iDigi® Gateway Development Kit

Getting Started Guide

Wireless WAN Version

June 8, 2011
90001253_A

Using this Guide

Contact Information

Please always check the product specific section on the Digi support website for the most current revision of this document: *http://www.digi.com/gatewaydevelopmentkit.*

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

To contact Digi International by	Use
Mail	Digi International 1101 Bren Road East Minnetonka, MN 55343 U.S.A.
World Wide Web	*http://www.digi.com/support*
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Telephone (other locations)	+1 (952) 912-3444 or (877) 912-3444

Conventions used in this Guide

This icon indicates a step that has the potential to be troublesome. Further information regarding items marked with this symbol can be found in Appendix D: Troubleshooting on page 79.

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.

Contents

Introduction to the iDigi® Gateway Development Kit – Wireless WAN Version

Thank you for purchasing an iDigi Gateway Development Kit. The kit is designed to make it easy to setup an XBee network, upload a custom iDigi Dia application, and provide seamless connectivity to the iDigi Cloud for web services integration to standard business applications over the Internet. 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. Configure the Wireless WAN interface of the ConnectPort X4.
2. Create an iDigi developer account on the iDigi M2M operating Cloud.
3. Setup and configure the physical elements of an XBee wireless network and understand how the network is managed through a ConnectPort X4 gateway.
4. Use the Digi ESP for Python IDE to build, download, and launch an iDigi Dia application for your ConnectPort X4 gateway, then interact with the application in a realistic setting.
5. Use the iDigi Manager Pro Web Services Console to send a web service request to the ConnectPort X4 retrieving the current XBee devices' sensor readings.
6. Use the iDigi Gateway Development Kit Demonstration Application to understand how an Enterprise application could use the iDigi Web Services API to monitor the data gathered by the XBee devices' sensors.

Requirements of the Kit

System Requirements

To install the software mentioned in the Getting Started Guide, you will need a PC running Microsoft Windows XP, Vista or Windows 7.

Web Browser Requirements

Microsoft Internet Explorer 7.0 or newer
Google Chrome 4.0 or newer
Mozilla Firefox 3.0 or newer

Additional Requirements

This Getting Start Guide assumes a scenario where there are no other XBee wireless devices in the area (other than the ones provided with this kit) and that the local network has an Internet connection.

Note: If other XBee networks are present and open for joining, the XBee Sensor and XBee Smart Plug may join the wrong network. Please refer to the "XBee devices fail to join the ConnectPort X4's network" section of Appendix D: Troubleshooting on page 79 for more information.

Part 1: Setup your Digi® Gateway Development Kit

Step 1: Kit Preparation

Identify Your Kit Components

Carefully unpack and verify the contents of your kit.

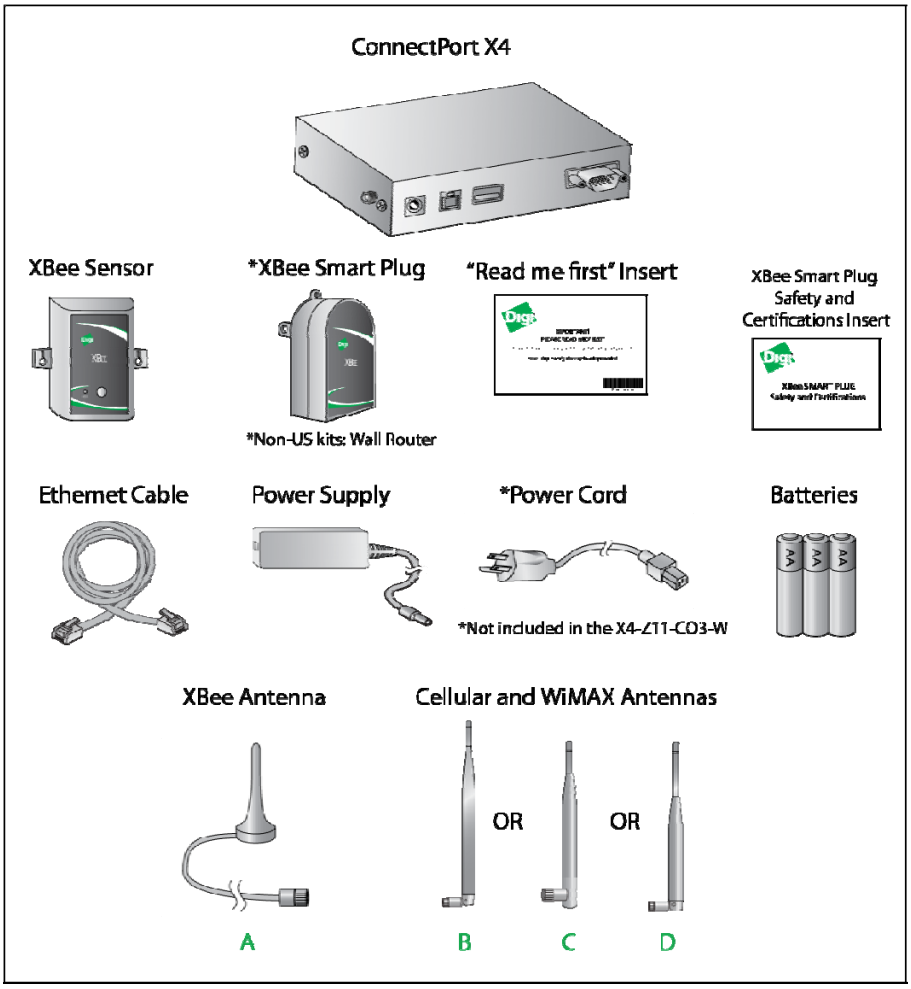


Figure 1: Kit Components

The table below indicates the type and quantity of cellular or WiMAX antennas included in your kit.

Antenna	Sprint X4K-Z1U-C1011-A1	Verizon X4K-Z1U-C2011-A1	AT&T X4K-Z1U-H2011-A1	Generic X4K-Z1U-U7011-A1	WiMAX X4K-Z1U-C6011-A1
A	1	1	1	1	1
B	2	2			
C			2	2	
D					2

Step 2: Unpack and Set up the ConnectPort X4

To begin setting up your iDigi Gateway Development Kit, you will need to connect the antennas to your ConnectPort X4, connect your PC's Ethernet cable to the ConnectPort X4, and then power on the ConnectPort X4, and then form your XBee network.

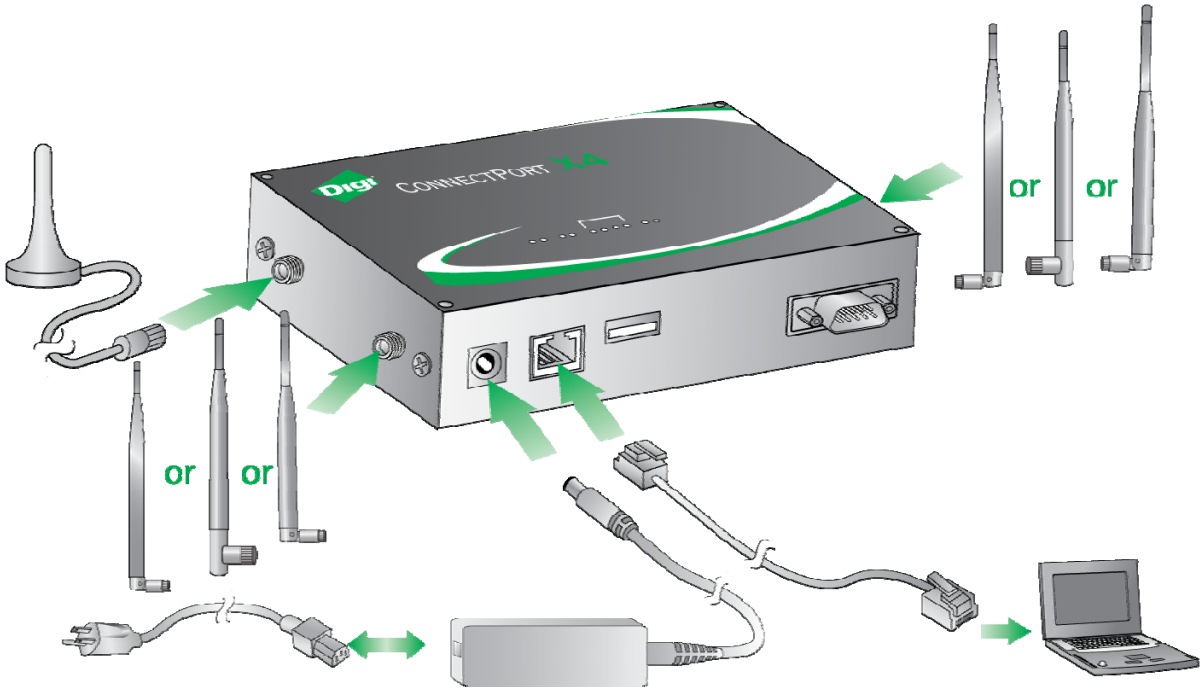


Figure 2: Connecting Hardware

1. Remove the ConnectPort X4 from the box and attach the XBee antenna to the unit.
2. Attach the Cellular or WiMAX antenna(s) to your ConnectPort X4.
3. Connect the power supply to the ConnectPort X4 and then plug the power supply into a wall outlet.

   Note: The power supply has a twist-locking connector, ensure that the connector is locked into place.

Step 3: Configure the ConnectPort X4

Note: By default, ConnectPort X4 Wireless WAN models are configured with a static IP Address of 192.168.1.1 for the Ethernet interface, and they are configured to act as a DHCP Server. This configuration simplifies the initial configuration of the unit.

1. Connect one end of the Ethernet cable to your PC, and the other end to the ConnectPort X4 Ethernet port (ensure that your PC is configured to obtain its IP address via DHCP).
2. Open the Web interface of the ConnectPort X4 by navigating to the 192.168.1.1 address in a Web browser on the PC and you will see a screen similar to the following:

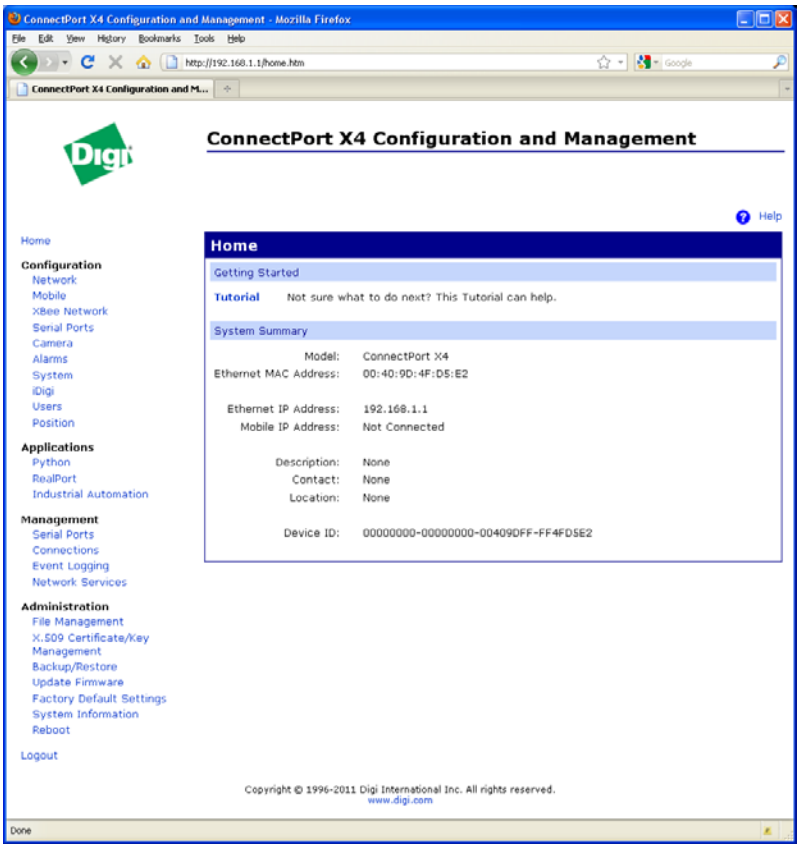


Figure 3: Web Interface

3. Configure the ConnectPort X4 Wireless WAN and Ethernet interface. Select the Appendix below that best matches the Wireless WAN interface of your ConnectPort X4.

   Note: For more information on how to properly configure the ConnectPort X4 Wireless WAN interface, refer to the following Appendix:

   Appendix A: Configuring for a GSM/Edge cellular network (AT&T)
   Appendix B: Configuring for a CDMA cellular network (Verizon)
   Appendix C: Configuring for a CDMA cellular network (Sprint)
   Appendix D: Configuring for a WiMAX network

Once you have followed the configuration examples for the Wireless WAN interface in the appropriate Appendix, continue with the following sections below:

Configuring the ConnectPort X4 IP Gateway Priority

Once the ConnectPort X4's mobile interface is connected, it could conceivably reach the Internet via either of its network interfaces (Mobile or Ethernet). Configuring the ConnectPort X4 Gateway Priority List determines the priority for each of its network interfaces. By default the ConnectPort X4 gives the Mobile interface the highest priority.

The ConnectPort X4 IP Gateway Priority List and the DNS Priority List are configurable via the Configuration > Network > Advanced Network Settings page, as displayed below: (Gateway Priority will display WiMAX for WiMAX units.)

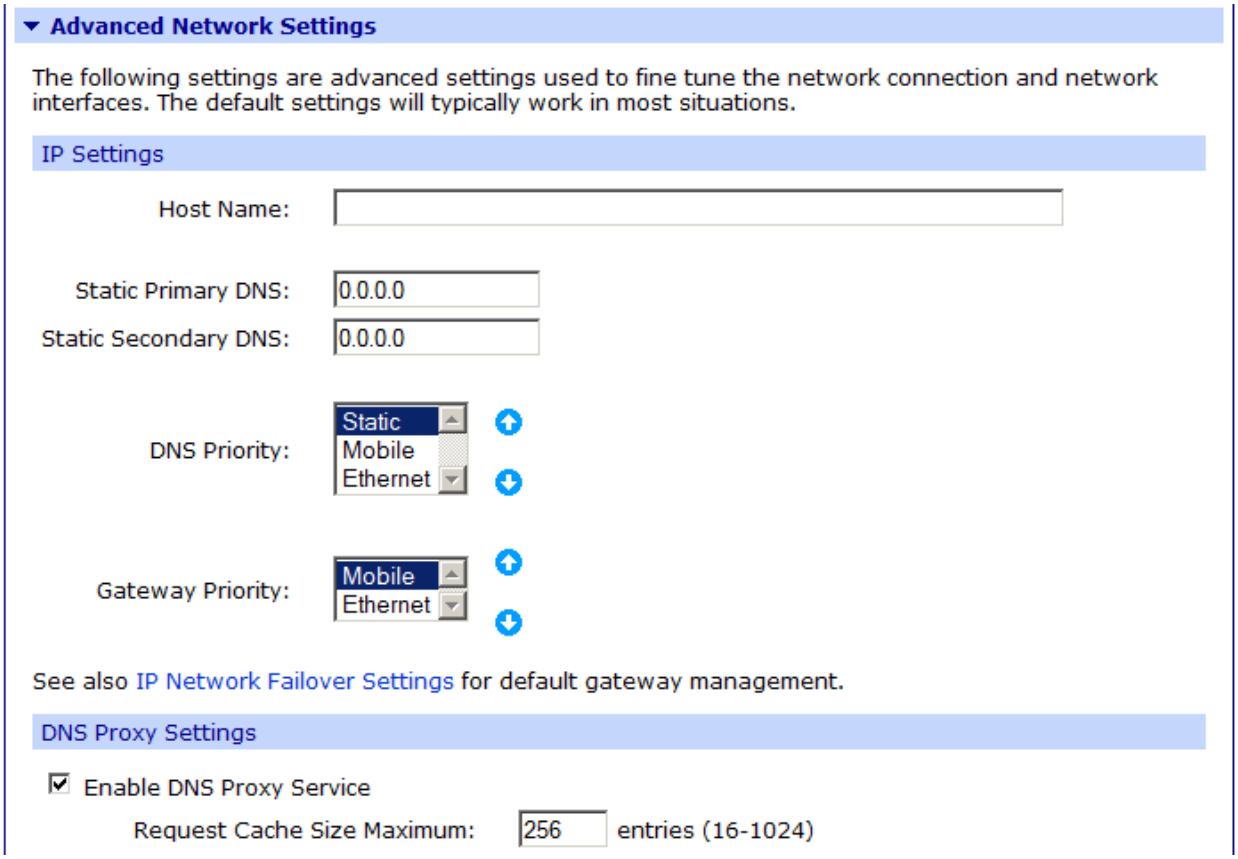


Figure 4: Advanced Network Settings

Configuring the Ethernet Interface

Now that the ConnectPort X4's mobile interface is configured, you will need to configure the Ethernet interface. The Ethernet configuration changes will involve disabling the DHCP Server and determining how the ConnectPort X4 will be given its IP address.

1. Click on Configuration > Network from the left-hand menu. You should see the Network Configuration screen (with the Ethernet IP Settings page displayed by default) as shown:

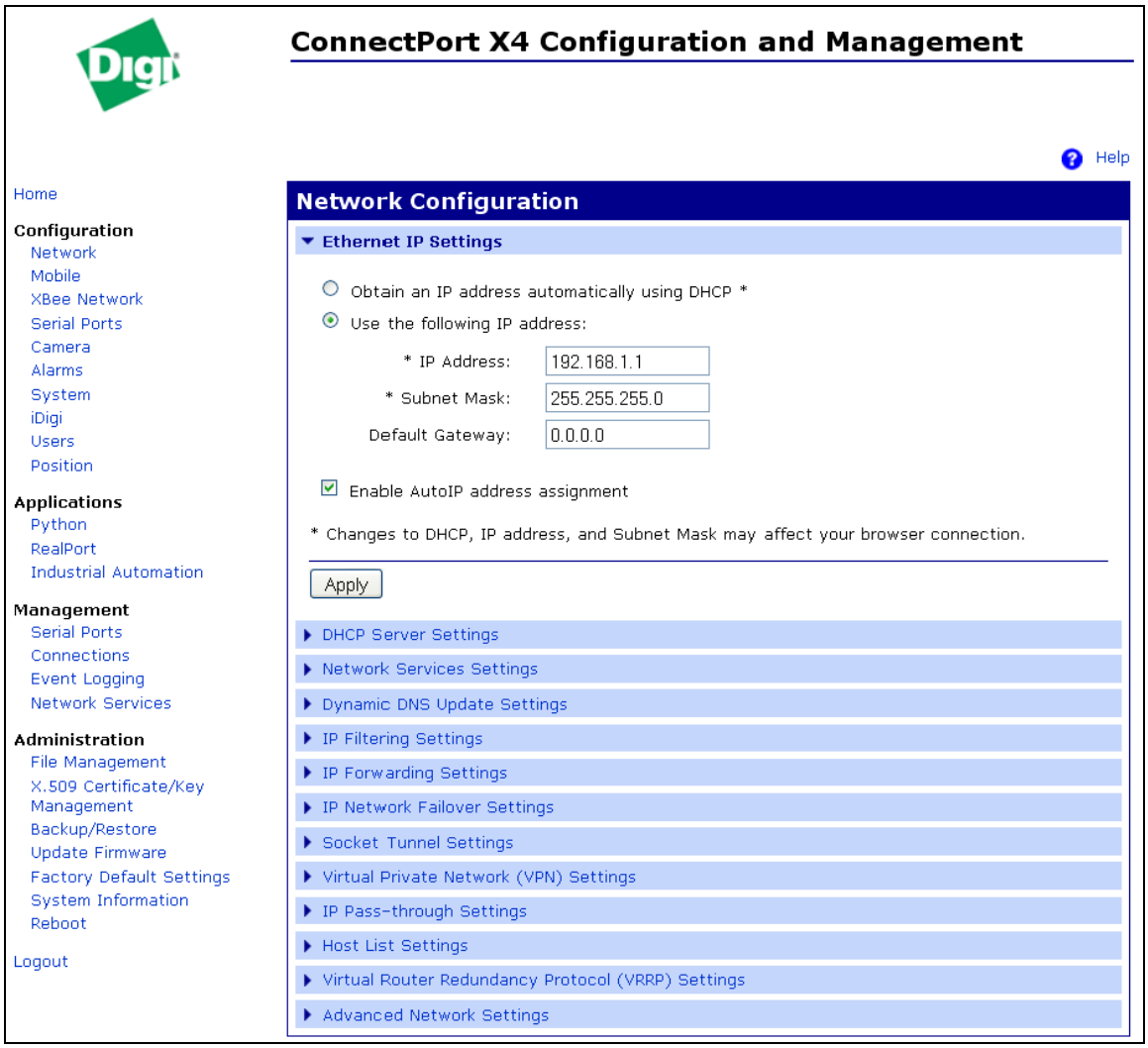


Figure 5: Ethernet IP Settings

2. Click the DHCP Server Settings link and open the DHCP Server Settings page.
3. To disable the DHCP Server, un-check the "Enable Dynamic Host Configuration Protocol (DHCP) Server" entry. Click Apply when finished.
4. Return to the Ethernet IP Settings page by clicking the Ethernet IP Settings link.
5. Configure the ConnectPort X4 with either a static IP address, or have it get its IP address from a DHCP Server, whichever method is appropriate. Click Apply when finished.

Viewing IP Address Information

The ConnectPort X4 Home page will display the IP address for both the Ethernet and Mobile networks.

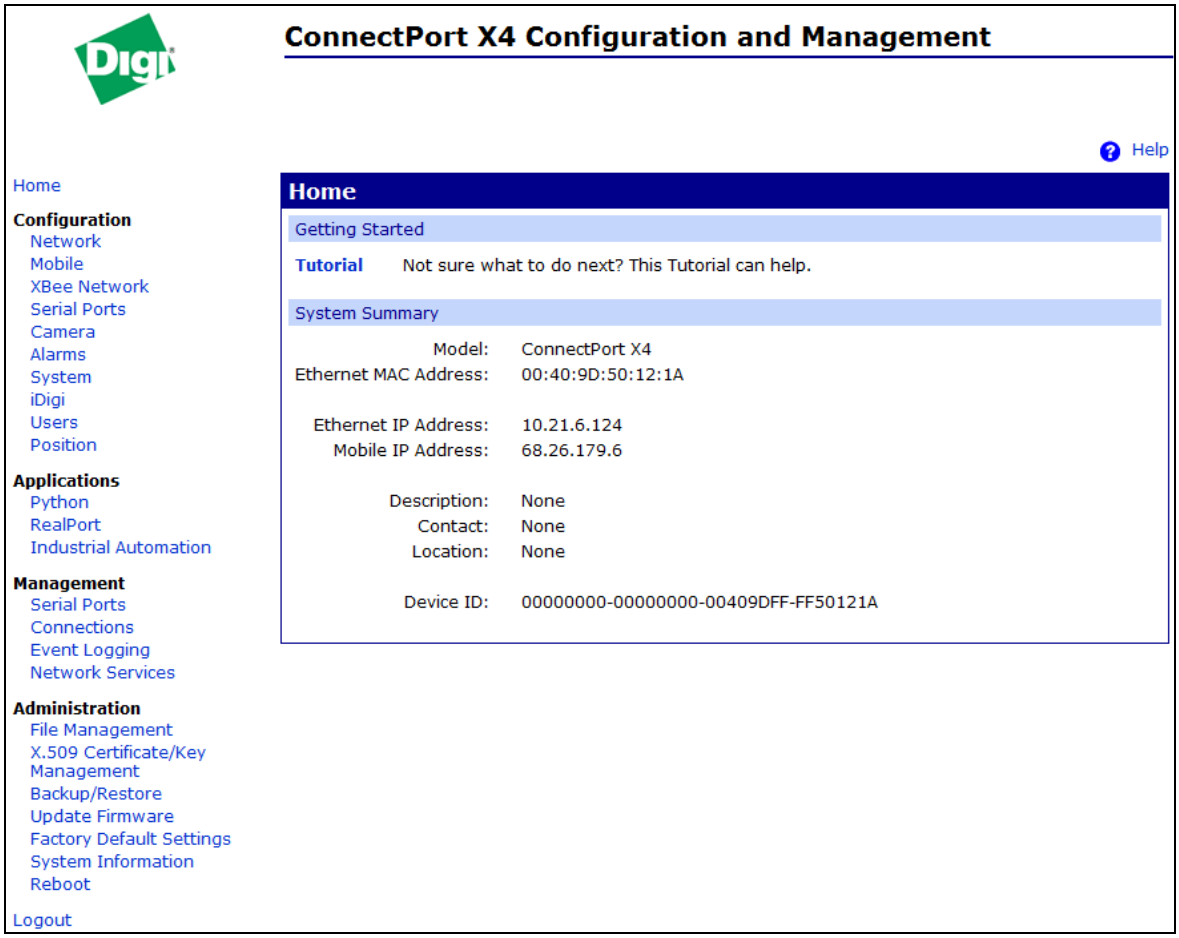


Figure 6: ConnectPort X4 Home Page

Viewing Ethernet Statistics

To view information about the Ethernet Link as well as Ethernet and IP statistics, navigate to the Administration > System Information > Network page.

