

# XCTU Release Notes

## XCTU

### Version 6.5.1 (April 24, 2020)

## INTRODUCTION

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These are the release notes for XCTU, the configuration and testing tool for Digi International Inc. XBee® RF modules.

## SUPPORTED PRODUCTS

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### Operating systems

- Windows Vista/7/8/10 (32-bit or 64-bit versions)
- Mac OS X v10.6 and higher versions (64-bit only)
- Linux with KDE or GNOME window managers (32-bit or 64-bit versions)

### RF modules

- Digi XBee® 3 RF Module Family
  - XBee 3 Zigbee 3
  - XBee 3 DigiMesh 2.4
  - XBee 3 802.15.4
  - XBee 3 Cellular LTE CAT 1 AT&T
  - XBee 3 Cellular LTE CAT 1 Verizon
  - XBee 3 Cellular LTE-M/NB-IoT
- XBee/XBee-PRO® RF Module Family
  - XBee Cellular (LTE Cat 1 and 3G)
  - XBee/XBee-PRO SX
  - XBee 868LP SX
  - XBee/XBee-PRO 802.15.4
  - XBee/XBee-PRO ZB
  - Programmable XBee-PRO ZB
  - XBee/XBee-PRO ZB SMT
  - Programmable XBee-PRO ZB SMT
  - XBee-PRO 900HP
  - Programmable XBee-PRO 900HP
  - XBee-PRO XSC

- XBee-PRO 900
- XBee-PRO DigiMesh 900
- XBee/XBee-PRO DigiMesh 2.4
- XBee-PRO 868
- XBee Wi-Fi
- XBee 865LP
- Programmable XBee 865LP
- XBee Thread
- XTend® RF Module family
- XLR PRO radio solution
- XLR Module

## KNOWN ISSUES

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1. XCTU is not compatible with the following Digi RF devices:
  - XStream OEM RF modules family
  - XCite OEM RF modules family
2. XCTU includes a mechanism to avoid the computer to go to sleep automatically in Windows and MacOS systems when it is performing long duration tasks (i.e.: network discovery, range test, etc.). However, if you force the computer to sleep while XCTU is performing such tasks, the USB ports that XCTU was communicating with may become unresponsive after the system wakes from sleep. Furthermore, if you try to close the communication with them they could hang and they will not recover even if you close XCTU.  
If this happens, you must unplug and plug again the USB cable to restore the communication with the port. You can do this even while XCTU is running.
3. ZigBee local modules configured as End Devices will not be able to perform Network discovery in the Network working mode.
4. XLR PRO Radio Solution and programmable XBee radio modules do not support the recovery feature provided by XCTU.
5. UNIX-based operating systems allow you to open multiple instances of the same port. While Windows avoids this scenario, it can produce unexpected behaviors if you have the same port open simultaneously by different apps in Linux.
6. Cellular modem update over USB only works in Windows. In addition, it requires that the appropriate USB drivers are installed on the computer and the usage of either a Digi XBIB-CU-TH development board or own hardware that makes a USB port available to the PC.

## UPDATE CONSIDERATIONS

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Some versions are not upgradable through the built-in update system. In those cases, XCTU will ask you to download the full installer from the Digi website.

## UPDATE BEST PRACTICES

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There are two ways of getting this new version:

1. If you do not have XCTU installed on your computer, download and install the tool from the Digi website (<https://www.digi.com/xctu>).
2. If you already have XCTU installed on your computer, open the tool and wait until it notifies you about the new update. Then, follow the process to install the new version.  
You can manually check for updates at any time from *Help > Check for XCTU updates*.

You should always run the latest version of XCTU.

## TECHNICAL SUPPORT

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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

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### VERSION 6.5.1 (April 24, 2020)

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This is a recommended release.

#### NEW FEATURES

1. Added support in Profile Editor to attach a signed remote file system image. [XCTUNG-1985]
2. Added support for XBee 3 OTA firmware and file system upgrades with firmware version greater than x00A. [XCTUNG-2041]
3. Added new modem statuses to the 0x8A - Modem Status API frame. [XCTUNG-2007, XCTUNG-2026]
4. Added new statuses to the 0x98 - Delivery Status frames. [XCTUNG-1998]
5. Added new statuses to the 0xAE - Secure Session Response. [XCTUNG-1999]

#### ENHANCEMENTS

1. Added support to determine the maximum payload size for XBee 3 OTA transmissions. [XCTUNG-1995]

#### SECURITY FIXES

1. N/A

#### BUG FIXES

1. Fixed firmware update connection process only to show an error after all retries have been consumed when port is in use. [XCTUNG-2000]
2. Fixed an issue with the upgrade time in OTA upgrade responses for XBee 3. [XCTUNG-2002]
3. Fixed OTA update process so it does not allow transmissions with a wrong cluster ID. [XCTUNG-1994]

## **VERSION 6.5.0 (November 25, 2019)**

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This is a recommended release.

