Digi XBee3® 802.15.4

RF Module

Migration Guide
## Contents

- **Introduction** ........................................................................................................... 3
- **What’s new** ............................................................................................................. 3
- **Specification considerations** ................................................................................. 3
- **Part number migration guide** ................................................................................ 5
- **Micro options - new to Digi XBee3 802.15.4** ......................................................... 5
- **Pin signals** ............................................................................................................... 5
- **Configuration** ......................................................................................................... 6
- **Digi XBee3 802.15.4 functional migration considerations** .................................... 6
  - Enhanced XCTU support ................................................................................................. 6
  - New AT commands ........................................................................................................ 6
  - Command default and ranges ...................................................................................... 7
  - Expanded channel selection ......................................................................................... 7
  - Clear Channel Assessment .......................................................................................... 7
  - Display output power ................................................................................................... 7
  - Energy Detect and Active Scan .................................................................................... 7
  - Maximum Payload command (NP) ............................................................................... 8
  - UART Parity .................................................................................................................. 8
  - UART Stop bits ............................................................................................................. 8
  - RS-485 support ............................................................................................................. 8
  - Expanded internal resistor coverage .......................................................................... 8
  - Enhanced I/O pin support ............................................................................................ 8
  - Voltage reference ....................................................................................................... 9
  - Input voltage sampling and overvoltage detection ....................................................... 9
  - Module temperature sampling ................................................................................... 9
  - I/O sample API output ................................................................................................. 9
  - Enhanced API frame support ....................................................................................... 9
  - Sleep configuration .................................................................................................... 9
  - Bootloader update support ......................................................................................... 10
  - OTA firmware update process ................................................................................... 10
- **Future updates** ...................................................................................................... 11
Introduction

Digi has updated and ported our XBee 802.15.4 firmware from the XBee/XBee-PRO 802.15.4 (S2C) hardware based on the SiLabs EM357 SoC, to the Digi XBee3 (Micro) hardware based on the SiLabs EFR32 SoC.

This guide assists you with migration to the new platform. While basic functionality and communication are similar and compatible, there are some differences to consider. This newer platform provides several major advantages over the existing platform, which we describe in this guide, along with other migration considerations.

What’s new

The Digi XBee3 802.15.4 introduces some new features such as:
- Addition of the “Micro” (MMT) form factor
- Firmware migration capability to Zigbee and DigiMesh™ protocols
- Lower operating receive current
- Increased power on channel 26 on the PRO and removal of the power cap on channel 26 for the non-PRO

Specification considerations

<table>
<thead>
<tr>
<th>XBee/XBee-PRO 802.15.4 (S2C) to Digi XBee3 802.15.4 (Micro).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Considerations</strong></td>
</tr>
<tr>
<td>Indoor/urban range</td>
</tr>
<tr>
<td>Outdoor RF line-of-sight</td>
</tr>
<tr>
<td>Transmit power output</td>
</tr>
<tr>
<td>Receive sensitivity</td>
</tr>
<tr>
<td>Operating current (transmit)</td>
</tr>
</tbody>
</table>
### XBee3 802.15.4

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Legacy XBee 802.15.4 (S2C)</th>
<th>New Digi XBee3 802.15.4</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating current</td>
<td>31 mA (boost mode)</td>
<td>15 mA</td>
<td>Improved</td>
</tr>
<tr>
<td>(receive)</td>
<td>28 mA (normal mode)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply voltage</td>
<td>2.1 – 3.6 V</td>
<td>2.1 - 3.6 V</td>
<td>Same</td>
</tr>
<tr>
<td>FCC ID</td>
<td>MCQ-S2C</td>
<td>MCQ-XBEE3</td>
<td></td>
</tr>
<tr>
<td>Industry Canada (IC) ID</td>
<td>1846A-XBS2C</td>
<td>1846A-XBEE3</td>
<td></td>
</tr>
</tbody>
</table>

- Improved operating current for receive mode.
- Same supply voltage and FCC ID.
- Customer will need to change the label on the end product to show the appropriate regulatory ID for the XBee3.

