Digi XBee Mobile

Application

User Guide

Revision history—90002323

Revision	Date	Description
A	November 2018	Initial release.
B	March 2019	1.1.0 release.
C	August 2019	1.2.0 release.

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Customer support

Gather support information: Before contacting Digi technical support for help, gather the following information:

> Product name and model
> Product serial number (s)
> Firmware version
> Operating system/browser (if applicable)
> Logs (from time of reported issue)
> Trace (if possible)
> Description of issue
> Steps to reproduce

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Include the document title and part number (Digi XBee Mobile User Guide, 90002323 B) in the subject line of your email.

Contents

Digi XBee Mobile User Guide

Digi XBee Mobile is an iOS and Android compatible app that allows you to connect and configure Digi XBee3 devices with Bluetooth Low Energy (BLE) support.

Use Digi XBee Mobile to:

- Look for and connect to nearby XBee3 BLE devices.
- Get basic information from the device and the firmware version it is running.
- List all the configuration categories and settings of the firmware running in the XBee3 device.
- Read and change the value of any firmware setting.
- Send and receive data between the XBee local interfaces (serial port, MicroPython and Bluetooth Low Energy).
- Perform a remote reset of the device.

Download and install Digi XBee Mobile

This section provides instructions for downloading and installing the Digi XBee Mobile app.

Requirements

The requirements to run the Digi XBee Mobile application are:

Operating systems

Digi XBee Mobile is compatible with the following operating systems and versions:

- Android: 5.0 or higher
- iOS: 11 or higher

System requirements

Digi XBee Mobile is compatible with any smartphone that supports Bluetooth Low Energy.

Supported devices

- XBee3 Zigbee 3.0
- XBee3 DigiMesh
- XBee3 802.15.4
- XBee3 LTE Cat 1 AT&T
- XBee3 LTE-M/NB-IoT

Note Digi XBee Mobile supports all of the above devices in all their available hardware variants, including surface-mount technology (SMT), through-hole technology (THT) and micro-mount technology (MMT).

Install Digi XBee Mobile

Download the Digi XBee Mobile app from the iOS App Store or Google Play.
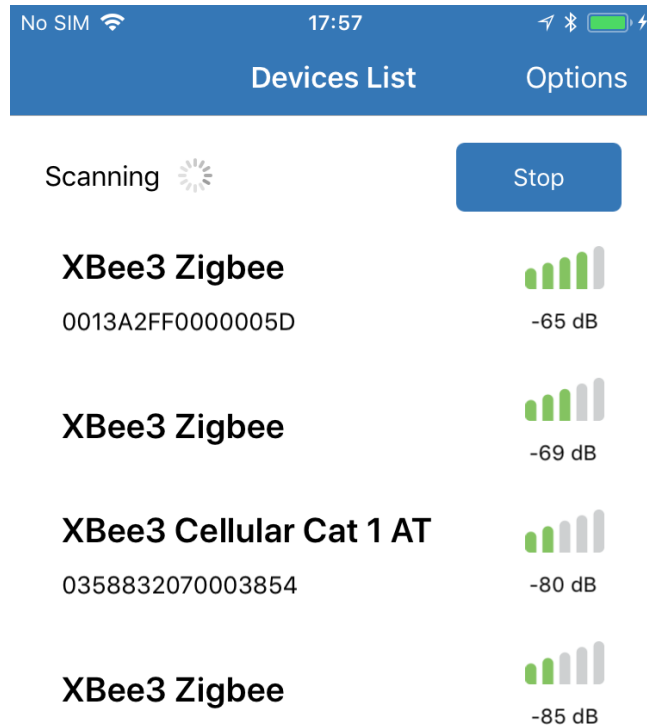
Connect to an XBee device

Before connecting to an XBee device, you must configure its Bluetooth authentication with XCTU. If you have not done it yet, see Enable and configure Bluetooth in the *XCTU User Guide* to do so.

Discover nearby devices

When you open the Digi XBee Mobile app, it automatically displays the **Devices** list page and starts looking for nearby XBee BLE devices.

