



ZigBee Pro CID API Advanced User Guide

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1. Supported Clusters

ZBCID has a ready-made repertoire of commands that allows a host controller to manage and monitor a ZigBee Pro network. The device is available as either a coordinator or router implementing either the SE 1.1 or HA 1.1 profiles. The following tables list the ZCL clusters implemented for each profile:

Home Automation (HA) Profile 0x0104				
Domain	CID	Name	Client	Server
HA/General	0x0000	Basic	✓	✓
HA/General	0x0001	Power Configuration	Note 1	Note 1
HA/General	0x0002	Temperature Configuration	Note 1	Note 1
HA/General	0x0003	Identify	✓	✓
HA/General	0x0004	Groups	✓	
HA/General	0x0005	Scenes	✓	
HA/General	0x0006	On/Off	✓	
HA/General	0x0007	On/Off Switch Configuration	✓	
HA/General	0x0008	Level Control	✓	
HA/General	0x0009	Alarms	✓	
HA/General	0x000A	Time		✓
HA/General	0x000B	RSSI Location	✓	
HA/General	0x000C	Analog Input (Basic)	✓	
HA/General	0x000D	Analog Output (Basic)	✓	
HA/General	0x000E	Analog Value (Basic)	✓	
HA/General	0x000F	Binary Input (Basic)	✓	
HA/General	0x0010	Binary Output (Basic)	✓	
HA/General	0x0011	Binary Value (Basic)	✓	
HA/General	0x0012	Multistate Input (Basic)	✓	
HA/General	0x0013	Multistate Output (Basic)	✓	
HA/General	0x0014	Multistate Value (Basic)	✓	
HA/Closures	0x0100	Shade Configuration	✓	
HA/Closures	0x0101	Door Lock	✓	
HA/HVAC	0x0200	Pump Config. & Cntrl.	✓	
HA/HVAC	0x0201	Thermostat	✓	

HA/HVAC	0x0202	Fan Control	✓	No
HA/HVAC	0x0203	Dehumidification Control	✓	No
HA/HVAC	0x0204	Thermostat UI Config.	✓	No
HA/M&S	0x0400	Illuminance Measurement	Note 1	Note 1
HA/M&S	0x0401	Illuminance Level Sensing	Note 1	Note 1
HA/M&S	0x0402	Temperature Measurement	✓	
HA/M&S	0x0403	Pressure Measurement	✓	
HA/M&S	0x0404	Flow Measurement	✓	
HA/M&S	0x0405	Rel. Hum. Measurement	✓	
HA/M&S	0x0406	Occupancy Sensing	✓	
Sec. & Safety	0x0500	IAS Zone	✓	
Sec. & Safety	0x0501	IAS ACE	✓	
Sec. & Safety	0x0502	IAS WD	✓	
Smart Energy	0x0702	Simple Metering	✓	
Smart Energy (SE) Profile 0x0109 As a Coordinator (ESP)				
Domain	CID	Name	Client	Server
General	0x0000	Basic	✓	✓
General	0x0003	Identify	✓	✓
General	0x000A	Time		✓
Smart Energy	0x0700	Price		✓
Smart Energy	0x0701	Demand Response and Load Control		✓
Smart Energy	0x0702	Simple Metering	✓	
Smart Energy	0x0703	Message		✓
Smart Energy	0x0800	Key Establishment		✓
Smart Energy (SE) Profile 0x0109 As a Router (Gateway)				
Domain	CID	Name	Client	Server
General	0x0000	Basic	✓	✓
General	0x0003	Identify	✓	✓
General	0x000A	Time	✓	
Smart Energy	0x0700	Price	✓	
Smart Energy	0x0701	Demand Response and Load Control	✓	
Smart Energy	0x0702	Simple Metering	✓	
Smart Energy	0x0703	Message	✓	
Smart Energy	0x0800	Key Establishment	✓	

2. Host/ZBCID Communications Packet Structure

The packet structure consists of a variable length message with a defined length indicator in its header. The ZBCID implements a pass-thru mode when an INSTEON PLM is connected on its second UART. Thus the package length indicator is either a dedicated byte or extracted from the message CMD field. In the case of INSTEON extended length messages, the final length is determined from the CMD field and a bit in the FLAGS byte of the message. A frame checksum (FCS) is built into the ZigBee API messages, but not on the INSTEON messages. The user needs not be concerned with these differences as the ZBCID automatically extracts information from each packet and transparently routes it accordingly. The tables below summarize the message structure:

ZBP Message Structure			
Field	Value	Offset	ZBCID Use
SOP	0x02	0	Start of packet indicator
CMD	0x0000-0xFFFF	1 (2 bytes)	<p>Command identification. The 16-bit number encodes information as follows:</p> <p>Bit 15 is the negative acknowledge bit. If set it indicates the command was not executed correctly. Normally, a status byte will be present in the message body.</p> <p>Bit 14 is the ACK request bit. If set in a request, an initial acknowledge response is expected prior to any actual over-the-air or delayed device response.</p> <p>Bit 12 is the Response Bit. If set it indicates a response message (from ZBCID to host.)</p> <p>Bits 11:0 are the Command Number as follows:</p> <p>0x000-0x00F System Commands (Reset, Enter Flash Mode, Set Clock, etc.)</p> <p>0x010-0x01F Device Information and Network Commands</p> <p>0x020-0x02F Binding Commands</p> <p>0x030-0x03F Cluster Commands</p>

LEN	0x00-0xFF	3	The length of the remainder of the message not including the FCS.
PYLD		4	This is the message payload which varies in length from 0 to n bytes.
FCS	0x00-0xFF	v	Frame Check Sequence. Computed as the XOR of all the bytes in the message starting with CMD and through the last byte of data. XOR all included bytes, then XOR result with FCS. Result should be zero or the packet is in error.

PLM Message Structure			
Field	Value	Offset	ZBP Use
SOP	0x02	0	Start of packet indicator
CMD	0x00-0xFF	1	Command identification. For INSTEON messages, the length of the message can be determined from this byte. Please refer to the SmartLabs INSTEON Developer's Guide for details.
PYLD		2-n	This is the message payload which varies in length from 0 to n bytes.
FLGS	0x00-0xFF	5	This byte is significant for the <i>Send INSTEON</i> API. The length of the message is adjusted if bit 4 is set, indicating an extended message.

3. API Sections

The application programming interface to the ZBCID is divided into 4 sections as follows:

- **System Commands:** These deal with items local to the ZBCID processor such as maintenance and administration
- **Device Information and Network Commands:** This section contains the functions necessary to start and maintain the ZigBee Pro network as well as the commands to interrogate any node for its various parameters and descriptors.

- **Binding Commands:** This section includes the functions necessary to bind endpoints of devices in a client/server relationship.
- **Cluster Commands:** ZigBee endpoints in devices contain clusters which are in turn collections of the attributes and commands that determine the device's behavior. This section of the API includes the commands for sending and receiving messages to/from these clusters. The API supports a generalized command frame that can be used to send cluster specific commands, as well as commands that apply across the entire profile (general.)

The remainder of this document details the ZBP API.

SYSTEM PING PING device to verify if it is active and to check its capability		CMD:	0x0000
		LEN:	0x00
Parameter	Description		
None			
SYSTEM PING RESPONSE		CMD:	0x1000
		LEN:	0x0F
Parameter	Description		
u8MacFlags	Node capability flags: Bit 0: Coordinator capability Bit 1: FFD Bit 2: Node is mains powered Bit 3: Receiver is enabled during idle periods Bit 6: Capable of high security Bit 7: Network address should be allocated to node		
u8Services	Available services information: Bit 0: Primary Trust Center Bit 1: Backup Trust Center Bit 2: Primary Binding Table Cache Bit 3: Backup Binding Table Cache Bit 4 Primary Discovery Cache Bit 5: Backup Discovery Cache Bit 6: Network Manager Bit 7: Node is in "Running" state		
u8FWVersion	Node firmware version		

u16Profile	ZigBee profile in use on the first active endpoint of this node		
u16ShortAdd	The node network (short) address		
u64IeeeAdd	The node IEEE address		
SYSTEM MESSAGE ERROR RESPONSE The command was malformed or invalid (too many or too few bytes)		CMD:	0x90XX
		LEN:	0x01
Parameter	Description		
u8Status	0x80 – Malformed command (possibly too few bytes) 0x81 – Internal buffer allocation error 0x82 – Command was not recognized. In this case, the attempted command is XX in the second byte of the response code.		
SYSTEM RESET REQUEST Reset device		CMD:	0x0001
		LEN:	0x01
Parameter	Description		
u8Type	0x00: Requests target device soft reset 0x01: Enter flash programming mode and reset (serial bootloader reset.) 0x02: Clear non-volatile memory (flash) and reset.		
SYSTEM GET TIME Gets current system time		CMD:	0x0002
		LEN:	0x00
Parameter	Description		
None			
SYSTEM GET TIME RESPONSE		CMD:	0x1002
		LEN:	0x04
Parameter	Description		
u32Time	ZigBee UTC time		
SYSTEM SET TIME		CMD:	0x0003
		LEN:	0x04 or 0x14
Parameter	Description		
u32Time	ZigBee UTC time		