The ConnectPort X4 is now ready to be moved to your Ethernet network, and by default will use its mobile interface as its primary network interface.

Disconnect the ConnectPort X4 from your PC and then connect it to the Ethernet network (if the PC needs to be reconfigured with a static IP address, do this prior to moving the PC to the Ethernet network as well).

You have just completed Goal #1: Configure the Wireless WAN interface of the ConnectPort X4.

Step 4: Setup the XBee Smart Plug and XBee Sensor

XBee/ZigBee Note: If you have additional XBee/ZigBee devices, for the best kit experience, we recommend powering down or disable joining other XBee/ZigBee PANs in the area before beginning this step. If you are unable to do this other devices might join the kit network and create interference when deploying your iDigi Dia project. You could also encounter issues connecting the XBee Sensor and XBee Smart Plug to the ConnectPort X4 as they are configured to join any available PAN.

1. Remove the XBee Smart Plug from the box and plug it into a wall outlet. The green LED will blink to indicate that the XBee Smart Plug is associated with an XBee network.
2. Remove the XBee Sensor from the box and insert the batteries (3) from the box and install them into the XBee Sensor (unscrew the two screws on the XBee Sensor to install the batteries). The XBee Sensor's ASSC LED will blink when the device is connected to your XBee network.

Note: If either of the XBee devices fails to blink its ASSC LED indicating that it is connected to your XBee network, please refer to the "Is the ASSC LED solid green? " section of Appendix D: Troubleshooting on page 79 for more information.

Step 5: Connect the ConnectPort® X4 to iDigi®

The iDigi Cloud is an on-demand hosted service platform with no infrastructure requirements for the user. The iDigi Cloud provides device management, iDigi client application to iDigi device data interaction (messaging), and data storage for a network comprised of both wired and wireless Digi and third-party Gateways (called iDigi devices). The iDigi Cloud provides easy integration with M2M and mesh network devices.

First, before you can connect your ConnectPort X4 to iDigi, you must create an iDigi developer account.

1. To set up an iDigi developer account:

    a. Navigate to *http://www.idigi.com*.

    b. Click the 

iDigi Login button in the upper right corner of the page.

    c. Click the **iDigi Developer Cloud** login button.

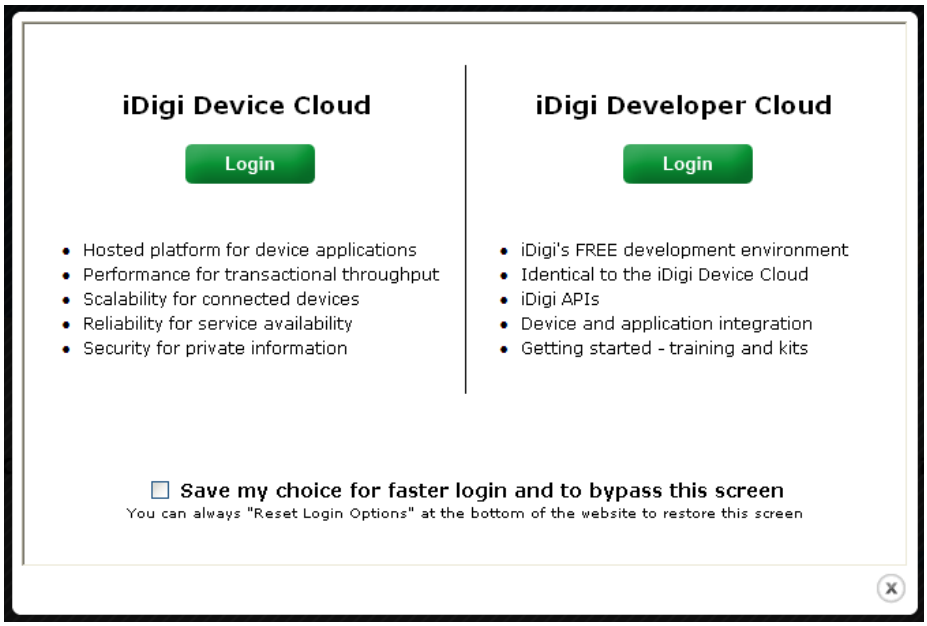


Figure 7: iDigi Cloud Screen

You will be redirected to the iDigi Developer Cloud login page.

Want to learn more about iDigi?

Please refer to the iDigi User's Guide which can be found at *http://www.digi.com/gatewaydevelopmentkit*

d. If you do not already have an iDigi developer account, click on the “Are you a new user" link and create your account.
If you already have an account, login and skip ahead to the “Add the ConnectPort X4 to your iDigi inventory” section on the next page.

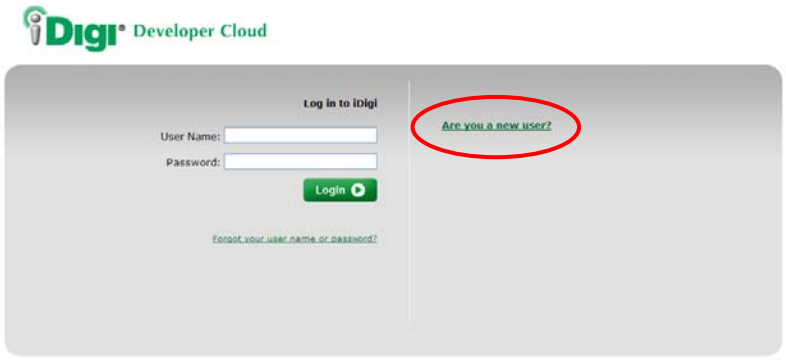


Figure 8: iDigi Login Page

Continue filling in all required fields of the iDigi Registration Form until you complete the iDigi Registration process.

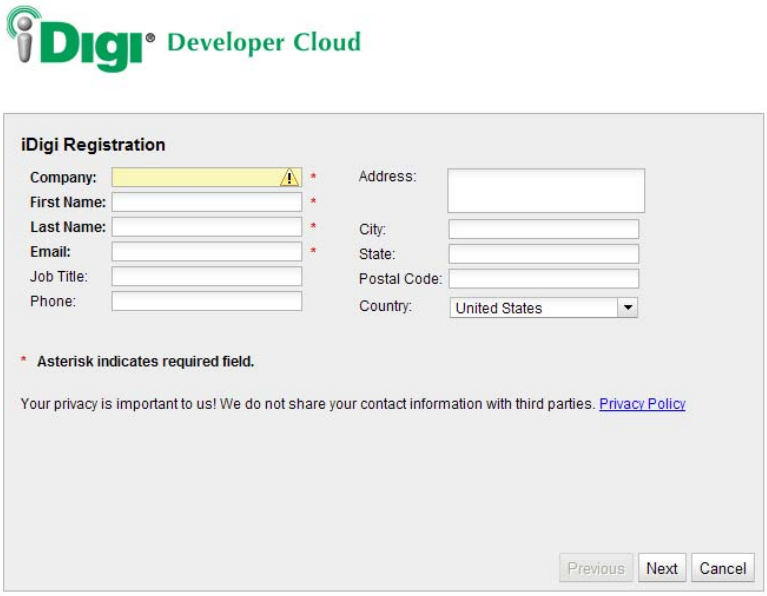


Figure 9: New User Registration Page

e. After completing the iDigi Registration process, you will be redirected to the iDigi Login page (refer to Figure 5, above). Enter your iDigi user credentials and then click the **Login** button.

You have just completed Goal #2: Creating an iDigi developer account on the iDigi M2M operating platform.

Add the ConnectPort X4® to your iDigi® Inventory

The iDigi Cloud allows you to securely manage the devices in your device inventory.

1. To add the ConnectPort X4 to your inventory, follow these steps:

    a. Select the **Devices** link in the Left Navigation Bar.

    b. Click the  **Add Devices** button in the Tool Bar to open the Add Devices applet. The Add Devices applet will discover the Digi devices on your network.

Note: In order to discover devices on your network automatically, the Add Devices applet requires Java Runtime Environment (JRE) 1.6 or newer.

If Java Runtime Environment (JRE) 1.6 is not installed, you must add your device manually; see the “iDigi Manager Pro does not discover your ConnectPort X4” section of Appendix D: Troubleshooting, on page 80 for more information.

    c. Select your ConnectPort X4 from the list. To verify that you are selecting the correct device from the list, match the MAC address listed on your label (found on the bottom of the device) with the MAC address listed within the Add Devices applet. Click the **OK** button.

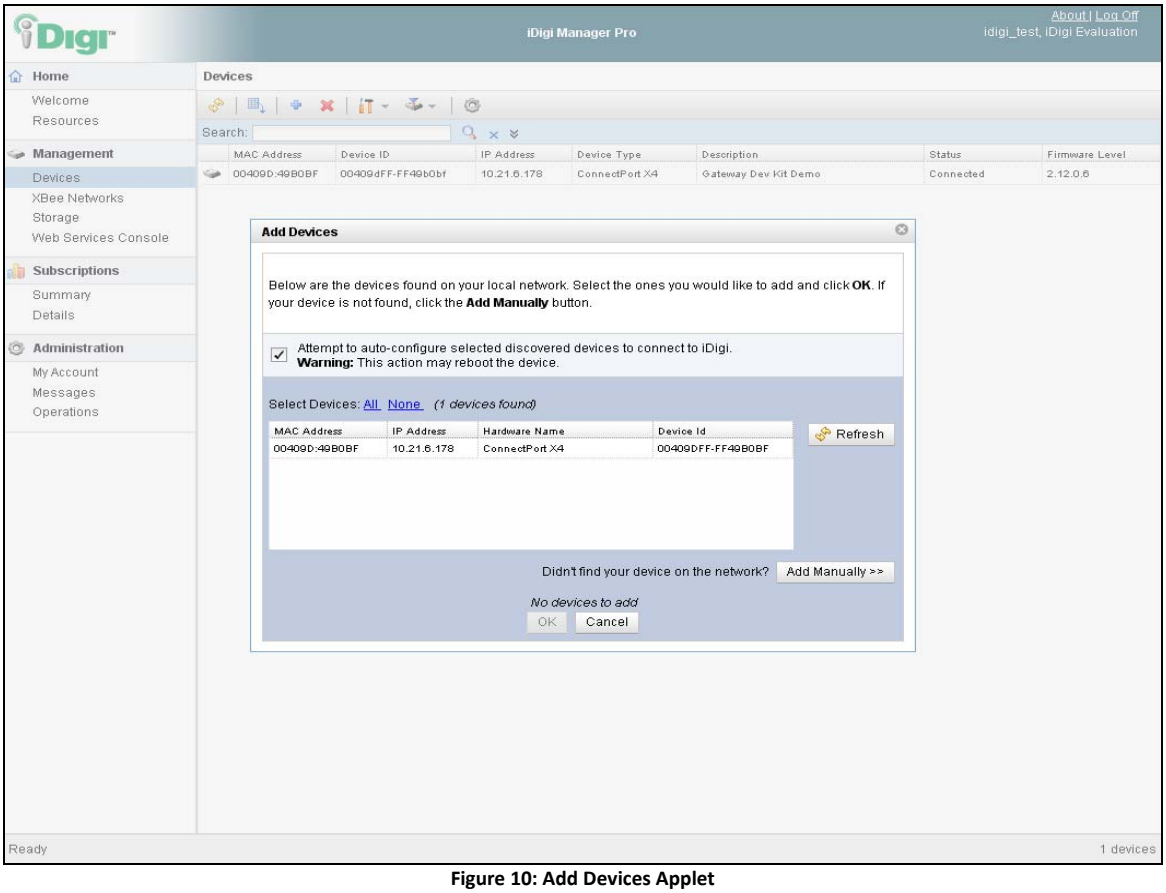


Figure 10: Add Devices Applet

d. Wait about 60 seconds then go back to the Devices list and click the **Refresh** button. The status of your ConnectPort X4 should now appear as “Connected.”

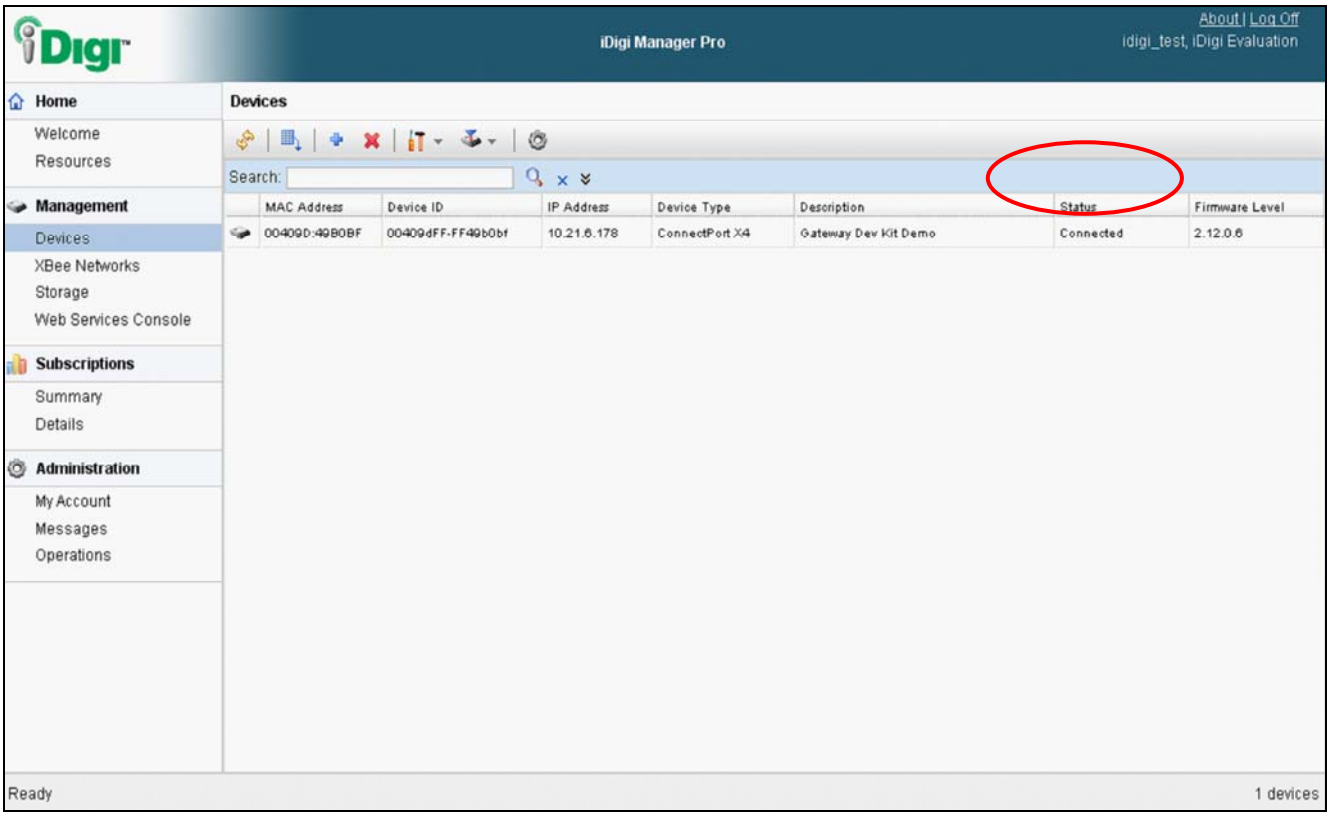


Figure 11: iDigi Device Inventory

Note: If the device still appears as ‘Disconnected’ after clicking the **Refresh** button, please refer to the “’iDigi Manager Pro lists the ConnectPort X4 as ‘Disconnected'” section of Appendix D: Troubleshooting, on page 82 for more information.

Step 6: Install the Digi ESP™ for Python Development Environment

The Digi ESP for Python Development Environment is an Eclipse-based Integrated Development Environment (IDE) that simplifies the process of creating Python applications for iDigi devices. It also provides many example projects, one of which we will be using later in this section.

To download and install the Digi ESP for Python Development Environment:

1. Navigate to *http://www.digi.com/gatewaydevelopmentkit* and click on the "Download Digi ESP for Python" link.
2. You will be redirected to the Python Product page. The various download options for the Digi ESP for Python framework will be displayed on this page. Click on the "Digi ESP for Python - Windows XP/Vista/Windows 7 installer ver. 1.2.0.5" link to download the Digi ESP for Python Development Environment.

Note: Mac operating systems are not supported in this Development Kit experience.

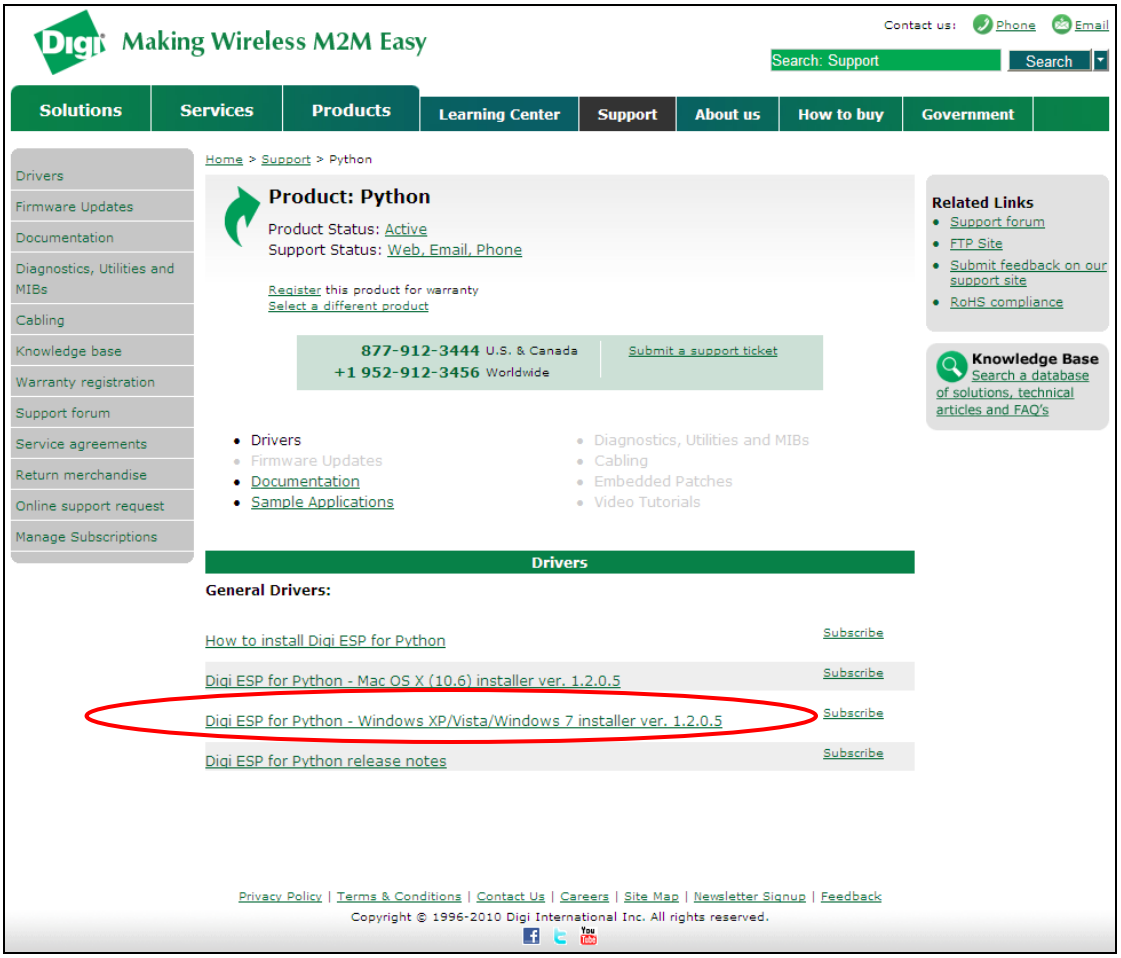


Figure 12: Select Digi ESP for Python Download Variant

3. Once the Digi ESP for Python framework has been downloaded, run the Digi ESP for Python framework installation wizard. Follow the steps in the wizard to complete the installation process. Click **Finish** at the end of the installation.
   Note: A prompt will ask you if you would like to open the Release Notes associated with the Digi ESP for Python framework, deselect this checkbox.
4. The Digi ESP for Python framework will launch automatically and prompt you to select a workspace directory. Use the default workspace directory (or click the **Browse** button and navigate to your desired alternate workspace location), check the "Use this as the default and do not ask again" box, and click **OK**.

Note: The Digi ESP for Python framework 'workspace' is the directory where projects and configurations will be stored. The default location for this directory is a subfolder called **workspace** on the user home directory, for example, **C:/Documents and Settings/[username]/workspace**.

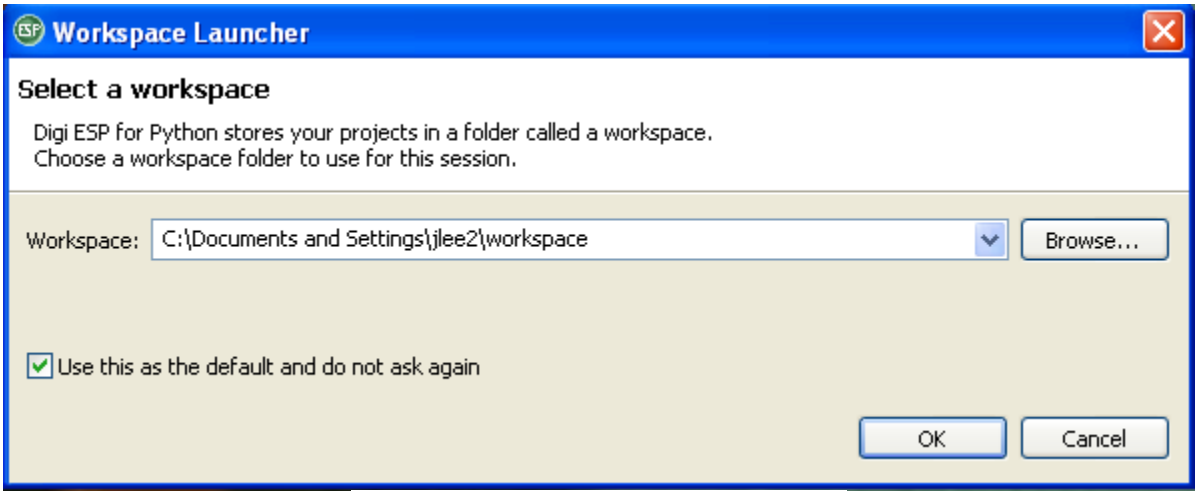


Figure 13: Selecting your Digi ESP for Python Workspace

5. The first time you run Digi ESP for Python the **Welcome** screen is displayed.

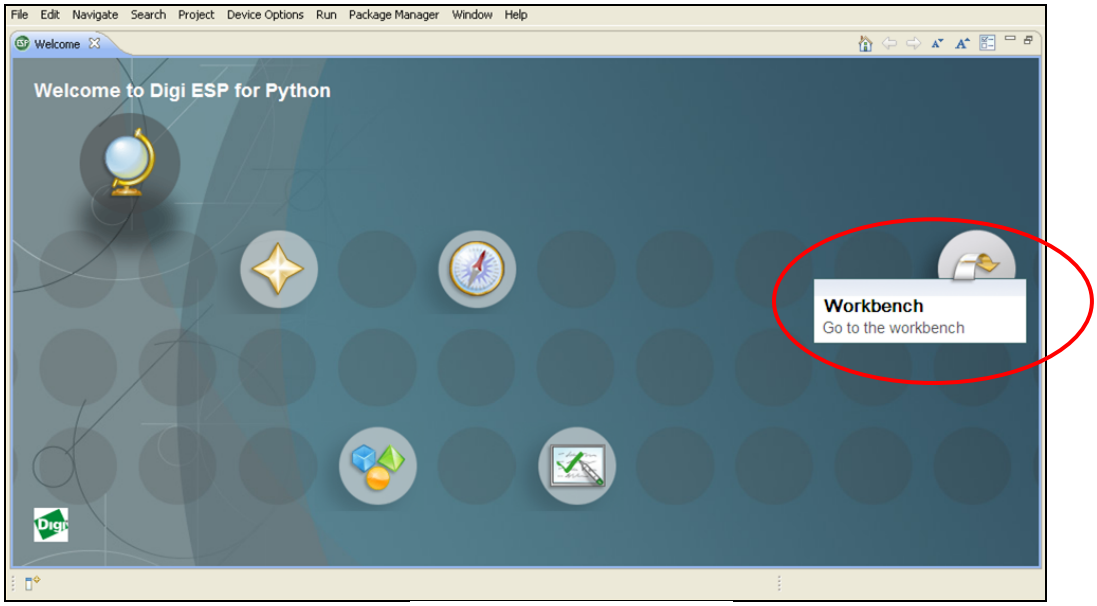


Figure 14: Digi ESP for Python Welcome Screen

6. Open the Digi ESP for Python Workbench by clicking on the Workbench icon (as indicated above).

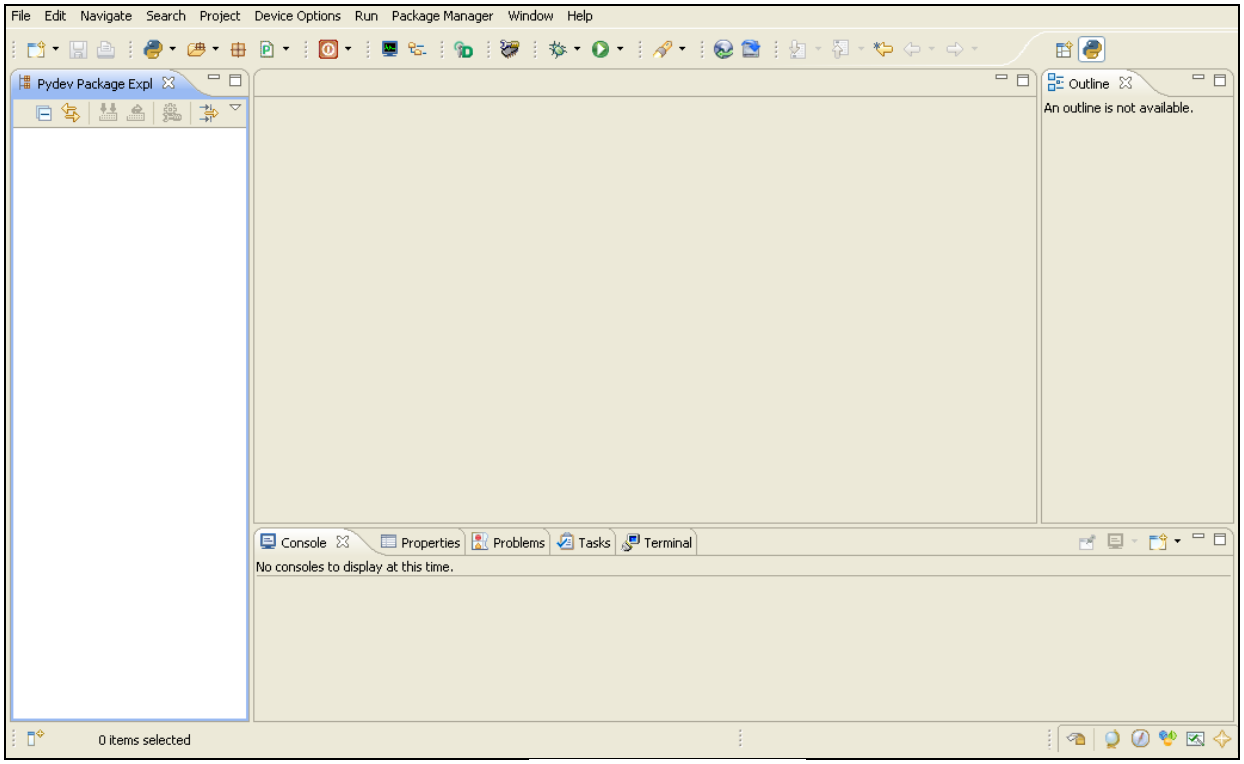


Figure 15: Digi ESP for Python Workbench

Step 7: Create your first iDigi® Dia Project

The iDigi Dia (Device Integration Application) is software written in Python that simplifies the task of gathering data from attached devices (such as XBee Sensors), and sending the gathered data to iDigi, allowing for easy integration with client applications using the iDigi Web Services API to access it.