Note If the Bluetooth interface is turned off on your device, the app asks you to turn it on.
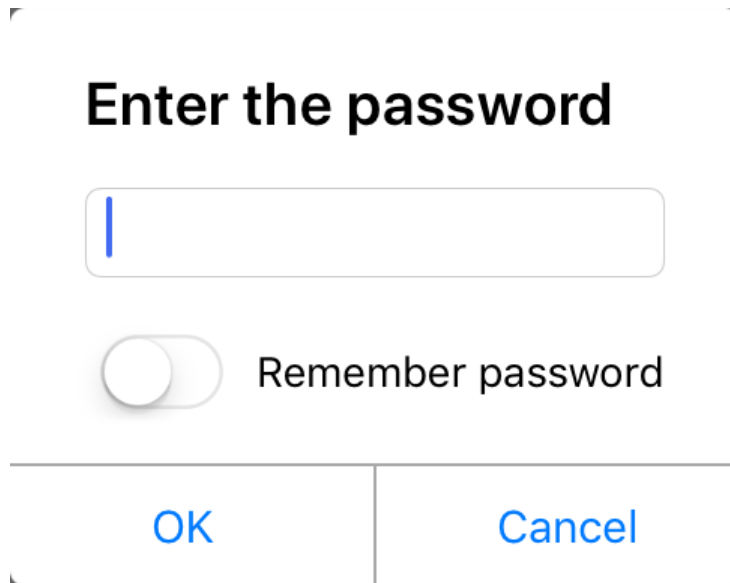

The device list shows the following information per device (taking the third device of the image above as a reference):

- Name: XBee3 Cellular Cat 1 AT
- MAC address: Cached data read from the device after the first connection. This data is only displayed after the first connection (see devices 1 and 3 in the image above). Newly discovered devices to which a connection has never been made do not display this value (see devices 2 and 4 in the image above).
- Signal quality

Establish the first connection

When your XBee device appears on the list, tap on it to open the connection. The application asks you to enter its Bluetooth password.

Enter the password

Remember password

OK   Cancel

Type the password you configured with XCTU and tap **OK** to establish a connection with the device.

Note You can toggle the **Remember password** switch on so you are not prompted with the Bluetooth password dialog for future connections.

Actions menu

This menu, located on the top right corner of the application, allows you to perform several actions over the application and **Devices List** page.

- **Application preferences**. Opens the **Application preference**s page to configure several Digi XBee Mobile settings.
- **Clear stored passwords**. Removes the passwords saved for the connection process of each device.
- **Check for firmware updates**. Checks and downloads new radio firmware definitions.
- **Documentation**. Opens the documentation URL of the application in the device's default web browser.
- **Provide feedback**. Opens the feedback form to provide feedback about the application.
- **About**. Opens the application's **About** page.

Configure the XBee device

Once a connection is established with your XBee device through BLE, the app displays general information about the device and allows you to access the different firmware categories.

Device Information panel

The **Device Information** panel displays general information about the XBee device:

- Protocol image
- Node identifier (name)
- MAC address
- Firmware version

Device Configuration panel

The **Device Configuration** panel displays a list with the different firmware configuration categories. Tap on one of them to access the settings page of that category. See Settings page.
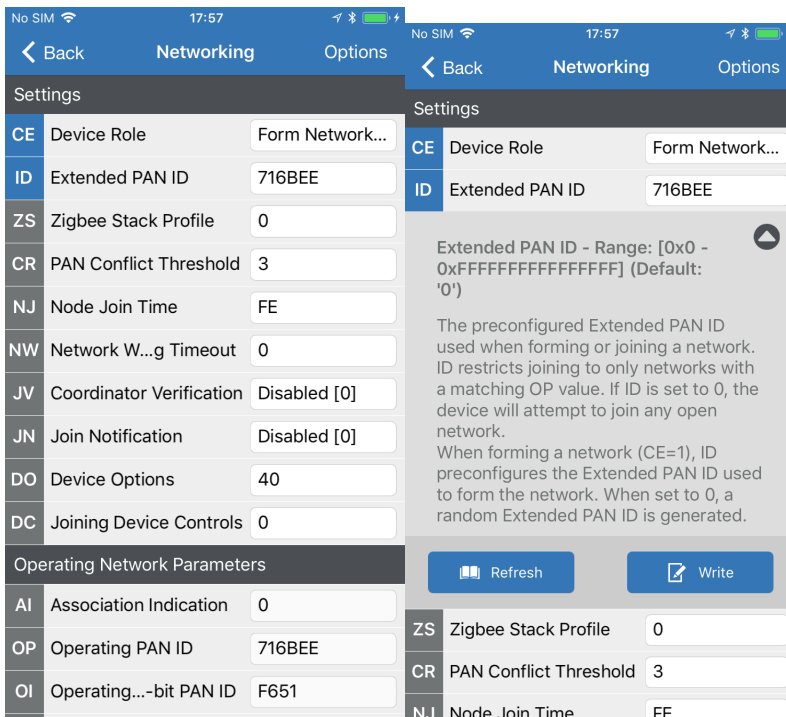
Actions menu

This menu, located on the top right corner of the application, allows you to perform several actions over the XBee device.