i32TimeZone	Local time zone as an offset from UTC in seconds		
u32DstStart	Start of daylight saving time in UTC for the current year		
u32DstEnd	End of daylight saving time in UTC for the current year		
u32DstShift	Shift applied to local time during daylight saving period		
SYSTEM SET TIME RESPONSE		CMD:	0x1003
		LEN:	0x01
Parameter	Description		
u8Status	Indicates success (0) or Failure (1)		
SYSTEM START NETWORK (COORDINATOR) Start the network with a given PAN ID		CMD:	0x0005
		LEN:	0x03
Parameter	Description		
u16PanID	The desired device's PAN ID. If 0x0000, the coordinator chooses the ID. THIS PARAMETER IS NOT FUNCTIONAL AT THIS TIME.		
u8Channel	Desired channel number. If 0x00, let coordinator decide		
SYSTEM START NETWORK RESPONSE (COORDINATOR)		CMD:	0x1005
		LEN:	0x0B
Parameter	Description		
u8Channel	Channel number that the network was started on		
u16PanID	PAN ID of the current network		
u64ExtPanID	Extended PAN ID of the current network		
JOIN NETWORK (ROUTER) Join a PAN		CMD:	0x0005
		LEN:	0x03
Parameter	Description		
u16PanID	THIS PARAMETER IS NOT FUNCTIONAL AT THIS TIME.		
u8Channel	Desired channel number to start scanning. If 0x00, let router decide		
SYSTEM UPDATE NETWORK Changes Network Parameters		CMD:	0x0006
		LEN:	0x08
Parameter	Description		
u16DstAdd	Short address of the destination device(s) (0xFFFFD to broadcast to all devices that have their radios on)		
u32ChMask	The desired channel mask		

u8ScanDur	0x00-0x05	Perform radio channel scan on the set of channels specified through u32ChMask. The time, in seconds, spent scanning each channel is determined by the value of u8ScanDur and the number of scans is equal to the value of u8ScanCount. Valid for unicasts only.	
	0xFE	Change radio channel to single channel specified through u32ChMask and set the network manager address to that specified through u16NwkMgr. Valid for broadcasts only.	
	0xFF	Update the stored radio channel mask with that specified through u32ChMask (but do not scan). Valid for broadcasts only.	
u8ScanCount	Number of energy scans to be conducted and reported. Valid only if a scan has been enabled through u8ScanDur.		
SYSTEM UPDATE NETWORK RESPONSE		CMD:	0x1006
		LEN:	0x01
Parameter	Description		
u8Status	0 if success, 1 if failure		
REGISTER NODE Register IEEE Address and Link Key for a Node		CMD:	0x0009
		LEN:	24
Parameter	Description		
u64IeeeAdd	The node IEEE address		
u8LnkKey[16]	The node link key (16 bytes)		
REGISTER NODE RESPONSE		CMD:	0x1009
		LEN:	1
Parameter	Description		
u8Status	Status of the request		
GET APS KEY TABLE REQUEST Get APS Link table of Registered Nodes		CMD:	0x000A
		LEN:	1 or 9
Parameter	Description		
u8StartIdx	Starting index into the APS Link value pair list. This is used to get more of the list if the list is too large for one message, as indicated in the response. Set to 0xff to search for a specific IEEE address.		
u64IeeeAdd	(optional if u8StartIdx is 0xff) IEEE address of interest.		

GET APS KEY TABLE RESPONSE (Also issued when a new key is detected)		CMD:	0x100A
		LEN:	Variable
Parameter	Description		
u8Status	0 if success		
u8StartIdx	Starting index into the list		
u8NodesNum	Number of records in response (4 maximum)		
sKVP[]	Array of records consisting of u64IEEE address followed by 16-byte APS Key		
u8Remaining	Number of entries remaining to be read		
REQUEST NETWORK OR PARTNER KEY Request Network or Partner Link Key from Trust Center		CMD:	0x000C
		LEN:	1 or 17
Parameter	Description		
u8KeyType	Type of key requested (1 if network key, 2 if partner APS key)		
u64IeeeAdd	The node IEEE address		
REQUEST KEY RESPONSE		CMD:	0x100C
		LEN:	1
Parameter	Description		
u8Status	Status of the request		
MODIFY PERMIT JOIN REQUEST Modify the Permit Join Time on a Device		CMD:	0x0010
		LEN:	Variable
Parameter	Description		
u8Mode	Indicates if DstAddr is 16 bits ShortAddress (0x00), or 64 bits IEEEAddress (0x01)		
u16DstAdd or u64DstAdd	Network or IEEE address of the device to be modified. Use 0xFFFFC to broadcast request to ALL routers and coordinator.		
u8Duration	The time duration for Permit Joining. 0x00: disabled, 0x01-0xFE: number of seconds to permit joining.		
MODIFY PERMIT JOIN RESPONSE		CMD:	0x1010
		LEN:	0x01
Parameter	Description		
u8PermitTime	Number of seconds that joining will be permitted (0x00 – 0xFE) or 0xFF if error.		

DEVICE JOINED		CMD:	0x1011
A Node has Joined the Network		LEN:	0x0B
Parameter	Description		
u16DevAdd	Network address of the device generating the request		
u64DevAdd	The IEEE address of the device being announced		
u8Capabilities	Bit mask of the operating capabilities of the device: Bit 0 - 1: Node able to act as Coordinator Bit 1- 1: Full function device FFD, 0: Reduced-function device (RFD) Bit 2- 1:Node is mains powered Bit 3- 1: Receiver is enabled during idle periods Bit 6- Node is capable of high security Bit 7 – 1: Network address should be allocated to node		
SHORT NETWORK ADDRESS REQUEST		CMD:	0x0012
Request a device's short network address and its Children's (ShortAddress) list		LEN:	0x0A
Parameter	Description		
u64IEEE	IEEE address of the destination device		
u8ReqType	0x00: Single device response; 0x01: Include associated devices		
u8StartIdx	Starting index into the children list. This is used to get more of the list if the list is too large for one message		
IEEE ADDRESS REQUEST		CMD:	0x0013
Request a device's Network address and its Children's (ShortAddress) list		LEN:	0x04
Parameter	Description		
u16DstAdd	Short address of the destination device		
u8ReqType	0x00: Single device response; 0x01: Include associated devices		
u8StartIdx	Starting index into the children list. This is used to get more of the list if the list is too large for one message		
NETWORK ADDRESS RESPONSE		CMD:	0x1012
Response to IEEE or Short Address Request		LEN:	Variable
Parameter	Description		
u8Status	Indicates success (0) or Failure (1)		
u64IEEE	IEEE address of the source device		
u16NwkAdd	Short network address of responding device		

u8AssocDevs	Number of associated devices													
u8StartIdx	Starting index into the children list. This is used to get more of the list if the list is too large for one message													
u16Assoc[]	Array of network addresses for associated devices													
NODE DESCRIPTOR REQUEST Get theDestination's Device Node Descriptor.		CMD: 0x0014												
		LEN: 0x04												
Parameter	Description													
u16DstAdd	Network address of the device generating the inquiry													
u16Interest	Network address of the destination device being queried													
NODE DESCRIPTOR RESPONSE		CMD: 0x1014												
		LEN: 0x10												
Parameter	Description													
u8Status	Success (0), Failure (non-zero NV error code)													
u16SrcAddr	The message's source network address													
u16NodeDsc	(2:0) NodeType : Coordinator = 0, Router = 1, End Device = 2, Reserved = 3-7 (3) CDAvail : Indicates if complex descriptor is available for the node (4) UD Avail : Indicates if User Descriptor is available (10:8) APSFflags : Node Flags assigned for APS. (15:11) FreqBand : Identifies node frequency band capabilities													
u8MacFlags	MAC Capability flags													
u16MfrCode	Specifies a manufacturer code that is allocated by the ZigBee Alliance, relating to the manufacturer of the device													
u8BfrSize	Indicates size of maximum NPDU. This field is used as a high level indication for management													
u16MaxRx	Indicates maximum size of Transfer up to 0x7fff													
u16SrvrMask	Specifies the system server capability. It is defined as follows: <table><tr><td>Bit Number</td><td>Assignment</td></tr><tr><td>0</td><td>Primary Trust Center</td></tr><tr><td>1</td><td>Backup Trust Center</td></tr><tr><td>2</td><td>Primary Binding Table Cache</td></tr><tr><td>3</td><td>Backup Binding table Cache</td></tr><tr><td>4</td><td>Primary Discovery Cache</td></tr></table>		Bit Number	Assignment	0	Primary Trust Center	1	Backup Trust Center	2	Primary Binding Table Cache	3	Backup Binding table Cache	4	Primary Discovery Cache
Bit Number	Assignment													
0	Primary Trust Center													
1	Backup Trust Center													
2	Primary Binding Table Cache													
3	Backup Binding table Cache													
4	Primary Discovery Cache													

