

DIGI XBee Configuration Manual

1. Introduction

This purpose of this user manual is to setup the configuration of Digi XBEE module for network hub and end devices. The configuration is done using XCTU software. All end devices communicate to network hub using Zigbee communication. In order to make the design straightforward, the XBEE module is used for all end devices and network hub to communicate using zigbee protocol.

2. Installing XCTU Software

To use XCTU software, it requires the USB drive software installed in the machine. Essentially, the USB drive is used so that the XCTU software could identify the module when it's connected to the machine.

The software could be downloaded by using the link as follows,

[Windows XCTU Software Download](#)

The USB drive software could be installed by following the link as follows,

[Windows XCTU USB Drive](#)

Both USB drive and XCTU software downloads are compatible with Windows machine from Windows Vista up to Windows 11.

3. XCTU Configuration for Digi XBEE Network Hub and End Devices

3.1 Finding Module in XCTU

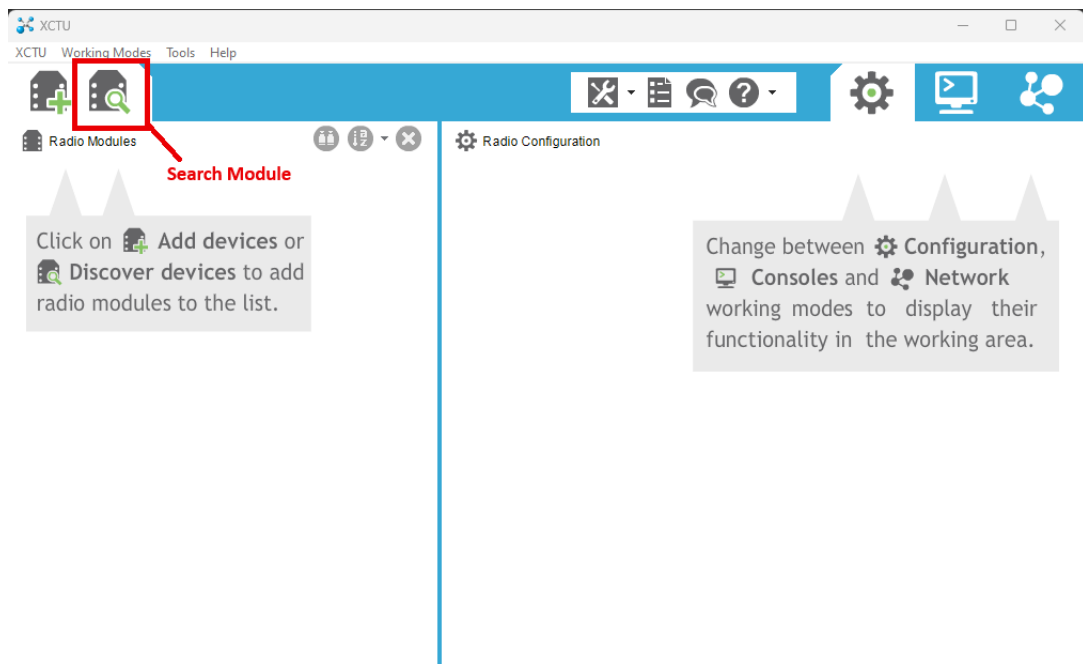
Before configuring XBEE module, the XCTU software must be able to find the module after it is connected to laptop/PC where the software is installed.