- **Relay Console**. Opens the **Relay Console** page to communicate with other XBee interfaces.
- **Application preferences**. Opens the **Application preferences** page to configure several Digi XBee Mobile settings.
- **Reset device**. Resets the XBee device and restores the Bluetooth connection with it.
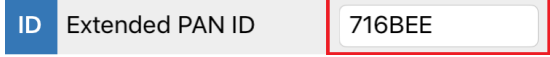
- **Disconnect**. Closes the connection with the XBee device.
- **Documentation**. Opens the documentation URL of the application in the device's default web browser.
- **Provide feedback**. Opens the feedback form to provide feedback about the application.
- **About**. Opens the application's **About** page.

Settings page

Once you have tapped on a configuration category, the application displays the **Settings** page which contains the list of settings associated to the selected category. After it displays, you can view and edit the value of each setting.

The following table describes the different controls of each setting:

Field	Image	Description
AT parameter	**ID** Extended PAN ID 716BEE	Displays the associated AT parameter of the setting.
Setting name	**ID** Extended PAN ID 716BEE	Displays the name of the setting.
Value	**ID** Extended PAN ID 716BEE	Contains the text box or combo box where the setting value must be typed or configured.

Field	Image	Description
Details pane	**ID** Extended PAN ID 716BEE Extended PAN ID - Range: [0x0 - 0xFFFFFFFFFFFFFFFF] (Default: '0') The preconfigured Extended PAN ID used when forming or joining a network. ID restricts joining to only networks with a matching OP value. If ID is set to 0, the device will attempt to join any open network. When forming a network (CE=1), ID preconfigures the Extended PAN ID used to form the network. When set to 0, a random Extended PAN ID is generated. Refresh Write	Appears when you tap on the **Setting List** item. It displays the setting description, range, default value, and buttons to refresh and write the value of the setting. **Note** Some settings, such as the read-only settings, do not have a write button.

If the category contains any subcategories they are displayed in the **Setting List** with an item indicating their name, followed by all their settings.

Operating Network Parameters	
AI	Association Indication	0
OP	Operating PAN ID	716BEE

Digi XBee Mobile delineates the status of each setting with the background color of the AT parameter rectangle. These are the possible statuses of a setting:

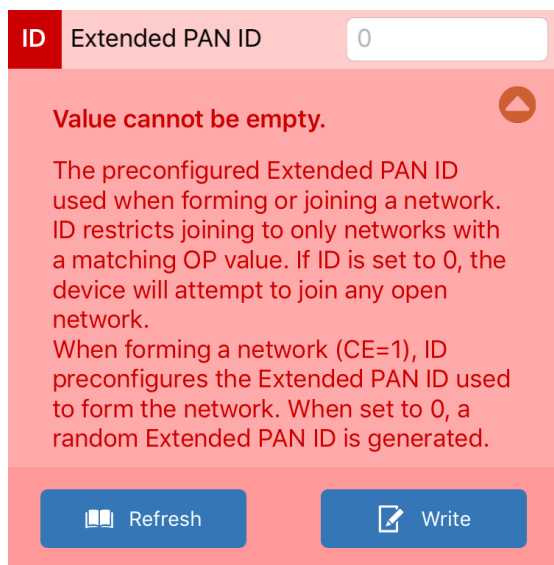|	
(green)	The value of the setting has changed but it has not been written in the radio module yet.
(blue)	The value of the setting is written in the radio module but is different from the default value.
(gray)	The value of the setting is written in the radio module and matches the default value.
(red)	The value of the setting is not valid.

Refresh a setting

To refresh the value of a setting:

1. Tap the setting you want to refresh. The **Details** pane displays.
2. Tap the **Refresh** button of the **Details** pane.

You can also read all the settings from the category by using the **Read all category settings** menu item from the top right actions menu, or by pulling to refresh from the top of the list.

Note Digi XBee Mobile validates the value of the setting before you write it. If the value to be written is not valid, the setting background color changes to red and the summary of the details pane displays the cause of the problem.

ID	Extended PAN ID	0

Value cannot be empty.