	5 6-15	Backup Discovery Cache Reserved
u16MaxTx	Indicates maximum size of the ASDU	
u8Capability	Properties of the node that can be used by other nodes in network discovery	
SIMPLE DESCRIPTOR REQUEST Get the Destination's Device Simple Descriptor Information		CMD: 0x0015 LEN: 0x05
Parameter	Description	
u16DstAdd	Network address of the device generating the inquiry	
u16Interest	Network address of the destination device being queried	
u8EndPoint	The application endpoint that sources the data	
SIMPLE DESCRIPTOR RESPONSE		CMD: 0x1015 LEN: Variable
Parameter	Description	
u8Status	Success (0x00), Failure (0x01)	
u16Interest	Network address of the destination queried	
u8Length	Length of the returned simple descriptor	
u8EndPoint	The application endpoint that sources the data	
u16ProfileID	Endpoint profile ID	
u16DeviceID	Endpoint Device ID	
u8EPFlags	(3:0) Version of device description supported	
u8InClstrs	Number of Cluster IDs in the Input Clusters List	
u16InClstrs[]	Array of Input Clusters IDs	
u8OutClstrs	Number of Cluster IDs in the Output Clusters List	
u16OtClstrs[]	Array of Output Clusters IDs	
ACTIVE ENDPOINT REQUEST Get the Destination's Device Active Endpoint Information		CMD: 0x0016 LEN: 0x04
Parameter	Description	
u16DstAdd	Network address of the device generating the request	
u16Interest	Network address of the destination device being queried	
ACTIVE ENDPOINT RESPONSE Get the Destination's Device Active Endpoint Information		CMD: 0x1016 LEN: Variable
Parameter	Description	

u8Status	Success (0x00), Failure (0x01)		
u16Interest	Network address of the destination queried		
u8EndPnts	Number of Endpoints in the list		
u8EPLst[]	Byte array of Endpoints in the queried device		
USER DESCRIPTOR REQUEST Get the Destination's Device User Descriptor Information		CMD:	0x0017
		LEN:	0x04
Parameter	Description		
u16SrcAdd	Network address of the device generating the inquiry		
u16DstAdd	Network address of the destination device being queried		
USER DESCRIPTOR RESPONSE		CMD:	0x1017
		LEN:	Variable
Parameter	Description		
u8Status	Success (0x00), Failure (0x01)		
u16Interest	Network address of the destination queried		
u8DescLen	Length of descriptor in bytes		
u8Desc[]	User descriptor array (up to 16 bytes)		
USER DESCRIPTOR SET REQUEST Set Destination Device's User Descriptor Information		CMD:	0x0018
		LEN:	Variable
Parameter	Description		
u16SrcAdd	The message's source network address		
u16Interest	Network address of the described device		
u8DescLen	Length, in bytes, of the user descriptor		
u8Desc[]	User descriptor array (can be up to 16 bytes)		
USER DESCRIPTOR SET RESPONSE		CMD:	0x1018
		LEN:	0x03
Parameter	Description		
u8Status	Success (0x00), Failure (0x01)		
u16SrcAddr	The message's source network address		
MATCH DESCRIPTOR REQUEST Request responses from nodes matching specified criteria in their simple descriptors		CMD:	0x0019
		LEN:	Variable
Parameter	Description		
u16DstAdd	Network address of the device generating the request		
u16Interest	Network address of the device of interest		

u16Profile	Profile ID		
u8InClusters	Number of input clusters		
u8OutClusters	Number of output clusters		
u16InClstrs[]	List of input clusters		
u16OtClstrs[]	List of output clusters		
MATCH DESCRIPTOR RESPONSE		CMD:	0x1019
		LEN:	0x03
Parameter	Description		
u8Status	Success (0x00), Failure (0x01)		
u16SrcAddr	The message's source network address		
u8MatchLen	Length of the list of matched endpoints		
u8Matched[]	List of matched endpoints		
NETWORK LEAVE REQUEST		CMD:	0x001A
		LEN:	0x09
Parameter	Description		
u64DevAdd	The IEEE address of the device requested to leave		
u8Options	0 – Children not to leave. Do not rejoin the network. 1 – Children not to leave. Rejoin the network immediately 2 – Children to leave. Do not rejoin the network. 3 – Children to leave. Rejoin the network immediately.		
NETWORK LEAVE REQUEST CONFIRM		CMD:	0x101A
Leave request response		LEN:	0x09
Parameter	Description		
u64DevAdd	The IEEE address of the device being asked to leave		
u8Status	Status indicator of the request: 0x00 if successful		
END DEVICE ANNOUNCE		CMD:	0x101B
A new node announced joining or rejoining the network		LEN:	0x0B
Parameter	Description		
u16DevAdd	Network address of the device generating the request		
u64DevAdd	The IEEE address of the device being announced		
u8Capabilities	Bit mask of the operating capabilities of the device: Bit 0 – 1: Node able to act as coordinator Bit 1 – 1: Full function device; 0: Reduced function device Bit 2 – 1: Node is mains powered		

	Bit 3 – 1: Rx enabled during idle periods Bit 6 – 1: High security enabled; 0: Standard security Bit 7 – 1: Network address should be allocated to the node		
DEVICE LEAVE ANNOUNCE A node has announced leaving the network		CMD:	0x101C
		LEN:	0x09
Parameter	Description		
u64DevAdd	The IEEE address of the device leaving the network		
u8Rejoin	Indicates whether the leaving node was requested to attempt a rejoin. 0x00 if not, non-zero if yes.		
POWER DESCRIPTOR REQUEST Get Power Descriptor Information		CMD:	0x001D
		LEN:	0x04
Parameter	Description		
u16SrcAdd	The message's source network address		
u16Interest	Network address of the device of interest		
POWER DESCRIPTOR RESPONSE		CMD:	0x101D
		LEN:	0x05
Parameter	Description		
u8Status	Success (0x00), Failure (0x01)		
u32PwrDesc	The power descriptor bits as follows:		
ACTIVE NETWORK TABLE REQUEST Get Active Network Table From a Node		CMD:	0x001E
		LEN:	0x05
Parameter	Description		
u16SrcAdd	The message's source network address		
u16Interest	Network address of the device of interest		
u8StartIdx	Starting index in the array list. Since the result may contain more entries than can be reported, this field allows retrieval of entries from anywhere in the array list.		
ACTIVE NETWORK TABLE RESPONSE		CMD:	0x101E
		LEN:	Variable
Parameter	Description		
u8Status	Success (0x00), Failure (0x01)		
u16SrcAddr	The message's source network address		
u8NetTabSize	Network table total number of entries		
u8StartIdx	Wherein the total number of entries this response starts		

u8NetTabCnt	Number of entries in this response
sNetTab[]	<p>Array of network table entries. Each entry has the following:</p> <p>u64PanID – 64-bit extended PAN ID of neighbor</p> <p>u64IEEEAddr – Node IEEE address</p> <p>u16ShortAddr – Node short address</p> <p>u16Flags – Bit array containing information as follows:</p> <ul style="list-style-type: none"> bits 0:1 – Device type (ZC if 0, ZR if 1, ZED if 2) bits 2:3 – Rx On when idle (Off if 0, On if 1) bits 4:6 – Relationship (Neighbor is the parent if 0, Neighbor is a child if 1, Neighbor is a sibling if 2, None of the above if 3, Unknown if 4) bit 7 – Reserved bits 8:9 – Permit joining (not accepting requests if 0, accepting requests if 1) <p>u8Depth – depth of the node relative to the coordinator</p> <p>u8LinkQuality – Relative measure of signal strength</p>
ROUTING TABLE REQUEST	
Get Routing Table From a Node	
Parameter	Description
u16SrcAdd	The message's source network address
u16Interest	Network address of the device of interest
u8StartIdx	Starting index in the array list. Since the result may contain more entries than can be reported, this field allows retrieval of entries from anywhere in the array list.
ROUTING TABLE RESPONSE	
Parameter	Description
u8Status	Success (0x00), Failure (0x01)
u16SrcAddr	The message's source network address
u8TabSize	Routing table total number of entries
u8StartIdx	Starting point where this response starts
u8NetTabCnt	Number of entries in this response
sRtnngTab[]	<p>Array of network table entries. Each entry has the following:</p> <p>u16NwkDstAddr – Destination network address</p>

	u16NwkNxtHopAddr – Next hop network address u8Flags – Bit array containing information as follows: bits 0:2 – Status of the route: 000=ACTIVE, 001=DISCOVERY_UNDERWAY, 010=DISCOVERY_FAILED, 011=INACTIVE, 100=VALIDATION_UNDERWAY bit 3 – If 1 indicates device is concentrator bit 4 – If 1 indicates destination device is concentrator bit 5:7 – Reserved		
BIND REQUEST		CMD:	0x0020
Send Bind Request to a Node Hosting a Binding Table		LEN:	Variable
Parameter	Description		
u8AddMode	0x01: uAddress is 16 bits address. 0x03: uAddress is 64 bits IEEE Address.		
uAddress	Short or IEEE address of destination node of request. This may or may not be the node holding the binding table.		
u64SrcAddr	IEEE address of the source node for the binding (client)		
u8SrcEPt	Binding source endpoint		
u16ClstrID	Cluster ID to match		
u8DstAddMode	0x01: DstAddress is 16 bits group address and the destination endpoint is omitted. 0x03: DstAddr is 64 bits IEEEAddress and the destination endpoint is included.		
u16DstAdd or u64DstAdd	Address of destination node of the bind request (server).		
u8DstEPt	Binding Destination endpoint		
For binding on the local node (set binding in local node binding table), set u8AddMode to 0x01, and uAddress to the destination address of the binding. Then set u64SrcAddr to the long address of the local node. Lastly, only u8DstAddMode 0x03 is supported, so use u64DstAdd and u8DstEPt. Example - Bind an OnOff client cluster on a device endpoint 1 to the coordinator endpoint 1: 0200201801<u16AddressOfDevice><u64IeeeOfdevice>01000603<u64IeeeOfCoordinator>01FF			