1. Prepare the required Digi XBEE hardware.
2. Connect the module to laptop/PC with XCTU software installed by plugging the micro-USB into USB – A port on laptop/PC.
3. By default, the XBEE module has the following serial communication specification,

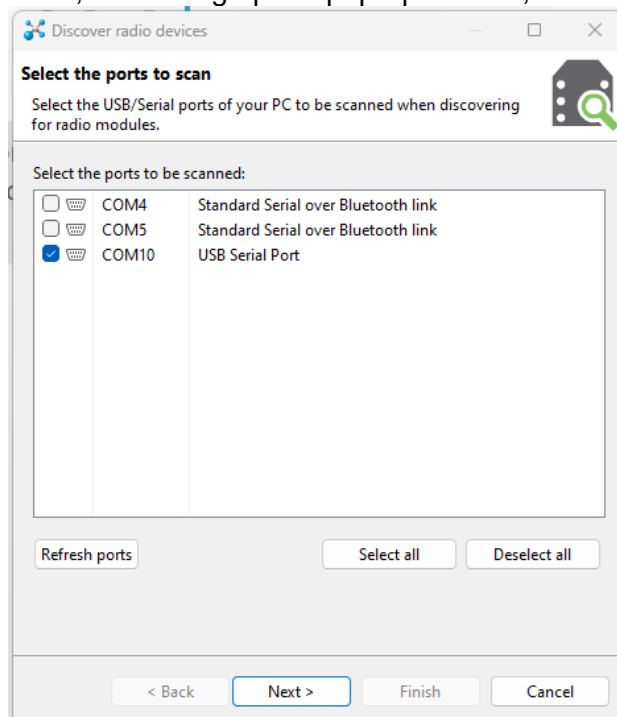
Settings	Parameter
Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	none

Unless changed, these parameters will be the same everytime the module is connected.

4. Open the XCTU software and click on the search module,



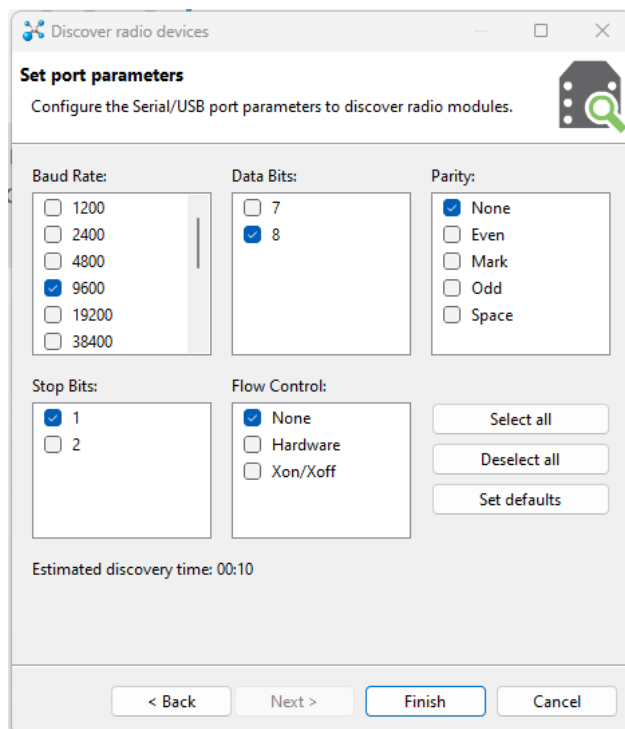
5. Then, it will bring up the pop-up window,



Select the port which the XBEE module connected by ticking the box next to the port number. Click “Next >” once finished.

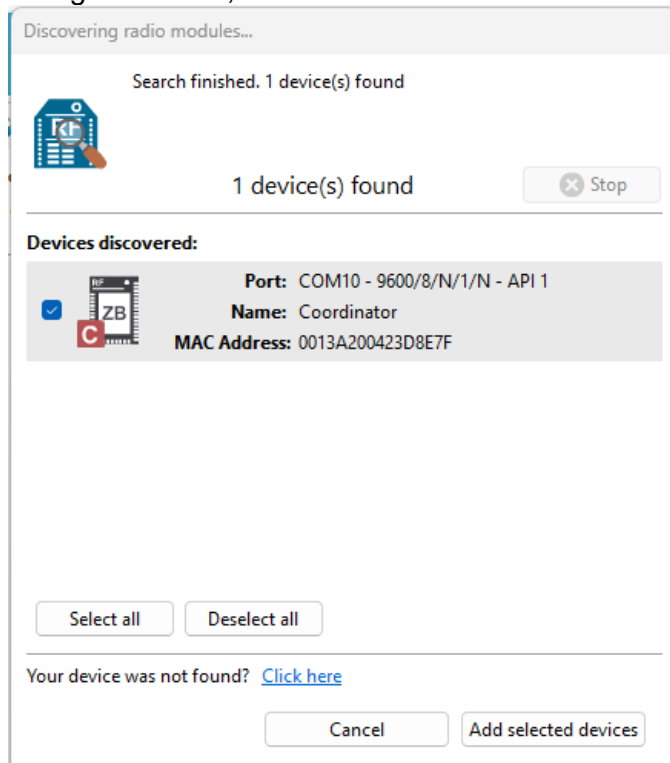
Note: If there are more than 1 modules connected, it's possible to select more than 1 port. However, all the modules **must have identical serial port specifications**.

