

3-Series Appliance Module (4257050-RZHAC)

Tuesday, December 01, 2015
12:55 PM

Dongle IEEE Address:	00000000000000C0
3-Series IEEE Address:	000D6F0002F7F09B

1. Start the sniffer (COM33).
2. Connect the dongle (COM34) and open test tool.
3. Enable the AFDE and ZDP monitoring.

The screenshot shows a software interface for configuring and monitoring ZTC commands. On the left, the 'Command: ZTC-ModeSelectRequest' is selected. Below it, various parameters are listed with dropdown menus: UARTTxBlocking[1] (checked), MCPS[1] (DisableMode), MLME[1] (DisableMode), ASP[1] (DisableMode), NLDE[1] (DisableMode), NLME[1] (DisableMode), APSDE[1] (DisableMode), AFDE[1] (MonitorMode), APSME[1] (DisableMode), ZDP[1] (MonitorMode), and HealthCare[1] (DisableMode). On the right, the 'Record Macro' window displays the TX and RX packets. The TX packet is 'ZTC-ModeSelect.Request' with parameters: Sync (02), OpGroup (A3), OpCode (00), Length (08), UARTTxBlocking (01), MCPS (00), MLME (00), ASP (00), NLDE (00), NLME (00), APSDE (00), AFDE (02), APSME (00), ZDP (02), HealthCare (00), and CRC (A9). The RX packet is 'ZTC-ModeSelect.Confirm' with parameters: Sync (02), OpGroup (A4), OpCode (00), Length (01), Status (00), and CRC (A5).

4. Set channel.

The screenshot shows the software interface for configuring and monitoring ZTC commands. On the left, the 'Command: ZTC-SetChannelRequest' is selected. Below it, the 'Channel[1]' parameter is set to '0x0B'. On the right, the 'Record Macro' window displays the TX and RX packets. The TX packet is 'ZTC-SetChannel.Request' with parameters: Sync (02), OpGroup (A3), OpCode (13), Length (01), Channel (0B), and CRC (BA). The RX packet is 'ZTC-SetChannel.Confirm' with parameters: Sync (02), OpGroup (A4), OpCode (13), Length (01), Status (00), and CRC (B6).

5. Set PAN ID.

Command: NLME-SETRequest

NIBAttribute[1]	nwkPanId
iIndex[1]	0x00
iEntries[1]	0x01
iEntrySize[1]	0x02
nwkPanId[2]	0x1234

Record Macro

```

TX: NLME-SET.Request 02 A3 23 06 80 00 01 02 34 12 23
  Sync [1 byte] = 02
  OpGroup [1 byte] = A3
  OpCode [1 byte] = 23
  Length [1 byte] = 06
  NIBAttribute [1 byte] = 80 (nwkPanId)
  iIndex [1 byte] = 00
  iEntries [1 byte] = 01
  iEntrySize [1 byte] = 02
  nwkPanId [2 bytes] = 12 34
  CRC [1 byte] = 23

RX: NLME-SET.Confirm 02 A4 23 01 00 86
  Sync [1 byte] = 02
  OpGroup [1 byte] = A4
  OpCode [1 byte] = 23
  Length [1 byte] = 01
  Status [1 byte] = 00 (gSuccess)
  CRC [1 byte] = 86

```

Command: ZTC-GetPanIDRequest

Record Macro

```

TX: ZTC-GetPanID.Request 02 A3 14 00 B7
  Sync [1 byte] = 02
  OpGroup [1 byte] = A3
  OpCode [1 byte] = 14
  Length [1 byte] = 00
  CRC [1 byte] = B7

RX: ZTC-GetPanID.Confirm 02 A4 14 03 00 34 12 95
  Sync [1 byte] = 02
  OpGroup [1 byte] = A4
  OpCode [1 byte] = 14
  Length [1 byte] = 03
  Status [1 byte] = 00 (gSuccess)
  PanID [2 bytes] = 12 34
  CRC [1 byte] = 95

