XBee S2C PRO NG Zigbee Release Notes

XBee S2C PRO NG Zigbee

Version A064 - (November 29, 2024)

INTRODUCTION

These release notes document changes made to the Zigbee firmware on the XBee S2C PRO NG RF modules

- Product Information
- Documentation
- Support

SUPPORTED PRODUCTS

- XBee-Pro S2C NG
  - XBP24CNG

KNOWN ISSUES

1. When Source Routing is enabled (**AR** !=0xFF): To send a source routed transmission, the application should send a Create Source Route API frame (0x21) to the XBee to create a source route in its internal source route table. After sending the Create Source Route API frame, the application can send data transmission or remote command request frames as needed to the same destination, or any destination in the source route. Once data must be sent to a new destination (a destination not included in the last source route), the application must first send a new Create Source Route API frame. If a Create Source Route API frame does not precede a data frame, route discovery will be used. If route discovery fails, transmit status errors may occur. The XBee can buffer one source route that includes up to 25 hops (excluding source and destination).

2. If a 0x21 Create Source Route frame is sent, a watchdog reset may occur during data transmission if the source route is longer than 21 hops and many-to-one route broadcasts are not being sent (**AR** = 0xFF). Source routing must be used with many-to-one routing.

3. If encryption is enabled and **KY** is set to a fixed value (non-zero) on routers which are configured as aggregators, doubly APS encrypted source routed packets may occur during association, which would fail to transmit beyond a sufficiently high hop count because the MAC command frame can only hold 127 bytes.

4. Energy Detect (**ED** command) does not currently accept a parameter value. If a parameter value is provided, the radio will reset unexpectedly. *[XBZBS2C-738]*

5. Upon startup, the output power level (**PL**) of the device will revert to the level set at when the module first formed/joined the network. To avoid excessive battery drain, ensure the desired **PL** parameter value is set before commissioning the node onto a network. *[XBZBS2C-780]*

6. If **P3** and **P4** are not configured for UART operation (**P3** and **P4** are not set to 1), the output state of these pins is not guaranteed and command mode will not be accessible through a serial break. Additionally, CTS will erroneously indicate that the UART is clear to send. *[XBZBS2C-619]*

7. Issuing a self-addressed remote AT command (0x17 frametype) will output a duplicate 0x97 command response frame that always indicates a 0x04 Tx Failure status. *[XBZBS2C-265]*

8. Regardless of the configuration of DIO8 (**D8**), if pin sleep is enabled (**SM** = 1 or 5) then DIO8 will be treated as a nSleep_Rq line and toggle sleep. *[XBZBS2C-577]*

9. If RTS is enabled (**D6** = 1) and deasserted upon boot, network operation will be disrupted until RTS is asserted. *[XBZBS2C-495]*

10. The first wake period when using cyclic sleep will be 500ms longer than subsequent wake periods. *[XBZBS2C-698]*

11. A module operating in API mode with escapes (**AP**=2) will still accept an API frame that has escaped characters that are not escaped. (e.g. 0x13) *[XBZBS2C-574]*

12. When issuing a remote commissioning button command (**CB1** command) to a sleeping end device, the radio will stay awake for the wake period duration (**ST** command) instead of the 30 second duration like that of pressing the physical commission button. *[XBHAWK-754]*

13. When a source route is broken, repairing the route to the end device will sometimes take extra retries, causing additional network traffic. *[XBHAWKZB-1735]*

UPDATE CONSIDERATIONS

XCTU (XBee Configuration and Test Utility) is recommended for updating the firmware of your radio module to the latest firmware version:www.digi.com/xctu

To invoke the bootloader for firmware updates through command mode, you should issue an 'AT%P 5441' which will enter bootloader and retain settings. If you do not include the 0x5441 parameter value, the radio will restore to default upon reset.

The following files are included in XBee S2C PRO NG RF firmware releases:

- Firmware
  - EBL: Firmware image for gateways and OEM serial updates
  - EHX: Encrypted firmware for Legacy X-CTU
  - EHX2: Encrypted firmware for XCTU-NG
  - MXI: X-CTU configuration file

UPDATE BEST PRACTICES

Digi recommends the following best practices:

1. Test the new release in a controlled environment with your application before you update production devices.
2. Unless otherwise noted, apply updates in the following order:
   1. Device firmware
   2. Modem firmware
   3. Configuration
   4. Application

Digi recommends Digi Remote Manager for automated device updates. For more information, go to https://www.digi.com/products/iot-platform/digi-remote-manager.
If you prefer manually updating one device at a time, follow these steps:

Serial firmware updates:
To retain device configuration, you must invoke the XBee bootloader by issuing an **%P** command with a parameter value of '0x5441'; this indicates to the XBee that network and configuration settings should be retained through the subsequent update.

You can also invoke the bootloader using hardware flow control lines which will not retain device configuration after the serial firmware update.

Interface with the bootloader at 115200 baud and transfer a /*.ebl firmware image as per the user guide.

An XBee MultiProgrammer is available for serial firmware updates in a production environment.

The XBee Network Assistant can be used to manage your network and optimize it's configuration prior to performing an OTA update.

TECHNICAL SUPPORT

Get the help you need via our Technical Support team and online resources. Digi offers multiple support levels and professional services to meet your needs. All Digi customers have access to product documentation. firmware, drivers, knowledge base and peer-to-peer support forums.

Visit us at https://www.digi.com/support to find out more.

CHANGE LOG - Zigbee

A064 - Digi XBee S2C PRO NG Zigbee (November 29, 2024)

- Zigbee Stack: EmberZNet 5.6.1.0 Zigbee-PRO stack
- SMT PRO hardware revision B
- This is a optional/recommended/required release

NEW FEATURES

- N/A

ENHANCEMENTS

1. Implemented a new option **DC** bit 6 Many-To-One response for remote devices to send an updated route record to the concentrator when the **AR** interval occurs. The route record responses are staggered over the remote node **NT** time period. For best coverage of route record responses it's recommended to enable the Low-Ram concentrator option **DO** bit 6.

2. Added logic to reject source routes being added to the source route table when the nodeID is zero. *[XBHAWKZB-1828]*

3. The Concentrator (**AR** setting is less 0xFF) will send a directed IEEE broadcast for a given node to respond with an updated route record when a route repair request occurs.

4. Added logic to the S2C to be able to use zero addressing when sending packets to XBEE3 coordinator setup as a distributed trust center network.

SECURITY FIXES

- N/A

BUG FIXES

1. Corrected the behavior of DIO7 (CTS) when configured for RS-485 mode. Now DIO7 encapsulates serial port transmissions by going high or low during those transmissions based on whether DIO7 is configured for 7 or 6 respectively. This was a particularly a problem after awakening from sleep. *[XBZBS2C-858]*

A063 - Digi XBee S2C PRO NG Zigbee (December 1, 2021)

- Zigbee Stack: EmberZNet 5.6.1.0 Zigbee-PRO stack
- SMT PRO hardware revision A

NEW FEATURES

- Initial Release

Release Notes Part Number: 93001357