### **NEW FEATURES**

1. Added support for XBee 3 Cellular LTE Cat 1 Verizon modules.
2. Added a way to rate XCTU and collect usage information through a survey. [XCTUNG-1956, XCTUNG-1957]
3. Added new statuses to the 0x8A - Modem Status and 0x0B - Delivery Status frames. [XCTUNG-1978]

### **ENHANCEMENTS**

1. Improved the cellular modem update process, allowing the user to select which protocol to use in case the firmware supports both (USB and FOAT). [XCTUNG-1976]
2. Improved the auto-reset mechanism and added a preference to disable it. [XCTUNG-1804, XCTUNG-1952]
3. Added MicroPython as reason for not finding a module. [XCTUNG-1980]

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. Fixed an issue with the sequence numbers in ZCL responses. [XCTUNG-1975]
2. Fixed an issue that was causing a force reset when configuring any parameter with a value of 5. [XCTUNG-1981]
3. Fixed an issue that was causing an S2C Zigbee coordinator not to maintain network settings after a firmware update. [XCTUNG-1968]

## **VERSION 6.4.4 (October 2, 2019)**

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This is a recommended release.

### **NEW FEATURES**

1. Added support for secure sessions. [XCTUNG-1924]  
A secure session is a password-secured connection between two XBee nodes of a network (server and a client) where the pair can send and receive encrypted data that only they can decrypt to protect against external man-in-the middle attacks.  
XCTU includes support to configure the password of the server XBee device through a new Secure Session authentication dialog accessible from the configuration settings of the XBee device. Also, XCTU detects automatically when a secure session needs to be established with a remote XBee device in order to configure or communicate with it. When this happens, XCTU displays a dialog to enter the password of the remote XBee device (server) to authenticate with.
2. Added support for for modem update over USB to XBee 3 Cellular LTE CAT 1 and XBee 3 Cellular LTE-M/NB-IoT modules. [XCTUNG-1861]
3. Added support to configure XBee Multi Programmer pre and post scripts in the configuration profiles using the Profile Editor tool. These scripts are executed by the XBee Multi Programmer

application before and after programming each XBee module. [XCTUNG-1912]

4. Added support for Socket frames. [XCTUNG-1917]
  - 0x40 - Socket Create
  - 0x41 - Socket Option Request
  - 0x42 - Socket Connect
  - 0x43 - Socket Close
  - 0x44 - Socket Send (Transmit)
  - 0x45 - Socket SendTo (Transmit Explicit Data): IPv4
  - 0x46 - Socket Bind/Listen
  - 0xC0 - Socket Create Response
  - 0xC1 - Socket Option Response
  - 0xC2 - Socket Connect Response
  - 0xC3 - Socket Close Response
  - 0xC6 - Socket Listen Response
  - 0xCC - Socket New IPv4 Client
  - 0xCD - Socket Receive
  - 0xCE - Socket Receive From: IPv4
  - 0xCF - Socket State
5. Added support for Bluetooth unlock frames. [XCTUNG-1923]
  - 0x2C - Bluetooth Unlock
  - 0xAC - Bluetooth Unlock Response
6. Added a new setting to use the alternative serial library instead of the standard one. [XCTUNG-1862]
7. Added support to open firmware release notes that are released as PDF documents. [XCTUNG-1904]
8. Added new statuses to the 0x8A - Modem Status and 0x98 - Extended Modem Status frames.
9. Added a new option to safely shut down an XBee Cellular device (firmware definition must include this setting). [XCTUNG-1886]

## **ENHANCEMENTS**

1. Hide the 'Force the Cellular modem update' checkbox of the Update Firmware dialog if the target XBee Cellular device does not have a modem firmware image to update.
2. Improved the behavior of the auto-reset feature.
3. Computer's serial port parameters are updated automatically now if they do not match the parameters read from the XBee device.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Analog mask is now parsed correctly in IO sample frames. [XCTUNG-1903]
2. Profile Editor tool is now able to load legacy profiles (\*.pro and \*.xml) correctly. [XCTUNG-

1941]

3. Fixed an issue that was causing the headless version of XCTU to occasionally display a stack trace error when the execution of any command ended. Notice that the error printed was not causing any issue to the execution of the command. [XCTUNG-1910]
4. Throughput test is now executed correctly in encrypted networks. [XCTUNG-1879]
5. Fixed some graphic errors that appear when performing 2 simultaneous network scans of the same network. [XCTUNG-1916]

## **VERSION 6.4.3 (April 8, 2019)**

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### **NEW FEATURES**

1. Profile Editor tool.  
This tool allows you to create new profiles or load and edit existing ones. The main features provided by this tool include:
  - Create XBee profiles using the new Create profile wizard. This wizard can be also accessed through the Profile menu of the Configuration working mode view.
  - Load, inspect and edit existing XBee profiles.
2. Added support for OTA file system update to latest versions of XBee3 firmware (Zigbee 3.0, DigiMesh 2.4 and 802.15.4).
3. Added auto-reset feature (Windows Only). Now, instead of prompting the user to reset the device manually when required, XCTU will attempt to do the reset programmatically. If the process cannot be completed, the user will be prompted to reset the device manually. Note that this feature does not apply to S2/S2B devices.

