Release Notes

Product: Application Framework for EmberZNet 5.10.1
Release Date: June 9, 2017

1 Overview

This release contains the GA release of Application Framework for use with EmberZNet 5.10 for the EFR32 and EM3xx platforms. This release must be used with Silicon Labs Simplicity Studio 4.0. The Application Framework is installed along with the EmberZNet stack. For more information on software installation and support, see QSG106, Getting Started with EmberZNet."

2 The 5.10 Release

This release includes a number of new features, improvements, and bug fixes. Customers upgrading from previous releases are strongly encouraged to carefully review this section. It is important to become with familiar with the changes in this release before attempting to migrate applications.

Version 5.10

2.1 New Features

- In preparation for zigbee 3.0 support, some sample applications were upgraded, replaced and in some cases removed from this release. See Sample Application section below.
- Provided support for Energy Mode 4 (EM4) in this stack release.
- Support for EFR32MG13 parts.
- Average LQI tracking for end device children
- Stack does a better job of detecting and resolving conflicts between child table and source route table for rejoining end devices.

2.2 Configuration Changes

No configuration changes were made in this release.

2.3 Removed APIs

No APIs were removed in this release.

2.4 Removed Callbacks

No callbacks were removed in this release.

2.5 Removed CLI Commands

No CLI commands were removed in this release.

2.6 Removed Plugins

No plugins were removed in this release.

2.7 Removed Sample Applications

2.7.1 Sample Applications replaced with Z3 versions

- ./framework/scenarios/zha/HaCapSenseDimmerSwitch/HaCapSenseDimmerSwitchSoc.isc
- ./framework/scenarios/zha/HaColorControlLight/HaColorControlLightSoc.isc
- ./framework/scenarios/zha/HaColorTempLight/HaColorTempLightSoc.isc
- ./framework/scenarios/zha/HaContactSensor/HaContactSensorSoc.isc
- ./framework/scenarios/zha/HaDimmableLight/HaDimmableLightSoc.isc
- ./framework/scenarios/zha/HaGatewayReference/HaGatewayReferenceHost.isc
- ./framework/scenarios/zha/HaOccupancySensor/HaOccupancySensorSoc.isc
- ./framework/scenarios/zha/HaSampleGateway/HaSampleGatewaySoc.isc
- ./framework/scenarios/zha/HaSampleLight/HaSampleLightSoc.isc
- ./framework/scenarios/zha/HaSampleSwitch/HaSampleSwitchSoc.isc
- ./framework/scenarios/zha/HaSmartOutlet/HaSmartOutletSoc.isc

2.7.2 Sample Applications removed from this release

- ./framework/scenarios/rf4ce/Rf4ceZrc20Target/Rf4ceZrc20TargetSoc.isc
- ./framework/scenarios/secure-ezsp/SecureEzsp/SecureEzspHost.isc
- ./framework/scenarios/zll/ZllSampleController/ZllSampleControllerSoc.isc
- ./framework/scenarios/zll/ZllSampleLight/ZllSampleLightSoc.isc
- ./framework/scenarios/zse/SeSample12bEsi/SeSample12bEsiHost.isc
- ./framework/scenarios/zse/SeSample12bIhd/SeSample12bIhdSoc.isc
- ./framework/scenarios/zse/SeSampleCommsHub/SeSampleCommsHubHost.isc
- ./framework/scenarios/zse/SeSampleEsi/SeSampleEsiSoc.isc
- ./framework/scenarios/zse/SeSampleGSME/SeSampleGSMESoc.isc
- ./framework/scenarios/zse/SeSampleHHT/SeSampleHHTHost.isc
- ./framework/scenarios/zse/SeSamplePCT/SeSamplePCTSoc.isc
- ./rf4ce/sample-app/controller-zrc20/controller-zrc20.isc
- ./rf4ce/sample-app/full-featured-controller-hard-codec/full-featured-controller-hard-codec.isc
- ./rf4ce/sample-app/low-cost-controller/low-cost-controller.isc
- ./rf4ce/sample-app/target-zrc20/target-zrc20.isc

2.8 Changed APIs

This release contains one minor API change.

