

Application Note for Configuring XBee S1 Modules Using CoolTerm on Mac OSX

Introduction:

This tutorial demonstrates how to configure the 2 XBee modules: one for transmitting and one for receiving using CoolTerm. This configuration is for point to point testing.

Materials Needed:

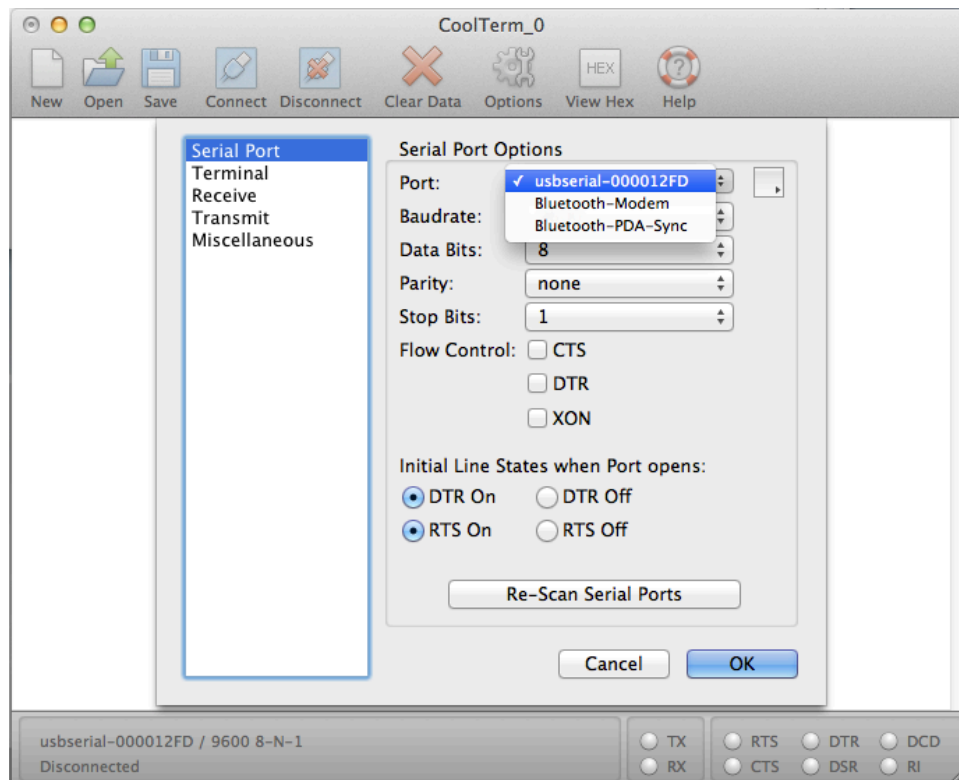
- 2x XBee S1 Modules
- 1x Mac Computer
- 1x XBIB-U-DEV REV. 3 Board
- 1x Type A USB

Procedure:

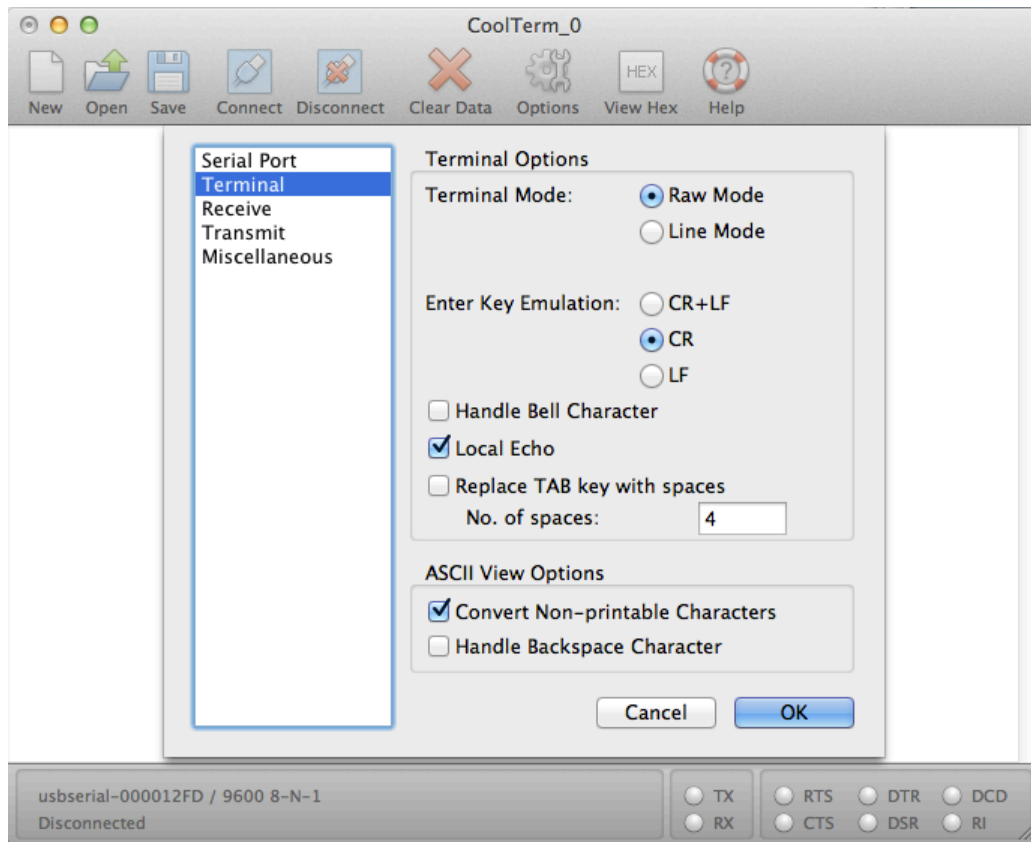
- 1) Before you start, if you have not already, you need to install the FTDI driver for your Mac OSX using the VCP (Virtual COM Port) driver and not the D2XX driver. You can download the driver here:
<http://www.ftdichip.com/Drivers/VCP.htm>.