BIND RESPONSE		CMD:	0x1020
		LEN:	0x03
Parameter	Description		
u8Status	Status of Bind Request: 0x00: Success 0x01: Not Supported 0x02: Table Full 0x03-0xFF: Reserved		
u16SrcAddr	The message's source network address		
UNBIND REQUEST		CMD:	0x0021
Send Unbind Request to a Node Hosting a Binding Table		LEN:	Variable
Parameter	Description		
u8AddMode	0x01: uAddress is 16 bits address. 0x03: uAddress is 64 bits IEEE Address.		
uAddress	Short or IEEE address of destination node of request. This may or may not be the node holding the binding table.		
u64SrcAddr	IEEE address of the source node for the binding (client)		
u8SrcEPt	Binding source endpoint		
u16ClstrID	Cluster ID to match		
u8DstAddMode	0x01: DstAddress is 16 bits group address and the destination endpoint is omitted. 0x03: DstAddr is 64 bits IEEEAddress and the destination endpoint is included.		
u16DstAdd or u64DstAdd	Address of destination node of the bind request (server).		
u8DstEPt	Binding Destination endpoint		
Example - Unbind an OnOff client cluster on a device endpoint 1 to the coordinator endpoint 1: 0200201801<u16AddressOfDevice><u64IeeeOfdevice>01000603<u64IeeeOfCoordinator>01FF			
UNBIND RESPONSE		CMD:	0x1021
		LEN:	0x03
Parameter	Description		
u8Status	Status of Bind Request:		

	0x00: Success 0x01: Not Supported 0x02: Table Full 0x03-0xFF: Reserved			
u16SrcAddr	The message's source network address			
END DEVICE BIND RESPONSE			CMD:	0x1022
			LEN:	0x03
Parameter	Description			
u8Status	Status of Bind Request: 0x00: Success 0x01: Not Supported 0x02: Table Full 0x03-0xFF: Reserved			
u16SrcAddr	The message's source network address			
BIND TABLE REQUEST Request the binding table of a device			CMD:	0x0023
			LEN:	0x05
Parameter	Description			
u16DstAdd	Network address of the device generating the request			
u16Interest	Network address of the device of interest			
u8StartIdx	Starting index in the array list. Since the result may contain more entries than can be reported, this field allows retrieval of entries from anywhere in the array list.			
BIND TABLE RESPONSE			CMD:	0x1023
			LEN:	Variable
Parameter	Description			
u8Status	0x00: Success, Non-zero: Failure			
u16SrcAddr	The message's source network address			
u16BindCnt	Total number of entries available in the device			
u16StartIdx	Wherein the total number of entries this response starts			
u16BndLstCnt	Number of entries in this response			
sBindList[]	An array of BindList items formatted as follows: <u64SourceAddress><u8SourceEndpoint><u16ClusterID> <u8DstAddrMode> Plus: a) If u8DstAddrMode == 3: <u64DstAddress><u8DstEndpoint>			

		b) Else: <u16DstAddress>	
OTA Server Use			
1) LOADING AN UPGRADE IMAGE (for Clients or for the Server itself) Request New Image Load – Image index parameter is a don't care. Server will respond with the allocated image index or an error if no space is available. Transfer blocks from the image with the Load Image Block Request command. Server will determine from the image header if the image is for a client or for itself.			
2) UPGRADING CLIENTS Verify the loaded client image with the Action Request 0x01 command. Then issue the Action Request 0x05 to cause an OTA new client image available message			
3) UPGRADING THE SERVER Issue an Action Request 0x04 to switch server images. Then issue a System Reset Request 0x00 (soft reset) to reboot the device into the new server image.			
OTA LOAD IMAGE BLOCK REQUEST Transfers an OTA image block to the CID flash		CMD:	0x0028
		LEN:	Variable
Parameter	Description		
u8ImageIdx	Index number of image.		
u32Offset	Offset of block from start of image file (in terms of number of bytes)		
u8BlockSize	Number of bytes in this block (1-224)		
u8Data[]	The data block itself.		
OTA LOAD IMAGE BLOCK RESPONSE		CMD:	0x1028
		LEN:	1
Parameter	Description		
u8Status	0x00: Success, Non-zero: Failure		
OTA ACTION REQUEST Performs specified OTA function		CMD:	0x0029
		LEN:	2
Parameter	Description		
u8OtaCmd	Action to be performed as follows: 0x00: Request new image load		

	0x01: Verify Client image loaded 0x02: Invalidate stored image 0x03: Erase image (parameter that follows is image index) 0x04: Server switch to new image 0x05: Notify clients of new image		
u8ImageIdx	Index number of image (0 – n).		
OTA ACTION REQUEST RESPONSE		CMD:	0x1029
		LEN:	10
Parameter	Description		
u8ImageIdx	Index number of image (0 – n).		
u8Status	0x00: Success, Non-zero: Failure		
u32ImgVer	Image version		
u16ImgType	Image type		
u16MfgID	Image manufacturer ID		
ZDP COMMAND NEGATIVE RESPONSE ZDP Request not sent error message		CMD:	0x90XX
		LEN:	Variable
Parameter	Description		
u16SrcAddr	The message’s source network address		
u16Interest	Network address of the device of interest		
u8Status	Non-Zero: Failure code (refer to Jennic’s ZBP stack document)		
CLUSTER COMMANDS General format for sending commands to a cluster		CMD:	0x0030
		LEN:	Variable
Parameter	Description		
u8Mode	Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 3 – If set, force APS security Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific. The manufacturer code is the first 16-bit field in the payload array. Bit 7 – If set, command applies across entire profile.		
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)		

u16DstAdd	Network address of the device being addressed
u8DstEP	Destination endpoint
u16ClstrID	Cluster ID being addressed
u8CmdID	Command identifier
<Variable>	Parameters (payload) specific to a command (or none)
NOTE: If the cluster/command combination is not found in the internal table of supported commands, any payload is sent unformatted. In this case, the application must put any included parameters in network notation (little endian)	
DEFAULT RESPONSE	
Default Cluster Response Message	
Parameter	Description
u8Mode	Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific. Bit 7 – If set, command applies across entire profile.
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as received in the response packet
u16SrcAdd	Network address of the source (responding) device
u8SrcEP	Source endpoint
u16ClstrID	Cluster ID
u8CmdID	0x0B – Default response command identifier
u8RspID	Command identifier of response
u8Status	Response status code
CLUSTER COMMAND NOT SENT RESPONSE	
API Failed to Send Command Response Message	
Parameter	Description
u8Mode	Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific. Bit 7 – If set, command applies across entire profile.
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as

	received in the response packet		
u16SrcAdd	Network address of the source (responding) device		
u8SrcEP	Source endpoint		
u16ClstrID	Cluster ID		
u8CmdID	Command identifier of response		
u8Status	Response status codes: 0x0A: Unsupported cluster command 0x14: Insufficient space (buffer allocation error) 0x2F: Software failure (unable to send message)		
General - READ ATTRIBUTES Read one or more Attribute Values from a Cluster		CMD:	0x0030
		LEN:	Variable
Parameter	Description		
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)		
u16DstAdd	Network address of the device being addressed		
u8DstEP	Destination endpoint		
u16ClstrID	Cluster ID being addressed		
u8CmdID	Command code: 0x00		
u8Attribs	Number of attributes in the list		
u16AttrLst[]	Attribute list containing the attributes to be read		
READ ATTRIBUTES RESPONSE Default Cluster Response Message		CMD:	0x1031
		LEN:	Variable
Parameter	Description		
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	Manufacturer Code as received in the packet (if bit 6 is set in u8Mode)		

u16SrcAdd	Network address of the source (responding) device
u8SrcEP	Source endpoint
u16ClstrID	Source Cluster ID
u8CmdID	0x01 – Read Attributes response command identifier
u8Attributes	Number of Attributes in the list
AttribRec[]	Array (list) of attribute records. Each record consists of: u16AttribID – Attribute identifier u8Status – Attribute read status (SUCCESS or UNSUPPORTED) u8DataType – Type of the attribute AttribData – Attribute data (variable depending on type)
General - WRITE ATTRIBUTES	
Write Attribute Values to a Cluster	
Parameter	Description
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)
u16DstAdd	Network address of the device being addressed
u8DstEP	Destination endpoint
u16ClstrID	Cluster ID being addressed
u8CmdID	Command code: 0x02
u8Attribs	Number of attributes in the list
u16AttrLst[]	Attribute list containing the attribute records to be written. Each record consists of: u16AttribID – Attribute identifier u8Type – Attribute data type AttribData – Attribute data (variable depending on type)
General - WRITE ATTRIBUTE UNDIVIDED	
Write Attribute Values to a Cluster	
Parameter	Description
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress

	(0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)		
u16DstAdd	Network address of the device being addressed		
u8DstEP	Destination endpoint		
u16ClstrID	Cluster ID being addressed		
u8CmdID	Command code: 0x03		
u8Attribs	Number of attributes in the list		
u16AttrLst[]	Attribute list containing the attribute records to be written. Each record consists of: u16AttribID – Attribute identifier u8Type – Attribute data type AttribData – Attribute data (variable depending on type)		
WRITE ATTRIBUTES RESPONSE		CMD:	0x1031
Write Attributes Response Message		LEN:	Variable
Parameter	Description		
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as received in the response packet		
u16SrcAdd	Network address of the source (responding) device		
u8SrcEP	Source endpoint		
u16ClstrID	Cluster ID		
u8CmdID	0x04 – Write Attributes response command identifier		
u8Attributes	Number of Attributes in the list		
AttribRec[]	Array (list) of attribute records. Each record consists of: u8Status – Attribute read status (SUCCESS or UNSUPPORTED) u16AttribID – Attribute identifier		
General - WRITE ATTRIBUTE NO RESPONSE		CMD:	0x0030
Write Attribute Values from a Cluster		LEN:	Variable

Parameter	Description
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)
u16DstAdd	Network address of the device being addressed
u8DstEP	Destination endpoint
u16ClstrID	Cluster ID being addressed
u8CmdID	Command code: 0x05
u8Attribs	Number of attributes in the list
u16AttrLst[]	Attribute list containing the attribute records to be written. Each record consists of: u16AttribID – Attribute identifier u8Type – Attribute data type AttribData – Attribute data (variable depending on type)
General - CONFIGURE REPORTING	
Configure Reporting Mechanism for Cluster Attributes	
	CMD: 0x0030
	LEN: Variable
Parameter	Description
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific. The manufacturer code is the first 16-bit field in the payload array.
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)
u16DstAdd	Network address of the device being addressed
u8DstEP	Destination endpoint
u16ClstrID	Cluster ID being addressed
u8CmdID	Command code: 0x06
u8AttribRecs	Number of attribute reporting configuration records
aAttrRptRec[]	List of attribute configuration records. Each record contains fields as specified below:

	<p>u8Dir – Indicates if values of the attribute are to be reported (0x00) or to be received (0x01)</p> <p>If 0x00, the minimum and maximum reporting interval fields are included in the payload, and the timeout period field is omitted. The record is sent to a cluster server (or client) to configure how it sends reports to a client (or server) of the same cluster.</p> <p>If 0x01, the timeout period field is included in the payload, and the minimum and maximum reporting interval fields are omitted. The record is sent to a cluster client (or server) to configure how it should expect reports from a server (or client) of the same cluster.</p>		
	u16AttribID – Attribute identifier		
	u8AttribTyp – Attribute data type		
	<p>u16MinItvl - Minimum interval, in seconds, between issuing reports of the specified attribute.</p> <p>If this value is set to 0x0000, then there is no minimum limit, unless one is imposed by the specification of the cluster using this reporting mechanism or by the applicable profile.</p>		
	<p>u16MaxItvl - Maximum interval, in seconds, between issuing reports of the specified attribute.</p> <p>If this value is set to 0xffff, then the device shall not issue reports for the specified attribute, and the configuration information for that attribute need not be maintained.</p>		
	<p>sRepChg - Minimum change to the attribute that will result in a report being issued.</p> <p>The type of this field is the same as that of the attribute. This field may be omitted for “discrete” data types such as Boolean and general data but must be included.</p>		
	<p>u16Timeout - Maximum expected time, in seconds, between received reports for the specified attribute.</p> <p>If more time than this elapses between reports, this may be an indication that there is a problem with reporting.</p> <p>If this value is set to 0x0000, reports of the attribute are not subject to timeout.</p>		
CONFIGURE REPORTING RESPONSE		CMD:	0x1031
		LEN:	Variable
Parameter	Description		

u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific. The manufacturer code is the first 16-bit field in the payload array.		
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as received in the response packet		
u16SrcAdd	Network address of the source (responding) device		
u8SrcEP	Source endpoint		
u16ClstrID	Cluster ID		
u8CmdID	0x07 – Configure Reporting response command identifier		
u8AttribRecs	Number of attribute status records		
AttribStRec[]	Array (list) of attribute status records. Each record consists of: u8Status – Attribute read status (SUCCESS or UNSUPPORTED) u8Direction – 0x00 if value of the attribute is reported, or 0x01 if received u16AttribID – Attribute identifier		
General - READ REPORTING CONFIGURATION		CMD:	0x0030
Read Reporting Configuration for Cluster Attributes		LEN:	Variable
Parameter	Description		
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)		
u16DstAdd	Network address of the device being addressed		
u8DstEP	Destination endpoint		
u16ClstrID	Cluster ID being addressed		
u8CmdID	Command code: 0x08		
u8AttribRecs	Number of attribute records		

sAttrRecs[]	List of attribute records. Each record has the following fields: u8Direction – 0x00 if value of the attribute is reported, or 0x01 if received u16AttribID – Attribute identifier		
READ REPORTING CONFIGURATION RESPONSE		CMD:	0x1031
		LEN:	Variable
Parameter	Description		
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as received in the response packet		
u16SrcAdd	Network address of the source (responding) device		
u8SrcEP	Source endpoint		
u16ClstrID	Cluster ID		
u8CmdID	0x09 – Configure Reporting response command identifier		
u8AttribRecs	Number of Attributes Reporting Configuration reports		
AttribReRec[]	List of attribute reporting records. Each record consists of: u8Status – Attribute read status (SUCCESS, UNSUPPORTED or UNREPORTABLE) u8Direction – 0x00 if value of the attribute is reported, or 0x01 if received u16AttribID – Attribute identifier u8Type – Attribute data type u16MinRepIntvl – Minimum reporting interval in seconds u16MaxRepIntvl – Maximum reporting interval in seconds uRepChange – Reportable change. Omitted for ‘discrete’ data types. u16Timeout – Timeout period		
REPORT ATTRIBUTES MESSAGE		CMD:	0x1031
Attribute Report Message from device bound <i>a priori</i>		LEN:	Variable

Parameter	Description
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as received in the response packet
u16SrcAdd	Network address of the source (responding) device
u8SrcEP	Source endpoint
u16ClstrID	Cluster ID
u8CmdID	0x0A – Report Attributes command identifier
u8AttribRecs	Number of Attribute records
AttribRec[]	Array (list) of attribute records. Each record consists of: u16AttribID – Attribute identifier u8DataType – Type of the attribute AttribData – Attribute data (variable depending on type)
General - DISCOVER ATTRIBUTES	
Discover Attribute Values from a Cluster	
Parameter	Description
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific..
u16MfrCode	Manufacturer Code (if bit 6 is set in u8Mode)
u16DstAdd	Network address of the device being addressed
u8DstEP	Destination endpoint
u16ClstrID	Cluster ID being addressed
u8CmdID	Command code: 0x0C
u16StartAttr	Specifies the value of the identifier at which to begin the attribute discovery
u8MaxAttr	Specifies the maximum number of attribute identifiers that are to be returned in the resulting discover attributes response command

DISCOVER ATTRIBUTES RESPONSE		CMD:	0x1031
Discover Attribute Values from a Cluster		LEN:	Variable
Parameter	Description		
u8Mode	0x92 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16MfrCode	If bit 6 of u8Mode is set, 16-bit Manufacturer Code as received in the response packet		
u16SrcAdd	Network address of the attributes source device		
u8SrcEP	Source endpoint		
u16ClstrID	Cluster ID		
u8CmdID	0x0D – Discover Attributes command identifier		
u8Number	Number of attributes in the list		
u8Complete	If 0x00, there are more attributes to be read. If 0x01, the list is complete		
AttrRec_t	List of attribute records. Each record consists of u16AttributeID and u8DataType.		
Basic Cluster - RESET TO FACTORY DEFAULTS		CMD:	0x0030
Cause a device to reset to its factory defaults		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the device being reset		
u8DstEP	Destination endpoint		
u16ClstrID	0x0000 - Basic Cluster ID		
u8CmdID	0x00 – Reset to defaults command identifier		
Identify Cluster - IDENTIFY		CMD:	0x0030
Request device to physically identify itself		LEN:	0x09
Parameter	Description		
u8Mode	0x12 Normally.		

	Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u8DstEP	Destination endpoint		
u16ClstrID	0x0003 – Identify Cluster ID		
u8CmdID	0x00 – Identify command identifier		
u16IDTime	Identify time in tens of seconds (0000 – FFFF)		
Identify Cluster - IDENTIFY QUERY REQUEST Request device's identification parameters		CMD:	0x0030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the device being identified		
u8DstEP	Destination endpoint		
u16ClstrID	0x0003 – Identify Cluster ID		
u8CmdID	0x01 – Identify Query command code		
IDENTIFY QUERY RESPONSE		CMD:	0x1030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16SrcAddr	Network address of device being identified		
u8SrcEndpoint	The source EndPoint. Represents the application endpoint the data.		
u16Cluster ID	0x0003 – Identify Cluster ID		
u8CmdID	0x00 – Identify Query response command code		
u16TimeOut	How long the device will continue to identify itself (in seconds). NOTE: No response When Time Out is '0'.		

