Using X-CTU Utility for Configuring X-Bee Module

XBee module can be configures at different baud rates, at different frequencies and you can also give PAN ID in order to allow many XBee wireless modules work at the same time without interfering with each other.

The X-CTU software utility has the most powerful option for reading, testing, updating the firmware, configuration setting of XBee modules. This user application Guide is intended to discuss the functions of X-CTU software utility and configuring the XBee wireless module using X-CTU software utility. X-CTU is a designed to function with all Windows-based computers running Microsoft window 98 SE and above.

'Setup_XCTU_5260.exe' X-CTU utility can either be downloaded from Digi's web site or copy from the installation CD. After copying 'Setup_XCTU_5260.exe' into your personal computer and installing, the following icon on the PC desktop (see Figure 1) will be appeared.

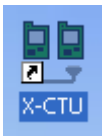

Figure 1. X-CTU icon

After clicking on the above X-CTU icon, you will see following window with four tabs across the top of the program (see Figure 2). Each of these tabs has different function.

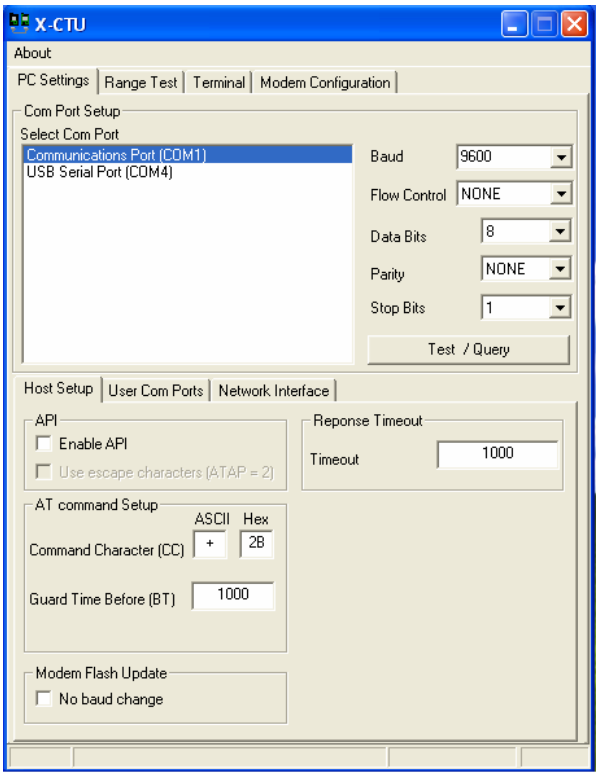

Figure 2: X-CTU

The four tabs are:

PC Settings: The PC Setting tab is broken down into three areas: The COM port setup, the Host Setup, and the User Com ports.

COM port setup:
The PC setting tab allows the user to select a COM port and configure the selected COM port setting when accessing the port. Some of these settings include:

Baud Rate: Both standard and non-standard
Flow Control: Hardware, Software (Xon / Xoff), none
Data bits: 4, 5, 6, 7 and 8 data bits
Parity: None, odd, Even, Mark and Space
Stop bit: 1, 1.5 and 2

To change any of the above settings, select the pull down menu on the value and select the desired setting. To enter a non-standard baud rate, type the baud rate into the baud rate box to the left.

The **Test/ Query** button is used to test the COM Port and PC settings.

Range test: Allows a customer to perform a range test between two radios.

Terminal: Allows access to the computers COM ports with the terminal emulation program

Modem Configuration: Allows the ability to program the XBee wireless modules' firmware setting via a graphical user interface.

The Modem configuring tab has three basic functions:
1: Provide a Graphical User Interface with a XBee Wireless Module
2: Read and Write the XBee Wireless module firmware to modify the configuration
3: Saving the modified configuration

Configuration of XBee Wireless module using the X-CTU Software Utility:

To change/modify XBee wireless module firmware or configuration settings through X-CTU, we need the XBee wireless module and XBee USB adaptor module from NEX Robotics.

