

Kinetis Thread Host Control Interface

Reference Manual

1 About This Document

This document provides a detailed description for the Thread Network Stack use of the Thread Host Control Interface (THCI) module which can be deployed from a PC tool or a host processor to perform control and monitoring of a Thread stack instance running on a Kinetis wireless microcontroller.

1.1 Audience

This document is for software developers who create tools and multichip partitioned systems using a serial interface to a Thread *black box* firmware running on the Kinetis microcontroller.

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2 Thread THCI Overview

The Thread Host Control Interface (THCI) module supports building an interface between the IP stack and a host or a PC tool using a serial communication line.

THCI can be deployed using PC tools, such as the NXP Test Tool PC application for Connectivity Products.

The tool can use an XML file (“ThreadIP.xml”, located at \tools\wireless\xml_fsci subfolder in the Connectivity Stack software package), which contains detailed meta-descriptors for serial commands and events.

To use the XML in Test Tool 12 for Connectivity products, copy the file to the Test Tool XML folder (for example, C:\NXP\Test Tool 12\Xml\)

3 ThreadMgmt Messages

3.1 *THR_CommissioningDiagnostic.Indication*

Description

Commissioning diagnostic messages.

Parameters

Table -1 - THR_CommissioningDiagnostic.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x4E
Length	2	Length in bytes of the following parameters
Direction	1	Possible values: 0x00: OUT (Sent packet) 0x01: IN (Received packet)
Type	1	Possible values: 0x00: JOIN_FIN_REQ (JOIN_FIN.REQ) 0x01: JOIN_FIN_RSP (JOIN_FIN.RSP) 0x02: JOIN_ENT_REQ (JOIN_ENT.REQ) 0x03: JOIN_ENT_RSP (JOIN_ENT.RSP)

		0x04: DTLS_CLOSE_NOTIFY
EUI	8	
TlvsLength	1	Total size of the following TLVs
TlvsBytes	TlvsLength	The actual TLVs

3.2 *THR_CpuReset.Request*

Description

Reset the device.

Parameters

Table -2 - THR_CpuReset.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x21
Length	2	Length in bytes of the following parameters
TimeoutMs	4	the time in milliseconds after that the device will enter in the reset state.

3.3 *THR_CpuReset.Confirm*

Description

Reset the device.

Parameters

Table -3 - THR_CpuReset.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x21
Length	2	Length in bytes of the following parameters
Status	1	Possible values:

		0x00: Success 0xFF: Theselectedconfigurationisnotvalid
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3.4 THR_CpuReset.Indication

Description

THR_CPUReset indication.

Parameters

Table -4 - THR_CpuReset.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x22
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: ResetCpuSuccess 0x01: ResetCpuPending
ResetCpuPayload	Variable	Reset CPU Payload "Union" type parameter. Its structure is based on the value of parameter Status. See detailed table below for parameter structure.

Table %CHAPTER%-5 - ResetCpuPayload Parameter Structure

Status	Structure Parameter	Size (bytes)	Comments
0x00	ResetCpuSuccess	Variable	Reset Cpu success payload Structure type parameter. See detailed table below for parameter structure.
0x01	ResetCpuPending	Variable	Reset Cpu pending payload Structure type parameter. See detailed table below for parameter structure.

Table -6 - ResetCpuSuccess Parameter Structure

Structure Parameter	Size (bytes)	Comments
BoardNameLen	1	Board Name Length

BoardName	BoardNameLen	
UniqueMcuId	16	Unique Mcu Identifier
StackVersion	6	
SwVersionLen	1	Software Version Length
SwVersion	SwVersionLen	

Table -7 - ResetCpuPending Parameter Structure

Structure Parameter	Size (bytes)	Comments
TimeoutMs	4	Timeout in milliseconds

3.5 THR_CreateNwk.Request

Description

Create thread network. Should be run after setting the configuration parameters.

Parameters

Table -8 - THR_CreateNwk.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x1B
Length	2	Length in bytes of the following parameters
InstancelD	1	

3.6 THR_CreateNwk.Confirm

Description

Confirmation of the create network request.

Parameters

Table -9 - THR_CreateNwk.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF

OpCode	1	0x1B
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x0A: AlreadyConnected 0x0B: AlreadyCreated 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

3.7 THR_DiagTestGet.Request

Description

Large Network Diagnostic Get request.

Parameters

Table -10 - THR_DiagTestGet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x67
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
DestIpAddrLength	1	
DestIpAddr	DestIpAddrLength	Destination Ip Address
PayloadSize	1	Size of payload - enter manually
Tlvld	1	Possible values: 0xB0: ColdFactoryReset (Factory reset the node) 0xB1: WarmCPUReset (CPU reset the node) 0xB2: Data (Large Network Data) 0xB3: Results (Large Network Results)
AttributeValue	Variable	Attribute Value "Union" type parameter. Its structure is based on the value of parameter Tlvld. See detailed table

		below for parameter structure.
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Table %CHAPTER%-11 - AttributeValue Parameter Structure

TlVId	Structure Parameter	Size (bytes)	Comments
0xB0	Cold/Factory Reset	1	Factory reset the node
0xB1	Warm/CPU Reset	1	CPU reset the node
0xB2	Data	Variable	Large Network Data Structure type parameter. See detailed table below for parameter structure.
0xB3	Results	1	Large Network Results

Table -12 - Data Parameter Structure

Structure Parameter	Size (bytes)	Comments
SequenceNumber	1	Sequence Number
Payload	PayloadSize	Payload to be transmitted OTA

3.8 THR_DiagTestGet.Confirm

Description

The confirmation to network diagnostic get request.

Parameters

Table -13 - THR_DiagTestGet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x67
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x03: InvalidParameter 0x04: NotPermitted 0xFF: Error
CoapMsgId	2	Coap over the air message id - used for

		synchronization btw Req-Rsp
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3.9 THR_DiagTestGetRsp.Indication

Description

The response to large network diagnostic get request.

Parameters

Table -14 - THR_DiagTestGetRsp.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x68
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: FailedNotSupported
CoapMsgId	2	Coap over the air message id - used for synchronization btw Req-Rsp
DataLen	2	Data length
Payload	Variable	Packet Payload Structure type parameter. See detailed table below for parameter structure.

Table -15 - Payload Parameter Structure

Structure Parameter	Size (bytes)	Comments
TlVId	1	TLV identifier Possible values: 0xB0: ColdFactoryReset (Factory reset the node) 0xB1: WarmCPUReset (CPU reset the node) 0xB2: Data (Large Network Data) 0xB3: Results (Large Network Results)
TLVPayload	Variable	TLV Payload "Union" type parameter. Its structure is based on the value of parameter TlVId. See detailed table

		below for parameter structure.
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Table %CHAPTER%-16 - TLVPayload Parameter Structure

TlVId	Structure Parameter	Size (bytes)	Comments
0xB0	Cold/Factory Reset	2	Factory reset the node
0xB1	Warm/CPU Reset	2	
0xB2	Data	Variable	Large Network Data Structure type parameter. See detailed table below for parameter structure.
0xB3	Results	Variable	Large Network Results Structure type parameter. See detailed table below for parameter structure.

Table -17 - Data Parameter Structure

Structure Parameter	Size (bytes)	Comments
ReqLatency	4	Request Latency
RspLatency	4	Response Latency
Offset	4	Calculated offset
SequenceNumber	1	Sequence Number
PayloadSize	1	Payload Size
Payload	PayloadSize	OTA transmitted payload

Table -18 - Results Parameter Structure

Structure Parameter	Size (bytes)	Comments
ReqLatency	4	Request Latency
RspLatency	4	Response Latency
Offset	4	Calculated offset
SequenceNumber	1	Sequence Number

3.10 THR_Disconnect.Request

Description

Network disconnect.

Parameters

Table -19 - THR_Disconnect.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x1D
Length	2	Length in bytes of the following parameters
InstanceID	1	Thread instance id

3.11 THR_Disconnect.Confirm

Description

Confirmation of the THR_Disconnect.Request.

Parameters

Table -20 - THR_Disconnect.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x1D
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

3.12 THR_EventGeneral.Confirm

Description

Confirmation of the network join event.

Parameters

Table -21 - THR_EventGeneral.Confirm Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCF
OpCode	1	0x54
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread Instance Id
EventStatus	2	<p>Event status</p> <p>Possible values:</p> <p>0x0001: Disconnected</p> <p>0x0002: Connected</p> <p>0x0003: Resettofactorydefault</p> <p>0x0004: Instancerestorestarted</p> <p>0x0005: RouterSynced</p> <p>0x0006: EndDeviceSynced</p> <p>0x0007: Connectingstarted</p> <p>0x0008: Connectingfailed</p> <p>0x0009: Connectingdeferred</p> <p>0x000A: DeviceisLeader</p> <p>0x000B: DeviceisRouter</p> <p>0x000C: DeviceisREED</p> <p>0x000D: DeviceisEndDevice</p> <p>0x000E: DeviceisSleepyEndDevice</p> <p>0x000F: RequestingGlobalAddress</p> <p>0x0010: GlobalAddressassigned</p> <p>0x0011: RequestingRouterId</p> <p>0x0012: RouterIdassigned</p> <p>0x0013: RouterIdassignedfailed</p> <p>0x0014: Allowdevicetosleep</p> <p>0x0015: Disallowdevicetosleep</p> <p>0x0016: ChildIdassigned</p>
DataSize	2	The number of payload bytes
Data	DataSize	

3.13 THR_EventNwkCommissioning.Indication

Description

Commissioning Events.

Parameters

Table -22 - THR_EventNwkCommissioning.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x55
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread Instance Id
EventStatus	2	<p>Event status</p> <p>Possible values:</p> <p>0x0001: JoinerDiscoveryStarted (Joiner has started discovery)</p> <p>0x0002: JoinerDiscoveryFailedNoBeacon (No Thread networks/routers found)</p> <p>0x0003: JoinerDiscoveryFailedFiltered (Joiner Routers found, but device is filtered)</p> <p>0x0004: JoinerDiscoverySuccess (Network selected)</p> <p>0x0005: JoinerDtlsSessionStarted (Started DTLS session to Commissioner (sent Hello))</p> <p>0x0006: JoinerDtlsError (DTLS session error - all DTLS errors, e.g.: incorrect PSKd)</p> <p>0x0007: JoinerError (All other non-DTLS errors (e.g.: Joiner Router failed to send credentials))</p> <p>0x0008: JoinerAccepted (Joiner has received credentials)</p> <p>0x0009: CommissionerPetitionStarted (Petitioning has started)</p> <p>0x000A: CommissionerPetitionAccepted (Petition success)</p> <p>0x000B: CommissionerPetitionRejected (Petition rejected)</p> <p>0x000C: CommissionerPetitionError (Other errors in petitioning (did not get PET response))</p> <p>0x000D: CommissionerKeepAliveSent (Keep Alive was sent)</p> <p>0x000E: CommissionerError (Errors during generating Keep ALive or other errors on the</p>

		<p>Commissioner session)</p> <p>0x000F: CommissionerJoinerDtlsSessionStarted (A Joiner sent Hello)</p> <p>0x0010: CommissionerJoinerDtlsError (DTLS session error - all DTLS errors, e.g.: incorrect PSKd)</p> <p>0x0011: CommissionerJoinerAccepted (Joiner accepted)</p> <p>0x0012: CommissionerNwkDataSynced (The Commissioner changed the Nwk data)</p> <p>0x0013: CommissionerBrDtlsSessionStarted (Started DTLS session to BR (sent Hello))</p> <p>0x0014: CommissionerBrDtlsError (DTLS session error - all DTLS errors, e.g.: incorrect PSKc)</p> <p>0x0015: CommissionerBrError (All Other errors non-DTLS errors when communicating with the BR)</p> <p>0x0016: CommissionerBrAccepted (BR session established)</p> <p>0x0017: BrCommissionerDtlsSessionStarted (Commissioner sent Hello)</p> <p>0x0018: BrCommissionerDtlsError (DTLS session error - all DTLS errors, e.g.: incorrect PSKc)</p> <p>0x0019: BrCommissionerAccepted (BR session established)</p> <p>0x001A: BrCommissionerDataRelayedInbound (Relay sent from BR to Thread)</p> <p>0x001B: BrCommissionerDataRelayedOutbound (Relay sent to BR from Thread)</p> <p>0x001C: JoinerrouterJoinerDataRelayedInbound (Relay sent from Joiner to Commissioner)</p> <p>0x001D: JoinerrouterJoinerDataRelayedOutbound (Relay sent to Joiner from Commissioner)</p> <p>0x001E: JoinerrouterJoinerAccepted (Providing the security material to the Joiner)</p> <p>0x001F: StartVendorProvisioning (Start Vendor Provisioning)</p>
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3.14 THR_EventNwkCreate.Confirm

Description

Confirmation of the network create event.

Parameters

Table -23 - THR_EventNwkCreate.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x51
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread Instance Id
EventStatus	2	Event status Possible values: 0x0001: Success 0x0002: Failed 0x0003: SelectBestChannel 0x0004: GeneratePSKc
DataSize	2	The number of payload bytes
Data	DataSize	

3.15 THR_EventNwkJoin.Confirm

Description

Confirmation of the network join event.

Parameters

Table -24 - THR_EventNwkJoin.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x52
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread Instance Id
EventStatus	2	Event status Possible values: 0x0001: Attaching

		0x0002: JoinSuccess 0x0003: JoinFailed
DataSize	2	The number of payload bytes
Data	DataSize	

3.16 *THR_EventNwkJoinSelectParents.Confirm*

Description

Confirmation of the network join event.

Parameters

Table -25 - THR_EventNwkJoinSelectParents.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x53
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread Instance Id
EventStatus	2	Event status Possible values: 0x0001: ScanStarted 0x0002: ReceivedBeacon 0x0003: ScanEnded
DataSize	2	The number of payload bytes
Data	DataSize	

3.17 *THR_EventNwkScan.Confirm*

Description

Confirmation of the network scan event.

Parameters

Table -26 - THR_EventNwkScan.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x50
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread Instance Id
EventStatus	2	Event status Possible values: 0x0001: ScanResult
DataSize	2	The number of payload bytes
ScanChannelMask	4	
ScanType	1	Possible values: 0x01: EnergyDetect 0x02: ActiveScan 0x03: EnergyDetectAndActiveScan
ScanDuration	1	
maxThrNwkToDiscover	2	
Data	Variable	"Union" type parameter. Its structure is based on the value of parameter ScanType. See detailed table below for parameter structure.

Table %CHAPTER%-27 - Data Parameter Structure

ScanType	Structure Parameter	Size (bytes)	Comments
0x01	EnergyDetect	Variable	Active Scan Structure type parameter. See detailed table below for parameter structure.
0x02	ActiveScan	Variable	Active Scan Structure type parameter. See detailed table below for parameter structure.
0x03	EnergyDetectAndActiveScan	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -28 - EnergyDetect Parameter Structure

Structure Parameter	Size (bytes)	Comments
EnergyDetectEntries	1	Number of Energy Detect Entries
EnergyDetectList	EnergyDetectEntries	Energy Detect List

Table -29 - ActiveScan Parameter Structure

Structure Parameter	Size (bytes)	Comments
NwkDiscoveryEntries	1	Number of network discovery Entries
NwkDiscoveryList	Variable	Nwk Discovery List Structure type parameter. See detailed table below for parameter structure.

Table -30 - EnergyDetectAndActiveScan Parameter Structure

Structure Parameter	Size (bytes)	Comments
EnergyDetectEntries	1	Number of Energy Detect Entries
EnergyDetectList	EnergyDetectEntries	Energy Detect List
NwkDiscoveryEntries	1	Number of network discovery Entries
NwkDiscoveryList	Variable	Nwk Discovery List Structure type parameter. See detailed table below for parameter structure.

Table -31 - NwkDiscoveryList Parameter Structure

Structure Parameter	Size (bytes)	Comments
NumOfRcvdBeacons	2	
PanId	2	
Channel	1	
Reserved	1	

Table -32 - NwkDiscoveryList Parameter Structure

Structure Parameter	Size (bytes)	Comments
NumOfRcvdBeacons	2	
PanId	2	
Channel	1	

Reserved	1	
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3.18 *THR_FactoryReset.Request*

Description

Reset the device to factory default.

