XBee-PRO® XSC (S3B) Development Kit
Getting Started Guide

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Introduction

Thank you for purchasing an XBee-PRO® XSC (S3B) Development Kit. This kit is designed to make it easy to send data from one XBee® to another, and test the transmission distance of the radios. Before you start working with the kit, let's cover some basics.

Goals of the Kit

As you go through the steps in this kit, you will:

1. Set up your XBee-PRO XSC (S3B) Development Kit
2. Download and install X-CTU configuration software
3. Perform a range test
4. Change Firmware Versions

Requirements of the Kit

System Requirements

To install the software mentioned in this guide, you will need a PC running Microsoft Windows 2000, XP, Vista or Windows 7.

Additional Documentation

For more information about the software, API operations, AT command modes, or the form factor of the module, please refer to the product manual: XBee/ XBee-PRO XSC RF Module Product Manual.

For more information on configuring and using the X-CTU utility, please refer to the user guide: X-CTU Configuration & Test Utility Software Users Guide.

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Using this Guide

Conventions used in this Guide

This icon indicates a hint, or concept that is learned.

This icon indicates that a goal of the kit has been completed.

This icon indicates a warning of the potential for confusion or danger.

Contact Information

For more information about your Digi products, or for customer service and technical support, contact Digi International.

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Online Support	*http://www.digi.com/support/eservice/login.jsp*
Email	rf-experts@digi.com

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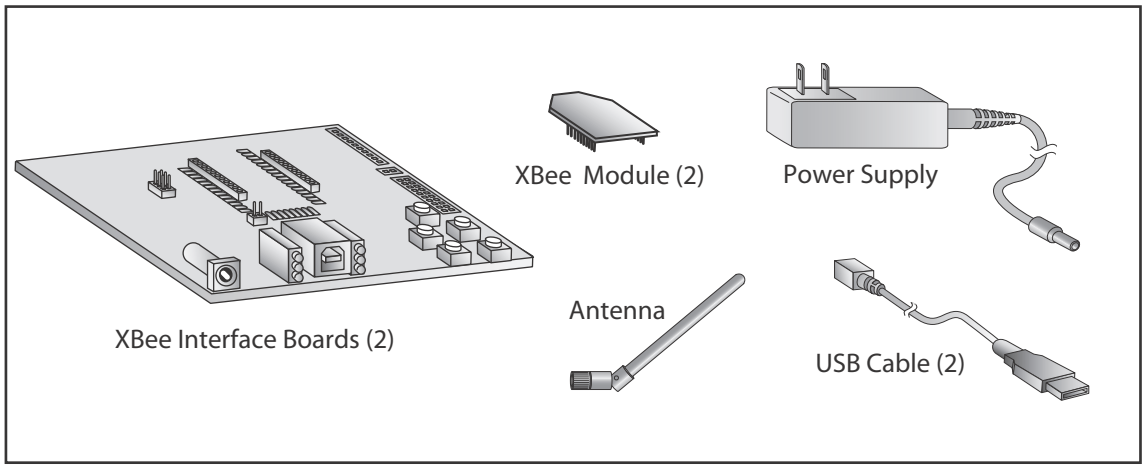
Part 1: Set up your XBee-PRO XSC (S3B) Development Kit

Identify Kit Components

Carefully unpack and verify the contents of your kit. Your kit should include the following:



Assemble your Development Kit

To assemble your development kit, perform the following steps:

1. Install the modules on the XBee Interface Boards (XBIB) by lining the pins up with the headers and pressing the module into place.
2. Attach the dipole antenna to the RPSMA module.
3. Connect the first XBIB to your computer using a USB cable. This first device will be your base radio.
4. Connect the remaining XBIB by either using the power supply or USB cable.

You are now ready to run the X-CTU software and to begin configuring your XBee Network.

You have just completed Goal #1 - setting up your XBee-PRO XSC (S3B) Development Kit.

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Part 2: Download and Install Software

Installing USB Drivers

The XBee USB Interface Board is a “plug-and-play” device that should be detected by the PC automatically. If you are using Windows 7 or Vista, the USB drivers should install and a notification will appear in the lower right portion of your screen indicating success or failure. If the USB drivers fail to install, please follow the USB driver installation instructions found here: *http://www.digi.com/support/kbase/kbaseresultdetl.jsp?id=3214*.

