615 #define
00616     emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftValue(liftValue) \
00617         emAfPluginRf4ceZrc20HaFillExternalBuffer("uv", \
00618             \
00619             EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_LIFT_VALUE, \
00620                 liftValue)
00620
00627 #define
00628     emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToLiftPercentage(percentageLiftValue) \
00629         emAfPluginRf4ceZrc20HaFillExternalBuffer("uu", \
00630             \
00631             EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_LIFT_PERCENTAGE, \
00632                 percentageLiftValue)
00633
00639 #define
00640     emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltValue(tiltValue) \

```

```

00640         \
00641     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_TILT_VALUE,    \
00642   tiltValue)
00643
00644
00645 #define
00646     emberAfRf4ceZrcHaFillCommandWindowCoveringClusterGoToTiltPercentage(percentageTiltValue)    \
00647             \
00648     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_TILT_PERCENTAGE, \
00649   percentageTiltValue)
00650
00651 // @@
00652 #define emberAfRf4ceZrcHaFillCommandThermostatClusterSetpointRaiseLower(mode,
00653 \
00654   amount)
00655
00656 \
00657 // @@
00658 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHue(hue,
00659 \
00660   direction,
00661 \
00662   transitionTime)\ \
00663     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuuv", \
00664         \
00665     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_HUE,    \
00666   hue,
00667   \
00668   direction,
00669   \
00670   transitionTime)
00671
00672
00673
00674
00675
00676 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveHue(moveMode,
00677 \
00678   rate)
00679
00680 \
00681     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuu", \
00682         \
00683     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_HUE,    \
00684   moveMode,
00685   \
00686   rate)
00687
00688
00689
00690
00691
00692
00693
00694
00695
00696
00697 #define emberAfRf4ceZrcHaFillCommandColorControlClusterStepHue(stepMode,
00698 \
00699   stepSize,
00700 \
00701   transitionTime)
00702
00703 \
00704     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuuu", \
00705         \
00706     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_STEP_HUE,    \
00707   stepMode,
00708   \
00709   stepSize,
00710   \
00711   transitionTime)
00712
00713
00714
00715
00716
00717
00718
00719 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToSaturation(saturation,
00720 \
00721   transitionTime) \
00722     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuv",
00723 \
00724     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_SATURATION, \

```

```

00740                     saturation,
00741   \
00742   transitionTime)
00743
00751 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveSaturation(moveMode,
00752 \
00753   emAfPluginRf4ceZrc20HaFillExternalBuffer("uuu",
00754   EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_SATURATION, \
00755   moveMode,
00756   \
00757   rate)
00758
00767 #define emberAfRf4ceZrcHaFillCommandColorControlClusterStepSaturation(stepMode,
00768 \
00769   \
00770   transitionTime) \
00771   emAfPluginRf4ceZrc20HaFillExternalBuffer("uuuu",
00772   EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_STEP_SATURATION, \
00773   stepMode,
00774   \
00775   stepSize,
00776   \
00777   transitionTime)
00785 #define
00786     emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToHueAndSaturation(hue,
00787     saturation,
00788     \
00789     transitionTime) \
00790     emAfPluginRf4ceZrc20HaFillExternalBuffer("uuuv",
00791     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_HUE_AND_SATURATION, \
00792     hue,
00793     \
00794     saturation,
00795     \
00796     transitionTime)
00803 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColor(colorX,
00804 \
00805   \
00806   colorY,
00807   \
00808   emAfPluginRf4ceZrc20HaFillExternalBuffer("uvvv",
00809   EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_COLOR, \
00810   colorX,
00811   \
00812   colorY,
00813   \
00814   transitionTime)
00820 #define emberAfRf4ceZrcHaFillCommandColorControlClusterMoveColor(rateX,
00821 \
00822   \
00823   emAfPluginRf4ceZrc20HaFillExternalBuffer("uvv",
00824   EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_COLOR, \
00825   rateX,
00826   \
00827   rateY)

```

```

00836 #define emberAfRf4ceZrcHaFillCommandColorControlClusterStepColor(stepX,
00837   \
00838   \
00839   transitionTime) \
00840     emAfPluginRf4ceZrc20HaFillExternalBuffer("uvvv", \
00841       EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_STEP_COLOR, \
00842         stepX, \
00843           \
00844             stepY, \
00845               \
00846                 transitionTime)
00847
00848
00849
00850
00851 #define
00852   emberAfRf4ceZrcHaFillCommandColorControlClusterMoveToColorTemperature(colorTemperature, \
00853   transitionTime) \
00854     emAfPluginRf4ceZrc20HaFillExternalBuffer("uvv", \
00855       \
00856         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_COLOR_TEMPERATURE, \
00857           colorTemperature, \
00858             \
00859               transitionTime)
00860
00861 // @{
00862 #define emberAfRf4ceZrcHaFillCommandIASACEClusterArm(armMode)
00863   \
00864     emAfPluginRf4ceZrc20HaFillExternalBuffer("uu", \
00865       \
00866         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_ARM, \
00867           armMode)
00868
00869
00870
00871 #define emberAfRf4ceZrcHaFillCommandIASACEClusterBypass(numberOfZones,
00872   \
00873     zoneIds,
00874   \
00875     \
00876       emAfPluginRf4ceZrc20HaFillExternalBuffer("uub", \
00877         \
00878           EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_BYPASS, \
00879             numberOfZones, \
00880               \
00881                 zoneIds,
00882                   \
00883                     zoneIdsLen)
00884
00885
00886
00887
00888
00889
00890
00891
00892
00893
00894 #define emberAfRf4ceZrcHaFillCommandIASACEClusterEmergency()
00895   \
00896     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00897       \
00898         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_EMERGENCY)
00899
00900
00901
00902
00903
00904 #define emberAfRf4ceZrcHaFillCommandIASACEClusterFire()
00905   \
00906     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00907       \
00908         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_FIRE)
00909
00910
00911
00912
00913
00914 #define emberAfRf4ceZrcHaFillCommandIASACEClusterPanic()
00915   \
00916     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00917       \
00918         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_PANIC)
00919
00920
00921
00922
00923
00924 #define emberAfRf4ceZrcHaFillCommandPreviousDestinationGroup()
00925   \
00926     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00927       \
00928         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_PREVIOUS_DESTINATION_GROUP)
00929
00930
00931
00932
00933

```

```

00938 #define emberAfRf4ceZrcHaFillCommandNextDestinationGroup()
00939 \
00940     emAfPluginRf4ceZrc20HaFillExternalBuffer("u", \
00941         EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_NEXT_DESTINATION_GROUP)
00942 #endif // __RF4CE_ZRC20_HA_CLIENT_H__
00943 // END addtogroup

```

## 8.318 rf4ce-zrc20-ha-server-tokens.h File Reference

### Macros

- `#define CREATOR_PLUGIN_RF4CE_ZRC20_HA_SERVER_LOGICAL_DEVICES_TABLE`
- `#define CREATOR_PLUGIN_RF4CE_ZRC20_HA_SERVER_INSTANCE_TO_LOGICAL_DEVICE_TABLE`

#### 8.318.1 Macro Definition Documentation

##### 8.318.1.1 `#define CREATOR_PLUGIN_RF4CE_ZRC20_HA_SERVER_LOGICAL_DEVICES_TABLE`

Definition at line 4 of file [rf4ce-zrc20-ha-server-tokens.h](#).

##### 8.318.1.2 `#define CREATOR_PLUGIN_RF4CE_ZRC20_HA_SERVER_INSTANCE_TO_LOGICAL_DEVICE_TABLE`

Definition at line 5 of file [rf4ce-zrc20-ha-server-tokens.h](#).

## 8.319 rf4ce-zrc20-ha-server-tokens.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003
00004 #define CREATOR_PLUGIN_RF4CE_ZRC20_HA_SERVER_LOGICAL_DEVICES_TABLE
0x8735
00005 #define CREATOR_PLUGIN_RF4CE_ZRC20_HA_SERVER_INSTANCE_TO_LOGICAL_DEVICE_TABLE
0x8736
00006
00007 #ifdef DEFINETYPES
00008 #include "app/framework/plugin/rf4ce-profile/rf4ce-profile-types.h"
00009 #include "app/framework/plugin/rf4ce-zrc20/rf4ce-zrc20-types.h"
00010 #include "rf4ce-zrc20-ha-server.h"
00011
00012 typedef struct {
00013     uint8_t instances[ZRC_HA_SERVER_NUM_OF_HA_INSTANCES];
00014 } InstStruct;
00015 #endif
00016
00017
00018 #ifdef DEFINETOKENS
00019 DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_ZRC20_HA_SERVER_LOGICAL_DEVICES_TABLE,
00020     DestStruct,
00021     (
00022         EMBER_AF_PLUGIN_RF4CE_ZRC20_HA_SERVER_LOGICAL_DEVICES_TABLE_SIZE),
00023         {0,})
00024 DEFINE_INDEXED_TOKEN(
PLUGIN_RF4CE_ZRC20_HA_SERVER_INSTANCE_TO_LOGICAL_DEVICE_TABLE,

```

```

00025     InstStruct,
00026     (EMBER_RF4CE_PAIRING_TABLE_SIZE),
00027     {{0,}}}
00028 #endif
00029

```

## 8.320 rf4ce-zrc20-ha-server.h File Reference

```
#include "app/framework/plugin/rf4ce-gdp/rf4ce-gdp-types.h"
```

### Data Structures

- struct DestStruct
- struct HaAttributesInfo

### Macros

- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_HA\_SERVER\_ZCL\_BUFFER\_SIZE
- #define ZRC\_HA\_SERVER\_NUM\_OF\_HA\_INSTANCES
- #define ZRC\_ACTION\_ID\_HIGH\_NIBBLE\_MASK
- #define ZRC\_ACTION\_ID\_LOW\_NIBBLE\_MASK
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE0\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE1\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE2\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE3\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE4\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE5\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE6\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE7\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE8\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE9\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE10\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE11\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE12\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE13\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE14\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE15\_ID
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_SCENE\_STORE\_LOCAL\_SCENE\_RESPONSE\_SIZE
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID0\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID1\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID2\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID3\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID4\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID5\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID6\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID7\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID8\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID9\_ID

- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID10\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID11\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID12\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID13\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID14\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID15\_ID
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID\_ID\_SIZE
- #define ZRC\_HA\_SCENE\_LOCAL\_SCENE\_VALID\_SIZE
- #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_ID
- #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_ID\_SIZE
- #define ZRC\_HA\_ON\_OFF\_ON\_OFF\_SIZE
- #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_ID
- #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_ID\_SIZE
- #define ZRC\_HA\_LEVEL\_CONTROL\_CURRENT\_LEVEL\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_LOCK\_DOOR\_RESPONSE\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_DOOR\_RESPONSE\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_TOGGLE\_RESPONSE\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_ID
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_DOOR\_LOCK\_UNLOCK\_WITH\_TIMEOUT\_RESPONSE\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_ID
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_ID\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_LIFT\_PERCENTAGE\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_ID
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_ID\_SIZE
- #define ZRC\_HA\_WINDOW\_COVERING\_CURRENT\_POSITION\_TILT\_PERCENTAGE\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_ID
- #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_ID\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_LOCAL\_TEMPERATURE\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_ID
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_ID\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_COOLING\_SETPOINT\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_ID
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_ID\_SIZE
- #define ZRC\_HA\_THERMOSTAT\_OCCUPIED\_HEATING\_SETPOINT\_SIZE
- #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_ID
- #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTROL\_CURRENT\_HUE\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_ID\_SIZE

- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_SATURATION\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_X\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_CURRENT\_Y\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_ID
- #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_ID\_SIZE
- #define ZRC\_HA\_COLOR\_CONTOL\_COLOR\_MODE\_SIZE
- #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_ID
- #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_ID\_SIZE
- #define ZRC\_HA\_IAS\_ACE\_ARM\_RESPONSE\_SIZE
- #define ZRC\_HA\_ATTRIBUTE\_STATUS\_TABLE\_SIZE
- #define ZRC\_HA\_ATTRIBUTE\_TABLE\_SIZE
- #define HA\_ATTRIBUTE\_STATUS\_LENGTH
- #define HA\_ATTRIBUTE\_STATUS\_CHANGED\_FLAG

## Functions

- void `emberAfPluginRf4ceZrc20HaServerClearAllHaAttributes` (void)
- `EmberAfRf4ceGdpAttributeStatus` `emberAfPluginRf4ceZrc20HaServerGetHaAttribute` (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributeId, `EmberAfRf4ceZrcHomeAutomationAttribute` \*haAttribute)
- `EmberAfRf4ceGdpAttributeStatus` `emberAfPluginRf4ceZrc20HaServerSetHaAttribute` (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributeId, `EmberAfRf4ceZrcHomeAutomationAttribute` \*haAttribute)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceAdd` (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t destIndex)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceRemove` (uint8\_t destIndex)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceGet` (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t \*destIndex)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationAdd` (`DestStruct` \*dest, uint8\_t \*index)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationRemove` (`DestStruct` \*dest, uint8\_t \*index)
- uint8\_t `emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationTableSize` (void)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationGet` (uint8\_t pairingIndex, uint8\_t haInstanceId, `DestStruct` \*dest)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaLogicalDeviceIndexLookUp` (`DestStruct` \*dest, uint8\_t \*index)
- void `emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingClear` (void)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingAdd` (uint8\_t pairingIndex, uint8\_t haInstanceId, `DestStruct` \*dest)
- `EmberStatus` `emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingRemove` (`DestStruct` \*dest)
- `EmberStatus` `emAfRf4ceZrc20ParseHaActionAndForwardToZclNetwork` (const `EmberAfRf4ceZrcActionRecord` \*record)
- void `emAfRf4ceZrc20ClearLogicalDevicesTable` (void)
- void `emAfRf4ceZrc20ClearInstanceToLogicalDeviceTable` (void)

- EmberStatus emAfRf4ceZrc20AddLogicalDeviceDestination (**DestStruct** \*dest, uint8\_t \*index)
- EmberStatus emAfRf4ceZrc20RemoveLogicalDeviceDestination (uint8\_t destIndex)
- uint8\_t **GetLogicalDeviceDestination** (uint8\_t i, **DestStruct** \*dest)
- void **DestLookup** (uint8\_t pairingIndex, uint8\_t haInstanceId, **DestStruct** \*dest)

## 8.321 rf4ce-zrc20-ha-server.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC20_HA_SERVER_H__
00004 #define __RF4CE_ZRC20_HA_SERVER_H__
00005
00006 #include "app/framework/plugin/rf4ce-gdp/rf4ce-gdp-types.h"
00007
00042 // EMBER_AF_MAXIMUM_SEND_PAYLOAD_LENGTH is set in config.h
00043 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_HA_SERVER_ZCL_BUFFER_SIZE
    EMBER_AF_MAXIMUM_SEND_PAYLOAD_LENGTH
00044
00045 #define ZRC_HA_SERVER_NUM_OF_HA_INSTANCES      32
00046
00047 #define ZRC_ACTION_ID_HIGH_NIBBLE_MASK          0xFO
00048 #define ZRC_ACTION_ID_LOW_NIBBLE_MASK           0xOF
00049
00050
00051 /* ZRC HA Attribute IDs and size.
00052 * Size contains HA attribute status and HA attribute value. */
00053 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE0_ID      0x00
00054 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE1_ID      0x01
00055 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE2_ID      0x02
00056 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE3_ID      0x03
00057 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE4_ID      0x04
00058 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE5_ID      0x05
00059 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE6_ID      0x06
00060 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE7_ID      0x07
00061 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE8_ID      0x08
00062 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE9_ID      0x09
00063 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE10_ID     0x0A
00064 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE11_ID     0x0B
00065 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE12_ID     0x0C
00066 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE13_ID     0x0D
00067 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE14_ID     0x0E
00068 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE15_ID     0x0F
00069 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE_ID_SIZE   1
00070 #define ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE_SIZE      1
00071 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID0_ID                0x10
00072 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID1_ID                0x11
00073 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID2_ID                0x12
00074 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID3_ID                0x13
00075 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID4_ID                0x14
00076 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID5_ID                0x15
00077 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID6_ID                0x16
00078 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID7_ID                0x17
00079 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID8_ID                0x18
00080 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID9_ID                0x19
00081 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID10_ID               0x1A
00082 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID11_ID               0x1B
00083 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID12_ID               0x1C
00084 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID13_ID               0x1D
00085 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID14_ID               0x1E
00086 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID15_ID               0x1F
00087 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID_ID_SIZE            1
00088 #define ZRC_HA_SCENE_LOCAL_SCENE_VALID_SIZE               1
00089 #define ZRC_HA_ON_OFF_ON_OFF_ID                         0x20
00090 #define ZRC_HA_ON_OFF_ON_OFF_ID_SIZE                   1
00091 #define ZRC_HA_ON_OFF_ON_OFF_SIZE                      1
00092 #define ZRC_HA_LEVEL_CONTROL_CURRENT_LEVEL_ID           0x30
00093 #define ZRC_HA_LEVEL_CONTROL_CURRENT_LEVEL_ID_SIZE     1
00094 #define ZRC_HA_LEVEL_CONTROL_CURRENT_LEVEL_SIZE         1
00095 #define ZRC_HA_DOOR_LOCK_LOCK_DOOR_RESPONSE_ID         0x40
00096 #define ZRC_HA_DOOR_LOCK_LOCK_DOOR_RESPONSE_ID_SIZE    1
00097 #define ZRC_HA_DOOR_LOCK_LOCK_DOOR_RESPONSE_SIZE        1
00098 #define ZRC_HA_DOOR_LOCK_UNLOCK_DOOR_RESPONSE_ID        0x41
00099 #define ZRC_HA_DOOR_LOCK_UNLOCK_DOOR_RESPONSE_ID_SIZE   1

```

```

00100 #define ZRC_HA_DOOR_LOCK_UNLOCK_DOOR_RESPONSE_SIZE 1
00101 #define ZRC_HA_DOOR_LOCK_TOGGLE_RESPONSE_ID 0x42
00102 #define ZRC_HA_DOOR_LOCK_TOGGLE_RESPONSE_ID_SIZE 1
00103 #define ZRC_HA_DOOR_LOCK_TOGGLE_RESPONSE_SIZE 1
00104 #define ZRC_HA_DOOR_LOCK_UNLOCK_WITH_TIMEOUT_RESPONSE_ID 0x43
00105 #define ZRC_HA_DOOR_LOCK_UNLOCK_WITH_TIMEOUT_RESPONSE_ID_SIZE 1
00106 #define ZRC_HA_DOOR_LOCK_UNLOCK_WITH_TIMEOUT_RESPONSE_SIZE 1
00107 #define ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_LIFT_PERCENTAGE_ID 0x50
00108 #define ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_LIFT_PERCENTAGE_ID_SIZE 1
00109 #define ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_LIFT_PERCENTAGE_SIZE 1
00110 #define ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_TILT_PERCENTAGE_ID 0x51
00111 #define ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_TILT_PERCENTAGE_ID_SIZE 1
00112 #define ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_TILT_PERCENTAGE_SIZE 1
00113 #define ZRC_HA_THERMOSTAT_LOCAL_TEMPERATURE_ID 0x60
00114 #define ZRC_HA_THERMOSTAT_LOCAL_TEMPERATURE_ID_SIZE 1
00115 #define ZRC_HA_THERMOSTAT_LOCAL_TEMPERATURE_SIZE 2
00116 #define ZRC_HA_THERMOSTAT_OCCUPIED_COOLING_SETPOINT_ID 0x61
00117 #define ZRC_HA_THERMOSTAT_OCCUPIED_COOLING_SETPOINT_ID_SIZE 1
00118 #define ZRC_HA_THERMOSTAT_OCCUPIED_COOLING_SETPOINT_SIZE 2
00119 #define ZRC_HA_THERMOSTAT_OCCUPIED_HEATING_SETPOINT_ID 0x62
00120 #define ZRC_HA_THERMOSTAT_OCCUPIED_HEATING_SETPOINT_ID_SIZE 1
00121 #define ZRC_HA_THERMOSTAT_OCCUPIED_HEATING_SETPOINT_SIZE 2
00122 #define ZRC_HA_COLOR_CONTROL_CURRENT_HUE_ID 0x70
00123 #define ZRC_HA_COLOR_CONTROL_CURRENT_HUE_ID_SIZE 1
00124 #define ZRC_HA_COLOR_CONTROL_CURRENT_HUE_SIZE 1
00125 #define ZRC_HA_COLOR_CONTOL_CURRENT_SATURATION_ID 0x71
00126 #define ZRC_HA_COLOR_CONTOL_CURRENT_SATURATION_ID_SIZE 1
00127 #define ZRC_HA_COLOR_CONTOL_CURRENT_SATURATION_SIZE 1
00128 #define ZRC_HA_COLOR_CONTOL_CURRENT_X_ID 0x72
00129 #define ZRC_HA_COLOR_CONTOL_CURRENT_X_ID_SIZE 1
00130 #define ZRC_HA_COLOR_CONTOL_CURRENT_X_SIZE 2
00131 #define ZRC_HA_COLOR_CONTOL_CURRENT_Y_ID 0x73
00132 #define ZRC_HA_COLOR_CONTOL_CURRENT_Y_ID_SIZE 1
00133 #define ZRC_HA_COLOR_CONTOL_CURRENT_Y_SIZE 2
00134 #define ZRC_HA_COLOR_CONTOL_COLOR_MODE_ID 0x74
00135 #define ZRC_HA_COLOR_CONTOL_COLOR_MODE_ID_SIZE 1
00136 #define ZRC_HA_COLOR_CONTOL_COLOR_MODE_SIZE 1
00137 #define ZRC_HA_IAS_ACE_ARM_RESPONSE_ID 0xC4
00138 #define ZRC_HA_IAS_ACE_ARM_RESPONSE_ID_SIZE 1
00139 #define ZRC_HA_IAS_ACE_ARM_RESPONSE_SIZE 1
00140
00141 #define ZRC_HA_ATTRIBUTE_STATUS_TABLE_SIZE
    \
    (ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE_ID_SIZE * 16 +
     \
     ZRC_HA_SCENE_LOCAL_SCENE_VALID_ID_SIZE * 16 +
     \
     ZRC_HA_ON_OFF_ON_OFF_ID_SIZE +
     \
     ZRC_HA_LEVEL_CONTROL_CURRENT_LEVEL_ID_SIZE +
     \
     ZRC_HA_DOOR_LOCK_LOCK_DOOR_RESPONSE_ID_SIZE +
     \
     ZRC_HA_DOOR_LOCK_UNLOCK_DOOR_RESPONSE_ID_SIZE +
     \
     ZRC_HA_DOOR_LOCK_TOGGLE_RESPONSE_ID_SIZE +
     \
     ZRC_HA_DOOR_LOCK_UNLOCK_WITH_TIMEOUT_RESPONSE_ID_SIZE +
     \
     ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_LIFT_PERCENTAGE_ID_SIZE +
     \
     ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_TILT_PERCENTAGE_ID_SIZE +
     \
     ZRC_HA_THERMOSTAT_LOCAL_TEMPERATURE_ID_SIZE +
     \
     ZRC_HA_THERMOSTAT_OCCUPIED_COOLING_SETPOINT_ID_SIZE +
     \
     ZRC_HA_THERMOSTAT_OCCUPIED_HEATING_SETPOINT_ID_SIZE +
     \
     ZRC_HA_COLOR_CONTROL_CURRENT_HUE_ID_SIZE +
     \
     ZRC_HA_COLOR_CONTOL_CURRENT_SATURATION_ID_SIZE +
     \
     ZRC_HA_COLOR_CONTOL_CURRENT_X_ID_SIZE +
     \
     ZRC_HA_COLOR_CONTOL_CURRENT_Y_ID_SIZE +
     \
     ZRC_HA_COLOR_CONTOL_COLOR_MODE_ID_SIZE +
     \
     ZRC_HA_IAS_ACE_ARM_RESPONSE_ID_SIZE)

```

```

00161
00162 #define ZRC_HA_ATTRIBUTE_TABLE_SIZE
00163 \
00164   (ZRC_HA_SCENE_STORE_LOCAL_SCENE_RESPONSE_SIZE * 16 +
00165   ZRC_HA_SCENE_LOCAL_SCENE_VALID_SIZE * 16 +
00166   ZRC_HA_ON_OFF_ON_OFF_SIZE +
00167   ZRC_HA_LEVEL_CONTROL_CURRENT_LEVEL_SIZE +
00168   ZRC_HA_DOOR_LOCK_LOCK_DOOR_RESPONSE_SIZE +
00169   ZRC_HA_DOOR_LOCK_UNLOCK_DOOR_RESPONSE_SIZE +
00170   ZRC_HA_DOOR_LOCK_TOGGLE_RESPONSE_SIZE +
00171   ZRC_HA_DOOR_LOCK_UNLOCK_WITH_TIMEOUT_RESPONSE_SIZE +
00172   ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_LIFT_PERCENTAGE_SIZE +
00173   ZRC_HA_WINDOW_COVERING_CURRENT_POSITION_TILT_PERCENTAGE_SIZE +
00174   ZRC_HA_THERMOSTAT_LOCAL_TEMPERATURE_SIZE +
00175   ZRC_HA_THERMOSTAT_OCCUPIED_COOLING_SETPOINT_SIZE +
00176   ZRC_HA_THERMOSTAT_OCCUPIED_HEATING_SETPOINT_SIZE +
00177   ZRC_HA_COLOR_CONTROL_CURRENT_HUE_SIZE +
00178   ZRC_HA_COLOR_CONTOL_CURRENT_SATURATION_SIZE +
00179   ZRC_HA_COLOR_CONTOL_CURRENT_X_SIZE +
00180   ZRC_HA_COLOR_CONTOL_CURRENT_Y_SIZE +
00181   ZRC_HA_IAS_ACE_ARM_RESPONSE_SIZE)
00182
00183 #define HA_ATTRIBUTE_STATUS_LENGTH           1
00184 // #define HA_ATTRIBUTE_STATUS_OFFSET        0
00185 // #define HA_ATTRIBUTE_VALUE_OFFSET          1
00186
00187 // The status byte for each HA attribute is defined by the following.
00188 #define HA_ATTRIBUTE_STATUS_CHANGED_FLAG      0x01
00189
00190
00191 typedef struct
00192 {
00193     EmberOutgoingMessageType type;
00194     uint16_t indexOrDestination;
00195     uint8_t sourceEndpoint;
00196     uint8_t destinationEndpoint;
00197 } DestStruct;
00198
00199 typedef struct
00200 {
00201     uint8_t id;
00202     uint8_t length;
00203 } HaAttributesInfo;
00204
00205 //typedef struct
00206 //{
00207 //    uint8_t stat[ZRC_HA_ATTRIBUTE_STATUS_TABLE_SIZE/8+1];
00208 //} HaAttributesStat;
00209
00210 //typedef struct
00211 //{
00212 //    uint8_t val[ZRC_HA_ATTRIBUTE_TABLE_SIZE];
00213 //} HaAttributesVal;
00214
00215
00216
00220 void emberAfPluginRf4ceZrc20HaServerClearAllHaAttributes
00221     (void);
00222
00223 EmberAfRf4ceGdpAttributeStatus

```

```

    emberAfPluginRf4ceZrc20HaServerGetHaAttribute
    (uint8_t pairingIndex,
00238     uint8_t haInstanceId,
00239     uint8_t haAttributeId,
00240     EmberAfRf4ceZrcHomeAutomationAttribute *
00241     haAttribute);
00242
00243
00257 EmberStatus emberAfPluginRf4ceZrc20HaServerSetHaAttribute
00258     (uint8_t pairingIndex,
00259     uint8_t haInstanceId,
00260     uint8_t haAttributeId,
00261     EmberAfRf4ceZrcHomeAutomationAttribute *
00262     haAttribute);
00263
00264
00277 EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceAdd
00278     (uint8_t pairingIndex,
00279         uint8_t
00280         haInstanceId,
00281         uint8_t
00282         destIndex);
00283
00284
00290 EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceRemove
00291     (uint8_t destIndex);
00292
00293
00307 EmberStatus emberAfPluginRf4ceZrc20HaMappingToLogicalDeviceGet
00308     (uint8_t pairingIndex,
00309         uint8_t
00310         haInstanceId,
00311         uint8_t*
00312         destIndex);
00313
00314
00322 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationAdd
00323     (DestStruct* dest,
00324         uint8_t* index
00325 );
00326
00327
00338 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationRemove
00339     (DestStruct* dest,
00340         uint8_t*
00341         index);
00342
00343
00346 uint8_t emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationTableSize
00347     (void);
00348
00349
00363 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceDestinationGet
00364     (uint8_t pairingIndex,
00365         uint8_t
00366         haInstanceId,
00367         DestStruct
00368         * dest);
00369
00370
00379 EmberStatus emberAfPluginRf4ceZrc20HaLogicalDeviceIndexLookUp
00380     (DestStruct* dest,
00381         uint8_t* index);
00382
00383
00386 void
00387     emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingClear
00388     (void);
00389
00390
00404 EmberStatus
00405     emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingAdd
00406     (uint8_t pairingIndex,

```