Parameters

Table -33 - THR_FactoryReset.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x1F
Length	2	0x00 - This message does not have any parameters

3.19 *THR_FactoryReset.Confirm*

Description

Reset the device to factory default.

Parameters

Table -34 - THR_FactoryReset.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x1F
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0xFF: Theselectedconfigurationisnotvalid

3.20 THR_Join.Request

Description

Join the network. Depending on the attributes configuration it can perform the following actions:

- join as an end node using commissioning (devIsCommissioned attribute is FALSE).
- direct attach to a thread network (devIsCommissioned attribute is TRUE).

Parameters

Table -35 - THR_Join.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x1C
Length	2	Length in bytes of the following parameters
InstanceID	1	thread instance id
discoveryMethod	1	discovery method Possible values: 0x00: gUseMACBeacon_c 0x01: gUseThreadDiscovery_c

3.21 THR_Join.Confirm

Description

Confirmation of the join network request.

Parameters

Table -36 - THR_Join.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x1C
Length	2	Length in bytes of the following parameters
Status	1	Possible values:

		0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid
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3.22 THR_MgmtDiagnosticGet.Request

Description

Management Network Diagnostic Get request.

Parameters

Table -37 - THR_MgmtDiagnosticGet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x61
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
DestIpAddrLength	1	
DestIpAddr	DestIpAddrLength	Destination Ip Address
NumberOfTlvs	1	Number of TLV Ids
Tlvs	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -38 - Tlvs Parameter Structure

Structure Parameter	Size (bytes)	Comments
TlvId	1	Possible values: 0x00: SourceAddr (Source Address TLV (EUI64)) 0x01: ShortAddr (Short Address TLV) 0x02: Mode (Mode TLV) 0x03: Timeout (Timeout - Sleepy polling rate) 0x04: LinkQuality (Link Quality) 0x05: RoutingTable (Routing table Tlv) 0x06: LeaderData (Leader Data) 0x07: NwkData (Network Data) 0x08: Ip6AddrList (List of all Ipv6 addresses)

		registered by the device) 0x09: MacCounters (Mac Counters) 0x0E: BatteryLevel (Battery Level) 0x0F: SupplyVoltage (Supply Voltage) 0x10: ChildTable (Structure containing information on all children) 0x11: ChannelPages (Supported IEEE 802.15.4 Channel Pages) 0xA0: Fsl_Mac6lowPanNvmDataCount (MAC, 6lowpan (Mac Filtering, 6LowPan) NVM data save count) 0xA1: Fsl_NetworkNvmDataCount_c (Network (IP, DHCP, Leader Id Assignment, Trickle, MPL, ND) NVM data save count) 0xA2: Fsl_SecurityNvmDataCount_c (Security NVM data save count) 0xA3: Fsl_FunctionalNvmDataCount_c (Attributes, events NVM data save count) 0xA4: Fsl_BoardName_c (Board name) 0xA5: Fsl_UniqueMculd_c (Unique MCU identifier) 0xA6: Fsl_StackVersion_c (Attribute, stack version) 0xA7: Fsl_SoftwareVersion_c (Attribute, software version)
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3.23 THR_MgmtDiagnosticGet.Confirm

Description

The confirmation to network diagnostic get request.

Parameters

Table -39 - THR_MgmtDiagnosticGet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x61
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success

		0x03: InvalidParameter 0x04: NotPermitted 0x06: NoMemory 0xFF: Error
CoapMsgId	2	Coap over the air message id - used for synchronization btw Req-Rsp

3.24 THR_MgmtDiagnosticGetRsp.Indication

Description

The response to nwk diagnostic get request.

Parameters

Table -40 - THR_MgmtDiagnosticGetRsp.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x63
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: FailedNotSupported
CoapMsgId	2	Coap over the air message id - used for synchronization btw Req-Rsp
DataLen	2	Data length
Payload	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -41 - Payload Parameter Structure

Structure Parameter	Size (bytes)	Comments
TlVId	1	TLV identifier Possible values: 0x00: SourceAddr (Source Address TLV (EUI64)) 0x01: ShortAddr (Short Address TLV)

		0x02: Mode (Mode TLV) 0x03: Timeout (Timeout - Sleepy polling rate) 0x04: LinkQuality (Link Quality) 0x05: RoutingTable (Routing table Tlv) 0x06: LeaderData (Leader Data) 0x07: NwkData (Network Data) 0x08: Ip6AddrList (List of all Ipv6 addresses registered by the device) 0x09: MacCounters (Mac Counters) 0x0E: BatteryLevel (Battery Level) 0x0F: SupplyVoltage (Supply Voltage) 0x10: ChildTable (Structure containing information on all children) 0x11: ChannelPages (Supported IEEE 802.15.4 24 Channel Pages) 0xA0: Fsl_Mac6lowPanNvmDataCount (MAC, 6lowpan (Mac Filtering, 6LowPan) NVM data save count) 0xA1: Fsl_NetworkNvmDataCount_c (Network (IP, DHCP, Leader Id Assignment, Trickle, MPL, ND) NVM data save count) 0xA2: Fsl_SecurityNvmDataCount_c (Security NVM data save count) 0xA3: Fsl_FunctionalNvmDataCount_c (Attributes, events NVM data save count) 0xA4: Fsl_BoardName_c (Board name) 0xA5: Fsl_UniqueMculd_c (Unique MCU identifier) 0xA6: Fsl_StackVersion_c (Attribute, stack version) 0xA7: Fsl_SoftwareVersion_c (Attribute, software version)
TlvLength	1	TLV Length
TlvData	Variable	TLV data "Union" type parameter. Its structure is based on the value of parameter TlvId. See detailed table below for parameter structure.

Table %CHAPTER%-42 - TlvData Parameter Structure

TlvId	Structure Parameter	Size (bytes)	Comments
0x00	SourceAddr	8	Source Addr- EUI 64

0x01	ShortAddr	2	Short Address
0x02	Mode	1	Mode TLV
0x03	Timeout	2	Timeout - Sleepy polling rate
0x04	LinkQuality	Variable	Link Quality Structure type parameter. See detailed table below for parameter structure.
0x05	RoutingTable	TlvLength	
0x06	LeaderData	Variable	Structure type parameter. See detailed table below for parameter structure.
0x07	NwkData	TlvLength	
0x08	Ip6AddrList	TlvLength	
0x09	MacCounters	Variable	Mac Counters Structure type parameter. See detailed table below for parameter structure.
0x0E	BatteryLevel	1	Battery Level
0x0F	SupplyVoltage	2	Supply Voltage
0x10	ChildTable	TlvLength	
0x11	ChannelPages	1	
0xA0	Fsl_Mac6lowPanNvmDataCount	Variable	MAC, 6lowpan (Mac Filtering, 6LowPan) NVM data save count Structure type parameter. See detailed table below for parameter structure.
0xA1	Fsl_NetworkNvmDataCount_c	TlvLength	Network (IP, DHCP, Leader Id Assignment, Trickle, MPL, ND) NVM data save count
0xA2	Fsl_SecurityNvmDataCount_c	Variable	Security NVM data save count Structure type parameter. See detailed table below for parameter structure.
0xA3	Fsl_FunctionalNvmDataCount_c	Variable	Attributes, events NVM data save count Structure type parameter. See detailed table below for parameter structure.
0xA4	Fsl_BoardName_c	TlvLength	Board name
0xA5	Fsl_UniqueMcuId_c	16	Unique MCU identifier
0xA6	Fsl_StackVersion_c	TlvLength	Attribute, stack version
0xA7	Fsl_SoftwareVersion_c	TlvLength	Attribute, software version

Table -43 - LinkQuality Parameter Structure

Structure Parameter	Size (bytes)	Comments
MaxChildCount	1	
ChildCount	1	
cLinkQuality3	1	
cLinkQuality2	1	
cLinkQuality1	1	
LeaderCost	1	
IdSequence	1	

Table -44 - LeaderData Parameter Structure

Structure Parameter	Size (bytes)	Comments
PartitionId	4	
Weighting	1	
DataVersion	1	
StableVersion	1	
LeaderId	1	

Table -45 - MacCounters Parameter Structure

Structure Parameter	Size (bytes)	Comments
ifInUnknownProtos	4	ifInUnknownProtos Counter
ifInErrors	4	ifInErrors Counter
ifOutErrors	4	ifOutErrors Counter
ifInUcastPkts	4	ifInUcastPkts Counter
ifInBroadcastPkts	4	ifInBroadcastPkts Counter
ifInDiscards	4	ifInDiscards Counter
ifOutUcastPkts	4	ifOutUcastPkts Counter
ifOutBroadcastPkts	4	ifOutBroadcastPkts Counter
ifOutDiscards	4	ifOutDiscards Counter

Table -46 - Fsl_Mac6lowPanNvmDataCount Parameter Structure

Structure Parameter	Size (bytes)	Comments
NvmDataSetId	2	Possible values: 0x0000: NvmId_SlwpStruct 0x0001: NvmId_ContextTable 0x000B: NvmId_macFilteringTable
DataSetCount	2	
NvmDataSetId	2	Possible values: 0x0000: NvmId_SlwpStruct 0x0001: NvmId_ContextTable 0x000B: NvmId_macFilteringTable
DataSetCount	2	
NvmDataSetId	2	Possible values: 0x0000: NvmId_SlwpStruct 0x0001: NvmId_ContextTable 0x000B: NvmId_macFilteringTable
DataSetCount	2	

Table -47 - Fsl_SecurityNvmDataCount_c Parameter Structure

Structure Parameter	Size (bytes)	Comments
NvmDataSetId	2	Possible values: 0x0012: NvmId_MleSecInfo 0x0013: NvmId_MleActiveKeyIndex 0x0014: NvmId_MacOutSecFrameCounter
DataSetCount	2	
NvmDataSetId	2	Possible values: 0x0012: NvmId_MleSecInfo 0x0013: NvmId_MleActiveKeyIndex 0x0014: NvmId_MacOutSecFrameCounter
DataSetCount	2	

NvmDataSetId	2	Possible values: 0x0012: NvmId_MleSecInfo 0x0013: NvmId_MleActiveKeyIndex 0x0014: NvmId_MacOutSecFrameCounter
DataSetCount	2	

Table -48 - Fsl_FunctionalNvmDataCount_c Parameter Structure

Structure Parameter	Size (bytes)	Comments
NvmDataSetId	2	Possible values: 0x0010: NvmId_ThrAttr 0x0011: NvmId_EventsTbl 0x0018: NvmId_ThrStringAttr 0x0019: NvmId_BrPrefixSetAttr
DataSetCount	2	
NvmDataSetId	2	Possible values: 0x0010: NvmId_ThrAttr 0x0011: NvmId_EventsTbl 0x0018: NvmId_ThrStringAttr 0x0019: NvmId_BrPrefixSetAttr
DataSetCount	2	
NvmDataSetId	2	Possible values: 0x0010: NvmId_ThrAttr 0x0011: NvmId_EventsTbl 0x0018: NvmId_ThrStringAttr 0x0019: NvmId_BrPrefixSetAttr
DataSetCount	2	
NvmDataSetId	2	Possible values: 0x0010: NvmId_ThrAttr 0x0011: NvmId_EventsTbl 0x0018: NvmId_ThrStringAttr 0x0019: NvmId_BrPrefixSetAttr

DataSetCount	2	

3.25 THR_MgmtDiagnosticReset.Request

Description

Management Network Diagnostic Reset request.

Parameters

Table -49 - THR_MgmtDiagnosticReset.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x62
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
DestIpAddrLength	1	
DestIpAddr	DestIpAddrLength	Destination Ip Address
NumberOfTlvIds	1	Number of TLV Ids
TlvIds	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -50 - TlvIds Parameter Structure

Structure Parameter	Size (bytes)	Comments
TlvId	1	Possible values: 0x00: SourceAddr (Source Address TLV (EUI64)) 0x01: ShortAddr (Short Address TLV) 0x02: Mode (Mode TLV) 0x03: Timeout (Timeout - Sleepy polling rate) 0x04: LinkQuality (Link Quality) 0x05: RoutingTable (Routing table Tlv) 0x06: LeaderData (Leader Data) 0x07: NwkData (Network Data) 0x08: Ip6AddrList (List of all Ipv6 addresses registered by the device) 0x09: MacCounters (Mac Counters)

		0x0E: BatteryLevel (Battery Level) 0x0F: SupplyVoltage (Supply Voltage) 0x10: ChildTable (Structure containing information on all children) 0x11: ChannelPages (Supported IEEE 802.15.4 Channel Pages) 0xA0: Fsl_Mac6lowPanNvmDataCount (MAC, 6lowpan (Mac Filtering, 6LowPan) NVM data save count) 0xA1: Fsl_NetworkNvmDataCount_c (Network (IP, DHCP, Leader Id Assignment, Trickle, MPL, ND) NVM data save count) 0xA2: Fsl_SecurityNvmDataCount_c (Security NVM data save count) 0xA3: Fsl_FunctionalNvmDataCount_c (Attributes, events NVM data save count) 0xA4: Fsl_BoardName_c (Board name) 0xA5: Fsl_UniqueMcuId_c (Unique MCU identifier) 0xA6: Fsl_StackVersion_c (Attribute, stack version) 0xA7: Fsl_SoftwareVersion_c (Attribute, software version)
--	--	---

3.26 THR_MgmtDiagnosticReset.Confirm

Description

The confirmation to network diagnostic reset request.

Parameters

Table -51 - THR_MgmtDiagnosticReset.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x62
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x03: InvalidParameter 0x04: NotPermitted

		0xFF: Error
CoapMsgId	2	Coap over the air message id - used for synchronization btw Req-Rsp

3.27 THR_MgmtDiagnosticResetRsp.Indication

Description

The response to Network diagnostic reset request.

Parameters

Table -52 - THR_MgmtDiagnosticResetRsp.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x64
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: FailedNotallowed
CoapMsgId	2	Coap over the air message id - used for synchronization btw Req-Rsp

3.28 THR_MgmtReadMemory.Request

Description

Reads 'Length' octets from the given memory address.

Parameters

Table -53 - THR_MgmtReadMemory.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x65
Length	2	Length in bytes of the following parameters

Address	4	Memory address
Length	1	

3.29 THR_MgmtReadMemory.Confirm

Description

Memory content corresponding to the THR_MgmtReadMemory.Request.

Parameters

Table -54 - THR_MgmtReadMemory.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x65
Length	2	Length in bytes of the following parameters
Memory	PayloadLength	Memory content

3.30 THR_MgmtWriteMemory.Request

Description

Writes 'Length' octets to the given memory address.

Parameters

Table -55 - THR_MgmtWriteMemory.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x66
Length	2	Length in bytes of the following parameters
Address	4	Memory address
Length	1	
Value	Length	

3.31 THR_MgmtWriteMemory.Confirm

Description

Confirm of the THR_MgmtWriteMemory.Request command. Is always success.

Parameters

Table -56 - THR_MgmtWriteMemory.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x66
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success

3.32 THR_NwkDiscovery.Request

Description

This function starts the Thread Discovery Procedure.

Parameters

Table -57 - THR_NwkDiscovery.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xC0
Length	2	Length in bytes of the following parameters
InstanceID	1	thread instance id

3.33 THR_NwkDiscovery.Confirm

Description

Confirmation of the nwk discovery request.

Parameters

Table -58 - THR_NwkDiscovery.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xC0
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

3.34 THR_NwkDiscoveryStop.Request

Description

This function stops the Thread Discovery Procedure.

Parameters

Table -59 - THR_NwkDiscoveryStop.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xC1
Length	2	Length in bytes of the following parameters
InstanceID	1	thread instance id

3.35 THR_NwkDiscoveryStop.Confirm

Description

Confirmation of the nwk discovery stop request.

Parameters

Table -60 - THR_NwkDiscoveryStop.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xC1
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

3.36 THR_NwkScan.Request

Description

Start a network scan request.