6. The next pop – up window is serial port configuration,



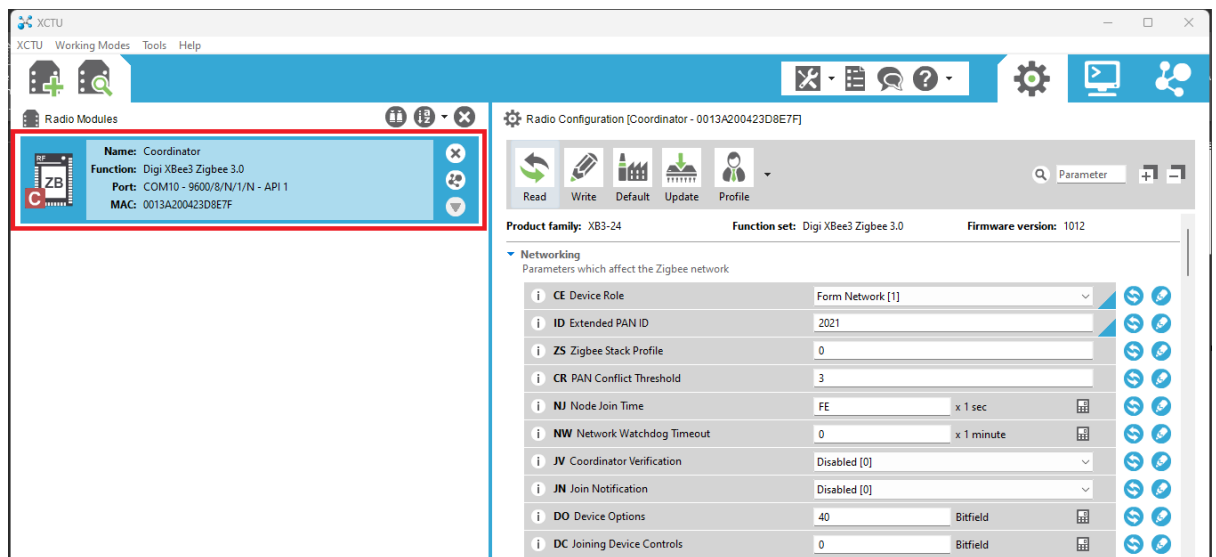
Make sure each port parameter matches the latest setting of the XBEE module serial communication. If the module is new, then the configuration will be the default. Click “Finish” once the correct parameters have been chosen.

7. If the search is successful, then it will show the connected module with port number, configured name, and MAC address. New module doesn't have name configured.



Tick the box on the module which wants to be configured. Then, click “Add selected devices”.

8. Click on the added device.



Then, it will open the current configurations of the module.