```

00405     uint8_t haInstanceId,
00406     DestStruct* dest);
00407
00408
00417 EmberStatus
00418 emberAfPluginRf4ceZrc20HaLogicalDeviceAndInstanceToLogicalDeviceMappingRemove
00419 (DestStruct* dest);
00420
00421 EmberStatus emAfRf4ceZrc20ParseHaActionAndForwardToZclNetwork
00422 (const EmberAfRf4ceZrcActionRecord *record);
00423 void emAfRf4ceZrc20ClearLogicalDevicesTable
00424 (void);
00425 void emAfRf4ceZrc20ClearInstanceToLogicalDeviceTable
00426 (void);
00427 EmberStatus emAfRf4ceZrc20AddLogicalDeviceDestination
00428 (DestStruct* dest,
00429                               uint8_t* index);
00430 EmberStatus emAfRf4ceZrc20RemoveLogicalDeviceDestination
00431 (uint8_t destIndex);
00432
00433
00434
00435
00436 #endif // __RF4CE_ZRC20_HA_SERVER_H__
00437 // END rf4ce-zrc20-ha-server

```

## 8.322 rf4ce-zrc20-internal.h File Reference

### Macros

- #define APLC\_MAX\_CONFIG\_WAIT\_TIME\_MS
- #define APLC\_MAX\_RESPONSE\_WAIT\_TIME\_MS
- #define APLC\_MAX\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_MS
- #define APLC\_SHORT\_RETRY\_DURATION\_MS
- #define emAfRf4ceZrcClearActionCode
- #define emAfRf4ceZrcReadActionCode
- #define emAfRf4ceZrcSetActionCode
- #define emAfRf4ceZrcExchangeActionBanks(originatorCapabilities,recipientCapabilities)
- #define ACTION\_CODES\_SUPPORTED\_RECORDS\_MAX
- #define ACTION\_TYPE\_MASK
- #define MODIFIER\_BITS\_MASK
- #define MODIFIER\_BITS\_SPECIAL\_MASK
- #define MODIFIER\_BITS\_SPECIAL\_MARK
- #define ZRC\_VERSION\_NONE
- #define ZRC\_VERSION\_1\_1
- #define ZRC\_VERSION\_2\_0
- #define ACTION\_RECORD\_ACTION\_CONTROL\_OFFSET
- #define ACTION\_RECORD\_ACTION\_CONTROL\_LENGTH
- #define ACTION\_RECORD\_ACTION\_CONTROL\_ACTION\_TYPE\_MASK
- #define ACTION\_RECORD\_ACTION\_CONTROL\_ACTION\_TYPE\_OFFSET
- #define ACTION\_RECORD\_ACTION\_CONTROL\_MODIFIER\_BITS\_MASK
- #define ACTION\_RECORD\_ACTION\_CONTROL\_MODIFIER\_BITS\_OFFSET

- #define ACTION\_RECORD\_ACTION\_PAYLOAD\_LENGTH\_OFFSET
- #define ACTION\_RECORD\_ACTION\_PAYLOAD\_LENGTH\_LENGTH
- #define ACTION\_RECORD\_ACTION\_BANK\_OFFSET
- #define ACTION\_RECORD\_ACTION\_BANK\_LENGTH
- #define ACTION\_RECORD\_ACTION\_CODE\_OFFSET
- #define ACTION\_RECORD\_ACTION\_CODE\_LENGTH
- #define ACTION\_RECORD\_ACTION\_VENDOR\_OFFSET
- #define ACTION\_RECORD\_ACTION\_VENDOR\_LENGTH
- #define ZRC11\_MAX\_USER\_CONTROL\_COMMAND\_PAYLOAD\_LENGTH
- #define ZRC11\_MAX\_USER\_CONTROL\_COMMAND\_LENGTH
- #define ZRC11\_MAX\_RESPONSE\_WAIT\_TIME
- #define ZRC\_HEADER\_LENGTH
- #define ZRC\_HEADER\_FRAME\_CONTROL\_OFFSET
- #define ZRC\_HEADER\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK
- #define ZRC\_PAYLOAD\_OFFSET
- #define USER\_CONTROL\_PRESSED\_LENGTH
- #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_CODE\_OFFSET
- #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_PAYLOAD\_OFFSET
- #define USER\_CONTROL\_REPEATED\_1\_0\_LENGTH
- #define USER\_CONTROL\_REPEATED\_1\_1\_LENGTH
- #define USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET
- #define USER\_CONTROL\_REPEATED\_1\_1\_RC\_COMMAND\_PAYLOAD\_OFFSET
- #define USER\_CONTROL\_RELEASED\_1\_0\_LENGTH
- #define USER\_CONTROL\_RELEASED\_1\_1\_LENGTH
- #define USER\_CONTROL\_RELEASED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET
- #define COMMAND\_DISCOVERY\_REQUEST\_LENGTH
- #define COMMANDS\_SUPPORTED\_LENGTH
- #define COMMAND\_DISCOVERY\_RESPONSE\_LENGTH
- #define COMMAND\_DISCOVERY\_RESPONSE\_COMMANDS\_SUPPORTED\_OFFSET
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_ACTION\_MAPPING\_NEGOTIATION\_N
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_HA\_PULL
- #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_SELECTIVE\_ACTION\_MAPPING\_UPDATE
- #define CLIENT\_NOTIFICATION\_REQUEST\_ACTION\_MAPPING\_NEGOTIATION\_PAYLOAD\_LENGTH
- #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_PAYLOAD\_LENGTH
- #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_INSTANCE\_ID\_OFFSET
- #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_INSTANCE\_ID\_LENGTH
- #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_ATTRIBUTE\_DIRTY\_FLAGS\_OFFSET
- #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_ATTRIBUTE\_DIRTY\_FLAGS\_LENGTH
- #define CLIENT\_NOTIFICATION\_REQUEST\_SELECTIVE\_AM\_UPDATE\_INDEX\_LIST\_LENGTH\_OFFSET
- #define CLIENT\_NOTIFICATION\_REQUEST\_SELECTIVE\_AM\_UPDATE\_INDEX\_LIST\_LENGTH\_LENGTH
- #define CLIENT\_NOTIFICATION\_REQUEST\_SELECTIVE\_AM\_UPDATE\_INDEX\_LIST\_OFFSET
- #define ZRC\_STATE\_INITIAL

- #define ZRC\_STATE\_ORIGINATOR\_PUSH\_VERSION\_AND\_CAPABILITIES\_AND\_ACTION\_BANKS\_VERSION
- #define ZRC\_STATE\_ORIGINATOR\_GET\_VERSION\_AND\_CAPABILITIES\_AND\_ACTION\_BANKS\_VERSION
- #define ZRC\_STATE\_ORIGINATOR\_GET\_ACTION\_BANKS\_SUPPORTED\_RX
- #define ZRC\_STATE\_ORIGINATOR\_PUSH\_ACTION\_BANKS\_SUPPORTED\_TX
- #define ZRC\_STATE\_ORIGINATOR\_GET\_ACTION\_CODES\_SUPPORTED\_RX
- #define ZRC\_STATE\_ORIGINATOR\_PUSH\_ACTION\_CODES\_SUPPORTED\_TX
- #define ZRC\_STATE\_ORIGINATOR\_CONFIGURATION\_COMPLETE
- #define ZRC\_STATE\_RECIPIENT\_PUSH\_VERSION\_AND\_CAPABILITIES\_AND\_ACTION\_BANKS\_VERSION
- #define ZRC\_STATE\_RECIPIENT\_GET\_VERSION\_AND\_CAPABILITIES\_AND\_ACTION\_BANKS\_VERSION
- #define ZRC\_STATE\_RECIPIENT\_GET\_ACTION\_BANKS\_SUPPORTED\_RX
- #define ZRC\_STATE\_RECIPIENT\_PUSH\_ACTION\_BANKS\_SUPPORTED\_TX
- #define ZRC\_STATE\_RECIPIENT\_GET\_ACTION\_CODES\_SUPPORTED\_RX
- #define ZRC\_STATE\_RECIPIENT\_PUSH\_ACTION\_CODES\_SUPPORTED\_TX
- #define ZRC\_STATE\_RECIPIENT\_CONFIGURATION\_COMPLETE
- #define ZRC\_STATE\_AM\_CLIENT\_PUSHING\_IRDB\_VENDOR\_SUPPORT\_TO\_SERVER
- #define ZRC\_STATE\_AM\_CLIENT\_PUSHING\_MAPPABLE\_ACTIONS\_TO\_SERVER
- #define ZRC\_STATE\_AM\_CLIENT\_PULLING\_ACTION\_MAPPINGS\_FROM\_SERVER
- #define ZRC\_STATE\_HA\_ORIGINATOR\_PUSHING\_HA\_SUPPORTED\_TO\_RECIPIENT
- #define ZRC\_STATE\_HA\_ORIGINATOR\_PULLING\_HA\_ATTRIBUTE\_FROM\_RECIPIENT
- #define ZRC\_STATE\_HA\_ORIGINATOR\_PULLING\_HA\_ATTRIBUTES\_ON\_REQUEST\_FROM\_RECIPIENT
- #define isZrcStateBindingOriginator()
- #define isZrcStateBindingRecipient()
- #define isZrcStateActionMappingClient()
- #define isZrcStateHaActionsOriginator()
- #define ZRC\_INTERNAL\_FLAGS\_CAPABILITIES\_MASK
- #define ZRC\_INTERNAL\_FLAGS\_CAPABILITIES\_OFFSET
- #define printState(command)
- #define printStateWithStatus(command, status)
- #define printGetAttribute(attributeId)
- #define printPushAttribute(attributeId)
- #define emAfZrcSetState(newState)
- #define debugScriptCheck(reason)

## Functions

- void emAfRf4ceZrc20StartConfigurationOriginator (uint8\_t pairingIndex)
- void emAfRf4ceZrc20StartConfigurationRecipient (uint8\_t pairingIndex)
- void emAfRf4ceZrcClearActionBank (uint8\_t \*actionBanksSupported, EmberAfRf4ceZrcActionBank actionBank)
- bool emAfRf4ceZrcReadActionBank (const uint8\_t \*actionBanksSupported, EmberAfRf4ceZrcActionBank actionBank)
- void emAfRf4ceZrcSetActionBank (uint8\_t \*actionBanksSupported, EmberAfRf4ceZrcActionBank actionBank)
- bool emAfRf4ceZrcHasRemainingActionBanks (const uint8\_t \*actionBanksSupported)

- void [emAfRf4ceZrcGetExchangeableActionBanks](#) (const uint8\_t \*actionBanksSupportedTx, [EmberAfRf4ceZrcCapability](#) originatorCapabilities, const uint8\_t \*actionBanksSupportedRx, [EmberAfRf4ceZrcCapability](#) recipientCapabilities, uint8\_t \*actionBanksSupportedRxExchange, uint8\_t \*actionBanksSupportedTxExchange)
- uint8\_t \* [emAfRf4ceZrcGetActionCodesAttributePointer](#) (uint8\_t attrId, uint16\_t entryId, uint8\_t pairingIndex)
- void [emAfRf4ceZrc20IncomingMessage](#) (uint8\_t pairingIndex, uint16\_t vendorId, const uint8\_t \*message, uint8\_t messageLength)
- void [emAfRf4ceZrc20InitRecipient](#) (void)
- void [emAfRf4ceZrc20InitOriginator](#) (void)
- void [emAfRf4ceZrc20AttributesInit](#) (void)
- uint8\_t [emAfRf4ceZrc20GetPeerZrcVersion](#) (uint8\_t pairingIndex)
- void [emAfRf4ceZrcIncomingRequestActionMappingNegotiation](#) (void)
- void [emAfRf4ceZrcIncomingRequestSelectiveActionMappingUpdate](#) (const uint8\_t \*mappableActionsList, uint8\_t mappableActionsListLength)
- void [emAfRf4ceZrcIncomingRequestHomeAutomationPull](#) (uint8\_t haInstanceId, const uint8\_t \*haAttributeDirtyFlags)
- uint16\_t [emAfRf4ceZrcGetRemoteNodeFlags](#) (uint8\_t pairingIndex)
- void [emAfRf4ceZrcSetRemoteNodeFlags](#) (uint8\_t pairingIndex, uint16\_t flags)

## Variables

- uint8\_t [emAfZrcState](#)

### 8.322.1 Macro Definition Documentation

#### 8.322.1.1 #define APLC\_MAX\_CONFIG\_WAIT\_TIME\_MS

Definition at line 5 of file [rf4ce-zrc20-internal.h](#).

#### 8.322.1.2 #define APLC\_MAX\_RESPONSE\_WAIT\_TIME\_MS

Definition at line 9 of file [rf4ce-zrc20-internal.h](#).

#### 8.322.1.3 #define APLC\_MAX\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_MS

Definition at line 13 of file [rf4ce-zrc20-internal.h](#).

#### 8.322.1.4 #define APLC\_SHORT\_RETRY\_DURATION\_MS

Definition at line 16 of file [rf4ce-zrc20-internal.h](#).

#### 8.322.1.5 #define emAfRf4ceZrcClearActionCode

Definition at line 27 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.6 #define emAfRf4ceZrcReadActionCode**

Definition at line 28 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.7 #define emAfRf4ceZrcSetActionCode**

Definition at line 29 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.8 #define emAfRf4ceZrcExchangeActionBanks( *originatorCapabilities*, *recipientCapabilities* )**

Definition at line 31 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.9 #define ACTION\_CODES\_SUPPORTED\_RECORDS\_MAX**

Definition at line 50 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.10 #define ACTION\_TYPE\_MASK**

Definition at line 61 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.11 #define MODIFIER\_BITS\_MASK**

Definition at line 62 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.12 #define MODIFIER\_BITS\_SPECIAL\_MASK**

Definition at line 67 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.13 #define MODIFIER\_BITS\_SPECIAL\_MARK**

Definition at line 68 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.14 #define ZRC\_VERSION\_NONE**

Definition at line 70 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.15 #define ZRC\_VERSION\_1\_1**

Definition at line 71 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.16 #define ZRC\_VERSION\_2\_0**

Definition at line 72 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.17 #define ACTION\_RECORD\_ACTION\_CONTROL\_OFFSET**

Definition at line 77 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.18 #define ACTION\_RECORD\_ACTION\_CONTROL\_LENGTH**

Definition at line 78 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.19 #define ACTION\_RECORD\_ACTION\_CONTROL\_ACTION\_TYPE\_MASK**

Definition at line 79 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.20 #define ACTION\_RECORD\_ACTION\_CONTROL\_ACTION\_TYPE\_OFFSET**

Definition at line 80 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.21 #define ACTION\_RECORD\_ACTION\_CONTROL\_MODIFIER\_BITS\_MASK**

Definition at line 82 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.22 #define ACTION\_RECORD\_ACTION\_CONTROL\_MODIFIER\_BITS\_OFFSET**

Definition at line 83 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.23 #define ACTION\_RECORD\_ACTION\_PAYLOAD\_LENGTH\_OFFSET**

Definition at line 84 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.24 #define ACTION\_RECORD\_ACTION\_PAYLOAD\_LENGTH\_LENGTH**

Definition at line 85 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.25 #define ACTION\_RECORD\_ACTION\_BANK\_OFFSET**

Definition at line 86 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.26 #define ACTION\_RECORD\_ACTION\_BANK\_LENGTH**

Definition at line 87 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.27 #define ACTION\_RECORD\_ACTION\_CODE\_OFFSET**

Definition at line 88 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.28 #define ACTION\_RECORD\_ACTION\_CODE\_LENGTH**

Definition at line 89 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.29 #define ACTION\_RECORD\_ACTION\_VENDOR\_OFFSET**

Definition at line 90 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.30 #define ACTION\_RECORD\_ACTION\_VENDOR\_LENGTH**

Definition at line 91 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.31 #define ZRC11\_MAX\_USER\_CONTROL\_COMMAND\_PAYLOAD\_LENGTH**

Definition at line 94 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.32 #define ZRC11\_MAX\_USER\_CONTROL\_COMMAND\_LENGTH**

Definition at line 95 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.33 #define ZRC11\_MAX\_RESPONSE\_WAIT\_TIME**

Definition at line 96 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.34 #define ZRC\_HEADER\_LENGTH**

Definition at line 101 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.35 #define ZRC\_HEADER\_FRAME\_CONTROL\_OFFSET**

Definition at line 102 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.36 #define ZRC\_HEADER\_FRAME\_CONTROL\_COMMAND\_CODE\_MASK**

Definition at line 103 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.37 #define ZRC\_PAYLOAD\_OFFSET**

Definition at line 104 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.38 #define USER\_CONTROL\_PRESSED\_LENGTH**

Definition at line 109 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.39 #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_CODE\_OFFSET**

Definition at line 110 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.40 #define USER\_CONTROL\_PRESSED\_RC\_COMMAND\_PAYLOAD\_OFFSET**

Definition at line 111 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.41 #define USER\_CONTROL\_REPEAT\_1\_0\_LENGTH**

Definition at line 116 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.42 #define USER\_CONTROL\_REPEAT\_1\_1\_LENGTH**

Definition at line 117 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.43 #define USER\_CONTROL\_REPEAT\_1\_1\_RC\_COMMAND\_CODE\_OFFSET**

Definition at line 118 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.44 #define USER\_CONTROL\_REPEAT\_1\_1\_RC\_COMMAND\_PAYLOAD\_OFFSET**

Definition at line 119 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.45 #define USER\_CONTROL\_RELEASED\_1\_0\_LENGTH**

Definition at line 123 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.46 #define USER\_CONTROL\_RELEASED\_1\_1\_LENGTH**

Definition at line 124 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.47 #define USER\_CONTROL\_RELEASED\_1\_1\_RC\_COMMAND\_CODE\_OFFSET**

Definition at line 125 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.48 #define COMMAND\_DISCOVERY\_REQUEST\_LENGTH**

Definition at line 129 of file [rf4ce-zrc20-internal.h](#).

**8.322.1.49 #define COMMANDS\_SUPPORTED\_LENGTH**

Definition at line 134 of file [rf4ce-zrc20-internal.h](#).

8.322.1.50 #define COMMAND\_DISCOVERY\_RESPONSE\_LENGTH

Definition at line 135 of file [rf4ce-zrc20-internal.h](#).

8.322.1.51 #define COMMAND\_DISCOVERY\_RESPONSE\_COMMANDS\_SUPPORTED\_OFFSET

Definition at line 136 of file [rf4ce-zrc20-internal.h](#).

8.322.1.52 #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_ACTION\_MAPPING\_NEGOTIATION

Definition at line 139 of file [rf4ce-zrc20-internal.h](#).

8.322.1.53 #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_HA\_PULL

Definition at line 140 of file [rf4ce-zrc20-internal.h](#).

8.322.1.54 #define CLIENT\_NOTIFICATION\_SUBTYPE\_REQUEST\_SELECTIVE\_ACTION\_MAPPING\_UPDATE

Definition at line 141 of file [rf4ce-zrc20-internal.h](#).

8.322.1.55 #define CLIENT\_NOTIFICATION\_REQUEST\_ACTION\_MAPPING\_NEGOTIATION\_PAYLOAD\_LENGTH\_GTH

Definition at line 144 of file [rf4ce-zrc20-internal.h](#).

8.322.1.56 #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_PAYLOAD\_LENGTH

Definition at line 149 of file [rf4ce-zrc20-internal.h](#).

8.322.1.57 #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_INSTANCE\_ID\_OFFSET

Definition at line 150 of file [rf4ce-zrc20-internal.h](#).

8.322.1.58 #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_INSTANCE\_ID\_LENGTH

Definition at line 151 of file [rf4ce-zrc20-internal.h](#).

8.322.1.59 #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_ATTRIBUTE\_DIRTY\_FLAGS\_OFFSET

Definition at line 152 of file [rf4ce-zrc20-internal.h](#).

8.322.1.60 #define CLIENT\_NOTIFICATION\_REQUEST\_HA\_PULL\_HA\_ATTRIBUTE\_DIRTY\_FLAGS\_LENGTH

Definition at line 153 of file [rf4ce-zrc20-internal.h](#).

8.322.1.61 `#define CLIENT_NOTIFICATION_REQUEST_SELECTIVE_AM_UPDATE_INDEX_LIST_LENGTH_OF_FSET`

Definition at line 159 of file [rf4ce-zrc20-internal.h](#).

8.322.1.62 `#define CLIENT_NOTIFICATION_REQUEST_SELECTIVE_AM_UPDATE_INDEX_LIST_LENGTH_LENGTH`

Definition at line 160 of file [rf4ce-zrc20-internal.h](#).

8.322.1.63 `#define CLIENT_NOTIFICATION_REQUEST_SELECTIVE_AM_UPDATE_INDEX_LIST_OFFSET`

Definition at line 161 of file [rf4ce-zrc20-internal.h](#).

8.322.1.64 `#define ZRC_STATE_INITIAL`

Definition at line 171 of file [rf4ce-zrc20-internal.h](#).

8.322.1.65 `#define ZRC_STATE_ORIGINATOR_PUSH_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION`

Definition at line 172 of file [rf4ce-zrc20-internal.h](#).

8.322.1.66 `#define ZRC_STATE_ORIGINATOR_GET_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION`

Definition at line 173 of file [rf4ce-zrc20-internal.h](#).

8.322.1.67 `#define ZRC_STATE_ORIGINATOR_GET_ACTION_BANKS_SUPPORTED_RX`

Definition at line 174 of file [rf4ce-zrc20-internal.h](#).

8.322.1.68 `#define ZRC_STATE_ORIGINATOR_PUSH_ACTION_BANKS_SUPPORTED_TX`

Definition at line 175 of file [rf4ce-zrc20-internal.h](#).

8.322.1.69 `#define ZRC_STATE_ORIGINATOR_GET_ACTION_CODES_SUPPORTED_RX`

Definition at line 176 of file [rf4ce-zrc20-internal.h](#).

8.322.1.70 `#define ZRC_STATE_ORIGINATOR_PUSH_ACTION_CODES_SUPPORTED_TX`

Definition at line 177 of file [rf4ce-zrc20-internal.h](#).

8.322.1.71 `#define ZRC_STATE_ORIGINATOR_CONFIGURATION_COMPLETE`

Definition at line 178 of file [rf4ce-zrc20-internal.h](#).

8.322.1.72 #define ZRC\_STATE\_RECIPIENT\_PUSH\_VERSION\_AND\_CAPABILITIES\_AND\_ACTION\_BANKS\_VERSION

Definition at line 179 of file [rf4ce-zrc20-internal.h](#).

8.322.1.73 #define ZRC\_STATE\_RECIPIENT\_GET\_VERSION\_AND\_CAPABILITIES\_AND\_ACTION\_BANKS\_VERSION

Definition at line 180 of file [rf4ce-zrc20-internal.h](#).

8.322.1.74 #define ZRC\_STATE\_RECIPIENT\_GET\_ACTION\_BANKS\_SUPPORTED\_RX

Definition at line 181 of file [rf4ce-zrc20-internal.h](#).

8.322.1.75 #define ZRC\_STATE\_RECIPIENT\_PUSH\_ACTION\_BANKS\_SUPPORTED\_TX

Definition at line 182 of file [rf4ce-zrc20-internal.h](#).

8.322.1.76 #define ZRC\_STATE\_RECIPIENT\_GET\_ACTION\_CODES\_SUPPORTED\_RX

Definition at line 183 of file [rf4ce-zrc20-internal.h](#).

8.322.1.77 #define ZRC\_STATE\_RECIPIENT\_PUSH\_ACTION\_CODES\_SUPPORTED\_TX

Definition at line 184 of file [rf4ce-zrc20-internal.h](#).

8.322.1.78 #define ZRC\_STATE\_RECIPIENT\_CONFIGURATION\_COMPLETE

Definition at line 185 of file [rf4ce-zrc20-internal.h](#).

8.322.1.79 #define ZRC\_STATE\_AM\_CLIENT\_PUSHING\_IRDB\_VENDOR\_SUPPORT\_TO\_SERVER

Definition at line 186 of file [rf4ce-zrc20-internal.h](#).

8.322.1.80 #define ZRC\_STATE\_AM\_CLIENT\_PUSHING\_MAPPABLE\_ACTIONS\_TO\_SERVER

Definition at line 187 of file [rf4ce-zrc20-internal.h](#).

8.322.1.81 #define ZRC\_STATE\_AM\_CLIENT\_PULLING\_ACTION\_MAPPINGS\_FROM\_SERVER

Definition at line 188 of file [rf4ce-zrc20-internal.h](#).

8.322.1.82 #define ZRC\_STATE\_HA\_ORIGINATOR\_PUSHING\_HA\_SUPPORTED\_TO\_RECIPIENT

Definition at line 189 of file [rf4ce-zrc20-internal.h](#).

8.322.1.83 `#define ZRC_STATE_HA_ORIGINATOR_PULLING_HA_ATTRIBUTE_FROM_RECIPIENT`

Definition at line 190 of file [rf4ce-zrc20-internal.h](#).

8.322.1.84 `#define ZRC_STATE_HA_ORIGINATOR_PULLING_HA_ATTRIBUTES_ON_REQUEST_FROM_RECIPIENT`

Definition at line 191 of file [rf4ce-zrc20-internal.h](#).

8.322.1.85 `#define isZrcStateBindingOriginator( )`

Definition at line 195 of file [rf4ce-zrc20-internal.h](#).

8.322.1.86 `#define isZrcStateBindingRecipient( )`

Definition at line 199 of file [rf4ce-zrc20-internal.h](#).

8.322.1.87 `#define isZrcStateActionMappingClient( )`

Definition at line 203 of file [rf4ce-zrc20-internal.h](#).

8.322.1.88 `#define isZrcStateHaActionsOriginator( )`

Definition at line 207 of file [rf4ce-zrc20-internal.h](#).

8.322.1.89 `#define ZRC_INTERNAL_FLAGS_CAPABILITIES_MASK`

Definition at line 220 of file [rf4ce-zrc20-internal.h](#).

8.322.1.90 `#define ZRC_INTERNAL_FLAGS_CAPABILITIES_OFFSET`

Definition at line 221 of file [rf4ce-zrc20-internal.h](#).

8.322.1.91 `#define printState( command )`

Definition at line 229 of file [rf4ce-zrc20-internal.h](#).

8.322.1.92 `#define printStateWithStatus( command, status )`

Definition at line 230 of file [rf4ce-zrc20-internal.h](#).

8.322.1.93 `#define printGetAttribute( attributeld )`

Definition at line 231 of file [rf4ce-zrc20-internal.h](#).

8.322.1.94 #define printPushAttribute( *attributeld* )

Definition at line 232 of file [rf4ce-zrc20-internal.h](#).

8.322.1.95 #define emAfZrcSetState( *newState* )

Definition at line 233 of file [rf4ce-zrc20-internal.h](#).

8.322.1.96 #define debugScriptCheck( *reason* )

Definition at line 242 of file [rf4ce-zrc20-internal.h](#).

## 8.322.2 Function Documentation

8.322.2.1 void emAfRf4ceZrc20StartConfigurationOriginator ( uint8\_t *pairingIndex* )

8.322.2.2 void emAfRf4ceZrc20StartConfigurationRecipient ( uint8\_t *pairingIndex* )

8.322.2.3 void emAfRf4ceZrcClearActionBank ( uint8\_t \* *actionBanksSupported*, EmberAfRf4ceZrcActionBank *actionBank* )

8.322.2.4 bool emAfRf4ceZrcReadActionBank ( const uint8\_t \* *actionBanksSupported*, EmberAfRf4ceZrcActionBank *actionBank* )

8.322.2.5 void emAfRf4ceZrcSetActionBank ( uint8\_t \* *actionBanksSupported*, EmberAfRf4ceZrcActionBank *actionBank* )

8.322.2.6 bool emAfRf4ceZrcHasRemainingActionBanks ( const uint8\_t \* *actionBanksSupported* )

8.322.2.7 void emAfRf4ceZrcGetExchangeableActionBanks ( const uint8\_t \* *actionBanksSupportedTx*, EmberAfRf4ceZrcCapability *originatorCapabilities*, const uint8\_t \* *actionBanksSupportedRx*, EmberAfRf4ceZrcCapability *recipientCapabilities*, uint8\_t \* *actionBanksSupportedRxExchange*, uint8\_t \* *actionBanksSupportedTxExchange* )

8.322.2.8 uint8\_t\* emAfRf4ceZrcGetActionCodesAttributePointer ( uint8\_t *attrId*, uint16\_t *entryId*, uint8\_t *pairingIndex* )

8.322.2.9 void emAfRf4ceZrc20IncomingMessage ( uint8\_t *pairingIndex*, uint16\_t *vendorId*, const uint8\_t \* *message*, uint8\_t *messageLength* )

8.322.2.10 void emAfRf4ceZrc20InitRecipient ( void )

8.322.2.11 void emAfRf4ceZrc20InitOriginator ( void )

8.322.2.12 void emAfRf4ceZrc20AttributesInit ( void )

8.322.2.13 uint8\_t emAfRf4ceZrc20GetPeerZrcVersion ( uint8\_t *pairingIndex* )

8.322.2.14 void emAfRf4ceZrcIncomingRequestActionMappingNegotiation ( void )

- 8.322.2.15 void emAfRf4ceZrcIncomingRequestSelectiveActionMappingUpdate ( const uint8\_t \* *mappableActionsList*, uint8\_t *mappableActionsListLength* )
- 8.322.2.16 void emAfRf4ceZrcIncomingRequestHomeAutomationPull ( uint8\_t *haInstanceId*, const uint8\_t \* *haAttributeDirtyFlags* )
- 8.322.2.17 uint16\_t emAfRf4ceZrcGetRemoteNodeFlags ( uint8\_t *pairingIndex* )
- 8.322.2.18 void emAfRf4ceZrcSetRemoteNodeFlags ( uint8\_t *pairingIndex*, uint16\_t *flags* )

### 8.322.3 Variable Documentation

- 8.322.3.1 uint8\_t emAfZrcState

## 8.323 rf4ce-zrc20-internal.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 // The maximum time the Binding Recipient shall wait to receive a command frame
00004 // from a Binding Initiator during its configuration phase.
00005 #define APLC_MAX_CONFIG_WAIT_TIME_MS 100
00006
00007 // The maximum time a node shall wait for a response command frame following a
00008 // request command frame.
00009 #define APLC_MAX_RESPONSE_WAIT_TIME_MS 100
00010
00011 // The maximum time between consecutive actions command frame transmissions
00012 // indicating a repeated action.
00013 #define APLC_MAX_ACTION_REPEAT_TRIGGER_INTERVAL_MS 200
00014
00015 // The time that an action control record should be repeated, see Table 10.
00016 #define APLC_SHORT_RETRY_DURATION_MS 100
00017
00018 void emAfRf4ceZrc20StartConfigurationOriginator
    (uint8_t pairingIndex);
00019 void emAfRf4ceZrc20StartConfigurationRecipient
    (uint8_t pairingIndex);
00020
00021 void emAfRf4ceZrcClearActionBank(uint8_t *
    actionBanksSupported,
    EmberAfRf4ceZrcActionBank
    actionBank);
00022 bool emAfRf4ceZrcReadActionBank(const uint8_t *
    actionBanksSupported,
    EmberAfRf4ceZrcActionBank
    actionBank);
00023 void emAfRf4ceZrcSetActionBank(uint8_t *
    actionBanksSupported,
    EmberAfRf4ceZrcActionBank
    actionBank);
00024
00025 #define emAfRf4ceZrcClearActionCode emAfRf4ceZrcClearActionBank
00026 #define emAfRf4ceZrcReadActionCode emAfRf4ceZrcReadActionBank
00027 #define emAfRf4ceZrcSetActionCode emAfRf4ceZrcSetActionBank
00028
00029 bool emAfRf4ceZrcHasRemainingActionBanks(
    const uint8_t *actionBanksSupported);
00030
00031 #define emAfRf4ceZrcExchangeActionBanks(originatorCapabilities,
    recipientCapabilities)
00032                                     \
00033 ((originatorCapabilities) | (recipientCapabilities)) \
00034 & EMBER_AF_RF4CE_ZRC_CAPABILITY_INFORM_ABOUT_SUPPORTED_ACTIONS)
00035 void emAfRf4ceZrcGetExchangeableActionBanks
    (const uint8_t *actionBanksSupportedTx,
    EmberAfRf4ceZrcCapability
    originatorCapabilities,
    const uint8_t *
    actionBanksSupportedRx,
    EmberAfRf4ceZrcCapability
    recipientCapabilities,
    uint8_t *
    actionBanksSupportedRxExchange,
    uint8_t *
    actionBanksSupportedTxExchange);
00036
00037
00038
00039
00040

```

```

00041 uint8_t *emAfRf4ceZrcGetActionCodesAttributePointer
00042     (uint8_t attrId,
00043      uint16_t entryId,
00044      uint8_t pairingIndex);
00045
00046 // Each action codes supported record has a one-byte attribute id, two-byte
00047 // entry id, one-byte length, and 32-byte value. After accounting for the
00048 // overhead of attribute commands in general, there is only enough room in an
00049 // RF4CE data command for two records.
00050 #define ACTION_CODES_SUPPORTED_RECORDS_MAX 2
00051
00052 void emAfRf4ceZrc20IncomingMessage(uint8_t
00053     pairingIndex,
00054     uint16_t vendorId,
00055     const uint8_t *message,
00056     uint8_t messageLength);
00057
00058 void emAfRf4ceZrc20InitRecipient(void);
00059 void emAfRf4ceZrc20InitOriginator(void);
00060 void emAfRf4ceZrc20AttributesInit(void);
00061
00062 #define ACTION_TYPE_MASK 0x03
00063 #define MODIFIER_BITS_MASK 0xF0
00064
00065 // The action control field has the type in the lower nibble and the modifier
00066 // bits in the upper nibble. We store the type and modifiers separately, so
00067 // the lower nibble of modifiers is usable for bookkeeping purposes.
00068 #define MODIFIER_BITS_SPECIAL_MASK 0x0F
00069 #define MODIFIER_BITS_SPECIAL_MARK 0x01
00070
00071 #define ZRC_VERSION_NONE 0x00
00072 #define ZRC_VERSION_1_1 0x01
00073 #define ZRC_VERSION_2_0 0x02
00074
00075 uint8_t emAfRf4ceZrc20GetPeerZrcVersion(uint8_t
00076     pairingIndex);
00077
00078 // Action record related macros
00079 #define ACTION_RECORD_ACTION_CONTROL_OFFSET 0
00080 #define ACTION_RECORD_ACTION_CONTROL_LENGTH 1
00081 #define ACTION_RECORD_ACTION_CONTROL_ACTION_TYPE_MASK 0x03
00082 #define ACTION_RECORD_ACTION_CONTROL_ACTION_TYPE_OFFSET 0
00083 // Bits 2-3 are reserved
00084 #define ACTION_RECORD_ACTION_CONTROL_MODIFIER_BITS_MASK 0xF0
00085 #define ACTION_RECORD_ACTION_CONTROL_MODIFIER_BITS_OFFSET 4
00086 #define ACTION_RECORD_ACTION_PAYLOAD_LENGTH_OFFSET 1
00087 #define ACTION_RECORD_ACTION_PAYLOAD_LENGTH_LENGTH 1
00088 #define ACTION_RECORD_ACTION_BANK_OFFSET 2
00089 #define ACTION_RECORD_ACTION_BANK_LENGTH 1
00090 #define ACTION_RECORD_ACTION_CODE_OFFSET 3
00091 #define ACTION_RECORD_ACTION_CODE_LENGTH 1
00092 #define ACTION_RECORD_ACTION_VENDOR_OFFSET 4
00093 #define ACTION_RECORD_ACTION_VENDOR_LENGTH 2
00094
00095 // ZRC 1.1 misc defines
00096 #define ZRC11_MAX_USER_CONTROL_COMMAND_PAYLOAD_LENGTH 4
00097 #define ZRC11_MAX_USER_CONTROL_COMMAND_LENGTH (2 +
00098     ZRC11_MAX_USER_CONTROL_COMMAND_PAYLOAD_LENGTH)
00099 #define ZRC11_MAX_RESPONSE_WAIT_TIME
00100
00101 // ZRC header
00102 // - Frame control (1 byte)
00103 #define ZRC_HEADER_LENGTH 1
00104 #define ZRC_HEADER_FRAME_CONTROL_OFFSET 0
00105 #define ZRC_HEADER_FRAME_CONTROL_COMMAND_CODE_MASK 0x0F
00106 #define ZRC_PAYLOAD_OFFSET (ZRC_HEADER_LENGTH)
00107
00108 // - RC command code (1 byte)
00109 #define USER_CONTROL_PRESSED_LENGTH (ZRC_HEADER_LENGTH + 1)
00110 #define USER_CONTROL_PRESSED_RC_COMMAND_CODE_OFFSET (ZRC_PAYLOAD_OFFSET)
00111 #define USER_CONTROL_PRESSED_RC_COMMAND_PAYLOAD_OFFSET (ZRC_PAYLOAD_OFFSET + 1)
00112
00113 // User Control Repeated
00114 // - RC command code (1 byte, 1.1 only)
00115 // - RC command payload (n bytes, 1.1 only)
00116 #define USER_CONTROL_REPEATED_1_0_LENGTH (ZRC_HEADER_LENGTH)

```

```

00117 #define USER_CONTROL_REPEATED_1_1_LENGTH (ZRC_HEADER_LENGTH + 1)
00118 #define USER_CONTROL_REPEATED_1_1_RC_COMMAND_CODE_OFFSET
    (ZRC_PAYLOAD_OFFSET)
00119 #define USER_CONTROL_REPEATED_1_1_RC_COMMAND_PAYLOAD_OFFSET (ZRC_PAYLOAD_OFFSET
    + 1)
00120
00121 // User Control Released
00122 // - RC command code (1 byte, 1.1 only)
00123 #define USER_CONTROL_RELEASED_1_0_LENGTH (ZRC_HEADER_LENGTH)
00124 #define USER_CONTROL_RELEASED_1_1_LENGTH (ZRC_HEADER_LENGTH + 1)
00125 #define USER_CONTROL_RELEASED_1_1_RC_COMMAND_CODE_OFFSET (ZRC_PAYLOAD_OFFSET)
00126
00127 // Command Discovery Request
00128 // - Reserved (1 byte)
00129 #define COMMAND_DISCOVERY_REQUEST_LENGTH (ZRC_HEADER_LENGTH + 1)
00130
00131 // Command Discovery Response
00132 // - Reserved (1 byte)
00133 // - Commands supported (32 bytes)
00134 #define COMMANDS_SUPPORTED_LENGTH 32
00135 #define COMMAND_DISCOVERY_RESPONSE_LENGTH (ZRC_HEADER_LENGTH + 1 +
    COMMANDS_SUPPORTED_LENGTH)
00136 #define COMMAND_DISCOVERY_RESPONSE_COMMANDS_SUPPORTED_OFFSET
    (ZRC_PAYLOAD_OFFSET + 1)
00137
00138 // Client Notification sub-types
00139 #define CLIENT_NOTIFICATION_SUBTYPE_REQUEST_ACTION_MAPPING_NEGOTIATION
    0x40
00140 #define CLIENT_NOTIFICATION_SUBTYPE_REQUEST_HA_PULL
    0x41
00141 #define CLIENT_NOTIFICATION_SUBTYPE_REQUEST_SELECTIVE_ACTION_MAPPING_UPDATE
    0x42
00142
00143 // Client Notification - Request Action Mapping Negotiation (no payload)
00144 #define CLIENT_NOTIFICATION_REQUEST_ACTION_MAPPING_NEGOTIATION_PAYLOAD_LENGTH
    0
00145
00146 // Client Notification - Request Home Automation Pull
00147 // - HA instance ID (1 byte)
00148 // - HA Attribute Dirty Flags (32 bytes)
00149 #define CLIENT_NOTIFICATION_REQUEST_HA_PULL_PAYLOAD_LENGTH
    33
00150 #define CLIENT_NOTIFICATION_REQUEST_HA_PULL_HA_INSTANCE_ID_OFFSET
    0
00151 #define CLIENT_NOTIFICATION_REQUEST_HA_PULL_HA_INSTANCE_ID_LENGTH
    1
00152 #define CLIENT_NOTIFICATION_REQUEST_HA_PULL_HA_ATTRIBUTE_DIRTY_FLAGS_OFFSET
    1
00153 #define CLIENT_NOTIFICATION_REQUEST_HA_PULL_HA_ATTRIBUTE_DIRTY_FLAGS_LENGTH
    32
00154
00155 // Client Notification - Request Selective Action Mapping Update
00156 // - Indices for Action Mapping Client to inform Action Mapping Server about
00157 // - Mappable Action Index List Length (1 byte)
00158 // - Mappable Action Index (2 bytes)*(List Length)
00159 #define
    CLIENT_NOTIFICATION_REQUEST_SELECTIVE_AM_UPDATE_INDEX_LIST_OFFSET 0
00160 #define
    CLIENT_NOTIFICATION_REQUEST_SELECTIVE_AM_UPDATE_INDEX_LIST_LENGTH 1
00161 #define CLIENT_NOTIFICATION_REQUEST_SELECTIVE_AM_UPDATE_INDEX_LIST_OFFSET
    1
00162
00163 void emAfRf4ceZrcIncomingRequestActionMappingNegotiation
    (void);
00164 void emAfRf4ceZrcIncomingRequestSelectiveActionMappingUpdate
    (const uint8_t *mappableActionsList,
00165                                     uint8_t
    mappableActionsListLength);
00166 void emAfRf4ceZrcIncomingRequestHomeAutomationPull
    (uint8_t haInstanceId,
00167                                     const uint8_t *
    haAttributeDirtyFlags);
00168
00169
00170 // Internal state machine states
00171 #define ZRC_STATE_INITIAL
    0x00
00172 #define
    ZRC_STATE_ORIGINATOR_PUSH_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION 0x01
00173 #define