Parameters

Table -61 - THR_NwkScan.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x1A
Length	2	Length in bytes of the following parameters
InstanceID	1	
ScanChannelMask	4	Channel mask
ScanType	1	Scan type Possible values: 0x01: EnergyDetect 0x02: ActiveScan 0x03: EnergyDetectAndActiveScan
ScanDuration	1	Scan Duration. Exponential scale, as seen in the 802.15.4 specification (Range:1 - 14)
maxThrNwkToDiscover	2	maximum thread network to be discovered

3.37 THR_NwkScan.Confirm

Description

Confirmation of the scan network request.

Parameters

Table -62 - THR_NwkScan.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x1A
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: Invalidinstance 0x03: InvalidParam 0x06: Nomemory 0xFF: Theselectedconfigurationisnotvalid

3.38 THR_PromoteAsRouter.Request

Description

Promotes device as router for the given reason.

Parameters

Table -63 - THR_PromoteAsRouter.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x94
Length	2	Length in bytes of the following parameters
InstanceID	1	
Reason	1	Promoting reason Possible values:

		0x02: TooFewRouters (Too Few Routers) 0x03: HaveChildIdRequest (Have Child Id Request) 0x04: ParentPartitionChange (Parent Partition Change)
--	--	--

3.39 THR_PromoteAsRouter.Confirm

Description

Confirmation of the THR_PromoteAsRouter.Request.

Parameters

Table -64 - THR_PromoteAsRouter.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x94
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK

3.40 THR_Reattach.Request

Description

Attaches to Thread network using the configured attributes: channel, panId, network key.

Parameters

Table -65 - THR_Reattach.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x80
Length	2	Length in bytes of the following parameters
InstanceID	1	

3.41 THR_Reattach.Confirm

Description

Confirmation of the THR_Attach.Request.

Parameters

Table -66 - THR_Reattach.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x80
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

3.42 THR_SearchNwkWithAnounce.Request

Description

This function starts the Thread Discovery Procedure.

Parameters

Table -67 - THR_SearchNwkWithAnounce.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xC2
Length	2	Length in bytes of the following parameters
InstanceID	1	thread instance id

3.43 THR_SearchNwkWithAnounce.Confirm

Description

Confirmation of the search for nwk with announce.

Parameters

Table -68 - THR_SearchNwkWithAnounce.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xC2
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

3.44 THR_SendProactiveAddrNotif.Confirm

Description

THR_SendProactiveAddrNotif confirmation.

Parameters

Table -69 - THR_SendProactiveAddrNotif.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x76
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0x02: InvalidInstance 0x05: NotStarted

3.45 THR_SetDeviceConfig.Request

Description

Overwrites the default settings with the minimum data needed to start a node.

Parameters

Table -70 - THR_SetDeviceConfig.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x16
Length	2	Length in bytes of the following parameters
ThrInstanceId	1	Thread instance ID
OutOfBandPreconfigured	1	
outOfBandChannel	1	
PanId	2	
ScanChannels	4	
ExtPanIdValueLength	1	
ExtendedPanId	ExtPanIdValueLength	Extended PAN ID
NwkNameSize	1	Network Name Size
NwkName	NwkNameSize	Network Name
PrefixValueLength	1	
MLPrefix	PrefixValueLength	
MLprefixSizeInBits	1	ML Prefix Size
MasterKey	16	Master Key

3.46 THR_SetDeviceConfig.Confirm

Description

Set device configuration confirm.

Parameters

Table -71 - THR_SetDeviceConfig.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x16
Length	2	Length in bytes of the following parameters
Status	1	Attribute Status Possible values: 0x00: Success 0x02: Invalidinstance 0x03: Invalidparameter 0x04: Notpermitted 0x07: UnsupportedAttribute 0x08: EmptyEntry 0x09: InvalidValue

3.47 THR_SetManualSlaacIID.Confirm

Description

Confirmation of the THR_SetManualSlaacIID.Request.

Parameters

Table -72 - THR_SetManualSlaacIID.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x75
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK

4 ThreadUtils Messages

4.1 *THR_BrPrefixAddEntry.Request*

Description

Add prefix entry to border router attribute table.

Parameters

Table -1 - THR_BrPrefixAddEntry.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x29
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
prefixLength	1	Prefix Length in bits
PrefixValue	16	Prefix value
PrefixFlagsReserved	1	
PrefixFlags	1	
prefixLifetime	4	
prefixAdvertised	1	
ExternalRouteFlags	1	
ExternalRouteLifetime	4	
ExternalRouteAdvertised	1	

4.2 *THR_BrPrefixAddEntry.Confirm*

Description

Confirmation of THR_BrPrefixAddEntry request.

Parameters

Table -2 - THR_BrPrefixAddEntry.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x29
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: Invalidinstance 0x06: Nomemory 0xFF: Theselectedconfigurationisnotvalid

4.3 THR_BrPrefixGetTable.Request

Description

Get border router prefix table.

Parameters

Table -3 - THR_BrPrefixGetTable.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x2A
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
StartIndex	1	Start Index
NoOfElements	1	No of elements to print

4.4 THR_BrPrefixGetTable.Confirm

Description

THR_BrPrefixGetTable response.

Parameters

Table -4 - THR_BrPrefixGetTable.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x2A
Length	2	Length in bytes of the following parameters
InstanceId	1	Instance Id
NoOfElements	1	No Of Elements
BrPrefixEntry	Variable	Border router prefix entry Structure type parameter. See detailed table below for parameter structure.

Table -5 - BrPrefixEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
prefixLength	1	Prefix Length in bits
PrefixValueLength	1	
PrefixValue	PrefixValueLength	Prefix value
PrefixFlagsReserved	1	Prefix Flags reserved
PrefixFlags	1	
prefixLifetime	4	
prefixAdvertised	1	
ExternalRouteFlags	1	
ExternalRouteLifetime	4	
ExternalRouteAdvertised	1	

4.5 THR_BrPrefixRemoveAll.Request

Description

Used to remove all Border Router prefix attributes.

Parameters

Table -6 - THR_BrPrefixRemoveAll.Request Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCE
OpCode	1	0x2D
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id

4.6 THR_BrPrefixRemoveAll.Confirm

Description

Confirmation of THR_BrPrefixRemoveAll request.

Parameters

Table -7 - THR_BrPrefixRemoveAll.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x2D
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: Invalidinstance 0x03: InvalidParameter 0x04: Notpermitted 0x06: Nomemory 0xFF: Theselectedconfigurationisnotvalid

4.7 THR_BrPrefixRemoveEntry.Request

Description

Remove a BrPrefix entry.

Parameters

Table -8 - THR_BrPrefixRemoveEntry.Request Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCE
OpCode	1	0x2B
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
prefixLength	1	Prefix Length in bits
PrefixValue	16	Prefix value

4.8 THR_BrPrefixRemoveEntry.Confirm

Description

Confirmation of THR_BrPrefixRemoveEntry request.

Parameters

Table -9 - THR_BrPrefixRemoveEntry.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x2B
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: Invalidinstance 0x03: InvalidParameter 0x06: Nomemory 0xFF: Theselectedconfigurationisnotvalid

4.9 THR_BrPrefixSync.Request

Description

Used to synchronize Border Router prefix attributes with the global network data information. This is also propagating the network data over the air.

Parameters

Table -10 - THR_BrPrefixSync.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x2C
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id

4.10 THR_BrPrefixSync.Confirm

Description

Confirmation of THR_BrPrefixSync request.

Parameters

Table -11 - THR_BrPrefixSync.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x2C
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: Invalidinstance 0x03: InvalidParameter 0x04: Notpermitted 0x06: Nomemory 0xFF: Theselectedconfigurationisnotvalid

4.11 THR_BrServiceAddEntry.Request

Description

Remove a Service entry.

Parameters

Table -12 - THR_BrServiceAddEntry.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x85
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
ServiceName	9	
ServerAddress	16	ServerIP Address

4.12 THR_BrServiceAddEntry.Confirm

Description

Confirmation of THR_BrServiceAddEntry request.

Parameters

Table -13 - THR_BrServiceAddEntry.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x85
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: InvalidInstance 0x03: InvalidParameter 0x06: NoMemory 0xFF: Theselectedconfigurationisnotvalid

4.13 THR_BrServiceRemoveEntry.Request

Description

Remove a Service entry.

Parameters

Table -14 - THR_BrServiceRemoveEntry.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x86
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
ServiceName	9	
ServerAddress	16	ServerIPAddress

4.14 THR_BrServiceRemoveEntry.Confirm

Description

Confirmation of THR_BrServiceRemoveEntry request.

Parameters

Table -15 - THR_BrServiceRemoveEntry.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x86
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x02: Invalidinstance 0x03: InvalidParameter 0x06: Nomemory 0xFF: Theselectedconfigurationisnotvalid

4.15 THR_ChildUpdateToParent.Request

Description

Notifies parent of updated child parameters (sends Child Update request to the parent node).

Parameters

Table -16 - THR_ChildUpdateToParent.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x2F
Length	2	Length in bytes of the following parameters
InstanceID	1	

4.16 THR_ChildUpdateToParent.Confirm

Description

Confirmation of the THR_ChildUpdateToParent.Request.

Parameters

Table -17 - THR_ChildUpdateToParent.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x2F
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0x04: NotPermitted

4.17 THR_GenerateAllKeys.Request

Description

This will generate 3 keys: previous key associated with thrKeySeqNum-1, the current key associated with thrKeySeqNum and the next key associated with thrKeySeqNum+1.

Parameters

Table -18 - THR_GenerateAllKeys.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x28
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
KeySequenceCounter	4	Key sequence counter

4.18 THR_GenerateAllKeys.Confirm

Description

Confirmation of THR_GenerateAllKeys.Request.

Parameters

Table -19 - THR_GenerateAllKeys.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x28
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

4.19 THR_GetAttr.Request

Description

Get Attribute.

Parameters

Table -20 - THR_GetAttr.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x17
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
Attributeld	1	Possible values: 0x00: RandomExtendedAddr (Random MAC address used for communication inside the Thread nwk) 0x01: ShortAddress (Short Address) 0x02: ScanChannelMask (Scan channel mask) 0x03: ScanDuration (Scan duration) 0x04: Channel (802.15.4 channel) 0x05: ShortPanId (Short Pan Id) 0x06: ExtendedPanId (Extended Pan Id) 0x07: PermitJoin (Permit Join) 0x08: RxOnIdle (Rx on idle status) 0x09: SedPollInterval (The polling interval for the sleepy end device (SED)[milliseconds]) 0x0A: UniqueExtendedAddress (Unique Extended Address Enabled or disabled) 0x0B: VendorName (Vendor Name) 0x0C: ModelName (Model Name) 0x0D: SwVersion (Software version) 0x0E: StackVersion (Stack version) 0x0F: NwkCapabilities (Network Capabilities) 0x10: NwkName (Network Name) 0x11: DeviceType (Device type) 0x12: IsDevConnected (Is Device Connected?) 0x13: IsDevCommissioned (Is Device Commissioned?)

		0x14: PartitionId (Partition Identifier) 0x15: DeviceRole (Device role) 0x16: Security_NwkMasterKey (Network Master Key) 0x17: Security_NwkKeySeq (Network Key Sequence) 0x18: Security_PSKc (PSKc) 0x19: Security_PSKd (PSKd) 0x1A: VendorData (Vendor Data) 0x1C: MLPrefix (Mesh local prefix) 0x1D: MacFilteringEntry (Mac Filtering Entry) 0x20: Security_KeyRotationInterval (KeyRotationInterval) 0x21: ChildAddrMask (Child address mask) 0x22: ChildSETimeout (The timeout period included in the Child ID Request sent to the parent) 0x1B: ChildEDTimeout (The timeout period included in the Child ID Request sent to the parent) 0x23: EndDevice_ChildEDReqFullNwkData (If it is set TRUE The child End device should request the Full network data) 0x24: EndDevice_IsFastPollEnabled (IsFastPollEnabled) 0x25: SleepyEndDevice_FastPollInterval (FastPollInterval) 0x26: JoinLqiThreshold 0x27: ProvisioningURL (A URL for the Joiner to communicate to the user which Commissioning application is best to use to properly provision it to the appropriate service) 0x28: SelectBestChannelEDThreshold (The energy channel threshold to select the best channel when more channels are scan to form the network) 0x29: CommissionerMode (Select Commissioner mode) 0x30: BorderRouter_BrPrefixEntry (Border Router prefix entry) 0x31: SteeringData (Steering data) 0x33: Security_KeySwitchGuardTime (The thread Key switch guard time to prevent inadvertent key switching) 0x34: ParentHoldTime (Hold time on parent device in seconds) 0x35: Security_Policy (SecurityPolicy, O and N
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		bits without the rotation times) 0x36: NVM_RestoreAutoStart (Stack starts automatically with NVM restore after reset) 0x37: NVM_Restore (Restore from NVM) 0x38: SlaacPolicy (Slaac IID generation policy) 0x39: IeeeExtendedAddr (IEEE extended mac address) 0x3A: LeaderWeight (Leader Weight) 0x40: HashIeeeAddr (SHA256 generated MAC address used during commissioning phase) 0x50: BorderRouter_BrGlobalOnMeshPrefix (Global /64 on-Mesh Prefix on Border Router) 0x51: BorderRouter_BrDefaultRouteOnMeshPrefix (Default Route of the /64 on-mesh prefix) 0x52: BorderRouter_BrExternallfPrefix (Global /64 external interface prefix) 0x60: ActiveTimestamp (Active timestamp) 0x61: PendingChannel (Pending Channel) 0x62: PendingChannelMask (Pending Channel Mask) 0x63: PendingXpanId (Pending Extended PanId) 0x64: PendingMLprefix (Pending MeshLocal prefix) 0x65: PendingNwkMasterKey (Pending Master Key) 0x66: PendingNwkName (Pending Network Name) 0x67: PendingPanId (Pending Pan ID) 0x68: PendingPSK (Pending PSKc) 0x69: PendingSecurityPolicy (Pending Security Policy bits) 0x6A: PendingNwkKeyRotationInterval (Pending Key Rotation Interval [sec]) 0x6B: PendingDelayTimer (Pending Delay Timer [msec]) 0x6C: PendingActiveTimestamp (Pending Active Timestamp) 0x6D: PendingTimestamp (Pending Timestamp) 0x6E: CommissionerId (Commissioner string) 0x6F: JoinerPort (Joiner UDP Port) 0x70: CommissionerUdpPort (Commissioner UDP Port) 0x71: DiscoveryReqMacTxOptions (The default discovery request Mac Tx options)
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4.20 THR_GetAttr.Confirm

Description

Get attribute response .