```

6. Start the network.

Command: ZTC-StartNwkExRequest

DeviceType[1] Device as ZC
 Startupset[1] Use working set
 Startupcontrolmode[1] Association

```

Record Macro
TX: ZTC-StartNwkEx.Request 02 A3 E7 03 C0 10 00 97
  Sync [1 byte] = 02
  OpGroup [1 byte] = A3
  OpCode [1 byte] = E7
  Length [1 byte] = 03
  DeviceType [1 byte] = C0 (Device as ZC)
  Startupset [1 byte] = 10 (Use working set)
  Startupcontrolmode [1 byte] = 00 (Association)
  CRC [1 byte] = 97
RX: ZTC-StartNwkEx.Confirm 02 A4 E7 01 00 42
  Sync [1 byte] = 02
  OpGroup [1 byte] = A4
  OpCode [1 byte] = E7
  Length [1 byte] = 01
  Status [1 byte] = 00 (gZbSuccess_c)
  CRC [1 byte] = 42
RX: ZDO_EventOccurred.Indication 02 A0 E6 01 00 47
  Sync [1 byte] = 02
  OpGroup [1 byte] = A0
  OpCode [1 byte] = E6
  Length [1 byte] = 01
  EventStatus [1 byte] = 00 (Device Initialized)
  CRC [1 byte] = 47
RX: ZDO_EventOccurred.Indication 02 A0 E6 01 01 46
  Sync [1 byte] = 02
  OpGroup [1 byte] = A0
  OpCode [1 byte] = E6
  Length [1 byte] = 01
  EventStatus [1 byte] = 01 (Device in Network Discovery State)
  CRC [1 byte] = 46
RX: ZDO_EventOccurred.Indication 02 A0 E6 01 03 44
  Sync [1 byte] = 02
  OpGroup [1 byte] = A0
  OpCode [1 byte] = E6
  Length [1 byte] = 01
  EventStatus [1 byte] = 03 (Device in Coordinator starting state)
  CRC [1 byte] = 44
RX: ZDO_EventOccurred.Indication 02 A0 E6 01 10 57
  Sync [1 byte] = 02
  OpGroup [1 byte] = A0
  OpCode [1 byte] = E6
  Length [1 byte] = 01
  EventStatus [1 byte] = 10 (Device in Coordinator Running state)
  CRC [1 byte] = 57
  
```

	Ln.	Timestamp	Time Delta	Ch.	Stack	Layer	Packet Information	MAC Src.	MAC Dst.	MAC Seq.
	1	10 15:40:46.495617	0.000000	11	ZigBee	MAC	Beacon Request		0xFFFF	13
	2	10 15:40:46.858497	0.362880	11	ZigBee	MAC	Beacon Request		0xFFFF	14
	3	10 15:40:47.221393	0.362896	11	ZigBee	MAC	Beacon Request		0xFFFF	15
🔒	4	47 15:41:02.504241	15.282848	11	ZigBee	NWK	Link Status	0x0000	0xFFFF	16
🔒	5	47 15:41:17.518193	15.013952	11	ZigBee	NWK	Link Status	0x0000	0xFFFF	17

7. Connect the plug, keep pressed the push button while it is plugged until the LED start blinking. The plug will start looking for open HA networks.

```

RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
  Sync [1 byte] = 02
  OpGroup [1 byte] = A0
  OpCode [1 byte] = CC
  Length [1 byte] = 01
  Status [1 byte] = 06 (gSSP_SecurityOff_c)
  CRC [1 byte] = 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 23 02 00 00 00 02 E6 0F 00 00 00 36 00 03 01 B4 00 00 01 01 D0 00 00 00 01 00 00 00 00 03 3E
99 FF 1F 00 40
RX: ZDP-NLME-PERMIT-JOINING.Confirm 02 A0 F9 01 00 58
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 00 00 00 00 00 00 00 00 00 00 00 00 64
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 29 02 00 00 00 02 E6 0F 00 00 00 06 00 09 02 FD FF 04 01 01 19 00 00 00 01 01 CB 00 00 00 00 01
00 00 00 00 09 F4 99 FF 1F 00 03

