DIGI INTERNATIONAL
9350 Excelsior Blvd, Suite 700
Hopkins, MN 55343, USA
+1 (952) 912-3444 | +1 (877) 912-3444
www.digi.com

Digi XBee 3 Global LTE Cat 4 Release Notes

Digi XBee 3 Global LTE Cat 4

Version 1181F (July, 2024)

INTRODUCTION

These are the release notes for Digi XBee 3 Global LTE Cat 4.

SUPPORTED PRODUCTS

- Digi XBee 3 Global LTE Cat 4

KNOWN ISSUES

1. In order for SMS receipt to work on Verizon Wireless, the SIM card must be configured for CDMA-less SMS.
2. The cellular component resets and network connectivity is briefly lost if TCP receive buffers become full. Workaround: avoid connecting to services which transmit 16 KB or more at a time. This will be fixed in a future release from the cellular component vendor. [XBCELL-8393]
3. SMS messages with payload size of 126 bytes or larger cannot be transmitted. This will be fixed in a future release from the cellular component vendor. [XBCELL-8469]
4. Network time (ATDT, time.time()) sometimes does not populate. If the presence of network time is critical, the workaround is to perform a full "safe shutdown" and reboot. [XBCELL-8417]
5. Cellular component firmware updates using delta files with the 0x2B API frame fail if **ATCP** is not set to 1. This will be fixed in a future release from the cellular component vendor. [XBCELL-8325]
6. A new TCP connection created quickly after a prior connection was closed may cause connectivity loss. Workaround: delay several seconds after any connection is closed before opening a new connection. This will be fixed in a future release from the cellular component vendor. [XBCELL-8491]
7. TCP connection attempts which receive a RST packet are reported as "connection timed out" rather than "connection refused". This will be fixed in a future release from the cellular component vendor. [XBCELL-8402]
8. Incoming connections to a TCP listener socket may fail if several client connections are already open. Workaround: avoid having multiple incoming connections open at once. This will be fixed in a future release from the cellular component vendor. [XBCELL-8332]
9. If bootloader version 2.3.2 is installed, and the XBee is forced into command mode via serial-break reset, and ATAC is executed within 500 milliseconds of boot, command-mode input preceding ATAC

may be executed twice. [XBCELL-10059]

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/Module 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: 1. Update to latest firmware from XCTU

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

1181F (July, 2024)

This is a recommended release.

NEW FEATURES

1. Added support for adding extra nameservers to be used for DNS. ATN3 allows for setting a tertiary nameserver. ATN4 allows for setting a quaternary nameserver. ATNS allows selection of which nameservers should be used. [XBCELL-6525]

2. Added support for specifying the timeout value for the ATGP command. The value is optional. If not specified, the default value of 2 minutes is used.
   ATGP no longer allowed in API mode, please use the GNSS request and response API packets instead. [XBCELL-10240]

BUG FIXES

1. Fixed a case where the XBee would report AI=0 but the underlying Internet connectivity had been lost. [XBCELL-10166]

2. In TCP transparent mode, if ATC0 is non-zero and either ATDL is 0.0.0.0 or ATDE is 0, attempted transmission of transparent-mode data when there is no "connected" client will now set ATCI to 2 (invalid destination), instead of FF (no known status). [XBCELL-10195]

3. When using `os.bundle` or executing from `.mpy` files, very deeply-nested code (classes and functions) or constant tuples now trigger `RuntimeError("maximum recursion depth exceeded")`. [XBCELL-10210]

4. Fix a case in MicroPython where `ble.gap_scan` could hang indefinitely. [XBCELL-10217]

5. Fixed issue with ATFOI (command used to update the modem firmware) so an error is reported right away if the hash value (sha256sum) is not 64 characters or contains non hexadecimal characters. [XBCELL-10259]

6. As a workaround for a TCP-related bug in the cellular component, the cellular component is now rebooted every 60 hours of uptime, or upon loss of network registration between 48 and 60 hours of uptime. [XBCELL-10223]

7. Ensure that API GNSS "Start Raw NMEA" requests execute indefinitely (until a "Stop Raw NMEA" request), as designed. [XBCELL-10314]

1181E (February, 2024)

This is a recommended release.

BUG FIXES

1. Fixed an issue with BLE bonding. Bonding information was not stored correctly. [XBCELL-9971]

2. Fixed a critical issue found with some of our customer devices where the firmware cannot be updated and files on the file system cannot be created or modified. This issue can only happen to devices that have flash ID beginning with `0xEF40`. The flash ID can be determined with the `AT!F` command.