Parameters

Table -21 - THR_GetAttr.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x17
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
Attributeld	1	Possible values: 0x00: RandomExtendedAddr (Random MAC address used for communication inside the Thread nwk) 0x01: ShortAddress (Short Address) 0x02: ScanChannelMask (Scan channel mask) 0x03: ScanDuration (Scan duration) 0x04: Channel (802.15.4 channel) 0x05: ShortPanId (Short Pan Id) 0x06: ExtendedPanId (Extended Pan Id) 0x07: PermitJoin (Permit Join) 0x08: RxOnIdle (Rx on idle status) 0x09: SedPollInterval (The polling interval for SED (sleepy end device) [milliseconds]) 0x0A: UniqueExtendedAddress (Unique Extended Address Enabled or disabled) 0x0B: VendorName (Vendor Name) 0x0C: ModelName (Model Name) 0x0D: SwVersion (Software version) 0x0E: StackVersion (Stack version) 0x0F: NwkCapabilities (Network Capabilities) 0x10: NwkName (Network Name)

		<p>0x11: DeviceType (Device type)</p> <p>0x12: IsDevConnected (Is Device Connected?)</p> <p>0x13: IsDevCommissioned (Is Device Commissioned?)</p> <p>0x14: PartitionId (Partition Identifier)</p> <p>0x15: DeviceRole (Device role)</p> <p>0x16: Security_NwkMasterKey (Network Master Key)</p> <p>0x17: Security_NwkKeySeq (Network Key Sequence)</p> <p>0x18: Security_PSKc (PSKc)</p> <p>0x19: Security_PSKd (PSKd)</p> <p>0x1A: VendorData (Vendor Data)</p> <p>0x1C: MLPrefix (Mesh local prefix)</p> <p>0x1D: MacFilteringEntry (Mac Filtering Entry)</p> <p>0x20: Security_KeyRotationInterval (KeyRotationInterval)</p> <p>0x21: ChildAddrMask (Child address mask)</p> <p>0x22: ChildSETimeout (The timeout period included in the Child ID Request sent to the parent)</p> <p>0x1B: ChildEDTimeout (The timeout period included in the Child ID Request sent to the parent)</p> <p>0x23: EndDevice_ChildEDReqFullNwkData (If it is set TRUE The child End device should request the Full network data)</p> <p>0x24: EndDevice_IsFastPollEnabled (IsFastPollEnabled)</p> <p>0x25: SleepyEndDevice_FastPollInterval (FastPollInterval)</p> <p>0x26: JoinLqiThreshold</p> <p>0x27: ProvisioningURL (A URL for the Joiner to communicate to the user which Commissioning application is best to use to properly provision it to the appropriate service)</p> <p>0x28: SelectBestChannelEDThreshold (The energy channel threshold to select the best channel when more channels are scan to form the network)</p> <p>0x29: CommissionerMode (Select Commissioner mode)</p> <p>0x30: BorderRouter_BrPrefixEntry (Border Router prefix entry)</p> <p>0x31: SteeringData (Steering data)</p> <p>0x33: Security_KeySwitchGuardTime (The thread Key switch guard time to prevent inadvertent key</p>
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		switching) 0x34: ParentHoldTime (Hold time on parent device in seconds) 0x35: Security_Policy (SecurityPolicy, O and N bits without the rotation times) 0x36: NVM_RestoreAutoStart (Stack starts automatically with NVM restore after reset) 0x37: NVM_Restore (Restore from NVM) 0x38: SlaacPolicy (Slaac IID generation policy) 0x39: IeeeExtendedAddr (IEEE extended mac address) 0x3A: LeaderWeight (Leader Weight) 0x40: HashIeeeAddr (SHA256 generated MAC address used during commissioning phase) 0x50: BorderRouter_BrGlobalOnMeshPrefix (Global /64 on-Mesh Prefix on Border Router) 0x51: BorderRouter_BrDefaultRouteOnMeshPrefix (Default Route of the /64 on-mesh prefix) 0x52: BorderRouter_BrExternallfPrefix (Global /64 external interface prefix) 0x60: ActiveTimestamp (Active timestamp) 0x61: PendingChannel (Pending Channel) 0x62: PendingChannelMask (Pending Channel Mask) 0x63: PendingXpanId (Pending Extended PanId) 0x64: PendingMLprefix (Pending MeshLocal prefix) 0x65: PendingNwkMasterKey (Pending Master Key) 0x66: PendingNwkName (Pending Network Name) 0x67: PendingPanId (Pending Pan ID) 0x68: PendingPSK (Pending PSKc) 0x69: PendingSecurityPolicy (Pending Security Policy bits) 0x6A: PendingNwkKeyRotationInterval (Pending Key Rotation Interval [sec]) 0x6B: PendingDelayTimer (Pending Delay Timer [msec]) 0x6C: PendingActiveTimestamp (Pending Active Timestamp) 0x6D: PendingTimestamp (Pending Timestamp) 0x6E: CommissionerId (Commissioner string) 0x6F: JoinerPort (Joiner UDP Port) 0x70: CommissionerUdpPort (Commissioner UDP
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		Port) 0x71: DiscoveryReqMacTxOptions (The default discovery request Mac Tx options)
Index	1	Index in table if required
Status	1	Attribute Status Possible values: 0x00: Success 0x02: Invalidinstance 0x03: Invalidparameter 0x04: Notpermitted 0x07: UnsupportedAttribute 0x08: EmptyEntry
AttrSize	1	Attribute size
AttributeValue	Variable	Attribute Value "Union" type parameter. Its structure is based on the value of parameter Attributeld. See detailed table below for parameter structure.

Table %CHAPTER%-22 - AttributeValue Parameter Structure

Attributel d	Structure Parameter	Size (bytes)	Comments
0x00	RandomExtendedAddr	8	Random MAC address used for communication inside the Thread nwk
0x01	ShortAddress	2	Short Address
0x02	ScanChannelMask	4	Scan Channel mask
0x03	ScanDuration	4	Scan Duration
0x04	Channel	1	
0x05	ShortPanId	2	Short PanId
0x06	ExtendedPanId	AttrSize	Extended PanId
0x07	PermitJoin	1	Permit Join
0x08	RxOnIdle	1	
0x09	SedPollInterval	4	The polling interval for the sleepy end device (SED)[milliseconds]

0x0A	UniqueExtendedAddress	1	Use unique extended address
0x0B	VendorName	AttrSize	Vendor Name
0x0C	ModelName	AttrSize	Model Name
0x0D	SwVersion	4 x AttrSize	Software version
0x0E	StackVersion	6	Stack version
0x0F	NwkCapabilities	1	Network Capabilities
0x10	NwkName	AttrSize	Network Name
0x11	DeviceType	1	Device Type Possible values: 0x00: EndNode 0x01: Combo (Combo (Leader/Router/EndDevice/SleepyEndDevice))
0x12	IsDevConnected	1	Is Device Connected?
0x13	IsDevCommissioned	1	Is Device Commissioned?
0x14	PartitionId	4	Partition Identifier
0x15	DeviceRole	1	Device Role Possible values: 0x00: Disconnected 0x01: SleepyEndDevice 0x02: EndDevice 0x03: REED 0x04: Router 0x05: Leader
0x16	Security_NwkMasterKey	AttrSize	Network Master Key
0x17	Security_NwkKeySeq	4	Network key sequence
0x18	Security_PSKc	AttrSize	PSKc
0x19	Security_PSKd	AttrSize	PSKd
0x1A	VendorData	AttrSize	Vendor Data
0x1C	MLPrefix	Variabl	ML Prefix

		e	Structure type parameter. See detailed table below for parameter structure.
0x1D	MacFilteringEntry	Variable	Mac Filtering Entry Structure type parameter. See detailed table below for parameter structure.
0x20	Security_KeyRotationInterval	4	key rotation interval
0x21	ChildAddrMask	AttrSize	
0x22	ChildSEDTimeout	4	The timeout period included in the Child ID Request sent to the parent
0x1B	ChildEDTimeout	4	The timeout period included in the Child ID Request sent to the parent
0x23	EndDevice_ChildEDReqFullNwkData	1	If it is set TRUE The child End device should request the Full network data
0x24	EndDevice_IsFastPollEnabled	1	IsFastPollEnabled
0x25	SleepyEndDevice_FastPollInterval	4	FastPollInterval
0x26	JoinLqiThreshold	1	
0x27	ProvisioningURL	AttrSize	
0x28	SelectBestChannelEDThreshold	1	
0x29	CommissionerMode	1	The device is a thread native commissioner Possible values: 0x00: Disabled (Disable Commissioner on this device) 0x01: Collapsed (Enable Collapsed Commissioner) 0x02: Native (Enable Native Commissioner) 0x04: Ethernet (Enable Ethernet Commissioner) 0x08: OnMesh (Enable OnMesh Commissioner)
0x30	BorderRouter_BrPrefixEntry	Variable	Border router prefix attribute entry Structure type parameter. See detailed table below for parameter structure.
0x31	SteeringData	AttrSize	Steering Data
0x33	Security_KeySwitchGuardTime	4	The thread Key switch guard time to prevent inadvertent key switching

0x34	ParentHoldTime	2	Hold Time on parent in seconds
0x35	Security_Policy	1	SecurityPolicy, O and N bits without the rotation times
0x36	NVM_RestoreAutoStart	1	Stack starts automatically with NVM restore after reset
0x37	NVM_Restore	1	Restore from NVM
0x38	SlaacPolicy	1	Slaac Policy Possible values: 0x00: SlaacRandom (Slaac IID is constructed random) 0x01: SlaacManual (Slaac IID is constructed by the application) 0x02: SlaacMllid (Slaac IID is constructed using the ML-EID IID)
0x39	IeeeExtendedAddr	8	IEEE extended mac address
0x3A	LeaderWeight	1	Leader Weight
0x40	HashIeeeAddr	8	IEEE extended mac address
0x50	BorderRouter_BrGlobalOnMeshPrefix	Variable	Global /64 on-Mesh Prefix on Border Router Structure type parameter. See detailed table below for parameter structure.
0x51	BorderRouter_BrDefaultRouteOnMeshPrefix	1	Default Route of the /64 on-mesh prefix
0x52	BorderRouter_BrExternallfPrefix	Variable	Global /64 external interface prefix Structure type parameter. See detailed table below for parameter structure.
0x60	ActiveTimestamp	Variable	Active timestamp Structure type parameter. See detailed table below for parameter structure.
0x61	JoinerPort	2	Joiner Port

Table -23 - MLPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

Table -24 - MacFilteringEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
ExtendedAddress	8	Extended Address
ShortAddress	2	Short Address
LinkIndicator	1	The neighbor Quality Link Indicator: Good Link: 20 - 255 Medium Link: 11 - 20 Bad Link: 3 - 10
BlockNeighbor	1	Add this neighbor to blacklist

Table -25 - BorderRouter_BrPrefixEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
prefixLength	1	Prefix Length in bits
PrefixValueLength	1	
PrefixValue	PrefixValueLength	Prefix value
PrefixFlagsReserved	1	
PrefixFlags	1	
prefixLifetime	4	
prefixAdvertised	1	
ExternalRouteFlags	1	
ExternalRouteLifetime	4	
ExternalRouteAdvertised	1	

Table -26 - BorderRouter_BrGlobalOnMeshPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

Table -27 - BorderRouter_BrExternallfPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data

PrefixLength	1	Prefix length in bits
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Table -28 - ActiveTimestamp Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttributeSize_6	1	Attribute size
AttributeSize_2	1	Attribute size
ActiveSeconds	AttributeSize_6	Active seconds
ActiveTicks	AttributeSize_2	Active ticks

4.21 THR_GetChildrenTable.Request

Description

Get the children table.

Parameters

Table -29 - THR_GetChildrenTable.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x23
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
StartIndex	1	Start Index
NoOfElements	1	No of elements to print

4.22 THR_GetChildrenTable.Confirm

Description

Get neighbor table response.

Parameters

Table -30 - THR_GetChildrenTable.Confirm Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCF
OpCode	1	0x23
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
NoOfElements	1	No Of Elements
NeighborEntry	Variable	Neighbor Table Entry Structure type parameter. See detailed table below for parameter structure.

Table -31 - NeighborEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
ExtendedAddress	8	Extended Address
ShortAddress	2	Short Address
LastCommTime	4	Last Communication Time
LastRSSI	1	
Timeout	4	

4.23 THR_GetNeighborInfo.Request

Description

Get detailed info about a neighbor.

Parameters

Table -32 - THR_GetNeighborInfo.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x10
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
ShortAddress	2	Short Address of the neighbor

4.24 THR_GetNeighborInfo.Confirm

Description

Get detailed info about neighbor response.

Parameters

Table -33 - THR_GetNeighborInfo.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x10
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Neighbor not found
NeighborInfo	Variable	Neighbor Info Structure type parameter. See detailed table below for parameter structure.

Table -34 - NeighborInfo Parameter Structure

Structure Parameter	Size (bytes)	Comments
ExtendedAddress	8	
ShortAddress	2	
LastCommTime	4	
InRSSI	1	
Timeout(sec)	4	Timeout in seconds

4.25 THR_GetNeighborTable.Request

Description

Get the neighbor table.

Parameters

Table -35 - THR_GetNeighborTable.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x24
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
StartIndex	1	Start Index
NoOfElements	1	No of elements to print

4.26 THR_GetNeighborTable.Confirm

Description

Get neighbor table response.

Parameters

Table -36 - THR_GetNeighborTable.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x24
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
NoOfElements	1	No Of Elements
NeighborEntry	Variable	Neighbor Table Entry Structure type parameter. See detailed table below for parameter structure.

Table -37 - NeighborEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
ExtendedAddress	8	Extended Address
ShortAddress	2	Short Address
LastCommTime	4	Last Communication Time
LastRSSI	1	

4.27 THR_GetParent.Request

Description

Get parent request.

Parameters

Table -38 - THR_GetParent.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x1E
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id

4.28 THR_GetParent.Confirm

Description

Get parent confirm.

Parameters

Table -39 - THR_GetParent.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x1E
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0x02: InvalidInstance 0xFF: Error
Instanceld	1	Instance Id
ShortAddress	2	Short Address
ExtendedAddress	8	Extended address

4.29 THR_GetRoutingTable.Request

Description

Get the routing table.

Parameters

Table -40 - THR_GetRoutingTable.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x25
Length	2	Length in bytes of the following parameters
InstanceId	1	Instance Id
StartIndex	1	Start Index
NoOfElements	1	No of elements to print

4.30 THR_GetRoutingTable.Confirm

Description

Get routing table response.

Parameters

Table -41 - THR_GetRoutingTable.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x25
Length	2	Length in bytes of the following parameters
NoOfElements	1	No Of Elements
IdSequenceNb	1	Id Sequence Number
RouterIDMask	8	Router ID Mask
RoutingEntry	Variable	Routing Entry Structure type parameter. See detailed table below for parameter structure.

Table -42 - RoutingEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
RouterID	1	Router ID
ShortAddress	2	Short Address
NextHop	2	Next Hop
Cost	1	Route Cost
nIn	1	Incoming LQI
nOut	1	Outgoing LQI

4.31 THR_GetThreadIpAddr.Request

Description

Get thread Ip address.

Parameters

Table -43 - THR_GetThreadIpAddr.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x19
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
AddressType	1	Address type Possible values: 0x00: Link_Local_64 0x01: MLEID 0x02: RLOC 0x03: Global
Data	Variable	"Union" type parameter. Its structure is based on the value of parameter AddressType. See detailed table below for parameter structure.

Table %CHAPTER%-44 - Data Parameter Structure

AddressType	Structure Parameter	Size (bytes)	Comments
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0x00	Link_Local_64	1	
0x01	Link_Local_16	1	
0x02	Mesh_Local_64	1	
0x03	Mesh_Local_16	1	

Table -45 - Global Parameter Structure

Structure Parameter	Size (bytes)	Comments
StartIndex	1	Start Index
NoOfElements	1	Number of elements

4.32 THR_GetThreadIpAddr.Confirm

Description

Get thread IP addr confirm.

Parameters

Table -46 - THR_GetThreadIpAddr.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x19
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
Status	1	Possible values: 0x00: Success 0x01: Failed 0x02: InvalidInstance 0xFF: Error
AddressType	1	
NoOfIpAddr	1	Number of Ip Addresses
AddressList	16 x NoOfIpAddr	

4.33 THR_LeaderRemoveRouterId.Request

Description

Remove router id. Available only for Leader.

Parameters

Table -47 - THR_LeaderRemoveRouterId.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x26
Length	2	Length in bytes of the following parameters
Instanceld	1	
RouterShortAddr	2	Router short address.

4.34 THR_LeaderRemoveRouterId.Confirm

Description

Confirmation of remove router id request.

Parameters

Table -48 - THR_LeaderRemoveRouterId.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x26
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

4.35 THR_SendProactiveAddrNotif.Request

Description

Send ADDR_NTF.ntf - Proactive Address Notification.

Parameters

Table -49 - THR_SendProactiveAddrNotif.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x76
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
DestinationIPAddress	16	

4.36 THR_SetAttr.Request

Description

Set attribute request .