```



14	47	15:43:32.588209	15.020672	11	ZigBee	NWK	Link Status	0x0000	0xFFFF	26
15	47	15:43:35.699601	3.111392	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	82
16	48	15:43:36.202881	0.503280	11	ZigBee	ZDP	Management Permit Joining Request	0x0FE6	0xFFFF	83
17	47	15:43:36.217953	0.015072	11	ZigBee	ZDP	Management Permit Joining Response	0x0000	0x0FE6	27
18	5	15:43:36.219841	0.001888	11	ZigBee	MAC	Acknowledgement			27
19	55	15:43:36.225185	0.005344	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	84
20	55	15:43:36.228497	0.003312	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	84
21	5	15:43:36.230641	0.002144	11	ZigBee	MAC	Acknowledgement			84
22	48	15:43:36.245457	0.014816	11	ZigBee	ZDP	Management Permit Joining Request	0x0000	0xFFFF	28
23	45	15:43:36.272993	0.027536	11	ZigBee	APS	Acknowledgement	0x0FE6	0x0000	85
24	5	15:43:36.274817	0.001824	11	ZigBee	MAC	Acknowledgement			85
25	48	15:43:36.418305	0.143488	11	ZigBee	ZDP	Management Permit Joining Request	0x0000	0xFFFF	29
26	48	15:43:36.620385	0.202080	11	ZigBee	ZDP	Management Permit Joining Request	0x0000	0xFFFF	30
27	48	15:43:36.661041	0.040656	11	ZigBee	ZDP	Management Permit Joining Request	0x0FE6	0xFFFF	86
28	48	15:43:37.115633	0.454592	11	ZigBee	ZDP	Management Permit Joining Request	0x0FE6	0xFFFF	87
29	50	15:43:39.786497	2.670864	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	88
30	50	15:43:44.168705	4.382208	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	89
31	50	15:43:47.593521	3.424816	11	ZigBee	NWK	Link Status	0x0000	0xFFFF	31
32	50	15:43:48.406977	0.813456	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	90
33	50	15:44:02.594753	14.187776	11	ZigBee	NWK	Link Status	0x0000	0xFFFF	32
34	50	15:44:04.761665	2.166912	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	91
35	54	15:44:06.477073	1.715408	11	ZigBee	ZDP	Match Descriptor Request	0x0FE6	0xFFFF	92
36	54	15:44:06.502689	0.025616	11	ZigBee	ZDP	Match Descriptor Request	0x0000	0xFFFF	33
37	54	15:44:06.742865	0.240176	11	ZigBee	ZDP	Match Descriptor Request	0x0000	0xFFFF	34
38	54	15:44:06.914849	0.171984	11	ZigBee	ZDP	Match Descriptor Request	0x0000	0xFFFF	35
39	54	15:44:06.966177	0.051328	11	ZigBee	ZDP	Match Descriptor Request	0x0FE6	0xFFFF	93
40	54	15:44:07.429745	0.463568	11	ZigBee	ZDP	Match Descriptor Request	0x0FE6	0xFFFF	94
41	50	15:44:17.607873	10.178128	11	ZigBee	NWK	Link Status	0x0000	0xFFFF	36
42	50	15:44:19.993105	2.385232	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	95

8. Verify the active endpoints.

184	49	15:50:18.051578	0.232448	11	ZigBee	ZDP	Simple Descriptor Request	0x0000	0x0FE6	64
185	5	15:50:18.053530	0.001952	11	ZigBee	MAC	Acknowledgement			64
186	55	15:50:18.057930	0.004400	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	123
187	5	15:50:18.060090	0.002160	11	ZigBee	MAC	Acknowledgement			123
188	74	15:50:18.106090	0.046000	11	ZigBee	ZDP	Simple Descriptor Response	0x0FE6	0x0000	124
189	5	15:50:18.108858	0.002768	11	ZigBee	MAC	Acknowledgement			124