You also need to install the driver for the XBIB-U-DEV board, which can be found here:
<http://www.digi.com/support/productdetail?pid=3130&type=drivers>
- 2) Go to <http://freeware.the-meiers.org/> and download CoolTerm v1.4.3 for Mac.
- 3) After you have downloaded the program, you should see a folder called “CoolTermMac” wherever you have saved it. Open up that folder and you should see three things: AppleScript folder, CoolTerm.app, and ReadMe.txt. Start up the program by double clicking on CoolTerm.app
- 4) Place your XBee S1 module onto the XBIB-U-DEV board and hook up the board to your Mac using the Type A USB. You should see the LED 1 and 2 turn on and LED 4 will be blinking. The red LED indicator should be blinking as well.

- 5) In CoolTerm, click on the options icon. In the Serial Port section, under the Port dropdown menu select the USB port, which your XBIB-U-DEV board is connected to. Click on the “Re-scan Serial Ports” button. If you have installed the FTDI driver correctly, you should see the usbserial port. Here, mine is shown as usbserial-000012FD. The default baud rate for the XBee modules is 9600. Initially, if you cannot connect to your XBee, you might need to change the baud rate to something else until you can connect. All other settings are shown below.

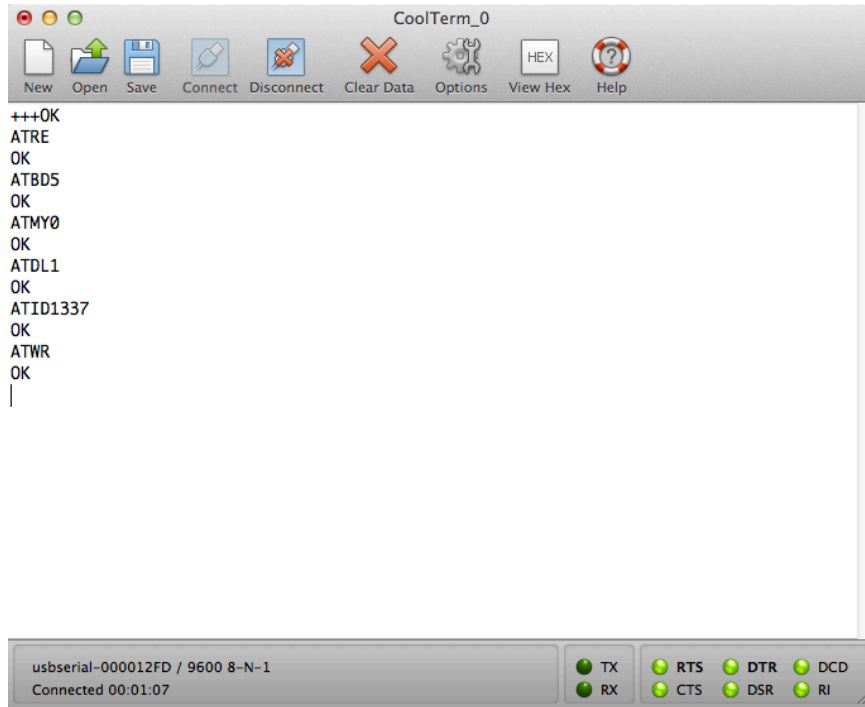


- 6) In the Terminal section, set the Key Emulation to CR and check Local Echo to see what you are typing into the terminal.