Mount XBee wireless module on the XBee USB module from the NEX Robotics. Connect it with the PC. You will need to install driver for FT232 USB to serial converter, which is located on the XBee USB module. For driver installation, refer to its documentation.

After installing the driver, the USB port is detected on your personal computer. To know the COM port to which the module is connected, refer to its documentation.

Follow these steps to configure XBee wireless module.

Step1:
Connect the XBee USB adaptor board with the XBee receiver mounted to the PC.
Install drivers for XBee USB adaptor board. For more information, refer its documentation.
Start the X-CTU. Following window will appear.

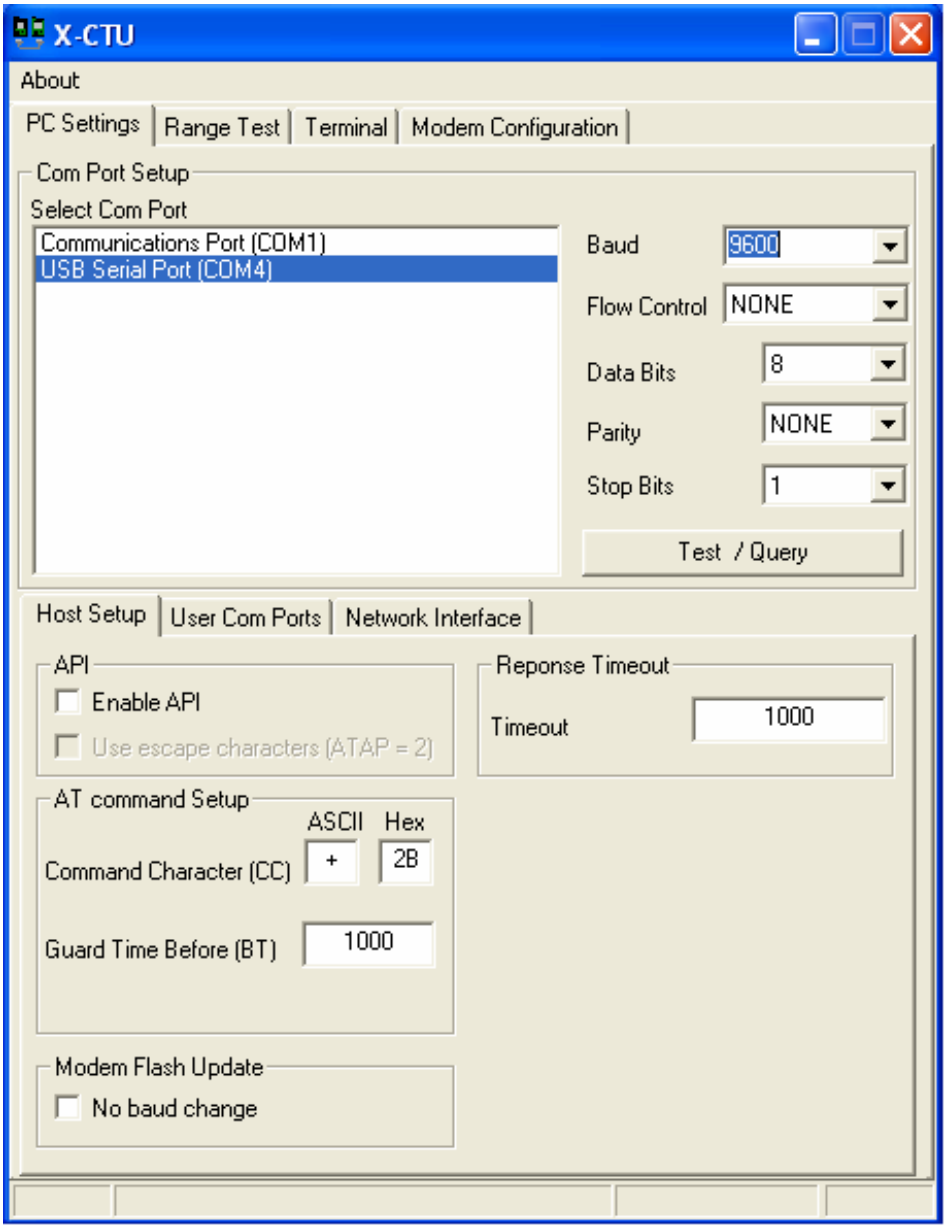

Figure 3: X-CTU default window