The steps in this section will help you build, download, and launch your first iDigi Dia application.

The resulting iDigi Dia application will contain drivers for the XBee Sensor and XBee Smart Plug. The application will also be configured to report its data using the RCI presentation for access with iDigi Web Services (which will be demonstrated later in this guide).

To begin creating your first iDigi Dia project:

1. Open the **iDigi Dia Project Wizard** by clicking **File > New > iDigi Dia Project** from the **File** menu.

Figure 16: Selecting an iDigi Dia Sample Project

2. The main wizard page contains a text box to insert the name of the project to be created; name your project. This example uses a project name of “Demo_Project1” but you can choose any unique name. Once the project name has been provided, click **Next**.

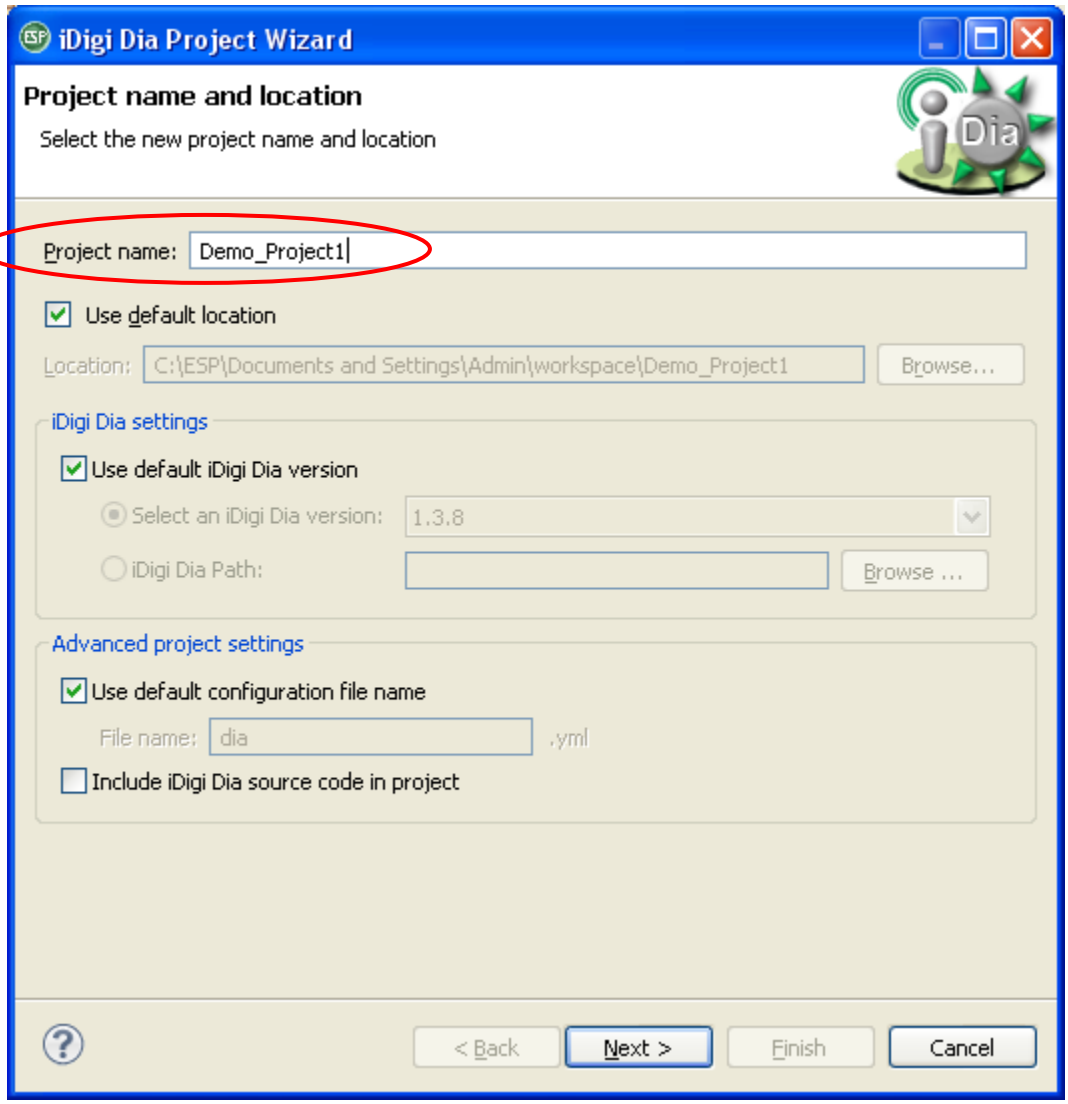


Figure 17: Name your iDigi Dia Project

3. Within the Remote Device selection wizard page ensure that **Use Current Remote Configuration** is selected, and then click the **New…** button to create a new remote configuration.

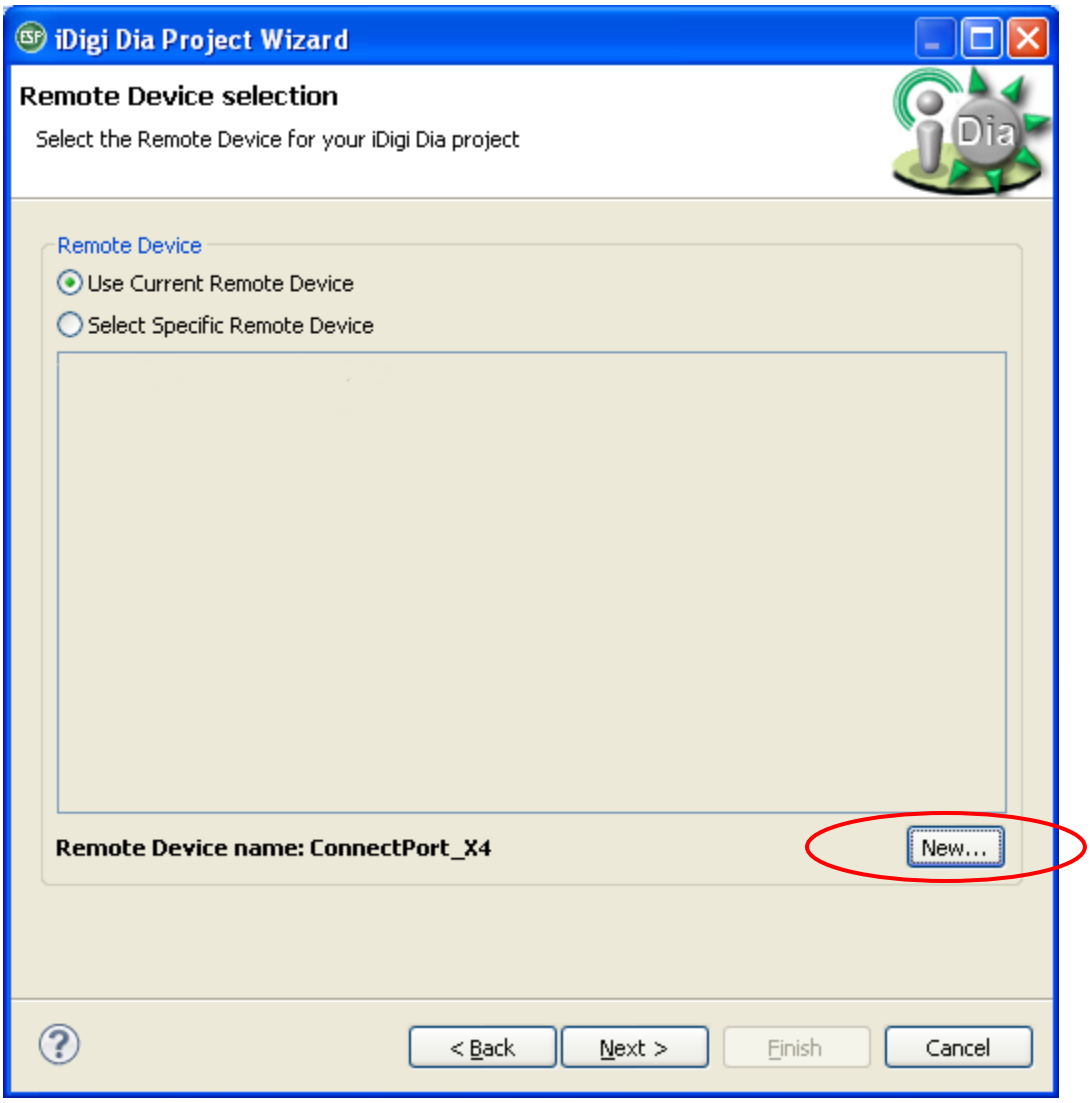


Figure 18: Create New Configuration

A new **Remote Device Configuration** is needed to work with each specific target device (your ConnectPort X4 in this case). Multiple remote configurations can be created for working with different devices.

a. After clicking the **New…** button, the Device Manager wizard dialog will open.

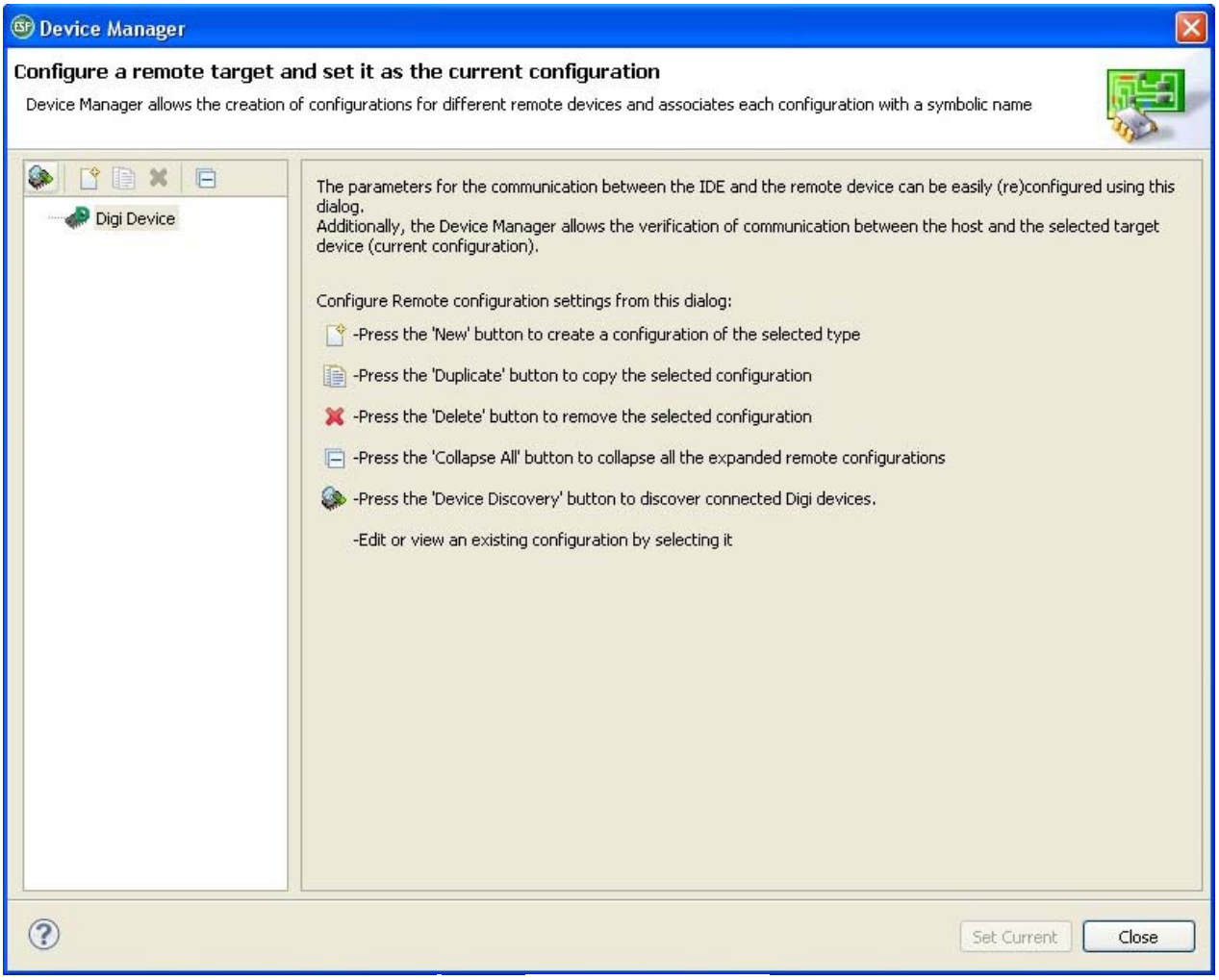


Figure 19: Device Manager Home Page

Note: The left side of the dialog lists the Remote Configurations that exist in the Workbench.

b. Initially, there are no Remote Configurations listed in the Device Manager. To begin the process of creating your first Remote Configuration, enable the Device Manager to discover the ConnectPort X4 automatically by clicking the **Device Discovery** button.

c. A dialog will ask you to identify a location where the Digi ESP for Python framework should look for devices. Select **Local area network/USB devices** and click **OK.**

Figure 20: Digi Device Discovery Search Location Selection

d. When finished, the **Digi Device Discovery** dialog will appear listing all the Digi devices discovered on your local network. Your device should be listed within the dialog table.
e. Click on your device to select it from the list, and then click the **Create Configuration** button.

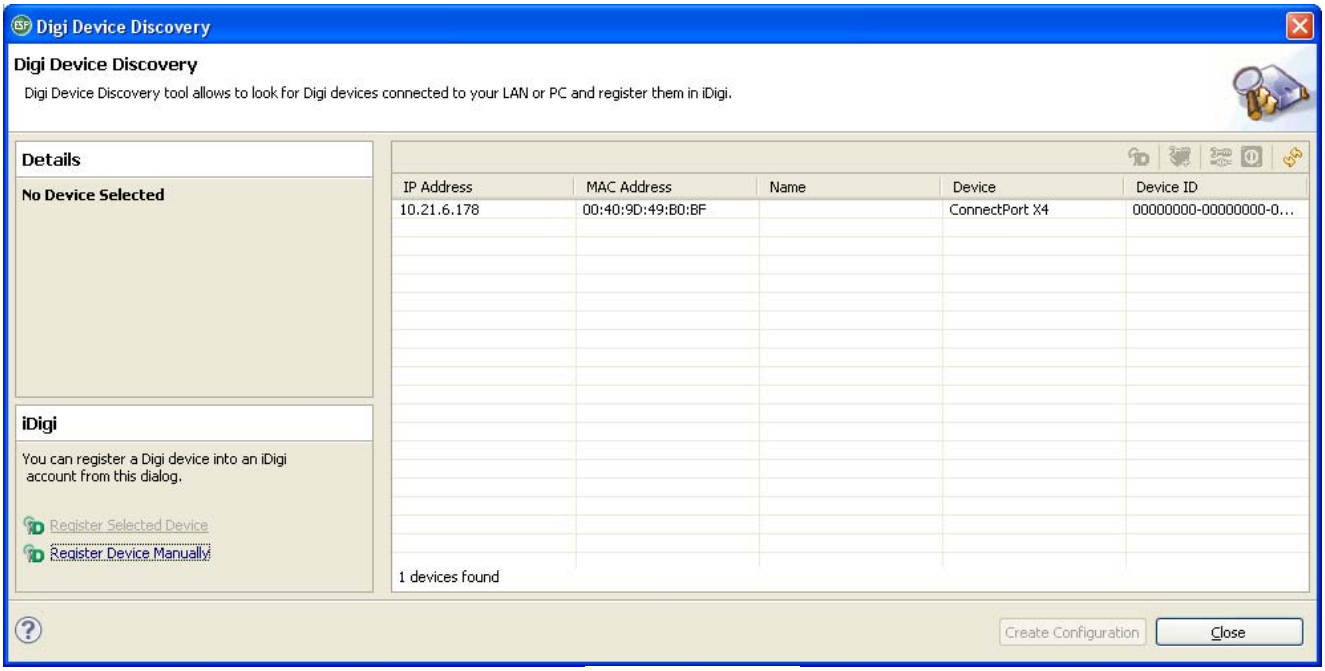


Figure 21: Digi Device Discovery Applet

The new configuration will receive a generic name, “ConnectPort X4” in this case, with all the settings configured automatically.

f. Click **Set Current** to make this configuration the current one, which means that the Digi ESP for Python framework will use it to perform several operations that require interaction with the remote device (reboot, transfer files, etc.).

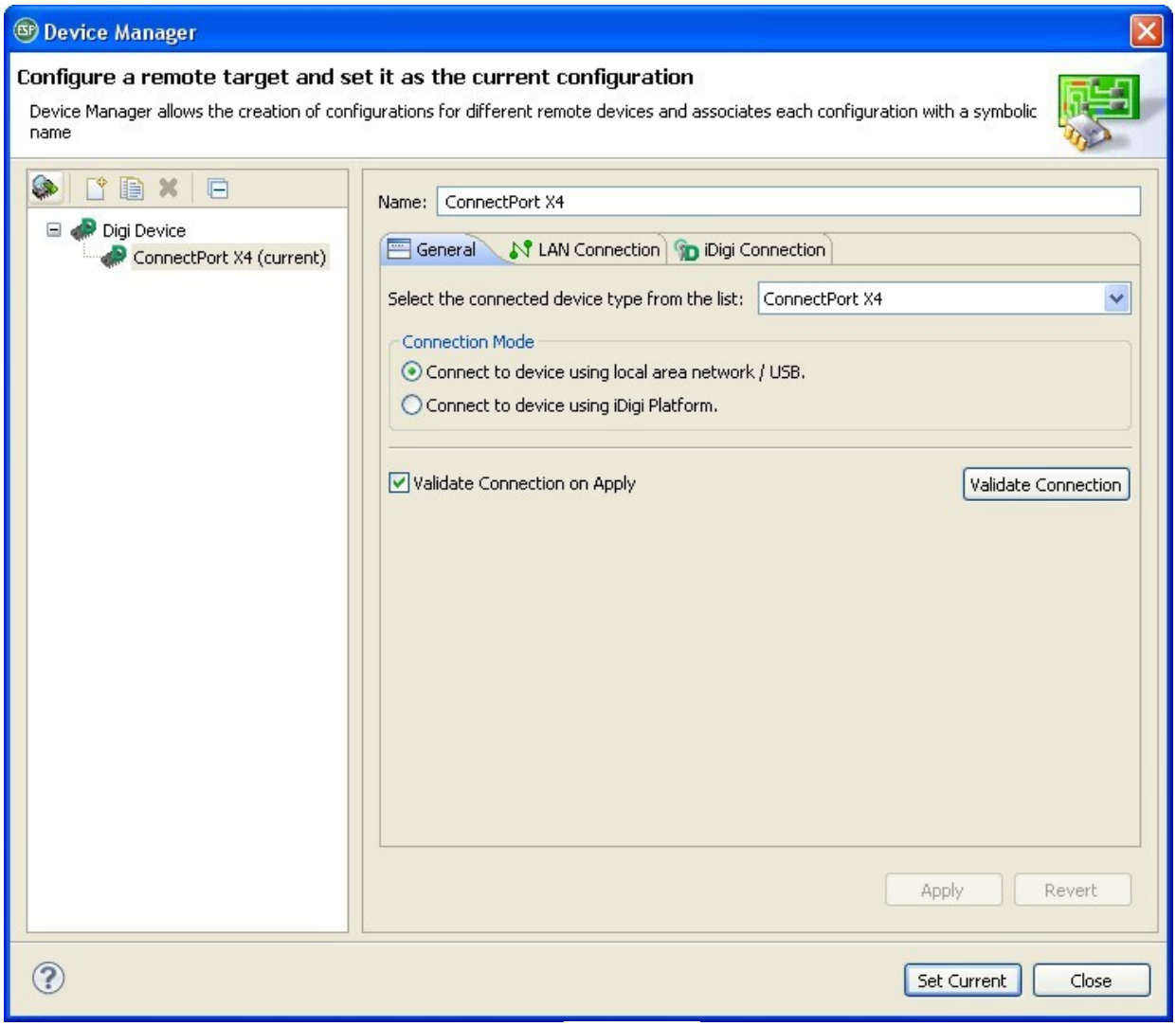


Figure 22: Device Manager

4. After clicking the **Set Current** button you will be redirected back to the iDigi Dia Project wizard. Ensure that **Use Current Remote Device** is selected, and click **Next.**

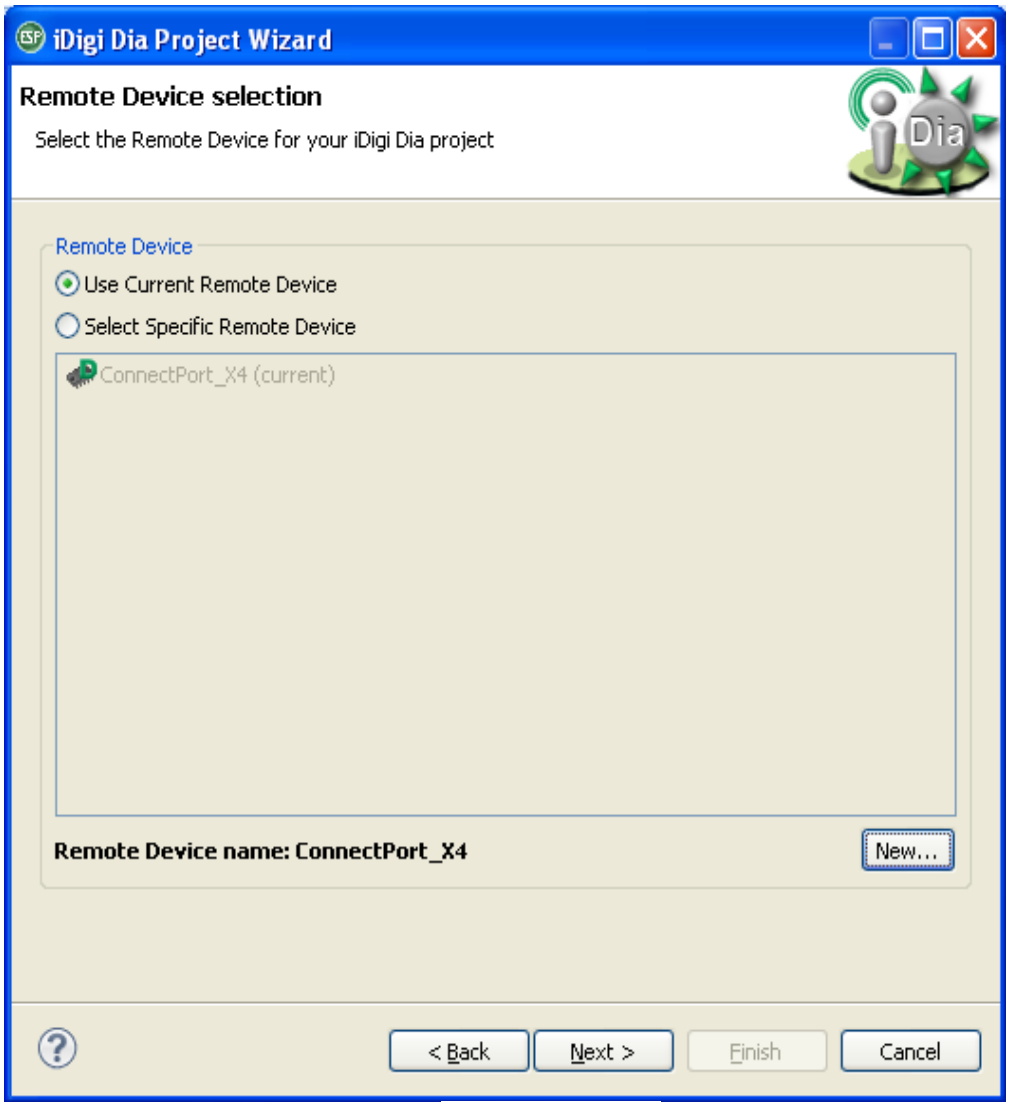


Figure 23: Remote Device Selection

5. Ensure that Python Interpreter version 2.4.3 is selected within the Python settings section, and that iDigi Dia is supported then click **Finish** to create the project.