```

```

    ZRC_STATE_ORIGINATOR_GET_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION      0x02
00174 #define ZRC_STATE_ORIGINATOR_GET_ACTION_BANKS_SUPPORTED_RX
          0x03
00175 #define ZRC_STATE_ORIGINATOR_PUSH_ACTION_BANKS_SUPPORTED_TX
          0x04
00176 #define ZRC_STATE_ORIGINATOR_GET_ACTION_CODES_SUPPORTED_RX
          0x05
00177 #define ZRC_STATE_ORIGINATOR_PUSH_ACTION_CODES_SUPPORTED_TX
          0x06
00178 #define ZRC_STATE_ORIGINATOR_CONFIGURATION_COMPLETE
          0x07
00179 #define
          ZRC_STATE_RECIPIENT_PUSH_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION      0x08
00180 #define
          ZRC_STATE_RECIPIENT_GET_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION      0x09
00181 #define ZRC_STATE_RECIPIENT_GET_ACTION_BANKS_SUPPORTED_RX
          0x0A
00182 #define ZRC_STATE_RECIPIENT_PUSH_ACTION_BANKS_SUPPORTED_TX
          0x0B
00183 #define ZRC_STATE_RECIPIENT_GET_ACTION_CODES_SUPPORTED_RX
          0x0C
00184 #define ZRC_STATE_RECIPIENT_PUSH_ACTION_CODES_SUPPORTED_TX
          0x0D
00185 #define ZRC_STATE_RECIPIENT_CONFIGURATION_COMPLETE
          0x0E
00186 #define ZRC_STATE_AM_CLIENT_PUSHING_IRDB_VENDOR_SUPPORT_TO_SERVER
          0x10
00187 #define ZRC_STATE_AM_CLIENT_PUSHING_MAPPABLE_ACTIONS_TO_SERVER
          0x20
00188 #define ZRC_STATE_AM_CLIENT_PULLING_ACTION_MAPPINGS_FROM_SERVER
          0x30
00189 #define ZRC_STATE_HA_ORIGINATOR_PUSHING_HA_SUPPORTED_TO_RECIPIENT
          0x40
00190 #define ZRC_STATE_HA_ORIGINATOR_PULLING_HA_ATTRIBUTE_FROM_RECIPIENT
          0x50
00191 #define ZRC_STATE_HA_ORIGINATOR_PULLING_HA_ATTRIBUTES_ON_REQUEST_FROM_RECIPIENT
          0x60
00192
00193 extern uint8_t emAfZrcState;
00194
00195 #define isZrcStateBindingOriginator()
  \
00196   (emAfZrcState >=
    ZRC_STATE_ORIGINATOR_PUSH_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION \
00197   && emAfZrcState <= ZRC_STATE_ORIGINATOR_CONFIGURATION_COMPLETE)
00198
00199 #define isZrcStateBindingRecipient()
  \
00200   (emAfZrcState >=
    ZRC_STATE_RECIPIENT_PUSH_VERSION_AND_CAPABILITIES_AND_ACTION_BANKS_VERSION \
00201   && emAfZrcState <= ZRC_STATE_RECIPIENT_CONFIGURATION_COMPLETE)
00202
00203 #define isZrcStateActionMappingClient()
  \
00204   (emAfZrcState >= ZRC_STATE_AM_CLIENT_PUSHING_IRDB_VENDOR_SUPPORT_TO_SERVER
  \
00205   && emAfZrcState <= ZRC_STATE_AM_CLIENT_PULLING_ACTION_MAPPINGS_FROM_SERVER)
00206
00207 #define isZrcStateHaActionsOriginator()
  \
00208   (emAfZrcState >= ZRC_STATE_HA_ORIGINATOR_PUSHING_HA_SUPPORTED_TO_RECIPIENT
  \
00209   && emAfZrcState <=
    ZRC_STATE_HA_ORIGINATOR_PULLING_HA_ATTRIBUTES_ON_REQUEST_FROM_RECIPIENT)
00210
00211 // We provide two implementations of these: one that stores the capabilities in
00212 // RAM (for HOST processors) and one that stores the capabilities in NVM (for
00213 // the SoC).
00214 uint16_t emAfRf4ceZrcGetRemoteNodeFlags(uint8_t
pairingIndex);
00215 void emAfRf4ceZrcSetRemoteNodeFlags(uint8_t
pairingIndex,
00216                                     uint16_t flags);
00217
00218 // First byte stores the remote nodes ZRC capabilities (only the first byte of
00219 // the ZRC capabilities is used in the 2.0 version).
00220 #define ZRC_INTERNAL_FLAGS_CAPABILITIES_MASK      0x00FF
00221 #define ZRC_INTERNAL_FLAGS_CAPABILITIES_OFFSET     0
00222
00223 // #define EMBER_AF_PLUGIN_RF4CE_ZRC20_DEBUG_BINDING

```

```

00224 #if defined(EMBER_AF_PLUGIN_RF4CE_ZRC20_DEBUG_BINDING)
00225     #define emAfZrcSetState(newState) reallySetState((newState), __LINE__)
00226     #define printGetAttribute(attributeId) printAttribute(attributeId, "GET")
00227     #define printPushAttribute(attributeId) printAttribute(attributeId, "PUSH")
00228 #else
00229     #define printState(command)
00230     #define printStateWithStatus(command, status)
00231     #define printGetAttribute(attributeId)
00232     #define printPushAttribute(attributeId)
00233     #define emAfZrcSetState(newState) (emAfZrcState = (newState))
00234 #endif // EMBER_AF_PLUGIN_RF4CE_ZRC20_DEBUG_BINDING
00235
00236 #if defined(EMBER_SCRIPTED_TEST)
00237 #include "core/scripted-stub.h"
00238
00239 #define debugScriptCheck(reason)
00240     \
00241     simpleScriptCheck("scriptCheck", "scriptCheck: " reason, "")
00241 #else
00242 #define debugScriptCheck(reason)
00243 #endif // EMBER_SCRIPTED_TEST

```

## 8.324 rf4ce-zrc20-test.h File Reference

```

#include "../rf4ce-profile/rf4ce-profile-types.h"
#include "../rf4ce-gdp/rf4ce-gdp-types.h"
#include "rf4ce-zrc20-types.h"

```

### Macros

- #define EMBER\_AF\_RF4CE\_NODE\_TYPE\_TARGET
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_REPEAT\_TRIGGER\_INTERVAL\_MS
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_REPEAT\_WAIT\_TIME\_MS
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANKS\_RX
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANKS\_TX
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_CODES\_RX\_COUNT
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_CODES\_RX
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_CODES\_TX\_COUNT
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_CODES\_TX
- #define EMBER\_AF\_RF4CE\_ZRC\_IRDB\_VENDOR\_IDS
- #define EMBER\_AF\_RF4CE\_ZRC\_IRDB\_VENDOR\_ID\_COUNT
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_REMOTE\_IRDB\_VENDORS\_SUPPORTED\_TABLE\_SIZE
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_REMOTE\_ACTION\_CODES\_TABLE\_SIZE
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_MAPPABLE\_ACTIONS\_TABLE\_SIZE
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_ACTION\_MAPPINGS\_HEAP\_SIZE
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_ACTION\_REMOTE\_TABLE\_SIZE
- #define EMBER\_AF\_RF4CE\_ZRC\_MAPPABLE\_ACTIONS
- #define EMBER\_AF\_RF4CE\_ZRC\_MAPPABLE\_ACTION\_COUNT
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_ACTION\_MAPPING\_HEAP\_SIZE
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_BANKS\_VERSION

- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_MAX\_INCOMING\_ACTION\_RECORDS
- #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_MAX\_OUTGOING\_ACTION\_RECORDS

## Functions

- void `emberAfPluginRf4ceZrc20LegacyCommandDiscoveryCompleteCallback` (EmberStatus status, const EmberAfRf4ceZrcCommandsSupported \*commandsSupported)
- void `emberAfPluginRf4ceZrc20ActionCallback` (const EmberAfRf4ceZrcActionRecord \*record)
- void `emberAfPluginRf4ceZrc20HaActionCallback` (const EmberAfRf4ceZrcActionRecord \*record)
- bool `emberAfPluginRf4ceProfileGdpDiscoveryRequestCallback` (const EmberEUI64 ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType, uint8\_t rxLinkQuality)
- bool `emberAfPluginRf4ceProfileGdpDiscoveryResponseCallback` (bool atCapacity, uint8\_t channel, EmberPanId panId, const EmberEUI64 ieeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t rxLinkQuality, uint8\_t discRequestLqi)
- void `emberAfPluginRf4ceProfileGdpDiscoveryCompleteCallback` (EmberStatus status)
- void `emberAfPluginRf4ceProfileGdpAutoDiscoveryResponseCompleteCallback` (EmberStatus status, const EmberEUI64 srcIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t searchDevType)
- bool `emberAfPluginRf4ceProfileGdpPairRequestCallback` (EmberStatus status, uint8\_t pairingIndex, const EmberEUI64 sourceIeeeAddr, uint8\_t nodeCapabilities, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo, uint8\_t keyExchangeTransferCount)
- void `emberAfPluginRf4ceProfileGdpPairCompleteCallback` (EmberStatus status, uint8\_t pairingIndex, const EmberRf4ceVendorInfo \*vendorInfo, const EmberRf4ceApplicationInfo \*appInfo)
- void `emberAfPluginRf4ceGdpZrc20BindingCompleteCallback` (EmberAfRf4ceGdpBindingStatus status, uint8\_t pairingIndex)
- void `emberAfPluginRf4ceZrc20ActionMappingsNegotiationCompleteCallback` (EmberStatus status)
- void `emberAfPluginRf4ceZrc20IncomingMappableActionCallback` (uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcMappableAction \*mappableAction)
- uint16\_t `emberAfPluginRf4ceZrc20GetMappableActionCountCallback` (uint8\_t pairingIndex)
- EmberStatus `emberAfPluginRf4ceZrc20GetMappableActionCallback` (uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcMappableAction \*mappableAction)
- void `emberAfPluginRf4ceZrc20IncomingActionMappingCallback` (uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcActionMapping \*actionMapping)
- EmberStatus `emberAfPluginRf4ceZrc20GetActionMappingCallback` (uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcActionMapping \*actionMapping)
- void `emberAfPluginRf4ceZrc20HomeAutomationSupportedAnnouncementCompleteCallback` (EmberStatus status)
- void `emberAfPluginRf4ceZrc20IncomingHomeAutomationSupportedCallback` (uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcHomeAutomationSupported \*haSupported)
- EmberStatus `emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCallback` (uint8\_t pairingIndex, uint16\_t entryIndex, EmberAfRf4ceZrcHomeAutomationSupported \*haSupported)
- uint16\_t `emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCountCallback` (uint8\_t pairingIndex)
- EmberAfRf4ceGdpAttributeStatus `emberAfPluginRf4ceZrc20GetHomeAutomationAttributeCallback` (uint8\_t pairingIndex, uint8\_t haInstanceId, uint8\_t haAttributeId, EmberAfRf4ceZrcHomeAutomationAttribute \*haAttribute)
- void `emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback` (EmberAfRf4ceGdpAttributeStatus responseStatus, EmberAfRf4ceZrcHomeAutomationAttribute \*haAttribute)

### 8.324.1 Macro Definition Documentation

8.324.1.1 `#define EMBER_AF_RF4CE_NODE_TYPE_TARGET`

Definition at line 7 of file [rf4ce-zrc20-test.h](#).

8.324.1.2 `#define EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_REPEAT_TRIGGER_INTERVAL_MS`

Definition at line 9 of file [rf4ce-zrc20-test.h](#).

8.324.1.3 `#define EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_REPEAT_WAIT_TIME_MS`

Definition at line 10 of file [rf4ce-zrc20-test.h](#).

8.324.1.4 `#define EMBER_AF_RF4CE_ZRC_ACTION_BANKS_RX`

Definition at line 12 of file [rf4ce-zrc20-test.h](#).

8.324.1.5 `#define EMBER_AF_RF4CE_ZRC_ACTION_BANKS_TX`

Definition at line 17 of file [rf4ce-zrc20-test.h](#).

8.324.1.6 `#define EMBER_AF_RF4CE_ZRC_ACTION_CODES_RX_COUNT`

Definition at line 23 of file [rf4ce-zrc20-test.h](#).

8.324.1.7 `#define EMBER_AF_RF4CE_ZRC_ACTION_CODES_RX`

Definition at line 24 of file [rf4ce-zrc20-test.h](#).

8.324.1.8 `#define EMBER_AF_RF4CE_ZRC_ACTION_CODES_TX_COUNT`

Definition at line 34 of file [rf4ce-zrc20-test.h](#).

8.324.1.9 `#define EMBER_AF_RF4CE_ZRC_ACTION_CODES_TX`

Definition at line 35 of file [rf4ce-zrc20-test.h](#).

8.324.1.10 `#define EMBER_AF_RF4CE_ZRC_IRDB_VENDOR_IDS`

Definition at line 45 of file [rf4ce-zrc20-test.h](#).

8.324.1.11 `#define EMBER_AF_RF4CE_ZRC_IRDB_VENDOR_ID_COUNT`

Definition at line 46 of file [rf4ce-zrc20-test.h](#).

8.324.1.12 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_REMOTE\_IRDB\_VENDORS\_SUPPORTED\_TABLE\_SIZE

Definition at line 48 of file [rf4ce-zrc20-test.h](#).

8.324.1.13 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_REMOTE\_ACTION\_CODES\_TABLE\_SIZE

Definition at line 50 of file [rf4ce-zrc20-test.h](#).

8.324.1.14 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_MAPPABLE\_ACTIONS\_TABLE\_SIZE

Definition at line 52 of file [rf4ce-zrc20-test.h](#).

8.324.1.15 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_ACTION\_MAPPINGS\_HEAP\_SIZE

Definition at line 53 of file [rf4ce-zrc20-test.h](#).

8.324.1.16 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_SERVER\_ACTION\_REMAP\_TABLE\_SIZE

Definition at line 54 of file [rf4ce-zrc20-test.h](#).

8.324.1.17 #define EMBER\_AF\_RF4CE\_ZRC\_MAPPABLE\_ACTIONS

Definition at line 56 of file [rf4ce-zrc20-test.h](#).

8.324.1.18 #define EMBER\_AF\_RF4CE\_ZRC\_MAPPABLE\_ACTION\_COUNT

Definition at line 74 of file [rf4ce-zrc20-test.h](#).

8.324.1.19 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_MAPPING\_CLIENT\_ACTION\_MAPPING\_HEAP\_SIZE

Definition at line 76 of file [rf4ce-zrc20-test.h](#).

8.324.1.20 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_ACTION\_BANKS\_VERSION

Definition at line 78 of file [rf4ce-zrc20-test.h](#).

8.324.1.21 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_MAX\_INCOMING\_ACTION\_RECORDS

Definition at line 80 of file [rf4ce-zrc20-test.h](#).

8.324.1.22 #define EMBER\_AF\_PLUGIN\_RF4CE\_ZRC20\_MAX\_OUTGOING\_ACTION\_RECORDS

Definition at line 81 of file [rf4ce-zrc20-test.h](#).

## 8.324.2 Function Documentation

- 8.324.2.1 void emberAfPluginRf4ceZrc20LegacyCommandDiscoveryCompleteCallback ( EmberStatus *status*, const EmberAfRf4ceZrcCommandsSupported \* *commandsSupported* )
- 8.324.2.2 void emberAfPluginRf4ceZrc20ActionCallback ( const EmberAfRf4ceZrcActionRecord \* *record* )
- 8.324.2.3 void emberAfPluginRf4ceZrc20HaActionCallback ( const EmberAfRf4ceZrcActionRecord \* *record* )
- 8.324.2.4 bool emberAfPluginRf4ceProfileGdpDiscoveryRequestCallback ( const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *searchDevType*, uint8\_t *rxLinkQuality* )
- 8.324.2.5 bool emberAfPluginRf4ceProfileGdpDiscoveryResponseCallback ( bool *atCapacity*, uint8\_t *channel*, EmberPanId *panId*, const EmberEUI64 *ieeeAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *rxLinkQuality*, uint8\_t *discRequestLqi* )
- 8.324.2.6 void emberAfPluginRf4ceProfileGdpDiscoveryCompleteCallback ( EmberStatus *status* )
- 8.324.2.7 void emberAfPluginRf4ceProfileGdpAutoDiscoveryResponseCompleteCallback ( EmberStatus *status*, const EmberEUI64 *srcIEEEAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *searchDevType* )
- 8.324.2.8 bool emberAfPluginRf4ceProfileGdpPairRequestCallback ( EmberStatus *status*, uint8\_t *pairingIndex*, const EmberEUI64 *sourceIEEEAddr*, uint8\_t *nodeCapabilities*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo*, uint8\_t *keyExchangeTransferCount* )
- 8.324.2.9 void emberAfPluginRf4ceProfileGdpPairCompleteCallback ( EmberStatus *status*, uint8\_t *pairingIndex*, const EmberRf4ceVendorInfo \* *vendorInfo*, const EmberRf4ceApplicationInfo \* *appInfo* )
- 8.324.2.10 void emberAfPluginRf4ceGdpZrc20BindingCompleteCallback ( EmberAfRf4ceGdpBindingStatus *status*, uint8\_t *pairingIndex* )
- 8.324.2.11 void emberAfPluginRf4ceZrc20ActionMappingsNegotiationCompleteCallback ( EmberStatus *status* )
- 8.324.2.12 void emberAfPluginRf4ceZrc20IncomingMappableActionCallback ( uint8\_t *pairingIndex*, uint16\_t *entryIndex*, EmberAfRf4ceZrcMappableAction \* *mappableAction* )
- 8.324.2.13 uint16\_t emberAfPluginRf4ceZrc20GetMappableActionCountCallback ( uint8\_t *pairingIndex* )

- 8.324.2.14 EmberStatus emberAfPluginRf4ceZrc20GetMappableActionCallback ( uint8\_t *pairingIndex*, uint16\_t *entryIndex*, EmberAfRf4ceZrcMappableAction \* *mappableAction* )
- 8.324.2.15 void emberAfPluginRf4ceZrc20IncomingActionMappingCallback ( uint8\_t *pairingIndex*, uint16\_t *entryIndex*, EmberAfRf4ceZrcActionMapping \* *actionMapping* )
- 8.324.2.16 EmberStatus emberAfPluginRf4ceZrc20GetActionMappingCallback ( uint8\_t *pairingIndex*, uint16\_t *entryIndex*, EmberAfRf4ceZrcActionMapping \* *actionMapping* )
- 8.324.2.17 void emberAfPluginRf4ceZrc20HomeAutomationSupportedAnnouncementCompleteCallback ( EmberStatus *status* )
- 8.324.2.18 void emberAfPluginRf4ceZrc20IncomingHomeAutomationSupportedCallback ( uint8\_t *pairingIndex*, uint16\_t *entryIndex*, EmberAfRf4ceZrcHomeAutomationSupported \* *haSupported* )
- 8.324.2.19 EmberStatus emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCallback ( uint8\_t *pairingIndex*, uint16\_t *entryIndex*, EmberAfRf4ceZrcHomeAutomationSupported \* *haSupported* )
- 8.324.2.20 uint16\_t emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCountCallback ( uint8\_t *pairingIndex* )
- 8.324.2.21 EmberAfRf4ceGdpAttributeStatus emberAfPluginRf4ceZrc20GetHomeAutomationAttributeCallback ( uint8\_t *pairingIndex*, uint8\_t *halInstanceld*, uint8\_t *haAttributeld*, EmberAfRf4ceZrcHomeAutomationAttribute \* *haAttribute* )
- 8.324.2.22 void emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback ( EmberAfRf4ceGdpAttributeStatus *responseStatus*, EmberAfRf4ceZrcHomeAutomationAttribute \* *haAttribute* )

## 8.325 rf4ce-zrc20-test.h

```

00001 // defines that are generated by app framework.
00002
00003 #include "../rf4ce-profile/rf4ce-profile-types.h"
00004 #include "../rf4ce-gdp/rf4ce-gdp-types.h"
00005 #include "rf4ce-zrc20-types.h"
00006
00007 #define EMBER_AF_RF4CE_NODE_TYPE_TARGET
00008
00009 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_REPEAT_TRIGGER_INTERVAL_MS      100
00010 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_REPEAT_WAIT_TIME_MS              200
00011
00012 #define EMBER_AF_RF4CE_ZRC_ACTION_BANKS_RX
00013 {0x81, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00014   0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00015   0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00016   0x00, 0x00, 0x00, 0x00, 0x00, 0x00}
00017 #define EMBER_AF_RF4CE_ZRC_ACTION_BANKS_TX
00018 {0x81, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00019   0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00020   0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00021   0x00, 0x00, 0x00, 0x00, 0x00, 0x00}
```

```

00022
00023 #define EMBER_AF_RF4CE_ZRC_ACTION_CODES_RX_COUNT           2
00024 #define EMBER_AF_RF4CE_ZRC_ACTION_CODES_RX
00025 \
00026     {true, 0, {0x0F, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00027         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00028         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00},
00029     {true, 7, {0x0F, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00030         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00031         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00032         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00}}}
00033
00034 #define EMBER_AF_RF4CE_ZRC_ACTION_CODES_TX_COUNT           2
00035 #define EMBER_AF_RF4CE_ZRC_ACTION_CODES_TX
00036 \
00037     {true, 0, {0x0F, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00038         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00039         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00},
00040     {true, 7, {0x0F, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00041         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00042         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
00043         0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00}}}
00044
00045 #define EMBER_AF_RF4CE_ZRC_IRDB_VENDOR_IDS          {0x1234, 0x5678}
00046 #define EMBER_AF_RF4CE_ZRC_IRDB_VENDOR_ID_COUNT      2
00047
00048 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_REMOTE_IRDB_VENDORS_SUPPORTED_TABLE_SIZE
00049      5
00050 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_REMOTE_ACTION_CODES_TABLE_SIZE
00051      3
00052 #define
00053     EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SERVER_MAPPABLE_ACTIONS_TABLE_SIZE 5
00054 #define
00055     EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SERVER_ACTION_MAPPINGS_HEAP_SIZE 128
00056 #define
00057     EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SERVER_ACTION_REMAP_TABLE_SIZE 8
00058
00059 #define EMBER_AF_RF4CE_ZRC_MAPPABLE_ACTIONS { \
00060     {0x00, 0x00, 0x00}, \
00061     {0x00, 0x00, 0x01}, \
00062     {0x00, 0x00, 0x02}, \
00063     {0x00, 0x00, 0x03}, \
00064     {0x00, 0x00, 0x04}, \
00065     {0x00, 0x00, 0x05}, \
00066     {0x00, 0x00, 0x06}, \
00067     {0x00, 0x00, 0x07}, \
00068     {0x00, 0x00, 0x08}, \
00069     {0x00, 0x00, 0x09}, \
00070     {0x00, 0x00, 0x0A}, \
00071     {0x00, 0x00, 0x0B}, \
00072     {0x00, 0x00, 0x0C}, \
00073     {0x00, 0x00, 0x0D}, \
00074     {0x00, 0x00, 0x0E}, \
00075     {0x00, 0x00, 0x0F}, \
00076 }
00077 #define EMBER_AF_RF4CE_ZRC_MAPPABLE_ACTION_COUNT 16
00078 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_CLIENT_ACTION_MAPPING_HEAP_SIZE 1024
00079 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_BANKS_VERSION
00080     APL_ZRC_ACTION_BANKS_VERSION_DEFAULT

```

```

00079
00080 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_MAX_INCOMING_ACTION_RECORDS 10
00081 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_MAX_OUTGOING_ACTION_RECORDS 5
00082
00083 void emberAfPluginRf4ceZrc20LegacyCommandDiscoveryCompleteCallback
00084     (EmberStatus status,
00085      const EmberAfRf4ceZrcCommandsSupported *
00086      commandsSupported);
00087
00088 void emberAfPluginRf4ceZrc20ActionCallback
00089     (const EmberAfRf4ceZrcActionRecord *record);
00090
00091 void emberAfPluginRf4ceZrc20HaActionCallback
00092     (const EmberAfRf4ceZrcActionRecord *record);
00093
00094 bool emberAfPluginRf4ceProfileGdpDiscoveryRequestCallback
00095     (const EmberEUI64 ieeeAddr,
00096      uint8_t
00097      nodeCapabilities,
00098      const EmberRf4ceVendorInfo * vendorInfo,
00099      const EmberRf4ceApplicationInfo * appInfo,
00100      uint8_t
00101      searchDevType,
00102      uint8_t
00103      rxLinkQuality);
00104
00105 bool emberAfPluginRf4ceProfileGdpDiscoveryResponseCallback
00106     (bool atCapacity,
00107      uint8_t channel,
00108      EmberPanId
00109      panId,
00110      const EmberEUI64
00111      ieeeAddr,
00112      uint8_t
00113      nodeCapabilities,
00114      const EmberRf4ceVendorInfo * vendorInfo,
00115      const EmberRf4ceApplicationInfo * appInfo,
00116      uint8_t
00117      rxLinkQuality,
00118      uint8_t
00119      discRequestLqi);
00120
00121 void emberAfPluginRf4ceProfileGdpDiscoveryCompleteCallback
00122     (EmberStatus status);
00123
00124 void emberAfPluginRf4ceProfileGdpAutoDiscoveryResponseCompleteCallback
00125     (EmberStatus status,
00126      const
00127      EmberEUI64 srcIeeeAddr,
00128      uint8_t
00129      nodeCapabilities,
00130      const EmberRf4ceVendorInfo * vendorInfo,
00131      const EmberRf4ceApplicationInfo * appInfo,
00132      uint8_t
00133      searchDevType);
00134
00135 bool emberAfPluginRf4ceProfileGdpPairRequestCallback
00136     (EmberStatus status,
00137      uint8_t pairingIndex,
00138      const EmberEUI64
00139      sourceIeeeAddr,
00140      uint8_t
00141      nodeCapabilities,
00142      const EmberRf4ceVendorInfo * vendorInfo,
00143      const EmberRf4ceApplicationInfo * appInfo,
00144      uint8_t
00145      keyExchangeTransferCount);
00146
00147 void emberAfPluginRf4ceProfileGdpPairCompleteCallback
00148     (EmberStatus status,
00149      uint8_t pairingIndex,

```

```

00126                                     const
00127     EmberRf4ceVendorInfo * vendorInfo,
00128                                     const
00129     EmberRf4ceApplicationInfo * appInfo);
00130                                     uint8_t pairingIndex);
00131
00132 void emberAfPluginRf4ceZrc20ActionMappingsNegotiationCompleteCallback
00133     (EmberAfRf4ceGdpBindingStatus status,
00134                                     uint8_t pairingIndex,
00135                                     uint16_t entryIndex,
00136     EmberAfRf4ceZrcMappableAction *mappableAction);
00137
00138 uint16_t emberAfPluginRf4ceZrc20GetMappableActionCountCallback
00139     (uint8_t pairingIndex);
00140
00141 EmberStatus emberAfPluginRf4ceZrc20GetMappableActionCallback
00142     (uint8_t pairingIndex,
00143                                     uint16_t
00144     entryIndex,
00145     EmberAfRf4ceZrcMappableAction *mappableAction);
00146
00147 void emberAfPluginRf4ceZrc20IncomingActionMappingCallback
00148     (uint8_t pairingIndex,
00149                                     uint16_t entryIndex,
00150 ,
00151     EmberAfRf4ceZrcActionMapping *actionMapping);
00152
00153 void emberAfPluginRf4ceZrc20HomeAutomationSupportedAnnouncementCompleteCallback
00154     (EmberStatus status);
00155
00156 void emberAfPluginRf4ceZrc20IncomingHomeAutomationSupportedCallback
00157     (uint8_t pairingIndex,
00158                                     uint16_t
00159     entryIndex,
00160     EmberAfRf4ceZrcHomeAutomationSupported *
00161     haSupported);
00162
00163 EmberStatus
00164 emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCallback(uint8_t pairingIndex,
00165                                     uint16_t
00166     entryIndex,
00167     EmberAfRf4ceZrcHomeAutomationSupported *
00168     haSupported);
00169
00170 uint16_t emberAfPluginRf4ceZrc20GetHomeAutomationSupportedCountCallback
00171     (uint8_t pairingIndex);
00172
00173 EmberAfRf4ceGdpAttributeStatus
00174 emberAfPluginRf4ceZrc20GetHomeAutomationAttributeCallback
00175     (uint8_t pairingIndex,
00176                                     uint8_t haInstanceId,
00177                                     uint8_t haAttributeId,
00178                                     EmberAfRf4ceZrcHomeAutomationAttribute
00179     *haAttribute);
00180
00181 void emberAfPluginRf4ceZrc20PullHomeAutomationAttributeCompleteCallback
00182     (EmberAfRf4ceGdpAttributeStatus responseStatus,
00183     EmberAfRf4ceZrcHomeAutomationAttribute *
00184     haAttribute);

```

## 8.326 rf4ce-zrc20-tokens.h File Reference

### Macros

- #define [CREATOR\\_PLUGIN\\_RF4CE\\_ZRC20\\_FLAGS](#)

#### 8.326.1 Macro Definition Documentation

##### 8.326.1.1 #define CREATOR\_PLUGIN\_RF4CE\_ZRC20\_FLAGS

Definition at line 6 of file [rf4ce-zrc20-tokens.h](#).