If you are using Windows 2000 or XP, download and install the driver as per the following directions.

To install the USB driver:

1. Download the driver setup file at: *http://ftp1.digi.com/support/driver/FTDI_Windows_Driver_Setup.exe*.
2. Double- click on the setup file. A window will pop up during installation and automatically close when the process is complete.

Installing X-CTU Software

1. Download X-CTU at *www.digi.com/xctu.*
2. Browse to the folder to which you saved the above install file.
3. Double-click on the installer file and follow the X-CTU Setup Wizard.
4. When asked if you would like to check Digi's web site for firmware updates, click **Yes**.
5. After the firmware updates are complete, click **Close**. Updates may take a few minutes, please be patient.
6. Start X-CTU by double-clicking on the X-CTU icon on your desktop, or by selecting **Start > Programs > Digi > X-CTU**.

You have just completed Goal #2 - download and install software.

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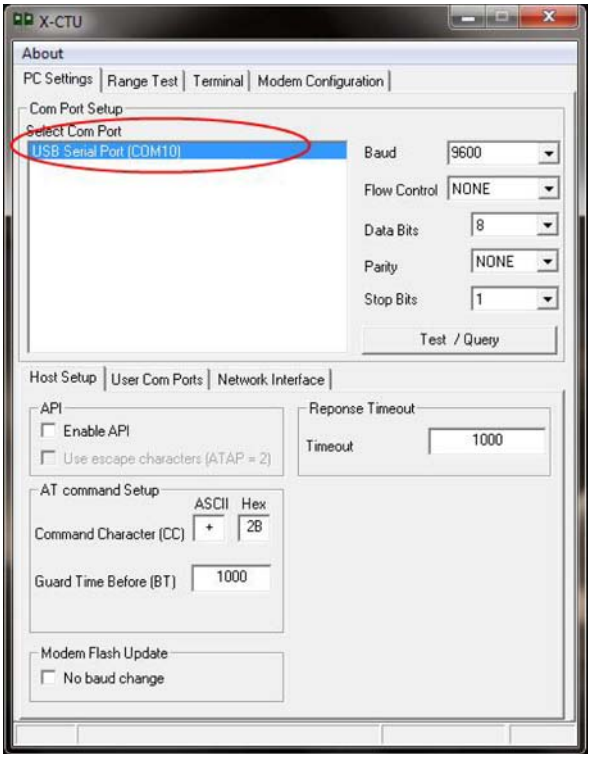
Part 3: Test Communications Link

Perform a Range Test

To run the range test, perform the following steps:

1. Double-click the X-CTU shortcut on your desktop.
2. Under the PC Settings tab, select the serial COM port associated with the development boards you have just attached to your computer.



3. Verify that the baud rate and data settings match the internal settings of the devices:

- Baud Rate: 9600
- Flow Control: NONE
- Data Bits: 8
- Parity: NONE
- Stop Bits: 1