### **ENHANCEMENTS**

1. Added flow control options into the MicroPython console tool. Updated the icon of the tool.
2. Improvements in the Frames Generator tool:
  - Added Zigbee 3.0 as selectable protocol. By default, the tool shows information for 'Zigbee 3.0' instead of 'Zigbee' legacy when the protocol 'All' is selected.
  - Frame '0x24 - Register Joining Device' displays different values depending on the selected protocol ('All'/'Zigbee 3.0' or 'Zigbee')
3. Changes related to profiles:
  - Profiles cannot be saved or loaded from the Firmware Explorer tool any longer. They can be managed from the 'Profile Editor tool' or the 'Configuration working mode view':
    - Profile Editor tool. Use this tool to create, inspect and edit profiles.
    - Configuration working mode view. From the Profile menu of this view you can, either create a new profile based on the configuration of the selected radio module, or apply a previously generated profile to that module, instead.
    - When loading a profile from the Configuration working mode view, it will be automatically applied to the selected radio module. This includes firmware, settings and file system.
    - If the profile to apply has file system attached, the file system of the radio module will be formatted prior to flashing the new one.
4. Extended the synchronization timeout with the remote radio module during a remote

firmware update.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed an issue when opening the connection in devices working in MicroPython REPL mode that was causing the REPL to stop responding.

## **VERSION 6.4.2 (November 7, 2018)**

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### **NEW FEATURES**

1. Created a dialog to configure the authentication in XBee3 devices with Bluetooth Low Energy support.
2. Added support for User Data Relay frames:
  - 0x2D - User Data Relay
  - 0xAD - User Data Relay Output

### **ENHANCEMENTS**

1. Applied extended error handling in Zigbee OTA firmware updates.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. N/A

## **VERSION 6.4.1 (September 24, 2018)**

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### **NEW FEATURES**

1. Firmware update process is now able to update the bootloader of the module too. If XCTU detects that a bootloader update is necessary, it notifies the user about that when performing the firmware update of the module.
2. Added support for OTA firmware update to latest versions of XBee3 DigiMesh 2.4 and XBee3 802.15.4 firmware.
3. Added support for XBee3 802.15.4 in the Spectrum Analyzer tool.
4. Added new modem statuses in the 0x8A - Modem Status API frame.
  - BLE Connect [32]
  - BLE Disconnect [33]
  - Bandmask Configuration Failed [34]

### **ENHANCEMENTS**

1. RX16 and RX64 IO packets now support multiple IO samples in the same packet.
2. Display 'N/A' instead of '0x19' when hardware version cannot be taken from bootloader during a firmware update process.

## SECURITY FIXES

1. N/A

## BUG FIXES

1. Fixed the console status indicator of the Consoles view tabs.
2. Serial port is now closed when the XBee USB device is detached from the computer and the port was open.
3. Fixed an issue (introduced in version 6.4.0 of XCTU) that was preventing the output of XCTU's CLI to be displayed in Windows.
4. Fixed some issues when executing the XCTU installer in unattended mode.

## VERSION 6.4.0 (June 15, 2018)

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## NEW FEATURES

1. File System Manager tool.  
This new tool allows you to manage the file system of radio modules attached to your computer. The main features provided by this tool include:
  - List folders and navigate through the file system of the radio module.
  - Transfer and download files from the radio module.
  - Rename, move and remove files and folders from the radio module.
  - Get SHA256 hash of a file from the radio module and compare it with a local file.
  - Re-format the file system of the radio module.
2. Added a new firmware indicator.  
When a radio module is not running the latest firmware version it can, a new control is displayed next to the name label of its information panel. If you click it, the Update firmware dialog is automatically opened for that radio module listing all the available firmware versions for it.
3. Added support for remote configuration through Secured Remote AT Command.
4. Added support for TLS in XBee Cellular.
5. Added support for 802.15.4 protocol in the 0x8B - Transmit Status API frame.

## ENHANCEMENTS

1. UI improvements for high-DPI displays.  
Windows machines with high-DPI displays are usually configured to scale the text and programs in order to make them more usable. This new version of XCTU improves the UI appearance and behavior of the tool for those systems.  
The feature uses a different JRE (Java Runtime Environment), so this update cannot be installed using the automatic update feature of XCTU. Instead, a new installation from scratch is required.
2. Added an extra step in the XCTU installer to install the USB RF drivers.
3. Removed the legacy firmware from the installer and added a way to download it when required.
4. Changed how bypass mode is set (aggressive bypass).



## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed an issue when saving a profile of XBee Cellular 3G modules.
2. Fixed a communication problem with the email server when sending feedback.

## **VERSION 6.3.14 (May 8, 2018)**

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### **NEW FEATURES**

1. Added support for 802.15.4 protocol in the following API frames:
  - 0x10 - Transmit Request
  - 0x11 - Explicit Addressing Command Frame
  - 0x90 - Receive Packet
  - 0x91 - Explicit Rx Indicator
  - 0x92 - IO Data Sample Rx Indicator

### **ENHANCEMENTS**

1. Improved the Serial Console and MicroPython Terminal tools to inherit the serial settings from the selected XBee module (if any).

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed an issue that was preventing a radio module to be recovered when it was configured in MycroPython mode.
2. Fixed the XBee Cellular modem firmware update process in MacOS.

