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Digi XBee Cellular 3G Global Release Notes

Digi XBee Cellular 3G Global

Version 11316 (September 18, 2020)

INTRODUCTION

These are the release notes for Digi XBee Cellular 3G Global.

SUPPORTED PRODUCTS

- [Digi XBee Cellular 3G Global](#)

KNOWN ISSUES

1. By-pass mode is now deprecated and is not recommended for new designs.
2. Intermittent failure to go to sleep or wake up when using pin sleep with the SPI_nSSEL line while in SPI mode. [XBCELL-3100]
3. Transparent mode connections that are closed by timeout (TM value) will sometimes show different then expected CI values.
4. Receiving large UDP datagrams (> 1024 bytes) can cause the frame to be split into multiple API frames on the serial interface, with the second portion delayed. [XBCELL-3257]
5. If upgrading to version 11310 or later from a firmware prior to the 11310 release, you will need to reformat the file system using the ATFS FORMAT CONFIRM command or by calling `os.format()` from the MicroPython REPL.
6. Versions of XCTU earlier than 6.4.2 will error out at the end of a firmware update, due to the 35 second delay on first boot. Fix: Update to the latest version of XCTU.
7. It is not possible to interrupt the MicroPython autostart if the application performs a soft reset very quickly. Workaround: delay the soft reset by a second using `time.sleep(1)`. [XBPY-796]

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

11316 (September 18, 2020)

This is a recommended release.

NEW FEATURES

1. Added support in MicroPython for doing nonblocking socket connect() calls.
2. Added support for 4 digit short code SMS targets (P#, 0x1F frames and sms_send() in MicroPython)
3. Updated MicroPython to version 1.12. This does change the bytecode format requiring recompilation of program code.
4. The ER (for TCP) and ES (for UDP) AT commands have been added to allow override of the IP ports used for Remote Manager.
5. A command to specify Remote Manager idle timeout (ATMT) has been added. Remote Manager connections will be closed when there is no activity for this time. MT does not apply when persistent connections have been configured (ATMO bit zero is set).
6. The ATPG (Ping) command has been added to assist in network diagnostics.
7. Digi's version of MicroPython now allows for step sizes other than one in slicing bytes and string objects.
8. API frames have been added to provide filesystem access. See the documentation for further details.
9. The ATMU command was added, which reads the firmware revision number of the cellular component.

BUG FIXES

1. Fixed an issue in MicroPython where a select() call against a listen socket would always return return as 'writable'. Listen sockets are never writable. [XBCELL-5793, XBCELL-5796]
 2. Socket Status 0xCF API frames are now correctly generated if SPI mode was forced by holding DOUT low during boot. [XBCELL-6084]
 3. PWM output will now properly resume after coming out of sleep. [XBCELL-6140]
 4. Improved reliability of shutdown command and airplane mode. [XBCELL-5648, XBCELL-5676]
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11315 (February 19, 2020)

This is a recommended release.

NEW FEATURES

1. Added support for closing all open sockets when using the API Close Socket frame.
2. Add support for various line ending conventions in TLS/SSL certificates and keys.
3. The Reboot command in Digi Remote Manager will now cleanly shut down the cellular radio before rebooting device.
4. Added Cellular.shutdown command in MicroPython.
5. Added Clean Shutdown button (ATSD command) to XCTU firmware definition file.
6. Added username (ATCU) and password (ATCW) settings that are needed by some cellular carriers to authenticate and connect to the network.
7. Added PIN (ATPN) and PUK (ATPK) settings that are needed when using a locked SIM.
8. The ATSD (Shutdown) command now takes an optional parameter to reboot the XBee after shutting down.
9. The ATDB command now can take an optional parameter to get an uncached RSSI signal value.
10. In MicroPython, slice-assignment to arrays and bytearrays is now supported.
11. MicroPython has had the 'uselect' module added. This will allow cleaner asynchronous socket operations.
12. Added option to ATDO command to disable AT&T-specific configuration which sometimes causes issues while operating in Europe. [XBCELL-6003]

BUG FIXES

1. Fixed issue with ATDT reporting a time value that was far into the future/incorrect.
 2. ATPY^ now correctly interrupts a MicroPython script which has disabled keyboard interrupts using micropython.kbd_intr(-1). [XBPY-446]
 3. The MicroPython REPL no longer continuously prints "soft reboot" if autostart is disabled after the script starts and the script performs a soft reset. [XBPY-795]
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11313 (August 7, 2019)

This is a recommended release.

NEW FEATURES

1. A new family of socket operation API frames (Create, Connect, Close, Socket Status) have been added to increase the level of control and visibility into network connection creation and management.
2. The ATSD (Shutdown) command was added. You should use the ATSD command to safely shut down a device before removing power.
3. Over-The-Air (OTA) update notifications will be sent out as modem statuses. This applies to OTA XBee firmware updates.
4. The ATII command was added, which reads the IMSI (International Mobile Subscriber Identity) from the SIM.