Note: The baud rate needs to match the BD parameter in the radios for X-CTU

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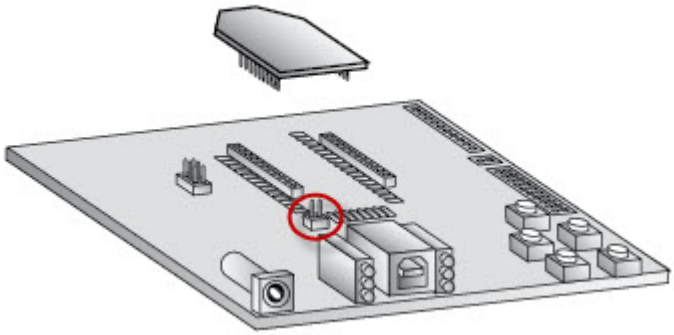
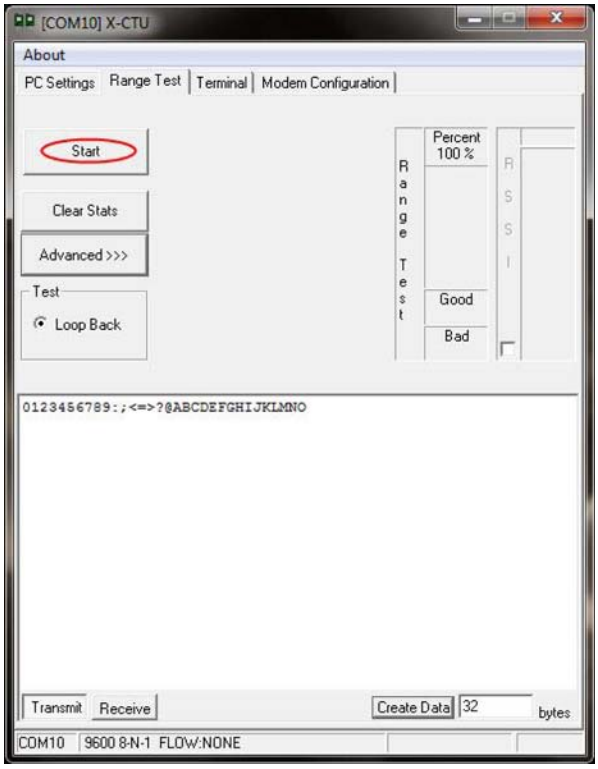
to communicate correctly with the radios. The default is 9600.

The range test works best if you attach the first XBIB to your computer and attach the second device to a laptop. Increase the distance between the first (base) radio and the second (remote) radio while monitoring the percentage of good packets on the laptop.

You will need to have a jumper at P8 on the loopback header on the XBIB for the remote radio.



4. Select the **Range Test** tab.
5. (Optional) Check the **"RSSI" check box** to enable Received Signal Strength Indicator.
6. Click **Start** to begin the range test



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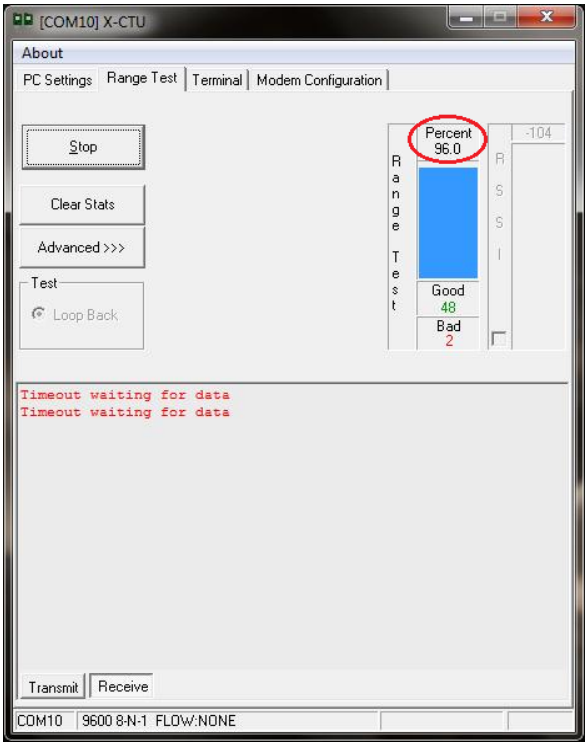
7. Monitor the link quality by reading the Percent section on the Range Test tab. This section displays the running percentage of good packets sent to the receiving radio and looped back to the base.