## **VERSION 6.3.13 (April 4, 2018)**

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### **NEW FEATURES**

1. Added support for Digi XBee3 DigiMesh modules.
2. Added an option to reset the device settings when applying a profile.

### **ENHANCEMENTS**

1. Improved the cellular modem firmware update when the modem version cannot be read.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed some issues in the ZB3 OTA update when working with encrypted networks.

## **VERSION 6.3.12 (January 25, 2018)**

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## **NEW FEATURES**

1. Added support for Digi XBee3 802.15.4 modules.

## **ENHANCEMENTS**

1. Disabled the RTS button in the serial console when the flow control is hardware.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed some issues related to the Cellular modem firmware updates:
  - The Cellular modem firmware is also updated when recovering a radio module.
  - The Cellular mode (airplane, direct USB or bypass) is temporarily disabled when updating the firmware in order to read the modem version.
2. Fixed a problem causing the spectrum analyzer to fail with 802.15.4 modules in AT.

## **VERSION 6.3.11 (October 17, 2017)**

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### **NEW FEATURES**

1. Added support for XBee Cellular modem firmware updates.
2. Added support for new XBee Cellular variants.

### **ENHANCEMENTS**

1. Updated the default profile configuration values when saving profiles.
  - Radio firmware flash action: Flash if firmware is different
  - Attach Cellular modem firmware: Checked by default

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. N/A

## **VERSION 6.3.10 (September 28, 2017)**

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### **NEW FEATURES**

1. Configuration profiles format update.

Configuration profiles are now saved with the \*.xpro extension instead of \*.xml. When saving a profile, XCTU displays a Profile configuration dialog where you can configure some extra settings related to the profile:

  - Description: Include a little description about the profile that could help to identify it and its purpose.
  - Radio firmware: Allows you to configure some settings related to the radio firmware of the profile:
    - Radio firmware flash actions: You can set the action to perform with the radio firmware of

the profile. This action is used later by XCTU and other applications when loading the profile.

- Flash always. Radio firmware configured in the profile is always flashed in the radio module, it does not matter if the module already has the same radio firmware version flashed.
- Flash if firmware is different. Radio firmware configured in the profile is flashed in the radio module only if the radio firmware version of the module is different than the one configured in the profile.
- Do not flash firmware. Only settings configured in the profile are written in the radio module.
- Cellular firmware: For cellular devices, the profile configuration dialog allows you to attach the modem firmware to the profile.

Note: XCTU 6.3.10 maintains compatibility with the previous \*.xml profile format.

2. Added support for XBee NB-IoT modules.
3. Added support for Digi XBee3 Zigbee 3.0 modules.

## **ENHANCEMENTS**

1. N/A

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed some issues in several API frames:
  - 0x21 - Route command options field is now enabled and the default number of addresses is now 1.
  - 0x24 - Removed some deprecated documentation.
  - 0x8A - Added new Zigbee modem statuses.
  - 0xA1 - Default number of addresses is now 1.
2. XCTU now verifies that the fields 'Number of addresses' and 'Addresses' match for frames 0x21 and 0xA1.

## **VERSION 6.3.9 (July 31, 2017)**

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Internal release

## **VERSION 6.3.8 (May 18, 2017)**

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### **NEW FEATURES**

1. Added new MicroPython Terminal tool.  
This new tool allows you to communicate with the MicroPython stack of your radio module through the serial interface.
2. Added support for XBee Cellular 3G modules.
3. Added support for 868LP SX modules (beta).
4. Added support for Thread protocol (beta).

5. Added the following Thread specific API frames:
  - 0x1A - IPv6 Tx Request.
  - 0x1B - IPv6 Remote AT Command.
  - 0x1C - CoAP Tx Request.
  - 0x1D - CoAP Passthru Tx Response.
  - 0x1E - CoAP Passthru Tx Request.
  - 0x9A - IPv6 Rx Response.
  - 0x9B - IPv6 Remote AT Command Response.
  - 0x9C - CoAP Rx Response.
  - 0x9D - CoAP Passthru Rx Request.
  - 0x9E - CoAP Passthru Rx Response.
  - 0xA7 - IPv6 IO Data Sample Rx Indicator.
6. Added a new control type in the Frames generator tool to configure IPv4 and IPv6 parameters.
7. Added a new preference and option in the transparent/serial consoles to insert CR/LF, CR or LF.

## **ENHANCEMENTS**

1. Improved the scrolling behavior when using the mouse wheel in the Configuration working mode.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed a bug when parsing the RB parameter in XT09 firmware.
2. Fixed the payload length calculation in the Frames generator tool to include the null byte (0x00).
3. Fixed some issues in several API frames:
  - 0x89 - Fixed Frame ID description.
  - 0x8A - Updated some statuses.
  - 0x95 - Added RSSI field.

## **VERSION 6.3.7 (April 27, 2017)**

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Internal release

## **VERSION 6.3.6 (April 25, 2017)**

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Internal release

## **VERSION 6.3.5 (January 31, 2017)**

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## **NEW FEATURES**

1. Added a mechanism to force the re-installation of specific radio firmware versions.

## **ENHANCEMENTS**

1. N/A

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. N/A

## **VERSION 6.3.4 (December 7, 2016)**

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### **NEW FEATURES**

1. Added support for Cellular protocol.
2. Added a new General page within XCTU preferences to configure the guard time and command mode character. These values are used to enter command mode when the radio module operates in transparent (AT) mode.
3. Added support for Singapore region firmware.