### XBEE-PRO ZB 802.15.4

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Legacy XBEE-PRO 802.15.4</th>
<th>New Digi XBEE3 802.15.4</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor/urban range</td>
<td>Up to 90 m (300 ft)</td>
<td>Up to 90 m (300 ft)</td>
<td>Same</td>
</tr>
<tr>
<td>Outdoor RF line-of-sight</td>
<td>Up to 3200 m (2 mi)</td>
<td>Up to 3200 m (2 mi)</td>
<td>Same</td>
</tr>
<tr>
<td>Transmit power output</td>
<td>63 mW (+18 dBm)</td>
<td>79 mW (+19 dBm)</td>
<td>Power on channel 26 is increased</td>
</tr>
<tr>
<td></td>
<td>Channel 26 max power is +1 dBm</td>
<td>Channel 26 max power is +8 dBm</td>
<td></td>
</tr>
<tr>
<td>Receive sensitivity</td>
<td>-101 dBm</td>
<td>-103 dBm</td>
<td>Better sensitivity</td>
</tr>
<tr>
<td>Operating current</td>
<td>120 mA @ 3.3 V, +18 dBm</td>
<td>135 mA @ +3.3 V, +19 dBm</td>
<td>Comparable</td>
</tr>
<tr>
<td>(transmit)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating current</td>
<td>31 mA (Boost mode)</td>
<td>15 mA</td>
<td>Improved</td>
</tr>
<tr>
<td>(receive)</td>
<td>28 mA (Normal mode)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply voltage</td>
<td>2.7 – 3.6 V</td>
<td>2.1 - 3.6 V</td>
<td>Larger voltage range</td>
</tr>
<tr>
<td>FCC ID</td>
<td>MCQ-PS2C</td>
<td>MCQ-XBEE3</td>
<td></td>
</tr>
<tr>
<td>Industry Canada (IC) ID</td>
<td>1846A-PS2CSM</td>
<td>1846A-XBEE3</td>
<td></td>
</tr>
</tbody>
</table>

- Improved operating current for both modes.
- Same transmit power output for channel 26.
- Same receive sensitivity.
- Same supply voltage.
- Customer will need to change the label on the end product to show the appropriate regulatory ID for the XBee3.
Part number migration guide

The following table shows which Digi XBee3 802.15.4 to migrate to depending on which XBee/XBee-PRO 802.15.4 (S2C) module you are currently using.

<table>
<thead>
<tr>
<th>S1 Part number</th>
<th>S2C part number</th>
<th>Description</th>
<th>Migrate to</th>
</tr>
</thead>
<tbody>
<tr>
<td>XB24-API-001</td>
<td>XB24CAPIT-001</td>
<td>Digi XBee3, 2.4 Ghz ZB 3.0, PCB Ant, TH MT</td>
<td>XB3-24Z8PT-J</td>
</tr>
<tr>
<td>XBP24-API-001</td>
<td>XBP24CAPIT-001</td>
<td>Digi XBee3 PRO, 2.4 Ghz ZB 3.0, PCB Ant, TH MT</td>
<td>XB3-24Z8PT</td>
</tr>
<tr>
<td>XB24-ASI-001</td>
<td>XB24CASIT-001</td>
<td>Digi XBee3, 2.4 Ghz ZB 3.0, SMA Ant, TH MT</td>
<td>XB3-24Z8ST-J</td>
</tr>
<tr>
<td>XBP24-ASI-001</td>
<td>XBP24CASIT-001</td>
<td>Digi XBee3 PRO, 2.4 Ghz ZB 3.0, SMA Ant, TH MT</td>
<td>XB3-24Z8ST</td>
</tr>
<tr>
<td>XB24-AUI-001</td>
<td>XB24CAUIT-001</td>
<td>Digi XBee3, 2.4 Ghz ZB 3.0, U.FL Ant, TH MT</td>
<td>XB3-24Z8UT-J</td>
</tr>
<tr>
<td>XBP24-AUI-001</td>
<td>XBP24CAUIT-001</td>
<td>Digi XBee3 PRO, 2.4 Ghz ZB 3.0, U.FL Ant, TH MT</td>
<td>XB3-24Z8UT</td>
</tr>
<tr>
<td>XB24-AWI-001</td>
<td>XB24CAWIT-001</td>
<td>XBee DigiMesh Wire whip</td>
<td>N/A</td>
</tr>
<tr>
<td>XBP24-AWI-001</td>
<td>XBP24CAWIT-001</td>
<td>XBee-Pro DigiMesh wire whip</td>
<td>N/A</td>
</tr>
<tr>
<td>XB24CARIS-001</td>
<td></td>
<td>Digi XBee3, 2.4 Ghz ZB 3.0, RF Pad Ant, SMT</td>
<td>XB3-24Z8RS-J</td>
</tr>
<tr>
<td>XBP24CARIS-001</td>
<td></td>
<td>Digi XBee3 PRO, 2.4 Ghz ZB 3.0, RF Pad Ant, SMT</td>
<td>XB3-24Z8RS</td>
</tr>
<tr>
<td>XB24CAPIS-001</td>
<td></td>
<td>Digi XBee3, 2.4 Ghz ZB 3.0, PCB Ant, SMT</td>
<td>XB3-24Z8PS-J</td>
</tr>
<tr>
<td>XBP24CAPIS-001</td>
<td></td>
<td>Digi XBee3 PRO, 2.4 Ghz ZB 3.0, PCB Ant, SMT</td>
<td>XB3-24Z8PS</td>
</tr>
<tr>
<td>XB24CAUIS-001</td>
<td></td>
<td>Digi XBee3, 2.4 Ghz ZB 3.0, U.FL Ant, SMT</td>
<td>XB3-24Z8US-J</td>
</tr>
<tr>
<td>XBP24CAUIS-001</td>
<td></td>
<td>Digi XBee3 PRO, 2.4 Ghz ZB 3.0, U.FL Ant, SMT</td>
<td>XB3-24Z8US</td>
</tr>
</tbody>
</table>