## 8.327 rf4ce-zrc20-tokens.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 // For each pairing entry we maintain two bytes of flags. The first byte
00004 // stores the first byte of the ZRC capabilities (bytes 1-3 are reserved).
00005 // The second byte is left for future use as well.
00006 #define CREATOR_PLUGIN_RF4CE_ZRC20_FLAGS          0x8732
00007
00008 #ifdef DEFINETOKENS
00009 DEFINE_INDEXED_TOKEN(PLUGIN_RF4CE_ZRC20_FLAGS,
00010             uint16_t,
00011             EMBER_RF4CE_PAIRING_TABLE_SIZE,
00012             0x0000)
00013 #endif
```

## 8.328 rf4ce-zrc20-types.h File Reference

### Data Structures

- struct [EmberAfRf4ceZrcActionRecord](#)  
*This data structure contains the ZRC action record.*
- struct [EmberAfRf4ceZrcMappableAction](#)  
*RF4CE ZRC Mappable Action.*
- struct [EmberAfRf4ceZrcActionMapping](#)  
*RF4CE ZRC Action Mapping.*
- struct [EmberAfRf4ceZrcHomeAutomationSupported](#)  
*RF4CE ZRC Home Automation supported.*
- struct [EmberAfRf4ceZrcHomeAutomationAttribute](#)  
*RF4CE ZRC Home Automation attribute.*
- struct [EmberAfRf4ceZrcCommandsSupported](#)  
*This data structure contains the ZRC 1.x command discovery data.*

### Macros

- #define [EMBER\\_AF\\_RF4CE\\_ZRC\\_ATTRIBUTE\\_NAMES](#)
- #define [EMBER\\_AF\\_RF4CE\\_ZRC\\_ACTION\\_MAPPING\\_MAPPING\\_FLAGS\\_RF\\_SPECIFIED\\_BIT](#)

- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_IR\_SPECIFIED\_BIT
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_RF\_DESCRIPTOR\_FIRST\_BIT
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_USE\_DEFAULT\_BIT
- #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_PERMANENT\_BIT
- #define RF4CE\_ZRC\_ACTION\_MAPPING\_RF\_CONFIG\_KEEP\_TRANSMITTING\_UNTIL\_KEY\_RELEASE
- #define RF4CE\_ZRC\_ACTION\_MAPPING\_RF\_CONFIG\_SHORT\_RF\_RETRY
- #define RF4CE\_ZRC\_ACTION\_MAPPING\_RF\_CONFIG\_ATOMIC\_ACTION
- #define RF4CE\_ZRC\_ACTION\_MAPPING\_IR\_CONFIG\_VENDOR\_SPECIFIC
- #define EMBER\_AF\_RF4CE\_ZRC\_COMMANDS\_SUPPORTED\_SIZE

## Typedefs

- typedef uint8\_t EmberAfRf4ceZrcActionCode

## Enumerations

- enum EmberAfRf4ceZrcAttributeId {
 EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_VERSION, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_CAPABILITIES, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_REPEAT\_TRIGGER\_INTERVAL, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_REPEAT\_WAIT\_TIME, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_BANKS\_SUPPORTED\_RX, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_BANKS\_SUPPORTED\_TX, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_IRDB\_VENDOR\_SUPPORT, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_BANKS\_VERSION, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_CODES\_SUPPORTED\_RX, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_CODES\_SUPPORTED\_TX, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_MAPPABLE\_ACTIONS, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_ACTION\_MAPPINGS, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_HOME\_AUTOMATION, EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_HOME\_AUTOMATION\_SUPPORTED }
- enum EmberAfRf4ceZrcCapability {
 EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_ACTIONS\_ORIGINATOR, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_ACTIONS\_RECIPIENT, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_HA\_ACTIONS\_ORIGINATOR, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_HA\_ACTIONS\_RECIPIENT, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_ACTION\_MAPPING\_CLIENT, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_ACTION\_MAPPING\_SERVER, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_VENDOR\_SPECIFIC\_IRDB\_FORMATS, EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_INFORM\_ABOUT\_SUPPORTED\_ACTIONS }

- enum EmberAfRf4ceZrcCommandCode {  
    EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_PRESSED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_REPEAT, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_RELEASED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_REQUEST,  
    EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_RESPONSE, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_PRESSED, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_REPEAT, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_RELEASED,  
    EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_REQUEST, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_RESPONSE, EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_ACTIONS }
- enum EmberAfRf4ceZrcActionType { EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_STOP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_START, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_REPEAT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_ATOMIC }
- enum EmberAfRf4ceZrcModifierBit {  
    EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_NONE, EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_GUI, EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_ALT, EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_SHIFT,  
    EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_CTRL }

- enum EmberAfRf4ceZrcActionBank {
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_KEYBOARD\_PAGE\_SECTION\_A, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_TELEPHONY\_PAGE\_SECTION\_A, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_CONSUMER\_PAGE\_SECTION\_A,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_CONSUMER\_PAGE\_SECTION\_B, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_CONSUMER\_PAGE\_SECTION\_C, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_GAME\_CONTROLS\_PAGE, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_0,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_1, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_2, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_3, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_4,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_5, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_6, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_7, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_8,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_9, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_10, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_11, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_12,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_13, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_14, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_15, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_16,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_17, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_18, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_19, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_20,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_21, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_22, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_23, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_24,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_25, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_26, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_27, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_28,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_29, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_30, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_31, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_VENDOR\_SPECIFIC\_IMPLICIT\_SOURCE,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_VENDOR\_SPECIFIC\_IMPLICIT\_RECIPIENT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_VENDOR\_SPECIFIC\_EXPLICIT }

- enum EmberAfRf4ceZrcActionBankHdmiCecActionCode {
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SELECT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_UP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DOWN, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_LEFT,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RIGHT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RIGHT\_UP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RIGHT\_DOWN, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_LEFT\_UP,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_LEFT\_DOWN, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ROOT\_MENU, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SETUP\_MENU, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CONTENTS\_MENU,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_FAVORITE\_MENU, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_EXIT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_0, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_1,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_2, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_3, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_4, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_5,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_6, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_7, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_8, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_9,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DOT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ENTER, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CLEAR, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_NEXT\_FAVORITE,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CHANNEL\_UP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CHANNEL\_DOWN, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PREVIOUS\_CHANNEL, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SOUND\_SELECT,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_INPUT\_SELECT, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DISPLAY\_INFORMATION, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_HELP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAGE\_UP,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAGE\_DOWN, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_POWER, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_VOLUME\_UP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_VOLUME\_DOWN,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_MUTE, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PLAY, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_STOP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAUSE,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RECORD, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_REWIND, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_FAST\_FORWARD, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_EJECT,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_FORWARD, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_BACKWARD, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_STOP\_RECORD, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAUSE\_RECORD,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ANGLE, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SUB\_PICTURE, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_VIDEO\_ON\_DEMAND, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ELECTRONIC\_PR
 }

- enum EmberAfRf4ceZrcActionBankHomeAutomationActionCode {
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_0, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_1, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_2, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_3,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_4, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_5, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_6, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_7,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_8, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_9, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_10, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_11,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_12, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_13, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_14, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_STORE\_LOCAL\_SCENE\_15,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_0, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_1, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_2, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_3,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_4, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_5, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_6, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_7,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_8, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_9, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_10, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_11,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_12, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_13, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_14, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_SCENES\_RECALL\_LOCAL\_SCENE\_15,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_ON\_OFF, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_ON\_OFF\_ON, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_ON\_OFF\_TOGGLE, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_LEVEL\_CONTROL\_MOVE\_TO\_LEVEL,
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_LEVEL\_CONTROL\_MOVE, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_LEVEL\_CONTROL\_STEP, EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_LEVEL\_CONTROL\_STOP, EMBER\_AF\_RF4CE\_ZRC
 }

### 8.328.1 Macro Definition Documentation

#### 8.328.1.1 #define EMBER\_AF\_RF4CE\_ZRC\_ATTRIBUTE\_NAMES

Definition at line 32 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.2 #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_RF\_SPECIFIED\_BIT

RF4CE ZRC action mapping: Mapping Flags field.

Definition at line 378 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.3 #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_IR\_SPECIFIED\_BIT

Definition at line 379 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.4 #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_RF\_DESCRIPTOR\_FIRST\_BIT

Definition at line 380 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.5 #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_USE\_DEFAULT\_BIT

Definition at line 382 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.6 #define EMBER\_AF\_RF4CE\_ZRC\_ACTION\_MAPPING\_MAPPING\_FLAGS\_PERMANENT\_BIT

Definition at line 383 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.7 #define RF4CE\_ZRC\_ACTION\_MAPPING\_RF\_CONFIG\_KEEP\_TRANSMITTING\_UNTIL\_KEY\_RELEASE

RF4CE ZRC action mapping: RF Config field.

Definition at line 389 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.8 #define RF4CE\_ZRC\_ACTION\_MAPPING\_RF\_CONFIG\_SHORT\_RF\_RETRY

Definition at line 390 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.9 #define RF4CE\_ZRC\_ACTION\_MAPPING\_RF\_CONFIG\_ATOMIC\_ACTION

Definition at line 391 of file [rf4ce-zrc20-types.h](#).

#### 8.328.1.10 #define RF4CE\_ZRC\_ACTION\_MAPPING\_IR\_CONFIG\_VENDOR\_SPECIFIC

RF4CE ZRC action mapping: IR Config field.

Definition at line 397 of file [rf4ce-zrc20-types.h](#).

### 8.328.1.11 #define EMBER\_AF\_RF4CE\_ZRC\_COMMANDS\_SUPPORTED\_SIZE

Size of the ZRC 1.x command discovery data in bytes (32).

Definition at line 437 of file [rf4ce-zrc20-types.h](#).

## 8.328.2 Typedef Documentation

### 8.328.2.1 typedef uint8\_t EmberAfRf4ceZrcActionCode

Definition at line 173 of file [rf4ce-zrc20-types.h](#).

## 8.328.3 Enumeration Type Documentation

### 8.328.3.1 enum EmberAfRf4ceZrcAttributeId

RF4CE ZRC attribute ids.

Enumerator:

```
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_VERSION
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_CAPABILITIES
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_REPEAT_TRIGGER_INTERVAL
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_REPEAT_WAIT_TIME
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_SUPPORTED_RX
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_SUPPORTED_TX
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_IRDB_VENDOR_SUPPORT
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_VERSION
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_CODES_SUPPORTED_RX
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_CODES_SUPPORTED_TX
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_MAPPABLE_ACTIONS
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_MAPPINGS
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_HOME_AUTOMATION
EMBER_AF_RF4CE_ZRC_ATTRIBUTE_HOME_AUTOMATION_SUPPORTED
```

Definition at line 10 of file [rf4ce-zrc20-types.h](#).

### 8.328.3.2 enum EmberAfRf4ceZrcCapability

RF4CE ZRC capabilities.

Enumerator:

```
EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTIONS_ORIGINATOR
EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTIONS_RECIPIENT
EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_HA_ACTIONS_ORIGINATOR
EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_HA_ACTIONS_RECIPIENT
```

*EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_ACTION\_MAPPING\_CLIENT  
 EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_ACTION\_MAPPING\_SERVER  
 EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_SUPPORT\_VENDOR\_SPECIFIC\_IRDB\_FORMATS*

*EMBER\_AF\_RF4CE\_ZRC\_CAPABILITY\_INFORM\_ABOUT\_SUPPORTED\_ACTIONS*

Definition at line 52 of file [rf4ce-zrc20-types.h](#).

#### 8.328.3.3 enum EmberAfRf4ceZrcCommandCode

RF4CE ZRC 2.0 command codes.

Enumerator:

*EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_PRESSED  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_REPEATED  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_RELEASED  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_REQUEST  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_RESPONSE  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_PRESSED  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_REPEATED  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_USER\_CONTROL\_RELEASED  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_REQUEST  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_COMMAND\_DISCOVERY\_RESPONSE  
 EMBER\_AF\_RF4CE\_ZRC\_COMMAND\_ACTIONS*

Definition at line 72 of file [rf4ce-zrc20-types.h](#).

#### 8.328.3.4 enum EmberAfRf4ceZrcActionType

RF4CE ZRC action banks.

Enumerator:

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_STOP  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_START  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_REPEAT  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_TYPE\_ATOMIC*

Definition at line 90 of file [rf4ce-zrc20-types.h](#).

#### 8.328.3.5 enum EmberAfRf4ceZrcModifierBit

RF4CE ZRC modifier bits.

Enumerator:

*EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_NONE*

*EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_GUI  
 EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_ALT  
 EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_SHIFT  
 EMBER\_AF\_RF4CE\_ZRC\_MODIFIER\_BIT\_CTRL*

Definition at line 106 of file [rf4ce-zrc20-types.h](#).

### 8.328.3.6 enum EmberAfRf4ceZrcActionBank

RF4CE ZRC action banks.

Enumerator:

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_KEYBOARD\_PAGE\_SECTION\_A  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_TELEPHONY\_PAGE\_SECTION\_A  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_CONSUMER\_PAGE\_SECTION\_A  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_CONSUMER\_PAGE\_SECTION\_B  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_CONSUMER\_PAGE\_SECTION\_C  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HID\_GAME\_CONTROLS\_PAGE  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_0  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_1  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_2  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_3  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_4  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_5  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_6  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_7  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_8  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_9  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_10  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_11  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_12  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_13  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_14  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_15  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_16  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_17  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_18  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_19  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_20  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_21  
 EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_22*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_23*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_24*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_25*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_26*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_27*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_28*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_29*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_30*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_INSTANCE\_31*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_VENDOR\_SPECIFIC\_IMPLICIT\_SOURCE*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_VENDOR\_SPECIFIC\_IMPLICIT\_RECIPIENT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_VENDOR\_SPECIFIC\_EXPLICIT*

Definition at line 123 of file [rf4ce-zrc20-types.h](#).

### 8.328.3.7 enum EmberAfRf4ceZrcActionBankHdmiCecActionCode

RF4CE ZRC HDMI-CEC action codes.

Enumerator:

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SELECT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_UP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DOWN*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_LEFT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RIGHT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RIGHT\_UP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RIGHT\_DOWN*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_LEFT\_UP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_LEFT\_DOWN*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ROOT\_MENU*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SETUP\_MENU*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CONTENTS\_MENU*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_FAVORITE\_MENU*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_EXIT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_0*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_1*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_2*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_3*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_4*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_5*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_6*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_7*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_8*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_9*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DOT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ENTER*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CLEAR*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_NEXT\_FAVORITE*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CHANNEL\_UP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_CHANNEL\_DOWN*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PREVIOUS\_CHANNEL*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SOUND\_SELECT*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_INPUT\_SELECT*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DISPLAY\_INFORMATION*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_HELP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAGE\_UP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAGE\_DOWN*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_POWER*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_VOLUME\_UP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_VOLUME\_DOWN*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_MUTE*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PLAY*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_STOP*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAUSE*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RECORD*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_REWIND*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_FAST\_FORWARD*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_EJECT*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_FORWARD*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_BACKWARD*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_STOP\_RECORD*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAUSE\_RECORD*  
  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ANGLE*  
*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SUB\_PICTURE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_VIDEO\_ON\_DEMAND*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_ELECTRONIC\_PROGRAM\_GUIDE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_TIMER\_PROGRAMMING*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_INITIAL\_CONFIGURATION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PLAY\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAUSE\_PLAY\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RECORD\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_PAUSE\_RECORD\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_STOP\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_MUTE\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_RESTORE\_VOLUME\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_TUNE\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SELECT\_MEDIA\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SELECT\_A\_V\_INPUT\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_SELECT\_AUDIO\_INPUT\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_POWER\_TOGGLE\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_POWER\_OFF\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_POWER\_ON\_FUNCTION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_F1\_BLUE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_F2\_RED*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_F3\_GREEN*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_F4\_YELLOW*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_F5*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HDMI\_CEC\_ACTION\_CODE\_DATA*

Definition at line 179 of file [rf4ce-zrc20-types.h](#).

### 8.328.3.8 enum EmberAfRf4ceZrcActionBankHomeAutomationActionCode

## RF4CE ZRC Home Automation action codes.

### **Enumerator:**



*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_DOOR\_LOCK\_UNLOCK\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_DOOR\_LOCK\_TOGGLE\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_DOOR\_LOCK\_UNLOCK\_WITH\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_WINDOW\_COVERING\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_WINDOW\_COVERING\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_WINDOW\_COVERING\_STOP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_WINDOW\_COVERING\_GO\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_WINDOW\_COVERING\_GO\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_WINDOW\_COVERING\_GO\_STOP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_THERMOSTAT\_SETPOINT\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_MOVE\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_MOVE\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_STEP\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_MOVE\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_STEP\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_MOVE\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_STEP\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_MOVE\_UP\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_STEP\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_COLOR\_CONTROL\_MOVE\_DOWN\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_IAS\_ACE\_ARM\_CODE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_IAS\_ACE\_BYPASS*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_IAS\_ACE\_EMERGENCY*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_IAS\_ACE\_FIRE*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_IAS\_ACE\_PANIC*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_PREVIOUS\_DESTINATION*

*EMBER\_AF\_RF4CE\_ZRC\_ACTION\_BANK\_HOME\_AUTOMATION\_ACTION\_CODE\_NEXT\_DESTINATION\_GROUP*

Definition at line 269 of file rf4ce-zrc20-types.h.

### 8.329 rf4ce-zrc20-types.h

```

00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC20_TYPES_H__
00004 #define __RF4CE_ZRC20_TYPES_H__
00005
00009 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00010 enum EmberAfRf4ceZrcAttributeId
00011 {
00012     typedef uint8_t EmberAfRf4ceZrcAttributeId;
00013     enum
00014 };
00015 {
00016     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_VERSION
00017         = 0xA0,
00018     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_CAPABILITIES
00019         = 0xA1,
00020     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_REPEAT_TRIGGER_INTERVAL
00021         = 0xA2,
00022     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_REPEAT_WAIT_TIME
00023         = 0xA3,
00024     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_SUPPORTED_RX
00025         = 0xA4,
00026     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_SUPPORTED_TX
00027         = 0xA5,
00028     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_IRDB_VENDOR_SUPPORT
00029         = 0xA6,
00030     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_VERSION
00031         = 0xA7,
00032     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_CODES_SUPPORTED_RX
00033         = 0xC0,
00034     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_CODES_SUPPORTED_TX
00035         = 0xC1,
00036     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_MAPPABLE_ACTIONS
00037         = 0xC2,
00038     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_MAPPINGS
00039         = 0xC3,
00040     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_HOME_AUTOMATION
00041         = 0xC4,
00042     EMBER_AF_RF4CE_ZRC_ATTRIBUTE_HOME_AUTOMATION_SUPPORTED
00043         = 0xC5,
00044 };
00045
00046 #define EMBER_AF_RF4CE_ZRC_ATTRIBUTE_NAMES
00047     \
00048     {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_VERSION, "version"}, \
00049     {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_CAPABILITIES, "capabilities"}, \
00050     {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_REPEAT_TRIGGER_INTERVAL, "action repeat trigger interval"}, \

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00036 {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_REPEAT_WAIT_TIME,
00037     \ "action repeat
00038     {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_SUPPORTED_RX,
00039         \ "action banks
00040         {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_BANKS_SUPPORTED_TX,
00041             \ "action banks
00042             {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_IRDB_VENDOR_SUPPORT,
00043                 \ "irdb vendor
00044                 {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_CODES_SUPPORTED_RX,
00045                     \ "action codes
00046                     {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_CODES_SUPPORTED_TX,
00047                         \ "action codes
00048                         {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_MAPPABLE_ACTIONS,
00049                             \ "mappable
00050                             {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_ACTION_MAPPINGS,
00051                                 \ "action
00052                                 {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_HOME_AUTOMATION,
00053                                     \ "home
00054                                     {EMBER_AF_RF4CE_ZRC_ATTRIBUTE_HOME_AUTOMATION_SUPPORTED,
00055   \ "home
00056   automation supported"}, \
00057 #endif
00058 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00059 enum EmberAfRf4ceZrcCapability
00060 #else
00061 typedef uint32_t EmberAfRf4ceZrcCapability;
00062 #endif
00063 {
00064     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTIONS_ORIGINATOR
00065         = 0x00000001,
00066     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTIONS_RECIPIENT
00067         = 0x00000002,
00068     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_HA_ACTIONS_ORIGINATOR
00069         = 0x00000004,
00070     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_HA_ACTIONS_RECIPIENT
00071         = 0x00000008,
00072     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTION_MAPPING_CLIENT
00073         = 0x00000010,
00074     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_ACTION_MAPPING_SERVER
00075         = 0x00000020,
00076     EMBER_AF_RF4CE_ZRC_CAPABILITY_SUPPORT_VENDOR_SPECIFIC_IRDB_FORMATS
00077         = 0x00000040,
00078     EMBER_AF_RF4CE_ZRC_CAPABILITY_INFORM_ABOUT_SUPPORTED_ACTIONS
00079         = 0x00000080,
00080 };
00081 #endif
00082 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00083 enum EmberAfRf4ceZrcCommandCode
00084 #else
00085 typedef uint8_t EmberAfRf4ceZrcCommandCode;
00086 #endif
00087 {
00088     EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_PRESSED
00089         = 0x01,
00090     EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_REPEATED
00091         = 0x02,
00092     EMBER_AF_RF4CE_ZRC_COMMAND_USER_CONTROL_RELEASED
00093         = 0x03,
00094     EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_REQUEST
00095         = 0x04,
00096     EMBER_AF_RF4CE_ZRC_COMMAND_COMMAND_DISCOVERY_RESPONSE
00097         = 0x05,
00098     EMBER_AF_RF4CE_ZRC_COMMAND_ACTIONS
00099         = 0x06,
00080 };
00081 #endif
00082 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00083 enum EmberAfRf4ceZrcActionType
00084 #else
00085 typedef uint8_t EmberAfRf4ceZrcActionType;
00086 #endif
00087 {
00088     EMBER_AF_RF4CE_ZRC_ACTION_TYPE_STOP      =
0x00,
00089     EMBER_AF_RF4CE_ZRC_ACTION_TYPE_START    =

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0x01,
00098 EMBER_AF_RF4CE_ZRC_ACTION_TYPE_REPEAT =
0x02,
00099 EMBER_AF_RF4CE_ZRC_ACTION_TYPE_ATOMIC =
0x03,
00100 };
00101
00105 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00106 enum EmberAfRf4ceZrcModifierBit
00107 #else
00108 typedef uint8_t EmberAfRf4ceZrcModifierBit;
00109 enum
00110 #endif
00111 {
00112     EMBER_AF_RF4CE_ZRC_MODIFIER_BIT_NONE =
0x00,
00113     EMBER_AF_RF4CE_ZRC_MODIFIER_BIT_GUI =
0x10,
00114     EMBER_AF_RF4CE_ZRC_MODIFIER_BIT_ALT =
0x20,
00115     EMBER_AF_RF4CE_ZRC_MODIFIER_BIT_SHIFT =
0x40,
00116     EMBER_AF_RF4CE_ZRC_MODIFIER_BIT_CTRL =
0x80,
00117 };
00118
00122 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00123 enum EmberAfRf4ceZrcActionBank
00124 #else
00125 typedef uint8_t EmberAfRf4ceZrcActionBank;
00126 enum
00127 #endif
00128 {
00129     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC
            = 0x00,
00130     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HID_KEYBOARD_PAGE_SECTION_A
            = 0x20,
00131     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HID_TELEPHONY_PAGE_SECTION_A
            = 0x21,
00132     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HID_CONSUMER_PAGE_SECTION_A
            = 0x22,
00133     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HID_CONSUMER_PAGE_SECTION_B
            = 0x23,
00134     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HID_CONSUMER_PAGE_SECTION_C
            = 0x24,
00135     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HID_GAME_CONTROLS_PAGE
            = 0x25,
00136     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_0
            = 0x80,
00137     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_1
            = 0x81,
00138     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_2
            = 0x82,
00139     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_3
            = 0x83,
00140     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_4
            = 0x84,
00141     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_5
            = 0x85,
00142     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_6
            = 0x86,
00143     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_7
            = 0x87,
00144     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_8
            = 0x88,
00145     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_9
            = 0x89,
00146     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_10
            = 0x8A,
00147     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_11
            = 0x8B,
00148     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_12
            = 0x8C,
00149     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_13
            = 0x8D,
00150     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_14
            = 0x8E,
00151     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_15
            = 0x8F,
00152     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_16

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        = 0x90,
00153 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_17
        = 0x91,
00154 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_18
        = 0x92,
00155 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_19
        = 0x93,
00156 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_20
        = 0x94,
00157 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_21
        = 0x95,
00158 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_22
        = 0x96,
00159 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_23
        = 0x97,
00160 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_24
        = 0x98,
00161 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_25
        = 0x99,
00162 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_26
        = 0x9A,
00163 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_27
        = 0x9B,
00164 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_28
        = 0x9C,
00165 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_29
        = 0x9D,
00166 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_30
        = 0x9E,
00167 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_INSTANCE_31
        = 0x9F,
00168 EMBER_AF_RF4CE_ZRC_ACTION_BANK_VENDOR_SPECIFIC_IMPLICIT_SOURCE
        = 0xA0,
00169 EMBER_AF_RF4CE_ZRC_ACTION_BANK_VENDOR_SPECIFIC_IMPLICIT_RECIPIENT
        = 0xC0,
00170 EMBER_AF_RF4CE_ZRC_ACTION_BANK_VENDOR_SPECIFIC_EXPLICIT
        = 0xE0,
00171 };
00172
00173 typedef uint8_t EmberAfRf4ceZrcActionCode;
00174
00175 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00176 enum EmberAfRf4ceZrcActionBankHdmiCecActionCode
00177 #else
00178 typedef uint8_t EmberAfRf4ceZrcActionBankHdmiCecActionCode
00179 ;
00180 enum
00181 #endif
00182 {
00183     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SELECT
        = 0x00,
00184     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_UP
        = 0x01,
00185     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_DOWN
        = 0x02,
00186     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_LEFT
        = 0x03,
00187     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_RIGHT
        = 0x04,
00188     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_RIGHT_UP
        = 0x05,
00189     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_RIGHT_DOWN
        = 0x06,
00190     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_LEFT_UP
        = 0x07,
00191     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_LEFT_DOWN
        = 0x08,
00192     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_ROOT_MENU
        = 0x09,
00193     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SETUP_MENU
        = 0x0A,
00194     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_CONTENTS_MENU
        = 0x0B,
00195     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_FAVORITE_MENU
        = 0x0C,
00196     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_EXIT
        = 0x0D,
00197     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_0
        = 0x20,
00198     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_1

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        = 0x21,
00201 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_2
        = 0x22,
00202 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_3
        = 0x23,
00203 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_4
        = 0x24,
00204 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_5
        = 0x25,
00205 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_6
        = 0x26,
00206 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_7
        = 0x27,
00207 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_8
        = 0x28,
00208 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_9
        = 0x29,
00209 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_DOT
        = 0x2A,
00210 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_ENTER
        = 0x2B,
00211 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_CLEAR
        = 0x2C,
00212 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_NEXT_FAVORITE
        = 0x2F,
00213 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_CHANNEL_UP
        = 0x30,
00214 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_CHANNEL_DOWN
        = 0x31,
00215 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PREVIOUS_CHANNEL
        = 0x32,
00216 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SOUND_SELECT
        = 0x33,
00217 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_INPUT_SELECT
        = 0x34,
00218 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_DISPLAY_INFORMATION
        = 0x35,
00219 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_HELP
        = 0x36,
00220 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PAGE_UP
        = 0x37,
00221 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PAGE_DOWN
        = 0x38,
00222 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_POWER
        = 0x40,
00223 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_VOLUME_UP
        = 0x41,
00224 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_VOLUME_DOWN
        = 0x42,
00225 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_MUTE
        = 0x43,
00226 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PLAY
        = 0x44,
00227 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_STOP
        = 0x45,
00228 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PAUSE
        = 0x46,
00229 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_RECORD
        = 0x47,
00230 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_REWIND
        = 0x48,
00231 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_FAST_FORWARD
        = 0x49,
00232 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_EJECT
        = 0x4A,
00233 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_FORWARD
        = 0x4B,
00234 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_BACKWARD
        = 0x4C,
00235 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_STOP_RECORD
        = 0x4D,
00236 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PAUSE_RECORD
        = 0x4E,
00237 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_ANGLE
        = 0x50,
00238 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SUB_PICTURE
        = 0x51,
00239 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_VIDEO_ON_DEMAND
        = 0x52,
00240 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_ELECTRONIC_PROGRAM_GUIDE

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        = 0x53,
00241 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_TIMER_PROGRAMMING
        = 0x54,
00242 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_INITIAL_CONFIGURATION
        = 0x55,
00243 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PLAY_FUNCTION
        = 0x60, // Play Mode - 1 byte
00244 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PAUSE_PLAY_FUNCTION
        = 0x61,
00245 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_RECORD_FUNCTION
        = 0x62,
00246 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_PAUSE_RECORD_FUNCTION
        = 0x63,
00247 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_STOP_FUNCTION
        = 0x64,
00248 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_MUTE_FUNCTION
        = 0x65,
00249 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_RESTORE_VOLUME_FUNCTION
        = 0x66,
00250 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_TUNE_FUNCTION
        = 0x67, // Channel Identifier - 4 bytes
00251 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SELECT_MEDIA_FUNCTION
        = 0x68, // UI Function Media - 1 byte
00252 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SELECT_A_V_INPUT_FUNCTION
        = 0x69, // UI Function Select A/V Input - 1 byte
00253 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_SELECT_AUDIO_INPUT_FUNCTION
        = 0x6A, // UI Function Select Audio Input - 1 byte
00254 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_POWER_TOGGLE_FUNCTION
        = 0x6B,
00255 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_POWER_OFF_FUNCTION
        = 0x6C,
00256 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_POWER_ON_FUNCTION
        = 0x6D,
00257 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_F1_BLUE
        = 0x71,
00258 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_F2_RED
        = 0x72,
00259 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_F3_GREEN
        = 0x73,
00260 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_F4_YELLOW
        = 0x74,
00261 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_F5
        = 0x75,
00262 EMBER_AF_RF4CE_ZRC_ACTION_BANK_HDMI_CEC_ACTION_CODE_DATA
        = 0x76,
00263 };
00264
00265 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00266 enum EmberAfRf4ceZrcActionBankHomeAutomationActionCode
00267 #else
00268 typedef uint8_t EmberAfRf4ceZrcActionBankHomeAutomationActionCode
00269 ;
00270 enum
00271 #endif
00272 {
00273
00274
00275
00276     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_0
        = 0x00,
00277
00278     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_1
        = 0x01,
00279
00280     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_2
        = 0x02,
00281
00282     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_3
        = 0x03,
00283
00284     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_4
        = 0x04,
00285
00286     EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_5
        = 0x05,

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```

00281
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_6
        = 0x06,
00282
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_7
        = 0x07,
00283
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_8
        = 0x08,
00284
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_9
        = 0x09,
00285
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_10
        = 0x0A,
00286
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_11
        = 0x0B,
00287
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_12
        = 0x0C,
00288
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_13
        = 0x0D,
00289
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_14
        = 0x0E,
00290
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_STORE_LOCAL_SCENE_15
        = 0x0F,
00291
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_0
        = 0x10,
00292
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_1
        = 0x11,
00293
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_2
        = 0x12,
00294
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_3
        = 0x13,
00295
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_4
        = 0x14,
00296
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_5
        = 0x15,
00297
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_6
        = 0x16,
00298
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_7
        = 0x17,
00299
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_8
        = 0x18,
00300
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_9
        = 0x19,

```

```

00301
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_10
        = 0x1A,
00302
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_11
        = 0x1B,
00303
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_12
        = 0x1C,
00304
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_13
        = 0x1D,
00305
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_14
        = 0x1E,
00306
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_SCENES_RECALL_LOCAL_SCENE_15
        = 0x1F,
00307    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_ON_OFF_OFF
        = 0x20,
00308    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_ON_OFF_ON
        = 0x21,
00309    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_ON_OFF_TOGGLE
        = 0x22,
00310
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE_TO_LEVEL
        = 0x30,
00311    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE
        = 0x31,
00312    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STEP
        = 0x32,
00313    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STOP
        = 0x33,
00314
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE_TO_LEVEL_WITH_ON_OFF
        = 0x34,
00315
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_MOVE_WITH_ON_OFF
        = 0x35,
00316
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STEP_WITH_ON_OFF
        = 0x36,
00317
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_LEVEL_CONTROL_STOP_WITH_ON_OFF
        = 0x37,
00318    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_LOCK_DOOR
        = 0x40,
00319
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_UNLOCK_DOOR
        = 0x41,
00320    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_TOGGLE
        = 0x42,
00321
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_DOOR_LOCK_UNLOCK_WITH_TIMEOUT
        = 0x43,
00322
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_UP_OPEN
        = 0x50,
00323
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_DOWN_CLOSE
        = 0x51,
00324    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_STOP
        = 0x52,

```

```

00325
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_LIFT_VALUE
        = 0x54,
00326
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_LIFT_PERCENTAGE
        = 0x55,
00327
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_TILT_VALUE
        = 0x57,
00328
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_WINDOW_COVERING_GO_TO_TILT_PERCENTAGE
        = 0x58,
00329
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_THERMOSTAT_SETPOINT_RAISE_LOWER
        = 0x60,
00330
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_HUE
        = 0x70,
00331
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_HUE
        = 0x71,
00332
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_STEP_HUE
        = 0x72,
00333
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_SATURATION
        = 0x73,
00334
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_SATURATION
        = 0x74,
00335
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_STEP_SATURATION
        = 0x75,
00336
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_HUE_AND_SATURATION
        = 0x76,
00337
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_COLOR
        = 0x77,
00338
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_COLOR
        = 0x78,
00339
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_STEP_COLOR
        = 0x79,
00340
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_COLOR_CONTROL_MOVE_TO_COLOR_TEMPERATURE
        = 0x7A,
00341    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_ARM
            = 0xC4,
00342    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_BYPASS
            = 0xC5,
00343    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_EMERGENCY
            = 0xC6,
00344    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_FIRE
            = 0xC7,
00345    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_IAS_ACE_PANIC
            = 0xC8,
00346
    EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_PREVIOUS_DESTINATION_GROUP
        = 0xF0,
00347

```

```

        EMBER_AF_RF4CE_ZRC_ACTION_BANK_HOME_AUTOMATION_ACTION_CODE_NEXT_DESTINATION_GROUP
        = 0xF1,
00348 };
00349
00353 typedef struct {
00354     uint8_t pairingIndex;
00355     EmberAfRf4ceZrcActionType actionType;
00356     EmberAfRf4ceZrcModifierBit modifierBits
00357     ;
00358     uint8_t actionPayloadLength;
00359     EmberAfRf4ceZrcActionBank actionBank;
00360     EmberAfRf4ceZrcActionCode actionCode;
00361     uint16_t actionVendorId;
00362     const uint8_t *actionPayload;
00363     uint16_t timeMs;
00363 } EmberAfRf4ceZrcActionRecord;
00364
00368 typedef struct
00369 {
00370     EmberAfRf4ceDeviceType actionDeviceType
00371     ;
00372     EmberAfRf4ceZrcActionBank actionBank;
00373     EmberAfRf4ceZrcActionCode actionCode;
00373 } EmberAfRf4ceZrcMappableAction;
00374
00378 #define EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_RF_SPECIFIED_BIT
0x01
00379 #define EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_IR_SPECIFIED_BIT
0x02
00380 #define EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_RF_DESCRIPTOR_FIRST_BIT
0x04
00381 // Bits 3-5 are reserved.
00382 #define EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_USE_DEFAULT_BIT
0x40
00383 #define EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_PERMANENT_BIT
0x80
00384
00388 // Bits 0-3: minimum number of transmissions.
00389 #define RF4CE_ZRC_ACTION_MAPPING_RF_CONFIG_KEEP_TRANSMITTING_UNTIL_KEY_RELEASE
0x10
00390 #define RF4CE_ZRC_ACTION_MAPPING_RF_CONFIG_SHORT_RF_RETRY
0x20
00391 #define RF4CE_ZRC_ACTION_MAPPING_RF_CONFIG_ATOMIC_ACTION
0x40
00392 // Bit 7 is reserved.
00393
00397 #define RF4CE_ZRC_ACTION_MAPPING_IR_CONFIG_VENDOR_SPECIFIC 0x01
00398 // Bits 1-7 are reserved.
00399
00403 typedef struct {
00404     uint8_t mappingFlags;
00405
00406     uint8_t rfConfig;
00407     uint8_t rf4ceTxOptions;
00408     uint8_t actionDataLength;
00409     uint8_t* actionData;
00410
00411     uint8_t irConfig;
00412     uint16_t irVendorId;
00413     uint8_t irCodeLength;
00414     uint8_t* irCode;
00415 } EmberAfRf4ceZrcActionMapping;
00416
00420 typedef struct {
00421     uint8_t contents[32];
00422 } EmberAfRf4ceZrcHomeAutomationSupported;
00423
00427 typedef struct {
00428     uint8_t *contents;
00429     uint8_t contentsLength;
00430     uint8_t instanceId;
00431     uint8_t attributeId;
00432 } EmberAfRf4ceZrcHomeAutomationAttribute;
00433
00437 #define EMBER_AF_RF4CE_ZRC_COMMANDS_SUPPORTED_SIZE 32
00438
00442 typedef struct {
00444     uint8_t contents[EMBER_AF_RF4CE_ZRC_COMMANDS_SUPPORTED_SIZE
00445 ];
00445 } EmberAfRf4ceZrcCommandsSupported;

```

```
00446
00447 #endif // __RF4CE_ZRC20_TYPES_H__
```

## 8.330 rf4ce-zrc20.h File Reference

```
#include "rf4ce-zrc20-types.h"
```

### Macros

- #define ACTION\_MAPPING\_CLIENT
- #define ACTION\_MAPPING\_SERVER
- #define SET\_DEFAULT(entry)

### Functions

- EmberStatus emberAfRf4ceZrc20Bind (EmberAfRf4ceDeviceType searchDevType)
- EmberStatus emberAfRf4ceZrc20ProxyBind (EmberPanId panId, EmberEUI64 ieeeAddr)
- EmberStatus emberAfRf4ceZrc20ActionStart (uint8\_t pairingIndex, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcModifierBit actionModifier, uint16\_t actionVendorId, const uint8\_t \*actionData, uint8\_t actionDataLength, bool atomic)
- EmberStatus emberAfRf4ceZrc20ActionStop (uint8\_t pairingIndex, EmberAfRf4ceZrcActionBank actionBank, EmberAfRf4ceZrcActionCode actionCode, EmberAfRf4ceZrcModifierBit actionModifier, uint16\_t actionVendorId)
- EmberStatus emberAfRf4ceZrc20LegacyCommandDiscovery (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceZrc20StartActionMappingsNegotiation (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceZrc20StartHomeAutomationSupportedAnnouncement (uint8\_t pairingIndex)
- EmberStatus emberAfRf4ceZrc20PullHomeAutomationAttribute (uint8\_t pairingIndex, uint16\_t vendorId, uint8\_t haInstanceId, uint8\_t haAttributeId)
- uint8\_t \*emberAfRf4ceZrcCommandsSupportedContents (EmberAfRf4ceZrcCommandsSupported \*commandsSupported)
- bool emberAfRf4ceZrc20ActionMappingEntryHasRfDescriptor (const EmberAfRf4ceZrcActionMapping \*entry)
- bool emberAfRf4ceZrc20ActionMappingEntryHasIrDescriptor (const EmberAfRf4ceZrcActionMapping \*entry)
- bool emberAfRf4ceZrc20ActionMappingEntryHasIrVendorId (const EmberAfRf4ceZrcActionMapping \*entry)

## 8.331 rf4ce-zrc20.h