The preconfigured Extended PAN ID used when forming or joining a network. ID restricts joining to only networks with a matching OP value. If ID is set to 0, the device will attempt to join any open network.
When forming a network (CE=1), ID preconfigures the Extended PAN ID used to form the network. When set to 0, a random Extended PAN ID is generated.

Refresh	Write

Actions menu

This menu, located on the top right corner of the application, allows you to perform several actions over the application and settings of the page.
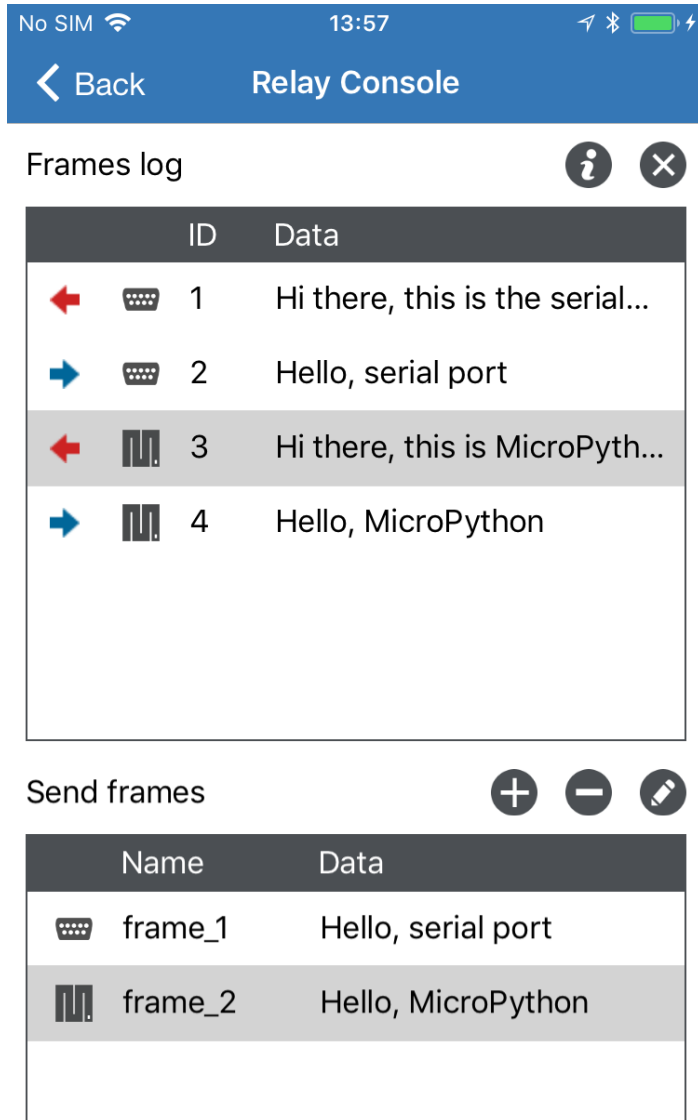
- **Read all category settings**. Reads all the settings located in the category and subcategories.
- **Write all category settings**. Writes all the settings located in the category and subcategories that have been modified.
- **Load default category settings**. Loads the default values of all the settings located in the category and subcategories.
- **Reset device**. Resets the XBee device and restores the Bluetooth connection with it.
- **Disconnect**. Closes the connection with the XBee device.
- **Documentation**. Opens the documentation URL of the application in the device's default web browser.
- **Provide feedback**. Opens the feedback form to provide feedback about the application.
- **About**. Opens the application's **About** page.

Communicate with other XBee interfaces

XBee3 devices have the ability to send and receive data between their different local interfaces: serial port, MicroPython and Bluetooth Low Energy. This is useful if you want to communicate over Bluetooth with a device connected to your XBee (PC, micro-controller...) or with any MicroPython application running on it. This communication is performed through User Data Relay (0x2D) and User Data Relay Output (0xAD) frames.

Relay Console

The **Relay Console** allows you to communicate with other local interfaces of the XBee device you are connected to. To open the console, tap **Options** and then **Relay Console**.

The console has two sections, **Frames log** and **Send frames**.

Frames log

The **Frames log** is the User Data Relay frames traffic monitor. It shows both the sent and received messages, represented with a blue or red arrow, respectively, the source or destination interface, a unique identifier and the data.

Button	Name	Description

	View details	Opens a popup with the details of the sent/received frames.
		