Parameters

Table -50 - THR_SetAttr.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x18
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
Attributeld	1	Possible values: 0x00: RandomExtendedAddr (Random MAC address used for communication inside the Thread nwk) 0x02: ScanChannelMask (Scan channel mask) 0x03: ScanDuration (Scan duration) 0x04: Channel (802.15.4 channel) 0x05: ShortPanId (Short Pan Id)

		0x06: ExtendedPanId (Extended Pan Id) 0x07: PermitJoin (Permit Join) 0x08: RxOnIdle (Rx on idle status) 0x09: SedPollInterval (The polling interval for the sleepy end device (SED)[milliseconds]) 0x0A: UniqueExtendedAddress (Unique Extended Address Enabled or disabled) 0x0B: VendorName (Vendor Name) 0x0C: ModelName (Model Name) 0x0D: SwVersion (Software version) 0x0F: NwkCapabilities (Network Capabilities) 0x10: NwkName (Network Name) 0x11: DeviceType (Device type) 0x12: IsDevConnected (Is Device Connected?) 0x13: IsDevCommissioned (Is Device Commissioned?) 0x14: PartitionId (Partition Identifier) 0x15: DeviceRole (Device role) 0x16: Security_NwkMasterKey (Network Master Key) 0x17: Security_NwkKeySeq (Network Key Sequence) 0x18: Security_PSKc (PSKc - network password) 0x19: Security_PSKd (PSKd - device password) 0x1A: VendorData (Vendor Data) 0x1C: MLPrefix (Mesh local prefix) 0x20: Security_KeyRotationInterval (Key rotation interval) 0x22: ChildSETimeout (The timeout period included in the Child ID Request sent to the parent) 0x23: EndDevice_ChildEDReqFullNwkData (If it is set TRUE The child End device should request the Full network data) 0x24: EndDevice_IsFastPollEnabled (Is Fast Poll Interval?) 0x25: SleepyEndDevice_FastPollInterval (Fast Poll Interval) 0x26: JoinLqiThreshold (Join Lqi threshold) 0x27: ProvisioningURL (A URL for the Joiner to communicate to the user which Commissioning application is best to use to properly provision it to the appropriate service) 0x28: SelectBestChannelEDThreshold (The
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		<p>energy channel threshold to select the best channel when</p> <p>more channels are scan to form the network)</p> <p>0x29: CommissionerMode (Select Commissioner mode)</p> <p>0x30: BorderRouter_BrPrefixEntry (Border Router prefix entry)</p> <p>0x33: Security_KeySwitchGuardTime (the thread Key switch guard time to prevent inadvertent key switching)</p> <p>0x34: ParentHoldTime (The hoold time period in seconds used by the parent to hold the packets for SED devices)</p> <p>0x35: Security_Policy (Security Policy, O and N bits without the rotation time)</p> <p>0x36: NVM_RestoreAutoStart (Stack starts automatically with NVM restore after reset)</p> <p>0x37: NVM_Restore (Restore from NVM)</p> <p>0x38: SlaacPolicy (Specifies the policy for generating the IID of an address configured using SLAAC)</p> <p>0x39: IeeeExtendedAddr (IEEE extended mac address)</p> <p>0x3A: LeaderWeight (Leader Weight)</p> <p>0x41: DoNotGeneratePartitionId (Avoid generation of a random partition ID)</p> <p>0x50: BorderRouter_BrGlobalOnMeshPrefix (Global /64 on-Mesh Prefix on Border Router)</p> <p>0x51: BorderRouter_BrDefaultRouteOnMeshPrefix (Default Route of the /64 on-mesh prefix)</p> <p>0x52: BorderRouter_BrExternallfPrefix (Global /64 external interface prefix)</p> <p>0x60: ActiveTimestamp (Active timestamp)</p> <p>0x6F: JoinerPort (Joiner Port)</p>
Index	1	Index in table if required
AttributeValue	Variable	<p>Attribute Value</p> <p>"Union" type parameter. Its structure is based on the value of parameter Attributeld. See detailed table below for parameter structure.</p>

Table %CHAPTER%-51 - AttributeValue Parameter Structure

Attributeld	Structure Parameter	Size (bytes)	Comments
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0x00	RandomExtendedAddr	Variable	Random Extended Address Structure type parameter. See detailed table below for parameter structure.
0x02	ScanChannelMask	Variable	Scan Channel mask Structure type parameter. See detailed table below for parameter structure.
0x03	ScanDuration	Variable	Scan duration in seconds (per channel) Structure type parameter. See detailed table below for parameter structure.
0x04	Channel	Variable	Structure type parameter. See detailed table below for parameter structure.
0x05	ShortPanId	Variable	Short PanId Structure type parameter. See detailed table below for parameter structure.
0x06	ExtendedPanId	Variable	Extended PanId Structure type parameter. See detailed table below for parameter structure.
0x07	PermitJoin	Variable	Permit Join Structure type parameter. See detailed table below for parameter structure.
0x08	RxOnIdle	Variable	Structure type parameter. See detailed table below for parameter structure.
0x09	SedPollInterval	Variable	The polling interval for the sleepy end device (SED) [milliseconds] Structure type parameter. See detailed table below for parameter structure.
0x0A	UniqueExtendedAddress	Variable	Unique Extended Address Enabled or disabled Structure type parameter. See detailed table below for parameter structure.
0x0B	VendorName	Variable	Vendor Name Structure type parameter. See detailed table below for parameter structure.
0x0C	ModelName	Variable	Model Name Structure type parameter. See detailed table below for parameter structure.
0x0D	SwVersion	Variable	Software version Structure type parameter. See detailed table below for parameter structure.

0x0F	NwkCapabilities	Variable	Network Capabilities Structure type parameter. See detailed table below for parameter structure.
0x10	NwkName	Variable	Network Name Structure type parameter. See detailed table below for parameter structure.
0x11	DeviceType	Variable	Device Type Structure type parameter. See detailed table below for parameter structure.
0x12	IsDevConnected	Variable	Is Device Connected? Structure type parameter. See detailed table below for parameter structure.
0x13	IsDevCommissioned	Variable	Is Device Commissioned? Structure type parameter. See detailed table below for parameter structure.
0x14	PartitionId	Variable	Partition Identifier Structure type parameter. See detailed table below for parameter structure.
0x15	DeviceRole	Variable	Device Role Structure type parameter. See detailed table below for parameter structure.
0x16	Security_NwkMasterKey	Variable	Network Master Key Structure type parameter. See detailed table below for parameter structure.
0x17	Security_NwkKeySeq	Variable	Network key sequence Structure type parameter. See detailed table below for parameter structure.
0x18	Security_PSKc	Variable	PSKc - network password Structure type parameter. See detailed table below for parameter structure.
0x19	Security_PSKd	Variable	PSKd - device password Structure type parameter. See detailed table below for parameter structure.
0x1A	VendorData	Variable	Vendor Data Structure type parameter. See detailed table below for parameter structure.
0x1C	MLPrefix	Variable	Mesh Local Prefix Structure type parameter. See detailed

			table below for parameter structure.
0x20	Security_KeyRotationInterval	Variable	Key Rotation Interval Structure type parameter. See detailed table below for parameter structure.
0x22	ChildSEDTIMEOUT	Variable	The timeout period included in the Child ID Request sent to the parent Structure type parameter. See detailed table below for parameter structure.
0x23	ChildEDTIMEOUT	Variable	The timeout period included in the Child ID Request sent to the parent Structure type parameter. See detailed table below for parameter structure.
0x24	EndDevice_ChildEDReqFullNwkData	Variable	If it is set TRUE The child End device should request the Full network data Structure type parameter. See detailed table below for parameter structure.
0x25	EndDevice_IsFastPollEnabled	Variable	Is Fast Poll Interval enabled? Structure type parameter. See detailed table below for parameter structure.
0x26	SleepyEndDevice_FastPollInterval	Variable	Fast Poll Interval Structure type parameter. See detailed table below for parameter structure.
0x27	JoinLqiThreshold	Variable	Structure type parameter. See detailed table below for parameter structure.
0x28	ProvisioningURL	Variable	Structure type parameter. See detailed table below for parameter structure.
0x29	SelectBestChannelEDThreshold	Variable	The energy channel threshold to select the best channel when more channels are scan to form the network Structure type parameter. See detailed table below for parameter structure.
0x30	CommissionerMode	Variable	The device is a thread native commissioner Structure type parameter. See detailed table below for parameter structure.
0x33	BorderRouter_BrPrefixEntry	Variable	Border router prefix attribute entry Structure type parameter. See detailed table below for parameter structure.
0x34	Security_KeySwitchGuardTime	Variable	The thread Key switch guard time to prevent inadvertent key switching Structure type parameter. See detailed

			table below for parameter structure.
0x35	ParentHoldTime	Variable	Hold time on parent in seconds Structure type parameter. See detailed table below for parameter structure.
0x36	Security_Policy	Variable	Security Policy, O and N bits without the rotation time Structure type parameter. See detailed table below for parameter structure.
0x37	NVM_RestoreAutoStart	Variable	Stack starts automatically with NVM restore after reset Structure type parameter. See detailed table below for parameter structure.
0x38	NVM_Restore	Variable	Restore from NVM Structure type parameter. See detailed table below for parameter structure.
0x39	SlaacPolicy	Variable	Structure type parameter. See detailed table below for parameter structure.
0x3A	LeaderWeight	Variable	Leader Weight Structure type parameter. See detailed table below for parameter structure.
0x41	IeeeExtendedAddr	Variable	Ieee Extended Address Structure type parameter. See detailed table below for parameter structure.
0x50	DoNotGeneratePartitionId	Variable	Avoid generation of a random partition ID Structure type parameter. See detailed table below for parameter structure.
0x51	BorderRouter_BrGlobalOnMeshPrefix	Variable	Global /64 on-Mesh Prefix on Border Router Structure type parameter. See detailed table below for parameter structure.
0x52	BorderRouter_BrDefaultRouteOnMeshPrefix	Variable	Default Route of the /64 on-mesh prefix Structure type parameter. See detailed table below for parameter structure.
0x60	BorderRouter_BrExternalIfPrefix	Variable	Global /64 external interface prefix Structure type parameter. See detailed table below for parameter structure.
0x6F	ActiveTimestamp	Variable	Active timestamp Structure type parameter. See detailed table below for parameter structure.

Table -52 - RandomExtendedAddr Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	8	

Table -53 - ScanChannelMask Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -54 - ScanDuration Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -55 - Channel Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -56 - ShortPanId Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	2	

Table -57 - ExtendedPanId Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -58 - PermitJoin Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -59 - RxOnIdle Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -60 - SedPollInterval Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -61 - UniqueExtendedAddress Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -62 - VendorName Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -63 - ModelName Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -64 - SwVersion Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -65 - NwkCapabilities Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size

Value	1	
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Table -66 - NwkName Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -67 - DeviceType Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	Possible values: 0x00: EndNode 0x01: Combo (Combo (Leader/Router/EndDevice/SleepyEndDevice))

Table -68 - IsDevConnected Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -69 - IsDevCommissioned Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -70 - PartitionId Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -71 - DeviceRole Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	Possible values:

		0x00: Disconnected 0x01: SleepyEndDevice 0x02: EndDevice 0x03: REED 0x04: Router 0x05: Leader
--	--	--

Table -72 - Security_NwkMasterKey Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -73 - Security_NwkKeySeq Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -74 - Security_PSKc Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -75 - Security_PSKd Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -76 - VendorData Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -77 - MLPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
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AttrSize	1	Attribute size
Value	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -78 - Security_KeyRotationInterval Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -79 - ChildSETimeout Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -80 - ChildEDTimeout Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -81 - EndDevice_ChildEDReqFullNwkData Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -82 - EndDevice_IsFastPollEnabled Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -83 - SleepyEndDevice_FastPollInterval Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	4	

Table -84 - JoinLqiThreshold Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -85 - ProvisioningURL Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	AttrSize	

Table -86 - SelectBestChannelEDThreshold Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -87 - CommissionerMode Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	Possible values: 0x00: Disabled (Disable Commissioner on this device) 0x01: Collapsed (Enable Collapsed Commissioner) 0x02: Native (Enable Native Commissioner) 0x04: Ethernet (Enable Ethernet Commissioner) 0x08: OnMesh (Enable OnMesh Commissioner)

Table -88 - BorderRouter_BrPrefixEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -89 - Security_KeySwitchGuardTime Parameter Structure

Structure Parameter	Size (bytes)	Comments
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AttrSize	1	Attribute size
Value	4	

Table -90 - ParentHoldTime Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	2	

Table -91 - Security_Policy Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -92 - NVM_RestoreAutoStart Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -93 - NVM_Restore Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -94 - SlaacPolicy Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	Possible values: 0x00: SlaacRandom (Slaac IID is constructed random) 0x01: SlaacManual (Slaac IID is constructed by the application) 0x02: SlaacMllid (Slaac IID is constructed using the ML-EID IID)

Table -95 - LeaderWeight Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -96 - leeeExtendedAddr Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	8	

Table -97 - DoNotGeneratePartitionId Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -98 - BorderRouter_BrGlobalOnMeshPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -99 - BorderRouter_BrDefaultRouteOnMeshPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	1	

Table -100 - BorderRouter_BrExternallfPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -101 - ActiveTimestamp Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size

ActiveSeconds	6	Attribute size
ActiveTicks	2	Attribute size

Table -102 - JoinerPort Parameter Structure

Structure Parameter	Size (bytes)	Comments
AttrSize	1	Attribute size
Value	2	

Table -103 - Value Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

Table -104 - Value Parameter Structure

Structure Parameter	Size (bytes)	Comments
prefixLength	1	Prefix Length in bits
PrefixValueLength	1	
PrefixValue	PrefixValueLength	Prefix value
PrefixFlagsReserved	1	
PrefixFlags	1	
prefixLifetime	4	
prefixAdvertised	1	
ExternalRouteFlags	1	
ExternalRouteLifetime	4	
ExternalRouteAdvertised	1	

Table -105 - Value Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data

PrefixLength	1	Prefix length in bits
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Table -106 - Value Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

4.37 THR_SetAttr.Confirm

Description

Set attribute confirm.

Parameters

Table -107 - THR_SetAttr.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x18
Length	2	Length in bytes of the following parameters
Status	1	Attribute Status Possible values: 0x00: Success 0x02: Invalidinstance 0x03: Invalidparameter 0x04: Notpermitted 0x07: UnsupportedAttribute 0x08: EmptyEntry 0x09: InvalidValue

4.38 THR_SetManualSlaacIID.Request

Description

Sets the IID .

Parameters

Table -108 - THR_SetManualSlaacIID.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x75
Length	2	Length in bytes of the following parameters
IID	8	

4.39 THR_SetNwkIdTimeout.Request

Description

Set network ID timeout in seconds.

Parameters

Table -109 - THR_SetNwkIdTimeout.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x2E
Length	2	Length in bytes of the following parameters
TimeoutInSeconds	4	

4.40 THR_SetNwkIdTimeout.Confirm

Description

Set network ID timeout confirm.

Parameters

Table -110 - THR_SetNwkIdTimeout.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x2E
Length	2	Length in bytes of the following parameters

Status	1	Possible values: 0x00: Success 0x04: Notpermitted
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4.41 THR_SetThreshold.Request

Description

Set thread threshold.

Parameters

Table -111 - THR_SetThreshold.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x20
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
ThresholdType	1	Threshold type Possible values: 0x00: RouterUpgradeThreshold (The number of active routers on the Thread network below which a REED may device to become a Router) 0x01: RouterDowngradeThreshold (The number of active Routers on the Thread Network above which an active Router may decide to become a Child) 0x02: MinDowngradeNeighbors (The minimum number of neighbours with link quality 2 or better that a Router must have to downgrade to a REED) 0x03: MaxAllowedRouters (The maximum number of Routers that a Thread Network may contain) 0x04: ContextReuseDelay (The maximum time a context can be used for decompression after the Prefix has been removed.)
Value	1	

4.42 THR_SetThreshold.Confirm

Description

Thread set threshold confirm.

Parameters

Table -112 - THR_SetThreshold.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x20
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x03: InvalidParameter

4.43 THR_SwitchKey.Request

Description

Switch the active key sequence (which is specified by nwkKeySeq attribute) with the KeySequenceCounter. Note that the key for KeySequenceCounter should be already generated using THR_GenerateAllKeys.Request. .