Step 2: Select the COM port from the 'select com port' window, where the XBee USB Wireless Module is connected to your PC comport. Also select the present baud rate of your XBee 2.4GHz wireless module.

In this example,
Com port: USB Serial port (COM4)
Baud rate: 9600, as shown in figure 3.

Click on 'Test/Query' option. If the PC setting and the Comport are correct, you will receive the response on depicted in the figure 4 below.

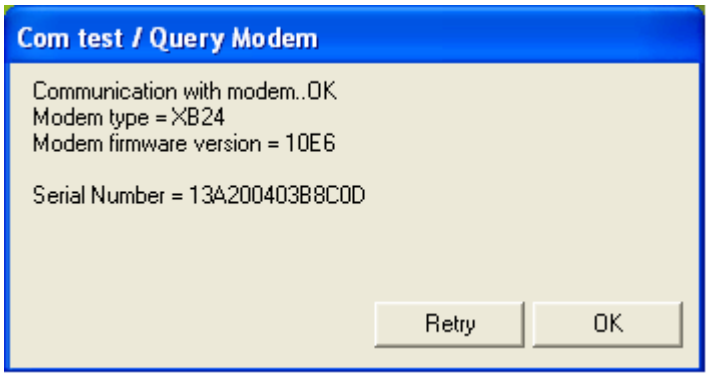

Figure 4: Communication test

Click on 'OK' button. If any error is found, click on retry option, otherwise try with correct comport and baudrate selection.

If problem persists you can reset the XBee wireless module to factory default. To do this, refer to XBee wireless module's datasheet.

Step 3: Now click on ‘Modem Configuration’ tab. You will see the following window.