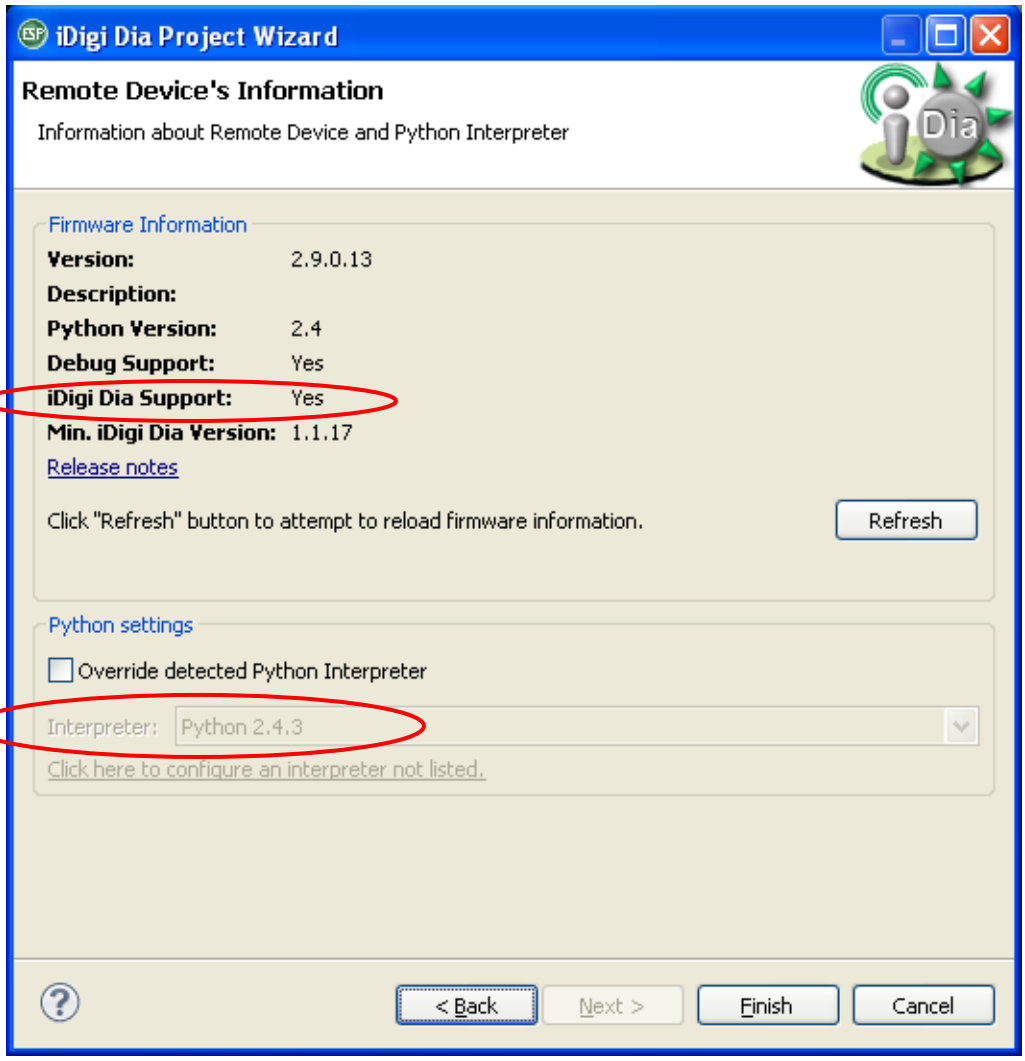


Figure 24: Remote Device's Information

Note: If a prompt appears asking you to set a secure password click no.

6. Once the project is created the Smart Project Editor for iDigi Dia screen will be displayed.

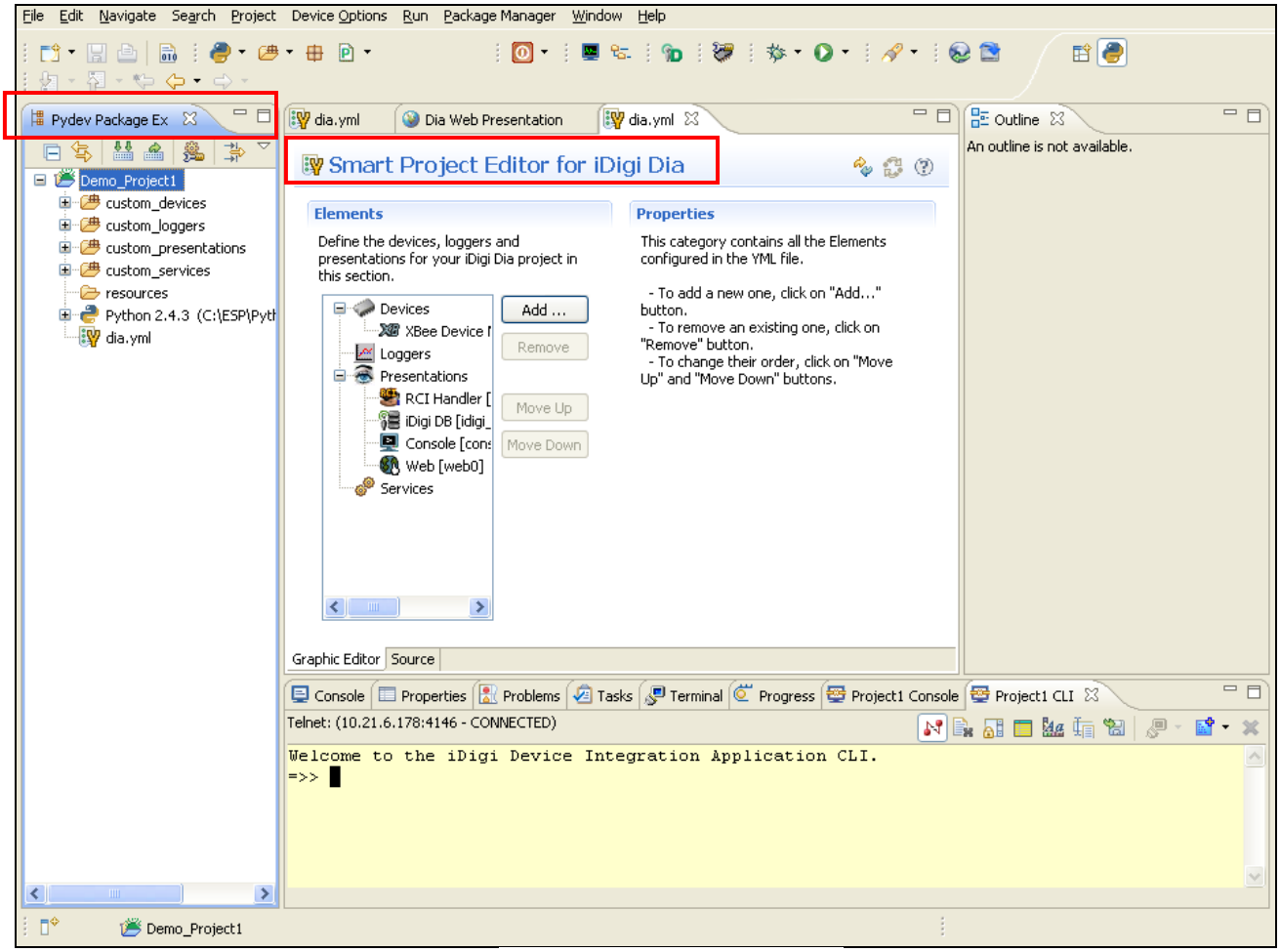


Figure 25: Smart Project Editor for iDigi Dia Screen

a. The created project is displayed in the **Pydev Package Explorer** view; expand it to see its contents. To open the Pydev Package Explorer view, select **Window > Show View > Pydev Package Explorer**. If Pydev Package Explorer does not appear in the list, select **Other** to open the **Show View** dialog.

Note: Depending on your screen's resolution, it may be helpful to maximize the Digi ESP for Python Screen.

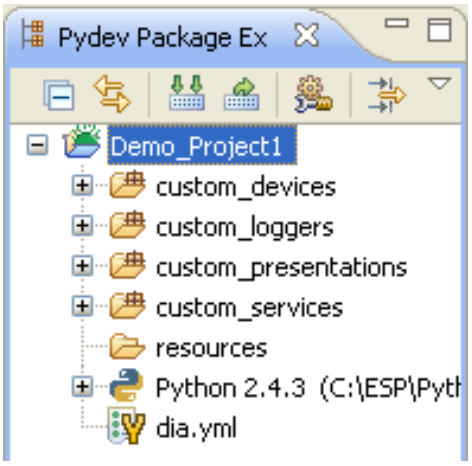


Figure 26: Pydev Package Explorer

b. The main file of the project, **dia.yml**, will be opened and displayed in the Smart Project Editor view. It contains the iDigi Dia elements (devices, services, etc.) that will be used by the iDigi Dia project.

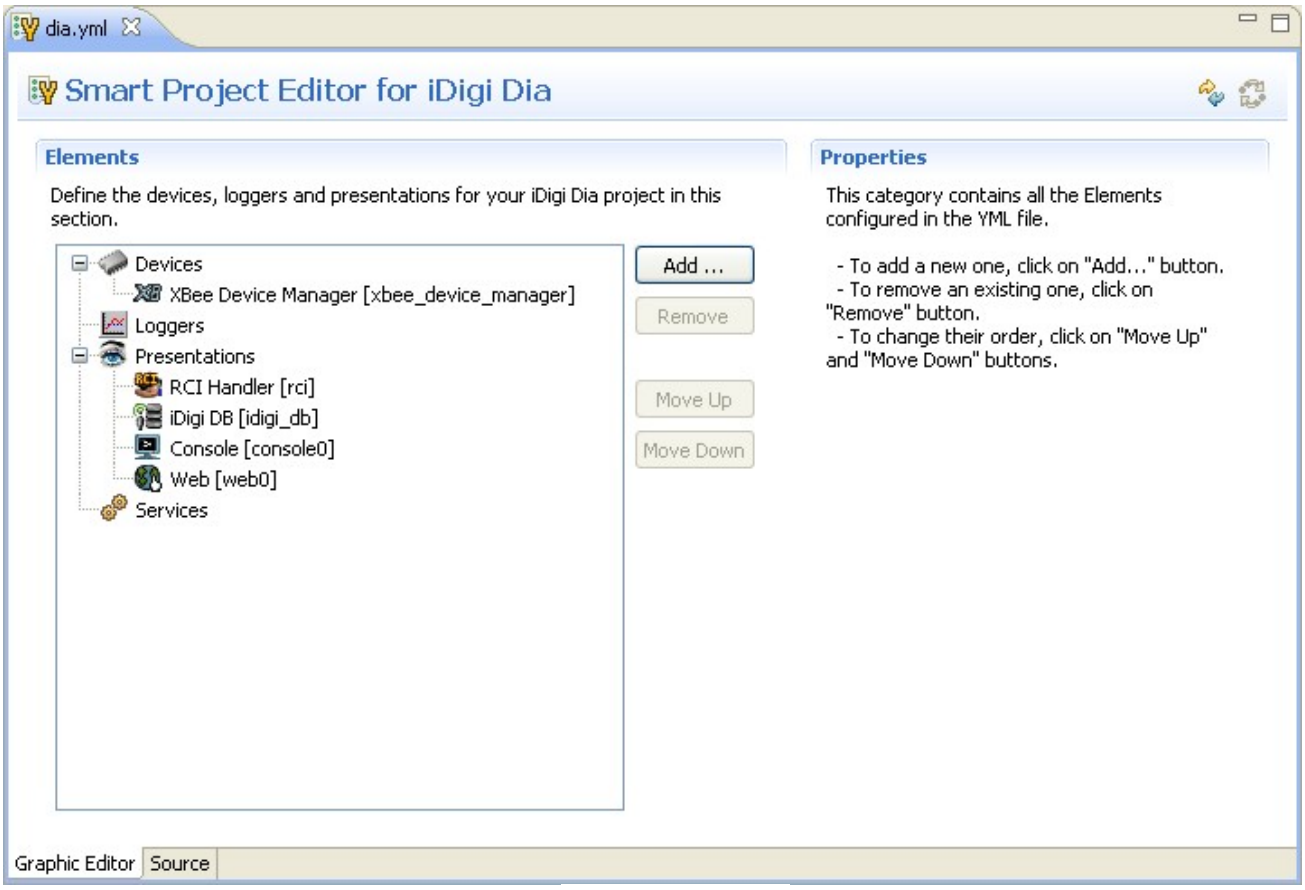


Figure 27: Smart Project Editor View

7. The XBee Sensor and XBee Smart Plug need to be added to your project via the iDigi Dia Project Editor. To add these items, perform the following steps:

    a. Click the **Add…** button to begin adding your XBee devices.
    b. For the XBee Senor, select "XBee Sensor" from the **Devices** category, then click the **Add** button.
    Repeat this process for the XBee Smart Plug by selecting "XBee RPM" from the Devices category and then clicking the **Add** button.

Note: For non-US kits, select the "XBee Wall Router" instead of XBee RPM.

8. At this point in time the two XBee devices have been added to your project, but the iDigi Dia Project Editor is missing the XBee MAC addresses for your XBee Sensor, and XBee Smart Plug.

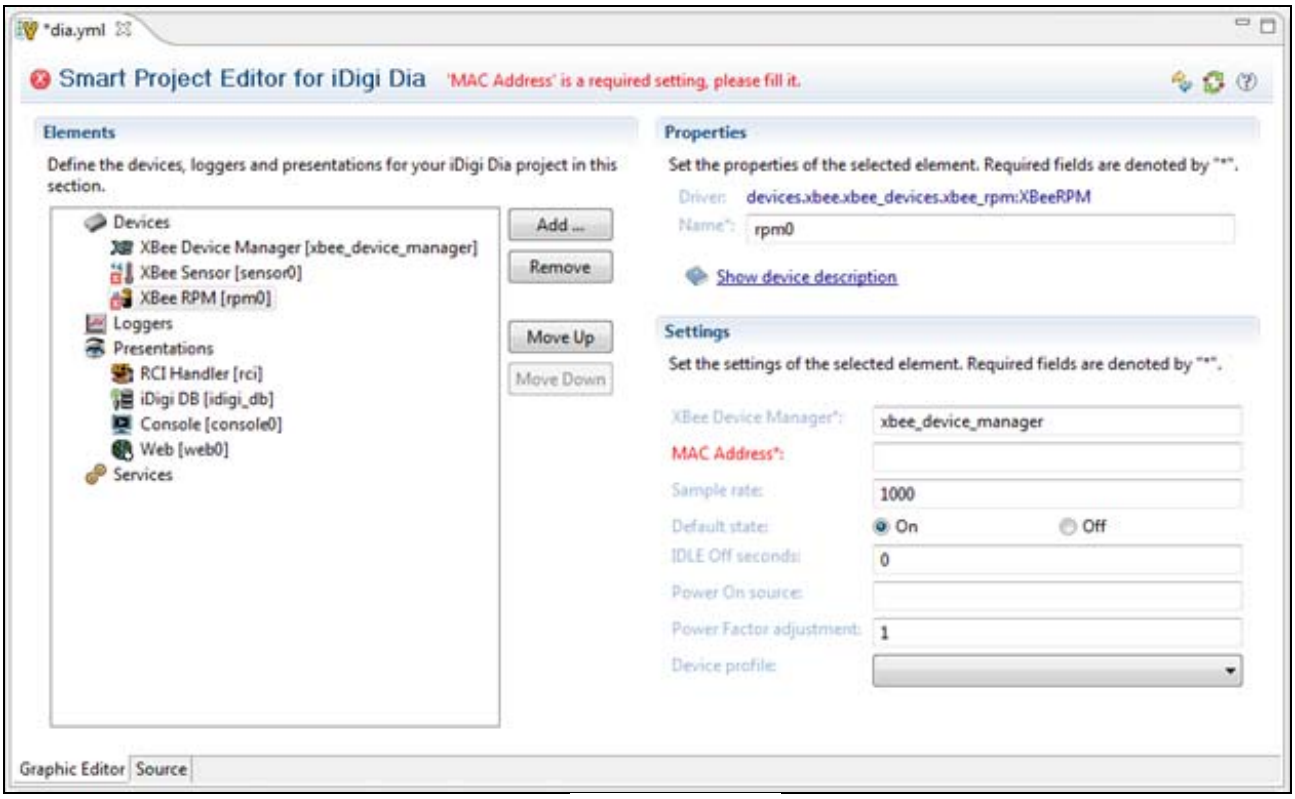


Figure 28: Missing MAC Addresses

The XBee MAC address information for your XBee devices can be determined by connecting to the web UI of the ConnectPort X4.

Note: If you already know the IP address of your ConnectPort X4 Gateway open a web browser and type in the IP address, and move onto Step 12. Otherwise, use the Digi Device Discovery tool (described in the next step).

9. Run the Digi Device Discovery Tool from your PC's Start Menu.

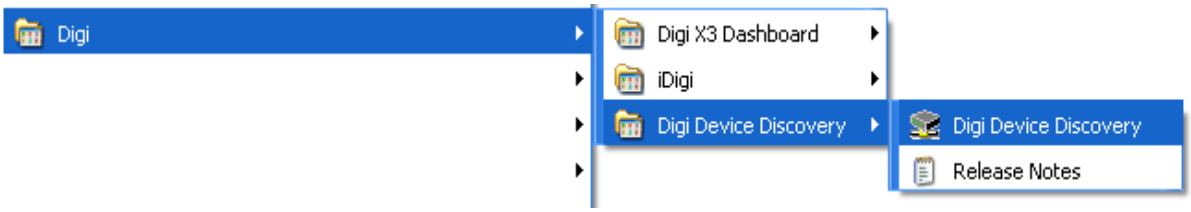


Figure 29: Device Discovery Path

10. Running the Digi Device Discovery Tool will bring up the Digi Device Discovery Application Devices list.

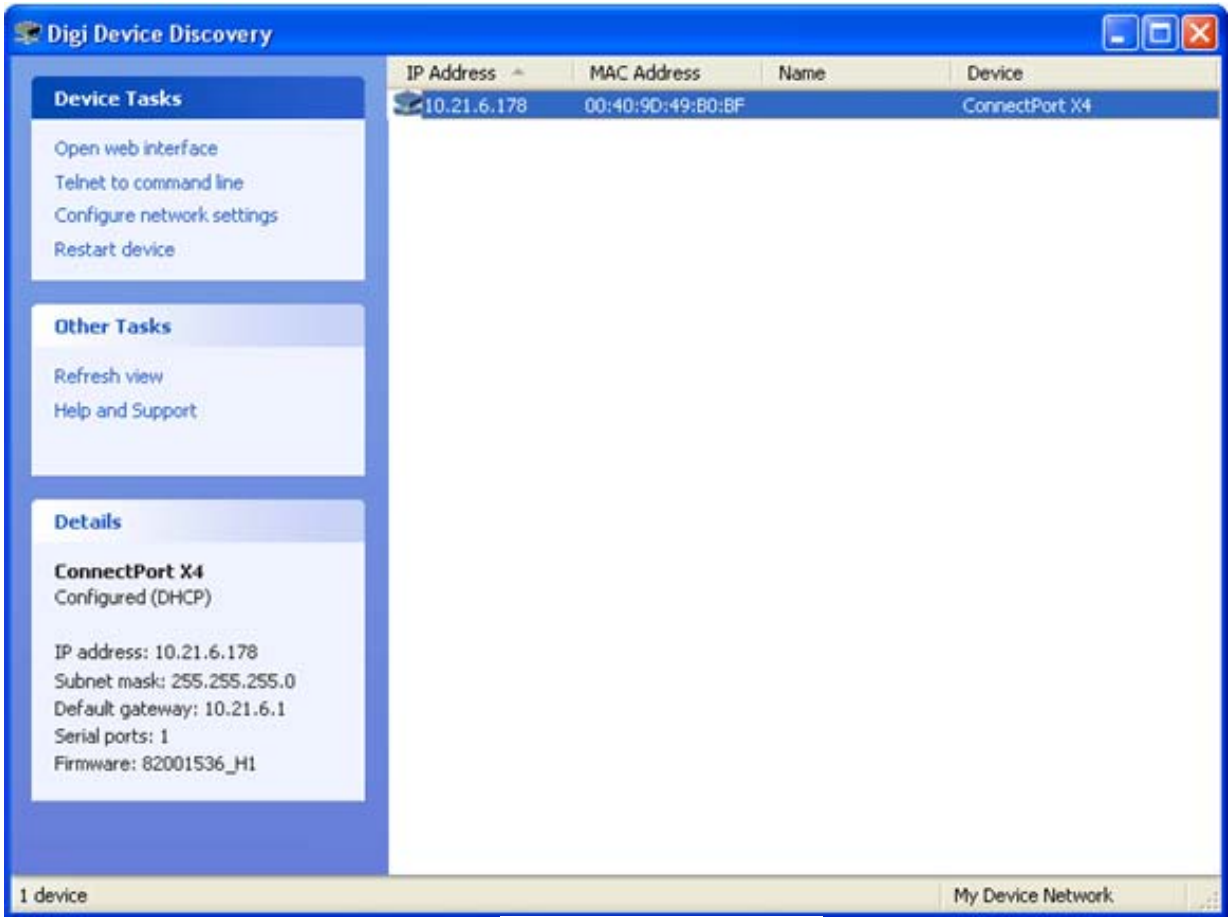


Figure 30: Locate your Device in the Device List

11. Locate your device in the list and double-click on it to bring up the ConnectPort X4 Home page.

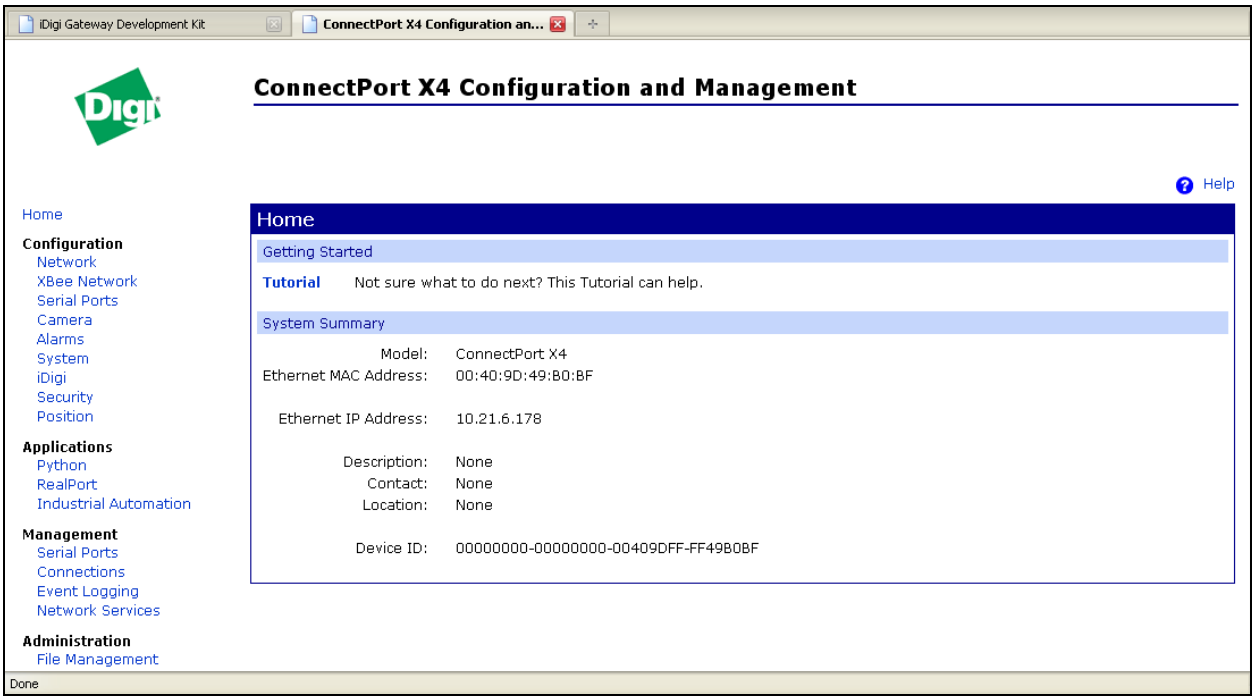


Figure 31: ConnectPort X4 Configuration and Management Home Page

12. The ConnectPort X4's Home page contains several links. Click on the **XBee Network** link from the left menu to access the XBee Configuration page.