```
00001 // Copyright 2014 Silicon Laboratories, Inc.
00002
00003 #ifndef __RF4CE_ZRC20_H__
00004 #define __RF4CE_ZRC20_H__
00005
00006 #include "rf4ce-zrc20-types.h"
00007
00107 #ifdef EMBER_AF_RF4CE_ZRC_IS_ACTIONS_ORIGINATOR
00108
00109 #define EMBER_AF_RF4CE_ZRC_IS_ORIGINATOR
00110#endif
```

```

00111
00112 #ifdef EMBER_AF_RF4CE_ZRC_IS_ACTIONS_RECIPIENT
00113     #define EMBER_AF_RF4CE_ZRC_IS_RECIPIENT
00115 #endif
00116
00117 #define ACTION_MAPPING_CLIENT 1
00118 #define ACTION_MAPPING_SERVER 2
00119
00120 #if EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SUPPORT == ACTION_MAPPING_CLIENT
00121     #define EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_CLIENT
00123
00124 #if defined(EMBER_AF_RF4CE_ZRC_IRDB_VENDOR_IDS)
00125 #define EMBER_AF_PLUGIN_RF4CE_ZRC20_LOCAL_IRDB_VENDOR_ATTRIBUTE_SUPPORT
00126 #endif
00127
00128 #elif EMBER_AF_PLUGIN_RF4CE_ZRC20_ACTION_MAPPING_SUPPORT ==
00129     ACTION_MAPPING_SERVER
00130     #define EMBER_AF_PLUGIN_RF4CE_ZRC20_IS_ACTION_MAPPING_SERVER
00131
00132     #define EMBER_AF_PLUGIN_RF4CE_ZRC20_REMOTE_IRDB_VENDOR_ATTRIBUTES_SUPPORT
00134 #endif
00135
00136 EmberStatus emberAfRf4ceZrc20Bind(
00137     EmberAfRf4ceDeviceType searchDevType);
00137
00138 EmberStatus emberAfRf4ceZrc20ProxyBind(
00139     EmberPanId panId,
00140             EmberEUI64 ieeeAddr);
00140
00175 EmberStatus emberAfRf4ceZrc20ActionStart
00176     (uint8_t pairingIndex,
00177             EmberAfRf4ceZrcActionBank
00177     actionBank,
00178             EmberAfRf4ceZrcActionCode
00178     actionCode,
00179             EmberAfRf4ceZrcModifierBit
00179     actionModifier,
00180             uint16_t actionVendorId,
00180     const uint8_t *actionData,
00181             uint8_t actionDataLength,
00182             bool atomic);
00183
00204 EmberStatus emberAfRf4ceZrc20ActionStop(
00205     uint8_t pairingIndex,
00205             EmberAfRf4ceZrcActionBank
00206     actionBank,
00206             EmberAfRf4ceZrcActionCode
00207     actionCode,
00207             EmberAfRf4ceZrcModifierBit
00208     actionModifier,
00208             uint16_t actionVendorId);
00225 EmberStatus emberAfRf4ceZrc20LegacyCommandDiscovery
00226     (uint8_t pairingIndex);
00237 EmberStatus emberAfRf4ceZrc20StartActionMappingsNegotiation
00238     (uint8_t pairingIndex);
00249 EmberStatus
00249     emberAfRf4ceZrc20StartHomeAutomationSupportedAnnouncement(uint8_t pairingIndex)
00250 ;
00250
00271 EmberStatus emberAfRf4ceZrc20PullHomeAutomationAttribute
00272     (uint8_t pairingIndex,
00273             uint16_t vendorId,
00273     uint8_t haInstanceId,
00274     uint8_t haAttributeId)
00274 ;
00275
00284 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00285     uint8_t *emberAfRf4ceZrcCommandsSupportedContents
00285     (EmberAfRf4ceZrcCommandsSupported *
00285     commandsSupported);
00286 #else
00287     #define emberAfRf4ceZrcCommandsSupportedContents(commandsSupported) \
00288         ((commandsSupported)->contents)
00289 #endif
00290

```

```

00291 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00292
00293     bool emberAfRf4ceZrc20ActionMappingEntryHasRfDescriptor
00294     (const EmberAfRf4ceZrcActionMapping *entry);
00300 #else
00301     #define emberAfRf4ceZrc20ActionMappingEntryHasRfDescriptor(entry)
00302         \
00303         (READBITS((entry)->mappingFlags,
00304             \
00305                 (EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_RF_SPECIFIED_BIT
00306             == EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_RF_SPECIFIED_BIT)
00307 #endif
00307
00308 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00309
00316     bool emberAfRf4ceZrc20ActionMappingEntryHasIrDescriptor
00317     (const EmberAfRf4ceZrcActionMapping *entry);
00317 #else
00318     #define emberAfRf4ceZrc20ActionMappingEntryHasIrDescriptor(entry)
00319         \
00320         (READBITS((entry)->mappingFlags,
00321             \
00322                 (EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_IR_SPECIFIED_BIT
00323             == EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_IR_SPECIFIED_BIT)
00323 #endif
00324
00325 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00326
00333     bool emberAfRf4ceZrc20ActionMappingEntryHasIrVendorId
00334     (const EmberAfRf4ceZrcActionMapping *entry);
00334 #else
00335     #define emberAfRf4ceZrc20ActionMappingEntryHasIrVendorId(entry) \
00336         (READBITS((entry)->irConfig,
00337             RF4CE_ZRC_ACTION_MAPPING_IR_CONFIG_VENDOR_SPECIFIC) \
00338             == RF4CE_ZRC_ACTION_MAPPING_IR_CONFIG_VENDOR_SPECIFIC)
00339 #endif
00340
00341 // If the Use Default bit is set, the RF Specified and IR Specified bits and
00342 // their corresponding descriptors are ignored.
00343 #define SET_DEFAULT(entry)
00344     \
00345     ((entry)->mappingFlags =
00346     EMBER_AF_RF4CE_ZRC_ACTION_MAPPING_MAPPING_FLAGS_USE_DEFAULT_BIT)
00345
00346 #endif // __RF4CE_ZRC20_H__
00347
00348 // END addtogroup

```

## 8.332 rtos-ipc-link.h File Reference

### Macros

- #define IP\_MODEM\_LINK\_DATA\_INPUT\_QUEUE\_LEN
- #define IP\_MODEM\_LINK\_MGMT\_OUTPUT\_QUEUE\_LEN
- #define IP\_MODEM\_LINK\_MGMT\_INPUT\_QUEUE\_LEN

### Functions

- void hostAppProcessManagementCommands (void)

#### 8.332.1 Macro Definition Documentation

### 8.332.1.1 #define IP\_MODEM\_LINK\_DATA\_INPUT\_QUEUE\_LEN

Definition at line 13 of file [rtos-ipc-link.h](#).

### 8.332.1.2 #define IP\_MODEM\_LINK\_MGMT\_OUTPUT\_QUEUE\_LEN

Definition at line 19 of file [rtos-ipc-link.h](#).

### 8.332.1.3 #define IP\_MODEM\_LINK\_MGMT\_INPUT\_QUEUE\_LEN

Definition at line 24 of file [rtos-ipc-link.h](#).

## 8.332.2 Function Documentation

### 8.332.2.1 void hostAppProcessManagementCommands ( void )

## 8.333 rtos-ipc-link.h

```

00001 // File: rtos-ipc-link.h
00002 //
00003 // Description:
00004 //
00005 // Copyright 2014 by Silicon Laboratories. All rights reserved.           *80*
00006
00007 #ifndef RTOS_IPC_LINK_H
00008 #define RTOS_IPC_LINK_H
00009
00010
00011 // Configure the default length of the data input queue
00012 #ifndef IP_MODEM_LINK_DATA_INPUT_QUEUE_LEN
00013     #define IP_MODEM_LINK_DATA_INPUT_QUEUE_LEN 5
00014 #endif
00015 // NOTE: The data output queue is managed by lwIP and not configured here
00016
00017 // Configure the default length of the management output queue
00018 #ifndef IP_MODEM_LINK_MGMT_OUTPUT_QUEUE_LEN
00019     #define IP_MODEM_LINK_MGMT_OUTPUT_QUEUE_LEN 5
00020 #endif
00021
00022 // Configure the default length of the management input queue
00023 #ifndef IP_MODEM_LINK_MGMT_INPUT_QUEUE_LEN
00024     #define IP_MODEM_LINK_MGMT_INPUT_QUEUE_LEN 5
00025 #endif
00026
00027 // Look for any messages from the IP modem thread for the host and process
00028 // them with the Ember binary command interpreter. This function should be
00029 // called in the host application like a tick function.
00030 void hostAppProcessManagementCommands(void);
00031
00032 #endif //RTOS_IPC_LINK_H

```

## 8.334 rtos-main.h File Reference

## 8.335 rtos-main.h

```

00001
00002 // ****
00003 // * rtos-main.h
00004 // *
00005 // * This file provides an entry point for RTOS based applications.
00006 // *

```

```

00007 // * Copyright 2014 Silicon Laboratories, Inc.
      *80*
00008 // ****
00009 #ifndef DOXYGEN_SHOULD_SKIP_THIS
00010 bool emSendZclPacketOverLwip(uint8_t *payload,uint8_t payloadLength,uint8_t *
      destIp);
00011 void initializeLwip(void);
00012 void lwipTick(void);
00013 #endif //DOXYGEN_SHOULD_SKIP_THIS

```

## 8.336 scan-dispatch.h File Reference

### Data Structures

- struct [EmberAfPluginScanDispatchScanResults](#)  
*Information regarding scan results.*
- struct [EmberAfPluginScanDispatchScanData](#)  
*A structure containing data for scheduling a scan.*

### Macros

- #define [EMBER\\_AF\\_PLUGIN\\_SCAN\\_DISPATCH\\_SCAN\\_QUEUE\\_SIZE](#)

### Typedefs

- typedef void(\* [EmberAfPluginScanDispatchScanResultsHandler](#) )(EmberAfPluginScanDispatchScanResults \*results)

### Functions

- [EmberNetworkScanType emberAfPluginScanDispatchScanResultsGetScanType](#) (EmberAfPluginScanDispatchScanResults \*results)
- [bool emberAfPluginScanDispatchScanResultsAreComplete](#) (EmberAfPluginScanDispatchScanResults \*results)
- [bool emberAfPluginScanDispatchScanResultsAreFailure](#) (EmberAfPluginScanDispatchScanResults \*results)
- [EmberStatus emberAfPluginScanDispatchScheduleScan](#) (EmberAfPluginScanDispatchScanData \*data)
- [void emberAfPluginScanDispatchClear](#) (void)

## 8.337 scan-dispatch.h

```

00001 //
00002 // scan-dispatch.h
00003 //
00004 // Dispatching 802.15.4 scan results to interested parties.
00005 //
00006 // April 15, 2015
00007 //
00008 // Copyright 2015 Silicon Laboratories, Inc.                      *80*
00009 //
0010
0011 #ifndef __SCAN_DISPATCH_H__
0012 #define __SCAN_DISPATCH_H__
0013
0025 #ifndef EMBER_AF_PLUGIN_SCAN_DISPATCH_SCAN_QUEUE_SIZE

```

```

0026     #define EMBER_AF_PLUGIN_SCAN_DISPATCH_SCAN_QUEUE_SIZE 10
0027 #endif
0028
0029 typedef struct {
0030     union {
0031         EmberStatus status;
0032         int8_t rssi;
0033     };
0034
0035     union {
0036         uint8_t channel;
0037         uint8_t lqi;
0038     };
0039
0040     EmberZigbeeNetwork *network;
0041
0042     uint16_t mask;
0043 } EmberAfPluginScanDispatchScanResults;
0044
0045 #ifndef DOXYGEN_SHOULD_SKIP_THIS
0046 #define EM_AF_PLUGIN_SCAN_DISPATCH_SCAN_RESULTS_MASK_SCAN_TYPE (0x00FF)
0047 #define EM_AF_PLUGIN_SCAN_DISPATCH_SCAN_RESULTS_MASK_COMPLETE (0x0100)
0048 #define EM_AF_PLUGIN_SCAN_DISPATCH_SCAN_RESULTS_MASK_FAILURE (0x0200)
0049 #endif
0050
0051 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0052     EmberNetworkScanType
0053     emberAfPluginScanDispatchScanResultsGetScanType
0054     (EmberAfPluginScanDispatchScanResults *
0055      results);
0056 #else
0057     #define emberAfPluginScanDispatchScanResultsGetScanType(results) \
0058         ((EmberNetworkScanType)((results)->mask \
0059             & \
0060             EM_AF_PLUGIN_SCAN_DISPATCH_SCAN_RESULTS_MASK_SCAN_TYPE))
0061 #endif
0062
0063 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0064     bool
0065     emberAfPluginScanDispatchScanResultsAreComplete
0066     (EmberAfPluginScanDispatchScanResults *
0067      results);
0068 #else
0069     #define emberAfPluginScanDispatchScanResultsAreComplete(results) \
0070         ((HIGH_BYTE((results)->mask \
0071             & EM_AF_PLUGIN_SCAN_DISPATCH_SCAN_RESULTS_MASK_COMPLETE)) \
0072             != 0)
0073 #endif
0074
0075 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0076     bool
0077     emberAfPluginScanDispatchScanResultsAreFailure
0078     (EmberAfPluginScanDispatchScanResults *
0079      results);
0080 #else
0081     #define emberAfPluginScanDispatchScanResultsAreFailure(results) \
0082         ((HIGH_BYTE((results)->mask \
0083             & EM_AF_PLUGIN_SCAN_DISPATCH_SCAN_RESULTS_MASK_FAILURE)) \
0084             != 0)
0085 #endif
0086
0087 #define void (*EmberAfPluginScanDispatchScanResultsHandler \
0088 ) (EmberAfPluginScanDispatchScanResults *
0089      results);
0090
0091 typedef struct {
0092     EmberNetworkScanType scanType;
0093     uint32_t channelMask;
0094     uint8_t duration;
0095     EmberAfPluginScanDispatchScanResultsHandler
0096     handler;
0097 } EmberAfPluginScanDispatchScanData;
0098
0099 EmberStatus emberAfPluginScanDispatchScheduleScan
0100     (EmberAfPluginScanDispatchScanData *data);
0101
0102 #ifdef DOXYGEN_SHOULD_SKIP_THIS
0103     void emberAfPluginScanDispatchClear(void);
0104 #else
0105     #define emberAfPluginScanDispatchClear emberAfPluginScanDispatchInitCallback
0106 #endif
0107
0108

```

```

00164 // @} END addtogroup
00165
00166 #endif /* __SCAN_DISPATCH_H__ */

```

## 8.338 scenes-client.h File Reference

### Functions

- bool `emberAfPluginScenesClientParseAddSceneResponse` (const `EmberAfClusterCommand` \*cmd, `uint8_t status`, `uint16_t groupId`, `uint8_t sceneId`)
- bool `emberAfPluginScenesClientParseViewSceneResponse` (const `EmberAfClusterCommand` \*cmd, `uint8_t status`, `uint16_t groupId`, `uint8_t sceneId`, `uint16_t transitionTime`, const `uint8_t *sceneName`, const `uint8_t *extensionFieldSets`)

### 8.338.1 Function Documentation

- 8.338.1.1 bool `emberAfPluginScenesClientParseAddSceneResponse` ( const `EmberAfClusterCommand` \* cmd, `uint8_t status`, `uint16_t groupId`, `uint8_t sceneId` )
- 8.338.1.2 bool `emberAfPluginScenesClientParseViewSceneResponse` ( const `EmberAfClusterCommand` \* cmd, `uint8_t status`, `uint16_t groupId`, `uint8_t sceneId`, `uint16_t transitionTime`, const `uint8_t * sceneName`, const `uint8_t * extensionFieldSets` )

## 8.339 scenes-client.h

```

00001 // ****
00002 // * scenes-client.h
00003 // *
00004 // *
00005 // * Copyright 2011 by Ember Corporation. All rights reserved.
00006 // * * * * *
00007
00008 bool emberAfPluginScenesClientParseAddSceneResponse
00009     (const EmberAfClusterCommand *cmd,
00010      uint8_t status,
00011      uint16_t groupId,
00012      uint8_t sceneId);
00013
00014 bool emberAfPluginScenesClientParseViewSceneResponse
00015     (const EmberAfClusterCommand *cmd,
00016      uint8_t status,
00017      uint16_t groupId,
00018      uint8_t sceneId,
00019      uint16_t transitionTime
00020      ,
00021      const uint8_t * sceneName,
00022      const uint8_t * extensionFieldSets);

```

## 8.340 scenes.h File Reference

### Macros

- `#define emberAfScenesMakeInvalid`
- `#define emberAfPluginScenesServerRetrieveSceneEntry(entry, i)`

- #define `emberAfPluginScenesServerSaveSceneEntry`(entry, i)
- #define `emberAfPluginScenesServerNumSceneEntriesInUse()`
- #define `emberAfPluginScenesServerSetNumSceneEntriesInUse`(x)
- #define `emberAfPluginScenesServerIncrNumSceneEntriesInUse()`
- #define `emberAfPluginScenesServerDecrNumSceneEntriesInUse()`

## Functions

- `EmberAfStatus emberAfScenesSetSceneCountAttribute` (uint8\_t endpoint, uint8\_t newCount)
- `EmberAfStatus emberAfScenesMakeValid` (uint8\_t endpoint, uint8\_t sceneId, uint16\_t groupId)
- void `emAfPluginScenesServerPrintInfo` (void)
- bool `emberAfPluginScenesServerParseAddScene` (const `EmberAfClusterCommand` \*cmd, uint16\_t groupId, uint8\_t sceneId, uint16\_t transitionTime, uint8\_t \*sceneName, uint8\_t \*extensionFieldSets)
- bool `emberAfPluginScenesServerParseViewScene` (const `EmberAfClusterCommand` \*cmd, uint16\_t groupId, uint8\_t sceneId)

## Variables

- uint8\_t `emberAfPluginScenesServerEntriesInUse`
- `EmberAfSceneTableEntry` `emberAfPluginScenesServerSceneTable` [ ]

### 8.340.1 Macro Definition Documentation

#### 8.340.1.1 #define `emberAfScenesMakeInvalid`

Definition at line 15 of file `scenes.h`.

#### 8.340.1.2 #define `emberAfPluginScenesServerRetrieveSceneEntry( entry, i )`

Definition at line 43 of file `scenes.h`.

#### 8.340.1.3 #define `emberAfPluginScenesServerSaveSceneEntry( entry, i )`

Definition at line 45 of file `scenes.h`.

#### 8.340.1.4 #define `emberAfPluginScenesServerNumSceneEntriesInUse( )`

Definition at line 47 of file `scenes.h`.

#### 8.340.1.5 #define `emberAfPluginScenesServerSetNumSceneEntriesInUse( x )`

Definition at line 49 of file `scenes.h`.

#### 8.340.1.6 #define `emberAfPluginScenesServerIncrNumSceneEntriesInUse( )`

Definition at line 51 of file `scenes.h`.

### 8.340.1.7 #define emberAfPluginScenesServerDecrNumSceneEntriesInUse( )

Definition at line 53 of file [scenes.h](#).

## 8.340.2 Function Documentation

### 8.340.2.1 EmberAfStatus emberAfScenesSetSceneCountAttribute ( uint8\_t endpoint, uint8\_t newCount )

### 8.340.2.2 EmberAfStatus emberAfScenesMakeValid ( uint8\_t endpoint, uint8\_t sceneId, uint16\_t groupId )

### 8.340.2.3 void emAfPluginScenesServerPrintInfo ( void )

### 8.340.2.4 bool emberAfPluginScenesServerParseAddScene ( const EmberAfClusterCommand \* cmd, uint16\_t groupId, uint8\_t sceneId, uint16\_t transitionTime, uint8\_t \* sceneName, uint8\_t \* extensionFieldSets )

### 8.340.2.5 bool emberAfPluginScenesServerParseViewScene ( const EmberAfClusterCommand \* cmd, uint16\_t groupId, uint8\_t sceneId )

## 8.340.3 Variable Documentation

### 8.340.3.1 uint8\_t emberAfPluginScenesServerEntriesInUse

### 8.340.3.2 EmberAfSceneTableEntry emberAfPluginScenesServerSceneTable[]

## 8.341 scenes.h

```

00001 // ****
00002 // * scenes.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 EmberAfStatus emberAfScenesSetSceneCountAttribute
00009     (uint8_t endpoint,
00010      uint8_t newCount);
00010 EmberAfStatus emberAfScenesMakeValid(uint8_t
00011     endpoint,
00012     uint8_t sceneId,
00013     uint16_t groupId);
00014 // DEPRECATED.
00015 #define emberAfScenesMakeInvalid emberAfScenesClusterMakeInvalidCallback
00016
00017 void emAfPluginScenesServerPrintInfo(void);
00018
00019 extern uint8_t emberAfPluginScenesServerEntriesInUse
00020 ;
00021 #if defined(EMBER_AF_PLUGIN_SCENES_USE_TOKENS) && !defined(EZSP_HOST)
00022 // In this case, we use token storage
00023 #define emberAfPluginScenesServerRetrieveSceneEntry(entry, i) \
00024     halCommonGetIndexedToken(&entry, TOKEN_SCENES_TABLE, i)
00025 #define emberAfPluginScenesServerSaveSceneEntry(entry, i) \
00026     halCommonSetIndexedToken(TOKEN_SCENES_TABLE, i, &entry)
00027 #define emberAfPluginScenesServerNumSceneEntriesInUse() \
00028     (halCommonGetToken(&emberAfPluginScenesServerEntriesInUse,
00029         TOKEN_SCENES_NUM_ENTRIES), \
00030      emberAfPluginScenesServerEntriesInUse)
00031 #define emberAfPluginScenesServerSetNumSceneEntriesInUse(x) \
00032     (emberAfPluginScenesServerEntriesInUse = x, \

```

```

00031     halCommonSetToken(TOKEN_SCENES_NUM_ENTRIES,
00032     &emberAfPluginScenesServerEntriesInUse))
00033     #define emberAfPluginScenesServerIncrNumSceneEntriesInUse() \
00034     ((halCommonGetToken(&emberAfPluginScenesServerEntriesInUse,
00035     TOKEN_SCENES_NUM_ENTRIES), \
00036     ++emberAfPluginScenesServerEntriesInUse), \
00037     halCommonSetToken(TOKEN_SCENES_NUM_ENTRIES,
00038     &emberAfPluginScenesServerEntriesInUse))
00039     #define emberAfPluginScenesServerDecrNumSceneEntriesInUse() \
00040     ((halCommonGetToken(&emberAfPluginScenesServerEntriesInUse,
00041     TOKEN_SCENES_NUM_ENTRIES), \
00042     --emberAfPluginScenesServerEntriesInUse), \
00043     halCommonSetToken(TOKEN_SCENES_NUM_ENTRIES,
00044     &emberAfPluginScenesServerEntriesInUse))
00045 #else
00046 // Use normal RAM storage
00047 extern EmberAfSceneTableEntry
00048 emberAfPluginScenesServerSceneTable[];
00049 #define emberAfPluginScenesServerRetrieveSceneEntry(entry, i) \
00050     (entry = emberAfPluginScenesServerSceneTable[i])
00051 #define emberAfPluginScenesServerSaveSceneEntry(entry, i) \
00052     (emberAfPluginScenesServerSceneTable[i] = entry)
00053 #define emberAfPluginScenesServerNumSceneEntriesInUse() \
00054     (emberAfPluginScenesServerEntriesInUse)
00055 #define emberAfPluginScenesServerSetNumSceneEntriesInUse(x) \
00056     (emberAfPluginScenesServerEntriesInUse = x)
00057 #define emberAfPluginScenesServerIncrNumSceneEntriesInUse() \
00058     (++emberAfPluginScenesServerEntriesInUse)
00059 #define emberAfPluginScenesServerDecrNumSceneEntriesInUse() \
00060     (--emberAfPluginScenesServerEntriesInUse)
00061 #endif // Use tokens
00062
00063 bool emberAfPluginScenesServerParseAddScene
00064     (const EmberAfClusterCommand *cmd,
00065         uint16_t groupId,
00066         uint8_t sceneId,
00067         uint16_t transitionTime,
00068         uint8_t *sceneName,
00069         uint8_t *extensionFieldSets);
00070
00071 bool emberAfPluginScenesServerParseViewScene
00072     (const EmberAfClusterCommand *cmd,
00073         uint16_t groupId,
00074         uint8_t sceneId);

```

## 8.342 security-cli.h File Reference

### Functions

- void [changeKeyCommand](#) (void)
- void [printKeyInfo](#) (void)

### Variables

- EmberCommandEntry [changeKeyCommands](#) []
- [EmberKeyData cliPreconfiguredLinkKey](#)
- [EmberKeyData cliNetworkKey](#)
- EmberCommandEntry [emAfSecurityCommands](#) []

#### 8.342.1 Function Documentation

##### 8.342.1.1 void [changeKeyCommand](#) ( void )

##### 8.342.1.2 void [printKeyInfo](#) ( void )

### 8.342.2 Variable Documentation

- 8.342.2.1 `EmberCommandEntry changeKeyCommands[]`
- 8.342.2.2 `EmberKeyData cliPreconfiguredLinkKey`
- 8.342.2.3 `EmberKeyData cliNetworkKey`
- 8.342.2.4 `EmberCommandEntry emAfSecurityCommands[]`

## 8.343 security-cli.h

```

00001 // File: security-cli.h
00002 //
00003 // Routines to print info about the security keys on the device.
00004 //
00005 // Author(s): Rob Alexander <ralexander@ember.com>
00006 //
00007 // Copyright 2008 by Ember Corporation. All rights reserved.
     *80*
00008
00009 extern EmberCommandEntry changeKeyCommands[];
00010
00011 extern EmberKeyData cliPreconfiguredLinkKey;
00012 extern EmberKeyData cliNetworkKey;
00013
00014 void changeKeyCommand(void);
00015 void printKeyInfo(void);
00016
00017 extern EmberCommandEntry emAfSecurityCommands[];

```

## 8.344 security-sensor-test.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_TIME_BETWEEN_PRESSES_MS`
- `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_BUTTON_DEBOUNCE_TIME_MS`
- `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_NETWORK_LEAVE_TIME_MS`
- `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_IAS_ZONE_ENDPOINT`

### 8.344.1 Macro Definition Documentation

#### 8.344.1.1 `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_TIME_BETWEEN_PRESSES_MS`

Definition at line 4 of file [security-sensor-test.h](#).

#### 8.344.1.2 `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_BUTTON_DEBOUNCE_TIME_MS`

Definition at line 5 of file [security-sensor-test.h](#).

#### 8.344.1.3 `#define EMBER_AF_PLUGIN_SECURITY_SENSOR_NETWORK_LEAVE_TIME_MS`

Definition at line 6 of file [security-sensor-test.h](#).

#### 8.344.1.4 #define EMBER\_AF\_PLUGIN\_SECURITY\_SENSOR\_IAS\_ZONE\_ENDPOINT

Definition at line 7 of file [security-sensor-test.h](#).

### 8.345 security-sensor-test.h

```
00001
00002
00003 // Macros to allow plugin options to be defined in unit tests
00004 #define EMBER_AF_PLUGIN_SECURITY_SENSOR_TIME_BETWEEN_PRESSES_MS 500
00005 #define EMBER_AF_PLUGIN_SECURITY_SENSOR_BUTTON_DEBOUNCE_TIME_MS 100
00006 #define EMBER_AF_PLUGIN_SECURITY_SENSOR_NETWORK_LEAVE_TIME_MS 1000
00007 #define EMBER_AF_PLUGIN_SECURITY_SENSOR_IAS_ZONE_ENDPOINT 1
```

### 8.346 silabs-device-ui.h File Reference

#### Functions

- void [emberAfPluginSilabsDeviceUiLedNetworkFoundBlink](#) (void)
- void [emberAfPluginSilabsDeviceUiLedNetworkLostBlink](#) (void)
- void [emberAfPluginSilabsDeviceUiLedNetworkSearchingBlink](#) (void)
- void [emberAfPluginSilabsDeviceUiLedIdentifyBlink](#) (void)
- void [emberAfPluginSilabsDeviceUiLedProactiveRejoinBlink](#) (void)

#### 8.346.1 Function Documentation

##### 8.346.1.1 void [emberAfPluginSilabsDeviceUiLedNetworkFoundBlink](#) ( void )

Blink the Network Found LED pattern.

##### 8.346.1.2 void [emberAfPluginSilabsDeviceUiLedNetworkLostBlink](#) ( void )

Blink the Network Lost LED pattern.

##### 8.346.1.3 void [emberAfPluginSilabsDeviceUiLedNetworkSearchingBlink](#) ( void )

Blink the Network Searching LED pattern.

##### 8.346.1.4 void [emberAfPluginSilabsDeviceUiLedIdentifyBlink](#) ( void )

Blink the Network Identify LED pattern.

##### 8.346.1.5 void [emberAfPluginSilabsDeviceUiLedProactiveRejoinBlink](#) ( void )

Blink the Network Proactive Rejoin LED pattern.

## 8.347 silabs-device-ui.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002     *80*
00003 #ifndef __SILABS_DEVICE_UI_H__
00004 #define __SILABS_DEVICE_UI_H__
00005
00006 //
00007 // -----
00008 // Plugin public function declarations
00009
00011 void emberAfPluginSilabsDeviceUiLedNetworkFoundBlink
00012     (void);
00015 void emberAfPluginSilabsDeviceUiLedNetworkLostBlink
00016     (void);
00019 void emberAfPluginSilabsDeviceUiLedNetworkSearchingBlink
00020     (void);
00023 void emberAfPluginSilabsDeviceUiLedIdentifyBlink
00024     (void);
00027 void emberAfPluginSilabsDeviceUiLedProactiveRejoinBlink
00028     (void);
00029 #endif //__SILABS_DEVICE_UI_H__

```

## 8.348 simple-metering-server.h File Reference

### Functions

- void `emAfToggleFastPolling` (uint8\_t enableFastPolling)
- void `emberAfPluginSimpleMeteringClusterReadAttributesResponseCallback` (EmberAfClusterId clusterId, uint8\_t \*buffer, uint16\_t bufLen)
- uint16\_t `emberAfPluginSimpleMeteringServerStartSampling` (uint16\_t requestedSampleId, uint32\_t issuerEventId, uint32\_t startSamplingTime, uint8\_t sampleType, uint16\_t sampleRequestInterval, uint16\_t maxNumberOfSamples, uint8\_t endpoint)

### 8.348.1 Function Documentation

8.348.1.1 void `emAfToggleFastPolling` ( uint8\_t *enableFastPolling* )

8.348.1.2 void `emberAfPluginSimpleMeteringClusterReadAttributesResponseCallback` ( EmberAfClusterId *clusterId*, uint8\_t \* *buffer*, uint16\_t *bufLen* )

8.348.1.3 uint16\_t `emberAfPluginSimpleMeteringServerStartSampling` ( uint16\_t *requestedSampleId*, uint32\_t *issuerEventId*, uint32\_t *startSamplingTime*, uint8\_t *sampleType*, uint16\_t *sampleRequestInterval*, uint16\_t *maxNumberOfSamples*, uint8\_t *endpoint* )

## 8.349 simple-metering-server.h

```

00001 /*
00002  * simple-metering-server.h
00003  *
00004  *   Created on: Dec 11, 2014
00005  *       Author: romacdon
00006  */
00007
00008 #ifndef SIMPLE_METERING_SERVER_H_

```

```

00009 #define SIMPLE_METERING_SERVER_H_
00010
00011 void emAfToggleFastPolling(uint8_t enableFastPolling);
00012 void emberAfPluginSimpleMeteringClusterReadAttributesResponseCallback
    (EmberAfClusterId clusterId,
00013                                     uint8_t *
    buffer,
00014                                     uint16_t
    bufLen);
00015 uint16_t emberAfPluginSimpleMeteringServerStartSampling
    (uint16_t requestedSampleId,
00016                                     uint32_t issuerEventId,
00017                                     uint32_t
    startSamplingTime,
00018                                     uint8_t sampleType,
00019                                     uint16_t
    sampleRequestInterval,
00020                                     uint16_t
    maxNumberOfSamples,
00021                                     uint8_t endpoint);
00022
00023 #endif /* SIMPLE_METERING_SERVER_H_ */

```

## 8.350 simple-metering-test.h File Reference

### Functions

- void [emAfTestMeterTick](#) (uint8\_t endpoint)
- void [emAfTestMeterInit](#) (uint8\_t endpoint)
- bool [emAfTestMeterGetProfiles](#) (uint8\_t intervalChannel, uint32\_t endTime, uint8\_t numberOfPeriods)

#### 8.350.1 Function Documentation

8.350.1.1 void [emAfTestMeterTick](#) ( uint8\_t *endpoint* )

8.350.1.2 void [emAfTestMeterInit](#) ( uint8\_t *endpoint* )

8.350.1.3 bool [emAfTestMeterGetProfiles](#) ( uint8\_t *intervalChannel*, uint32\_t *endTime*, uint8\_t *numberOfPeriods* )

## 8.351 simple-metering-test.h

```

00001 // ****
00002 // * simple-metering-test.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 void emAfTestMeterTick(uint8_t endpoint);
00009 void emAfTestMeterInit(uint8_t endpoint);
0010
0011 // The Test meter's profile interval period timeframe enum value
0012 // is 3 which according to the SE spec is 15 minutes
0013 #ifdef EMBER_AF_PLUGIN_SIMPLE_METERING_SERVER_TEST_METER_ENABLE
0014
0015 #define PROFILE_INTERVAL_PERIOD_TIMEFRAME 3
0016 #define PROFILE_INTERVAL_PERIOD_IN_MINUTES 15
0017 #define PROFILE_INTERVAL_PERIOD_IN_SECONDS (PROFILE_INTERVAL_PERIOD_IN_MINUTES
0018 * 60)
0019 #define PROFILE_INTERVAL_PERIOD_IN_MILLISECONDS
0020     ((PROFILE_INTERVAL_PERIOD_IN_MINUTES * 60) * 1000)
0021 #define MAX_PROFILE_INDEX
0022     (EMBER_AF_PLUGIN_SIMPLE_METERING_SERVER_TEST_METER_PROFILES - 1)

```

```

00020 #define TOTAL_PROFILE_TIME_SPAN_IN_SECONDS
      (EMBER_AF_PLUGIN_SIMPLE_METERING_SERVER_TEST_METER_PROFILES * (PROFILE_INTERVAL_PERIOD_IN_MINUTES * 60))
00021
00022
00023 void afTestMeterPrint(void);
00024 void afTestMeterSetConsumptionRate(uint16_t rate,uint8_t endpoint);
00025 void afTestMeterSetConsumptionVariance(uint16_t variance);
00026 void afTestMeterAdjust(uint8_t endpoint);
00027
00028 // 0 off, 1 if electric, 2 if gas
00029 void afTestMeterMode(uint8_t endpoint, uint8_t electric);
00030
00031 void afTestMetersetError(uint8_t endpoint, uint8_t error);
00032 // Sets the random error occurrence:
00033 //   data = 0: disable
00034 //   otherwise:
00035 void afTestMeterRandomError(uint8_t changeIn256);
00036
00037 void afTestMeterEnableProfiles(uint8_t enable);
00038
00039 bool emAfTestMeterGetProfiles(uint8_t intervalChannel,
00040                      uint32_t endTime,
00041                      uint8_t numberOfPeriods);
00042 #else
00043
00044 bool emAfTestMeterGetProfiles(uint8_t intervalChannel,
00045                      uint32_t endTime,
00046                      uint8_t numberOfPeriods);
00047
00048 #endif

```

## 8.352 sleepy-message-queue.h File Reference

### Data Structures

- struct [EmberAfSleepyMessage](#)

### Macros

- #define [EMBER\\_AF\\_PLUGIN\\_SLEEPY\\_MESSAGE\\_INVALID\\_ID](#)

### Typedefs

- typedef uint8\_t [EmberAfSleepyMessageId](#)

### Functions

- void [emberAfPluginSleepyMessageQueueInitCallback](#) (void)
- uint8\_t [emberAfPluginSleepyMessageQueueGetNumUnusedEntries](#) (void)
- [EmberAfSleepyMessageId](#) [emberAfPluginSleepyMessageQueueStoreMessage](#) ([EmberAfSleepyMessage](#) \*pmsg, uint32\_t timeoutSec)
- uint32\_t [emMessageMSecRemaining](#) ([EmberAfSleepyMessageId](#) sleepyMsgId)
- [EmberAfSleepyMessageId](#) [emberAfPluginSleepyMessageQueueGetPendingMessageId](#) ([EmberEUI64](#) dstEui64)
- bool [emberAfPluginSleepyMessageQueueGetPendingMessage](#) ([EmberAfSleepyMessageId](#) sleepyMsgId, [EmberAfSleepyMessage](#) \*pmsg)
- uint32\_t [emberAfPluginSleepyMessageQueueGetNextMessageEventTimeoutMs](#) (void)
- uint8\_t [emberAfPluginSleepyMessageQueueGetNumMessages](#) ([EmberEUI64](#) dstEui64)

- bool `emberAfPluginSleepyMessageQueueRemoveMessage` (`EmberAfSleepyMessageId` `sleepyMsgId`)
- void `emberAfPluginSleepyMessageQueueRemoveAllMessages` (`EmberEUI64` `dstEui64`)

### 8.352.1 Macro Definition Documentation

#### 8.352.1.1 `#define EMBER_AF_PLUGIN_SLEEPY_MESSAGE_INVALID_ID`

Definition at line 21 of file `sleepy-message-queue.h`.