8. Click **Stop** to end the range test

You have just completed Goal #3 - performing a range test

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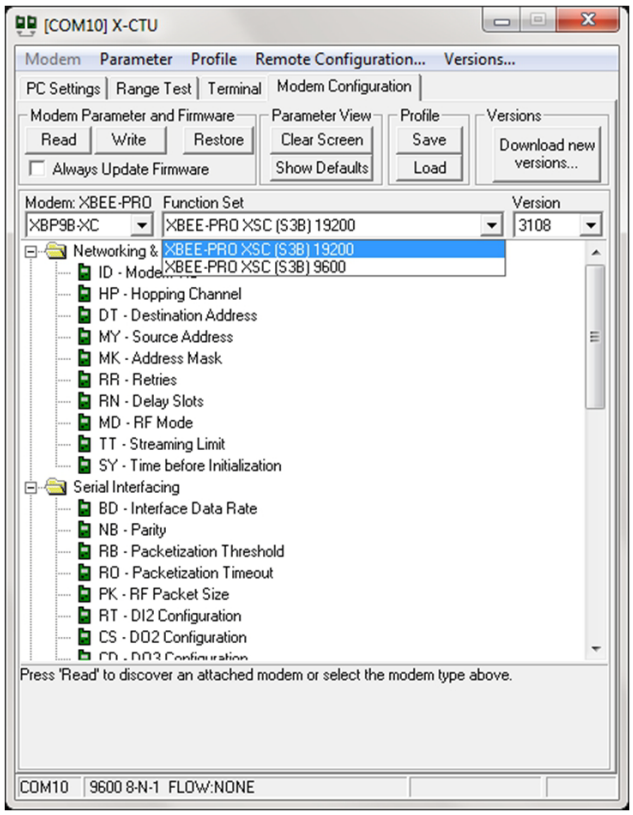
Part 4: Change Firmware Versions

These modules can be configured for an RF data rate of 9600 or 19200 baud with just a firmware change. When integrating these radios with the XStream or old XBee-PRO XSC product lines, the RF data rates must match. For XStream radios starting with the part number X09-009 or old XBee-PRO XSC radios, use the 9600 baud version. For XStream radios starting with the part number X09-019, use the 19200 baud version.

1. Click on the **Modem Configuration** tab in X-CTU.
2. Select the modem type (XBP9B-XC) from the Modem drop-down box.
3. Select the function set that corresponds with the RF data rate desired, XBee-PRO XSC-S3B 9600 or XBEE-PRO XSC-S3B 19200.
4. Select the firmware version desired from the Version drop-down box. The default selected is the newest version of the firmware.
5. Check the always update firmware box.
6. Click the **Write** button.



This sequence is also useful for switching between the regular firmware and the 920 MHz firmware.

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If you do not see the firmware version you are looking for in the Version drop-down box, you can query the firmware database for updates. To do so, click on the **Download new versions**... button and click **Web**. Any firmware versions not in X-CTU's library will be downloaded.

You have just completed Goal #4 - Change Firmware Versions

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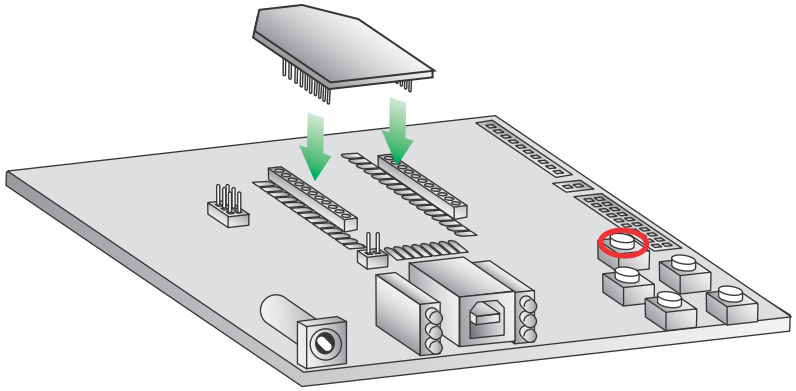
Appendix A: Troubleshooting

Resetting the XBee-PRO XSC Module

Each XBee USB Interface Board has a reset button (located as shown below):



Pressing this button resets the module, but will not clear any changes written to the module. Pressing this button will also reset the COM port for the board.

Resolving Radio Communication Issues

Other network settings that can cause loss of communication include Hopping Channel (HP), Baud Rate (BD), and Parity (NB) among others. Check to see if these parameters are set appropriately. If you are unsure if your settings are affecting your communication, you might want to try setting your modules back to their default settings. To do so, go to the **Modem Configuration** tab in X-CTU and click **Restore**.

Resolving Radio Responses in X-CTU

Check to make sure the loopback jumper is not bridging the P8 header on the interface board.

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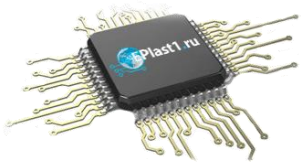

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