Groups Cluster - ADD GROUP		CMD:	0x0030
		LEN:	Variable
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0004 – Group Cluster ID		
u8CmdID	0x00 – Add group command ID		
u16GroupID	Group ID		
u8GrpNmLen	The number of bytes in the name array		
u8GrpName[]	The name array (Max=16 bytes)		
ADD GROUP RESPONSE		CMD:	0x1030
		LEN:	0x09
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16SrcAddr	Network address of device being identified		
u8SrcEndPnt	The source end point.		
u16ClstrID	0x0004 - Group Cluster ID		
u8CmdID	0x00 – Add group response command ID		
u8Status	0x00 for Success, or Failure code		
u16GroupID	Group ID		
Groups Cluster - VIEW GROUP		CMD:	0x0030
		LEN:	0x0A
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)		

	Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0004 - Group Cluster ID
u8CmdID	0x01 - View Group command identifier
u16GroupID	Group ID for this Scene
VIEW GROUP RESPONSE	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16SrcAddr	Network address of device being identified
u8SrcEndPnt	The source end point.
u16ClstrID	0x0004 - Group Cluster ID
u8CmdID	0x01 - View Group response command identifier
u8Status	0x00 for Success, or Failure code
u16GroupID	Group ID
u8GrpNmLen	The number of bytes in the name array
u8GrpName[]	The name array (Max=16 bytes)
Groups Cluster - GET GROUP MEMBERSHIP	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0004 - Group Cluster ID
u8CmdID	0x02 – Get Group Membership command identifier
u8GroupCnt	Number of groups in the list

u16GrpLst[]	The group list of which device is a member		
GET GROUP MEMBERSHIP RESPONSE		CMD:	0x1030
		LEN:	Variable
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16SrcAddr	Network address of device responding		
u8SrcEndPnt	The source end point.		
u16ClstrID	0x0004 - Group Cluster ID		
u8CmdID	0x02 – Get Group Membership response command identifier		
u8Capacity	Remaining capacity of the groups list		
u8GroupCnt	Number of groups in the list		
u16GrpLst[]	The group list of which device is a member		
Groups Cluster - REMOVE GROUP		CMD:	0x0030
		LEN:	0x09
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0004 - Group Cluster ID		
u8CmdID	0x03		
u16GroupID	Group ID		
REMOVE GROUP RESPONSE		CMD:	0x1030
		LEN:	Variable
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress		

	(0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0004 - Group Cluster ID
u8CmdID	0x03 – Remove Group response command identifier
u8Status	0x00 for Success, or Failure code
u16GroupID	Group ID
Groups Cluster - REMOVE ALL GROUPS	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0004 - Group Cluster ID
u8CmdID	0x04 – Remove All Groups command identifier
Groups Cluster - ADD GROUP IF IDENTIFYING	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0004 - Group Cluster ID
u8CmdID	0x05 – Add Group if Identifying command identifier
u16GroupID	Group ID
u8GrpNmLen	The number of bytes in the name array
u8GrpName[]	The name array (Max=16 bytes)

Groups Cluster - ADD SCENE		CMD:	0x0030
		LEN:	Variable
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0005 – Scenes Cluster ID		
u8CmdID	0x00 – Add Scene command identifier		
u16GroupID	Group ID for this Scene		
u8SceneID	Scene ID		
u16Transition Time	Time to transition to this scene		
u8ScnNmLen	Length of the scene name array		
u8ScnName[]	Scene name array (Max=16 bytes)		
sExtFields	List of extension field sets, one per cluster		
ADD SCENE RESPONSE		CMD:	0x1030
		LEN:	0x09
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16SrcAddr	Network address of device being added with the scene		
u16Cluster ID	Scene Cluster ID		
u8CmdID	0x00 – Add Scene response command identifier		
u8Status	Indicates Success or Failure		
u16GroupID	The group ID for which this scene applies		
u8SceneID	Scene ID		
Scenes Cluster - VIEW SCENE		CMD:	0x0030
		LEN:	0x0A

Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0005 – Scenes Cluster ID		
u8CmdID	0x01		
u16GroupID	Scene Group ID		
u8SceneID	Scene ID		
VIEW SCENE RESPONSE		CMD:	0x1030
		LEN:	Variable
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16SrcAddr	Network address of device being identified		
u8SrcEndPnt	The source end point.		
u16ClstrID	0x0004 - Group Cluster ID		
u8CmdID	0x00 – Add group response command ID		
u8Status	0x00 for Success, or Failure code		
u16GroupID	Group ID		
u8SceneID	Scene ID		
u16Transition	Scene transition time		
u8ScnNmLen	Length of the scene name array		
u8ScnName[]	Scene name array (Max=16 bytes)		
sExtFields	List of extension field sets, one per cluster		
Scenes Cluster - REMOVE SCENE		CMD:	0x0030
		LEN:	0x0A
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress		

	(0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0005 – Scenes Cluster ID
u8CmdID	0x02
u16GroupID	Scene Group ID
u8SceneID	ID of scene to be removed
REMOVE SCENE RESPONSE	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the responding node
u8DstEP	Destination endpoint
u16ClstrID	Scene Cluster ID
u8CmdID	0x02 – Remove scene response command ID
u8Status	Indicates Success or Failure
u16GroupID	The group ID for which this scene applies
u8SceneID	Scene ID
Scenes Cluster - REMOVE ALL SCENES	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0005 – Scenes Cluster ID
u8CmdID	0x03 – Remove all scenes command

u16GroupID	Scene Group ID
REMOVE ALL SCENES RESPONSE	
CMD: 0x1030	
LEN: 0x08	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	Scene Cluster ID
u8CmdID	0x03 – Remove all scenes response command identifier
u8Status	Indicates Success or Failure
u16GroupID	Scene Group ID
Scenes Cluster - STORE SCENE	
CMD: 0x0030	
LEN: 0x0B	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0005 – Scenes Cluster ID
u8CmdID	0x04 – Store scene command ID
u16GroupID	Scene Group ID
u8SceneID	ID of scene to be stored
STORE SCENE RESPONSE	
CMD: 0x1030	
LEN: 0x09	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)

	Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	Scene Cluster ID		
u8CmdID	0x04 – Store scene response command ID		
u8Status	Indicates Success or Failure		
u16GroupID	Scene Group ID		
u8SceneID	ID of scene to be stored		
Scenes Cluster - RECALL SCENE		CMD:	0x0030
		LEN:	0x0B
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0005 – Scenes Cluster ID		
u8CmdID	0x05 – Recall scene command ID		
u16GroupID	Scene Group ID		
u8SceneID	ID of scene to be recalled		
Scenes Cluster - GET SCENE MEMBERSHIP		CMD:	0x0030
		LEN:	0x09
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0005 – Scenes Cluster ID		
u8CmdID	0x06 – Get scene membership command		
u16GroupID	Scene Group ID		

GET SCENE MEMBERSHIP RESPONSE		CMD:	0x1030
		LEN:	0x08
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0005 – Scenes Cluster ID		
u8CmdID	0x06 – Get scene membership response command		
u8Status	Indicates Success or Failure		
u8Capacity	Remaining capacity of the Scenes table		
u16GroupID	Scene Group ID		
u8Scenes	Number of scenes (omitted if u8Status is not Success)		
sScenes[]	Scene list (omitted if u8Status is not Success)		
On/Off Cluster - SEND OFF Send OFF Command to EndPoint		CMD:	0x0030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – On Off Cluster ID		
u8CmdID	0x00		
On/Off Cluster - SEND ON Send ON Command to EndPoint		CMD:	0x0030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)		

	Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – On Off Cluster ID		
u8CmdID	0x01		
On/Off Cluster - SEND TOGGLE Send TOGGLE Command to EndPoint		CMD:	0x0030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – On Off Cluster ID		
u8CmdID	0x02		
OnOff Cluster - SEND RELAY OFF Send OFF Command to specific relay		CMD:	0x0030
		LEN:	0x0A
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x10		
u8Unit	Unit (relay) number affected (0x01-0xFF)		
OnOff Cluster - SEND RELAY ON Send ON Command to specific relay		CMD:	0x0030
		LEN:	0x0A
Parameter	Description		
u8Mode	0x52 Normally.		

	Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x11		
u8Unit	Unit (relay) number affected (0x01-0x2F)		
On/Off Cluster - SEND RELAY TOGGLE Send TOGGLE Command to specific relay		CMD:	0x0030
		LEN:	0x08
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x12		
u8Unit	Unit (relay) number affected (0x01-0x2F)		
OnOff Cluster - SET RELAY PATTERN Sets state of the relays		CMD:	0x0030
		LEN:	0x0D
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x13		
u32RelayState	Relay pattern desired		

OnOff Cluster - GET RELAY PATTERN		CMD:	0x0030
Retrieves state of the relays (bit pattern)		LEN:	0x09
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x14		
RELAY STATUS RESPONSE		CMD:	0x1030
Response to commands that actuate the relays		LEN:	0x0B
Parameter	Description		
u8Mode	0x72 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)		
u16SrcAddr	Network address of device being identified		
u8SrcEndpoint	The source EndPoint. Represents the application endpoint the data.		
u16Cluster ID	0x0006 – OnOff Cluster ID		
u8CmdID	0x31 – Get relay status response command code		
u32Relays	Bit pattern with relay status. Bits set if relay is activated. Bit 0 is relay 1.		
OnOff Cluster - SET MODE ATTRIBUTE		CMD:	0x0030
Sets state of relays when in irrigation mode		LEN:	0x0A
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		

u8CmdID	0x15
u8RelayMode	Value to be put in Relay Mode attribute: Bits 3:0 –Active program 1-7. A value of zero indicates the default timer values are in use (no program is active) Bit 4 - Set when the unit is in Diagnostics mode Bit 5 - Set when the timers are enabled Bit 6 - Set when the unit in in irrigation mode. This will also set the timers enabled bit. Bit 7 - Set when the unit is disabled (not accepting commands other than enable)
OnOff Cluster - GET MODE ATTRIBUTE	
Retrieves the Relay Mode attribute value	
	CMD: 0x0030
	LEN: 0x09
Parameter	Description
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response
u16MfgID	Mfg. Code: 0x1075
u16DstAdd	Network address of the destination device
u8DstEP	Destination endpoint
u16ClstrID	0x0006 – OnOff Cluster ID
u8CmdID	0x16
RELAY MODE ATTRIBUTE RESPONSE	
Response to commands that request the Mode attribute	
	CMD: 0x1030
	LEN: 0x0A
Parameter	Description
u8Mode	0x72 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)
u16MfgID	Mfg. Code: 0x1075
u16SrcAddr	Network address of device being identified
u8SrcEndpoint	The source EndPoint. Represents the application endpoint the data.
u16Cluster ID	0x0006 – OnOff Cluster ID
u8CmdID	0x30 – Get Mode response command code
u8RelayMode	The Mode attribute:

	Bits 3:0 –Active program 1-7. A value of zero indicates the default timer values are in use (no program is active) Bit 4 - Set when the unit is in Diagnostics mode Bit 5 - Set when the timers are enabled Bit 6 - Set when the unit in in irrigation mode. This will also set the timers enabled bit. Bit 7 - Set when the unit is disabled (not accepting commands other than enable)		
OnOff Cluster – SKIP FORWARD IN PROGRAM Stops the current relay and turns on the next one when in a program		CMD:	0x0030
		LEN:	0x09
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x17		
OnOff Cluster – SKIP BACKWARD IN PROGRAM Stops the current relay and turns on the previous one when in a program		CMD:	0x0030
		LEN:	0x09
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x18		
OnOff Cluster – PROGRAM ON		CMD:	0x0030

Starts a program sequence		LEN:	0x0A
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x19		
u8Program	Program number to execute (0x01-0x0F). Set to zero to turn off any active program.		
OnOff Cluster - SET TIMER VALUES		CMD:	0x0030
Sets timer values for a given timer bank (array)		LEN:	VAR
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x1C		
u8Timer	Timer number being set (0x1-0xF)		
u8TimerCnt	Number of timers in the list (depends on model #)		
u16Timer[]	List of timer values. Each value is in 1/5 th of a second (200 milliseconds). For example, to set value to 1 minute, multiply 5 minutes by 60 seconds by 5. The result in hex is 300 or 0x012c in hex.		
OnOff Cluster – GET TIMER VALUES		CMD:	0x0030
Retrieve timer values for a given timer bank (array)		LEN:	0x0A
Parameter	Description		
u8Mode	0x52 Normally.		

	Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x1D		
u8Timer	Timer number requested: - 0x00: Default timers - 0x01 – 0x0F: Programs 1-16. If the timer number is (number of programs +1), the response will contain the time remaining for a given active zone.		
RELAY GET TIMERS RESPONSE		CMD:	0x1030
Response to commands that request the timer values		LEN:	VAR
Parameter	Description		
u8Mode	0x72 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)		
u16SrcAddr	Network address of device being identified		
u8SrcEndpoint	The source EndPoint. Represents the application endpoint the data.		
u16Cluster ID	0x0006 – OnOff Cluster ID		
u8CmdID	0x32 – Get Mode response command code		
u8Timer	Timer array being reported as follows: - 0x00: Default timers - 0x01 – 0x0F: Programs 1-16 - Number of programs + 1: Zone running timers (indicates time remaining for a given active zone.)		
u8TimerNum	Number of timers in the following array.		
u16Timers[]	Array of timer values. Each value is in 1/5 th of a second (200 milliseconds). For example, a value of 300 or hex 0x012c would correspond to 1 minute (300 divided by 5 divided by 60).		
OnOff Cluster - SET PUMP CONFIGURATION		CMD:	0x0030

Sets relays to use for pumps		LEN:	0x0B
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x1E		
u32Pumps	Bit pattern for relays to enable as pumps		
OnOff Cluster – GET PUMPS		CMD:	0x0030
Retrieve pumps relay pattern		LEN:	0x09
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x1F		
OnOff Cluster - GET PUMPS RESPONSE		CMD:	0x1030
Response to a pump configuration request		LEN:	0x0D
Parameter	Description		
u8Mode	0x72 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01)		
u16MfgID	Mfg. Code: 0x1075		
u16SrcAddr	Network address of responding device		
u8SrcEndpoint	The source EndPoint. Represents the application endpoint the data.		
u16Cluster ID	0x0006 – OnOff Cluster ID		

u8CmdID	0x33 – Get Pumps response command code		
u32Pumps	Pump configuration bit pattern		
OnOff Cluster - SET RELAY NAME Sets name for a given relay		CMD:	0x0030
		LEN:	VAR
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x20		
u8Relay	Number of relay being set (0x1-0x10)		
u8Size	Number of characters in the name array		
u8Name[]	Name string		
OnOff Cluster – GET RELAY NAME Retrieve name for a given relay		CMD:	0x0030
		LEN:	0x0B
Parameter	Description		
u8Mode	0x52 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response		
u16MfgID	Mfg. Code: 0x1075		
u16DstAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0006 – OnOff Cluster ID		
u8CmdID	0x21		
u8Relay	Number of relay for which name is requested (1-16)		
RELAY GET NAMES RESPONSE Response to commands that request the relay names		CMD:	0x1030
		LEN:	VAR
Parameter	Description		
u8Mode	0x72 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress		

	(0x02), or 16 bits GroupAddress (0x01)		
u16MfgID	Mfg. Code: 0x1075		
u16SrcAddr	Network address of responding device		
u8SrcEndpoint	The source EndPoint. Represents the application endpoint the data.		
u16Cluster ID	0x0006 – OnOff Cluster ID		
u8CmdID	0x34 – Get Mode response command code		
u8Relay	Number of relay for which name is reported		
u8Chars	Number of characters in the name array.		
u8Name[]	Name character array		
Level Control Cluster - MOVE TO LEVEL Device Moves from Current Level to Given Level		CMD:	0x0030
		LEN:	0x0A
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0008 – Level Control Cluster ID		
u8CmdID	0x00		
u8Level	The new level to move to (0x00 – 0xFF)		
u16TransTime	Time, in seconds, to move to the new level. If 0xffff then the time taken to move to the new level is by the <i>OnOffTransitionTime</i> attribute. If <i>OnOffTransitionTime</i> (optional) is not set, the device moves to its new level as fast as possible. If the device is currently powered off, the device shall move from its current level to the value given in the Level field, but shall not be powered on.		
Level Control Cluster - MOVE Move from Current Value Up or Down Continuously		CMD:	0x0030
		LEN:	0x09
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress		

	(0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0008 - Level Control Cluster ID		
u8CmdID	0x01		
u8MoveMde	The Move mode field shall be one of the non-reserved values as 0x00 = move Up, 0x01 = move Down, 0x02-0xff = Reserved		
u8Rate	Rate of movement in Steps per second. A Step is a change in the device's level of one unit.		
Level Control Cluster - STEP Step from Current Value Up or Down at Rate		CMD:	0x0030
		LEN:	0x0A
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0008 - Level Control Cluster ID		
u8CmdID	0x02		
u8StepMode	The Step mode field shall be one of the non-reserved values as 0x00 = move Up, 0x01 = move Down, 0x02-0xff = Reserved		
u8StepSize	The number of level units to step (0x00-0xff)		
u16TransTime	Specifies time to perform a single Step		
Level Control Cluster - STOP Stops an Active Level Control Command		CMD:	0x0030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		

u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0008 - Level Control Cluster ID		
u8CmdID	0x03		
Price Cluster - Publish Price (ESP Server to Client)		CMD:	0x0030
		LEN:	Variable
Parameter	Description		
u8Mode	0x32 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16DestAdd	Network address of the destination device		
u8DstEP	Destination endpoint		
u16ClusterId	0x0700 – Price Cluster ID		
u8CmdId	0x00 – Publish Price Command ID		
u32ProvdrId	Provider ID		
u8LabelLen	Length of the rate label string (max 12)		
sRateLabel	Rate label string		
u32IssrEvntId	Issuer Event ID		
u32UtcTime	Current time		
u8UnitOfMsr	Unit of measure		
u16Currency	Currency		
u8PriceTier	Price Trailing Digit in MSB and Tier Number in LSB		
u8TiersRgTier	Total number of Tiers and The Tier number. The Tier number in this and the previous field should match		
u32StartTime	Start time of the price event		
u16duration	Duration of the event in minutes		
u32Price	Price for the event		
u8PriceRatio	Price Ratio		
u32GenPrice*	Generation Price for the event		
u8GenPriceRatio*	Generation Price Ratio		
u32AltCostDelivered*	Alternate cost delivered		
u8AltCostUnit	Alternate cost units		