### 8.352.2 Typedef Documentation

#### 8.352.2.1 `typedef uint8_t EmberAfSleepyMessageId`

Definition at line 11 of file `sleepy-message-queue.h`.

### 8.352.3 Function Documentation

#### 8.352.3.1 `void emberAfPluginSleepyMessageQueueInitCallback ( void )`

Initialize the sleepy message queue.

#### 8.352.3.2 `uint8_t emberAfPluginSleepyMessageQueueGetNumUnusedEntries ( void )`

Returns the number of unused entries in the sleepy message queue.

#### 8.352.3.3 `EmberAfSleepyMessageId emberAfPluginSleepyMessageQueueStoreMessage ( EmberAfSleepyMessage * pmsg, uint32_t timeoutSec )`

Stores an `EmberAfSleepyMessage` to the sleepy message queue if an entry is available.

##### Parameters

|                         |                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <code>pmsg</code>       | Pointer to an <code>EmberAfSleepyMessage</code> structure containing information about the message that should be stored. |
| <code>timeoutSec</code> | The time in seconds that the message should be stored in the sleepy message queue.                                        |

##### Returns

The `EmberAfSleepyMessageId` assigned to the message if stored, or `EMBER_AF_PLUGING_SLEEPY_MESSAGE_INVALID_ID` if the message could not be stored to the queue. The message may not be stored if the queue is full, or the time duration exceeds the maximum duration.

#### 8.352.3.4 `uint32_t emMessageMSecRemaining ( EmberAfSleepyMessageId sleepyMsgId )`

Returns the number of milliseconds remaining until the sleepy message expires.

**Parameters**

|                    |                                                                          |
|--------------------|--------------------------------------------------------------------------|
| <i>sleepyMsgId</i> | The EmberAfSleepyMessageId of the message whose timeout should be found. |
|--------------------|--------------------------------------------------------------------------|

**Returns**

The number of milliseconds until the specified message expires, or 0xFFFFFFFF if a matching active message cannot be found.

### 8.352.3.5 EmberAfSleepyMessageId emberAfPluginSleepyMessageQueueGetPendingMessageId ( EmberEUI64 *dstEui64* )

Returns the next EmberAfSleepyMessageId value (that will expire next) for a given EmberEUI64.

**Parameters**

|                 |                                                                                 |
|-----------------|---------------------------------------------------------------------------------|
| <i>dstEui64</i> | The EmberEUI64 value of a device whose EmberAfSleepyMessageId is being queried. |
|-----------------|---------------------------------------------------------------------------------|

**Returns**

The EmberAfSleepyMessageId value of the next-expiring message for the specified EmberEUI64 if a match was found, or EMBER\_AF\_PLUGIN\_SLEEPY\_MESSAGE\_INVALID\_ID if a matching entry was not found.

### 8.352.3.6 bool emberAfPluginSleepyMessageQueueGetPendingMessage ( EmberAfSleepyMessageId *sleepyMsgId*, EmberAfSleepyMessage \* *pmsg* )

Searches the sleepy message queue for an entry with the specified EmberAfSleepyMessageId.

If a match was found, this copies the message into the [EmberAfSleepyMessage](#) structure pointer.

**Parameters**

|                    |                                                                                                                                                                                                |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>sleepyMsgId</i> | The EmberAfSleepyMessageId of the <a href="#">EmberAfSleepyMessage</a> structure that should be looked up in the sleepy message queue.                                                         |
| <i>pmsg</i>        | A pointer to an <a href="#">EmberAfSleepyMessage</a> structure. If a message is found in the sleepy message queue with a matching EmberAfSleepyMessageId, it will be copied to this structure. |

**Returns**

true if a matching message was found or false if a match was not found.

### 8.352.3.7 uint32\_t emberAfPluginSleepyMessageQueueGetNextMessageEventTimeoutMs ( void )

Returns the time in milliseconds until the next message in the sleepy message queue will timeout.

**Returns**

The remaining time in milliseconds until the next message will timeout.

### 8.352.3.8 uint8\_t emberAfPluginSleepyMessageQueueGetNumMessages ( EmberEUI64 dstEui64 )

Returns the number of messages in the sleepy message queue that are buffered for a given EmberEUI64.

#### Parameters

|                 |                                                                                                   |
|-----------------|---------------------------------------------------------------------------------------------------|
| <i>dstEui64</i> | The destination EUI64 that should be used to count matching messages in the sleepy message queue. |
|-----------------|---------------------------------------------------------------------------------------------------|

#### Returns

The number of messages in the sleepy message queue that are being sent to the specified EmberEUI64.

### 8.352.3.9 bool emberAfPluginSleepyMessageQueueRemoveMessage ( EmberAfSleepyMessageId sleepyMsgId )

Removes the message from the sleepy message queue with the specified EmberAfSleepyMessageId.

#### Parameters

|                    |                                                                                  |
|--------------------|----------------------------------------------------------------------------------|
| <i>sleepyMsgId</i> | The EmberAfSleepyMessageId that should be removed from the sleepy message queue. |
|--------------------|----------------------------------------------------------------------------------|

#### Returns

true if a matching EmberAfSleepyMessageId was found and removed from the sleepy message queue, or false if not.

### 8.352.3.10 void emberAfPluginSleepyMessageQueueRemoveAllMessages ( EmberEUI64 dstEui64 )

Removes all messages from the sleepy message queue whose destination address matches the specified EmberEUI64.

#### Parameters

|                 |                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------|
| <i>dstEui64</i> | The EmberEUI64 to search for in the sleepy message queue. All entries with a matching destination EUI64 should be removed. |
|-----------------|----------------------------------------------------------------------------------------------------------------------------|

## 8.353 sleepy-message-queue.h

```

00001 // ****
00002 // * sleepy-message-queue.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // ****
00007
00008 #ifndef _SLEEPY_MESSAGE_QUEUE_H_
00009 #define _SLEEPY_MESSAGE_QUEUE_H_
0010
0011 typedef uint8_t EmberAfSleepyMessageId;
0012
0013 typedef struct
0014 {
0015     uint8_t *payload;

```

```

00016     uint16_t length;
00017     uint16_t payloadId;
00018     EmberEUI64 dstEui64;
00019 } EmberAfSleepyMessage;
00020
00021 #define EMBER_AF_PLUGIN_SLEEPY_MESSAGE_INVALID_ID 0xFF
00022
00027 void emberAfPluginSleepyMessageQueueInitCallback
00028     ( void );
00029
00033 uint8_t emberAfPluginSleepyMessageQueueGetNumUnusedEntries
00034     ( void );
00034
00041 EmberAfSleepy messageId
00042     emberAfPluginSleepyMessageQueueStoreMessage
00043     ( EmberAfSleepyMessage *pmsg, uint32_t timeoutSec );
00042
00048 uint32_t emMessageMSecRemaining( EmberAfSleepy messageId
00049     sleepyMsgId );
00049
00055 EmberAfSleepy messageId
00056     emberAfPluginSleepyMessageQueueGetPendingMessageId
00057     ( EmberEUI64 dstEui64 );
00056
00066 bool emberAfPluginSleepyMessageQueueGetPendingMessage
00067     ( EmberAfSleepy messageId sleepyMsgId, EmberAfSleepyMessage
00068     *pmsg );
00067
00072 uint32_t emberAfPluginSleepyMessageQueueGetNextMessageEventTimeoutMs
00073     ( void );
00073
00079 uint8_t emberAfPluginSleepyMessageQueueGetNumMessages
00080     ( EmberEUI64 dstEui64 );
00080
00086 bool emberAfPluginSleepyMessageQueueRemoveMessage
00087     ( EmberAfSleepy messageId sleepyMsgId );
00087
00092 void emberAfPluginSleepyMessageQueueRemoveAllMessages
00093     ( EmberEUI64 dstEui64 );
00094
00095
00096 #endif // #ifndef _SLEEPY_MESSAGE_QUEUE_H_
00097

```

## 8.354 smart-energy-registration.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_ERROR\_LIMIT
- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_INITIAL
- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_RETRY
- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_BRIEF
- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_RESUME
- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_TRANSITION
- #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_NONE

### Functions

- uint8\_t emAfPluginSmartEnergyRegistrationTrustCenterKeyEstablishmentEndpoint (void)

#### 8.354.1 Macro Definition Documentation

#### 8.354.1.1 #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_ERROR\_LIMIT

Definition at line 8 of file smart-energy-registration.h.

8.354.1.2 #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_INITIAL

Definition at line 11 of file [smart-energy-registration.h](#).

Definition at line 12 of file smart-energy-registration.h.

8.354.1.4 #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_BRIEF

Definition at line 13 of file smart-energy-registration.h.

Definition at line 15 of file smart-energy-registration.h.

8.354.1.7 #define EMBER\_AF\_PLUGIN\_SMART\_ENERGY\_REGISTRATION\_DELAY\_NONE

8.354.2.1 uint8\_t emAfPluginSmartEnergyRegistrationTrustCenterKeyEstablishmentEndpoint( void )

8.355 smart-energy-registration h

```
00001 //  
*****  
00002 // * smart-energy-registration.c  
00003 // *  
00004 // * Copyright 2010 by Ember Corporation. All rights reserved.  
*80*  
00005 //  
*****  
00006  
00007 #ifndef EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_ERROR_LIMIT  
00008 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_ERROR_LIMIT 3  
00009 #endif //EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_ERROR_LIMIT  
00010  
00011 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_INITIAL  
    (MILLISECOND_TICKS_PER_SECOND << 2)  
00012 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_RETRY  
    (MILLISECOND_TICKS_PER_SECOND << 5)  
00013 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_BRIEF  
    (MILLISECOND_TICKS_PER_SECOND << 3)  
00014 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_RESUME
```

```

00015 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_TRANSITION \
        (MILLISECOND_TICKS_PER_SECOND >> 1)
00016 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_NONE          0
00017
00018 // ESI discovery and binding is only required if the device implements certain
00019 // Smart Energy clusters. If it doesn't implement these clusters (e.g., it is
00020 // an ESI), the ESI discovery and binding process can be skipped altogether.
00021 // If
00022 // discovery is required, it shall be repeated on a period of no more than once
00023 // every three hours and no less than once every 24 hours, according to section
00024 // 5.4.9.2 of 105638r09.
00025 #if defined(EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION) \
00026   && (defined(ZCL_USING_DEMAND_RESPONSE_LOAD_CONTROL_CLUSTER_CLIENT) \
00027     || defined(ZCL_USING_MESSAGING_CLUSTER_CLIENT)) \
00028   || defined(ZCL_USING_PRICE_CLUSTER_CLIENT))
00029 #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_ESI_DISCOVERY_REQUIRED
00030
00031 // The plugin option for the discovery period is specified in hours and is
00032 // converted here to milliseconds. If rediscovery is not enabled, the delay
00033 // is not defined, and the plugin won't schedule an event to rediscover ESIs.
00034 #ifdef EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_ESI_REDISCOVERY
00035   #define EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_DELAY_PERIOD \
00036     (EMBER_AF_PLUGIN_SMART_ENERGY_REGISTRATION_ESI_DISCOVERY_PERIOD * \
00037      MILLISECOND_TICKS_PER_HOUR)
00038   extern uint32_t emAfPluginSmartEnergyRegistrationDiscoveryPeriod;
00039 #endif
00040 void emAfPluginSmartEnergyRegistrationReadAttributesResponseCallback(uint8_t
00041   *buffer,
00042   uint16_t
00043   bufLen);
00044 #endif
00045 uint8_t emAfPluginSmartEnergyRegistrationTrustCenterKeyEstablishmentEndpoint
00046 (void);

```

## 8.356 standalone-bootloader-client.h File Reference

### Functions

- void [emAfStandaloneBootloaderClientPrintStatus](#) (void)
- void [emAfStandaloneBootloaderClientGetInfo](#) (uint16\_t \*bootloaderVersion, uint8\_t \*platformId, uint8\_t \*microId, uint8\_t \*phyId)
- [EmberStatus emAfStandaloneBootloaderClientLaunch](#) (void)
- void [emAfStandaloneBootloaderClientGetMfgInfo](#) (uint16\_t \*mfgIdReturnValue, uint8\_t \*boardNameReturnValue)
- void [emAfStandaloneBootloaderClientGetKey](#) (uint8\_t \*returnData)
- uint32\_t [emAfStandaloneBootloaderClientGetRandomNumber](#) (void)

### 8.356.1 Function Documentation

**8.356.1.1 void emAfStandaloneBootloaderClientPrintStatus ( void )**

**8.356.1.2 void emAfStandaloneBootloaderClientGetInfo ( uint16\_t \* *bootloaderVersion*, uint8\_t \* *platformId*, uint8\_t \* *microId*, uint8\_t \* *phyId* )**

**8.356.1.3 EmberStatus emAfStandaloneBootloaderClientLaunch ( void )**

**8.356.1.4 void emAfStandaloneBootloaderClientGetMfgInfo ( uint16\_t \* *mfgIdReturnValue*, uint8\_t \* *boardNameReturnValue* )**

8.356.1.5 void emAfStandaloneBootloaderClientGetKey ( uint8\_t \* *returnData* )

8.356.1.6 uint32\_t emAfStandaloneBootloaderClientGetRandomNumber ( void )

## 8.357 standalone-bootloader-client.h

```

00001
00002 void emAfStandaloneBootloaderClientPrintStatus
00003     (void);
00004 void emAfStandaloneBootloaderClientGetInfo
00005     (uint16_t* bootloaderVersion,
00006         uint8_t* platformId,
00007         uint8_t* microId,
00008         uint8_t* phyId);
00009 EmberStatus emAfStandaloneBootloaderClientLaunch
00010     (void);
00011 void emAfStandaloneBootloaderClientGetMfgInfo
00012     (uint16_t* mfgIdReturnValue,
00013         uint8_t* boardNameReturnValue);
00014 void emAfStandaloneBootloaderClientGetKey(
00015     uint8_t* returnData);
00016 uint32_t emAfStandaloneBootloaderClientGetRandomNumber
00017     (void);

```

## 8.358 standalone-bootloader-server.h File Reference

### Functions

- void emAfStandaloneBootloaderServerPrintTargetClientInfoCommand (void)
- void emAfStandaloneBootloaderServerPrintStatus (void)
- EmberStatus emberAfPluginStandaloneBootloaderServerBroadcastQuery (void)
- EmberStatus emberAfPluginStandaloneBootloaderServerStartClientBootload (EmberEUI64 longId, const EmberAfOtaImageId \*id, uint16\_t tag)
- EmberStatus emberAfPluginStandaloneBootloaderServerStartClientBootloadWithCurrentTarget (const EmberAfOtaImageId \*id, uint16\_t tag)

### 8.358.1 Function Documentation

8.358.1.1 void emAfStandaloneBootloaderServerPrintTargetClientInfoCommand ( void )

8.358.1.2 void emAfStandaloneBootloaderServerPrintStatus ( void )

8.358.1.3 EmberStatus emberAfPluginStandaloneBootloaderServerBroadcastQuery ( void )

8.358.1.4 EmberStatus emberAfPluginStandaloneBootloaderServerStartClientBootload ( EmberEUI64 *longId*, const EmberAfOtaImageId \* *id*, uint16\_t *tag* )

8.358.1.5 EmberStatus emberAfPluginStandaloneBootloaderServerStartClientBootloadWithCurrentTarget ( const EmberAfOtaImageId \* *id*, uint16\_t *tag* )

## 8.359 standalone-bootloader-server.h

```

00001
00002
00003 void emAfStandaloneBootloaderServerPrintTargetClientInfoCommand
00004     (void);
00005 void emAfStandaloneBootloaderServerPrintStatus
00006     (void);
00007 // Public API
00008 EmberStatus emberAfPluginStandaloneBootloaderServerBroadcastQuery
00009     (void);
00010 EmberStatus
00011 emberAfPluginStandaloneBootloaderServerStartClientBootload
00012     (EmberEUI64 longId,
00013          const
00014          EmberAfOtaImageId* id,
00015          uint16_t
00016          tag);
00017 EmberStatus
00018 emberAfPluginStandaloneBootloaderServerStartClientBootloadWithCurrentTarget
00019     (const EmberAfOtaImageId* id,
00020      uint16_t tag);
00021
00022

```

## 8.360 temp-to-rgb.h File Reference

### Macros

- #define TEMP\_TABLE\_LENGTH
- #define RED\_VALUES
- #define GREEN\_VALUES
- #define BLUE\_VALUES

### 8.360.1 Macro Definition Documentation

#### 8.360.1.1 #define TEMP\_TABLE\_LENGTH

Definition at line 10 of file [temp-to-rgb.h](#).

#### 8.360.1.2 #define RED\_VALUES

Definition at line 14 of file [temp-to-rgb.h](#).

#### 8.360.1.3 #define GREEN\_VALUES

Definition at line 116 of file [temp-to-rgb.h](#).

#### 8.360.1.4 #define BLUE\_VALUES

Definition at line 218 of file [temp-to-rgb.h](#).

## 8.361 temp-to-rgb.h

```

00001 // ****
00002 // * temp-to-rgb.h
00003 // *
00004 // *
00005 // * Copyright 2015 Silicon Laboratories, Inc.
00006 // ****
00007 #ifndef __TEMP_TO_RGB_H__
00008 #define __TEMP_TO_RGB_H__
00009
00010 #define TEMP_TABLE_LENGTH 100
00011
00012 // simple color to RGB transform tables based on algorithm from Robertson
00013
00014 #define RED_VALUES \
00015     109, \
00016     132, \
00017     147, \
00018     156, \
00019     164, \
00020     171, \
00021     177, \
00022     183, \
00023     189, \
00024     195, \
00025     202, \
00026     209, \
00027     217, \
00028     226, \
00029     238, \
00030     255, \
00031     255, \
00032     255, \
00033     255, \
00034     255, \
00035     255, \
00036     255, \
00037     255, \
00038     255, \
00039     255, \
00040     255, \
00041     255, \
00042     255, \
00043     255, \
00044     255, \
00045     255, \
00046     255, \
00047     255, \
00048     255, \
00049     255, \
00050     255, \
00051     255, \
00052     255, \
00053     255, \
00054     255, \
00055     255, \
00056     255, \
00057     255, \
00058     255, \
00059     255, \
00060     255, \
00061     255, \
00062     255, \
00063     255, \
00064     255, \
00065     255, \
00066     255, \
00067     255, \
00068     255, \
00069     255, \
00070     255, \
00071     255, \
00072     255, \
00073     255, \
00074     255, \
00075     255, \
00076     255, \

```

```
00077 255, \
00078 255, \
00079 255, \
00080 255, \
00081 255, \
00082 255, \
00083 255, \
00084 255, \
00085 255, \
00086 255, \
00087 255, \
00088 255, \
00089 255, \
00090 255, \
00091 255, \
00092 255, \
00093 255, \
00094 255, \
00095 255, \
00096 255, \
00097 255, \
00098 255, \
00099 255, \
00100 255, \
00101 255, \
00102 255, \
00103 255, \
00104 255, \
00105 255, \
00106 255, \
00107 255, \
00108 255, \
00109 255, \
00110 255, \
00111 255, \
00112 255, \
00113 255, \
00114 255
00115
00116 #define GREEN_VALUES \
00117 154, \
00118 172, \
00119 182, \
00120 189, \
00121 194, \
00122 198, \
00123 203, \
00124 206, \
00125 210, \
00126 214, \
00127 218, \
00128 222, \
00129 227, \
00130 233, \
00131 240, \
00132 250, \
00133 250, \
00134 244, \
00135 238, \
00136 233, \
00137 228, \
00138 223, \
00139 219, \
00140 214, \
00141 210, \
00142 206, \
00143 202, \
00144 198, \
00145 195, \
00146 191, \
00147 188, \
00148 184, \
00149 181, \
00150 178, \
00151 175, \
00152 172, \
00153 170, \
00154 167, \
00155 164, \
00156 162, \
```

```
00157 159, \
00158 157, \
00159 154, \
00160 152, \
00161 150, \
00162 147, \
00163 145, \
00164 143, \
00165 141, \
00166 139, \
00167 137, \
00168 135, \
00169 133, \
00170 131, \
00171 129, \
00172 127, \
00173 126, \
00174 124, \
00175 122, \
00176 120, \
00177 119, \
00178 117, \
00179 115, \
00180 114, \
00181 112, \
00182 111, \
00183 109, \
00184 108, \
00185 106, \
00186 105, \
00187 103, \
00188 102, \
00189 101, \
00190 99, \
00191 98, \
00192 97, \
00193 95, \
00194 94, \
00195 93, \
00196 91, \
00197 90, \
00198 89, \
00199 88, \
00200 86, \
00201 85, \
00202 84, \
00203 83, \
00204 82, \
00205 81, \
00206 80, \
00207 78, \
00208 77, \
00209 76, \
00210 75, \
00211 74, \
00212 73, \
00213 72, \
00214 71, \
00215 70, \
00216 69
00217
00218 #define BLUE_VALUES \
00219 255, \
00220 255, \
00221 255, \
00222 255, \
00223 255, \
00224 255, \
00225 255, \
00226 255, \
00227 255, \
00228 255, \
00229 255, \
00230 255, \
00231 255, \
00232 255, \
00233 255, \
00234 255, \
00235 244, \
00236 234, \
```

00237 224, \  
00238 215, \  
00239 206, \  
00240 197, \  
00241 189, \  
00242 181, \  
00243 174, \  
00244 166, \  
00245 159, \  
00246 152, \  
00247 145, \  
00248 138, \  
00249 131, \  
00250 125, \  
00251 118, \  
00252 112, \  
00253 106, \  
00254 100, \  
00255 94, \  
00256 88, \  
00257 82, \  
00258 76, \  
00259 70, \  
00260 64, \  
00261 59, \  
00262 53, \  
00263 47, \  
00264 42, \  
00265 36, \  
00266 31, \  
00267 25, \  
00268 19, \  
00269 14, \  
00270 8, \  
00271 3, \  
00272 0, \  
00273 0, \  
00274 0, \  
00275 0, \  
00276 0, \  
00277 0, \  
00278 0, \  
00279 0, \  
00280 0, \  
00281 0, \  
00282 0, \  
00283 0, \  
00284 0, \  
00285 0, \  
00286 0, \  
00287 0, \  
00288 0, \  
00289 0, \  
00290 0, \  
00291 0, \  
00292 0, \  
00293 0, \  
00294 0, \  
00295 0, \  
00296 0, \  
00297 0, \  
00298 0, \  
00299 0, \  
00300 0, \  
00301 0, \  
00302 0, \  
00303 0, \  
00304 0, \  
00305 0, \  
00306 0, \  
00307 0, \  
00308 0, \  
00309 0, \  
00310 0, \  
00311 0, \  
00312 0, \  
00313 0, \  
00314 0, \  
00315 0, \  
00316 0, \

```

00317     0, \
00318     0
00319
00320 #endif
00321

```

## 8.362 temperature-measurement-server-test.h File Reference

### Macros

- `#define EMBER_AF_API_TEMPERATURE`
- `#define EMBER_AF_PLUGIN_TEMPERATURE_MEASUREMENT_SERVER_MAX_MEASUREMENT_FREQUENCY_S`

#### 8.362.1 Macro Definition Documentation

##### 8.362.1.1 `#define EMBER_AF_API_TEMPERATURE`

Definition at line 2 of file [temperature-measurement-server-test.h](#).

##### 8.362.1.2 `#define EMBER_AF_PLUGIN_TEMPERATURE_MEASUREMENT_SERVER_MAX_MEASUREMENT_FREQUENCY_S`

Definition at line 3 of file [temperature-measurement-server-test.h](#).

## 8.363 temperature-measurement-server-test.h

```

00001
00002 #define EMBER_AF_API_TEMPERATURE "submodules/base/hal/micro/temperature.h"
00003 #define EMBER_AF_PLUGIN_TEMPERATURE_MEASUREMENT_SERVER_MAX_MEASUREMENT_FREQUENCY_S 30

```

## 8.364 temperature-measurement-server.h File Reference

### Functions

- `void emberAfPluginTemperatureMeasurementServerSetMeasurementRate (uint32_t measurementRateS)`

#### 8.364.1 Function Documentation

##### 8.364.1.1 `void emberAfPluginTemperatureMeasurementServerSetMeasurementRate ( uint32_t measurementRateS )`

Set the hardware read interval.

This function will set the amount of time to wait (in seconds) between polls of the temperature sensor. This function will never set the measurement interval to be greater than the plugin specified maximum measurement interval. If a value of 0 is given, the plugin specified maximum measurement interval will be used for the polling interval.

## 8.365 temperature-measurement-server.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002     *80*
00003 #ifndef __TEMPERATURE_MEASUREMENT_SERVER_H__
00004 #define __TEMPERATURE_MEASUREMENT_SERVER_H__
00005
00006 //
00007 // Plugin public function declarations
00008
00009 void emberAfPluginTemperatureMeasurementServerSetMeasurementRate
00010 (
00011     uint32_t measurementRateS);
00012
00013 #endif //__TEMPERATURE_MEASUREMENT_SERVER_H__

```

## 8.366 test-harness-cli.h File Reference

### Macros

- `#define TEST_HARNESS_CLI_COMMANDS`

#### 8.366.1 Macro Definition Documentation

##### 8.366.1.1 `#define TEST_HARNESS_CLI_COMMANDS`

Definition at line 7 of file [test-harness-cli.h](#).

## 8.367 test-harness-cli.h

```

00001
00002 #if defined(EMBER_AF_PLUGIN_TEST_HARNESS)
00003
00004 #define TEST_HARNESS_CLI_COMMANDS \
00005     emberCommandEntrySubMenu( "test-harness", emberAfPluginTestHarnessCommands,
00006         "Commands for acting like a test harness."),
00007 #else
00008 #define TEST_HARNESS_CLI_COMMANDS
00009 #endif

```

## 8.368 test-harness-z3-core.h File Reference

### Macros

- `#define TEST_HARNESS_Z3_PRINT_NAME`
- `#define EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_MAX`

### Typedefs

- `typedef uint8_t EmAfPluginTestHarnessZ3DeviceMode`

## Enumerations

- enum {
   
EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZR\_NOT\_ADDRESS\_ASSIGNABLE,
 EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZR\_ADDRESS\_ASSIGNABLE,
 EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZED\_NOT\_ADDRESS\_ASSIGNABLE,
 EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZED\_ADDRESS\_ASSIGNABLE,
 EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_SLEEPY\_ZED\_NOT\_ADDRESS\_ASSIGNABLE,
 EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_SLEEPY\_ZED\_ADDRESS\_ASSIGNABLE
 }

## Functions

- uint32\_t [emAfPluginTestHarnessZ3GetSignificantBit](#) (uint8\_t commandIndex)

## Variables

- [EmAfPluginTestHarnessZ3DeviceMode](#) emAfPluginTestHarnessZ3DeviceMode

### 8.368.1 Macro Definition Documentation

#### 8.368.1.1 #define TEST\_HARNESS\_Z3\_PRINT\_NAME

Definition at line 13 of file [test-harness-z3-core.h](#).

#### 8.368.1.2 #define EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_MAX

Definition at line 29 of file [test-harness-z3-core.h](#).

### 8.368.2 Typedef Documentation

#### 8.368.2.1 typedef uint8\_t EmAfPluginTestHarnessZ3DeviceMode

Definition at line 26 of file [test-harness-z3-core.h](#).

### 8.368.3 Enumeration Type Documentation

#### 8.368.3.1 anonymous enum

Enumerator:

*EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZR\_NOT\_ADDRESS\_ASSIGNABLE*

*EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZR\_ADDRESS\_ASSIGNABLE*

*EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZED\_NOT\_ADDRESS\_ASSIGNABLE*

*EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_ZED\_ADDRESS\_ASSIGNABLE*

***EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_SLEEPY\_ZED\_NOT\_ADDRESS\_ASSIGNABLE***

***EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_DEVICE\_MODE\_SLEEPY\_ZED\_ADDRESS\_ASSIGNABLE***

Definition at line 18 of file [test-harness-z3-core.h](#).

#### 8.368.4 Function Documentation

8.368.4.1 `uint32_t emAfPluginTestHarnessZ3GetSignificantBit ( uint8_t commandIndex )`

#### 8.368.5 Variable Documentation

8.368.5.1 `EmAfPluginTestHarnessZ3DeviceMode emAfPluginTestHarnessZ3DeviceMode`

### 8.369 test-harness-z3-core.h

```

00001 //
00002 // test-harness-z3-core.h
00003 //
00004 // August 3, 2015
00005 // Refactored November 23, 2015
00006 //
00007 // ZigBee 3.0 core test harness functionality
00008 //
00009 //
00010 //

-----+
00011 // Constants
00012
00013 #define TEST_HARNESS_Z3_PRINT_NAME "TestHarnessZ3"
00014
00015 //

-----+
00016 // Globals
00017
00018 enum {
00019     EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_ZR_NOT_ADDRESS_ASSIGNABLE
00020     = 0x00,
00021     EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_ZR_ADDRESS_ASSIGNABLE
00022     = 0x01,
00023     EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_ZED_NOT_ADDRESS_ASSIGNABLE
00024     = 0x02,
00025     EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_ZED_ADDRESS_ASSIGNABLE
00026     = 0x03,
00027     EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_SLEEPY_ZED_NOT_ADDRESS_ASSIGNABLE
00028     = 0x04,
00029     EM_AF_PLUGIN_TEST_HARNESS_Z3_DEVICE_MODE_SLEEPY_ZED_ADDRESS_ASSIGNABLE
00030     = 0x05,
00031 };
00032
00033 // Utility API
00034
00035 uint32_t emAfPluginTestHarnessZ3GetSignificantBit
    (uint8_t commandIndex);

```

## 8.370 test-harness-z3-nwk.h File Reference

### Macros

- #define NWK\_LEAVE\_COMMAND
- #define NWK\_REJOIN\_REQUEST\_COMMAND
- #define NWK\_REJOIN\_RESPONSE\_COMMAND

### Variables

- bool emAfPluginTestHarnessZ3IgnoreLeaveCommands

#### 8.370.1 Macro Definition Documentation

##### 8.370.1.1 #define NWK\_LEAVE\_COMMAND

Definition at line 13 of file [test-harness-z3-nwk.h](#).

##### 8.370.1.2 #define NWK\_REJOIN\_REQUEST\_COMMAND

Definition at line 14 of file [test-harness-z3-nwk.h](#).

##### 8.370.1.3 #define NWK\_REJOIN\_RESPONSE\_COMMAND

Definition at line 15 of file [test-harness-z3-nwk.h](#).

#### 8.370.2 Variable Documentation

##### 8.370.2.1 bool emAfPluginTestHarnessZ3IgnoreLeaveCommands

## 8.371 test-harness-z3-nwk.h

```

00001 //
00002 // test-harness-z3-nwk.h
00003 //
00004 // August 3, 2015
00005 // Refactored November 23, 2015
00006 //
00007 // ZigBee 3.0 nwk test harness functionality
00008 //
00009
00010 //

-----+
00011 // Constants
00012
00013 #define NWK_LEAVE_COMMAND          (0x04)
00014 #define NWK_REJOIN_REQUEST_COMMAND   (0x06)
00015 #define NWK_REJOIN_RESPONSE_COMMAND  (0x07)
00016
00017 //

-----+
00018 // Globals
00019
00020 extern bool emAfPluginTestHarnessZ3IgnoreLeaveCommands
;

```

## 8.372 test-harness-z3-zdo.h File Reference

### Functions

- `EmberStatus emAfPluginTestHarnessZ3ZdoCommandResponseHandler (EmberMessageBuffer requestBuffer, uint8_t commandIndex, EmberApsFrame *apsFrame)`

#### 8.372.1 Function Documentation

**8.372.1.1 `EmberStatus emAfPluginTestHarnessZ3ZdoCommandResponseHandler (EmberMessageBuffer requestBuffer, uint8_t commandIndex, EmberApsFrame * apsFrame)`**

## 8.373 test-harness-z3-zdo.h