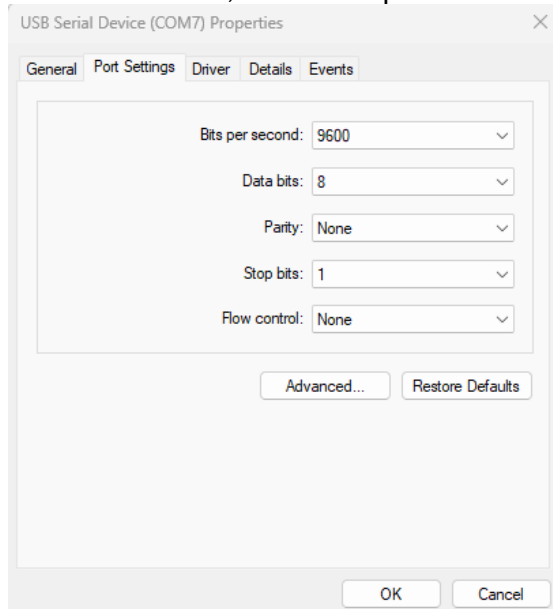
If there are more than 1 module, click on the designated module to see the configuration parameters of the module.

Troubleshooting:

If the module can't be found after setting the port parameters correctly as depicted in step 6. It is recommended to check the physical port setting which could be obtained from device manager.

Control Panel > Device Manager > Ports

Under the ports, right click on the port number which appears when the module is connected. Then, select "Properties" and click on "Port Settings" tab.



Ensure all the configurations match the latest serial communication settings of XBEE module.

3.2 Configuring XBEE Modules Parameters

1. Before start changing the parameters, make sure that the correct firmware is up to date.

2. Click on update,

Radio Configuration [Coordinator - 0013A200423D8E7F]

Read Write Default **Update** Profile

Product family: XB3-24 Function set: Digi XBee3 Zigbee 3.0 Firmware version: 1012

▼ Networking
Parameters which affect the Zigbee network

CE Device Role	Form Network [1]	
ID Extended PAN ID	2021	
ZS Zigbee Stack Profile	0	
CR PAN Conflict Threshold	3	
NJ Node Join Time	FE	x 1 sec
NW Network Watchdog Timeout	0	x 1 minute
JV Coordinator Verification	Disabled [0]	
JN Join Notification	Disabled [0]	
DO Device Options	40	Bitfield
DC Joining Device Controls	0	Bitfield
CB Compatibility Options	0	

▼ Discovery Options

3. Then, a pop – up window appears,

Update firmware

Update the radio module firmware
Configure the firmware that will be flashed to the radio module.

Select the product family of your device, the new function set and the firmware version to flash:

Product family	Function set	Firmware version
XB3-24	Digi XBee3 802.15.4	1012 (Newest)
	Digi XBee3 DigiMesh 2.4	1010
	Digi XBee3 Zigbee 3.0	100D

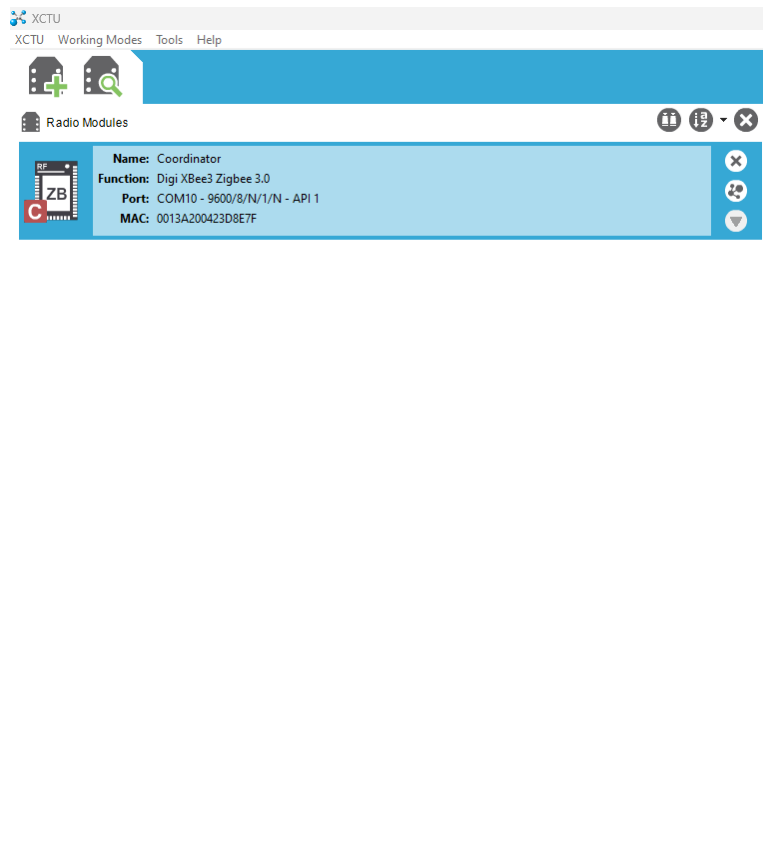
Can't find your firmware? [Click here](#) View Release Notes