2.8.1 Cluster Revision

This release adds support for the client-side ClusterRevision global attribute (attribute ID 0xFFFD). Previously there was only support for the server-side ClusterRevision global attribute. In order to make this change, the generated attribute ID macro (found in the attribute-id.h AppBuilder generated file) has been split into two different macros. Previously, the macro was ZCL_<CLUSTER_NAME>_CLUSTER_REVISION_ATTRIBUTE_ID (i.e., ZCL_BASIC_CLUSTER_CLUSTER_REVISION_ATTRIBUTE_ID). Now, the macro(s) will be ZCL_<CLUSTER_NAME>_CLUSTER_REVIS and ZCL_<CLUSTER_NAME>_CLUSTER_REVISION_SERVER_ATTRIBUTE_ID. Applications that have used the macro for this attribute ID should update their code to use one of the new macros.

2.9 Changed Callbacks

No callbacks were changed in this release.

2.10 Changed CLI Commands

No CLI commands were changed in this release.

2.11 Changed Plugins

Four plugins were changed in this release.

2.11.1 Key-related Plugins

The stack callbacks emberZigbeeKeyEstablishmentHandler and ezspZigbeeKeyEstablishmentHandler are now implemented in Framework code, rather than in the individual key-related plugins, Update TC Link Key, Network Creator Security, and Partner Link Key Exchange, for each of which a new callback is defined, respectively: emberAfPluginUpdateTcLinkKeyZigbeeKeyEstablishmentCallback, emberAfPluginNetworkCreatorSecurityZigbeeKeyEstablishmentCallback, and emberAfPluginPartnerLinkKeyExchangeZigbeeKeyEstablishmentCallback. The stack callback implementation will now simply call a new function, emAfZigbeeKeyEstablishment, which will then map to the appropriate plugin callback or callbacks, in addition to calling a new non-plugin-related callback, emberAfZigbeeKeyEstablishmentCallback. This change will permit more than one key-related plugin to be used in the same application, without causing multiple definition linker errors. Customers that have previously implemented emberZigbeeKeyEstablishmentHandler or ezspZigbeeKeyEstablishmentHandler in their applications will need to switch over to using the new emberAfZigbeeKeyEstablishmentCallback function, which is called on both HOST and SoC platforms.

2.12 Network Creator Security

A new option was added to allow Home Automation (pre-Zigbee 3.0) devices to join the network.

2.13 Changed Sample Applications

No sample applications changed in this release.

2.14 Deprecated APIs

No APIs were deprecated in this release.

2.15 Deprecated Callbacks

No callbacks were deprecated in this release.

2.16 Deprecated CLI Commands

No CLI commands were deprecated in this release.

2.17 Deprecated Plugins

No plugins were deprecated in this release.

2.18 Deprecated Sample Applications

No sample applications were deprecated in this release.

2.19 New APIs

No new APIs were added in this release.

2.20 New Callbacks

No callbacks were added in this release.

2.21 New CLI Commands

No CLI commands were added in this release.

2.22 New Plugins

No new plugins were added in this release.

2.23 New Sample Applications

No new sample application were added in this release.

3 Known/Fixed Issues

3.1 Fixed Issues

3.1.1 Fixed Issues in EmberZNet 5.10.1

- Issue 262800: Prebuild Z3 sample applications target correct architecture
- Issue 258396: Thread EFR32 SPI NCP would sometimes fails to form network after initialization. EFR32 SPI NCP has been made more stable.

3.1.2 Fixed Issues in EmberZNet 5.10.0

- Issue 259387: Note that the Thunderboard Sense Connected Motion sample application only works when compiled with IAR. It does not currently work when compiled with GCC.
- Issue 243333: FLASH_SIZE and RAM_SIZE are set for the parts based on the architecture in case of GCC
- Issue 117894: Image Block Response does not properly handle the one time block request delay.
- Issue 237681: EmberZNet NCP firmware generated from AppBuilder via NCP Framework doesn't allow multi-network operations (non-0 network index) even if non-stub multi-network library is included. (Does not apply to pre-built NCP binaries found in the installer.)