### **ENHANCEMENTS**

1. Signal strength setting (DB) of Cellular radio modules has been complemented with a signal bars icon.
2. Calculator tool of Numeric bitfield settings supports up to 32 bytes now.
3. Updated the structure of some Wi-Fi protocol frames to be aligned with the documentation:
  - 0x28 - Renamed to 'Send Data Request' and updated some frame fields.
  - 0xB8 - Renamed to 'Send Data Response' and updated some frame fields.
  - 0xB9 - Updated some frame fields.
  - 0xBA - Changed the Status text setting by a combo setting.

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. N/A

## **VERSION 6.3.3 (September 5, 2016)**

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Internal release

## **VERSION 6.3.2 (August 19, 2016)**

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### **NEW FEATURES**

1. Added support for the DigiMesh 2.4 protocol in the S2C modules.
2. Added support for New Zealand region firmware.

### **ENHANCEMENTS**

1. Port configuration dialog within the Serial console tool is now resizable.
2. Add and Discover devices wizards dialogs are now blocked when the discovery process is started.

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. Fixed a bug that was resetting the flow control configuration of a radio module to 'None' when the 'Action required' dialog was displayed.
2. Fixed some issues in several API frames:
  - 0x28 - Fixed frame length calculation.
  - 0x89 - Fixed 'Delivery status' field name.
  - 0x8D - Updated the name of a duplicated 'Length' field.
  - 0xB9 - Fixed frame length calculation.

### **VERSION 6.3.1 (March 18, 2016)**

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#### **NEW FEATURES**

1. Added support for the 802.15.4 protocol in the S2C modules.

#### **ENHANCEMENTS**

1. Improvements in the Frames Generator tool:
  - Updated the list of supported frames in the XTend (DigiMesh) protocol.
  - Protocols are sorted alphabetically now.
2. Performed some improvements to adjust XCTU controls based on the size of the texts:
  - Most XCTU controls now fit the size of the texts they contain.
  - Some dialogs within XCTU are now resizable.
  - Added sashforms and scrolls to several tool dialogs.

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. Fixed a bug that was causing the API Console to stop parsing frames after receiving a 'Many to one Indicator' frame.
2. Fixed a bug that was avoiding XCTU to execute the recovery process correctly during a remote firmware update.

### **VERSION 6.3.0 (November 6, 2015)**

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#### **NEW FEATURES**

1. Command Line Interface (CLI) support.  
Added CLI support to XCTU. A new executable has been added within the installation path to execute the application in CLI mode without graphic interface. The following features are

supported within CLI mode:

- List ports. A list of serial and USB ports can be retrieved in command line mode.
  - Update firmware. Firmware of any radio device can be updated in this mode.
  - Load profile. Now it is possible to load profiles to connected devices through the CLI of XCTU.
2. Spectrum analyzer tool.  
XCTU includes a new tool used to test and measure the spectrum of the selected radio band. The analysis reports the noise level of each channel indicating its best, worst and average measure.
  3. Throughput tool.  
This new tool allows you to measure the maximum transfer ratio from one radio module to another in the same network. The Throughput tool offers 3 session modes and several payload configuration options to test different combinations.
  4. Added support to the following new radio modules:
    - XLR Module
    - XTR
    - SX
    - SX PRO
  5. Added a search box in the Radio Modules view that allows you to look for specific radio modules by MAC, name and other fields.
  6. Some numeric settings now include a value calculator helper control accessible through a button next to the units field.
  7. Added a new preference to initialize remote nodes discovered after a Network scan.
  8. Added support for reading and writing settings to programmable devices after resetting them.
  9. Added support to Hardware version 0x30.
  10. Added a mechanism to force settings writing when there are no changes in the Configuration working mode.
  11. Implemented a region check process before performing a firmware update or recovery of a radio module.

## **ENHANCEMENTS**

1. New Look & Feel and UI changes.  
The UI of XCTU has been modified displaying a plain and simpler look & feel. None of the controls have been moved or modified, so application workflow remains the same for every feature and tool.  
  
XCTU includes now a menu bar to access all the XCTU features, tools and working modes. All the menu items have a keyboard shortcut associated for a faster access to the features.  
  