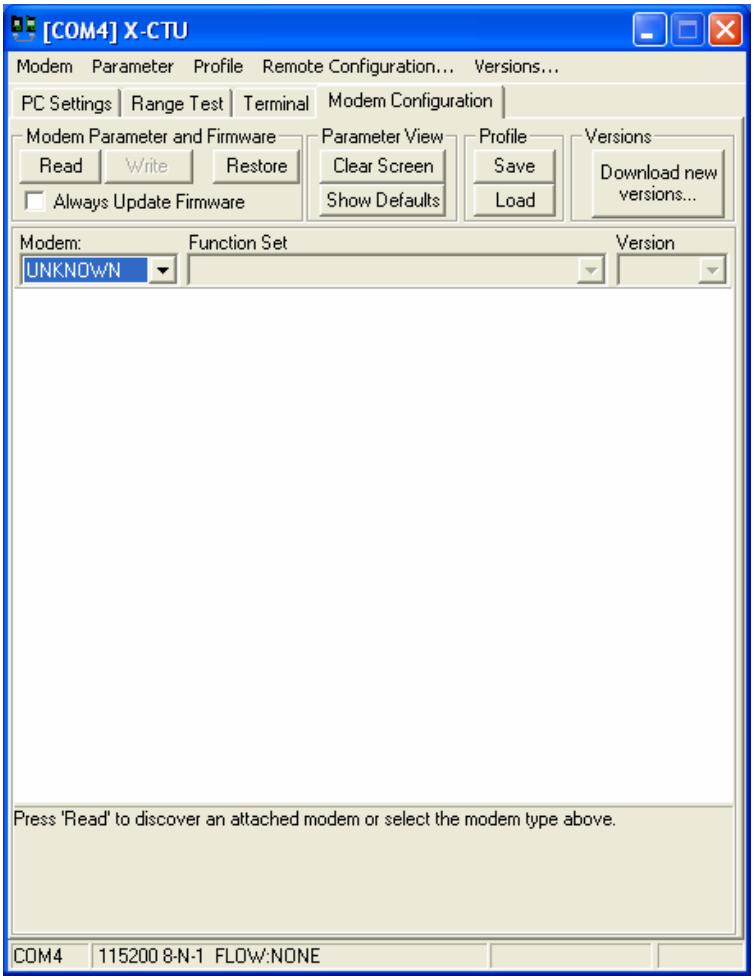

Figure 5: Modem Configuration window

Select the Modem type in ‘Modem’ box as ‘XB24’ as shown below and click on ‘Read’ option to get the details of present XBee configuration.

If you are using XBee Pro module then select XBP24.

Note: You can note down the modem type and firmware version from figure 4.

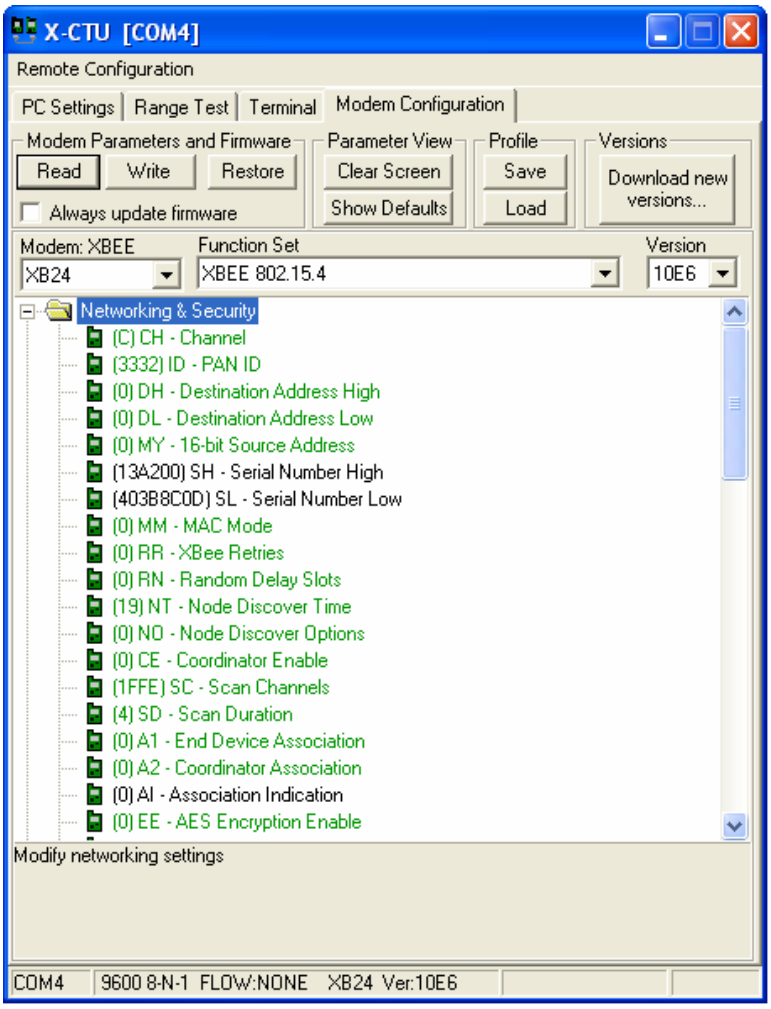

Figure 6: Communication test

If XCTU utility not able to detect and read the XBee module, the pop-up window asking for the "downloading updated firmware version from the Digi's website" message will appear.

If you had internet access with you, Click on 'OK' and the computer will starts for downloading updated firmware version for X-CTU from the Digi's website with showing the following window.