Micro options - new to Digi XBee3 802.15.4

<table>
<thead>
<tr>
<th>New part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XB3-24ARM-J</td>
<td>XBee3, 2.4 Ghz, 802.15.4, RF Pad Ant, MMT</td>
</tr>
<tr>
<td>XB3-24AUM-J</td>
<td>XBee3, 2.4 Ghz, 802.15.4, U.FL Ant, MMT</td>
</tr>
<tr>
<td>XB3-24ACM-J</td>
<td>XBee3, 2.4 Ghz, 802.15.4, Chip Ant, MMT</td>
</tr>
<tr>
<td>XB3-24ARM</td>
<td>XBee3 PRO, 2.4 Ghz, 802.15.4, RF Pad Ant, MMT</td>
</tr>
<tr>
<td>XB3-24AUM</td>
<td>XBee3 PRO, 2.4 Ghz, 802.15.4, U.FL Ant, MMT</td>
</tr>
<tr>
<td>XB3-24ACM</td>
<td>XBee3 PRO, 2.4 Ghz, 802.15.4, Chip Ant, MMT</td>
</tr>
</tbody>
</table>

Pin signals

The Digi XBee3 802.15.4 will be released in three different form factors, Surface Mount (SMT), Through Hole (TH), and the newly introduced XBee3 Micro (MMT). The SMT version is pin compatible with existing XBee/XBee-PRO 802.15.4 (S2C) SMT hardware. The TH version is pin compatible with existing XBee/XBee-PRO 802.15.4 (TH) through-hole hardware.
This hardware is drop-in replaceable. In order to fit all necessary pin connections on the XBee3 Micro, three pins on the SMT were removed and the remaining pins were shifted. These pins were unused on the SMT module. See the XBee3 Hardware Reference Manual for more information.

Configuration

The Digi XBee3 802.15.4 family of modules will enable the user to reconfigure the firmware as new protocol support is released. Other protocols available are Digi’s proprietary DigiMesh and Zigbee. Using XCTU, you can load the appropriate firmware to fit your current needs within the regulatory guidance of the region of deployment. See the XBee3 802.15.4 User Guide for more information.

Digi XBee3 802.15.4 functional migration considerations

The following enhancements have been made to the 802.15.4 XBees for the XBee3 platform:

Enhanced XCTU support

To improve usability within XCTU, AT commands have been rearranged and additional categories have been created.

Legacy X-CTU (5.2.8.10 and older) can be used for serial firmware updates only; no module configuration is available.