*		
u8AltCostTrDigit*	Alternate cost trailing digit.	
u8BlkThrshs*	Number of cost thresholds.	
u8PriceCntrl*	0x01 if Price acknowledgement required, 0x00 if not.	
Asterisked items are optional.		
Price Cluster – Get Current Price (Gateway Client to Server)		CMD: 0x0030
		LEN: 0x08
Parameter	Description	
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client	
u16DstAdd	Network address of the destination address	
u8DstEP	Destination endpoint	
u16ClstrID	0x0700 – Price Cluster ID	
u8CmdID	0x00	
u8Options	Command options (set to 1 for requestor Rx on when idle)	
Price Cluster – Get Scheduled Prices (Gateway Client to Server)		CMD: 0x0030
		LEN: 0x0C
Parameter	Description	
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client	
u16DstAdd	Network address of the destination address	
u8DstEP	Destination endpoint	
u16ClstrID	0x0700 – Price Cluster ID	
u8CmdID	0x01	
u32StartTime	Start time of the event	
u8Events	Number of events	
Price Cluster – Price Acknowledgement (Gateway Client to Server)		CMD: 0x0030
		LEN: 0x14

Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0700 – Price Cluster ID
u8CmdID	0x02
u32PrEventID	Provider event ID
u32IsEventID	Issuer event ID
u32AckTime	Price acknowledgement time
u8Control	Event control options applied
Price Cluster – Get Block Periods (Gateway Client to Server)	
Parameter	Description
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client
u16DstAdd	Network address of the destination address
u8DstEP	Destination endpoint
u16ClstrID	0x0700 – Price Cluster ID
u8CmdID	0x03
u32StartTime	Start time of the event
u8Events	Number of events
DRLC Cluster - Load Control Event (ESP Server to Client)	
Parameter	Description
u8Mode	0x32 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client

	Bit 6 – If set, message is manufacturer specific.		
u16DestAdd	Network address of destination device		
u8DstEP	Destination endpoint		
u16ClusterId	0x0701 – DRLC Cluster ID		
u8CmdId	0x00 – Load Control Event Command ID		
u32EventID	ID of the event		
u16DevClass	Device class for which the LCE command is initiated		
u8EnrolGroup	Utility enrolment group to which LCE command is issued		
u32StartTime	Start time of the event		
u16Duration	Duration of the event in minutes		
u8Criticality	The criticality level of the event		
u8CoolOffset	Cooling Temperature offset		
u8HeatOffset	Heating temperature offset		
u16CoolSP	Cooling temperature setpoint		
u16HeatSP	Heating temperature setpoint		
u8AvLdAdj	Average load adjustment percentage applied on the event		
u8DutyCycle	Duty cycle applied on the event		
u8EvtControl	Event control that indicates if randomization needs to be applied or not		
DRLC Cluster - Cancel Load Control Event (ESP Server to Client)		CMD:	0x0030
		LEN:	
Parameter	Description		
u8Mode	0x32 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16DestAdd	Network address of destination device		
u8DstEP	Destination endpoint		
u16ClusterId	0x0701 — DRLC Cluster ID		
u8CmdId	0x01 – Cancel Load Control Event Command ID		
u32EventId	Event Identifier that needs to be cancelled		
u16DevClass	Device class for which the LCE command is initiated		
u8EnrolGroup	Utility enrolment group to which LCE command is issued		
u8Cnclcontrol	If 0x00: cancel immediately. If 0x01: Use randomization		
u32EffTime	Effective cancellation time of the event		

DRLC Cluster - Cancel All Load Control Events (ESP Server to Client)		CMD:	0x0030
		LEN:	0x0B/0x09
Parameter	Description		
u8Mode	0x32 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16DestAdd	Network address of destination device		
u8DstEP	Destination endpoint		
u16ClusterId	0x0701 – DRLC Cluster ID		
u8CmdId	0x02 – Cancel All Load Control Events Command ID		
u8Cnclcontrol	If 0x00: cancel immediately. If 0x01: Use randomization		
DRLC Cluster – Report Event Status (Gateway Client to Server)		CMD:	0x0030
		LEN:	0x43
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0701 – DRLC Cluster ID		
u8CmdID	0x00		
u32EventID	ID of the event		
u8EventStatus	Event status reported		
u32StatTime	Time of the event status		
u8Criticality	The criticality level applied		
u16CoolSP	Cooling temperature setpoint		
u16HeatSP	Heating temperature setpoint		
u8AvLdAdj	Average load adjustment percentage applied on the event		
u8DutyCycle	Duty cycle applied on the event		
u8EvtControl	Event control applied		

u8SigntrType	Signature type		
s42Signature	Signature consisting of 42 bytes (non ZCL data type)		
DRLC Cluster – Get Scheduled Events (Gateway Client to Server)		CMD:	0x0030
		LEN:	0x05
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DstEP	Destination endpoint		
u16ClstrID	0x0701 – DRLC Cluster ID		
u8CmdID	0x01		
u32StartTime	Start time of the event		
u8Events	Number of events		
Message Cluster - Display Message (ESP Server to Client)		CMD:	0x0030
		LEN:	0x12 + Message Length
Parameter	Description		
u8Mode	0x32 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16DestAdd	Network address of the Destination device		
u8DstEP	Destination endpoint		
u16ClstrID	0x0703 – Message Cluster ID		
u8CmdID	0x00 – Display Message command ID		
u8MsgCntl	Message control bits as follows: Bits 1:0 = Transmit mode: 00-Normal Tx Only; 01-Normal and anonymous inter PAN Tx only; 10-Anonymous inter-PAN Tx only Bits 3:2 = Priority: 00-Low; 01-Medium; 10-High; 11-		

	Critical Bit 7 = Message confirmation required is 1.		
u32MessageId	Identifier for the Display Message command		
u32StartTime	Starting time of the message		
u16Duration	Duration in Minutes of the display message command		
u8MsgLen	Length of the message (50 max)		
u8Msg[]	Actual message based on the Message length parameter		
Message Cluster - Cancel Message (ESP Server to Client)		CMD:	0x0030
		LEN:	0x0E/0x0C
Parameter	Description		
u8Mode	0x32 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client Bit 6 – If set, message is manufacturer specific.		
u16DstAdd	Network address of the destination device		
u8DestEP	Destination endpoint		
u16ClstrID	0x0703 – Message Cluster ID		
u8CmdID	0x01 – Cancel Message command ID		
u32MessageId	ID of Message that is being cancelled		
u8MsgCntrl	Byte that indicates if message confirmation is required or not.		
Message Cluster – Get Last Message (Gateway Client to Server)		CMD:	0x0030
		LEN:	0x07
Parameter	Description		
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client		
u16DstAdd	Network address of the destination address		
u8DestEP	Destination endpoint		
u16ClstrID	0x0703 – Message Cluster ID		
u8CmdID	0x00		

Message Cluster – Message Confirmation (Gateway Client to Server)			CMD:	0x0030
			LEN:	0x0F
Parameter	Description			
u8Mode	0x12 Normally. Bits 0:1 - Indicate if DstAddr is 16 bits ShortAddress (0x02), or 16 bits GroupAddress (0x01) Bit 4 – If set, disable default response Bit 5 – If set, direction is from server to client			
u16DstAdd	Network address of the destination address			
u8DstEP	Destination endpoint			
u16ClstrID	0x0703 – Message Cluster ID			
u8CmdID	0x01			
u32MsgID	Message ID			
u32ConfTime	Message confirmation time			

Revision History

Date	Revision	Description
6/1/2011	1.0	Initial release
6/30/2011	1.1	Clarified optional APIs. Added error responses for ZDP and ZCL messages. Streamlined binding functions.
8/13/2011	1.2	Added to time setting API to deal with local time. Cleaned up “Configure Attribute Reporting” API.
8/30/2011	1.3	Changed Bind/Unbind API to include u64 binding destination and endpoint.
10/27/2011	1.4	Typos fixed. Added Bind table management.
12/13/2011	1.5	Added relay cluster commands
12/14/2011	1.5a	Cleaned up relay cluster commands
12/14/2011	1.6	Added relay cluster responses
12/14/2011	1.6a	Fixed description of set timers message
01/21/2012	1.7	Clarified On/Off timers get command/response
02/18/2012	1.8	Removed u8Flags from cluster commands. Cleaned up.
03/16/2012	1.9	Fixed description of binding table response
03/21/2012	1.10	Added section for unbind, separated from bind
03/28/2012	1.11	Merged SE version
04/16/2012	1.12	Added node registration documentation
04/17/2012	1.13	Cleaned up SE, Groups and Scenes API sections. New logo.
05/1/2012	1.14	Edits for SE support.
06/22/2012	1.15	Added OTA support.
07/15/2012	1.16	Added API to get active network table from any node. Added profile to extended ping API.
09/25/2012	1.17	Added API to obtain network or partner APS key.
10/01/2012	1.18	Simplified reduced API for Price
10/20/2012	1.19	Get APS Key request usable to look for specific IEEE
11/20/2012	1.20	Fixed typos. Cleaned up descriptions of Level commands.
02/24/2013	1.21	Refined OTA server APIs.
04/18/2013	1.22	New APIs for getting LQI and Routing tables

05/05/2013	1.23	Added to Ping API, obsoleted ext. ping and get network table.
07/10/2013	1.24	Corrected size of 9030 response, added bit in u8Mode to force APS security.
08/26/2013	1.25	Corrected description of bind/unbind destination parameter
08/23/2013	1.26	Corrected description of attribute record in Attribute Discovery response. Fixed Publish Price payload description.
04/08/14	1.27	Updated manufacturer specific commands of OnOff cluster.

Notes

1. Optional – Consult Smartenit if cluster is needed
2. Optional – Consult Smartenit if feature is needed