A new page to configure the XCTU UI has been added to the preferences section. These settings allow you to configure the following options:
  - Texts (font) size of the application
  - Display or hide XCTU menu bar
  - Display texts in toolbars

- Toolbars size
2. Remote radio modules are also sorted when sorting devices in the Radio Modules view. They can be moved up and down too.
  3. Remote radio modules are also sorted when sorting devices in the Radio Modules view. They can be moved up and down too.
  4. AT and Serial consoles are now able to write packets greater than 1 Kbyte without problems.
  5. XBee API Console is now able to display invalid frames (filter must be configured accordingly).
  6. Firmware update button has been disabled for remote 802.15.4 radio modules.
  7. ttyACM ports are now displayed in the device discovery processes under Linux.
  8. The status bar of the application is now hidden automatically when there is not any process in progress.
  9. Added an extra step in the firmware update process of some modules to modify the baud rate and increase the transfer speed.
  10. Removed the information panel from all the XCTU consoles.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed the logged date of AT data packets when saving an AT console session.
2. Flow control is correctly configured in the local serial port when any serial setting is changed in the radio module.
3. Fixed a problem that was causing Range Test tool to be displayed as a blank window in some screen resolutions.
4. Discover SSIDs button of Wi-Fi radio modules is enabled now.
5. Fixed some issues in several API frames:
  - 0x21 - Fixed frame length.
  - 0x2A - Added reserved bit field.
  - 0xA1 - Fixed frame length.
6. XCTU consoles do not hang any longer when the module/port is configured with Hardware flow control.

## **VERSION 6.2.1 (June 16, 2015)**

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Internal release

## **VERSION 6.2.0 (May 8, 2015)**

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### **NEW FEATURES**

1. Linux support.  
Added support to Linux platform. XCTU is now able to be executed in Linux desktop environments running KDE or Gnome.
2. Serial Console tool.  
The Serial Console tool has been included within the Tools drop-down menu of the main



toolbar. This tool allows you to interact with your radio modules without having to discover and add them to the list of radio modules.

3. API Console frames filter.

Added a new frames filtering option in the API console in order to filter the frames of the table. These are the available options:

- Filter received frames
  - Filter all received frames
  - Filter frames received from a specific device
- Filter sent frames
  - Filter all sent frames
  - Filter frames sent to a specific device
- Filter by frame type

4. Firmware Release Notes Viewer.

Included a new feature that allows users to explore and read the Release Notes of the released XBee firmwares in all the firmware list controls.

5. Online documentation.

XCTU documentation has been moved to an online system to keep it up to date and facilitate its access outside XCTU. A PDF copy has been included in the tool to be able to access the documentation while working without internet connection.

6. Added a connection filtering option in the Network working mode toolbar to show/hide connections based on their quality.

7. Radio modules within the radio modules list can be sorted and moved using the new sorting option of the view.

8. Added a button in the radio modules view to clear the list of modules (remove all).

9. Added a text to display maximum estimated discovering time while discovering devices.

10. XCTU now configures the Number Base (CF) setting of XTend modules when reading and writing parameters.

11. Hardware version field is considered when updating the firmware file of a module.

12. Added 3 new graphics for the XLR, XTend Legacy and XTend DM radio modules.

13. Last used configuration is saved and loaded the next time any of these operations in performed:

- Add a device
- Discover devices
- Configure serial console

14. Added a warning before updating firmware if the new firmware does not have serial settings.

15. Added the possibility to specify serial port manually when adding a new device.

16. Added the possibility to specify the baud rate manually when adding a new device in Windows OS.

17. Added a byte count field to the 'Add data packet' dialogs of the AT and API consoles.

18. Added the total number of bytes to the Frames Generator and, to the text fields, the current number of used bytes next to the maximum.

19. Added a new preferences page to configure the Over-The-Air (OTA) firmware update timeout.

## ENHANCEMENTS

1. Consoles improvements.

Performed the following improvements in all the XCTU consoles:

- Added a control in the consoles toolbar to see and manage the serial port flow control lines.
- Added a new recording feature to XCTU consoles that allows you to record all the sent and received data in a log file with CSV format.
- Status icon of consoles tabs now changes depending on the status of the console to display the following actions: connected, disconnected, sending and receiving data.

2. Improved the tooltip behavior of the Show HEX button in AT packets viewer.

3. Cancel and Finish buttons are now displayed when adding devices in MacOS.

4. Release Notes format is now txt.

5. Removed the Device Cloud working mode from the application.

6. Allow transmit interval to be reduced to lower values than 100ms in the consoles.

7. Added a new security checker when updating the firmware of a module that verifies the file size.

8. Updated the texts of the info pop-up that appears when trying to write settings without any change made.

9. Changed the loading settings layout message to a more appropriate one.

10. Double-clicking a port in the Add device wizard will finish the process now.

11. When a console is disconnected it stops the periodic data write process if it was being executed.

12. When the console is recording, the console info icon changes to indicate it.

13. AT console scrolls correctly now when the sent/received text does not have line breaks.

14. Improved the speed at which settings are read in AT or transparent mode.

15. Remote parameters are no longer applied automatically when configuring remote devices.

16. Feedback form displays now a warning before closing the dialog if you made any change.

17. The NO parameter is now changed and restored later while scanning DigiMesh networks.

18. XCTU is now able to determine if the firmware of a device or its Node Identifier changed by other applications.

19. When installing a firmware using a local file a question dialog is displayed to confirm the process. When it finishes the summary dialog lists the firmware over-written.

20. Improved the behavior of the send buttons of the AT and API consoles.

21. Devices with a firmware version of more than 2 bytes can be configured remotely now.

22. Modified the text of the Finish button from the update dialog to 'Update'.

23. Updated the Frames Generator, Frames Interpreter, Recovery and Load Console Session tools icons.

24. Changed the order of the HEX/ASCII tabs controls displaying the ASCII tab in first place.

25. Sleeping devices from the XBP24ZB7 family with baud rates different than 9600 can be added

to XCTU now.