New AT commands

- **PP** - Output power level in dBm
- **SB** - UART Stop Bits
- **FT** - Flow control threshold
- **D9** - On/nSleep indicator
- **LT** - Association LED blink rate
- **TP** - Module temperature
- **%V** - Supply voltage
- **CK** - Configuration CRC
- **AO** - API Output Mode
- **AZ** - API Extended Options
- **AV** - Analog VREF Configuration
- **T8** - D8 Output Timeout
- **T9** – D9 Output Timeout
- **Q0** - P0 Output Timeout
- **Q1** – P1 Output Timeout
- **Q2** – P2 Output Timeout
- **VH** - Bootloader Version
- **NP** - Maximum Payload Length
- **IC** - Clear custom defaults
- **%F** - Set custom defaults
- **R1** - Restore factory defaults
Command default and ranges

The following AT commands have different defaults and/or ranges on the XBee3 compared to the S2C. This is to enhance existing functionality or to support new features.

<table>
<thead>
<tr>
<th>AT Command</th>
<th>S2C Default</th>
<th>S2C Range</th>
<th>XBee3 Default</th>
<th>XBee3 Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO</td>
<td>0</td>
<td>0 - 3</td>
<td>0</td>
<td>0 - 0x103</td>
</tr>
<tr>
<td>PR</td>
<td>0xFF</td>
<td>0 - 0xFF</td>
<td>0xFFFF</td>
<td>0 - 0xFFFFF</td>
</tr>
<tr>
<td>PD</td>
<td>0xFF</td>
<td>0 - 0xFF</td>
<td>0xFFFF</td>
<td>0 - 0xFFFFF</td>
</tr>
<tr>
<td>IC</td>
<td>0</td>
<td>0 - 0xFF</td>
<td>0</td>
<td>0 - 0x7FFF</td>
</tr>
<tr>
<td>SP</td>
<td>0</td>
<td>0 - 0x68B0</td>
<td>0</td>
<td>0 - 0x15F900</td>
</tr>
<tr>
<td>ST</td>
<td>0x1388</td>
<td>1 - 0xFFFF</td>
<td>0x7D0</td>
<td>0 - 0x36EE80</td>
</tr>
<tr>
<td>DP</td>
<td>0x3E8</td>
<td>1 - 0x68B0</td>
<td>0x3E8</td>
<td>1 - 0x15F900</td>
</tr>
<tr>
<td>CA</td>
<td>0x2C</td>
<td>0x28 - 0x50</td>
<td>0x41</td>
<td>0x28 - 0x64</td>
</tr>
<tr>
<td>BD</td>
<td>3</td>
<td>0 - 8</td>
<td>3</td>
<td>0 - 0xA</td>
</tr>
</tbody>
</table>

Expanded channel selection

The IEEE 802.15.4 standard allows for 16 channels to be used for communication: from 2.405 GHz (Channel 11) through 2.480 GHz (Channel 26).

On the previous XBee-PRO S1 802.15.4 and XBee-PRO S2C 802.15.4 modules, the range of available channels (via the CH command) was restricted on the PRO variant. This restriction is alleviated on the XBee3 and all 16 channels are available for use regardless of the variant.

For more information, see the XBee-PRO ZB 802.15.4 table.

If you are designing an application that will be interoperating with legacy S1 and/or S2C PRO modules, the CH parameter on the XBee3 needs to be within 0x0C and 0x17 to communicate.

Clear Channel Assessment

CCA (clear channel assessment) can be disabled by setting the CA parameter to 0. Doing so will reduce latency in noisy environments at a risk of data loss and causing interference.

The CCA threshold is set upon device initialization. Any change made to the CA parameter value must be written to flash using the WR command and will be used upon the next power cycle. Disabling CCA (CA = 0) can be done at runtime and does not require a reboot to take effect.

Display output power

The PP AT Command will return the operating power level of the device in dBm based on the current operating configuration. Boost Mode (PM) is no longer available, as both the Pro and Non-PRO variants of the XBee3 hardware have enhanced receive sensitivity.

Energy Detect and Active Scan

The Energy Detect (ED) and Active Scan (AS) commands no longer have adjustable scan durations, so the SD command has been removed. As such, the ED and AS commands no longer accepts a parameter to specify the scan duration.
The **ED** command in transparent mode (**AP = 0**) also now returns the detected energy levels delimited by commas instead of carriage returns (as was done on legacy products). This matches the output of **ED** on other XBee protocols. Remote **ED** AT commands are also now fully functional.