☒ Force the module to maintain its current configuration Select current

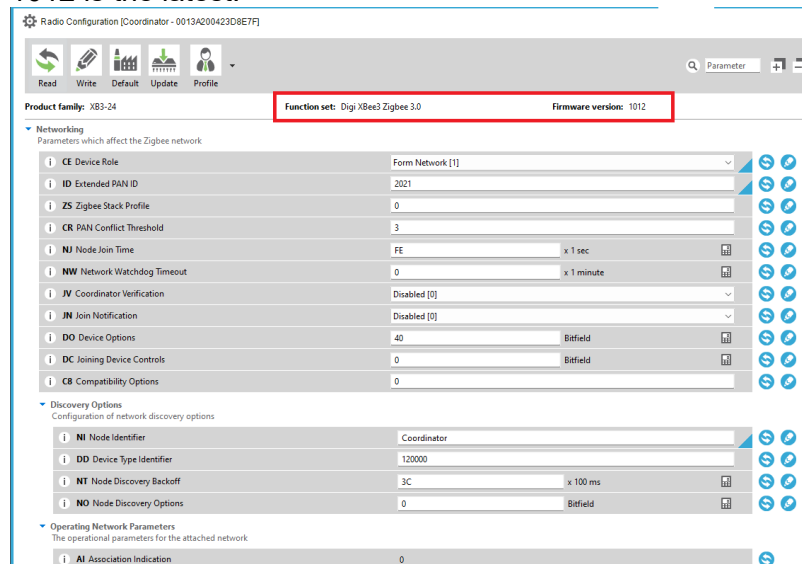
Update Cancel

Ensure the function set is selected as “Digi XBee3 Zigbee 3.0”. Then, choose the newest firmware version as indicated with “(Newest)” next to the version number. Click on “Update”.

4. Once the update finished, select the module again,



Then, inside the configuration parameter, check the function set shows “Digi XBee3 Zigbee 3.0” and the firmware version is the latest version, at current time, version 1012 is the latest.



- Once the firmware is sorted, now configuration parameters could be changed. The following table summarises the parameters which require change.

	Description	Default value	New value
CE	Device Role	0	Network hub: 0 End devices: 1
ID	Extended PAN ID	0	2021 (this number is in hex, maximum input value is FFFF. Both end devices and network

			hub must have same configurations)
NI	Node Identifier		String characters with letters and numbers only, this is to name the module.
EE	Encryption Enable	0	1 (encryption is required, both network hub and end devices must have same configuration)
KY	Link Key	0	Maximum value is 32 hex characters and both end devices and coordinator must have same link key.

6. Click on “Write” once all the required parameters are changed.

Radio Configuration [Coordinator - 0013A200423D8E7F]

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JV Coordinator Verification	Disabled [0]
JN Join Notification	Disabled [0]
DO Device Options	40 Bitfield

7. Then, the parameters will be written to the module. Once it's completed, it's recommended that the changed parameters are updated. To do this, click on “Read” to see the current configurations.

Radio Configuration [Coordinator - 0013A200423D8E7F]

Read Write Default Update Profile

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JN Join Notification	Disabled [0]
DO Device Options	40 Bitfield

8. Scroll through all the changed parameters and ensure the new values are saved.