Figure 32: XBee Network Option

13. The XBee Configuration page shows the network view of the XBee devices attached to the ConnectPort X4. Verify that your XBee L/T Sensor, ConnectPort X4, and XBee Smart Plug are all listed (as shown below).

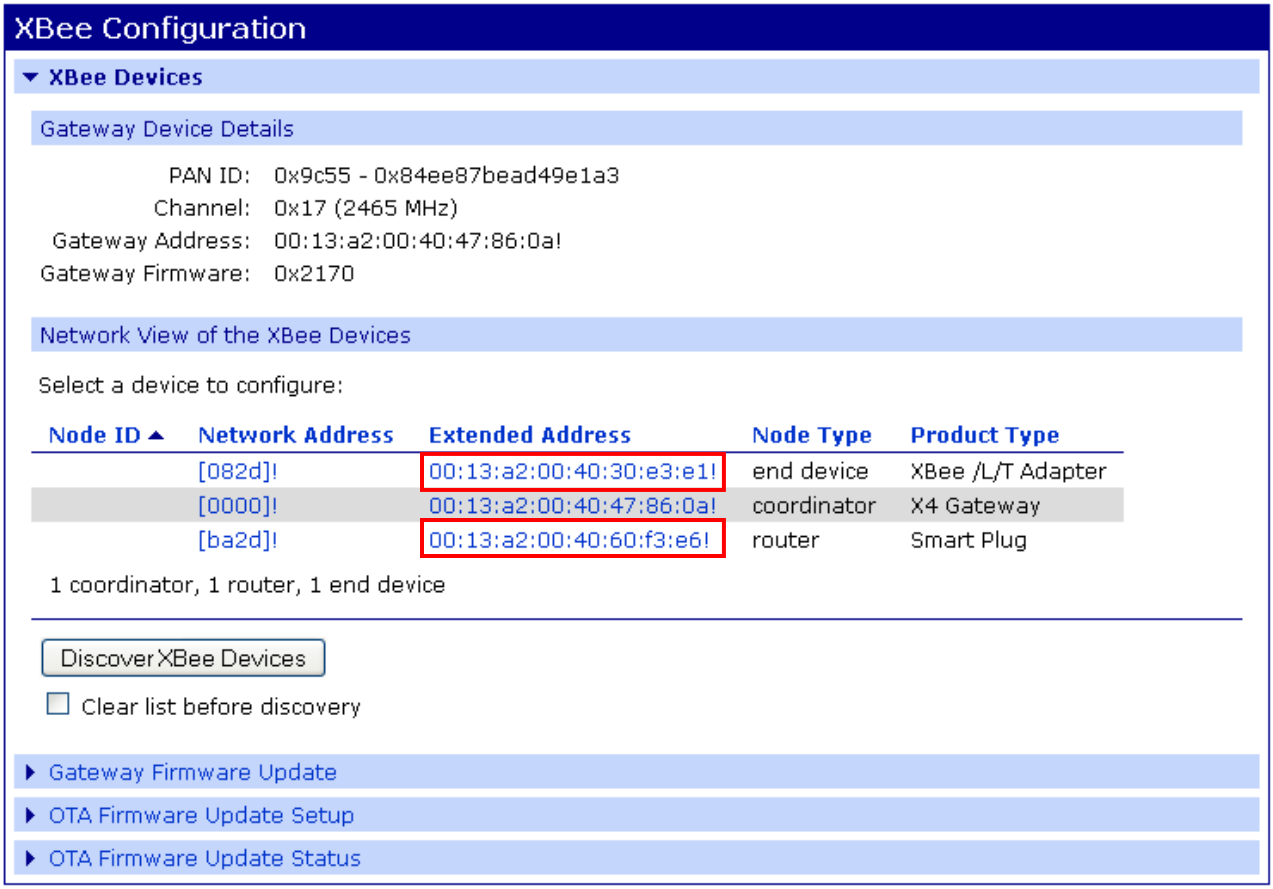


Figure 33: XBee Network View

If your XBee L/T Sensor, ConnectPort X4, and/or XBee Smart Plug are not listed, try clicking the **Discover XBee Devices** button to force the ConnectPort X4 to discover its attached XBee devices.

If this does not fix the problem, see the "XBee devices fail to join the ConnectPort X4's XBee network" section of Appendix D: Troubleshooting on page 79 for more information.

You have just completed Goal #3: Setting up and configuring the physical elements of an XBee wireless network, and understanding how the network is managed through a ConnectPort X4 gateway.

14. Now you need to configure the Smart Project Editor with the MAC addresses of the two XBee devices that were added to this project in Step 7 (above). To do that, simply copy the XBee Extended Address from the ConnectPort X4's web UI (as shown in Figure 30) into the appropriate MAC address field within the Smart Project Editor.
    a. Copy the Extended Address of your XBee /L/T Sensor from the ConnectPort X4's web UI into the MAC address field of the XBee Sensor device in the Smart Project Editor.
    b. Then copy the Extended Address of your XBee Smart Plug from the ConnectPort X4's web UI into the MAC address field of the XBee RPM device in the Smart Project Editor (as shown below).

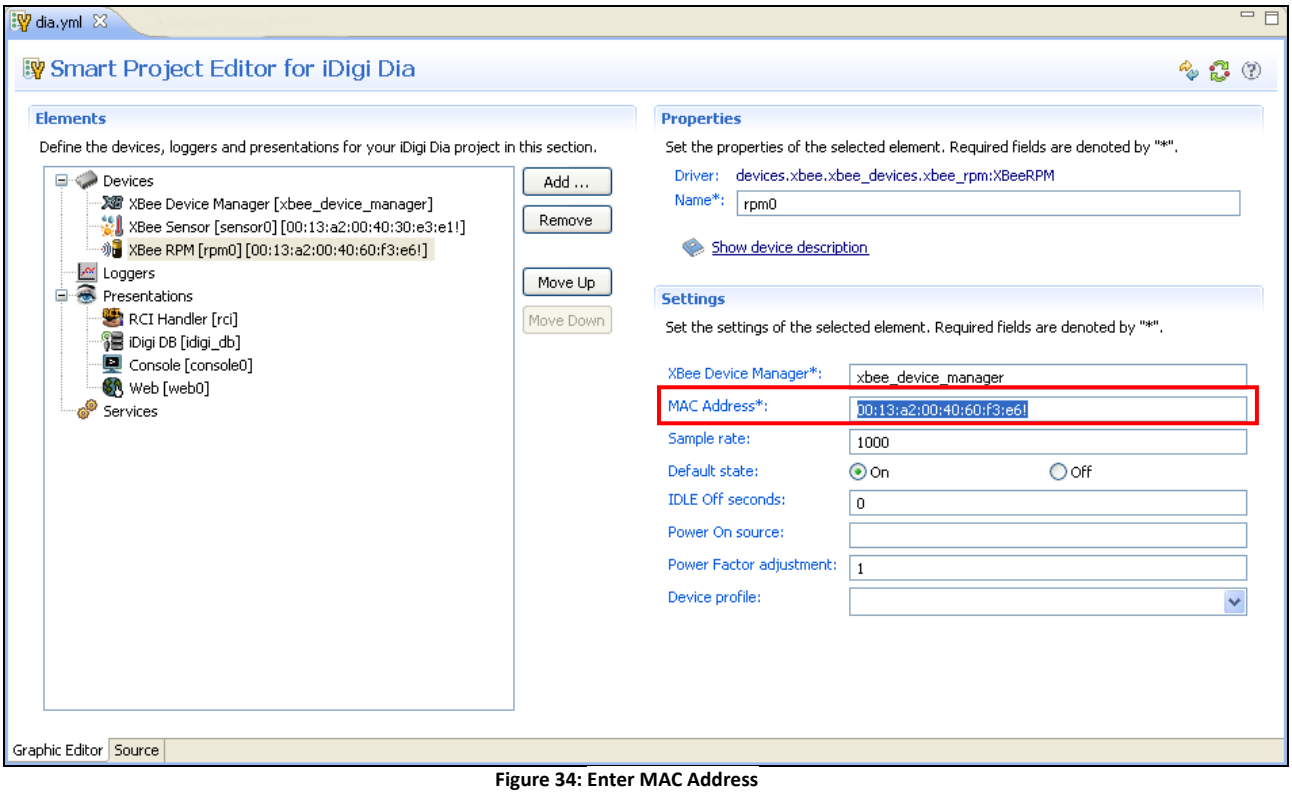


Figure 34: Enter MAC Address

Note: For non-US kits, select the "XBee Wall Router [xbr0]" instead of XBee RPM.

With the MAC addresses updated in the Smart Project Editor, all configuration errors (missing XBee MAC addresses for your XBee Sensor and XBee Smart Plug) should be cleared.

Note: The XBee Sensor's default sleep interval is one minute. Changing the **Sample Rate** configuration value to 5000 will set the sleep interval to five seconds, which will provide sensor updates more often. These sensor updates will allow you to see value changes more easily in the steps to follow. However, changing the sleep interval will impact battery life as well. This is something you should take into consideration when deploying your devices.

15. Change the Sample Rate parameter of the XBee Sensor from 60000 to 5000 (as shown below).

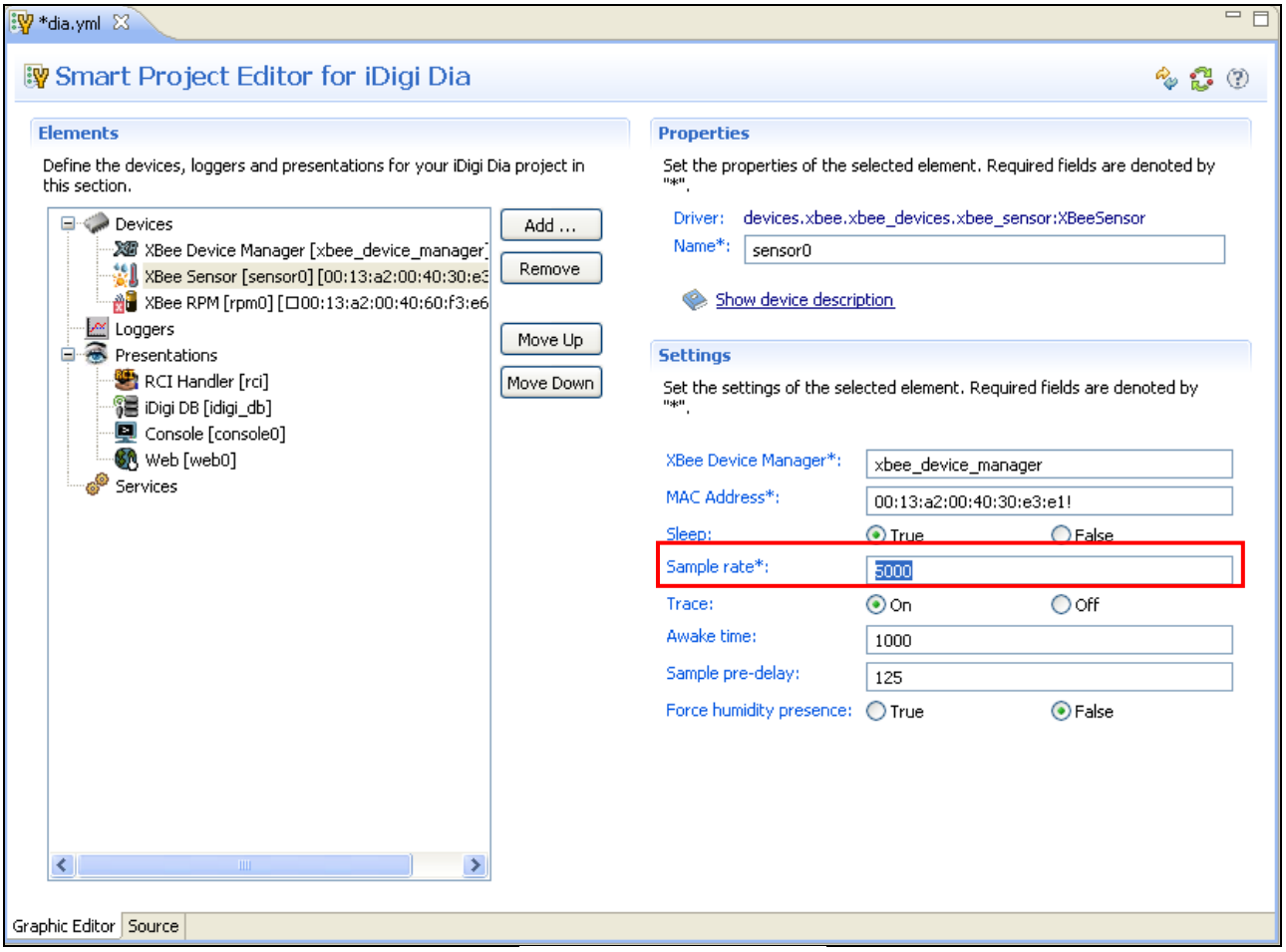


Figure 35: Change Sleep Interval Sample Rate

16. Save your project by clicking the **Save** button from the main toolbar, or navigating to **File > Save** from the menu.

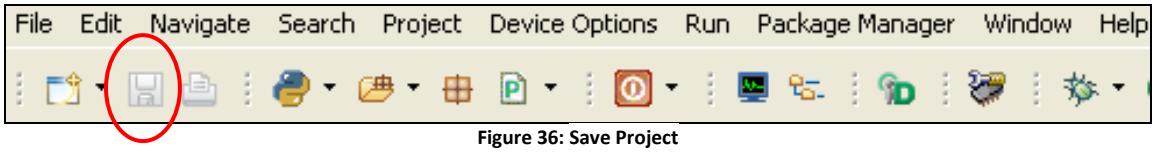


Figure 36: Save Project

17. Now that the XBee MAC addresses have been configured your iDigi Dia project is fully configured and ready to be deployed. Click the **Run** button (on the main toolbar) then select the **Remote iDigi Dia** option, and click **OK** to continue.

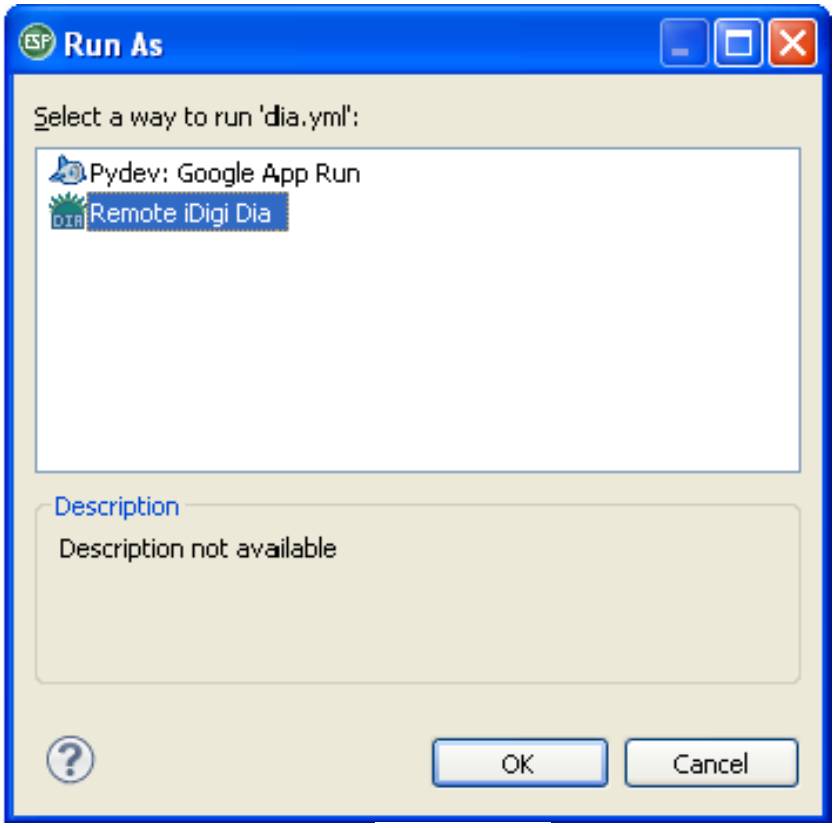


Figure 37: Launch your Project

The Source View at the bottom of the Workbench screen will display status messages as the:
iDigi Dia project builds,
Downloads files to your ConnectPort X4,
Reboots your ConnectPort X4 (in order to start the Dia application),
and finally starts running the Dia application on your ConnectPort X4.

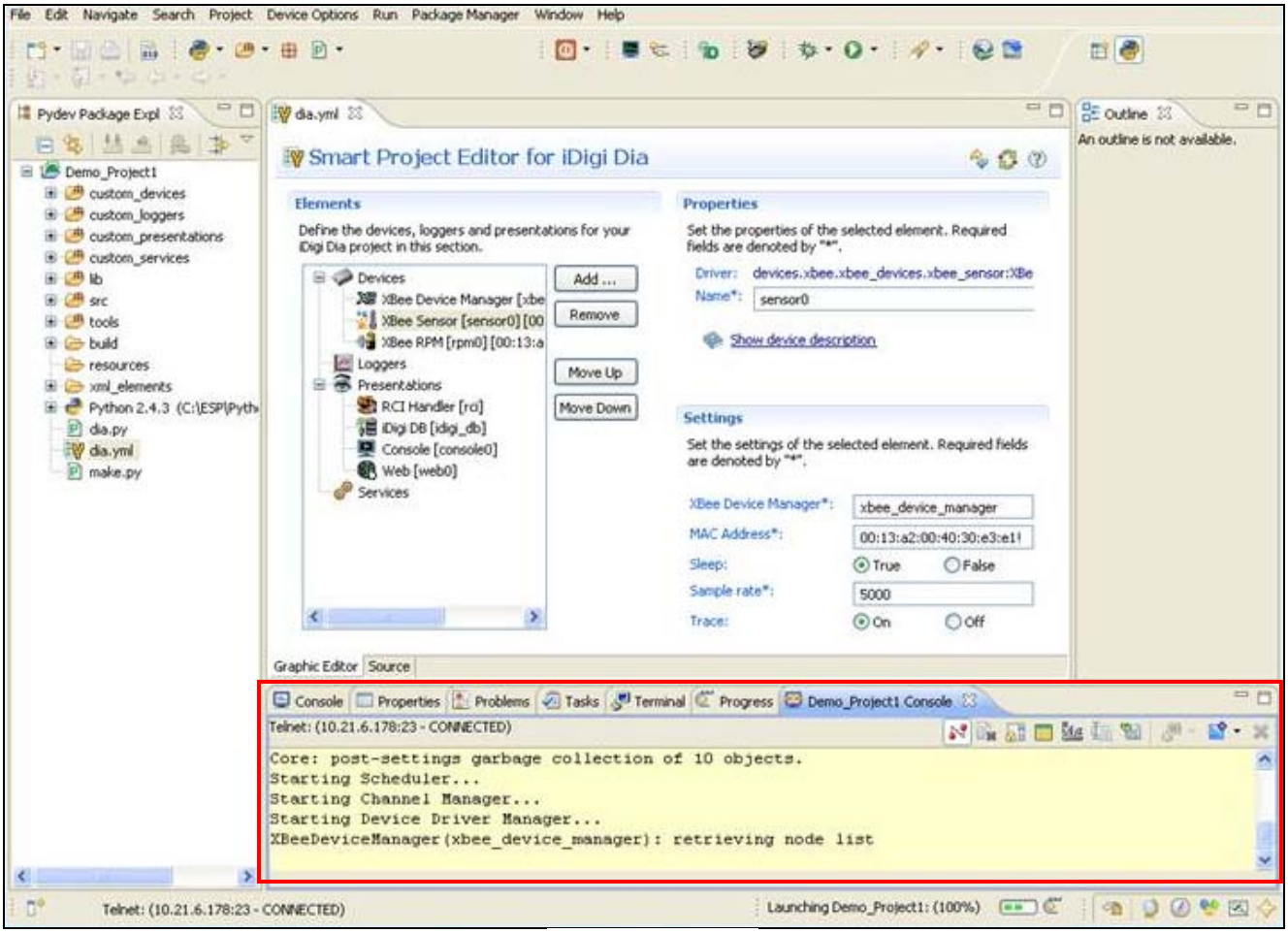


Figure 38: Workbench Source View

Note: This process takes a minute or so, please be patient.

18. The workbench will now display an additional tab, the **Dia Web Presentation** tab, and your screen will look similar to the following:

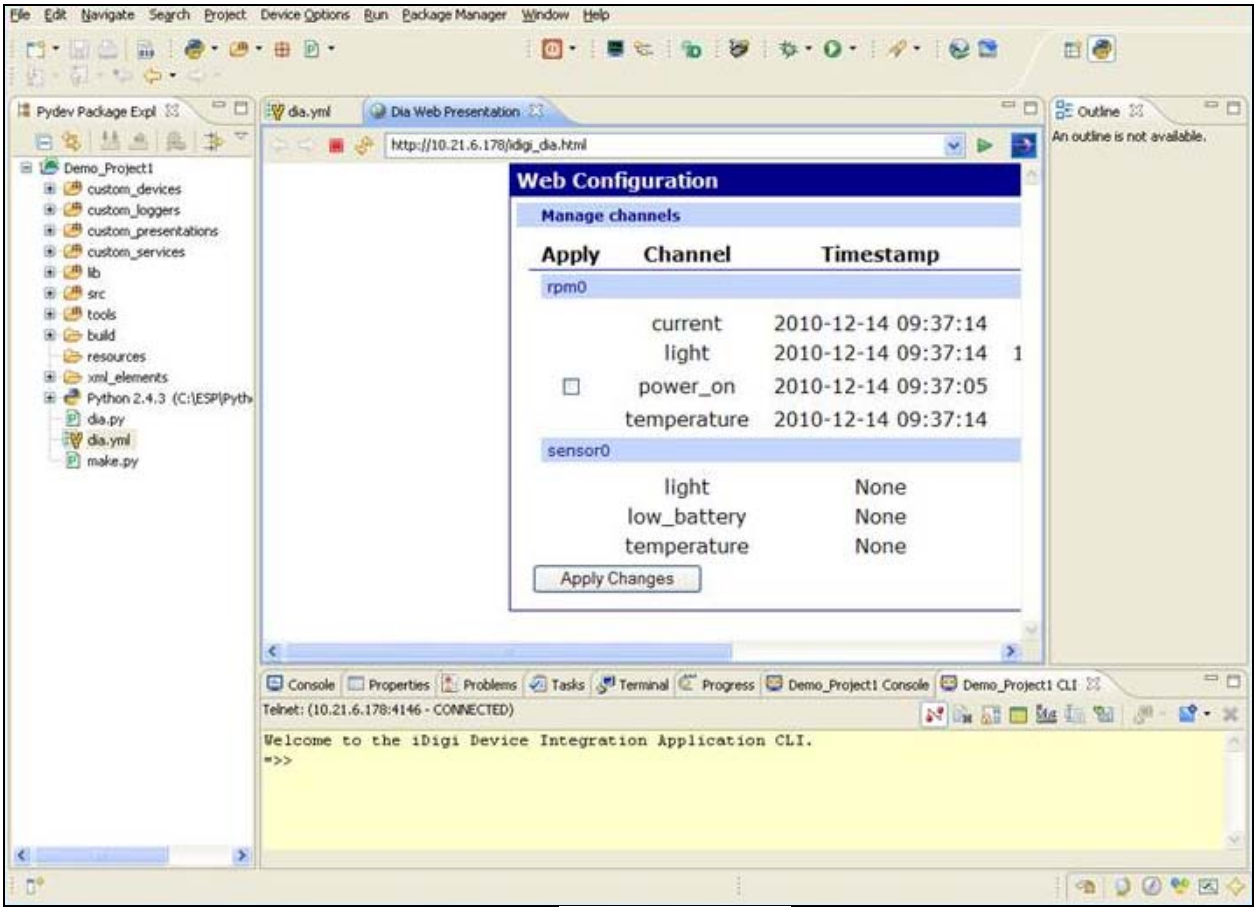


Figure 39: Dia Web Presentation Tab

The **Elements** section of the Smart Project Editor for iDigi Dia provides several presentations including an RCI Handler, Console Port, and a Web Presentation. For more information on these items, refer to the “Digi ESP for Python” section of Part 2: Learn More, on page **Error! Bookmark not defined.**.