ZDP Transaction Sequence Number: 7

- ▲ Simple Descriptor Response: (28 bytes)
 - Status: [0x00] Success
 - NWK Address of Interest: 0x0FE6
 - Simple Descriptor Length: 24
 - ▲ Simple Descriptor: (24 bytes)
 - Endpoint: 0x01
 - Application Profile ID: [0x0104] ZigBee Home Automation
 - Application Device ID: [0x0100] Lighting: On/Off Light
 - Application Device Version: 0
 - Reserved: 0x0
 - Application Input Clusters Count: 7
 - ▲ Application Input Clusters List: (14 bytes)
 - Cluster 0: [0x0000] General: Basic
 - Cluster 1: [0x0003] General: Identify
 - Cluster 2: [0x0004] General: Groups
 - Cluster 3: [0x0005] General: Scenes
 - Cluster 4: [0x0006] General: On/Off
 - Cluster 5: [0x0B04] Electrical Measurement
 - Cluster 6: [0x0B05] Diagnostic
 - Application Output Clusters Count: 1
 - ▲ Application Output Clusters List: 0x0019
 - Cluster 0: [0x0019] General: OTA Upgrade

Command: ZDP-SimpleDescriptorRequest

DestAddress[2]	0x0000
NWKAddress[2]	0x0000
endPoint[1]	0x08

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TX: ZDP-SimpleDescriptor.Request 02 A2 04 05 00 00 00 00 08 AB
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSS-DATA.Indication 02 9E 01 24 02 00 00 00 02 00 00 00 00 04 00 04 09 00 00 08 00 00 00 FF 00 00 00 01 00 00 00 04
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 9D
RX: AFDE-MSS-DATA.Indication 02 9E 01 41 02 00 00 00 02 00 00 00 00 04 80 21 09 00 00 00 1C 08 04 01 00 08 02 03 00 00 03 00 00 10
07 00 00 03 00 04 00 06 00 08 00 00 03 00 10 00 00 00 FF 00 00 00 00 01 00 00 00 00 21 E4 90 FF 1F 00 2F
RX: ZDP-SimpleDescriptor.Response 02 A0 E4 20 00 00 00 1C 08 04 01 00 08 02 03 00 00 03 00 00 10 07 00 00 03 00 04 00 06 00 08 00 00
03 00 10 14
  Svc (1 byte) = 02
  OpGroup (1 byte) = A0
  OpCode (1 byte) = 84
  Length (1 byte) = 20
  Status (1 byte) = 00 (Success)
  NWKAddressOfInterest (2 bytes) = 00 00
  Length (1 byte) = 1C
  EndPoint (1 byte) = 08
  ApplicationProfileId (2 bytes) = 01 04
  ApplicationDeviceId (2 bytes) = 08 00
  ApplicationDeviceandVersionFlags (1 byte) = 02
  ApplicationNumberInClusters (1 byte) = 03
  InClusters (6 bytes) = [0000, 0003, 1000]
  ApplicationNumberOutClusters (1 byte) = 07
  OutClusters (14 bytes) = [0000, 0003, 0004, 0006, 0008, 0300, 1000]
  CRC (1 byte) = 12
RX: AFDE-DATA.Confirm 02 9E 00 11 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 11 9C

```

10. Bind "on/Off" (cluster 0x0006).

67	16:15:18.998119	0.437392	11	ZigBee	ZDP	Bind Request	0x0000	0x0FE6	189
5	16:15:19.000647	0.002528	11	ZigBee	MAC	Acknowledgement			189
55	16:15:19.006311	0.005664	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	250
5	16:15:19.008471	0.002160	11	ZigBee	MAC	Acknowledgement			250
47	16:15:19.055207	0.046736	11	ZigBee	ZDP	Bind Response	0x0FE6	0x0000	251
5	16:15:19.057111	0.001904	11	ZigBee	MAC	Acknowledgement			251

Command: ZDP-BINDRequest

DestAddress[2]	0x0FE6
SrcAddr[8]	0x00006F0002F7F098
SrcEndPoint[1]	0x01
ClusterId[2]	0x6
DestAddrMode[1]	0x03
DestAddr[8]	0xc0
DestEndPoint[1]	0x08