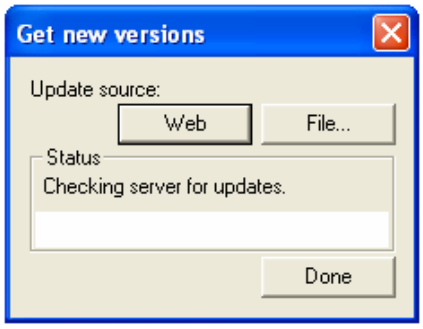

Figure 7: Downloading updated version of X-CTU Utility version

In the figure 3 green coloured configuration settings are user-settable parameter. For the ease understanding a specific command, once the parameter is selected, a quick description along

with its limits is provided at the bottom of the screen. Once all of the new values have been entered, the new values are ready to be saved to the XBee non-volatile memory.

To change any parameter say changing the channel numbers or say baud rate etc., type the new value for that parameter.

Channel number: C to D (See figure 6, Yellow coloured)
Baud rate: 9600 to 115200 (See figure 7, Yellow coloured)

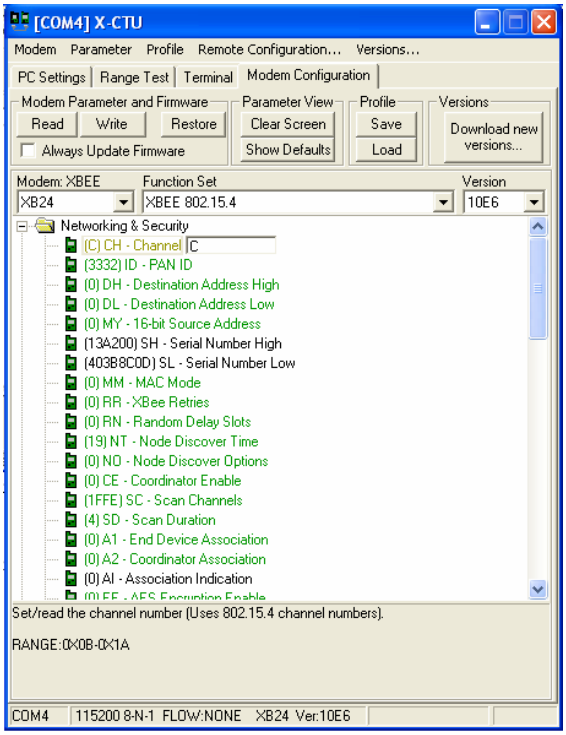

Figure 8: Channel number changing

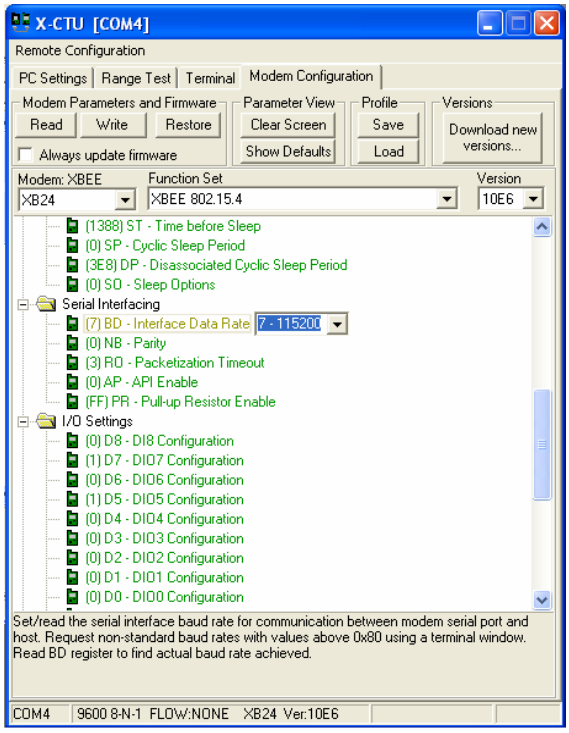

Figure 9: Baud rate changing

Note: The XBee and XBee Pro modules from Max stream had defined the range for changing the channel numbers is the below said range.
XBee : 0x0B to 0x1A
XBee Pro : 0x0C to 0x17
Refer the datasheet of XBee / XBee Pro wireless modules.