19. After the iDigi Dia project (created throughout "Step 5: Create your first iDigi Dia Project" of this guide) starts running on your ConnectPort X4, you can interact with the XBee devices by accessing the /idigi_dia.html web page directly from the web UI of the ConnectPort X4.

    To interact with the new web page, open your web browser and enter the IP address of your ConnectPort X4, followed by the "/idigi_dia.html" page (as demonstrated below using the example "http://10.21.6.178/idigi_dia.html").

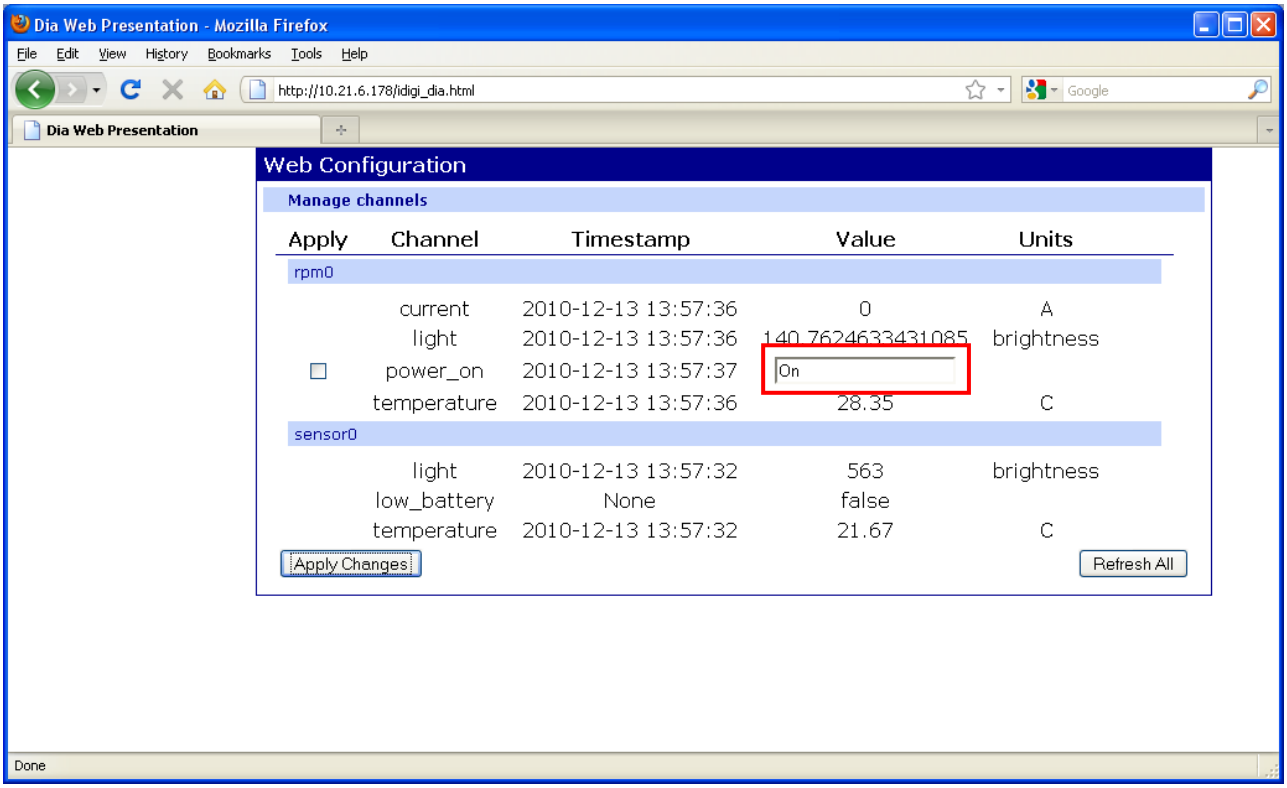


Figure 40: XBee Smart Plug – Power ON

From this page you can turn the XBee Smart Plug off and on, as well as view all the current sensor readings. In order to demonstrate how this web page can control the power to a remote device, connect a lamp, fan, or some other electrical device to the power outlet on the XBee Smart Plug.

a. In the example above, the XBee Smart Plug's power_on state is currently turned "On". To turn the XBee Smart Plug off, simply replace the "On" with "Off" in the Value column, then click the **Apply Changes** button.
b. The XBee Smart Plug will turn off, and the ConnectPort X4's web page will be updated to show the current power_on state of the XBee Smart Plug.

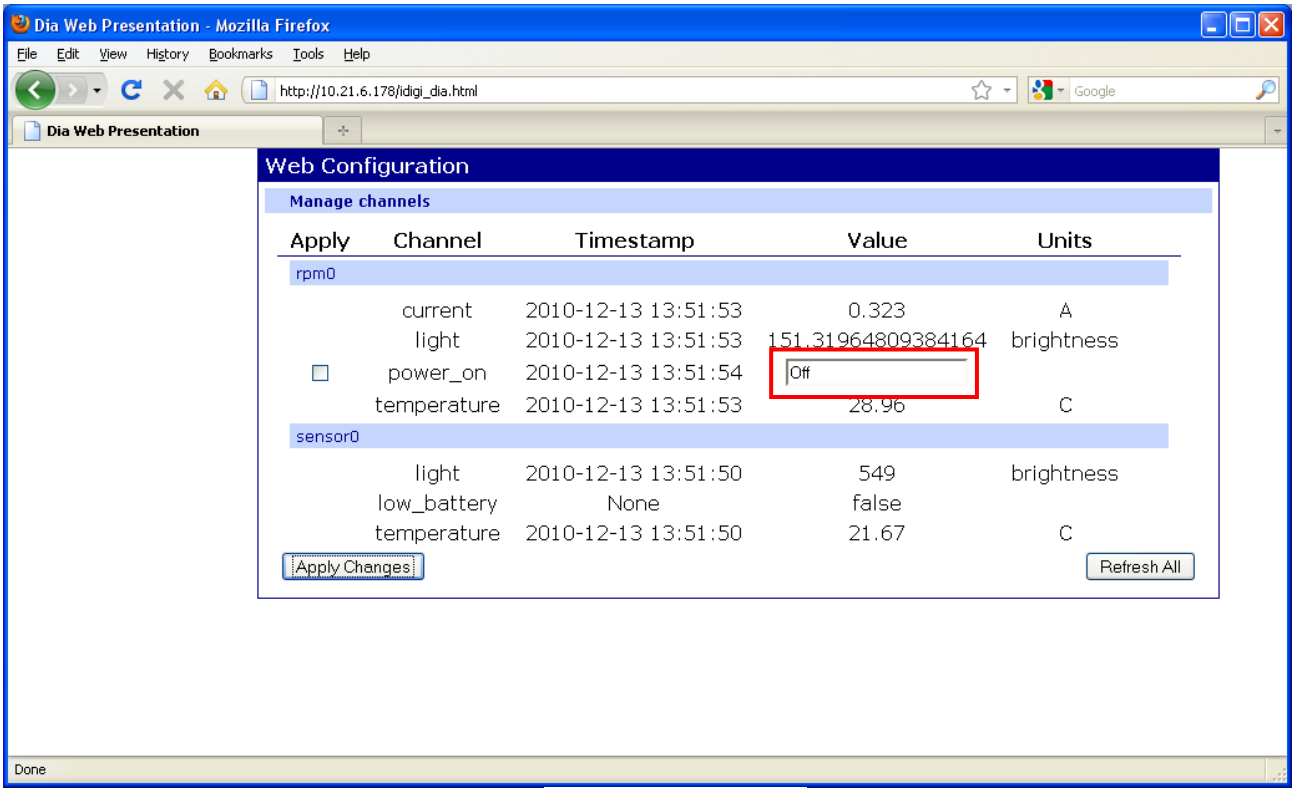


Figure 41: XBee Smart Plug – Power OFF

c. To turn the XBee Smart Plug on, simply type "On" in the Value field and click the **Apply Changes** button.
d. To update the values displayed by the XBee devices' sensors, click the **Refresh All** button.

You have just completed Goal #4:
Using the Digi ESP for Python IDE to build, download, and launch an iDigi Dia application for your ConnectPort X4 gateway, and then interacting with the application in a realistic setting.

Step 8: Perform an iDigi Web Services API™ Request

The next step in the process of using your iDigi Gateway Development Kit is performing an iDigi Web Services API request using iDigi Manager Pro. The iDigi Web Services Console makes it easy to send web service requests to your iDigi device. This example will demonstrate how to retrieve sensor readings from your XBee Sensor and XBee Smart Plug by making a minor modification to one of the provided examples, and then sending an HTTP Post request to iDigi, which will respond with the current sensor readings from the sensors in your XBee devices.

The following steps will walk you through performing this API request.

1. Log in to your iDigi developer account.
2. In the Left Navigation Bar under the **Management** section, select the **Web Services Console** link.

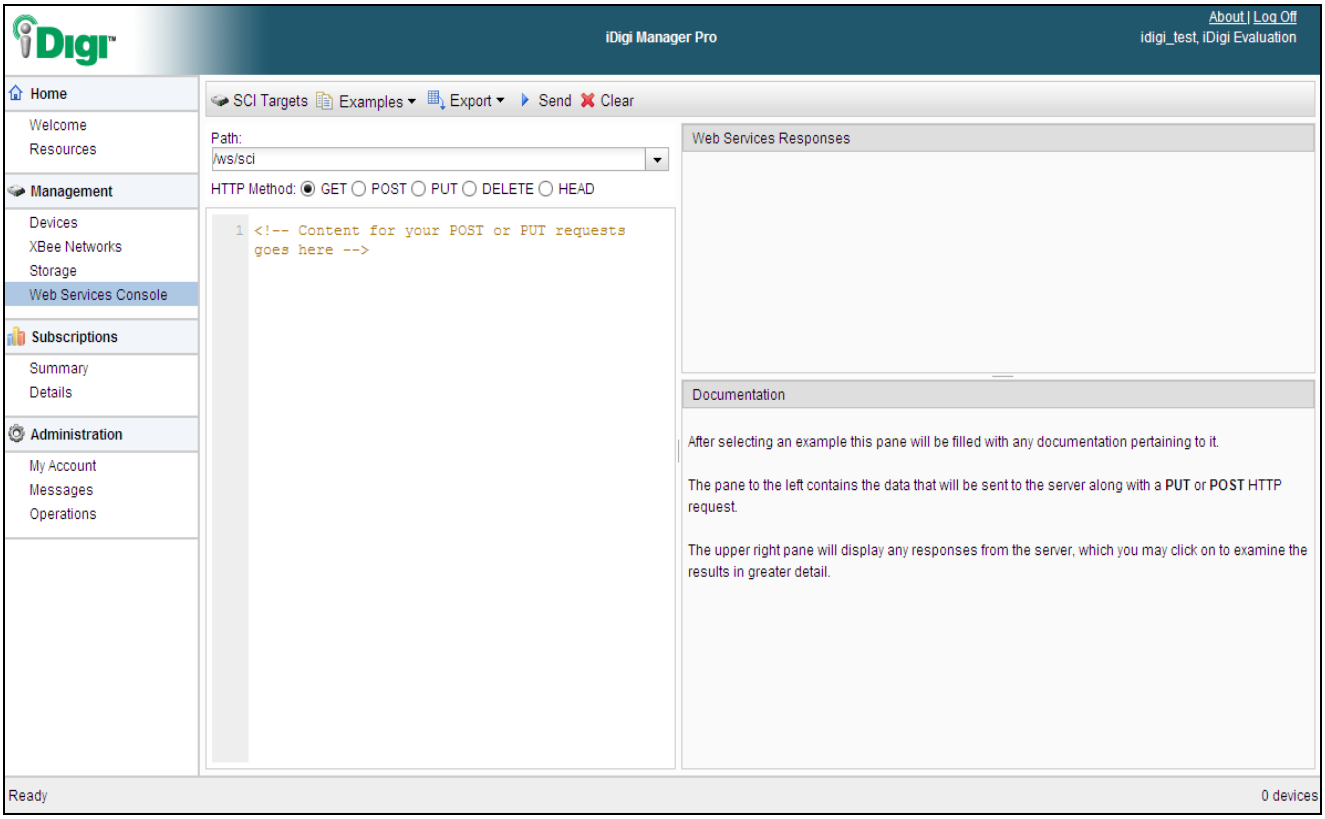


Figure 42: Digi Manager Pro Web Services Console Page

3. Click on the **SCI Targets** button within the Web Services Console toolbar.

Figure 43: SCI Targets Button

4. Clicking this button will bring up the **Select devices to be used in examples** dialog box. Within this box you will select the target iDigi devices that you would like to send requests to.

5. Click on the **Add Targets** drop-down box, and choose the device ID corresponding to your ConnectPort X4. Click the **Add** button  and then click **OK.**

Figure 44: Add Targets

Figure 45: Targets Successfully Added

6. iDigi Manager Pro will now send Web Services API examples to the selected device. Within the Web Services Console toolbar click on the **Examples** drop-down menu then go to **SCI > Python Callback.**

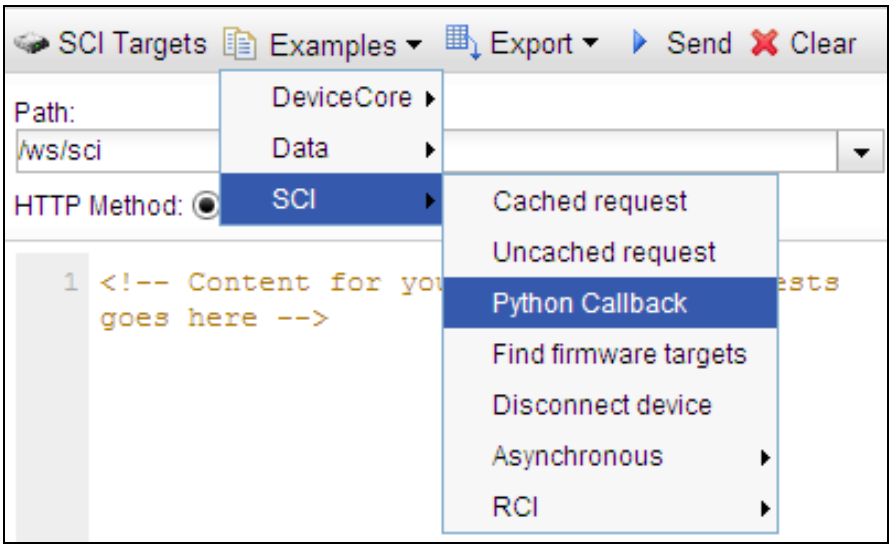


Figure 46: Python Callback

7. Once you have selected the SCI Python Callback example, iDigi Manager Pro will populate the page with the source code of the example as well as select the HTTP method that will be used (an HTTP Post in this case). In order for you to retrieve the sensor readings from your XBee devices, you will need to modify this example text slightly.

    a. Locate the following lines of text (highlighted in the screenshot below)

```
<do_command target="rci_callback_example">
        ping
```

    and replace them with the following:

```
<do_command target="idigi_dia">
        <channel_dump/>
```

    Note: "idigi_dia" is the Target Name listed in the RCI Handler Presentation (as mentioned on page 40).

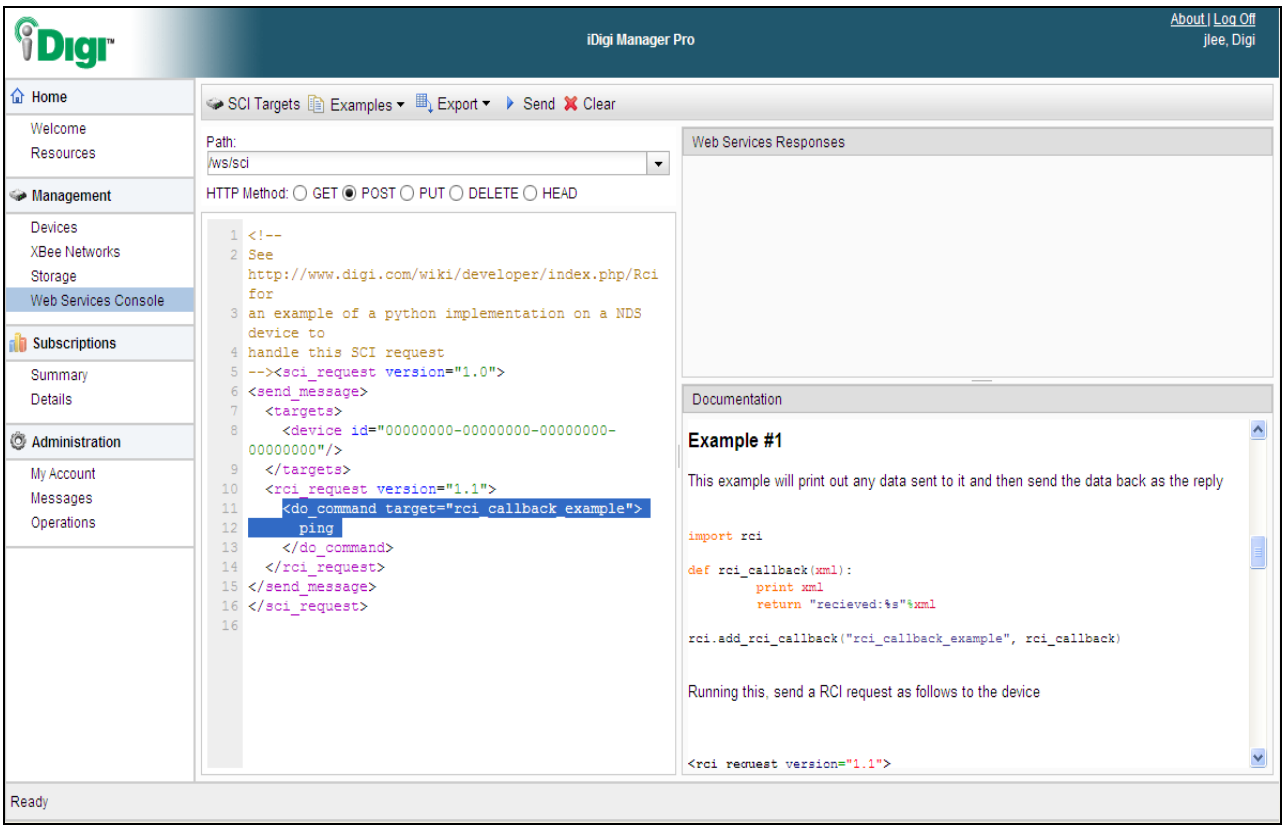


Figure 47: SCI Python Callback Example

8. Your screen should look similar to the one below. Click the **Send** button to send this request to iDigi. The first time you send a web services request to iDigi, you will be prompted to enter your iDigi credentials, enter them in the dialog provided. Once authenticated, iDigi will send this request to the ConnectPort X4 on behalf of your web services request and display the response from the ConnectPort X4 in the Web Services Responses panel.

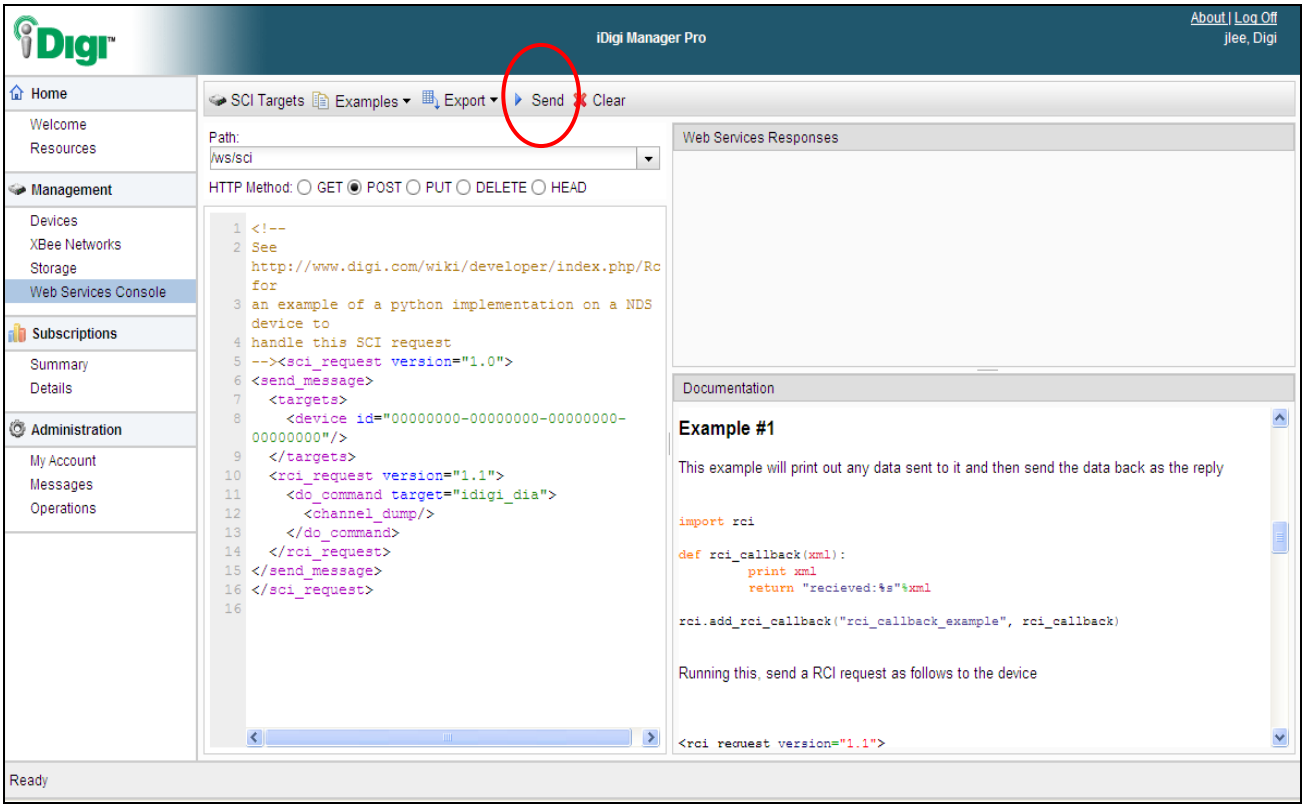


Figure 48: Updated SCI Callback Example

9. Observe the output displayed within the Web Services Responses panel. A "POST /ws/sci 200" response indicates that the web services request was successful.

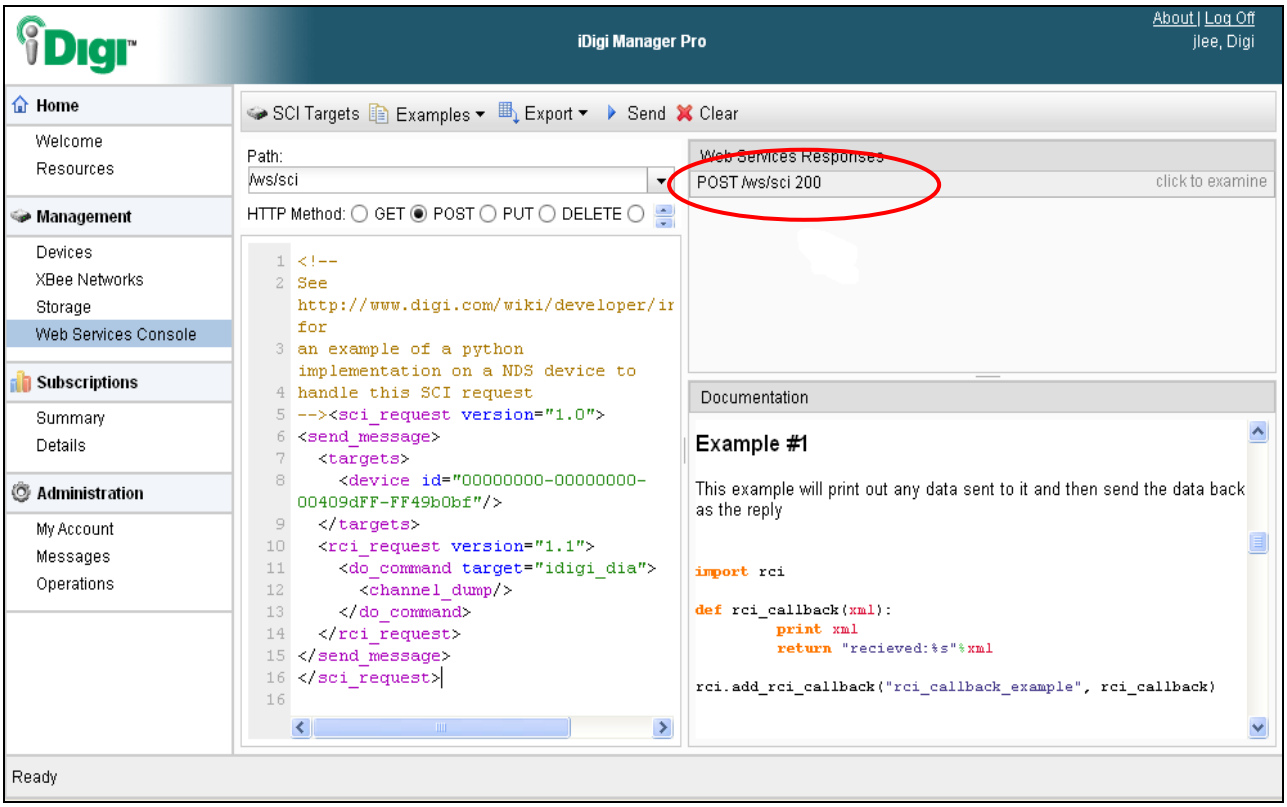


Figure 49: Successful Callback Attempt

10. Click on the "POST /ws/sci 200" response text to view the entire response from the ConnectPort X4, as well as the request that was sent to generate this response. The channel_dump response shows the current usage, brightness, power-on state, and temperature readings from the rpm0 (XBee Smart Plug) device, and the brightness, battery condition, and temperature reading from the sensor0 (XBee Sensor) device.