Some of the unused fields in the **AS** superframe have been populated with 0xFF by default. On the S1 and S2C, these unused fields are populated with a 0 value.

**Maximum Payload command (NP)**

Due to the complexity of determining the maximum payload size, an AT command was included to help facilitate this. The **NP** command can be queried to determine what the maximum achievable payload size is based on current configuration.

Note that this command assumes long addressing is used, which means utilizing short addressing will slightly increase the payload size.

**UART Parity**

The XBee3 802.15.4 supports the following serial communication parity bit modes:

- No parity bit (**NB = 0**)
- Even parity bit (**NB = 1**)
- Odd parity bit (**NB = 2**)

Support for mark parity has been removed.

**UART Stop bits**

It is now possible to specify the number of Stop bits used for incoming and outgoing UART frames. The **SB** command can be used to specify either one or two stop bits.

**RS-485 support**

RS-485 support can be enabled via the **D7** pin. When enabled, this will cause the CTS pin to assert high or low whenever data is transmitted on the UART, facilitating the half-duplex nature of RS-485.

**Expanded internal resistor coverage**

Internal pull-up/down resistors are expanded to cover the entire range of I/O lines. On the S1 and S2C firmware, the **PR** and **PD** commands only allow for internal pull-up/down resistors to cover the first 8 I/O lines. This has been expanded to cover all 20 I/O lines on the XBee3. Be aware that instead of an 8-bit value (max of 0xFF), **PR** and **PD** on the XBee3 support a 32-bit range of up to 0xFFFFF.

**Enhanced I/O pin support**

Due to the wide-sweeping changes made to I/O on the XBee3 802.15.4 firmware, please refer to the I/O support portion of the user guide for more information on compatibility and how to use the enhanced I/O support: [https://www.digi.com/resources/documentation/digidocs/90002273/Default.htm](https://www.digi.com/resources/documentation/digidocs/90002273/Default.htm)

Highlights are included below:

- Every I/O line (**D0 through D9, P0 through P9**) can now be set as a Digital Output high (4) or low (5).
- XBee3 802.15.4 now has support for up to 15 Digital Inputs.
- **D0 through D9** and **P0 through P4** can be set as Digital Inputs for I/O sampling and/or Digital I/O line passing.
• In order to take advantage of these inputs for sampling, **AO** must be set to 0 or 1 on the
sampling radio. The receiving radio must be an XBee3 in order to interpret the enhanced
I/O sample data packet.
• The API frame that gets output on the receiver is a 0x92 API frame when configured in this
way.
• S1 and S2C compatible support is enabled by default (the **AO** command is set to 2)
which will allow seamless integration of the XBee3 into a mixed network or
application that was designed for these devices. This does, however, restrict the
digital inputs to **D0** through **D8**.
• The number of analog inputs is unchanged from the S2C 802.15.4. The four 10-bit ADC
lines are **D0** through **D3** when set to 2.

**Voltage reference**
The default ADC voltage reference changed from 1.2 V to 1.25 V.
The VREF pin from the XBee Series 1 is not supported by the XBee3 hardware and has been removed
from the Micro (MMT) form factor.
The ADC internal voltage reference can be set to 1.25 V, 2.5 V or VDD using the AT command **AV**.

**Input voltage sampling and overvoltage detection**
The **%V** AT command has been added and detects the input voltage over the range of hardware
supported input voltages (2.1V to 3.6V).
An overvoltage 0x8A modem status has been added to warn the user of VCC input voltages exceeding
the maximum rated 3.6 Volts. API mode (**AP** is set to 1 or 2) must be enabled to see this status message.

**Module temperature sampling**
The **TP** AT command has been added to return the current module temperature in degrees Celsius.

**I/O sample API output**
The XBee S1 and S2C 802.15.4 modules would output API frames for incoming I/O samples even when
operating in transparent interface mode (**AP** = 0). I/O sample frames on the XBee3 are suppressed when
in transparent mode. To output incoming I/O samples with the XBee3 802.15.4, an API interface mode
(**AP** = 1) or (**AP** = 2) must be used.
It is possible to suppress I/O sample frames when using I/O line passing if (**IU** = 0). In this case if the
source address of the incoming sample matches **IA** or (**IA** = 0xFFFF) then the I/O frame will be
suppressed. On the S1 and S2C, the IU command would suppress all I/O samples regardless of whether
they were being utilized for line passing or not.

