
# Sending Custom ZCL & ZDO Messages

# Overview

- In the RapidHA protocol, you can transmit custom ZCL & ZDO messages form the Host to the Module.
- These commands provides facilities for configuring the following:
    - Encryption Level of the message
    - Available Response Options
    - Custom sequence numbers
    - Requiring an APS ACK and more….
- This presentation will go over the basics of using these commands and also provide some real-world examples.

# Command Breakdown : ZCL Unicast Command

- We will use the ZCL Unicast Command for an example of deciphering the commands. Some commands may have less or may have more fields, all can be interpreted a similar fashion.
- Before we send our ZCL Unicast Command we will first need to build the frame, both the ZCL Unicast command fields and the custom ZCL message payload.
- To find the necessary command field, first go to the RapidHA Serial Protocol Homepage and then visit the 'Frame Payload Definition' Page.
- Here you will find the available RapidHA Frames and a description of their payload fields.

# Command Breakdown : ZCL Unicast Command cont.

Here we can see the description for the ZCL Unicast Command which we are using as our example.

| Byte Index | Field Name | Notes |
|---|---|---|
| 0,1 | Destination Node ID | |
| 2 | Destination Endpoint ID | |
| 3 | Local Endpoint ID | |
| 4,5 | Cluster ID | |
| …. | | |
| 13 | Payload Length | Length of our custom message |
| 14…n | Payload | Custom message fields |

# Building the ZCL Unicast Command

- From our table above we can see what data our command requires. For our payload we want to issue a ZCL Configure Reporting Command(0x06: From ZCL Spec) to our End Device
- Example building ZCL Unicast Command:

| Byte Index | Field Name | Data |
|---|---|---|
| 0,1 | Destination Node ID | 0xDDDD (IASZone Sensor ID) |
| 2 | Destination Endpoint ID | 0x01 |
| 3 | Local Endpoint ID | 0x01 |
| 4,5 | Cluster ID | 0x0500(IASZone Cluster) |
| …. | | |

# Building the ZCL Unicast Command cont.

| Byte Index | Field Name | Data |
|---|---|---|
| 12 | Command ID | 0x06 (ZCL Configure Reporting Command) |
| 13 | Payload Length | 0x08 |
| 14…n | Payload | 00 02 00 19 01 00 fe ff |

# Payload Breakdown

- ZCL Configure Reporting Command Payload Decoded: 00 02 00 19 01 00 fe ff
  - Direction: 0x00
  - Attribute Id: 0x0002(Zone Status Attribute)
  - Attribute Type: 0x19 (Bitmap 16)
  - Min Report: 0x0001
  - Max Report: 0xFFFE

Optional field: Depends on attribute type

# Full Frame

Full ZCL Unicast Command Frame with Frame Header.