```
0001 //
0002 // test-harness-z3-zdo.h
0003 //
0004 // August 3, 2015
0005 // Refactored November 23, 2015
0006 //
0007 // ZigBee 3.0 zdo test harness functionality
0008 //
0009
0010 EmberStatus emAfPluginTestHarnessZ3ZdoCommandResponseHandler
0011     (EmberMessageBuffer requestBuffer,
0012      uint8_t
0013      commandIndex,
0014      EmberApsFrame
0015      *apsFrame);
```

## 8.374 test-harness-z3-zll.h File Reference

### Macros

- `#define EM_AF_PLUGIN_TEST_HARNESS_Z3_ZLL_SERVER_TO_CLIENT_FRAME_CONTROL`
- `#define EM_AF_PLUGIN_TEST_HARNESS_Z3_ZLL_CLIENT_TO_SERVER_FRAME_CONTROL`

### Functions

- `void emAfPluginTestHarnessZ3ZllStackStatusCallback (EmberStatus status)`
- `void emAfPluginTestHarnessZ3ZllNetworkFoundCallback (const EmberZllNetwork *networkInfo)`
- `void emAfPluginTestHarnessZ3ZllScanCompleteCallback (EmberStatus status)`

#### 8.374.1 Macro Definition Documentation

**8.374.1.1 `#define EM_AF_PLUGIN_TEST_HARNESS_Z3_ZLL_SERVER_TO_CLIENT_FRAME_CONTROL`**

Definition at line 12 of file `test-harness-z3-zll.h`.

### 8.374.1.2 #define EM\_AF\_PLUGIN\_TEST\_HARNESS\_Z3\_ZLL\_CLIENT\_TO\_SERVER\_FRAME\_CONTROL

Definition at line 16 of file [test-harness-z3-zll.h](#).

### 8.374.2 Function Documentation

8.374.2.1 void emAfPluginTestHarnessZ3ZllStackStatusCallback ( EmberStatus *status* )

8.374.2.2 void emAfPluginTestHarnessZ3ZllNetworkFoundCallback ( const EmberZllNetwork \* *networkInfo* )

8.374.2.3 void emAfPluginTestHarnessZ3ZllScanCompleteCallback ( EmberStatus *status* )

## 8.375 test-harness-z3-zll.h

```

00001 //  

00002 // test-harness-z3-zll.c  

00003 //  

00004 // Wednesday, December 9, 2015  

00005 //  

00006 // ZigBee 3.0 touchlink test harness functionality  

00007 //  

00008 //  

00009 //  

-----  

00010 // Internal constants  

00011  

00012 #define EM_AF_PLUGIN_TEST_HARNESS_Z3_ZLL_SERVER_TO_CLIENT_FRAME_CONTROL \
00013     (ZCL_CLUSTER_SPECIFIC_COMMAND \
00014         | ZCL_FRAME_CONTROL_SERVER_TO_CLIENT \
00015         | ZCL_DISABLE_DEFAULT_RESPONSE_MASK)  

00016 #define EM_AF_PLUGIN_TEST_HARNESS_Z3_ZLL_CLIENT_TO_SERVER_FRAME_CONTROL \
00017     (ZCL_CLUSTER_SPECIFIC_COMMAND \
00018         | ZCL_FRAME_CONTROL_CLIENT_TO_SERVER \
00019         | ZCL_DISABLE_DEFAULT_RESPONSE_MASK)  

00020 //  

-----  

00022 // Framework-internal callbacks  

00023  

00024 void emAfPluginTestHarnessZ3ZllStackStatusCallback  

    (EmberStatus status);  

00025  

00026 void emAfPluginTestHarnessZ3ZllNetworkFoundCallback  

    (const EmberZllNetwork *networkInfo);  

00027 void emAfPluginTestHarnessZ3ZllScanCompleteCallback  

    (EmberStatus status);

```

## 8.376 test-harness.h File Reference

### Macros

- #define CBKE\_OPERATION\_GENERATE\_KEYS
- #define CBKE\_OPERATION\_GENERATE\_SECRET
- #define sendSE11PublishPriceCommand
- #define EMBER\_AF\_TEST\_HARNESS\_EVENT\_STRINGS
- #define emAfKeyEstablishmentTestHarnessMessageSendCallback(x)
- #define emAfKeyEstablishmentTestHarnessCbkeCallback(x, y, z)
- #define EMBER\_KEY\_ESTABLISHMENT\_TEST\_HARNESS\_EVENT
- #define emAfTestHarnessAllowRegistration

## Functions

- void `emAfTestHarnessResetApsFrameCounter` (void)
- void `emAfTestHarnessAdvanceApsFrameCounter` (void)
- void `emberAfPluginTestHarnessWriteAttributesResponseCallback` (`EmberAfClusterId` clusterId, `uint8_t` \*buffer, `uint16_t` bufLen)
- void `emberAfPluginTestHarnessReadAttributesResponseCallback` (`EmberAfClusterId` clusterId, `uint8_t` \*buffer, `uint16_t` bufLen)
- void `emAfTestHarnessStartImageStampCalculation` (void)

### 8.376.1 Macro Definition Documentation

#### 8.376.1.1 #define CBKE\_OPERATION\_GENERATE\_KEYS

Definition at line 1 of file `test-harness.h`.

#### 8.376.1.2 #define CBKE\_OPERATION\_GENERATE\_SECRET

Definition at line 2 of file `test-harness.h`.

#### 8.376.1.3 #define sendSE11PublishPriceCommand

Definition at line 41 of file `test-harness.h`.

#### 8.376.1.4 #define EMBER\_AF\_TEST\_HARNESS\_EVENT\_STRINGS

Definition at line 43 of file `test-harness.h`.

#### 8.376.1.5 #define emAfKeyEstablishmentTestHarnessMessageSendCallback( x )

Definition at line 45 of file `test-harness.h`.

#### 8.376.1.6 #define emAfKeyEstablishmentTestHarnessCbkeCallback( x, y, z )

Definition at line 46 of file `test-harness.h`.

#### 8.376.1.7 #define EMBER\_KEY\_ESTABLISHMENT\_TEST\_HARNESS\_EVENT

Definition at line 48 of file `test-harness.h`.

#### 8.376.1.8 #define emAfTestHarnessAllowRegistration

Definition at line 50 of file `test-harness.h`.

## 8.376.2 Function Documentation

- 8.376.2.1 void emAfTestHarnessResetApsFrameCounter ( void )
- 8.376.2.2 void emAfTestHarnessAdvanceApsFrameCounter ( void )
- 8.376.2.3 void emberAfPluginTestHarnessWriteAttributesResponseCallback ( EmberAfClusterId clusterId, uint8\_t \* buffer, uint16\_t bufLen )
- 8.376.2.4 void emberAfPluginTestHarnessReadAttributesResponseCallback ( EmberAfClusterId clusterId, uint8\_t \* buffer, uint16\_t bufLen )
- 8.376.2.5 void emAfTestHarnessStartImageStampCalculation ( void )

## 8.377 test-harness.h

```

00001 #define CBKE_OPERATION_GENERATE_KEYS    0
00002 #define CBKE_OPERATION_GENERATE_SECRET  1
00003
00004 #if defined(EMBER_AF_PLUGIN_TEST_HARNESS)
00005     extern EmberEventControl
00006         emAfKeyEstablishmentTestHarnessEventControl;
00007
00008     extern uint16_t emAfKeyEstablishmentTestHarnessGenerateKeyTime;
00009     extern uint16_t emAfKeyEstablishmentTestHarnessConfirmKeyTime;
00010
00011     extern uint16_t emAfKeyEstablishmentTestHarnessAdvertisedGenerateKeyTime;
00012
00013     extern bool emAfTestHarnessAllowRegistration;
00014
00015     // Allows test harness to change the message or suppress it.
00016     // Returns true if the message should be sent, false if not.
00017     bool emAfKeyEstablishmentTestHarnessMessageSendCallback
00018     (uint8_t message);
00019
00020     bool emAfKeyEstablishmentTestHarnessCbkeCallback
00021     (uint8_t cbkeOperation,
00022
00023             uint8_t* data1,
00024             uint8_t* data2);
00025
00026     void emAfKeyEstablishmentTestHarnessEventHandler(void);
00027
00028     #define EMBER_AF_TEST_HARNESS_EVENT_STRINGS "Test harness",
00029
00030     #define EMBER_KEY_ESTABLISHMENT_TEST_HARNESS_EVENT \
00031         { &emAfKeyEstablishmentTestHarnessEventControl,
00032             emAfKeyEstablishmentTestHarnessEventHandler },
00033
00034     #define EMBER_AF_CUSTOM_KE_EPHEMERAL_DATA_GENERATE_TIME_SECONDS \
00035         emAfKeyEstablishmentTestHarnessGenerateKeyTime
00036
00037     #define EMBER_AF_CUSTOM_KE_GENERATE_SHARED_SECRET_TIME_SECONDS \
00038         emAfKeyEstablishmentTestHarnessConfirmKeyTime
00039
00040     #define EM_AF_ADVERTISED_EPHEMERAL_DATA_GEN_TIME_SECONDS \
00041         emAfKeyEstablishmentTestHarnessAdvertisedGenerateKeyTime
00042
00043     extern bool emKeyEstablishmentPolicyAllowNewKeyEntries;
00044
00045     extern bool emAfTestHarnessSupportForNewPriceFields;
00046
00047     #define sendSE11PublishPriceCommand emAfTestHarnessSupportForNewPriceFields
00048
00049     #else
00050         #define sendSE11PublishPriceCommand true
00051
00052     #define EMBER_AF_TEST_HARNESS_EVENT_STRINGS
00053
00054     #define emAfKeyEstablishmentTestHarnessMessageSendCallback(x)      (true)
00055     #define emAfKeyEstablishmentTestHarnessCbkeCallback(x, y, z) (false)
00056
00057     #define EMBER_KEY_ESTABLISHMENT_TEST_HARNESS_EVENT
00058
00059     #define emAfTestHarnessAllowRegistration (1)
00060
00061 #endif

```

```

00052
00053 void emAfTestHarnessResetApsFrameCounter(
00054     void);
00055 void emAfTestHarnessAdvanceApsFrameCounter
00056     (void);
00057
00058 void emberAfPluginTestHarnessWriteAttributesResponseCallback
00059     (EmberAfClusterId clusterId,
00060                     uint8_t * buffer,
00061                     uint16_t bufLen);
00062
00063 void emberAfPluginTestHarnessReadAttributesResponseCallback
00064     (EmberAfClusterId clusterId,
00065                     uint8_t * buffer,
00066                     uint16_t bufLen);
00067
00068 void emAfTestHarnessStartImageStampCalculation
00069     (void);

```

## 8.378 throughput.h File Reference

### Functions

- void [emAfPluginThroughputSetInFlightCount](#) (void)
- void [emAfPluginThroughputSetDuration](#) (void)
- void [emAfPluginThroughputStartTest](#) (void)
- void [emAfPluginThroughputEndTest](#) (void)
- void [emAfPluginThroughputPrintResult](#) (void)
- void [emAfPluginThroughputNotifyPacketReceived](#) (void)

#### 8.378.1 Function Documentation

- 8.378.1.1 void [emAfPluginThroughputSetInFlightCount](#) ( void )
- 8.378.1.2 void [emAfPluginThroughputSetDuration](#) ( void )
- 8.378.1.3 void [emAfPluginThroughputStartTest](#) ( void )
- 8.378.1.4 void [emAfPluginThroughputEndTest](#) ( void )
- 8.378.1.5 void [emAfPluginThroughputPrintResult](#) ( void )
- 8.378.1.6 void [emAfPluginThroughputNotifyPacketReceived](#) ( void )

## 8.379 throughput.h

```

00001 // ****
00002 // * throughput.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Ember Corporation. All rights reserved.
00006 // *
00007
00008 void emAfPluginThroughputSetInFlightCount(
00009     void);
00010 void emAfPluginThroughputSetDuration(void);
00011 void emAfPluginThroughputStartTest(void);
00012 void emAfPluginThroughputEndTest(void);
00013 void emAfPluginThroughputPrintResult(void);
00014 void emAfPluginThroughputNotifyPacketReceived
00015     (void);

```

## 8.380 time-server.h File Reference

### Functions

- `uint32_t emAfTimeClusterServerGetCurrentTime (void)`
- `void emAfTimeClusterServerSetCurrentTime (uint32_t utcTime)`

#### 8.380.1 Function Documentation

8.380.1.1 `uint32_t emAfTimeClusterServerGetCurrentTime ( void )`

8.380.1.2 `void emAfTimeClusterServerSetCurrentTime ( uint32_t utcTime )`

## 8.381 time-server.h

```
00001 // ****
00002 // * time-server.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 uint32_t emAfTimeClusterServerGetCurrentTime
00009 (void);
00009 void emAfTimeClusterServerSetCurrentTime(
00009   uint32_t utcTime);
```

## 8.382 trust-center-backup.h File Reference

### Functions

- `EmberStatus emberTrustCenterExportBackupData (EmberAfTrustCenterBackupData *backup)`
- `EmberStatus emberTrustCenterImportBackupAndStartNetwork (const EmberAfTrustCenterBackupData *backup)`
- `void emAfTcExportCommand (void)`
- `void emAfTcImportCommand (void)`
- `EmberStatus emberAfTrustCenterImportBackupFromFile (const char *filepath)`
- `EmberStatus emberAfTrustCenterExportBackupToFile (const char *filepath)`

#### 8.382.1 Function Documentation

8.382.1.1 `EmberStatus emberTrustCenterExportBackupData ( EmberAfTrustCenterBackupData * backup )`

8.382.1.2 `EmberStatus emberTrustCenterImportBackupAndStartNetwork ( const EmberAfTrustCenterBackupData * backup )`

8.382.1.3 `void emAfTcExportCommand ( void )`

8.382.1.4 `void emAfTcImportCommand ( void )`

8.382.1.5 EmberStatus `emberAfTrustCenterImportBackupFromFile` ( `const char * filepath` )

8.382.1.6 EmberStatus `emberAfTrustCenterExportBackupToFile` ( `const char * filepath` )

## 8.383 trust-center-backup.h

```

00001 // ****
00002 // * trust-center-backup.h
00003 // *
00004 // * Header for backing up and restoring a trust center.
00005 // *
00006 // * Copyright 2011 by Ember Corporation. All rights reserved.
00007 // *80*
00008 // ****
00009 EmberStatus emberTrustCenterExportBackupData
00010 (EmberAfTrustCenterBackupData* backup);
00011 EmberStatus emberTrustCenterImportBackupAndStartNetwork
00012 (const EmberAfTrustCenterBackupData* backup);
00013 void emAfTcExportCommand(void);
00014 void emAfTcImportCommand(void);
00015 EmberStatus emberAfTrustCenterImportBackupFromFile
00016 (const char* filepath);
00017 EmberStatus emberAfTrustCenterExportBackupToFile
00018 (const char* filepath);

```

## 8.384 trust-center-keepalive.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_DELAY_INTERVAL`
- `#define EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_FAILURE_LIMIT`

### Functions

- `void emAfPluginTrustCenterKeepaliveReadAttributesResponseCallback` (`uint8_t *buffer, uint16_t bufLen`)
- `void emAfSendKeepaliveSignal` (`void`)
- `void emberAfPluginTrustCenterKeepaliveTickNetworkEventHandler` (`void`)

### 8.384.1 Macro Definition Documentation

8.384.1.1 `#define EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_DELAY_INTERVAL`

Definition at line 11 of file `trust-center-keepalive.h`.

8.384.1.2 `#define EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_FAILURE_LIMIT`

Definition at line 17 of file `trust-center-keepalive.h`.

### 8.384.2 Function Documentation

- 8.384.2.1 void emAfPluginTrustCenterKeepaliveReadAttributesResponseCallback ( uint8\_t \* *buffer*, uint16\_t *bufLen* )
- 8.384.2.2 void emAfSendKeepaliveSignal ( void )
- 8.384.2.3 void emberAfPluginTrustCenterKeepaliveTickNetworkEventHandler ( void )

## 8.385 trust-center-keepalive.h

```

00001 // ****
00002 // * trust-center-keepalive.c
00003 // *
00004 // * Copyright 2010 by Ember Corporation. All rights reserved.
00005 // *80*
00006 // ****
00007 // The duration in milliseconds to wait between two successive keepalives. The
00008 // period shall be between five and 20 minutes, according to section
00009 // 5.4.2.2.3.4
00010 // of 105638r09. The plugin option, specified in minutes, is converted here to
00011 // milliseconds.
00012 #define EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_DELAY_INTERVAL \
00013     (EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_INTERVAL *
00014         MILLISECOND_TICKS_PER_MINUTE)
00015 // The number of unacknowledged keepalives permitted before declaring that the
00016 // trust center is inaccessible and initiating a search for it. Section
00017 // 5.4.2.2.3.4 of 105638r09 specifies that this value shall be three.
00018 #define EMBER_AF_PLUGIN_TRUST_CENTER_KEEPALIVE_FAILURE_LIMIT 3
00019 void emAfPluginTrustCenterKeepaliveReadAttributesResponseCallback
00020     (uint8_t *buffer,
00021      uint16_t
00022      bufLen);
00023 void emAfSendKeepaliveSignal(void);
00024 void emberAfPluginTrustCenterKeepaliveTickNetworkEventHandler
00025     (void);

```

## 8.386 trust-center-nwk-key-update-broadcast.h File Reference

### Macros

- #define **TC\_KEY\_UPDATE\_BROADCAST\_EVENT**
- #define **EM\_AF\_TC\_START\_NETWORK\_KEY\_UPDATE\_DECLARATION**

### Functions

- void **emberAfPluginTrustCenterNwkKeyUpdateBroadcastMyEventHandler** (void)
- **EmberStatus emberAfTrustCenterStartNetworkKeyUpdate** (void)

### Variables

- **EmberEventControl emberAfPluginTrustCenterNwkKeyUpdateBroadcastMyEventControl**

### 8.386.1 Macro Definition Documentation

#### 8.386.1.1 #define TC\_KEY\_UPDATE\_BROADCAST\_EVENT

Definition at line 6 of file [trust-center-nwk-key-update-broadcast.h](#).

#### 8.386.1.2 #define EM\_AF\_TC\_START\_NETWORK\_KEY\_UPDATE\_DECLARATION

Definition at line 23 of file [trust-center-nwk-key-update-broadcast.h](#).

### 8.386.2 Function Documentation

#### 8.386.2.1 void emberAfPluginTrustCenterNwkKeyUpdateBroadcastMyEventHandler ( void )

#### 8.386.2.2 EmberStatus emberAfTrustCenterStartNetworkKeyUpdate ( void )

### 8.386.3 Variable Documentation

#### 8.386.3.1 EmberEventControl emberAfPluginTrustCenterNwkKeyUpdateBroadcastMyEventControl

## 8.387 trust-center-nwk-key-update-broadcast.h

```

00001
00002
00003 extern EmberEventControl
00004     emberAfPluginTrustCenterNwkKeyUpdateBroadcastMyEventControl
00005 ;
00006 void emberAfPluginTrustCenterNwkKeyUpdateBroadcastMyEventHandler
00007     (void);
00008
00009
00010 #if defined(EMBER_AF_PLUGIN_TEST_HARNESS) || defined(EMBER_SCRIPTED_TEST)
00011 // For testing, we need to support a single application that can do
00012 // unicast AND broadcast key updates. This function is actually
00013 // emberAfTrustCenterStartNetworkKeyUpdate() but is renamed.
00014 EmberStatus emberAfTrustCenterStartBroadcastNetworkKeyUpdate(void)
00015 ;
00016 #endif
00017 // Because both the unicast and broadcast plugins for Trust Center NWK Key
00018 // update
00019 // define this function, we must protect it to eliminate the redundant
00020 // function declaration. Unicast and broadcast headers may be included
00021 // together
00022 // since the code then doesn't need to determine which plugin (unicast or
00023 // broadcast) is being used and thus which header it should include.
00024 #if !defined(EM_AF_TC_START_NETWORK_KEY_UPDATE_DECLARATION)
00025     #define EM_AF_TC_START_NETWORK_KEY_UPDATE_DECLARATION
00026     EmberStatus emberAfTrustCenterStartNetworkKeyUpdate
00027         (void);
00028 #endif

```

### 8.388 trust-center-nwk-key-update-periodic.h File Reference

## 8.389 trust-center-nwk-key-update-periodic.h

```
00001
00002
```

## 8.390 trust-center-nwk-key-update-unicast.h File Reference

### Macros

- #define TC\_KEY\_UPDATE\_EVENT
- #define EM\_AF\_TC\_START\_NETWORK\_KEY\_UPDATE\_DECLARATION

### Functions

- void emberAfPluginTrustCenterNwkKeyUpdateUnicastMyEventHandler (void)
- EmberStatus emberAfTrustCenterStartNetworkKeyUpdate (void)

### Variables

- EmberEventControl emberAfPluginTrustCenterNwkKeyUpdateUnicastMyEventControl

#### 8.390.1 Macro Definition Documentation

##### 8.390.1.1 #define TC\_KEY\_UPDATE\_EVENT

Definition at line 6 of file [trust-center-nwk-key-update-unicast.h](#).

##### 8.390.1.2 #define EM\_AF\_TC\_START\_NETWORK\_KEY\_UPDATE\_DECLARATION

Definition at line 27 of file [trust-center-nwk-key-update-unicast.h](#).

#### 8.390.2 Function Documentation

##### 8.390.2.1 void emberAfPluginTrustCenterNwkKeyUpdateUnicastMyEventHandler ( void )

##### 8.390.2.2 EmberStatus emberAfTrustCenterStartNetworkKeyUpdate ( void )

#### 8.390.3 Variable Documentation

##### 8.390.3.1 EmberEventControl emberAfPluginTrustCenterNwkKeyUpdateUnicastMyEventControl

## 8.391 trust-center-nwk-key-update-unicast.h

```
00001
00002
00003 extern EmberEventControl
    emberAfPluginTrustCenterNwkKeyUpdateUnicastMyEventControl
;
00004 void emberAfPluginTrustCenterNwkKeyUpdateUnicastMyEventHandler
```

```

        (void);

00005
00006 #define TC_KEY_UPDATE_EVENT \
00007 { &emAfTcKeyUpdateUnicastEvent, emAfTcKeyUpdateUnicastEventHandler },
00008
00009
00010 #if defined(EMBER_TEST)
00011 void zdoDiscoveryCallback(const EmberAfServiceDiscoveryResult
* result);
00012 #endif
00013
00014 #if defined(EMBER_AF_PLUGIN_TEST_HARNESS) || defined(EMBER_SCRIPTED_TEST)
00015 // For testing, we need to support a single application that can do
00016 // unicast AND broadcast key updates. This function is actually
00017 // emberAfTrustCenterStartNetworkKeyUpdate() but is renamed.
00018 EmberStatus emberAfTrustCenterStartUnicastNetworkKeyUpdate(void);
00019 #endif
00020
00021 // Because both the unicast and broadcast plugins for Trust Center NWK Key
00022 // update
00023 // define this function, we must protect it to eliminate the redundant
00024 // function declaration. Unicast and broadcast headers may be included
00025 // together
00026 // since the code then doesn't need to determine which plugin (unicast or
00027 // broadcast) is being used and thus which header it should include.
00028 #if !defined(EM_AF_TC_START_NETWORK_KEY_UPDATE_DECLARATION)
00029 #define EM_AF_TC_START_NETWORK_KEY_UPDATE DECLARATION
00030 EmberStatus emberAfTrustCenterStartNetworkKeyUpdate
00031 (void);
00032 #endif

```

## 8.392 tunnel-manager.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_COMMs_HUB_FUNCTION_TUNNEL_LIMIT`
- `#define EM_AF_PLUGIN_COMMs_HUB_FUNCTION_NULL_TUNNEL_INDEX`

### Functions

- `void emAfPluginCommsHubFunctionTunnelInit (uint8_t localEndpoint)`
- `bool emAfPluginCommsHubFunctionTunnelCreate (EmberEUI64 remoteDeviceId, uint8_t remoteEndpoint)`
- `bool emAfPluginCommsHubFunctionTunnelSendData (EmberEUI64 remoteDeviceId, uint16_t headerLen, uint8_t *header, uint16_t dataLen, uint8_t *data)`
- `bool emAfPluginCommsHubFunctionTunnelDestroy (EmberEUI64 remoteDeviceId)`
- `void emAfPluginCommsHubFunctionTunnelCleanup (EmberEUI64 remoteDeviceId)`
- `void emAfPluginCommsHubFunctionTunnelClose (EmberEUI64 remoteDeviceId)`
- `void emAfPluginCommsHubFunctionPrint (void)`
- `bool emAfPluginCommsHubFunctionTunnelExists (EmberEUI64 deviceEui64)`

#### 8.392.1 Macro Definition Documentation

##### 8.392.1.1 `#define EMBER_AF_PLUGIN_COMMs_HUB_FUNCTION_TUNNEL_LIMIT`

Definition at line 11 of file [tunnel-manager.h](#).

##### 8.392.1.2 `#define EM_AF_PLUGIN_COMMs_HUB_FUNCTION_NULL_TUNNEL_INDEX`

Definition at line 13 of file [tunnel-manager.h](#).

## 8.392.2 Function Documentation

### 8.392.2.1 void emAfPluginCommsHubFunctionTunnelInit ( uint8\_t *localEndpoint* )

Initialize internal data structures.

This function should be called from the plugin init callback.

#### Parameters

|                      |                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <i>localEndpoint</i> | The local endpoint from which all tunnels will be created. It is also the endpoint to which the GSME will request a tunnel. |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------|

### 8.392.2.2 bool emAfPluginCommsHubFunctionTunnelCreate ( EmberEUI64 *remoteDeviceId*, uint8\_t *remoteEndpoint* )

Create a tunnel to a device of type ESME, HCALCS or PPMID.

As defined in section 10.2.2.1 of the GBCS version 0.8 and copied below the CHF will call this function to request a tunnel be created with the specified destination.

"When a Communications Hub has successfully established a shared secret key using CBKE with a Device of type ESME, HCALCS or PPMID, the CHF shall send a RequestTunnel command to the Device to request a tunnel association with the Device.

Where an ESME, a HCALCS or a PPMID remains in the CHF Device Log, the CHF shall send a RequestTunnel command to the Device whenever:

- 0xFFFF seconds have elapsed since receipt of the most recent RequestTunnelResponse command from that Device; or
- the CHF receives a Remote Party Message addressed to the Device but does not have a functioning tunnel association with the Device; or
- the CHF powers on.

Where the CHF receives a RequestTunnelResponse command from a Device with a TunnelStatus of 0x01 (Busy), the CHF shall send another RequestTunnel command three minutes later.

Where the CHF receives a RequestTunnelResponse command from a Device with a TunnelStatus of 0x02 (No More Tunnel IDs), the CHF shall send a CloseTunnel command for any TunnelID that may relate to an active tunnel association with that Device and, after receiving responses to all such commands, send another RequestTunnel command."

#### Parameters

|                        |                                                            |
|------------------------|------------------------------------------------------------|
| <i>remoteDeviceId</i>  | The EUI64 of the device to which a tunnel is to be created |
| <i>remote-Endpoint</i> | The remote endpoint to which the tunnel is to be created   |

#### Returns

true if successful or false if an error occurred

**8.392.2.3 bool emAfPluginCommsHubFunctionTunnelSendData ( EmberEUI64 *remoteDeviceId*, uint16\_t *headerLen*, uint8\_t \* *header*, uint16\_t *dataLen*, uint8\_t \* *data* )**

Transfer data to a server through a tunnel.

This function can be used to transfer data to a server through a tunnel.

**Parameters**

|                       |                                                     |
|-----------------------|-----------------------------------------------------|
| <i>remoteDeviceId</i> | The EUI64 of the device to which data is to be sent |
| <i>headerLen</i>      | The length of any header that may prefix the data   |
| <i>header</i>         | Buffer containing the raw octets of the header.     |
| <i>dataLen</i>        | The length in octets of the data.                   |
| <i>data</i>           | Buffer containing the raw octets of the data.       |

**Returns**

true if successful or false if an error occurred

**8.392.2.4 bool emAfPluginCommsHubFunctionTunnelDestroy ( EmberEUI64 *remoteDeviceId* )**

Close a tunnel.

This function can be used to close a tunnel.

**Parameters**

|                       |                                                            |
|-----------------------|------------------------------------------------------------|
| <i>remoteDeviceId</i> | The EUI64 of the device to which the tunnel will be closed |
|-----------------------|------------------------------------------------------------|

**Returns**

true if successful or false if an error occurred

**8.392.2.5 void emAfPluginCommsHubFunctionTunnelCleanup ( EmberEUI64 *remoteDeviceId* )**

Cleanup a tunnel.

This function can be used to cleanup all state associated with a tunnel.

**Parameters**

|                       |                                                                        |
|-----------------------|------------------------------------------------------------------------|
| <i>remoteDeviceId</i> | The EUI64 of the device to which the tunnel state is to be cleaned up. |
|-----------------------|------------------------------------------------------------------------|

**8.392.2.6 void emAfPluginCommsHubFunctionTunnelClose ( EmberEUI64 *remoteDeviceId* )**

Close a tunnel.

This function can be used to close a tunnel on the commshub.

**Parameters**

|                       |                                                       |
|-----------------------|-------------------------------------------------------|
| <i>remoteDeviceId</i> | The EUI64 of the device whose tunnel is to be closed. |
|-----------------------|-------------------------------------------------------|

### 8.392.2.7 void emAfPluginCommsHubFunctionPrint ( void )

Print the tunnel table.

This function can be used to print the tunneling table of the commshub.

### 8.392.2.8 bool emAfPluginCommsHubFunctionTunnelExists ( EmberEUI64 *deviceEui64* )

## 8.393 tunnel-manager.h

```

00001 // ****
00002 // * tunnel-manager.h
00003 // *
00004 // *
00005 // * Copyright 2014 by Silicon Laboratories. All rights reserved.
00006 // * 80*
00007
00008 #ifndef TUNNEL_MANAGER_H_
00009 #define TUNNEL_MANAGER_H_
00010
00011 #define EMBER_AF_PLUGIN_COMMs_HUB_FUNCTION_TUNNEL_LIMIT \
00012     (EMBER_AF_PLUGIN_TUNNELING_CLIENT_TUNNEL_LIMIT + \
00013      EMBER_AF_PLUGIN_TUNNELING_SERVER_TUNNEL_LIMIT)
00014 #define EM_AF_PLUGIN_COMMs_HUB_FUNCTION_NULL_TUNNEL_INDEX 0xFF
00015
00016 void emAfPluginCommsHubFunctionTunnelInit(
00017     uint8_t localEndpoint);
00018
00019 bool emAfPluginCommsHubFunctionTunnelCreate
00020     (EmberEUI64 remoteDeviceId,
00021      uint8_t remoteEndpoint);
00022
00023 bool emAfPluginCommsHubFunctionTunnelSendData
00024     (EmberEUI64 remoteDeviceId,
00025      uint16_t headerLen,
00026      uint8_t *header,
00027      uint16_t dataLen,
00028      uint8_t *data);
00029
00030 bool emAfPluginCommsHubFunctionTunnelDestroy
00031     (EmberEUI64 remoteDeviceId);
00032
00033 void emAfPluginCommsHubFunctionTunnelCleanup
00034     (EmberEUI64 remoteDeviceId);
00035
00036 void emAfPluginCommsHubFunctionTunnelClose
00037     (EmberEUI64 remoteDeviceId);
00038
00039 void emAfPluginCommsHubFunctionPrint(void);
00040
00041 bool emAfPluginCommsHubFunctionTunnelExists
00042     (EmberEUI64 deviceEui64);
00043
00044 #endif /* TUNNEL_MANAGER_H_ */

```

## 8.394 tunneling-client.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_TUNNELING\_CLIENT\_NULL\_INDEX

## Functions

- `EmberAfPluginTunnelingClientStatus emberAfPluginTunnelingClientRequestTunnel (EmberNodeId server, uint8_t clientEndpoint, uint8_t serverEndpoint, uint8_t protocolId, uint16_t manufacturerCode, bool flowControlSupport)`
- `EmberAfStatus emberAfPluginTunnelingClientTransferData (uint8_t tunnelIndex, uint8_t *data, uint16_t dataLen)`
- `EmberAfStatus emberAfPluginTunnelingClientCloseTunnel (uint8_t tunnelIndex)`
- `void emberAfPluginTunnelingClientCleanup (uint8_t tunnelIndex)`
- `void emAfPluginTunnelingClientPrint (void)`

### 8.394.1 Macro Definition Documentation

#### 8.394.1.1 `#define EMBER_AF_PLUGIN_TUNNELING_CLIENT_NULL_INDEX`

Definition at line 8 of file [tunneling-client.h](#).

### 8.394.2 Function Documentation

#### 8.394.2.1 `EmberAfPluginTunnelingClientStatus emberAfPluginTunnelingClientRequestTunnel (EmberNodeId server, uint8_t clientEndpoint, uint8_t serverEndpoint, uint8_t protocolId, uint16_t manufacturerCode, bool flowControlSupport )`

Request a Tunneling cluster tunnel with a server.

This function can be used to request a tunnel with a server. The Tunneling client plugin will look up the long address of the server (using discovery, if necessary), establish a link key with the server, and create an address table entry for the server before sending the request. All future communication using the tunnel will be sent using the address table entry. The plugin will call `emberAfPluginTunnelingClientTunnelOpenedCallback` with the status of the request.

#### Parameters

|                                 |                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>server</code>             | The network address of the server to which the request will be sent.                                                                                |
| <code>clientEndpoint</code>     | The local endpoint from which the request will be sent.                                                                                             |
| <code>serverEndpoint</code>     | The remote endpoint to which the request will be sent.                                                                                              |
| <code>protocolId</code>         | The protocol id of the requested tunnel.                                                                                                            |
| <code>manufacturerCode</code>   | The manufacturer code of the requested tunnel.                                                                                                      |
| <code>flowControlSupport</code> | true if flow control support is requested or false if not. Note: flow control is not currently supported by the Tunneling client or server plugins. |

#### Returns

`EMBER_AF_PLUGIN_TUNNELING_CLIENT_SUCCESS` if the request is in process or another `EmberAfPluginTunnelingClientStatus` otherwise.

#### 8.394.2.2 `EmberAfStatus emberAfPluginTunnelingClientTransferData ( uint8_t tunnelIndex, uint8_t * data, uint16_t dataLen )`

Transfer data to a server through a Tunneling cluster tunnel.

This function can be used to transfer data to a server through a tunnel. The Tunneling client plugin will send the data to the endpoint on the node that is managing the given tunnel.

#### Parameters

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| <i>tunnelIndex</i> | The index of the tunnel through which to send the data. |
| <i>data</i>        | Buffer containing the raw octets of the data.           |
| <i>dataLen</i>     | The length in octets of the data.                       |

#### Returns

[EMBER\\_ZCL\\_STATUS\\_SUCCESS](#) if the data was sent, [EMBER\\_ZCL\\_STATUS\\_FAILURE](#) if an error occurred, or [EMBER\\_ZCL\\_STATUS\\_NOT\\_FOUND](#) if the tunnel does not exist.

### 8.394.2.3 EmberAfStatus emberAfPluginTunnelingClientCloseTunnel ( uint8\_t *tunnelIndex* )

Close a Tunneling cluster tunnel.

This function can be used to close a tunnel. The Tunneling client plugin will send the close command to the endpoint on the node that is managing the given tunnel.

#### Parameters

|                    |                                   |
|--------------------|-----------------------------------|
| <i>tunnelIndex</i> | The index of the tunnel to close. |
|--------------------|-----------------------------------|

#### Returns

[EMBER\\_ZCL\\_STATUS\\_SUCCESS](#) if the close request was sent, [EMBER\\_ZCL\\_STATUS\\_FAILURE](#) if an error occurred, or [EMBER\\_ZCL\\_STATUS\\_NOT\\_FOUND](#) if the tunnel does not exist.

### 8.394.2.4 void emberAfPluginTunnelingClientCleanup ( uint8\_t *tunnelIndex* )

Cleanup a Tunneling cluster tunnel.

This function can be used to cleanup all state associated with a tunnel. The Tunneling client plugin will not send the close command.

#### Parameters

|                    |                                     |
|--------------------|-------------------------------------|
| <i>tunnelIndex</i> | The index of the tunnel to cleanup. |
|--------------------|-------------------------------------|

### 8.394.2.5 void emAfPluginTunnelingClientPrint ( void )

## 8.395 tunneling-client.h