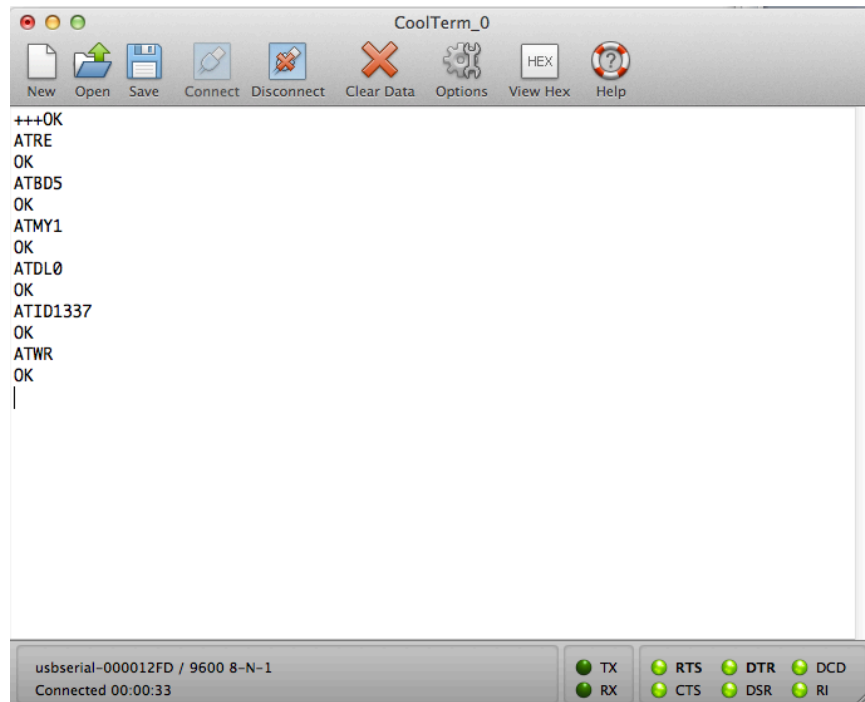


- 7) The Receive, Transmit, and Miscellaneous sections are left as defaults, but you can change them to your specs as needed. Click OK to finish setting up the options.
- 8) Click on the Connect icon at the top and you should now be connected to your XBee. If you are unable to connect, please go back to step 5 and change the baud rate. If that does not work, then something might be wrong with your FTDI driver.
- 9) To start configuring, you need to tell your XBee to go into command mode by typing "+++" (Do not press enter or any other key until you see the "OK" response). If this works, you should see an "OK" response. You have approximately 10 seconds in-between every command until the terminal timeouts. You will know it is timeout when you do not get a response back (ie. No "OK" message).

10) Below, the first image is configured for the transmitting XBee and the second one is setup as the receiving XBee. You can set the values to whatever you like. Once you are finished, you can click on the disconnect icon. If you want, you can save your current configuration so that you can just load it next time.



Transmit XBee



Receive XBee

The following are a short description of the used commands above for the transmitting XBee:

+++ (Puts XBee into command mode for configuring)

ATRE (Resets the XBee to the factory settings)

ATBD5 (Sets the Baud Rate to 38400, ie. The rate at which data is being sent. There are 8 different baud rates you can set it to.)

ATMY0 (Sets the address of the XBee)

ATDL1 (Sets the address of the XBee of which you are communicating with)

ATID1337 (Sets the communication network of the XBees)

ATWR (Writes the configuration to the XBee)

For the receiving XBee, the setup is the same with the exception that the value of ATMY and ATDL are swapped.

For more XBee commands, you can visit

<https://dlnmh9ip6v2uc.cloudfront.net/learn/materials/29/22AT%20Commands.pdf>

After performing writing the configuration to the XBee, you have to disconnect and change the Baud rate in the Option->Serial Port and connect again in order to communicate with the XBee module because the baud rate is now changed.

Sources:

-XBIB-U-Dev board REV.3 driver

<http://www.digi.com/support/productdetail?pid=3130&type=drivers>

-FTDI driver - VCP (Virtual COM port driver for MAC)

<http://www.ftdichip.com/Drivers/VCP.htm>

-XBee AT Commands:

<https://dlnmh9ip6v2uc.cloudfront.net/learn/materials/29/22AT%20Commands.pdf>

-How-To

<http://www.hughesy.net/wp/arduino/new-easier-xbee-for-mac-lion-os-x-10-7-with-arduino/>

-XBIB Board Layout

http://ftp1.digi.com/support/documentation/xbibudev_referenceguide.pdf

-XBee Ref:

<http://www.ladyada.net/make/xbee/ref.html>