BUG FIXES

1. Increase space available for phone numbers to accomodate full length international numbers including country code. [XBCELL-5110]
2. Extended blocking module entering sleep when performing Over-the-Air update to include the

image download phase. [XBCELL-5322]

11311 (April 12, 2019)

This is a recommended release.

NEW FEATURES

1. Cellular Network Time command (ATDT)
 - Reports the local time of the XBee device, if time has been synchronized with the network.
 - Read the number of seconds since Jan 1 2000 00:00:00 UTC, or an ISO 8601-formatted timestamp.
2. Enhanced support for Digi Remote Manager
 - Filesystem support
 - Upload, download, list and delete files remotely using the SCI File System service or File Management UI in Digi Remote Manager.
 - SM/UDP connection management
 - In order to minimize data charges for an inactive connection, the XBee will no longer maintain an active TCP connection to DRM. DRM will periodically be polled through Digi's SM/UDP protocol on an interval determined by the DF AT value (default of once per day). Requests to bring up and terminate a full-featured TCP connection can be made from DRM over SM/UDP.
 - The previous constantly connected behavior may be regained by setting bit-0 of the MO AT command.
 - See the documentation for additional details.
 - Configuration and status reporting
 - Read current settings, configure the XBee device, and read the XBee device's current status remotely.
3. Active Scan command (ATAS)
 - Scans for mobile cells in the vicinity and returns information about the cells in the service area of the XBee.

BUG FIXES

1. When SPI operation has been forced by holding DOUT/DIO13 pin 2 low while resetting the XBee, data arriving at the configured listening socket would be dropped. [XBCELL-4691]
 2. Keyboard interrupt at the MicroPython REPL only works when the interrupt byte appears first in a block of input. [XBCELL-4853]
 3. The RO parameter (packetization timeout) no longer applies when at the MicroPython REPL (AP = 4). [XBCELL-4853]
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11310 (November 2018)

This is a recommended release.

NEW FEATURES

1. User Data Relay Frame
 - Relay custom user data to and from MicroPython and the local interface.
2. MicroPython Features:
 - Flash upload mode now compiles and stores the code in the file system at /flash/lib/main.mpy.

- Cross compilation support using mpy-cross on a PC and uploading them to the file system.
- The XBee adds an os.compile() method to compile .py files into .mpy files on the device itself.
- The XBee adds an os.bundle() method to freeze multiple .mpy files into the device flash for execution in place to reduce heap usage.

BUG FIXES

1. Unable to delete mpy files from the file system after failing to import them. [XBCELL-219]
 2. Server certificates programmed previously on the system may still be used to authenticate servers despite configuration change or being removed from the file system. [XBCELL-3736]
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1130C (September 2018)

This is a recommended release.

BUG FIXES

1. Fixed issues with a memory leak when using TLS mutual authentication and additional sockets cannot be opened. [XBCELL-3861]
 2. Sequence to initially connect to cellular network improved. [XBCELL-4091]
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1130B (June 2018)

This is a recommended release.

NEW FEATURES

1. File system support
 - ATFS command to access through Command Mode
 - MicroPython file interfaces for programmatic access
 - Provides MicroPython module import support
 - Allows storage of TLS certificates for authentication
 - Secure encrypted file storage to protect MicroPython code and TLS private keys
 2. TLS Authentication
 - Accessed in MicroPython with the ussl.wrap_socket method
 - Configurable with the \$0/\$1/\$2 commands
 - Uses certificates stored on the filesystem
 - New API frame 0x23 to access multiple authentication profiles
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11309 (October 9, 2017)

This is a recommended release.

NEW FEATURES

1. Feature Highlights
 - MicroPython XBee Sleep Control.
 - Better integration between MicroPython and XBee Sleep modes.
 - API for entering low power modes.
 - MicroPython Secondary UART.
 - Configure DIO Lines to use as a second UART usable by MicroPython.

- I2C Master Support.
 - Pin 7 and 19 on the XBee can be used as an I2C Master bus by MicroPython.
- Incoming TCP/UDP connections.
- Incoming connections can be used with API, Transparent and MicroPython.
- PWM0/RSSI support.
- SPI.
 - The XBee can be configured as a SPI Slave device.

BUG FIXES

1. Failed socket attempts will no longer cause the modem to leave then rejoin the network. [XBCELL-3]
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11308 (June 8, 2017)

This is a recommended release.

NEW FEATURES

1. Initial release
2. Feature Highlights
 - MicroPython!
 - On-device programmability to add local intelligence.
 - Many examples in the Digi MicroPython Programmer Guide.
 - AT commands for managing run-time behavior.
 - Digital I/O support.
 - Analog Input support.
 - API & Transparent mode
 - AT command mode
 - Bypass to raw cellular modem
 - SMS
 - TCP/UDP (up to 7 sockets)
 - TLS/TCP (up to 4 sockets)
 - Deep sleep mode.
 - Pin sleep support.
 - Cyclic sleep support.
 - Airplane mode sleep support.
 - DNS lookup command (ATLA).
 - Domain names now supported in DL command.
 - Operating Destination Address (ATOD) support.
 - SMS UTF-16/UCS-2 encoding support.

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