```

TX: ZDP-BIND.Request 02 A2 21 17 E6 0F 9B F0 F7 02 00 EF 0D 00 01 04 0B 03 C0 00 00 00 00 00 00 08 4D
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 1A 7E
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 22 02 00 00 00 02 E6 0F 00 00 00 21 80 02 0F 00 00 00 01 C5 00 00 00 01 00 00 00 02 F7 8E FF 1F 00 A6
RX: ZDP-BIND.Resp 02 A0 A1 01 00 00
  Sync (1 byte) = 02
  OpGroup (1 byte) = A0
  OpCode (1 byte) = A1
  Length (1 byte) = 01
  Status (1 byte) = 00 (SUCCESS)
  CRC (1 byte) = 00

```

11. Bind "temperature measurement" (0x0B04)

Command: ZDP-BINDRequest

DestAddress[2]	0x0FE6
SrcAddr[8]	0x00006F0002F7F098
SrcEndPoint[1]	0x01
ClusterId[2]	0x0B04
DestAddrMode[1]	0x03
DestAddr[8]	0xc0
DestEndPoint[1]	0x08

```

TX: ZDP-BIND.Request 02 A2 21 17 E6 0F 9B F0 F7 02 00 EF 0D 00 01 04 0B 03 C0 00 00 00 00 00 00 08 44
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 1D 79
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 22 02 00 00 00 02 E6 0F 00 00 00 21 80 02 10 00 00 00 01 C4 00 00 00 01 00 00 00 02 3F 99 FF 1F 00 67
RX: ZDP-BIND.Resp 02 A0 A1 01 00 00
  Sync (1 byte) = 02
  OpGroup (1 byte) = A0
  OpCode (1 byte) = A1
  Length (1 byte) = 01
  Status (1 byte) = 00 (SUCCESS)
  CRC (1 byte) = 00

```

450	67	16:19:36.892753	3.211584	11	ZigBee	ZDP	Bind Request	0x0000	0x0FE6	211
451	5	16:19:36.895281	0.002528	11	ZigBee	MAC	Acknowledgement			211
452	55	16:19:36.901809	0.006528	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	16
453	5	16:19:36.903969	0.002160	11	ZigBee	MAC	Acknowledgement			16
454	47	16:19:36.949137	0.045168	11	ZigBee	ZDP	Bind Response	0x0FE6	0x0000	17
455	5	16:19:36.951041	0.001904	11	ZigBee	MAC	Acknowledgement			17

12. Configure on/off reporting

535	56	16:27:02.633382	12.997776	11	ZigBee	ZCL	On/Off: Configure Reporting	0x0000	0x0FE6	248
536	5	16:27:02.635558	0.002176	11	ZigBee	MAC	Acknowledgement			248
537	55	16:27:02.669414	0.033856	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	53
538	5	16:27:02.671574	0.002160	11	ZigBee	MAC	Acknowledgement			53
539	49	16:27:02.713174	0.041600	11	ZigBee	ZCL	On/Off: Configure Reporting Respo...	0x0FE6	0x0000	54
540	5	16:27:02.715142	0.001968	11	ZigBee	MAC	Acknowledgement			54
541	45	16:27:02.723910	0.008768	11	ZigBee	APS	Acknowledgement	0x0000	0x0FE6	249
542	5	16:27:02.725734	0.001824	11	ZigBee	MAC	Acknowledgement			249
543	50	16:27:02.731494	0.005760	11	ZigBee	ZCL	On/Off: Default Response	0x0000	0x0FE6	250
544	5	16:27:02.733478	0.001984	11	ZigBee	MAC	Acknowledgement			250

Command: ConfigureReporting

DestAddressMode[1]: 0x02
 DestAddress[8]: 0x00000000000000f6
 DestEndPoint[1]: 0x01
 ClusterId[2]: 0x0004
 SrcEndPoint[1]: 0x08
 TxOptions[1]: 0x00
 Radius[1]: 0x05
 Count[1]: 0x01
 DirectionFirstAttr[1]: Direction0x00

FirstAttrData(Direction=0x00)

AttributeID[2]: 0x508
 AttributeDataType[1]: 8-bit Data
 MinReportingInterval[2]: 0x0014
 MaxReportingInterval[2]: 0x0020
 AttrLen[1]: 0x01
 ReportableChange[1][1]: 0x00
 DirectionSecondAttr[1]: Direction0x00

SecondAttrData(Direction=0x00)

AttributeID[2]: 0x0
 AttributeDataType[1]: No Data
 MinReportingInterval[2]: 0x0
 MaxReportingInterval[2]: 0x00ff
 AttrLen[1]: 0x01
 ReportableChange[2][1]: 0x00
 DirectionThirdAttr[1]: Direction0x00

ThirdAttrData(Direction=0x00)

AttributeID[2]: 0x0000
 AttributeDataType[1]: No Data
 MinReportingInterval[2]: 0x0000
 MaxReportingInterval[2]: 0x00ff
 AttrLen[1]: 0x01
 ReportableChange[3][1]: 0x00

Record Macro