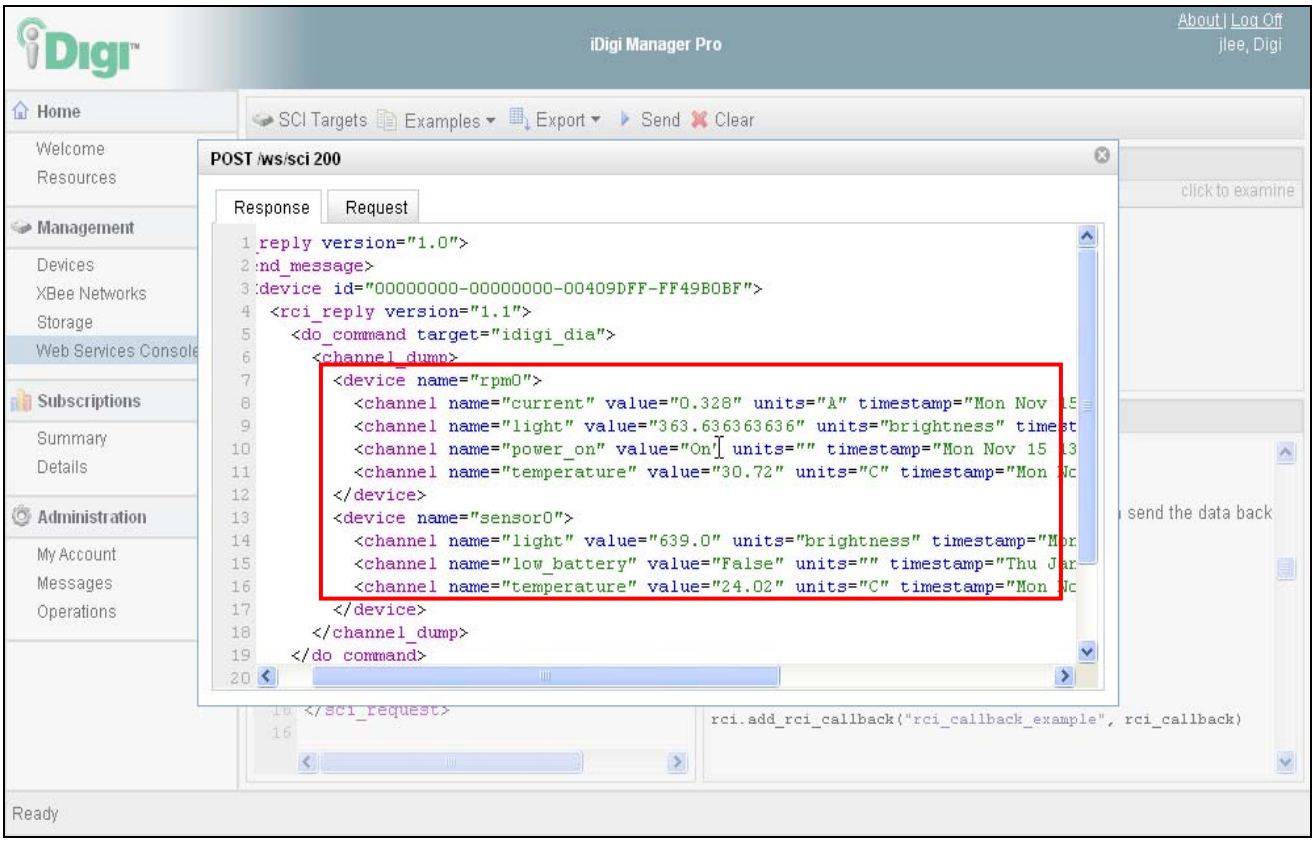


Figure 50: Successful Callback Expanded View

You have just completed Goal #5: Using the iDigi Manger Pro Web Services Console to send a web services request to the ConnectPort X4, retrieving the current XBee devices' sensor readings.

Step 9: Using the iDigi® Gateway Development Kit Demonstration Application

The final step in the process of taking advantage of what this Development Kit offers, is accessing the iDigi Web Services API via the iDigi Gateway Development Kit Demonstration Application. The following steps will walk you through this process.

1. Navigate to *http://www.digi.com/gatewaydevelopmentkit* and click on the "Link to iDigi Gateway Development Kit Demo Application" link.
2. You will be redirected to the iDigi Gateway Development Kit Demonstration Application login page. Enter your iDigi username and password, as well as the last 6 characters of your Gateway ID, into the appropriate fields and then click the **Login** button.

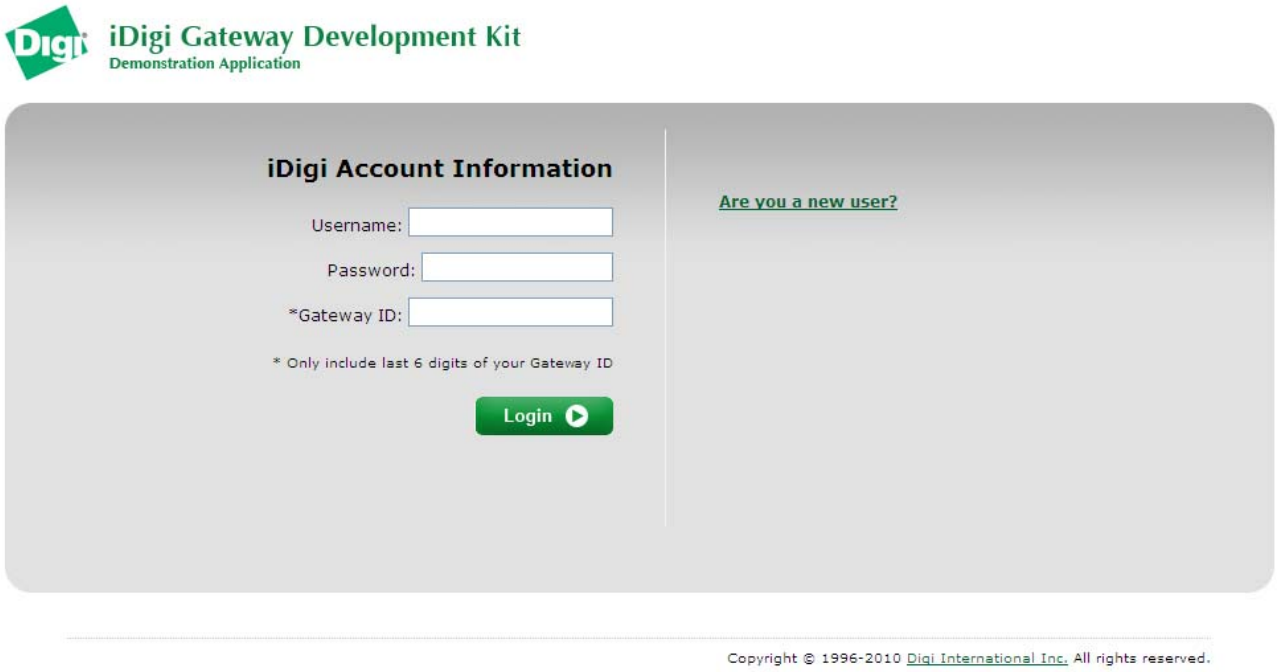


Figure 51: iDigi Gateway Development Kit Demonstration Application Login Page

After logging in, the demonstration application will display a screen similar to the following:

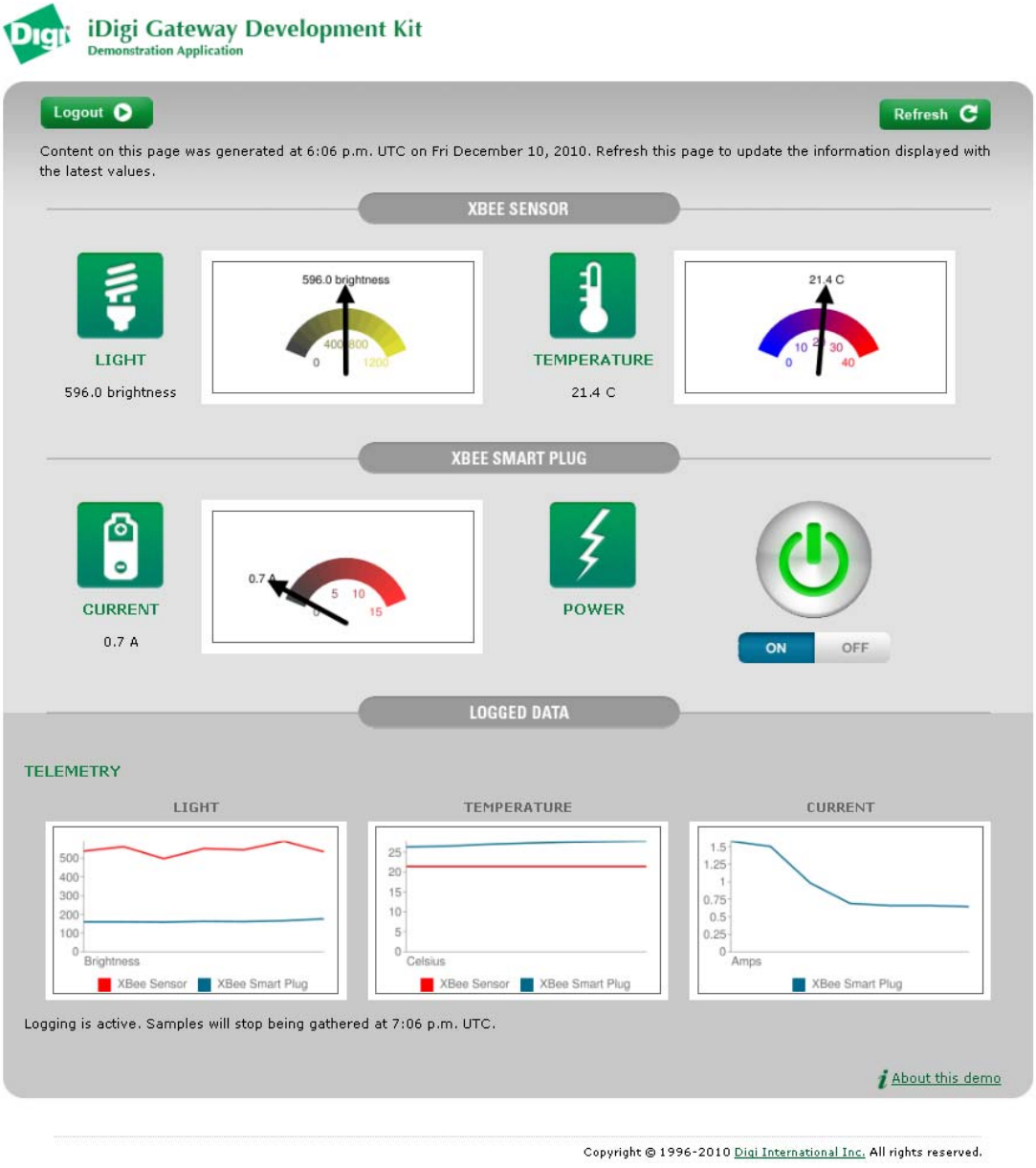


Figure 52: iDigi Gateway Development Kit Demo Application

Getting Familiar with the iDigi Gateway Development Kit Demonstration Application

This demonstration application displays the current sensor readings and logged sensor readings for the XBee Sensor and the XBee Smart Plug connected to your ConnectPort X4's XBee network. Values are updated by clicking the refresh button. Every time the screen is refreshed the application also updates the time-stamp information at the top of the screen.

Logging begins automatically once you log in to the application, and logged data is collected once a minute for 60 minutes. After the 60 samples are collected, logging stops. To collect more samples, simply log out, and then log back in to the demonstration application.

XBee® Sensor:

The XBee Sensor has an internal light and temperature sensor. The last reported readings from both internal sensors are reported.

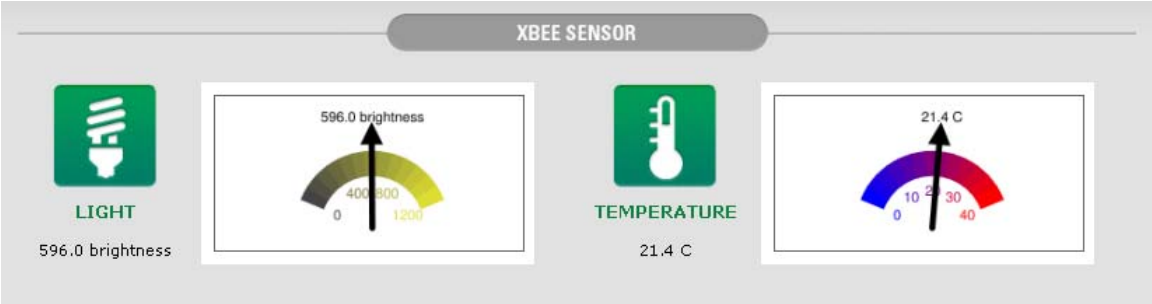


Figure 53: XBee Sensor Display

In the event that your brightness reading looks similar to the example above, simply cover the light sensor on the front of the XBee Sensor and click the **Refresh** button, and you should see something similar to the following:

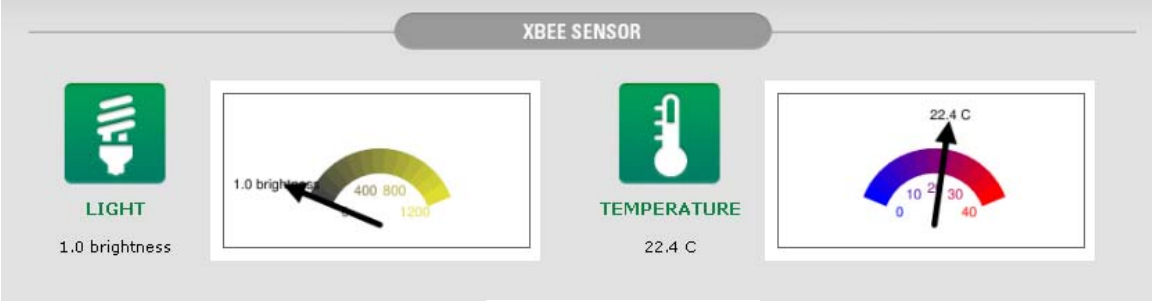


Figure 54: XBee Sensor Display Refreshed

XBee Smart Plug ™ (for US kits only):

The XBee Smart Plug has an internal light and temperature sensor. It also has the ability to track its current usage and allows the XBee Smart Plug to be turned on or off. This demonstration application displays the current flowing through the XBee Smart Plug and the On/Off state of the XBee Smart Plug.

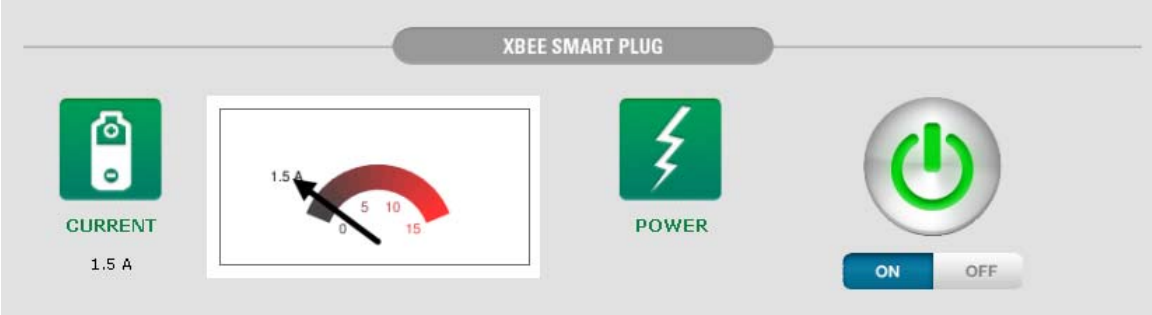


Figure 55: XBee Smart Plug Display - Current Flowing

In the event your XBee Smart Plug displays something similar to the output above, simply click the "Off" button, and then click **Refresh**. Your XBee Smart Plug should display something similar to the following:

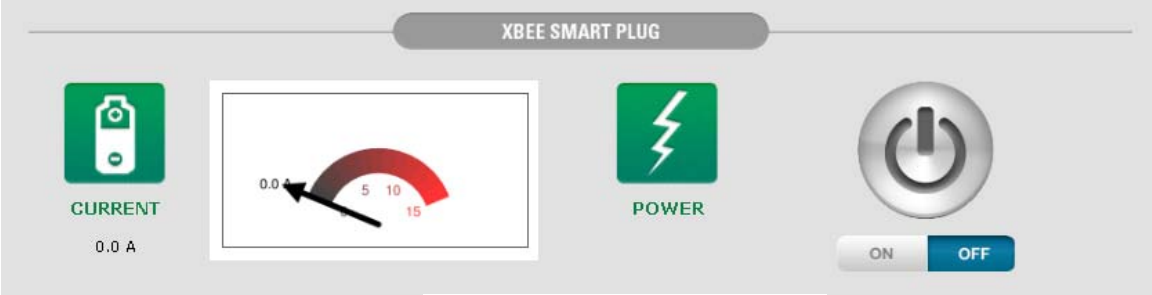


Figure 56: XBee Smart Plug Display - No Current Flowing

Logged Data:

The logged data area displays up to the last 60 sensor readings from all XBee device sensors. Logging will stop automatically after an hour and data will be discarded after 24 hours. In order to update the Telemetry data, click the **Refresh** button.

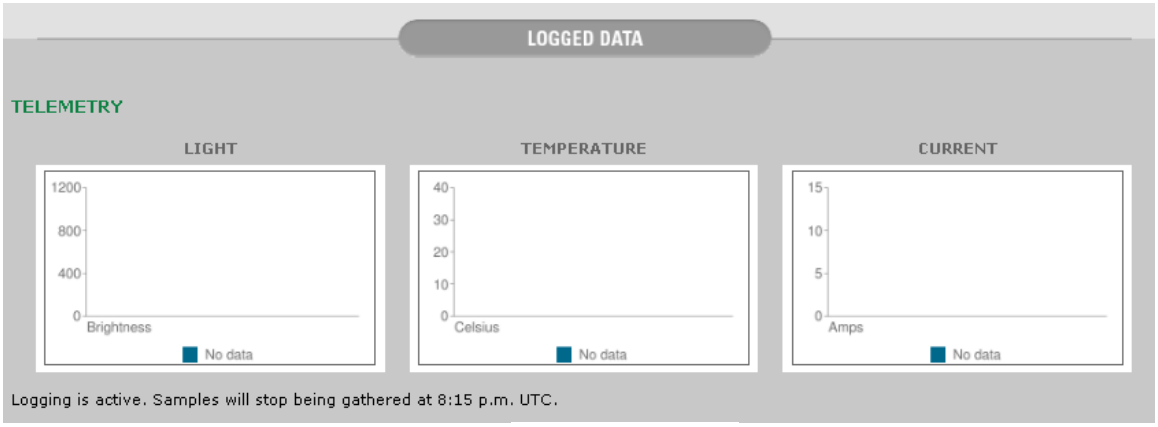


Figure 57: Logged Data Display – Off

When you log in to this demonstration application, Telemetry logging will start automatically and run for an hour. Since the logged data is collected once every 60 seconds and only 60 samples are logged, you may need to wait up to 2 minutes before the Telemetry data is updated (as shown in the example below).

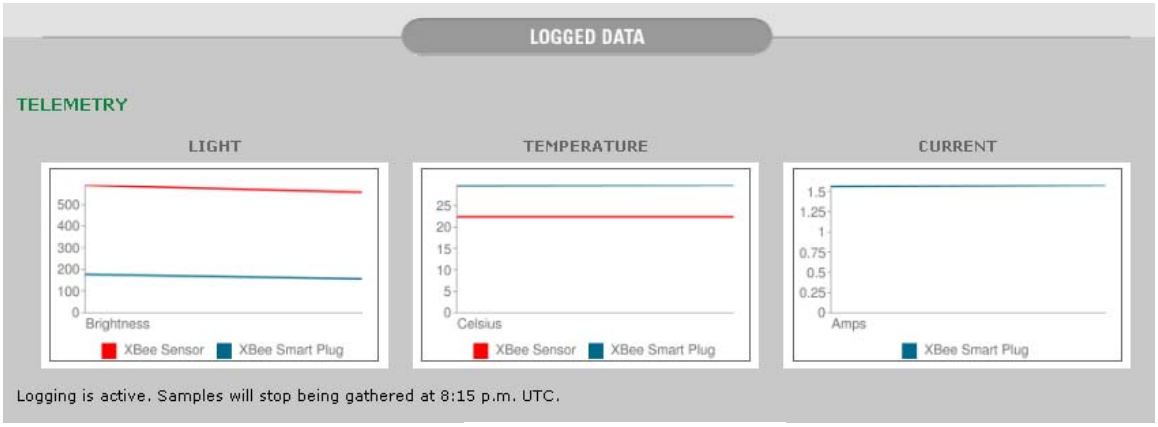


Figure 58: Logged Data Display – Begin Logging

By turning off the XBee Smart Plug and covering the light sensor on the XBee Sensor, a subsequent screen refresh should make the Telemetry data look similar to the following:

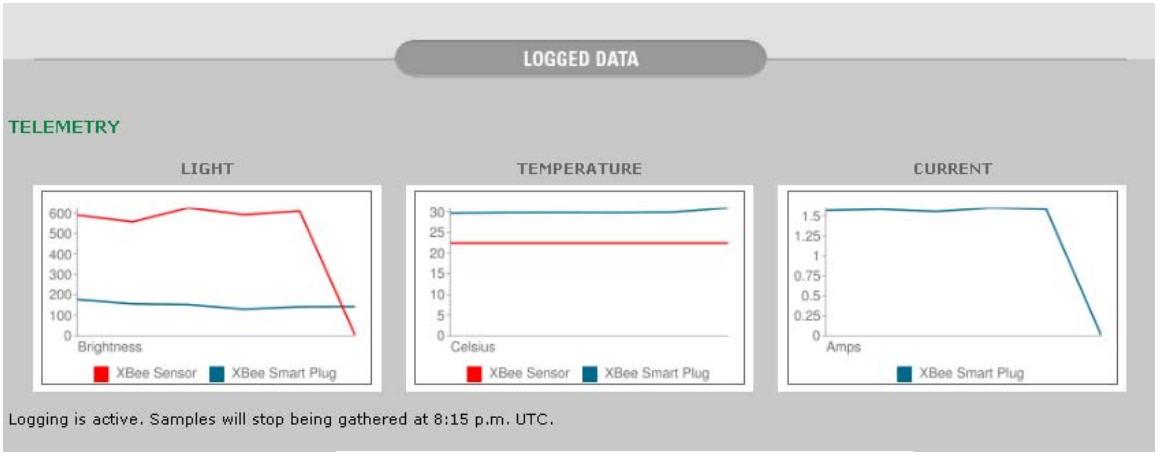


Figure 59: Logged Data Display – XBee Smart Plug Off, XBee Sensor Covered

Waiting a few moments before turning the XBee back on, and uncovering the light sensor on the XBee Sensor should make the Telemetry data look similar to the following:

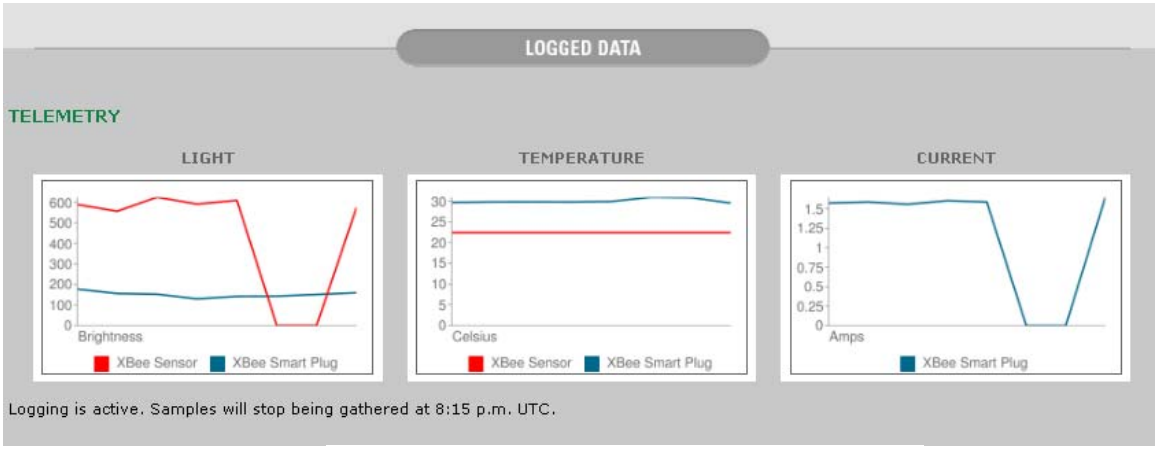


Figure 60: Logged Data Display – XBee Smart Plug On, XBee Sensor Uncovered

By clicking on one of the gauges or graphs, the application will display a more detailed view as shown below:

Figure 61: Graph Expanded View

You have just completed Goal #6:
Using the iDigi Gateway Development Kit Demonstration Application to understand how a web services enabled Enterprise application interacts with iDigi and monitors the data gathered by the XBee device' sensors.