Parameters

Table -113 - THR_SwitchKey.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x27
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
KeySequenceCounter	4	Key sequence counter

4.44 THR_SwitchKeyKey.Confirm

Description

Confirmation of ThrSwitchKey request.

Parameters

Table -114 - THR_SwitchKeyKey.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x27
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: Invalidinstance 0xFF: Theselectedconfigurationisnotvalid

5 Mesh Commissioning Protocol Messages

5.1 MESH COP_AddExpectedJoiner.Request

Description

Add an expected Joiner in the Commissioner's list.

Parameters

Table -1 - MESH COP_AddExpectedJoiner.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x42
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
Selected	1	Allow this device?

EuiType	1	The type of the EUI Possible values: 0x00: ShortEUI (Add a short EUI) 0x01: LongEUI (Add a long EUI)
EUI	Variable	"Union" type parameter. Its structure is based on the value of parameter EuiType. See detailed table below for parameter structure.
PSKdSize	1	The size of the PSKd
PSKd	PSKdSize	

Table %CHAPTER%-2 - EUI Parameter Structure

EuiType	Structure Parameter	Size (bytes)	Comments
0x00	ShortEUI	4	
0x01	LongEUI	8	

5.2 MESH COP_AddExpectedJoiner.Confirm

Description

Confirmation for adding a Joiner in the Commissioner list.

Parameters

Table -3 - MESH COP_AddExpectedJoiner.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x42
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.3 MESHOP_GetExpectedJoiner.Request

Description

Get an expected Joiner from the Commissioner's list.

Parameters

Table -4 - MESHOP_GetExpectedJoiner.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x43
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
EuiType	1	The type of the EUI Possible values: 0x00: ShortEUI (Add a short EUI) 0x01: LongEUI (Add a long EUI)
EUI	Variable	"Union" type parameter. Its structure is based on the value of parameter EuiType. See detailed table below for parameter structure.

Table %CHAPTER%-5 - EUI Parameter Structure

EuiType	Structure Parameter	Size (bytes)	Comments
0x00	ShortEUI	4	
0x01	LongEUI	8	

5.4 MESHOP_GetExpectedJoiner.Confirm

Description

Confirmation for getting information about Joiner from the Commissioner list.

Parameters

Table -6 - MESHOP_GetExpectedJoiner.Confirm Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCF
OpCode	1	0x43
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
Selected	1	Possible values: 0x00: FALSE 0x01: TRUE
PSKdSize	1	Length of PSKd
PSKd	PSKdSize	

5.5 MESHOP_MgmNwkForm.Request

Description

Sets the network start parameters.

Parameters

Table -7 - MESHOP_MgmNwkForm.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x47
Length	2	Length in bytes of the following parameters
IP Address	16	The IPv6 address of the device added to network
NwkNameSize	1	Network Name Size
NwkName	NwkNameSize	Network Name
Network Master Key	16	
PSKcSize	1	Length of PSKc

PSKc	PSKcSize	
Channel	1	

5.6 MESHOP_MgmNwkForm.Request

Description

Remove all expected joiners from the Commissioner's list.

Parameters

Table -8 - MESHOP_MgmNwkForm.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x45
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id

5.7 MESHOP_MgmNwkForm.Confirm

Description

Network form confirmation message.

Parameters

Table -9 - MESHOP_MgmNwkForm.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x47
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x04: Notpermitted

5.8 MESH COP_MgmtActiveGet.Request

Description

Management Active Get Request.

Parameters

Table -10 - MESH COP_MgmtActiveGet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA2
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
IP Address	16	The IPv6 address
NumberOfTlvlds	1	Number of TLV Ids
Tlvlds	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -11 - Tlvlds Parameter Structure

Structure Parameter	Size (bytes)	Comments
Tlvld	1	Possible values: 0x00: Channel (Network Channel) 0x35: ChannelMask (Network Channel Mask) 0x02: XpanId (Network Extended Pan ID) 0x07: MeshLocalUla (Network Mesh Local ULA prefix) 0x05: MasterKey (Network Master Key) 0x03: NetworkName (Network Name) 0x01: PanId (Network Pan ID) 0x04: PSKc (Network PSKc) 0x0C: SecurityPolicy (Network Security Policy) 0x0E: ActiveTimestamp (Active Commissioner Dataset Timestamp)

5.9 MESH COP_MgmtActiveGet.Confirm

Description

Confirmation for the Management Active Get request.

Parameters

Table -12 - MESH COP_MgmtActiveGet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA2
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
Length	4	Length of the next field
TLVs	Length	

5.10 MESH COP_MgmtActiveSet.Request

Description

Management Active Set Request.

Parameters

Table -13 - MESH COP_MgmtActiveSet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA3
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
IP Address	16	The IPv6 address

SessionIdEnable	1	
SessionId	2 x SessionIdEnable	
BorderRouterLocatorEnable	1	
BorderRouterLocator	2 x BorderRouterLocatorEnable	Border Router Locator
NewSesswionIdEnable	1	
NewSesswionId	2 x NewSesswionIdEnable	Send new session ID
SteeringDataEnable	1	
SteeringDataSize	SteeringDataEnable	The size of the Steering Data
SteeringData	SteeringDataSize	
ChannelEnable	1	
Channel	ChannelEnable	
ChannelMaskEnable	1	
ChannelPage	ChannelMaskEnable	
ChannelMaskLength	ChannelMaskEnable	
ChannelMask	ChannelMaskLength	
XpanIdEnable	1	
XpanId	8 x XpanIdEnable	
MLPrefixEnable	1	
MLPrefix	Variable	ML Prefix Structure type parameter. See detailed table below for parameter structure.
MasterKeyEnable	1	
MasterKey	16 x MasterKeyEnable	
NwkNameEnable	1	
NwkNameSize	NwkNameEnable	Network Name Size
NwkName	NwkNameSize	Network Name
PanIdEnable	1	
PanId	2 x PanIdEnable	

PSKcEnable	1	
PskcSize	PSKcEnable	
PSKc	PskcSize	
PolicyEnable	1	
RotationInterval	2 x PolicyEnable	
Policy	PolicyEnable	
ActiveTimestampEnable	1	Will be applied after Delay Timer expires
ActiveSeconds	6 x ActiveTimestampEnable	Active timestamp seconds
ActiveTicks	2 x ActiveTimestampEnable	Active timestamp ticks
PendingTimestampEnable	1	Used to compare multiple Pending Set requests
PendingSeconds	6 x PendingTimestampEnable	Pending timestamp Seconds
PendingTicks	2 x PendingTimestampEnable	Pending timestamp ticks
DelayTimerEnable	1	
Timeout	4 x DelayTimerEnable	Timeout(ms)
BogusTlvEnable	1	

Table -14 - MLPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

5.11 MESH COP_MgmtActiveSet.Confirm

Description

Confirmation for the MESH COP_MgmtActiveSet.Request.

Parameters

Table -15 - MESH COP_MgmtActiveSet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA3
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.12 MESHOP_MgmtCommissionerGet.Request

Description

Management Commissioner Get Request.

Parameters

Table -16 - MESHOP_MgmtCommissionerGet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA0
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
IP Address	16	The IPv6 address
NumberOfTlvids	1	Number of TLV Ids
Tlvids	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -17 - Tlvids Parameter Structure

Structure Parameter	Size (bytes)	Comments
Tlvid	1	Possible values: 0x09: BorderRouterLocator (Border Router Locator) 0x0B: CommissionerSessionId (Commissioner Session ID)

		0x08: SteeringData (Steering Data) 0x00: Channel (Network Channel) 0x35: ChannelMask (Network Channel Mask) 0x02: XpanId (Network Extended Pan ID) 0x07: MeshLocalUla (Network Mesh Local ULA prefix) 0x05: MasterKey (Network Master Key) 0x03: NetworkName (Network Name) 0x01: PanId (Network Pan ID) 0x04: PSKc (Network PSKc) 0x0C: SecurityPolicy (Network Security Policy) 0x0E: ActiveTimestamp (Active Commissioner Dataset Timestamp)
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5.13 MESHOP_MgmtCommissionerGet.Confirm

Description

Confirmation for the Management Commissioner Get request.

Parameters

Table -18 - MESHOP_MgmtCommissionerGet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA0
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
Length	4	Length of the next field
TLVs	Length	

5.14 MESH COP_MgmtCommissionerSet.Request

Description

Management Commissioner Set Request.

Parameters

Table -19 - MESH COP_MgmtCommissionerSet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA1
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
IP Address	16	The IPv6 address
SessionIdEnable	1	
SessionId	2 x SessionIdEnable	
BorderRouterLocatorEnable	1	
BorderRouterLocator	2 x BorderRouterLocatorEnable	Border Router Locator
NewSessionIdEnable	1	
NewSessionId	2 x NewSessionIdEnable	Send new session ID
SteeringDataEnable	1	
SteeringDataSize	SteeringDataEnable	The size of the Steering Data
SteeringData	SteeringDataSize	
ChannelEnable	1	
Channel	ChannelEnable	
ChannelMaskEnable	1	
ChannelPage	ChannelMaskEnable	
ChannelMaskLength	ChannelMaskEnable	
ChannelMask	ChannelMaskLength	
XpanIdEnable	1	

XpanId	8 x XpanIdEnable	
MLPrefixEnable	1	
MLPrefix	Variable	ML Prefix Structure type parameter. See detailed table below for parameter structure.
MasterKeyEnable	1	
MasterKey	16 x MasterKeyEnable	
NwkNameEnable	1	
NwkNameSize	NwkNameEnable	Network Name Size
NwkName	NwkNameSize	Network Name
PanIdEnable	1	
PanId	2 x PanIdEnable	
PSKcEnable	1	
PskcSize	PSKcEnable	
PSKc	PskcSize	
PolicyEnable	1	
RotationInterval	2 x PolicyEnable	
Policy	PolicyEnable	
ActiveTimestampEnable	1	Will be applied after Delay Timer expires
ActiveSeconds	6 x ActiveTimestampEnable	Active timestamp seconds
ActiveTicks	2 x ActiveTimestampEnable	Active timestamp ticks
PendingTimestampEnable	1	Used to compare multiple Pending Set requests
PendingSeconds	6 x PendingTimestampEnable	Pending timestamp Seconds
PendingTicks	2 x PendingTimestampEnable	Pending timestamp ticks
DelayTimerEnable	1	
Timeout	4 x DelayTimerEnable	Timeout(ms)
BogusTlvEnable	1	

Table -20 - MLPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

5.15 MESH COP_MgmtCommissionerSet.Confirm

Description

Confirmation for the MESH COP_MgmtCommissionerSet.Request.

Parameters

Table -21 - MESH COP_MgmtCommissionerSet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA1
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.16 MESH COP_MgmtEdReport.Confirm

Description

Energy detect report.

Parameters

Table -22 - MESH COP_MgmtEdReport.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xAB

Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
ScanChannelMask	4	Channel mask
Length	1	
EnergyList	Length	

5.17 MESH COP_MgmtGet.Request

Description

Management Get request.

Parameters

Table -23 - MESH COP_MgmtGet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x4C
Length	2	Length in bytes of the following parameters
InstanceId	1	Thread instance Id
NumberOfTlvs	1	Number of TLV Ids
Tlvs	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -24 - Tlvs Parameter Structure

Structure Parameter	Size (bytes)	Comments
TlvId	1	Possible values: 0x04: PSKc (Network PSKc) 0x00: Channel (Network Channel) 0x01: PanId (Network Pan ID) 0x02: XpanId (Network Extended Pan ID)

		0x03: NetworkName (Network Name) 0x05: MasterKey (Network Master Key) 0x06: KeySequence (Network Key Sequence) 0x07: MeshLocalUla (Network Mesh Local ULA prefix) 0x08: SteeringData (Network Steering Data) 0x09: BorderRouterLocator (Network Border Router Locator) 0x0A: CommissionerID (Network Commissioner ID) 0x0B: CommissionerSessionID (Network Commissioner Session ID) 0x0C: SecurityPolicy (Network Security Policy) 0x0E: ActiveTimestamp (Network Commissioner Dataset Timestamp)
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5.18 MESH COP_MgmtGet.Confirm

Description

Confirmation for the Management Get request.

Parameters

Table -25 - MESH COP_MgmtGet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x4C
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
Type	1	Possible values: 0x00: Channel (Network Channel) 0x35: ChannelMask (Network Channel Mask) 0x01: PanId (Network Pan ID) 0x02: XpanId (Network Extended Pan ID)

		0x03: NetworkName (Network Name) 0x04: PSKc (Network PSKc) 0x05: MasterKey (Network Master Key) 0x06: KeySequence (Network Key Sequence) 0x07: MeshLocalUla (Network Mesh Local ULA prefix) 0x08: SteeringData (Network Steering Data) 0x09: BorderRouterLocator (Network Border Router Locator) 0x0A: CommissionerID (Network Commissioner ID) 0x0B: CommissionerSessionID (Network Commissioner Session ID) 0x0C: SecurityPolicy (Network Security Policy) 0x34: DelayTimer (Delay Timer) 0x0E: ActiveTimestamp (Active Commissioner Dataset Timestamp) 0x33: PendingTimestamp (Pending Commissioner Dataset Timestamp)
Length	1	Length of the next field
Value	Variable	"Union" type parameter. Its structure is based on the value of parameter Type. See detailed table below for parameter structure.

Table %CHAPTER%-26 - Value Parameter Structure

Type	Structure Parameter	Size (bytes)	Comments
0x00	Channel	1	
0x35	ChannelMask	Length	
0x01	PanId	Length	
0x02	XpanId	Length	
0x03	NetworkName	Length	
0x04	PSKc	Length	
0x05	MasterKey	Length	
0x06	KeySequence	Length	
0x07	MeshLocalUla	Length	
0x08	SteeringData	Length	

0x09	BorderRouterLocator	Length	
0x0A	CommissionerID	Length	
0x0B	CommissionerSessionID	Length	
0x0C	SecurityPolicy	Length	
0x34	DatasetTimestamp	Length	

5.19 MESH COP_MgmtPanIdConflict.Confirm

Description

Pan ID conflict detected.

Parameters

Table -27 - MESH COP_MgmtPanIdConflict.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA9
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
ScanChannelMask	4	Channel mask
PanId	2	

5.20 MESH COP_MgmtPendingGet.Request

Description

Management Pending Get Request.

Parameters

Table -28 - MESH COP_MgmtPendingGet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA4
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
IP Address	16	The IPv6 address
NumberOfTlvIds	1	Number of TLV Ids
TlvIds	Variable	Structure type parameter. See detailed table below for parameter structure.

Table -29 - TlvIds Parameter Structure

Structure Parameter	Size (bytes)	Comments
TlvId	1	Possible values: 0x00: Channel (Network Channel) 0x35: ChannelMask (Network Channel Mask) 0x02: XpanId (Network Extended Pan ID) 0x07: MeshLocalUla (Network Mesh Local ULA prefix) 0x05: MasterKey (Network Master Key) 0x03: NetworkName (Network Name) 0x01: PanId (Network Pan ID) 0x04: PSKc (Network PSKc) 0x0C: SecurityPolicy (Network Security Policy) 0x34: DelayTimer (Delay Timer) 0x0E: ActiveTimestamp (Active Commissioner Dataset Timestamp) 0x33: PendingTimestamp (Pending Commissioner Dataset Timestamp)

5.21 MESH COP_MgmtPendingGet.Confirm

Description

Confirmation for the Management Pending Get request.

Parameters

Table -30 - MESH COP_MgmtPendingGet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA4
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
Length	4	Length of the next field
TLVs	Length	

5.22 MESH COP_MgmtPendingSet.Request

Description

Management Pending Set Request.