Similarly the other parameter can also be changed.

After modifying all the required parameter, click on the 'Write' option to load the new configuration. If the writing is done successfully "Write Parameters... Complete" message will appear at the bottom as shown below.

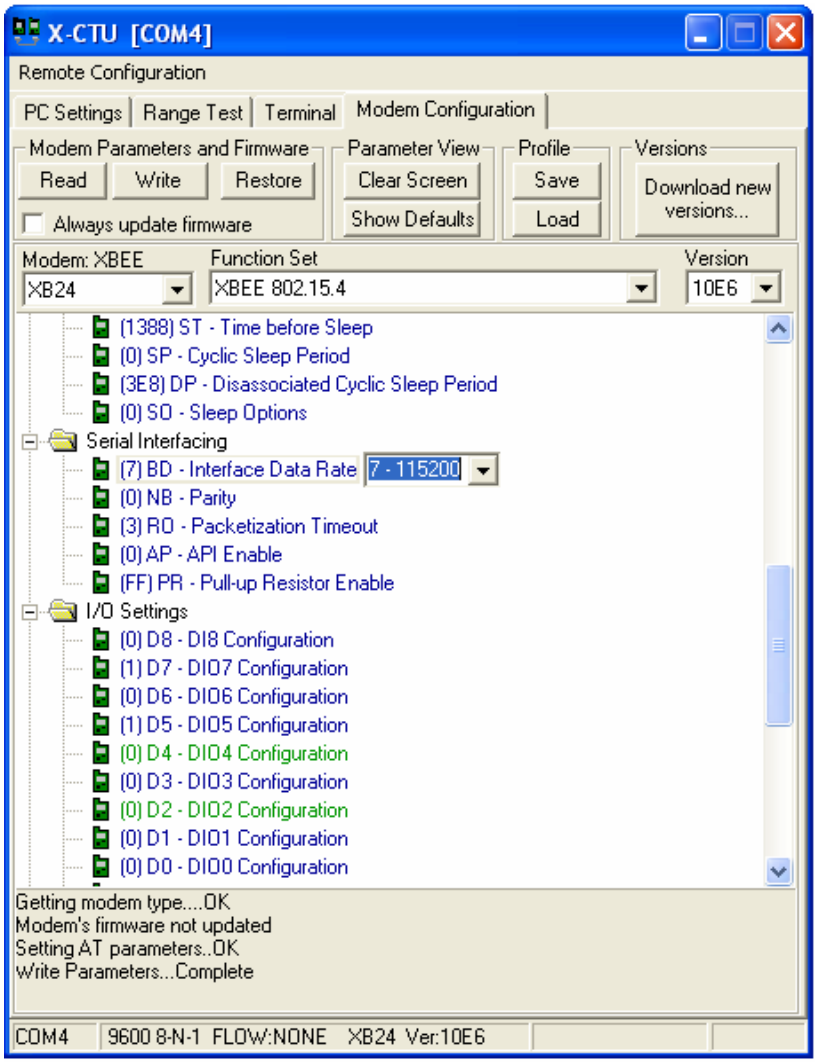

Figure 10: "Write parameter... Complete" message

Notice

The contents of this manual are subject to change without notice. All efforts have been made to ensure the accuracy of contents in this manual. However, should any errors be detected, NEX Robotics welcomes your corrections. You can send us your queries / suggestions at
info@nex-robotics.com

⚠ **Product's electronics is static sensitive. Use the product in static free environment.**
⚠ **Read the user manuals completely before start using this product**

Recycling:

Almost all the part of this product are recyclable. Please send this product to the recycling plant after its operational life. By recycling we can contribute to cleaner and healthier environment for the future generations.