		Received frame details (#3)
		
		Time
		`13:54:44.407`
		
		XBee interface:
		`MICROPYTHON`
		
		Data:
		`48 69 20 74 68 65 72 65 2C 20 74 68 69 73 20 69 73 20 4D 69 63 72 6F 50 79 74 68 6F 6E`
		
		○ View in ASCII
		
		Close
		
		The **View in ASCII** switch allows you to change the format of the data, between ASCII and hexadecimal.

	Clear log	Clears the list of sent and received frames.

Send frames

The **Send frames** section lists the User Data Relay frames you have created and allows you to add, remove or edit the existing ones. They are represented with the destination interface, the frame name and the data.

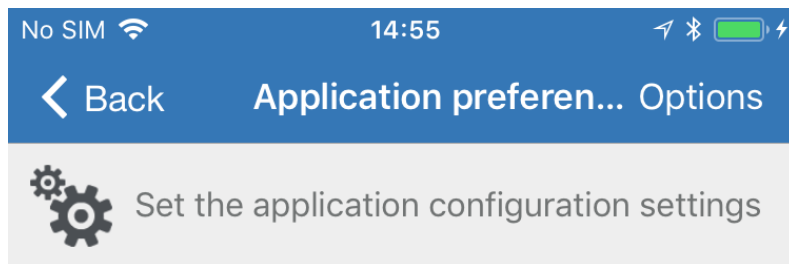| Button	Name	Description
➕	Add frame	Opens a popup to create and add a new frame. You have to specify the frame name, destination interface and data to send. **Add new frame** Frame name: frame_4 XBee interface: SERIAL Data: This is the data to send, it can be ASCII or hexadecimal 🟢 View in ASCII Add Close The **View in ASCII** switch allows you to change the format of the data, between ASCII and hexadecimal.
➖	Remove frame	Removes the selected frame.
✏️	Edit frame	Opens a popup to edit the selected frame.

Once you have created and added a frame, select it and tap **Send selected frame** to send it.

Configure the Digi XBee Mobile application

You can configure the Digi XBee Mobile application accessing its **Application preferences** page. To do so:

1. Open the **Actions menu** in any page of the application.
2. Select the **Application preferences** page option.

The **Application preferences** page displays containing all the available settings of the application.

Settings are organized in categories:

- **Firmware update preferences**. Lists the firmware update preferences of the application.
    - **Download new firmware definitions at startup**. Enable this setting to automatically look for and download new firmware definitions every time the application is open.

- **Add additional FTP server to download firmware from**. The Digi XBee Mobile app looks for XBee firmware in Digi's official firmware server and downloads new versions as needed. This setting allows you to configure an additional FTP server path to download firmware from. If the same firmware version exists on both servers, non-official firmware will be discarded.

  To use this feature, enable the setting and fill in the input text with the path to the folder of the FTP server that contains the firmware configuration files in XML format.
  For example, if you have an FTP server that contains a non-official firmware configuration (XML) file in **/firmwares_to_test** and your server name is **ftp.test.com**, introduce the following text into the field: **ftp://ftp.test.com/firmwares_to_test/**. The application will download all the firmware configuration files contained there.

  Note The additional FTP server must allow for anonymous access. This means that the user must be **anonymous** and the password must be empty.

- **Scan preferences**. Contains settings related to the Bluetooth discovery process.
  - **Filter found devices by name**. All the XBee devices contain the word **XBee** in their advertisement name. By default, Digi XBee Mobile uses this scan option to display just the Bluetooth devices that contain the word **XBee** in their name. You can toggle this switch off to list all the Bluetooth devices in range or change the word to filter by other device names.

Tap **Save** after performing any modification in the settings to save the new values.

Note You can load the default values of the setting by opening the **Actions menu** of the **Application preferences** page and selecting the **Load default preferences** option.

Update radio firmware definitions

Digi periodically releases new versions of the different radio firmwares to fix issues, improve functionality, or add new features. These firmware files might not be included with the Digi XBee Mobile app and may need to be added to the app's radio firmware library. For this reason, Digi XBee Mobile app has a built-in system to automatically download new, official BLE-capable XBee firmware.

This process can be configured to run automatically, but you can also execute it manually at any time. For more information about configuring automatic firmware updates, see Configure the Digi XBee Mobile application. If you have enabled the automatic updates, you may be notified about firmware updates when you open the Digi XBee Mobile app.

To manually check for firmware updates, tap **Options** > **Check for firmware updates** from the **Device List** page.