Parameters

Table -31 - MESH COP_MgmtPendingSet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA5
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
IP Address	16	The IPv6 address
SessionIdEnable	1	
SessionId	2 x SessionIdEnable	
BorderRouterLocatorEnable	1	
BorderRouterLocator	2 x BorderRouterLocatorEnable	Border Router Locator

NewSesswionIdEnable	1	
NewSesswionId	2 x NewSesswionIdEnable	Send new session ID
SteeringDataEnable	1	
SteeringDataSize	SteeringDataEnable	The size of the Steering Data
SteeringData	SteeringDataSize	
ChannelEnable	1	
Channel	ChannelEnable	
ChannelMaskEnable	1	
ChannelPage	ChannelMaskEnable	
ChannelMaskLength	ChannelMaskEnable	
ChannelMask	ChannelMaskLength	
XpanIdEnable	1	
XpanId	8 x XpanIdEnable	
MLPrefixEnable	1	
MLPrefix	Variable	ML Prefix Structure type parameter. See detailed table below for parameter structure.
MasterKeyEnable	1	
MasterKey	16 x MasterKeyEnable	
NwkNameEnable	1	
NwkNameSize	NwkNameEnable	Network Name Size
NwkName	NwkNameSize	Network Name
PanIdEnable	1	
PanId	2 x PanIdEnable	
PSKcEnable	1	
PskcSize	PSKcEnable	
PSKc	PskcSize	
PolicyEnable	1	

RotationInterval	2 x PolicyEnable	
Policy	PolicyEnable	
ActiveTimestampEnable	1	Will be applied after Delay Timer expires
ActiveSeconds	6 x ActiveTimestampEnable	Active timestamp seconds
ActiveTicks	2 x ActiveTimestampEnable	Active timestamp ticks
PendingTimestampEnable	1	Used to compare multiple Pending Set requests
PendingSeconds	6 x PendingTimestampEnable	Pending timestamp Seconds
PendingTicks	2 x PendingTimestampEnable	Pending timestamp ticks
DelayTimerEnable	1	
Timeout	4 x DelayTimerEnable	Timeout(ms)
BogusTlvEnable	1	

Table -32 - MLPrefix Parameter Structure

Structure Parameter	Size (bytes)	Comments
PrefixValueLength	1	
PrefixData	PrefixValueLength	Prefix Data
PrefixLength	1	Prefix length in bits

5.23 MESH COP_MgmtPendingSet.Confirm

Description

Confirmation for the MESH COP_MgmtPendingSet.Request.

Parameters

Table -33 - MESH COP_MgmtPendingSet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA5
Length	2	Length in bytes of the following parameters

Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error
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5.24 MESH COP_MgmtSendAnnounceBegin.Request

Description

Request to send a MGMT_ANNOUNCE_BEGIN.ntf.

Parameters

Table -34 - MESH COP_MgmtSendAnnounceBegin.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA7
Length	2	Length in bytes of the following parameters
ThrInstanceID	1	Thread instance ID
CommissionerSessionID	2	Commissioner Session ID. Set to 0 to use the current value on the device.
ChannelMask	4	Channel mask
Count	1	The number of MGMT_ANNOUNCE.ntf that the destination device should send.
Period	2	The period between successive MGMT_ANNOUNCE.ntf frames
IP Address	16	The IPv6 address of the destination. Unicast or multicast.

5.25 MESH COP_MgmtSendAnnounceBegin.Confirm

Description

Confirmation for the MESH COP_MgmtSendAnnounceBegin.Request.

Parameters

Table -35 - MESHOP_MgmtSendAnnounceBegin.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA7
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.26 MESHOP_MgmtSendEdScan.Request

Description

Search for Pan ID conflict.

Parameters

Table -36 - MESHOP_MgmtSendEdScan.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xAA
Length	2	Length in bytes of the following parameters
ThrInstanceID	1	Thread instance ID
ScanChannelMask	4	Channel mask
Count	1	The number of IEEE 802.15.4 ED Scans per channel
Period	2	The period between successive IEEE 802.15.4 ED Scans
ScanDuration	2	The IEEE 802.15.4 ScanDuration to use when performing an IEEE 802.15.4 ED Scan
IP Address	16	The IPv6 address of the device added to network

5.27 MESH COP_MgmtSendEdScan.Confirm

Description

Confirmation for the ED scan.

Parameters

Table -37 - MESH COP_MgmtSendEdScan.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xAA
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.28 MESH COP_MgmtSendPanIdQuery.Request

Description

Search for Pan ID conflict.

Parameters

Table -38 - MESH COP_MgmtSendPanIdQuery.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xA8
Length	2	Length in bytes of the following parameters
ThrInstanceId	1	Thread instance ID
ScanChannelMask	4	Channel mask
PanId	2	
IP Address	16	The IPv6 address of the device added to network

5.29 MESH COP_MgmtSendPanIdQuery.Confirm

Description

Confirmation for the Pan ID query.

Parameters

Table -39 - MESH COP_MgmtSendPanIdQuery.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0xA8
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.30 MESH COP_MgmtSet.Request

Description

Management Set request.

Parameters

Table -40 - MESH COP_MgmtSet.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x4B
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
PSKcEnable	1	
PSKcSize	PSKcEnable	PSKc size
PSKc	PSKcSize	

NetworkNameEnable	1	
NetworkNameSize	NetworkNameEnable	Network Name Size
NetworkName	NetworkNameSize	Network Name
PolicyEnable	1	
Policy	PolicyEnable	
KeyRotationInterval	2 x PolicyEnable	
TimestampEnable	1	
Seconds	6 x TimestampEnable	
Ticks	2 x TimestampEnable	

5.31 MESH COP_MgmtSet.Confirm

Description

Confirmation for the Management Set request.

Parameters

Table -41 - MESH COP_MgmtSet.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x4B
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.32 MESH COP_RemoveAllExpectedJoiners.Confirm

Description

Confirmation for removing all Joiners from the Commissioner's list.

Parameters

Table -42 - MESH COP_RemoveAllExpectedJoiners.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x45
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.33 MESH COP_RemoveExpectedJoiner.Request

Description

Remove an expected joiner from the Commissioner's list.

Parameters

Table -43 - MESH COP_RemoveExpectedJoiner.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x44
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
EuiType	1	The type of the EUI Possible values: 0x00: ShortEUI (Add a short EUI) 0x01: LongEUI (Add a long EUI)
EUI	Variable	"Union" type parameter. Its structure is based on the value of parameter EuiType. See detailed table below for parameter structure.

Table %CHAPTER%-44 - EUI Parameter Structure

EuiType	Structure Parameter	Size (bytes)	Comments
0x00	ShortEUI	4	
0x01	LongEUI	8	

5.34 MESH COP_RemoveExpectedJoiner.Confirm

Description

Confirmation for removing a Joiner from the Commissioner list.

Parameters

Table -45 - MESH COP_RemoveExpectedJoiner.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x44
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.35 MESH COP_SetCommissionerCredential.Request

Description

Setup the commissioner credential to connect to a network.

Parameters

Table -46 - MESH COP_SetCommissionerCredential.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x4D
Length	2	Length in bytes of the following parameters

InstanceId	1	Thread instance Id
PSKcSize	1	PSKc size
PSKc	PSKcSize	
XpanIdSize	1	
XpanId	XpanIdSize	Extended Pan Id
NetworkNameSize	1	Network Name Size
NetworkName	NetworkNameSize	Network Name

5.36 MESH COP_SetCommissionerCredential.Confirm

Description

Confirmation for setting up a Native Commissioner credential.

Parameters

Table -47 - MESH COP_SetCommissionerCredential.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x4D
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.37 MESH COP_StartCommissioner.Request

Description

Start Commissioner request.

Parameters

Table -48 - MESH COP_StartCommissioner.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x40
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id

5.38 MESH COP_StartCommissioner.Confirm

Description

Confirmation for starting a Commissioner.

Parameters

Table -49 - MESH COP_StartCommissioner.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x40
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.39 MESH COP_StartNativeCommissioner.Request

Description

Start Native Commissioner request.

Parameters

Table -50 - MESH COP_StartNativeCommissioner.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE

OpCode	1	0x4F
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id

5.40 MESH COP_StartNativeCommissioner.Confirm

Description

Confirmation for starting a Native Commissioner.

Parameters

Table -51 - MESH COP_StartNativeCommissioner.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x4F
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.41 MESH COP_StopCommissioner.Request

Description

Stop Commissioner request.

Parameters

Table -52 - MESH COP_StopCommissioner.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x41
Length	2	Length in bytes of the following parameters

Instanceld	1	Thread instance Id
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5.42 MESHOP_StopCommissioner.Confirm

Description

Confirmation for stopping a Commissioner.

Parameters

Table -53 - MESHOP_StopCommissioner.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x41
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

5.43 MESHOP_SyncSteeringData.Request

Description

Sync steering data request on the network with the expected joiners.

Parameters

Table -54 - MESHOP_SyncSteeringData.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x46
Length	2	Length in bytes of the following parameters
Instanceld	1	Thread instance Id
EuiMask	1	The EUI mask

		Possible values: 0x00: AllZeroes (All zeroes(joining is disabled)) 0x01: AllIFFs (Allow all devices are allowed) 0x02: ExpectedJoiners (Allow only expected Joiners)
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5.44 MESHOP_SyncSteeringData.Confirm

Description

Confirmation for syncing the steering data.

Parameters

Table -55 - MESHOP_SyncSteeringData.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x46
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0xFF: Error

6 IPUtils Messages

6.1 NWKU_CoapCreateInstance.Request

Description

Creates a CoAP instance on a specific UDP port.

Parameters

Table -1 - NWKU_CoapCreateInstance.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x93
Length	2	Length in bytes of the following parameters
UDPPort	2	UDP Port
Socket Domain	1	Possible values: 0x0A: AF_INET6 0x02: AF_INET

6.2 *NWKU_CoapCreateInstance.Confirm*

Description

The confirmation for creating a CoAP instance.

Parameters

Table -2 - NWKU_CoapCreateInstance.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x93
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed

6.3 *NWKU_CoapMsgReceived.Indication*

Description

The notification for receiving a CoAP message.

Parameters

Table -3 - NWKU_CoapMsgReceived.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x92
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed 0x02: Duplicate
RemoteIpAddress	16	The source address of the device that sent the message
UDPPort	2	
RequestType	1	CoAP request type Possible values: 0x00: CON 0x01: NON 0x02: ACK
MessageType	1	CoAP message type Possible values: 0x01: GET 0x02: POST 0x03: PUT 0x04: DELETE 0x05: Success
URI-path	30	URI-path options separated by /
PayloadLength	1	Data length
Payload	PayloadLength	Data

6.4 NWKU_CoapRegister.Request

Description

Registers a CoAP URI-path.

Parameters

Table -4 - NWKU_CoapRegister.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x91
Length	2	Length in bytes of the following parameters
InstanceID	1	
Socket Domain	1	Possible values: 0x0A: AF_INET6 0x02: AF_INET
URI-path	30	URI-path options separated by /
Port	2	UDP Port

6.5 NWKU_CoapRegister.Confirm

Description

The confirmation for registering CoAP URI-path.

Parameters

Table -5 - NWKU_CoapRegister.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x91
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed

6.6 NWKU_CoapSend.Request

Description

Sends a COAP message.

Parameters

Table -6 - NWKU_CoapSend.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x90
Length	2	Length in bytes of the following parameters
InstanceID	1	
Destination Ip Address	16	
UDPPort	2	
RequestType	1	CoAP request type Possible values: 0x00: CON 0x01: NON
MessageType	1	CoAP message type Possible values: 0x01: GET 0x02: POST 0x03: PUT 0x04: DELETE
URI-path	30	URI-path options separated by /
PayloadLength	1	CoAP message payload length
Payload	PayloadLength	CoAP message payload

6.7 *NWKU_CoapSend.Confirm*

Description

The confirmation for sending CoAP message.

Parameters

Table -7 - NWKU_CoapSend.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x90
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed

6.8 *NWKU_CPUReset.Request*

Description

Reset CPU.

Parameters

Table -8 - NWKU_CPUReset.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x60
Length	2	0x00 - This message does not have any parameters

6.9 *NWKU_DnsResponseReceived.Indication*

Description

The notification for receiving a CoAP message.

Parameters

Table -9 - NWKU_DnsResponseReceived.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x96
Length	2	Length in bytes of the following parameters
IpAddress	16	The IPv6 address of the domain name
DomainName	30	

6.10 NWKU_DnsSendRequest.Request

Description

Initiates a DNS request message.

Parameters

Table -10 - NWKU_DnsSendRequest.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x95
Length	2	Length in bytes of the following parameters
DomainName	30	Domain Name

6.11 NWKU_DnsSendRequest.Confirm

Description

The confirmation for sending a DNS request message.

Parameters

Table -11 - NWKU_DnsSendRequest.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x95

Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed

6.12 NWKU_EchoUDP.Request

Description

Initiates a single UDP echo request.

Parameters

Table -12 - NWKU_EchoUDP.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x70
Length	2	Length in bytes of the following parameters
Destination Ip Address	16	
Source Ip Address	16	
Payload length	2	
Timeout	2	
Iterations	1	Number of iterations

6.13 NWKU_EchoUDP.Confirm

Description

The response to echo UDP request.

Parameters

Table -13 - NWKU_EchoUDP.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF

OpCode	1	0x70
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x01: RequestTimeout 0x03: Wrongdestinationaddress 0xFF: ERROR

6.14 NWKU_IfconfigAll.Request

Description

Shows all the interfaces with their addresses.

Parameters

Table -14 - NWKU_IfconfigAll.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x0D
Length	2	0x00 - This message does not have any parameters

6.15 NWKU_IfconfigAll.Response

Description

Response to IfconfigAll request.

Parameters

Table -15 - NWKU_IfconfigAll.Response Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x0D
Length	2	Length in bytes of the following parameters

CountInterfaces	1	Number of interfaces
InterfaceID	Variable	The interface ID. Structure type parameter. See detailed table below for parameter structure.

Table -16 - InterfaceID Parameter Structure

Structure Parameter	Size (bytes)	Comments
InterfaceID	1	The interface ID.
CountIpAddresses	1	Number of IP addresses
Addresses	16 x CountIpAddresses	

6.16 NWKU_IfconfigBind.Request

Description

Bind an IP address to an interface.

Parameters

Table -17 - NWKU_IfconfigBind.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x0C
Length	2	Length in bytes of the following parameters
Ip Address	16	
Interface Id	1	

6.17 NWKU_IfconfigBind.Confirm

Description

Confirmation of the bind to interface request.

Parameters

Table -18 - NWKU_IfconfigBind.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x0C
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x01: Addressesmaximumlimitreached 0xFF: ERROR

6.18 NWKU_McastGroupManage.Request

Description

Joins or leaves a multicast group.

Parameters

Table -19 - NWKU_McastGroupManage.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x71
Length	2	Length in bytes of the following parameters
InterfaceId	1	Interface Id
Action	1	Join or leave a multicast group Possible values: 0x01: JoinGroup 0x02: LeaveGroup
McastAddress	16	Multicast group address

6.19 NWKU_McastGroupManage.Confirm

Description

The confirmation for sending a McastGroupManage request message.

Parameters

Table -20 - NWKU_McastGroupManage.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x71
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x01: Failed

6.20 NWKU_McastGroupShow.Request

Description

Displays the list of joined multicast groups.

Parameters

Table -21 - NWKU_McastGroupShow.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x72
Length	2	Length in bytes of the following parameters
InterfaceId	1	Interface Id

6.21 NWKU_McastGroupShow.Response

Description

Response to McastGroupShow request.

Parameters

Table -22 - NWKU_McastGroupShow.Response Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCF
OpCode	1	0x72
Length	2	Length in bytes of the following parameters
CountIpAddresses	1	Number of IP addresses
Addresses	16 x CountIpAddresses	

6.22 NWKU_Ping.Request

Description

Initiates a single ping request.

Parameters

Table -23 - NWKU_Ping.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x0E
Length	2	Length in bytes of the following parameters
Destination Ip Address	16	
Source Ip Address	16	
Payload length	2	
Timeout	2	
Secured	1	Set security for ping packets

6.23 NWKU_Ping.Confirm

Description

The response to ping request.

Parameters

Table -24 - NWKU_Ping.Confirm Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCF
OpCode	1	0x0E
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0x02: RequestTimeout 0x03: Wrongdestinationaddress 0xFF: ERROR
Interval	2	

7 Socket Messages

7.1 *Socket-Accept.Request*

Description

Accept a connection from a client.