26. Range Test tool improvements:

- Reduced the minimum height of the dialog so that it is displayed correctly in low resolution displays.
- Range Test tool is now compatible with Point-to-multipoint, XTend and XSC protocols.
- Added the possibility to choose between doing a range test using the cluster 0x12 or serial loopback.
- Reduced the size of the module selection control.
- Added the possibility to specify the 16-bit address of the remote radio module.

27. Consoles are not closed when removing remote devices now.

28. XCTU verifies now that the firmware to flash exits before starting the update firmware process.

## **SECURITY FIXES**

1. N/A

## **BUG FIXES**

1. Fixed an issue causing Firmware Update window to fail to select current flashed firmware in some cases.
2. Fixed an issue while configuring NT time in Node Discovery for local devices in AT mode.
3. Fixed several issues with the device type label and tooltip.
4. Fixed an issue causing API console not to log the complete frame in some cases.
5. Fixed an issue that was causing port information label to display wrong data in a local device when its name (NI) was changed remotely.
6. Fixed an issue when obtaining the AT command status in the API frames viewer.
7. Fixed error message when the length of a string parameter is longer than the maximum allowed.
8. Fixed some issues in several API frames:
  - 0x00 - Tx64 Transmit: Added this frame to the XLR protocol filter.
  - 0x11 - Explicit Addressing Command: Extended the information of Transmit Options field and added Digi default values.
  - 0x80 - Rx64 Receive: Added this frame to the XLR protocol filter.
  - 0xA1 - Route Record Indicator: Removed the minimum required bytes of the addresses field.
9. Firmware update process of XLR devices with baud rates different than 9600 finishes successfully now.
10. Fixed the scrollbar behavior of the Frames Interpreter control.
11. Update firmware process shouldn't hang any longer when resetting the module.

## **VERSION 6.1.3 (March 18, 2015)**

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### **NEW FEATURES**

1. DigiMesh 900 radio modules can be configured remotely now.

## ENHANCEMENTS

1. Improved the look and feel of the frames interpreter control in the API Console and Frames Interpreter tool.
2. IO packets now display more detailed data about digital and analog lines.
3. Settings without a default value will not be marked as wrong any longer.
4. Read-only settings are not refreshed now when loading factory default settings.
5. Hardware version number is displayed in a correct hexadecimal format now.

## SECURITY FIXES

1. N/A

## BUG FIXES

1. Sleeping radio modules working in AT mode with a baud rate different than 9600 can be added and configured in XCTU without problems now.
2. Fixed some issues in several API frames:
  - 0x8D - Route Information Packet: Fixed the information provided for the source, responder and receiver addresses.
  - 0xA2 - Device Authenticated Indicator: Removed this frame from the Zigbee protocol filter.
  - 0xA4 - Register Joining Device Status: Removed this frame from the Zigbee protocol filter.

## VERSION 6.1.2 (September 16, 2014)

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### NEW FEATURES

1. Added support for XLR PRO Radio Solution.
2. Support for 'API 2 - API Mode With Escapes' operating mode in 'Frames Generator' and 'Frames Interpreter' tools.

### ENHANCEMENTS

1. Discovery of remote devices does not modify the 'NO' setting of the module.
2. Function label of an XBee device will now display the firmware version when the firmware cannot be found by XCTU.

### SECURITY FIXES

1. N/A

### BUG FIXES

1. Correctly display IP settings of XBee modules when operating in API 1 or API 2 mode.
2. ZNet devices working in Transparent (AT) mode are now properly discovered and added to XCTU.
3. XBee S5 modules with DP protocol running firmware v1027 or earlier are now discovered correctly.
4. Sent and received frames with unknown API data in the API console shouldn't cause exceptions any longer.
5. Removed GIF, ICO and TIFF formats from the save screenshot dialog in the 'Network' working

mode (they were not working correctly).

6. Fixed some issues in several API frames:

- 0x10 - Transmit Request: Removed the payload size limit.
- 0x07 - Remote AT Command (Wi-Fi): 'Remote cmd. options' field is now a text box control.
- 0x11 - Explicit Addressing Command Frame: Removed the payload size limit.
- 0x17 - Remote AT Command: 'Remote cmd. options' field is now a text box control.
- 0x8A - Modem Status: Added missing status codes.
- 0x8F - IO Data Sample RX Indicator: Fields 'Digital channel mask' and 'Analog channel mask' are properly interpreted.
- 0x90 - Receive Packet: Removed the payload size limit.
- 0x91 - Explicit Rx Indicator: Removed the payload size limit.
- 0x92 - IO Data Sample Rx Indicator: Fields 'Digital channel mask' and 'Analog channel mask' are properly interpreted.
- 0x95 - Node Identification: Fixed interpretation of frame and added 'Device type identifier' field.
- 0x98 - Extended Modem Status: Added this new frame supported in new Zigbee firmwares.
- 0xB0 - RX IPv4: Removed 'Frame ID' field.
- 0xFF - Generic: Removed the payload size limit.