   The same fix has been applied to the XBee 3 Bootloader, which is included with the XBee firmware .gbl file. Customers are strongly encouraged to install 1181E or newer so that the new bootloader version 2.3.2 (`ATVH = 232`) is installed. Bootloader version 2.3.2 is backward-compatible with older XBee firmware versions. [XBCELL-10001]

KNOWN ISSUES

1. Bluetooth bonding using LE Secure Connections is unreliable if neither the XBee nor the target device expose I/O capabilities. [XBCELL-10053]

1181C (December, 2023)

This is a recommended release.

NEW FEATURES

1. Updated MicroPython to version 1.20.0. This does change the bytecode format requiring recompilation of program code.

2. In MicroPython, `os.bundle()` now reserves 64 KiB of the XBee's internal flash. This is increased from 32 KiB on previous firmwares. [XBCELL-5885]

3. In MicroPython, the `phyconfig` method was added to GAP connection objects, allowing configuration of the Bluetooth PHY selection – the default 1M PHY, or 2M PHY (higher data rate but reduced range). [XBCELL-9793]

4. GNSS Only Airplane mode available with ATAM=2. Disables Cellular connections while keeping Location services (GNSS) available. [XBCELL-9737, XBCELL-9845]

5. In MicroPython, the `digi.ble.format_address` and `digi.ble.parse_address` functions have been added, to aid in converting BLE MAC addresses between a human-readable format (e.g. `"00:12:34:56:78:9A"`) and the 48-bit format presented by `gap_scan` and used in `gap_connect` (e.g. `b"\x00\x12\x34\x56\x78\x9A"`). [XBPY-1044, XBPY-1045]

6. To improve the reliability of the Digi Remote Manager SM/UDP Request Connect feature, the XBee no longer performs a UDP check-in with Digi Remote Manager if a TCP connection is already open, or if a datapoint/health metric upload will soon cause a TCP connection to be created. [XBCELL-9785]

7. The math module was added to MicroPython. [XBPY-1058]

   - Functions: acos, asin, atan, atan2, ceil, copysign, cos, degrees, exp, fabs, floor, fmod, frexp, isfinite, isinf, isnan, ldexp, log, log10, modf, pow, radians, sin, sqrt, tan, trunc
   - Constants: e, pi

BUG FIXES

1. In MicroPython, `os.bundle(None)` now performs a soft reboot of the REPL, to clear out stale data. [XBPY-1021]

2. Fixed an issue where the XBee would be unresponsive on boot if a non-default value is saved for `AT$0`, `AT$1` or `AT$2`. [XBCELL-9788]

3. Repeated BLE connect and disconnect cycles no longer stop the device from advertising. [XBCELL-9844]

4. Fixed an issue where interacting with the XBee BLE API service would disrupt the output of data received in transparent mode. [XBCELL-9913]

5. Fixed an issue where MicroPython would cause the XBee to crash when using callbacks or certain other features. [XBCELL-9916]

1181B (June, 2023)

This is a recommended release.

NEW FEATURES

1. Initial release
2. Key features:
   - Digital I/O support.
   - Analog Input support.
   - API & Transparent mode
   - AT command mode
   - By-pass to raw cellular module
   - SMS
   - TCP/UDP (up to ten sockets)
   - TLS/TCP (up to six socket)
   - Incoming connections
   - Carrier and bandmask configurations
   - MicroPython!

- On-device programmability to add local intelligence.
- Many examples in the Digi MicroPython Programmer Guide.
- AT commands for managing run-time behavior.
  - Filesystem support
    - ATFS command to access through AT command mode
    - API frames to access through API mode
    - MicroPython file interfaces for programmatic access
    - Supports filesystem access through Digi Remote Manager
    - Provides MicroPython module import support
    - Allows storage of TLS certificates for MicroPython
    - Secure encrypted file storage to protect MicroPython code and TLS private keys
  - Digi Remote Manager
  - Bluetooth Low Energy (BLE)
    - Send a subset of API frames to the XBee through the encrypted BLE API Service
    - Configure the XBee 3 Cellular using the Digi XBee Mobile app for Android and iOS.
    - Use MicroPython to scan for advertisements, connect to peripherals and interact with connected devices.
  - Low power modes
    - Deep sleep mode.
    - Pin sleep support.
    - Cyclic sleep support.
    - Airplane mode sleep support.
  - Digi TrustFence secure boot
  - Direct USB
  - SMS UTF-16/UCS-2 encoding support.
  - Able to operate on 2G, 3G and LTE networks.

KNOWN ISSUES

1. The XBee will be unresponsive on boot-up if a non-default value for AT$0, AT$1 or AT$2 is saved to flash (ATWR). Workarounds: update to newer XBee firmware, or apply AT$0/$1/$2 at runtime without performing ATWR. [XBCELL-9788]

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