**Enhanced API frame support**
Additional API frame support has been added and is configured with the **AO** command. When AO is
configured as either 0 or 1, this will output an API frame format that matches XBee DigiMesh and XBee
Zigbee. This allows for easy migration from these other software releases to the XBee3 802.15.4.
API support for the S1 and S2C is enabled by setting **AO** to 2. This is the default configuration of the
XBee3 802.15.4, which allows it to act as a drop-in replacement for existing deployments.
**AO** affects API frame output as follows:
Digi XBee3 802.15.4 functional migration considerations

<table>
<thead>
<tr>
<th>AO value</th>
<th>Incoming data packet</th>
<th>Incoming I/O sample data</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0x90 – Rx Frame</td>
<td>0x92 – I/O Sample</td>
</tr>
<tr>
<td>1</td>
<td>0x91 – Explicit Rx Frame</td>
<td>0x92 – I/O Sample</td>
</tr>
<tr>
<td>2 (default)</td>
<td>0x80 – 64-bit Rx Frame</td>
<td>0x82 – 64-bit I/O sample</td>
</tr>
<tr>
<td></td>
<td>0x81 – 16-bit Rx Frame</td>
<td>0x83 – 16-bit I/O sample</td>
</tr>
</tbody>
</table>

The XBee3 802.15.4 also supports receiving 0x10 and 0x11 transmit request frames. These frames are identical to XBee DigiMesh and XBee Zigbee firmwares, providing an easy migration path to 802.15.4 from applications built for those protocols.

Sleep configuration

- The XBee S1 and S2C 802.15.4 modules allowed DIO8 to trigger pin sleep when configured as disabled (D8 = 0) or digital input (D8 = 3). This could lead to some misleading device behavior since a disabled pin should not be providing functionality.
  The D8 pin can now be set as a peripheral (1) to provide pin sleep support. Pin sleep (SM = 1) now requires D8 be set as a peripheral and asserted before the module will sleep.
- Now, the XBee3 802.15.4 Cyclical sleep with pin wake will work as follows:
  The module will cyclically sleep while DTR is HIGH and will continue in its cyclic sleep patterns while DTR is held LOW. Beginning with version 2003 the module SM = 5 will behave as expected.
  Unlike past designs turning DTR LOW will not only keep the module for only ST but rather for the whole duration while DTR is kept LOW.
- Momentary wake has been added to D0 as a commissioning button option (D0 = 1). Pressing the commissioning button on a sleeping module will wake the device for 30 seconds.
- The bit field for SO has been updated to be more like other protocols. Setting bit 0x100 (bit 8) will now cause the XBee to stay awake for the complete ST time when cyclic sleep modes are enabled after the expiration of every SP period.
- SP determines the asynchronous cyclic sleep period, the same as S1 and S2C 802.15.4. However, on the XBee3, the indirect messaging coordinator will not hold messages for longer than 65 seconds, even if SP * 2.5 > 65 seconds.

Bootloader update support

The bootloader of the XBee3 can be updated in addition to the XBee application. The bootloader update can be performed serially or over the air. When the bootloader is updated serially, the XBee application is erased and must be reinstalled.

The bootloader can also be updated over the air. This is done by updating the XBee application and bootloader as a single image.

OTA firmware update process

The OTA firmware update process for the XBee3 802.15.4 is different than the process on the S2C. The XBee S1 did not have OTA firmware update capabilities. When performing an OTA firmware update, both the server and client nodes must be of the same type (XBee3 to XBee3, S2C to S2C).

The firmware image is sent in blocks using standard Zigbee Cluster Library (ZCL) frames. These frames are supported using the 0x11 Explicit Transmit Frame. The client device never goes offline. The image is simply stored in an internal flash slot of the module’s memory. Once the entire firmware file has been uploaded, the client can switch to the new firmware image. If at any point in the process the transfer was interrupted, the image will simply not pass a security check and the module will not boot into the new image and will continue operating using the existing image.
Future updates

For the most up-to-date information on what features and enhancements have been added in the XBee software, refer to the release notes that are included with each software update.