```
00001 // ****
00002 // * tunneling-client.h
00003 // *
00004 // *
00005 // * Copyright 2010 by Ember Corporation. All rights reserved.
00006 // *80*
00006 // ****
```

```

00007
00008 #define EMBER_AF_PLUGIN_TUNNELING_CLIENT_NULL_INDEX 0xFF
00009
00034 EmberAfPluginTunnelingClientStatus
00035     emberAfPluginTunnelingClientRequestTunnel
00036         (EmberNodeId server,
00037             uint8_t clientEndpoint,
00038             uint8_t serverEndpoint,
00039             uint8_t protocolId,
00040             uint16_t manufacturerCode,
00041             bool flowControlSupport);
00055 EmberAfStatus emberAfPluginTunnelingClientTransferData
00056     (uint8_t tunnelIndex,
00057             uint8_t *data,
00058             uint16_t dataLen);
00071 EmberAfStatus emberAfPluginTunnelingClientCloseTunnel
00072     (uint8_t tunnelIndex);
00081 void emberAfPluginTunnelingClientCleanup(
00082     uint8_t tunnelIndex);
00083 void emAfPluginTunnelingClientPrint (void);

```

## 8.396 tunneling-server.h File Reference

### Macros

- `#define ZCL_TUNNELING_CLUSTER_INVALID_TUNNEL_ID`
- `#define ZCL_TUNNELING_CLUSTER_UNUSED_MANUFACTURER_CODE`
- `#define CLOSE_INITIATED_BY_CLIENT`
- `#define CLOSE_INITIATED_BY_SERVER`

### Functions

- `EmberAfStatus emberAfPluginTunnelingServerTransferData (uint16_t tunnelIndex, uint8_t *data, uint16_t dataLen)`
- `void emberAfPluginTunnelingServerToggleBusyCommand (void)`
- `void emberAfPluginTunnelingServerCleanup (uint8_t tunnelId)`
- `void emAfPluginTunnelingServerPrint (void)`

#### 8.396.1 Macro Definition Documentation

##### 8.396.1.1 `#define ZCL_TUNNELING_CLUSTER_INVALID_TUNNEL_ID`

Definition at line 8 of file [tunneling-server.h](#).

##### 8.396.1.2 `#define ZCL_TUNNELING_CLUSTER_UNUSED_MANUFACTURER_CODE`

Definition at line 9 of file [tunneling-server.h](#).

### 8.396.1.3 #define CLOSE\_INITIATED\_BY\_CLIENT

Definition at line 10 of file [tunneling-server.h](#).

### 8.396.1.4 #define CLOSE\_INITIATED\_BY\_SERVER

Definition at line 11 of file [tunneling-server.h](#).

## 8.396.2 Function Documentation

### 8.396.2.1 EmberAfStatus emberAfPluginTunnelingServerTransferData ( uint16\_t tunnelIndex, uint8\_t \* data, uint16\_t dataLen )

Transfer data to a client through a Tunneling cluster tunnel.

This function can be used to transfer data to a client through a tunnel. The Tunneling server plugin will send the data to the endpoint on the node that opened the given tunnel.

#### Parameters

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| <i>tunnelIndex</i> | The identifier of the tunnel through which to send the data. |
| <i>data</i>        | Buffer containing the raw octets of the data.                |
| <i>dataLen</i>     | The length in octets of the data.                            |

#### Returns

[EMBER\\_ZCL\\_STATUS\\_SUCCESS](#) if the data was sent, [EMBER\\_ZCL\\_STATUS\\_FAILURE](#) if an error occurred, or [EMBER\\_ZCL\\_STATUS\\_NOT\\_FOUND](#) if the tunnel does not exist.

### 8.396.2.2 void emberAfPluginTunnelingServerToggleBusyCommand ( void )

Toggle a "server busy" status for running as a test harness.

This function can be used to set the server in to a busy state, where it will respond to all request tunnel commands with a busy status. NOTE: existing tunnels will continue to operate as normal at this point in time.

### 8.396.2.3 void emberAfPluginTunnelingServerCleanup ( uint8\_t tunnelId )

Cleanup a Tunneling cluster tunnel.

This function can be used to cleanup all state associated with a tunnel. The Tunneling server plugin will not send the close notification command.

#### Parameters

|                 |                                          |
|-----------------|------------------------------------------|
| <i>tunnelId</i> | The identifier of the tunnel to cleanup. |
|-----------------|------------------------------------------|

### 8.396.2.4 void emAfPluginTunnelingServerPrint ( void )

## 8.397 tunneling-server.h

```

00001 // ****
00002 // * tunneling-server.h
00003 // *
00004 // *
00005 // * Copyright 2010 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 #define ZCL_TUNNELING_CLUSTER_INVALID_TUNNEL_ID      0xFFFF
00009 #define ZCL_TUNNELING_CLUSTER_UNUSED_MANUFACTURER_CODE 0xFFFF
00010 #define CLOSE_INITIATED_BY_CLIENT true
00011 #define CLOSE_INITIATED_BY_SERVER false
00012
00027 EmberAfStatus emberAfPluginTunnelingServerTransferData
00028 (uint16_t tunnelIndex,
00029                               uint8_t *data,
00030                               uint16_t dataLen);
00038 void emberAfPluginTunnelingServerToggleBusyCommand
00039 (void);
00048 void emberAfPluginTunnelingServerCleanup(
00049     uint8_t tunnelId);
00050 void emAfPluginTunnelingServerPrint(void);

```

## 8.398 update-tc-link-key.h File Reference

### Macros

- `#define EMBER_AF_PLUGIN_UPDATE_TC_LINK_KEY_PLUGIN_NAME`

### Functions

- `EmberStatus emberAfPluginUpdateTcLinkKeyStart (void)`
- `bool emberAfPluginUpdateTcLinkKeyStop (void)`

#### 8.398.1 Macro Definition Documentation

##### 8.398.1.1 `#define EMBER_AF_PLUGIN_UPDATE_TC_LINK_KEY_PLUGIN_NAME`

Definition at line 6 of file [update-tc-link-key.h](#).

#### 8.398.2 Function Documentation

##### 8.398.2.1 `EmberStatus emberAfPluginUpdateTcLinkKeyStart ( void )`

##### 8.398.2.2 `bool emberAfPluginUpdateTcLinkKeyStop ( void )`

## 8.399 update-tc-link-key.h

```

00001 // Copyright 2015 Silicon Laboratories, Inc.
00002 //
00003 // -----
00004 // Constants

```

```

00005
00006 #define EMBER_AF_PLUGIN_UPDATE_TC_LINK_KEY_PLUGIN_NAME "Update TC Link Key"
00007
00008 // -----
00009 // API
00010
00011 /* @brief Start
00012 *
00013 * Kickoff a link key update process.
00014 *
00015 * @return An ::EmberStatus value. If the current node is not on a network,
00016 * this will return ::EMBER_NOT_JOINED. If the current node is on a
00017 * distributed security network, this will return
00018 * ::EMBER_SECURITY_CONFIGURATION_INVALID. If the current node is the
00019 * trust center, this will return ::EMBER_INVALID_CALL.
00020 */
00021 EmberStatus emberAfPluginUpdateTcLinkKeyStart
00022 (void);
00023 /* @brief Stop
00024 *
00025 * Stop a link key update process.
00026 *
00027 * @return Whether or not a TCLK update was in progress.
00028 */
00029 bool emberAfPluginUpdateTcLinkKeyStop(void);

```

## 8.400 xmodem-sender.h File Reference

### Macros

- #define XMODEM\_SOH
- #define XMODEM\_EOT
- #define XMODEM\_ACK
- #define XMODEM\_NAK
- #define XMODEM\_CANCEL
- #define XMODEM\_BLOCKOK
- #define XMODEM\_FILEDONE

### Typedefs

- typedef EmberStatus( EmberAfXmodemSenderTransmitFunction )(uint8\_t \*data, uint8\_t length)
- typedef EmberStatus( EmberAfXmodemSenderGetNextBlockFunction )(uint32\_t address, uint8\_t length, uint8\_t \*returnData, uint8\_t \*returnLength, bool \*done)
- typedef void( EmberAfXmodemSenderFinishedFunction )(bool success)

### Functions

- void emberAfPluginXmodemSenderIncomingBlock (uint8\_t \*data, uint8\_t length)
- EmberStatus emberAfPluginXmodemSenderStart (EmberAfXmodemSenderTransmitFunction \*sendRoutine, EmberAfXmodemSenderGetNextBlockFunction \*getNextBlockRoutine, EmberAfXmodemSenderFinishedFunction \*finishedRoutine, uint8\_t maxSizeOfBlock, bool waitForReady)
- void emberAfPluginXmodemSenderAbort (void)

### 8.400.1 Macro Definition Documentation

#### 8.400.1.1 #define XMODEM\_SOH

Definition at line 3 of file [xmodem-sender.h](#).

#### 8.400.1.2 #define XMODEM\_EOT

Definition at line 4 of file [xmodem-sender.h](#).

#### 8.400.1.3 #define XMODEM\_ACK

Definition at line 5 of file [xmodem-sender.h](#).

#### 8.400.1.4 #define XMODEM\_NAK

Definition at line 6 of file [xmodem-sender.h](#).

#### 8.400.1.5 #define XMODEM\_CANCEL

Definition at line 7 of file [xmodem-sender.h](#).

#### 8.400.1.6 #define XMODEM\_BLOCKOK

Definition at line 8 of file [xmodem-sender.h](#).

#### 8.400.1.7 #define XMODEM\_FILEDONE

Definition at line 9 of file [xmodem-sender.h](#).

### 8.400.2 Typedef Documentation

#### 8.400.2.1 typedef EmberStatus( EmberAfXmodemSenderTransmitFunction)(uint8\_t \*data, uint8\_t length)

Definition at line 12 of file [xmodem-sender.h](#).

#### 8.400.2.2 typedef EmberStatus( EmberAfXmodemSenderGetNextBlockFunction)(uint32\_t address, uint8\_t length, uint8\_t \*returnData, uint8\_t \*returnLength, bool \*done)

Definition at line 14 of file [xmodem-sender.h](#).

#### 8.400.2.3 typedef void( EmberAfXmodemSenderFinishedFunction)(bool success)

Definition at line 19 of file [xmodem-sender.h](#).

### 8.400.3 Function Documentation

- 8.400.3.1 `void emberAfPluginXmodemSenderIncomingBlock ( uint8_t * data, uint8_t length )`
- 8.400.3.2 `EmberStatus emberAfPluginXmodemSenderStart ( EmberAfXmodemSenderTransmitFunction * sendRoutine, EmberAfXmodemSenderGetNextBlockFunction * getNextBlockRoutine, EmberAfXmodemSenderFinishedFunction * finishedRoutine, uint8_t maxSizeOfBlock, bool waitForReady )`
- 8.400.3.3 `void emberAfPluginXmodemSenderAbort ( void )`

## 8.401 xmodem-sender.h

```

00001
00002
00003 #define XMODEM_SOH      (0x01)
00004 #define XMODEM_EOT      (0x04)
00005 #define XMODEM_ACK      (0x06)
00006 #define XMODEM_NAK      (0x15)
00007 #define XMODEM_CANCEL   (0x18)
00008 #define XMODEM_BLOCKOK  (0x19)
00009 #define XMODEM_FILEDONE (0x17)
00010
00011
00012 typedef EmberStatus (EmberAfXmodemSenderTransmitFunction
00013   )(uint8_t* data, uint8_t length);
00014 typedef EmberStatus (EmberAfXmodemSenderGetNextBlockFunction
00015   )(uint32_t address,
00016     uint8_t length,
00017     uint8_t* returnData,
00018     uint8_t* returnLength,
00019     bool* done);
00020
00021 void emberAfPluginXmodemSenderIncomingBlock
00022   (uint8_t* data,
00023    uint8_t length);
00024 // The maxSizeOfBlock does not include the Xmodem overhead (5-bytes)
00025 EmberStatus emberAfPluginXmodemSenderStart
00026   (EmberAfXmodemSenderTransmitFunction*
00027     sendRoutine,
00028     EmberAfXmodemSenderGetNextBlockFunction*
00029     getNextBlockRoutine,
00030     EmberAfXmodemSenderFinishedFunction*
00031     * finishedRoutine,
00032     uint8_t maxSizeOfBlock,
00033     bool waitForReady);
00034
00035 void emberAfPluginXmodemSenderAbort (void);

```

## 8.402 xncp.h File Reference

```
#include <PLATFORM_HEADER>
```

### Functions

- `EmberStatus emberAfPluginXncpSendCustomEzspMessage (uint8_t length, uint8_t *payload)`

## 8.403 xncp.h

```

00001 //
00002 // xncp.h
00003 //
00004 // Author(s): Maurizio Nanni, maurizio.nanni@ember.com
00005 //
00006 // Programmable NCP code.
00007 //
00008 // Copyright 2015 Silicon Laboratories, Inc.
00009 //
0010
0011 #ifndef __XNCP_H__
0012
0013 #include PLATFORM_HEADER
0014
0015 EmberStatus emberAfPluginXncpSendCustomEzspMessage
0016     (uint8_t length, uint8_t *payload);
0017
0018 #endif /* __XNCP_H__ */
0019
0020 // @} END addtogroup

```

## 8.404 zcl-cli.h File Reference

### Macros

- `#define zclSimpleClientCommand(clusterId, commandId)`
- `#define zclSimpleServerCommand(clusterId, commandId)`

### Functions

- `void emAfCliSendCommand (void)`
- `void emAfCliBsendCommand (void)`
- `void emAfCliReadCommand (void)`
- `void emAfCliWriteCommand (void)`
- `void emAfCliTimesyncCommand (void)`
- `void emAfCliRawCommand (void)`
- `void emAfCliAddReportEntryCommand (void)`
- `void emAfCliSendZclIpCommand (void)`
- `void zclSimpleCommand (uint8_t frameControl, uint16_t clusterId, uint8_t commandId)`

### Variables

- `EmberCommandEntry keysCommands []`
- `EmberCommandEntry interpanCommands []`
- `EmberCommandEntry printCommands []`
- `EmberCommandEntry zclCommands []`
- `EmberCommandEntry certificationCommands []`

#### 8.404.1 Macro Definition Documentation

##### 8.404.1.1 `#define zclSimpleClientCommand( clusterId, commandId )`

Definition at line 29 of file `zcl-cli.h`.

#### 8.404.1.2 #define zclSimpleServerCommand( *clusterId*, *commandId* )

Definition at line 34 of file [zcl-cli.h](#).

### 8.404.2 Function Documentation

#### 8.404.2.1 void emAfCliSendCommand ( void )

#### 8.404.2.2 void emAfCliBsendCommand ( void )

#### 8.404.2.3 void emAfCliReadCommand ( void )

#### 8.404.2.4 void emAfCliWriteCommand ( void )

#### 8.404.2.5 void emAfCliTimesyncCommand ( void )

#### 8.404.2.6 void emAfCliRawCommand ( void )

#### 8.404.2.7 void emAfCliAddReportEntryCommand ( void )

#### 8.404.2.8 void emAfCliSendZclIpCommand ( void )

#### 8.404.2.9 void zclSimpleCommand ( uint8\_t *frameControl*, uint16\_t *clusterId*, uint8\_t *commandId* )

### 8.404.3 Variable Documentation

#### 8.404.3.1 EmberCommandEntry keysCommands[]

#### 8.404.3.2 EmberCommandEntry interpanCommands[]

#### 8.404.3.3 EmberCommandEntry printCommands[]

#### 8.404.3.4 EmberCommandEntry zclCommands[]

#### 8.404.3.5 EmberCommandEntry certificationCommands[]

## 8.405 zcl-cli.h

```

00001 // ****
00002 // * zcl-cli.h
00003 // *
00004 // *
00005 // * Copyright 2007 by Ember Corporation. All rights reserved.
00006 // ****
00007
00008 #if !defined(EMBER_AF_GENERATE_CLI)
00009 void emAfCliSendCommand(void);
0010 void emAfCliBsendCommand(void);
0011 void emAfCliReadCommand(void);
0012 void emAfCliWriteCommand(void);
0013 void emAfCliTimesyncCommand(void);
0014 void emAfCliRawCommand(void);
0015 void emAfCliAddReportEntryCommand(void);
0016 void emAfCliSendZclIpCommand(void);
0017 #endif
0018
0019 void zclSimpleCommand(uint8_t frameControl,

```

```

00020             uint16_t clusterId,
00021             uint8_t commandId);
00022
00023 extern EmberCommandEntry keysCommands[];
00024 extern EmberCommandEntry interpanCommands[];
00025 extern EmberCommandEntry printCommands[];
00026 extern EmberCommandEntry zclCommands[];
00027 extern EmberCommandEntry certificationCommands[];
00028
00029 #define zclSimpleClientCommand(clusterId, commandId) \
00030     zclSimpleCommand(ZCL_CLUSTER_SPECIFIC_COMMAND | \
00031         ZCL_FRAME_CONTROL_CLIENT_TO_SERVER, \
00032             (clusterId), \
00033             (commandId))
00034 #define zclSimpleServerCommand(clusterId, commandId) \
00035     zclSimpleCommand(ZCL_CLUSTER_SPECIFIC_COMMAND | \
00036         ZCL_FRAME_CONTROL_SERVER_TO_CLIENT, \
00037             (clusterId), \
00038             (commandId))

```

## 8.406 zdo-cli.h File Reference

### Macros

- `#define ZDO_COMMANDS`

### Variables

- `EmberCommandEntry zdoCommands []`

#### 8.406.1 Macro Definition Documentation

##### 8.406.1.1 `#define ZDO_COMMANDS`

Definition at line 19 of file `zdo-cli.h`.

#### 8.406.2 Variable Documentation

##### 8.406.2.1 `EmberCommandEntry zdoCommands[]`

## 8.407 zdo-cli.h

```

00001 /**
00002 * zdo-cli.h
00003 */
00004 /* CLI commands for sending ZDO messages.
00005 */
00006 /* Copyright 2010 by Ember Corporation. All rights reserved.
00007 *80*
00008 */
00009 extern EmberCommandEntry zdoCommands[];
00010
00011 #if defined(EMBER_TEST) && !defined(EMBER_AF_ENABLE_TX_ZDO)
00012     #define EMBER_AF_ENABLE_TX_ZDO
00013 #endif
00014
00015 #ifdef EMBER_AF_ENABLE_TX_ZDO

```

```

00016 #define ZDO_COMMANDS \
00017 {"zdo", NULL, (PGM_P) zdoCommands}, \
00018 #else \
00019 #define ZDO_COMMANDS \
00020 #endif \
00021

```

## 8.408 zll-commissioning.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_DURATION
- #define EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_TOUCH\_LINK\_MILLISECONDS\_DELAY
- #define EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_ADDITIONAL\_STATE

### Functions

- EmberStatus emberAfZllSetInitialSecurityState (void)
- EmberStatus emberAfZllInitiateTouchLink (void)
- EmberStatus emberAfZllDeviceInformationRequest (void)
- EmberStatus emberAfZllIdentifyRequest (void)
- EmberStatus emberAfZllResetToFactoryNewRequest (void)
- void emberAfZllNoTouchlinkForNfn (void)
- void emberAfZllAbortTouchLink (void)
- bool emberAfZllTouchLinkInProgress (void)
- void emberAfZllResetToFactoryNew (void)
- EmberStatus emberAfZllScanForJoinableNetwork (void)
- EmberStatus emberAfZllScanForUnusedPanId (void)
- EmberStatus emAfZllFormNetwork (uint8\_t channel, int8\_t power, EmberPanId panId)
- void emAfZllStackStatus (EmberStatus status)

### Variables

- uint32\_t emAfZllPrimaryChannelMask
- uint8\_t emAfZllExtendedPanId []

#### 8.408.1 Macro Definition Documentation

##### 8.408.1.1 #define EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_DURATION

Definition at line 166 of file [zll-commissioning.h](#).

##### 8.408.1.2 #define EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_TOUCH\_LINK\_MILLISECONDS\_DELAY

Definition at line 168 of file [zll-commissioning.h](#).

##### 8.408.1.3 #define EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_ADDITIONAL\_STATE

Definition at line 174 of file [zll-commissioning.h](#).

## 8.408.2 Function Documentation

### 8.408.2.1 EmberStatus `emberAfZllSetInitialSecurityState( void )`

Generate a random network key and initialize the security state of the device.

This function is a convenience wrapper for ::emberZllSetInitialSecurityState, which must be called before starting or joining a network. The plugin will initialize the security state for the initiator during touch linking. The target must initialize its own security state prior to forming a network either by using this function or by calling ::emberZllSetInitialSecurityState directly.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 8.408.2.2 EmberStatus `emberAfZllInitiateTouchLink( void )`

Initiate the touch link procedure.

This function will cause the stack to broadcast a series of ScanRequest commands via inter-PAN messaging. The plugin will select the target that sent a ScanResponse command with the strongest RSSI and attempt to link with it. If touch linking completes successfully, the plugin will call [emberAfPluginZllCommissioningTouchLinkCompleteCallback](#) with information about the network and the target. If touch linking fails, the plugin will call [emberAfPluginZllCommissioningTouchLinkFailedCallback](#).

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 8.408.2.3 EmberStatus `emberAfZllDeviceInformationRequest( void )`

Initiates a touch link for the purpose of retrieving information about a target device.

As with a traditional touch link, this function will cause the stack to broadcast messages to discover a target device. When the target is selected (based on RSSI), the plugin will retrieve information about it by unicasting a series of DeviceInformationRequest commands via inter-PAN messaging. If the process completes successfully, the plugin will call [emberAfPluginZllCommissioningTouchLinkCompleteCallback](#) with information about the target. If touch linking fails, the plugin will call [emberAfPluginZllCommissioningTouchLinkFailedCallback](#).

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

### 8.408.2.4 EmberStatus `emberAfZllIdentifyRequest( void )`

Initiates a touch link for the purpose of causing a target device to identify itself.

As with a traditional touch link, this function will cause the stack to broadcast messages to discover a target device. When the target is selected (based on RSSI), the plugin will cause it to identify itself by unicasting an IdentifyRequest command via inter-PAN messaging. If the process completes successfully, the plugin will call [emberAfPluginZllCommissioningTouchLinkCompleteCallback](#) with information about the target. If touch linking fails, the plugin will call [emberAfPluginZllCommissioningTouchLinkFailedCallback](#).

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

**8.408.2.5 EmberStatus emberAfZllResetToFactoryNewRequest ( void )**

Initiates a touch link for the purpose of resetting a target device.

As with a traditional touch link, this function will cause the stack to broadcast messages to discover a target device. When the target is selected (based on RSSI), the plugin will reset it by unicasting a ResetTo-FactoryNewRequest command via inter-PAN messaging. If the process completes successfully, the plugin will call [emberAfPluginZllCommissioningTouchLinkCompleteCallback](#) with information about the target. If touch linking fails, the plugin will call [emberAfPluginZllCommissioningTouchLinkFailedCallback](#).

**Returns**

An [EmberStatus](#) value that indicates the success or failure of the command.

**8.408.2.6 void emberAfZllNoTouchlinkForNfn ( void )**

No touchlink for non-factory new device.

This function will cause the NFN device to refuse network start/join requests in case it receives them and will not allow touchlinking. This can be useful to restrict touchlink stealing.

**8.408.2.7 void emberAfZllAbortTouchLink ( void )**

Abort the touch link procedure.

This function can be called to cancel the touch link procedure. This can be useful, for example, if the touch link target is incorrect.

**8.408.2.8 bool emberAfZllTouchLinkInProgress ( void )**

Indicates if a touch link procedure is currently in progress.

**Returns**

true if a touch link is in progress or false otherwise.

**8.408.2.9 void emberAfZllResetToFactoryNew ( void )**

Reset the local device to a factory new state.

This function will cause the device to leave the network and clear its network parameters, reset its attributes to their default values, and clear the group and scene tables.

**8.408.2.10 EmberStatus emberAfZllScanForJoinableNetwork ( void )**

Scan for joinable networks.

This function will scan the primary channel set for joinable networks. If a joinable network is found, the plugin will attempt to join to it. If no joinable networks are found or if joining is not successful, the plugin will scan the secondary channel set for joinable networks. If a joinable network is found, the plugin will attempt to join to it. The plugin will only scan the secondary channel set if ::EMBER\_AF\_PLUGIN\_ZLL\_COMMISSIONING\_SCAN\_SECONDARY\_CHANNELS is defined. Otherwise, scanning stops after the initial scan of the primary channel set.

Routers and end devices should scan for joinable networks when directed by the application. Scanning for joinable networks enables classical ZigBee commissioning with non-ZLL devices.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **8.408.2.11 EmberStatus emAfZllScanForUnusedPanId( void )**

Scan for an unused PAN id.

This function will scan the primary channel set for a channel with low average energy and then select a PAN id that is not in use on that channel. The plugin will then form a ZLL network on that channel with the chosen PAN id.

Factory new routers should form a new ZLL network at startup. All routers should form a new ZLL network if classical ZigBee commissioning has failed. End devices should not use this API and should instead form ZLL networks via touch linking.

#### Returns

An [EmberStatus](#) value that indicates the success or failure of the command.

#### **8.408.2.12 EmberStatus emAfZllFormNetwork( uint8\_t channel, int8\_t power, EmberPanId panId )**

#### **8.408.2.13 void emAfZllStackStatus( EmberStatus status )**

### **8.408.3 Variable Documentation**

#### **8.408.3.1 uint32\_t emAfZllPrimaryChannelMask**

#### **8.408.3.2 uint8\_t emAfZllExtendedPanId[]**

## **8.409 zll-commissioning.h**

```

00001 // ****
00002 // * zll-commissioning.h
00003 // *
00004 // *
00005 // * Copyright 2010 by Ember Corporation. All rights reserved.
00006 // ****
00007
00021 EmberStatus emAfZllSetInitialSecurityState
00022     (void);
00036 EmberStatus emAfZllInitiateTouchLink(
00037     void);
00053 EmberStatus emAfZllDeviceInformationRequest

```

```

        (void);

00054
00070 EmberStatus emberAfZllIdentifyRequest(void)
;
00071
00086 EmberStatus emberAfZllResetToFactoryNewRequest
        (void);
00087
00094 void emberAfZllNoTouchlinkForNfn(void);
00095
00101 void emberAfZllAbortTouchLink(void);
00102
00107 bool emberAfZllTouchLinkInProgress(void);
00108
00115 void emberAfZllResetToFactoryNew(void);
00116
00135 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00136     EmberStatus emberAfZllScanForJoinableNetwork
        (void);
00137 #else
00138     #define emberAfZllScanForJoinableNetwork
             emberAfStartSearchForJoinableNetworkCallback
00139 #endif
00140
00156 #ifdef DOXYGEN_SHOULD_SKIP_THIS
00157     EmberStatus emberAfZllScanForUnusedPanId
        (void);
00158 #else
00159     #define emberAfZllScanForUnusedPanId emberAfFindUnusedPanIdAndFormCallback
00160 #endif
00161
00162 // The exponent of the number of scan periods, where a scan period is 960
00163 // symbols, and a symbol is 16 microseconds. The scan will occur for
00164 // ((2^duration) + 1) scan periods. The ZLL specification requires routers to
00165 // scan for joinable networks using a duration of 4.
00166 #define EMBER_AF_PLUGIN_ZLL_COMMISSIONING_SCAN_DURATION 4
00167
00168 #define EMBER_AF_PLUGIN_ZLL_COMMISSIONING_TOUCH_LINK_MILLISECONDS_DELAY \
00169     (EMBER_AF_PLUGIN_ZLL_COMMISSIONING_TOUCH_LINK_SECONDS_DELAY *
         MILLISECOND_TICKS_PER_SECOND)
00170
00171 #ifdef EMBER_AF_PLUGIN_ZLL_COMMISSIONING_LINK_INITIATOR
00172     #define EMBER_AF_PLUGIN_ZLL_COMMISSIONING_ADDITIONAL_STATE
             EMBER_ZLL_STATE_ADDRESS_ASSIGNMENT_CAPABLE
00173 #else
00174     #define EMBER_AF_PLUGIN_ZLL_COMMISSIONING_ADDITIONAL_STATE
             EMBER_ZLL_STATE_NONE
00175 #endif
00176
00177 // Internal APIs.
00178 EmberStatus emAfZllFormNetwork(uint8_t channel,
        int8_t power, EmberPanId panId);
00179 void emAfZllStackStatus(EmberStatus status);
00180
00181 extern uint32_t emAfZllPrimaryChannelMask;
00182 #ifdef EMBER_AF_PLUGIN_ZLL_COMMISSIONING_LINK_INITIATOR
00183 extern uint16_t emAfZllIdentifyDurationS;
00184 #endif
00185 #ifdef EMBER_AF_PLUGIN_ZLL_COMMISSIONING_SCAN_SECONDARY_CHANNELS
00186 extern uint32_t emAfZllSecondaryChannelMask;
00187 #endif
00188 extern uint8_t emAfZllExtendedPanId[];

```

## 8.410 zll-level-control-server.h File Reference

### Macros

- #define EMBER\_AF\_PLUGIN\_ZLL\_LEVEL\_CONTROL\_SERVER\_MINIMUM\_LEVEL
- #define EMBER\_AF\_PLUGIN\_ZLL\_LEVEL\_CONTROL\_SERVER\_MAXIMUM\_LEVEL

## Functions

- `EmberAfStatus emberAfPluginZllLevelControlServerMoveToLevelWithOnOffZllExtensions (const EmberAfClusterCommand *cmd)`
- `bool emberAfPluginZllLevelControlServerIgnoreMoveToLevelMoveStepStop (uint8_t endpoint, uint8_t commandId)`

### 8.410.1 Macro Definition Documentation

#### 8.410.1.1 `#define EMBER_AF_PLUGIN_ZLL_LEVEL_CONTROL_SERVER_MINIMUM_LEVEL`

Definition at line 8 of file [zll-level-control-server.h](#).

#### 8.410.1.2 `#define EMBER_AF_PLUGIN_ZLL_LEVEL_CONTROL_SERVER_MAXIMUM_LEVEL`

Definition at line 9 of file [zll-level-control-server.h](#).

### 8.410.2 Function Documentation

#### 8.410.2.1 `EmberAfStatus emberAfPluginZllLevelControlServerMoveToLevelWithOnOffZllExtensions (const EmberAfClusterCommand * cmd )`

#### 8.410.2.2 `bool emberAfPluginZllLevelControlServerIgnoreMoveToLevelMoveStepStop ( uint8_t endpoint, uint8_t commandId )`

## 8.411 zll-level-control-server.h

```

00001 // ****
00002 // * zll-level-control-server.h
00003 // *
00004 // *
00005 // * Copyright 2011 by Ember Corporation. All rights reserved.
00006 // * 80*
00007
00008 #define EMBER_AF_PLUGIN_ZLL_LEVEL_CONTROL_SERVER_MINIMUM_LEVEL 0x01
00009 #define EMBER_AF_PLUGIN_ZLL_LEVEL_CONTROL_SERVER_MAXIMUM_LEVEL 0xFE
00010
00011 EmberAfStatus
00012     emberAfPluginZllLevelControlServerMoveToLevelWithOnOffZllExtensions
00013     (const EmberAfClusterCommand *cmd);
00014 bool emberAfPluginZllLevelControlServerIgnoreMoveToLevelMoveStepStop
00015     (uint8_t endpoint, uint8_t commandId);

```

### 8.412 zll-on-off-server.h File Reference

## Functions

- `EmberAfStatus emberAfPluginZllOnOffServerOffZllExtensions (const EmberAfClusterCommand *cmd)`
- `EmberAfStatus emberAfPluginZllOnOffServerOnZllExtensions (const EmberAfClusterCommand *cmd)`
- `EmberAfStatus emberAfPluginZllOnOffServerToggleZllExtensions (const EmberAfClusterCommand *cmd)`

- [EmberAfStatus emberAfPluginZllOnOffServerLevelControlZllExtensions \(uint8\\_t endpoint\)](#)

### 8.412.1 Function Documentation

- 8.412.1.1 [EmberAfStatus emberAfPluginZllOnOffServerOffZllExtensions \( const EmberAfClusterCommand \\* cmd \)](#)
- 8.412.1.2 [EmberAfStatus emberAfPluginZllOnOffServerOnZllExtensions \( const EmberAfClusterCommand \\* cmd \)](#)
- 8.412.1.3 [EmberAfStatus emberAfPluginZllOnOffServerToggleZllExtensions \( const EmberAfClusterCommand \\* cmd \)](#)
- 8.412.1.4 [EmberAfStatus emberAfPluginZllOnOffServerLevelControlZllExtensions \( uint8\\_t endpoint \)](#)

## 8.413 zll-on-off-server.h

```

00001 // ****
00002 // * zll-on-off-server.h
00003 // *
00004 // *
00005 // * Copyright 2011 by Ember Corporation. All rights reserved.
00006 // *80*
00007 // ****
00008 EmberAfStatus emberAfPluginZllOnOffServerOffZllExtensions
00009     (const EmberAfClusterCommand *cmd);
00010 EmberAfStatus emberAfPluginZllOnOffServerOnZllExtensions
00011     (const EmberAfClusterCommand *cmd);
00012 EmberAfStatus emberAfPluginZllOnOffServerToggleZllExtensions
00013     (const EmberAfClusterCommand *cmd);
00014 EmberAfStatus emberAfPluginZllOnOffServerLevelControlZllExtensions
00015     (uint8_t endpoint);

```

## 8.414 zll-scenes-server.h File Reference

### Functions

- [EmberAfStatus emberAfPluginZllScenesServerRecallSceneZllExtensions \(uint8\\_t endpoint\)](#)

### 8.414.1 Function Documentation

- 8.414.1.1 [EmberAfStatus emberAfPluginZllScenesServerRecallSceneZllExtensions \( uint8\\_t endpoint \)](#)

## 8.415 zll-scenes-server.h

```

00001 // ****
00002 // * zll-scenes-server.h
00003 // *
00004 // *
00005 // * Copyright 2011 by Ember Corporation. All rights reserved.
00006 // *80*
00007 // ****
00008 EmberAfStatus emberAfPluginZllScenesServerRecallSceneZllExtensions
00009     (uint8_t endpoint);

```