Parameters

Table -1 - Socket-Accept.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x09
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.

7.2 *Socket-Accept.Confirm*

Description

Confirmation of the socket accept request.

Parameters

Table -2 - Socket-Accept.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x09
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR
Connected Socket Index	1	The connected socket index.

7.3 Socket-Bind.Request

Description

Sets the local information for a socket.

Parameters

Table -3 - Socket-Bind.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x02
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Local Ip Address	16	The local IP address.
Local Port	2	The local port.
Socket Domain	1	Possible values: 0x0A: AF_INET6 0x02: AF_INET

7.4 *Socket-Bind.Confirm*

Description

Confirmation of the socket bind request.

Parameters

Table -4 - Socket-Bind.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x02
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

7.5 *Socket-Connect.Request*

Description

Connect the socket to a remote socket(in case of UDP, just set the remote information).

Parameters

Table -5 - Socket-Connect.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x07
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Remote Ip Address	16	The remote IP address.
Remote Port	2	The remote port.
Socket Domain	1	Possible values: 0x0A: AF_INET6

		0x02: AF_INET
--	--	---------------

7.6 *Socket-Connect.Confirm*

Description

Confirmation of the socket connect request.

Parameters

Table -6 - Socket-Connect.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x07
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

7.7 *Socket-Create.Request*

Description

Creates a new socket in the IP stack.

Parameters

Table -7 - Socket-Create.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x00
Length	2	Length in bytes of the following parameters
Socket Domain	1	Possible values: 0x0A: AF_INET6 0x02: AF_INET

Socket Type	1	Possible values: 0x00: Datagram 0x01: Stream
Socket Protocol	1	Possible values: 0x11: UDP 0x06: TCP

7.8 *Socket-Create.Confirm*

Description

Confirmation of the socket create request.

Parameters

Table -8 - Socket-Create.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x00
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.

7.9 *Socket-GetOption.Request*

Description

Get socket option.

Parameters

Table -9 - Socket-GetOption.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x0B
Length	2	Length in bytes of the following parameters

Socket Index	1	The socket index.
Socket Level	1	Possible values: 0x00: SOL_SOCKET 0x01: SOL_IP 0x02: SOL_UDP 0x03: SOL_TCP
Socket Option	2	Possible values: 0x0000: SO_TYPE 0x1002: SO_RCVBUF

7.10 Socket-GetOption.Confirm

Description

Get socket option.

Parameters

Table -10 - Socket-GetOption.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x0B
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR
Option Value	4	

7.11 Socket-Listen.Request

Description

Prepare a socket for accepting a connection.

Parameters

Table -11 - Socket-Listen.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x08
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Backlog	1	

7.12 Socket-Listen.Confirm

Description

Confirmation of the socket listen request.

Parameters

Table -12 - Socket-Listen.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x08
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

7.13 Socket-Receive.Request

Description

Get data received on a connected socket(usually used for sockets over TCP).

Parameters

Table -13 - Socket-Receive.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x05
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Data Size	2	
Flags	1	Possible values: 0x40: MSG_DONTWAIT

7.14 Socket-Receive.Confirm

Description

Confirmation of the socket receive request.

Parameters

Table -14 - Socket-Receive.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x05
Length	2	Length in bytes of the following parameters
Size	2	The number of payload bytes
Data	Size	

7.15 Socket-ReceiveFrom.Request

Description

Get data received on a connected socket(usually used for sockets over UDP).

Parameters

Table -15 - Socket-ReceiveFrom.Request Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCE
OpCode	1	0x06
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Data Size	2	
Flags	1	Possible values: 0x40: MSG_DONTWAIT

7.16 Socket-ReceiveFrom.Confirm

Description

Confirmation of the socket receive request.

Parameters

Table -16 - Socket-ReceiveFrom.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x06
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR
RemoteIpAddress	16	The remote IP address.
RemotePort	2	The remote port.
Size	2	The number of payload bytes
Data	Size	

7.17 Socket-Send.Request

Description

Sends data using a connected socket(usually used for sockets over TCP).

Parameters

Table -17 - Socket-Send.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x03
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Flags	1	Possible values: 0x40: MSG_DONTWAIT
Size	2	The number of payload bytes
Data	Size	

7.18 Socket-Send.Confirm

Description

Confirmation of the socket send request.

Parameters

Table -18 - Socket-Send.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x03
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

7.19 Socket-SendTo.Request

Description

Sends data using a connected socket(usually used for sockets over UDP).

Parameters

Table -19 - Socket-SendTo.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x04
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Flags	1	Possible values: 0x40: MSG_DONTWAIT
Size	2	The number of payload bytes
RemotePort	2	The remote port.
RemoteIpAddress	16	The remote IP address.
Data	Size	

7.20 Socket-SendTo.Confirm

Description

Confirmation of the socket send request.

Parameters

Table -20 - Socket-SendTo.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x04
Length	2	Length in bytes of the following parameters
Status	1	Possible values:

		0x00: OK 0xFF: ERROR
--	--	-------------------------

7.21 Socket-SetOption.Request

Description

Set socket options.

Parameters

Table -21 - Socket-SetOption.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x0A
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.
Socket Level	1	Possible values: 0x00: SOL_SOCKET 0x01: SOL_IP 0x02: SOL_UDP 0x03: SOL_TCP
Socket Option	2	Possible values: 0x0000: SO_TYPE 0x0019: SO_BINDTODEVICE 0x0004: SO_REUSEADDR 0x0012: IPV6_MULTICAST_HOPS 0x0010: IPV6_UNICAST_HOPS 0x0014: IPV6_JOIN_GROUP 0x0021: IP_MULTICAST_TTL 0x0023: IP_ADD_MEMBERSHIP 0x0024: IP_DROP_MEMBERSHIP
Socket Option Value	4	

7.22 Socket-SetOption.Confirm

Description

Confirmation of the socket set option request.

Parameters

Table -22 - Socket-SetOption.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x0A
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

7.23 Socket-Shutdown.Request

Description

Closes a connection for a socket and clears any data that it uses.

Parameters

Table -23 - Socket-Shutdown.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x01
Length	2	Length in bytes of the following parameters
Socket Index	1	The socket index.

7.24 Socket-Shutdown.Confirm

Description

Confirmation of the socket shutdown request.

Parameters

Table -24 - Socket-Shutdown.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x01
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

8 Other Utility Messages

8.1 *AspGetPowerLevel.Request*

Description

AspGetPowerLevel.Request description.

Parameters

Table -1 - AspGetPowerLevel.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x95
OpCode	1	0x1F
Length	2	0x00 - This message does not have any parameters

8.2 *AspGetPowerLevel.Confirm*

Description

AspGetPowerLevel.Confirm description.

Parameters

Table -2 - AspGetPowerLevel.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x94
OpCode	1	0x1F
Length	2	Length in bytes of the following parameters
Value	1	The Value of Power Level

8.3 *AspSetPowerLevel.Request*

Description

AspSetPowerLevel.Request description.

Parameters

Table -3 - AspSetPowerLevel.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x95
OpCode	1	0x0F
Length	2	Length in bytes of the following parameters
powerLevel	1	Power Level

8.4 *AspSetPowerLevel.Confirm*

Description

AspSetPowerLevel.Confirm description.

Parameters

Table -4 - AspSetPowerLevel.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x94
OpCode	1	0x0F
Length	2	Length in bytes of the following parameters
Status	1	The status of the Set Power Level request

		Possible values: 0x00: SUCCESS (Request successfully performed) 0xE8: INVALID_PARAMETER (A parameter is invalid or the primitive is not allowed at the moment)
--	--	--

8.5 DBG.Confirm

Description

DBG messages.

Parameters

Table -5 - DBG.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x89
Length	2	Length in bytes of the following parameters
text	1	

8.6 FSCI-ACK

Description

FSCI ACK Packet.

Parameters

Table -6 - FSCI-ACK Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA4
OpCode	1	0xFD
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: OK 0xFF: ERROR

--	--	--

8.7 FSCI-CPUReset.Request

Description

Reset CPU.

Parameters

Table -7 - FSCI-CPUReset.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA3
OpCode	1	0x08
Length	2	0x00 - This message does not have any parameters

8.8 FSCI-EnterBootloader.Request

Description

Enable MSD Bootloader.

Parameters

Table -8 - FSCI-EnterBootloader.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA3
OpCode	1	0xCF
Length	2	0x00 - This message does not have any parameters

8.9 FSCI-GetMcuId.Request

Description

Read the MCU Id for every module present.

Parameters

Table -9 - FSCI-GetMcuId.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA3
OpCode	1	0xB1
Length	2	0x00 - This message does not have any parameters

8.10 FSCI-GetMcuId.Confirm

Description

Response for MCU ID request.

Parameters

Table -10 - FSCI-GetMcuId.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA4
OpCode	1	0xB1
Length	2	Length in bytes of the following parameters
McuId	4 x Length	Mcu Id

8.11 FSCI-GetSwVersions.Request

Description

Read the SW version for every module present.

Parameters

Table -11 - FSCI-GetSwVersions.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA3
OpCode	1	0xB2
Length	2	0x00 - This message does not have any parameters

8.12 FSCI-GetSwVersions.Confirm

Description

FSCI-GetSwVersions.Confirm description.

Parameters

Table -12 - FSCI-GetSwVersions.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA4
OpCode	1	0xB2
Length	2	Length in bytes of the following parameters
listSize	1	Length of the Payload
SwVersions	6 x listSize	List of SW Module versions

8.13 FSCI-GetUniquelId.Request

Description

Read the Unique ID for every module present.

Parameters

Table -13 - FSCI-GetUniquelId.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA3
OpCode	1	0xB0
Length	2	0x00 - This message does not have any parameters

8.14 FSCI-GetUniquelId.Confirm

Description

Response for Unique ID request.

Parameters

Table -14 - FSCI-GetUniqueld.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xA4
OpCode	1	0xB0
Length	2	Length in bytes of the following parameters
Uniqueld	16 x Length	Unique Id

8.15 MAC_PromiscuousRx.Indication

Description

MAC_PromiscuousRx.Indication Rx description.

Parameters

Table -15 - MAC_PromiscuousRx.Indication Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x86
OpCode	1	0x03
Length	2	Length in bytes of the following parameters
LinkQuality	1	Link Quality
TimeStamp	4	Time Stamp
msduLength	1	Length of the frame
msdu	msduLength	The actual frame received

8.16 SerialTun_IPPacketReceived.Confirm

Description

Received an IP packet from the VTUN interface.

Parameters

Table -16 - SerialTun_IPPacketReceived.Confirm Parameters

Parameter	Size (bytes)	Comments
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OpGroup	1	0xCF
OpCode	1	0xF3
Length	2	Length in bytes of the following parameters
IPpayload	1	IP payload

8.17 SerialTun_IPPacketSend.Request

Description

Send an IP packet over serial TUN interface.

Parameters

Table -17 - SerialTun_IPPacketSend.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0xF2
Length	2	Length in bytes of the following parameters
Size	2	The number of payload bytes
Data	Size	

8.18 Sniffer_MacSetPIBAtribute.Request

Description

Sniffer_MacSetPIBAtribute.Request description.

Parameters

Table -18 - Sniffer_MacSetPIBAtribute.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x85
OpCode	1	0x09
Length	2	Length in bytes of the following parameters
PIBAtribute	1	The MAC PIB attribute identifier

		Possible values: 0x21: macLogicalChannel (The channel to use) 0x51: macMAC_PromiscuousRxIndicationMode (MAC_PromiscuousRx.Indication (receive all) mode enabled or not) 0x52: macRxOnWhenIdle (The receiver is enabled during IDLE periods)
Value	7	The value to set the attribute to

8.19 Sniffer_MacSetPIBAtribute.Confirm

Description

Sniffer_MacSetPIBAtribute.Confirm description.

Parameters

Table -19 - Sniffer_MacSetPIBAtribute.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0x84
OpCode	1	0x0D
Length	2	Length in bytes of the following parameters
Status	1	The result of the Sniffer_MacSetPIBAtribute.Request Possible values: 0x00: gSuccess_c (The PhySetPIBAtribute.Request operation was successful) 0xF4: UNSUPPORTED_ATTRIBUTE (Unknown PIB attribute) 0xE8: gInvalidParameter_c (Unknown PIB attribute) 0xFB: gReadOnly_c (Read Only Attribute)
PIBAtribute	1	The MAC PIB attribute identifier Possible values: 0x21: macLogicalChannel (The channel to use) 0x51: macMAC_PromiscuousRxIndicationMode (MAC_PromiscuousRx.Indication (receive all) mode enabled or not)

		0x52: macRxOnWhenIdle (The receiver is enabled during IDLE periods)
DataLength	2	Length of the attribute data
PIBAttributeValue	DataLength	The MAC PIB attribute value

8.20 MAC_MacFilteringAddEntry.Request

Description

Add in Mac Filtering Table.

Parameters

Table -1 - MAC_MacFilteringAddEntry.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x12
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
ExtendedAddress	8	Extended Address
ShortAddress	2	Short Address
LinkIndicator	1	The neighbor Quality Link Indicator: Good Link: 20 - 255 Medium Link: 11 - 20 Bad Link: 3 - 10.
BlockNeighbor	1	Add this neighbor to blacklist

8.21 MAC_MacFilteringAddEntry.Confirm

Description

Confirmation of the addition of a new entry in the Mac filtering List table.

Parameters

Table -2 - MAC_MacFilteringAddEntry.Confirm Parameters

Parameter	Size (bytes)	Comments
-----------	--------------	----------

OpGroup	1	0xCF
OpCode	1	0x12
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x04: Notpermitted 0x06: Nomemory

8.22 MAC_MacFilteringEnable.Request

Description

Enable or disable mac filtering.

Parameters

Table -3 - MAC_MacFilteringEnable.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x14
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
MacFiltering	1	Enable or disable mac filtering Possible values: 0x00: Disable 0x01: EnableDefaultPolicyReject 0x02: EnableDefaultPolicyAccept

8.23 MAC_MacFilteringEnable.Confirm

Description

Enable Mac filtering list table confirmation.

Parameters

Table -4 - MAC_MacFilteringEnable.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x14
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x04: Notpermitted

8.24 MAC_MacFilteringGetTable.Request

Description

Get the current mac filtering table.

Parameters

Table -5 - MAC_MacFilteringGetTable.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x15
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
StartIndex	1	Start Index
NoOfElements	1	No of elements to print

8.25 MAC_MacFilteringGetTable.Confirm

Description

Get Mac filtering list table response.

Parameters

Table -6 - MAC_MacFilteringGetTable.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x15
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
NoOfElements	1	No Of Elements
MacFilteringEntry	Variable	Mac Filtering Entry Structure type parameter. See detailed table below for parameter structure.

Table -7 - MacFilteringEntry Parameter Structure

Structure Parameter	Size (bytes)	Comments
ExtendedAddress	8	Extended Address
ShortAddress	2	Short Address
LinkIndicator	1	Link Indicator
BlockedNeighbor	1	This neighbor is blacklisted

8.26 MAC_MacFilteringRemoveEntry.Request

Description

Remove entry from mac filtering table.

Parameters

Table -8 - MAC_MacFilteringRemoveEntry.Request Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCE
OpCode	1	0x13
Length	2	Length in bytes of the following parameters
Instanceld	1	Instance Id
ExtendedAddress	8	Extended Address

8.27 MAC_MacFilteringRemoveEntry.Confirm

Description

Remove Mac filtering list entry confirmation.

Parameters

Table -9 - MAC_MacFilteringRemoveEntry.Confirm Parameters

Parameter	Size (bytes)	Comments
OpGroup	1	0xCF
OpCode	1	0x13
Length	2	Length in bytes of the following parameters
Status	1	Possible values: 0x00: Success 0x04: Notpermitted

Revision History

This table summarizes revisions to this document.

Table 1 Revision history		
Revision number	Date	Substantive changes
0	10/2015	Initial release
1	03/2016	Preview 5 release
2	06/2016	Updates for multicast group commands
3	09/2016	Updated for KW41Z
4	12/2016	Updated for KW24D

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