Instructions for Configuring and Testing XBee modules for Communication between PC and Atmega 2560

This document is meant to supplement the provided screen cast/video for configuring and testing XBee.

There are two video/screencasts one for configuring and other for testing.

First watch the screencast for Configuring Xbee modules
Link: https://youtu.be/JB-W5hbaHDA
Then refer to points 1-4 in between the screencast or after it as you deem fit. They contain essential pointers to assist you.

Next watch the video for Testing Xbee modules
Link: https://youtu.be/yeHLZnxVJIA
Then refer to point 5 between the video or after it as you deem fit.

1. **Installation:**
   - Go to the following link: www.digi.com/xctu.
   - Click on the **download XCTU** button on this page.
   - Download XCTU v.6.3.2 32 bit or 64 bit version for linux based on your system architecture.
   - To find out whether your system is 32 bit or 64 bit, open up a terminal and type:

     uname –m

     For a 64 bit system, the output will be x86_64
     For a 32 bit system, the output will be x86_32
   - Download XCTU v.6.3.2, Linux x64 for 64 bit, XCTU v.6.3.2, Linux x86 for a 32 bit system.
   - A script named "**40002880.run**" will be downloaded.
   - **The script name may vary depending on the version downloaded.**
   - Before running this script refer to the section below:

2. **Serial port Access for User** (*Courtesy : Digi.com*):
   - By default, access to the serial and USB ports in Linux is restricted to root and dialout group users. To access your XBee devices and use XCTU to communicate with them, your Linux user must belong to this group.
   - To add your Linux user to the dialout group:
   - Execute this following command, where **<user>** is the user you want to add to the dialout group.

     sudo usermod -a -G dialout <user>
   - Give execute permission to the script by typing:

     chmod u+x 40002880.run
   - Now, you can run the script by typing

sudo ./40002880.run

- Note the command line arguments/options are separated from the command itself by a single space. Also write the appropriate script name, verify the name in the folder where it is saved.

3. **Running the installed XCTU software (** Courtesy : http://knowledge.digi.com/articles/Knowledge_Base_Article/HOW-TO-Install-XCTU-in-Linux):
   - By default XCTU will get installed in your root directory inside a folder named **"opt".**
   - To launch the software, type the following on your command line:

     /opt/Digi/XCTU-NG/app

4. **Xbee Addresses:**
   - **The addresses mentioned here are the same as used in the screen cast**

     i) Xbee 1:
     Source Address:
     Serial High Address (SH) - 0013A200
     Serial Low Address (SL) – 40F657C9

     ii) Xbee 2:
     Source Address:
     Serial High Address (SH) - 0013A200
     Serial Low Address (SL) – 40F65836

   - The Destination address (DH and DL) of Xbee 1 should be the Source address (SH and SL) of Xbee2 and Destination address (DH and DL) of Xbee 2 should be the Source address (SH and SL) of Xbee1

     Xbee 1 **Xbee 2**
     Source Address ⟶ Destination Address
     Destination Address ⟵ Source Address

   - Make sure that both the Xbees have the same PAN ID

5. **Testing the configured Xbees:**
   - Load the zigbee.hex file on to the development board. This file will be present in "test files" folder.
   - Place one of the Xbees in the Xbee slot of the Atmega 2560 development board. Make sure that placement is as per figure 1 below:
   - Before testing the configured Xbee, **turn off the power supply**. Change the positions of the **UART0 RX/TX** connection jumpers to the Xbee side as shown in figure 2.
   - Please note that the jumpers will on the USB position for programming the controller.

Figure 1: Xbee Connection

Figure 2: Jumper Settings