```
TX: ConfigureReporting 02 70 06 2E 02 E6 0F 00 00 00 00 00 00 01 04 08 09 00 05 01 00 08 05 08 14 00 20 00 01 00 00 00 00 00 00 00 FF 00
01 00 00 00 00 00 00 00 FF 00 01 00 81
RX: ConfigureReporting 02 70 06 01 00 77
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 00 00 00 00 00 00 01 08 00 00 00 00 00 2A 47
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 27 02 00 00 08 02 E6 0F 01 04 01 04 0B 07 08 43 07 8D 00 08 05 00 00 01 BF 00 00 00 01 00 00 00
00 07 FE 99 FF 1F 00 AE
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 40 54 BC FF 1F 54 01 08 00 00 00 00 00 2B 5A
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 27 02 00 00 08 02 E6 0F 01 04 01 06 00 07 08 1C 0A 00 00 00 00 01 BE 00 00 00 01 00 00 00
00 07 6E 9B FF 1F 00 FE
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 40 54 BC FF 1F 54 01 08 00 00 00 00 00 2C 5D
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Time	Seq	Timestamp	Source	Destination	Protocol	Length	Source MAC	Destination MAC	Source Port	Destination Port	Details
640	56	16:30:51.964404	2.938624	11	ZigBee	ZCL	Electrical Measurement: Configure...	0x0000	0x0FE6	27	
641	5	16:30:51.966580	0.002176	11	ZigBee	MAC	Acknowledgement			27	
642	55	16:30:51.994612	0.028032	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	86	
643	5	16:30:51.996756	0.002144	11	ZigBee	MAC	Acknowledgement			86	
644	52	16:30:52.042132	0.045376	11	ZigBee	ZCL	Electrical Measurement: Configure...	0x0FE6	0x0000	87	
645	5	16:30:52.044180	0.002048	11	ZigBee	MAC	Acknowledgement			87	
646	45	16:30:52.047508	0.003328	11	ZigBee	APS	Acknowledgement	0x0000	0x0FE6	28	
647	5	16:30:52.049332	0.001824	11	ZigBee	MAC	Acknowledgement			28	
648	50	16:30:52.060532	0.011200	11	ZigBee	ZCL	Electrical Measurement: Default R...	0x0000	0x0FE6	29	
649	5	16:30:52.062516	0.001984	11	ZigBee	MAC	Acknowledgement			29	
650	50	16:30:58.060804	5.998288	11	ZigBee	NWK	Link Status	0x0FE6	0xFFFF	88	
651	55	16:30:58.398900	0.338096	11	ZigBee	NWK	Route Record	0x0FE6	0x0000	89	
652	5	16:30:58.401844	0.002144	11	ZigBee	MAC	Acknowledgement			89	
653	52	16:30:58.446388	0.045344	11	ZigBee	ZCL	On/Off: Report Attributes	0x0FE6	0x0000	90	
654	5	16:30:58.448436	0.002048	11	ZigBee	MAC	Acknowledgement			90	
655	45	16:30:58.452404	0.003968	11	ZigBee	APS	Acknowledgement	0x0000	0x0FE6	30	
656	5	16:30:58.454228	0.001824	11	ZigBee	MAC	Acknowledgement			30	
657	50	16:30:58.461268	0.007040	11	ZigBee	ZCL	On/Off: Default Response	0x0000	0x0FE6	31	
658	5	16:30:58.463252	0.001984	11	ZigBee	MAC	Acknowledgement			31	