## **VERSION 6.1.1 (January 29, 2014)**

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### **NEW FEATURES**

1. Numeric firmware settings can now be configured with '0'.
2. Sleeping DigiMesh and 802.15.4 nodes (working in AT operating mode) can now be discovered and configured in XCTU.
3. Log file is now sent by default when reporting an issue using the built-in feedback tool.

### **ENHANCEMENTS**

1. N/A

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. Fixed a problem that was causing the tool not to display the available serial ports in some scenarios.

## **VERSION 6.1.0 (December 13, 2013)**

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### **NEW FEATURES**

1. Network working mode.

A new working mode called Network has been implemented in XCTU. In this new working mode you can see the topology of a local radio module's network.

The highlights of the Network working mode include the following features:

- Possibility to discover and represent the network topology of 802.15.4, Zigbee and DigiMesh protocols.
- Display the network topology using different built-in profiles.
- Navigate between nodes moving and zooming them.
- Represent all the network nodes in a table with details.
- Obtain the links between nodes as well as their link quality.
- Search for a specific node and highlight it.
- Save a picture of the network.
- Attach or detach the network view being able to display more than one network at the same time.

## 2. Device Cloud working mode.

Another working mode called Device Cloud has been also added. This new working mode allows you to learn about Device Cloud by Etherios platform, create an account and access your personal Device Cloud page.

## 3. Range Test tool.

The Range Test tool has been included within the Tools drop-down menu of the main toolbar. This tool allows you to perform a range test between a local radio module and any of the remote modules working in the same network as the local one.

The highlights of the Range Test tool include the following features:

- The tool is able to perform range tests of 802.15.4, Zigbee and DigiMesh protocols regardless of the working mode (AT or API) of the modules.
- Chart control displaying the current and historic link qualities between modules.
- Different controls indicating the number of packets sent, lost, etc.

## 4. Firmware Explorer tool.

The Firmware Explorer tool allows you to navigate through the firmware library contained in XCTU displaying the different firmware versions as well as their settings. It also gives you the possibility to load and generate firmware profiles. The tool is included within the Tools drop-down menu of the main toolbar.

## 5. Remote firmware update.

The remote firmware update feature has been implemented. Now you are able to update the firmware of a remote radio module the same way you do with a local one. In order to perform a remote firmware update, the local radio module must be configured in API operation mode.

Remote firmware update functionality is limited to the following radio modules:

- XBee/XBee-PRO ZB
- Programmable XBee-PRO ZB
- XBee/XBee-PRO ZB SMT
- Programmable XBee-PRO ZB SMT
- XBee-PRO 900HP
- Programmable XBee-PRO 900HP
- XBee 865LP
- Programmable XBee 865LP
- XBee 868LP

- Programmable XBee 868LP
6. Added a change log dialog that is displayed every time that the application is installed or updated. The dialog is also accessible from the Help menu of the main toolbar.
  7. Added support for XTend modules with legacy firmware.
  8. Added an Action Required dialog in some XCTU operations that forces the communication with the device when the operation to be performed fails.
  9. Added an icon in the image of local and remote devices stating the device type (coordinator, router or end device).
  10. Added the number of sent and received frames and bytes in the consoles.
  11. Added port information when selecting a port in the Add and Discover radio modules processes.
  12. A couple of buttons have been included in the local and remote discovery dialogs to select or deselect all the devices found.
  13. Added a context menu to the local and remote device buttons to copy information about them.
  14. Included a new documentation section: Troubleshooting.

## **ENHANCEMENTS**

1. Remote node discovery improvements.
  - Now the process does not modify the NT time configured in the module, it reads its value and waits for answers.
  - Added an information bar above the list of remote nodes.
  - The discovery dialog now displays the remote modules as they are found and allows you to stop the process at any time.
  - The process allows you to clear or maintain the current list of remote modules adding only those new discovered ones.
2. Now when selecting a radio module that could not be initialized XCTU gives you the possibility to try to initialize it again.
3. Now it shouldn't be necessary to restart XCTU after installing new firmware from a file.
4. The time to add or discover a local device has been reduced in 4 seconds.
5. It is no longer possible to enter invalid frames in the API console.
6. Now when the port cannot be open in the Recovery tool the process does not continue.
7. AT console improvements:
  - In a synchronized communication, received packets shouldn't be displayed before the sent ones any longer.
  - Performed a slightly improvement of the AT console performance.
  - Removed some scroll and color glitches.
  - Fixed a bug that was causing to lose data in an AT console packet when editing it.
8. Added new verifications for the KY setting avoiding unexpected validation errors.
9. Updated some definitions of the XBee API frames in the Frames Generator tool.
10. Information box of a setting is automatically scrolled and displayed when opened.
11. Add and discover local devices processes now checks for existing devices and ports allowing

you to replace them.

12. Settings sections in the Configuration working mode now saves their status (expanded/collapsed).
13. Combo settings are now validated correctly after writing them in the Configuration working mode.
14. Read and write settings processes from the Configuration working mode are now cancellable.

### **SECURITY FIXES**

1. N/A

### **BUG FIXES**

1. Lots of minor bug fixes and improvements.

### **VERSION 6.0.0 Beta (September 20, 2013)**

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First release of XCTU.