- Issue 233037: NCP concentrator support code may initiate IEEE Address Requests even if Concentrator Support feature not enabled by host. Workaround: Always activate "Enable concentrator support at the NCP" if using the Concentrator Support plugin with an EmberZNet host application, or else build a custom NCP image via the NCP Framework and choose "Concentrator Support Stub Library" to remove the concentrator support features from the EmberZNet NCP firmware.
- Issue 224877: Source route management code may mistakenly create routing loop when source route table is full and a new entry is added and the oldest entry is being overwritten
- Issue 258788: Pre-built Thread NCP UART binaries with Software (XON/XOFF) flow control have been removed as the WSTK does not support software flow control through the USB serial interface. However, software flow control is still supported for Thread NCP UART and may be enabled with a plugin option in the NCP UART Link plugin of the Thread framework.
- Issue 258728: Going into AppNote by Tim Rosa
- Issue 246957: The ip-driver-app can't detect and recover if the length field of an IPv6 packet written to the TUN driver is corrupt. The sender of the packet should check to make sure the IPv6 length matches the length of the packet being sent. Added an assert to verify that the length does not exceed EMBER_IPV6_MTU (1280), which will catch length field corruption some of the time.
- Issue 229757: To join a client, first obtain the client's join key with the "get-join-key" command, and supply the server with that join key using the "expect ¡key¿" command. Then join the client using the "join" command.
- Issue 240601: EZSP-USB NCP firmware periodically terminates with Hard Fault reset cause
- Issue 159525: Fast data transfer from host to EM3588 USB without acknowledgement from EM3588 sometimes causes EM3588 firmware to crash.

3.2 Known Issues

- Issue 136274: Node State Cache incorrectly indicates no nodes in trace file.
- Issue 110166: Extended Ember Desktop Decoder's events window to be customizable
- Issue 92566: APS Alarm message always decodes to say missing packets
- Issue 65929: Global channel change via Sniffer Settings dialog doesn't impact EM35x sniffers
- Issue 65898: ISD cannot find JRE on some 64-bit Windows 7 machines
- Issue 65687: Console view renders ASCII 0x81 character incorrectly
- Issue 258970: Plugins with custom token (NVM) data, such as Scenes Server plugin, may cause App Framework V2 (ZCL) builds to fail due to missing token header. Workaround: De-select and then re-enable the plugin before generating in AppBuilder.
- Issue 258317: Default reporting configuration of On-off Server Cluster plugin uses max interval of 0xFFFF; should be within 0x003D - 0xFFFE range.
- Issue 213424: Problem with ZLL Devices responding to a multicast addScene when they should not.
- Issue 205394: In situations where a concentrator doesn't use the NCP-based concentrator-util-library code to manage source routing, a route error will trigger an MTORR from the Conc Support plugin, but the new source route may not be known for a long time. The ZigBee NCP firmware concentrator-util solves this problem by doing a ZDO Network Address Request for the target device. For SoC, until that functionality is added to the Conc Support plugin code, it needs to be implemented manually.
- Issue 201417: Adding GPIO Sensor Interface plugin to an EM358x project results in error: "identifier "GPIO_SENSOR_IRQ" is undefined".

- Issue 185606: ZCL framework does not support reuse of cluster IDs across different manufacturer codes (although this is theoretically permissible per ZCL specs).
- Issue 146795: Added Alarm Cluster functionality to IAS Zone Plugin.
- Issue 126087: Sleepy end device would return NO_LOCAL_RESOURCES when a coordinator initiates key establishment with it in Multi-networking.
- Issue 123399: Non-sleepy endpoint does not always keep correct network parameters on reset in multi-networking.
- Issue 121707: Reporting does not send to a group address.
- Issue 119828: ota-client.c does not use the server EUI64 in Partner Link Key Exchange.
- Issue 101644: Add a callback to the check-in interval for poll control.
- Issue 92147: ZLL Scan Response Should Be Sent at Power 0 rather than last-used power level
- Issue 83798: Image Integrity Tag generation in image builder for an OTA file
- Issue 66944: Duplicate Key Confirm Response message can lock up KE plugin state machine
- Issue 66786: "zcl ota server reload" doesn't properly reload image info when using OTA Simple Storage plugin
- Issue 66785: Messaging Client plugin should differentiate between Cancel Msg command and timed out / replaced message
- Issue 66508: Framework should avoid sending unicast loopback messages with APS security since stack doesn't support this