▲ NWK Payload: (19 bytes)
 ↳ APS Header: 0x700801040B040100
 ▲ APS Payload: (11 bytes)
 ↳ ZCL Header: 0x064300
 ▲ ZCL Payload: 0x002000140B050800
 ▲ Attributes 0: 0x002000140B050800
 Direction: [0x00] Reported
 Attribute ID: [0x0508] RMS Current
 Attribute Data Type: [0x00] 8-bit D
 Minimum Reporting Interval: 20
 Maximum Reporting Interval: 32
 NWK MIC: 0x1FB9BEA4
 ▲ MAC Footer: 0xFFFF
 Frame Check Sequence: 0xFFFF

Serial Port

15. Toggle plug.

Command: OnOffCmd_SetState

DestAddressMode[1]: 0x03
 DestAddress[8]: 0x0000F0002F7098
 DestEndPoint[1]: 0x01
 ClusterId[2]: 0x0006
 SrcEndPoint[1]: 0x08
 TxOptions[1]: 0x00
 Radius[1]: 0x05
 Command[1]: 0x02

Record Macro

```
TX: OnOffCmd_SetState 02 70 50 10 03 9B F0 F7 02 00 6F 0D 00 01 06 00 08 00 05 02 C7
RX: OnOffCmd_SetState 02 70 50 01 00 21
Sync [1 byte] = 02
OpGroup [1 byte] = 70
OpCode [1 byte] = 50
Length [1 byte] = 01
Status [1 byte] = 00
CRC [1 byte] = 21
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 03 9B F0 F7 02 00 6F 0D 00 01 08 00 00 00 00 00 3A 43
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-MSG-DATA.Indication 02 9E 01 28 02 00 00 08 02 E6 0F 01 04 01 04 0B 08 08 26 0A 0B 05 29 DD 00 00 00 01 C3 00 00 00 01 00 00 00
00 00 08 15 54 FF 1F 00 21
RX: ZDP-APSME-ProcessSecureFrame.Confirm 02 A0 CC 01 06 6B
RX: AFDE-DATA.Confirm 02 9E 00 11 02 E6 0F 40 54 BC FF 1F 54 01 08 00 00 00 00 00 3B 4A
```

797	52	16:34:48.201426	0.027072	11	ZigBee	ZCL	On/Off: Report Attributes	0x0FE6	0x0000	132
798	5	16:34:48.203490	0.002064	11	ZigBee	MAC	Acknowledgement			132
799	53	16:34:48.206354	0.002864	11	ZigBee	ZCL	Electrical Measurement: Report At...	0x0FE6	0x0000	133
800	5	16:34:48.208434	0.002080	11	ZigBee	MAC	Acknowledgement			133
801	45	16:34:48.216178	0.007744	11	ZigBee	APS	Acknowledgement	0x0000	0x0FE6	78
802	5	16:34:48.218002	0.001824	11	ZigBee	MAC	Acknowledgement			78
803	50	16:34:48.225362	0.007360	11	ZigBee	ZCL	On/Off: Default Response	0x0000	0x0FE6	79
804	5	16:34:48.227346	0.001984	11	ZigBee	MAC	Acknowledgement			79
805	45	16:34:48.229906	0.002560	11	ZigBee	APS	Acknowledgement	0x0000	0x0FE6	80
806	5	16:34:48.231730	0.001824	11	ZigBee	MAC	Acknowledgement			80
807	50	16:34:48.238450	0.006720	11	ZigBee	ZCL	Electrical Measurement: Default R...	0x0000	0x0FE6	81
808	5	16:34:48.240434	0.001984	11	ZigBee	MAC	Acknowledgement			81