Congratulations you have completed the process of setting up your iDigi Gateway Development Kit!

Please read through the "Part 2: Learn More" section of this guide to learn more about the Digi devices and applications used throughout the process of setting up your iDigi Gateway Development Kit.

Part 2: Learn More

iDigi® Dia & iDigi®

The iDigi Cloud is a Machine to Machine (M2M) network operating platform, used by software developers and organizations responsible for supporting the network. It enables secure, reliable M2M delivery from your remote devices to your enterprise application.

Going to Market?

Many users of the iDigi Developer Cloud are creating M2M applications they intend to launch as commercial applications. Taking advantage of the iDigi Production Cloud with unlimited scalability, high-availability and industry leading security is easy as 1 - 2 - 3.

1. Contact Digi Business Development and express your desire for an iDigi Production Account at 1-877-IDIGI-EZ or by email *at http://www.idigi.com/contactus/#email.*
2. A Digi Business Development Representative will send you a copy of the iDigi Terms of Service and review pricing.
3. Sign the Terms of Service and an iDigi production account will be created and log-in credentials will be emailed to you.

Since iDigi is an on-demand platform as a service, you will only be charged for what you use. Further support can be accessed through our support portal at:
http://www.digi.com/support/?kw=idigi.

iDigi Dia (Device Integration Application) is software that simplifies connecting devices (sensors, PLCs, etc.) to communication gateways. Dia includes a comprehensive library of plug-ins that work out-of-the-box with common device types and can also be extended to include new devices. iDigi Dia's unique architecture allows the user to add most of these new devices in under a day.

iDigi Dia is designed upon a tested architecture that provides the core functions of remote device data acquisition, control, and presentation between devices and information platforms. It collects data from any device that can communicate with a Digi gateway, and is supported over any gateway physical interface. iDigi Dia presents this data to upstream applications in fully customizable formats, significantly reducing a customer's time-to-market.

Written in the Python programming language for use on Digi devices, iDigi Dia may also be executed on a PC for prototyping purposes when a suitable Python interpreter is installed.

Further documentation on iDigi Dia and iDigi can be found within the iDigi Manager Pro **Resources** link. Once logged in to iDigi Manager Pro, click on the **Resources** link in the Left Navigation Bar and explore the documents listed under the "iDigi Dia Resources" and "iDigi Cloud Resources" headings.

Figure 62: iDigi Dia and iDigi Documentation

Additional documentation can also be found on the product specific section of the Digi website *http://www.digi.com/gatewaydevelopmentkit*, under the "Support Documentation" heading of the Documentation tab.

Digi ESP™ for Python

Digi ESP for Python is an Integrated Development Environment (IDE) that allows the developer to easily develop applications in Python. Digi ESP for Python is built on Eclipse and the Python Development Environment (Pydev) plug-in. Eclipse is an open, extensible IDE. It was originally written for Java development. The Pydev is a plug-in that provides support for developing applications with Python in the Eclipse platform. Digi ESP for Python customizes Eclipse and PyDev to support developing specifically with Digi platforms.

Digi ESP for Python documentation can be found within the Digi ESP for Python framework program. To locate this documentation:

Navigate to the Digi ESP for Python Welcome page and click on the **Overview** button. Once the Python overview screen is displayed, click on the "Digi ESP for Python" framework link and browse the documentation contained within this page.

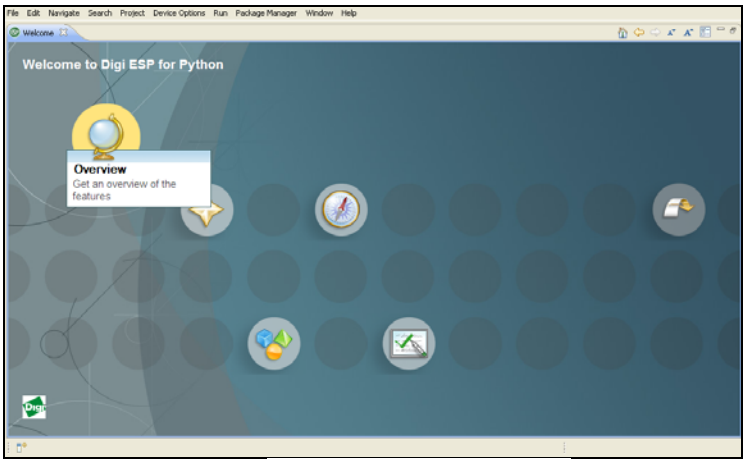


Figure 63: Welcome Screen Overview Button

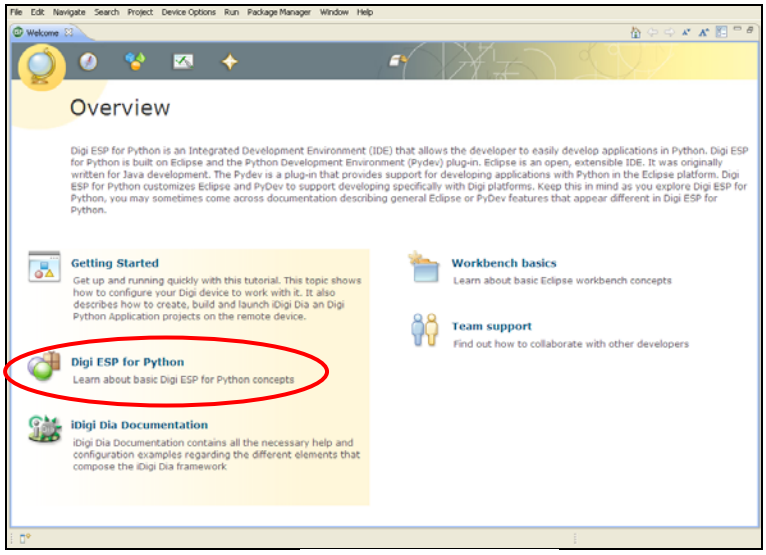


Figure 64: Digi ESP for Python Overview

Additional help documentation can be located by navigating to **Help > Help Contents** from the Digi ESP for Python framework main menu.

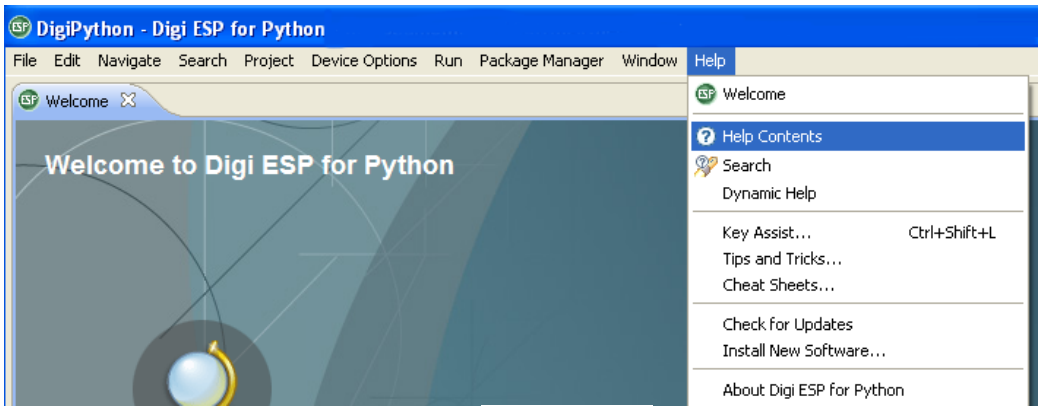


Figure 65: Help Contents Path

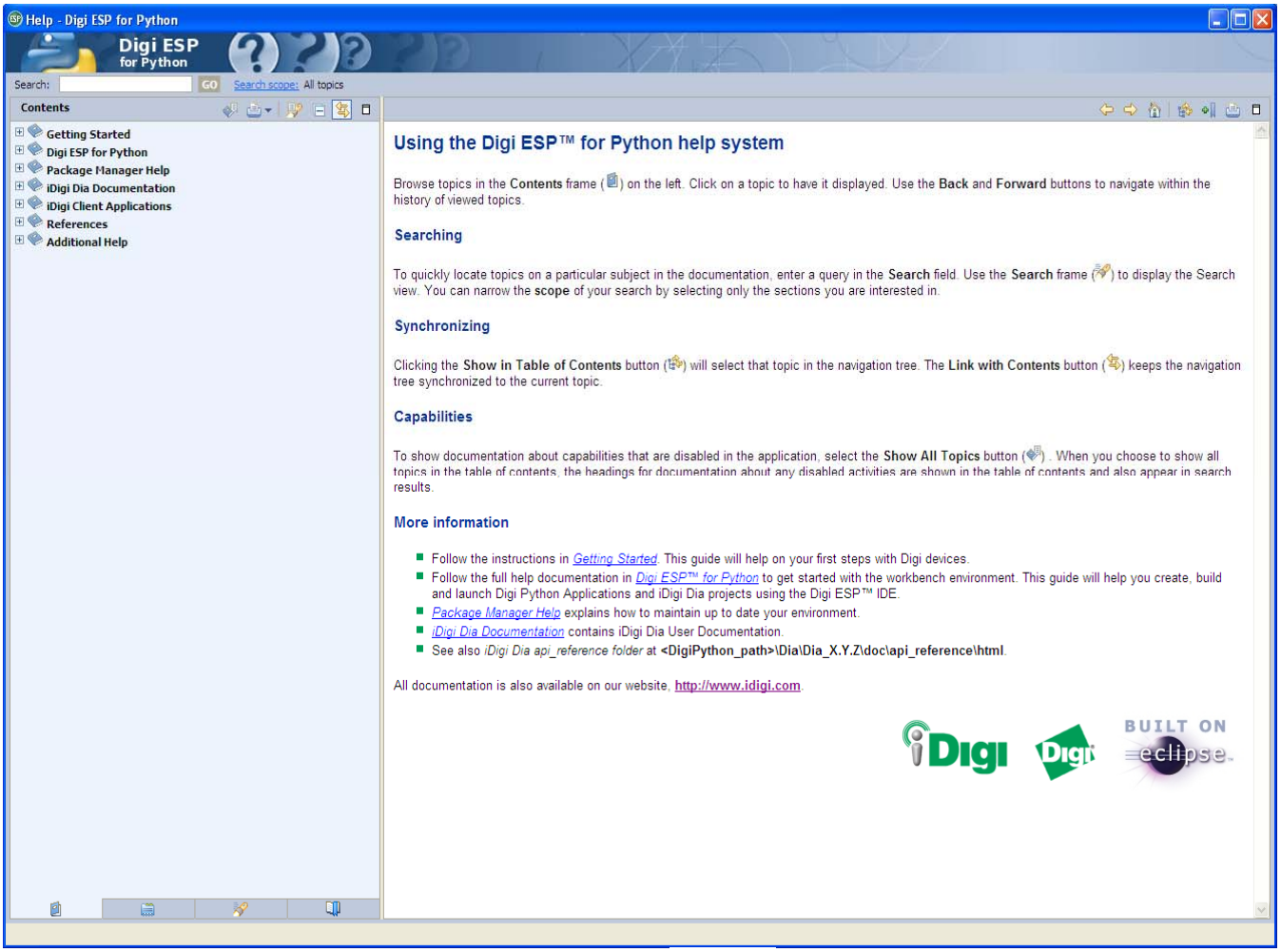


Figure 66: Digi ESP for Python Help Section

The **Elements** section of the Smart Project Editor for iDigi Dia provides several presentations including an RCI Handler, Console Port, and a Web Presentation. The Web Presentation (iDigi Dia project) described in this guide provides details for a new web page "idigi_dia.html." Click on the **Dia Web Presentation** tab to open this new web page.

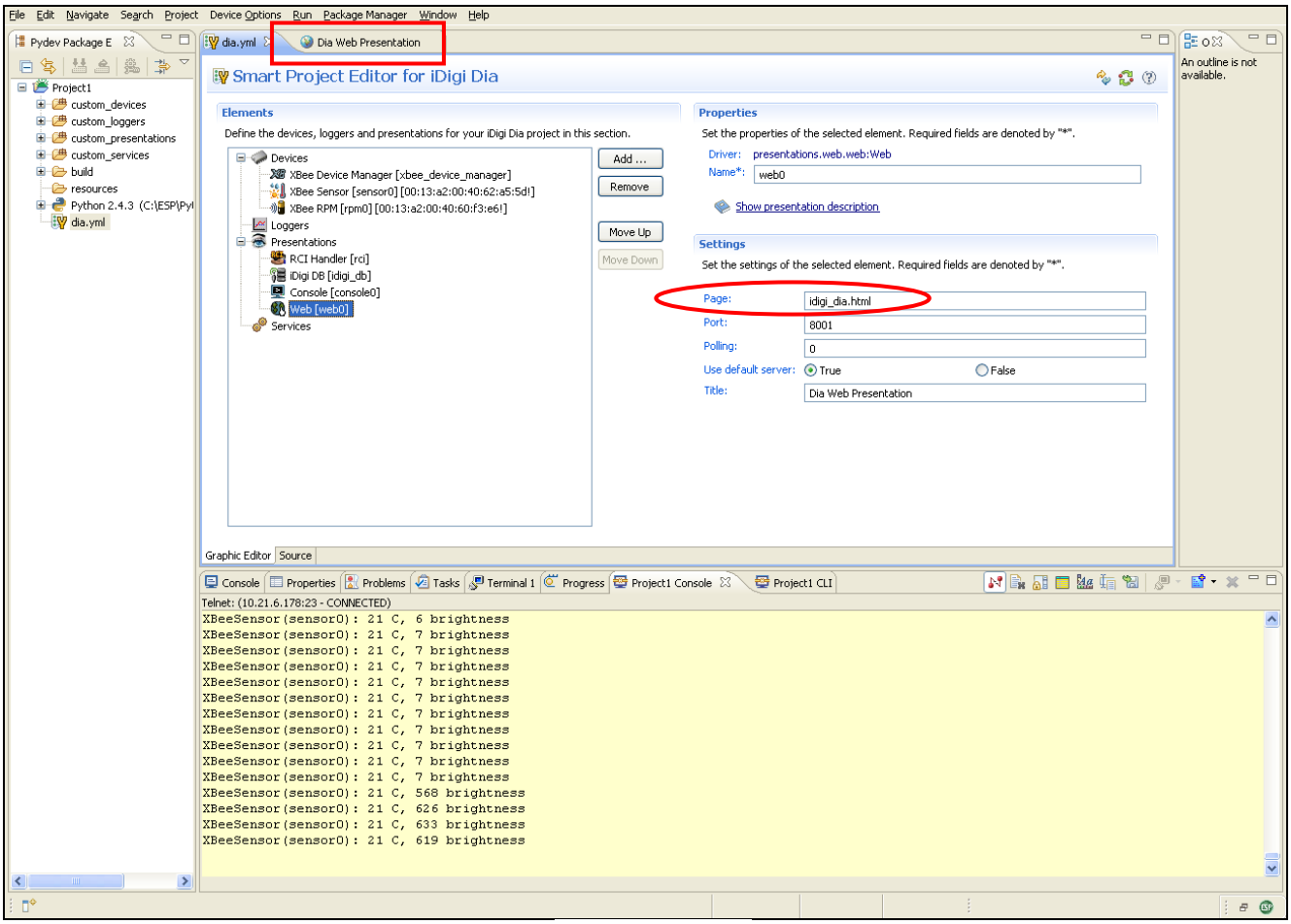


Figure 67: Dia Web Presentations

The iDigi Dia project also provides support for a new Console Port (using TCP Port 4146 as detailed below).

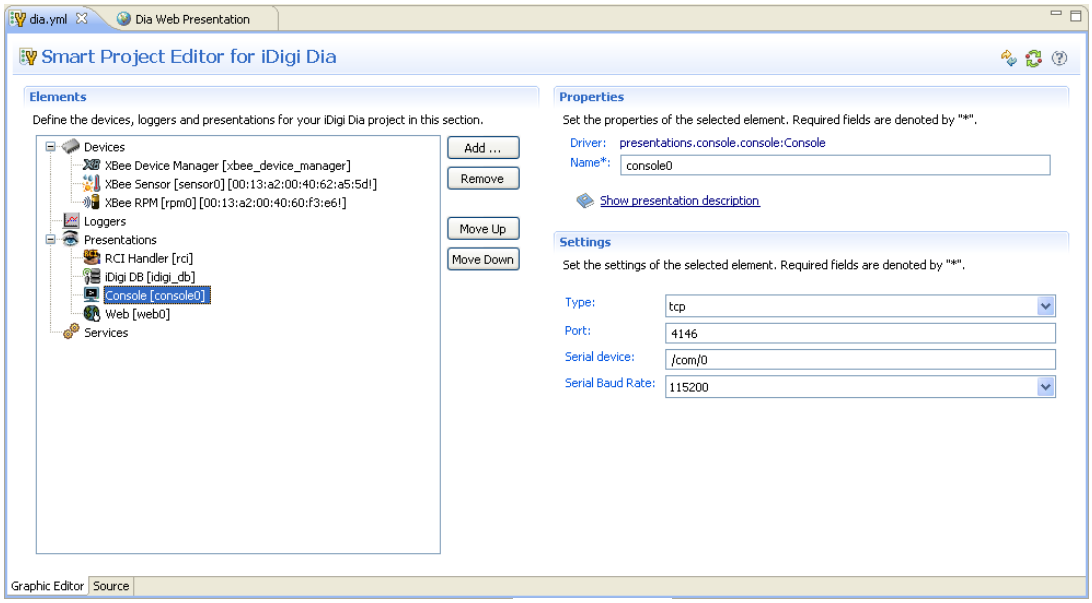


Figure 68: New Console Port

To use the new Console Port, establish a Telnet connection to your ConnectPort X4 using TCP port 4146, and the iDigi Dia CLI will be presented to you.

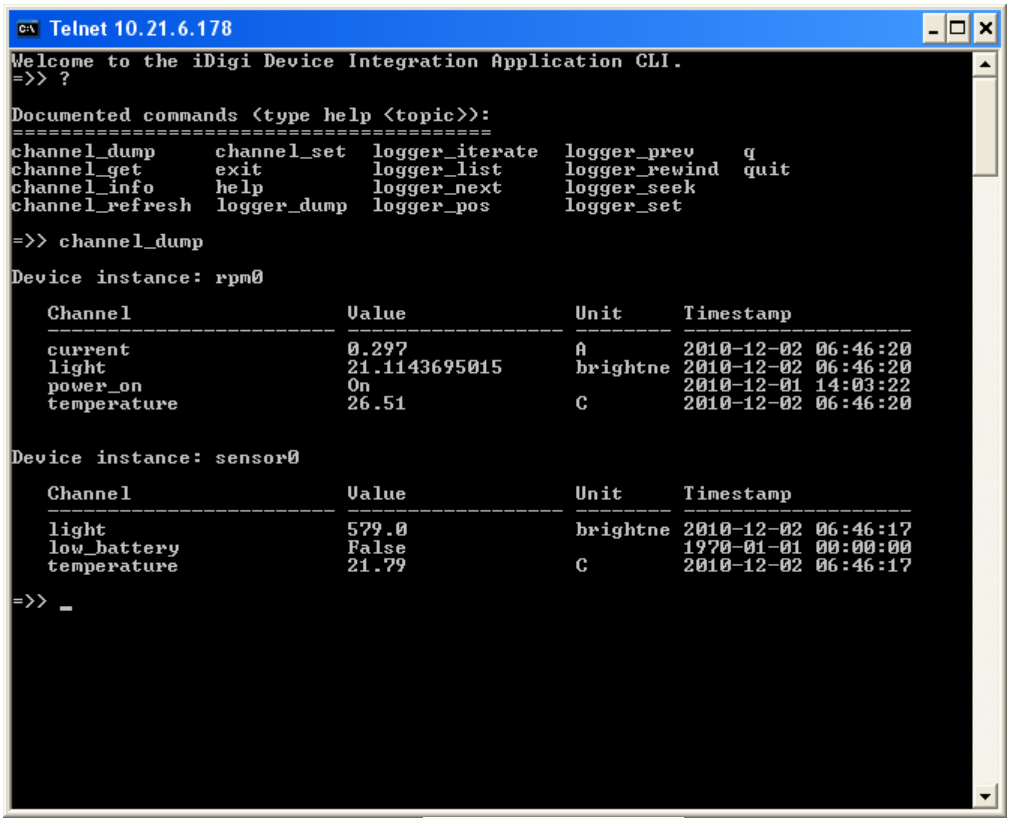
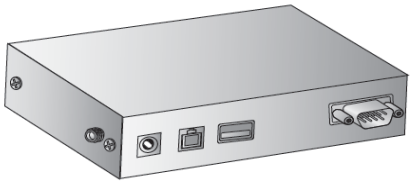


Figure 69: Establish a Telnet Connection

The "?" will provide a list of the supported CLI commands, and the "channel_dump" command will retrieve the current sensor readings from your XBee devices' sensors.

Digi's® Gateway Products



Digi's ConnectPort X Family of programmable mesh networking gateways provide two fundamental benefits: gateway functionality and programmability.

Gateway Functionality

The gateways function, as the name implies, as gates between local mesh networks (e.g. ZigBee) and IP-based networks (e.g. Cellular). The gateways support the following network protocols:

- PAN Networks:
  - ZigBee
  - DigiMesh 2.4 GHz
  - DigiMesh 900 MHz

- IP Networks:
  - Ethernet
  - WiFi
  - 2G/3G/4G Cellular
  - WiMax
  - Satellite

Programmability

ConnectPort X Gateways support the Python programming language and offer the memory space for local development. This allows the gateways to function with enough local intelligence to make decisions about which events are worth communicating over the wide area network. This is especially useful when sending traffic over proprietary cellular or satellite networks.

iDigi Dia (described above) further enhances the value of custom programming on Digi gateways by offering an expanding library of Python plug-ins to support and manage communication between many common device types and iDigi.

For more information regarding ConnectPort X Gateways please go to: *http://www.digi.com/products/wireless-routers-gateways/routing-gateways/connectportx4.jsp#overview*

XBee® Sensor

Digi XBee Sensors are compact, battery powered environmental sensors for ZigBee networks. They provide real-time temperature and light information for a variety of applications.

For more information regarding XBee Sensors please go to:
http://www.digi.com/products/wirelessdropinnetworking/sensors/xbee-sensors.jsp

XBee Smart Plug™ (or XBee® Wall Router in non-US kits)

The Digi XBee Smart Plug is an intelligent outlet that has the ability to measure and control electrical devices plugged in via a standard electrical outlet. The XBee Smart Plug and XBee Wall Router have integrated light and temperature sensors. Both devices are XBee routers and extend the range of a ZigBee Network.

For more information regarding the XBee Smart Plug go to:
http://www.digi.com/products/wirelessdropinnetworking/networkextenders/xbee-smart-plug-zb.jsp

For more information regarding the XBee Wall Router go to:
http://www.digi.com/products/wireless/zigbee-mesh/xbee-wall-router.jsp

Digi's® ZigBee RF Modules

The ConnectPort X4, XBee Sensor, and XBee Smart Plug/XBee Wall Router used in this kit each contain a ZigBee RF module built on Digi's XBee hardware platform. Utilizing the ZigBee wireless standard, these modules are interoperable with other ZigBee devices, including devices from other vendors. Programmable versions of the XBee-PRO ZB module make customizing ZigBee applications easy, even without wireless design expertise.

If you are interested in learning more about Digi's XBee and XBee-PRO ZB modules, we encourage you to purchase a Digi ZigBee RF Module Development Kit from *www.digi.com* or your Digi authorized reseller.

Appendix A: Configuring for GSM/Edge Cellular Networks

This Appendix provides an overview of how to configure the Wireless WAN interface of the ConnectPort X4 for GSM/Edge cellular networks for carriers like AT&T and T-Mobile.

This Appendix also describes how to view the ConnectPort X4 cellular connection status, and its IP Gateway priority list.

Step 1: Inserting the SIM Card(s)

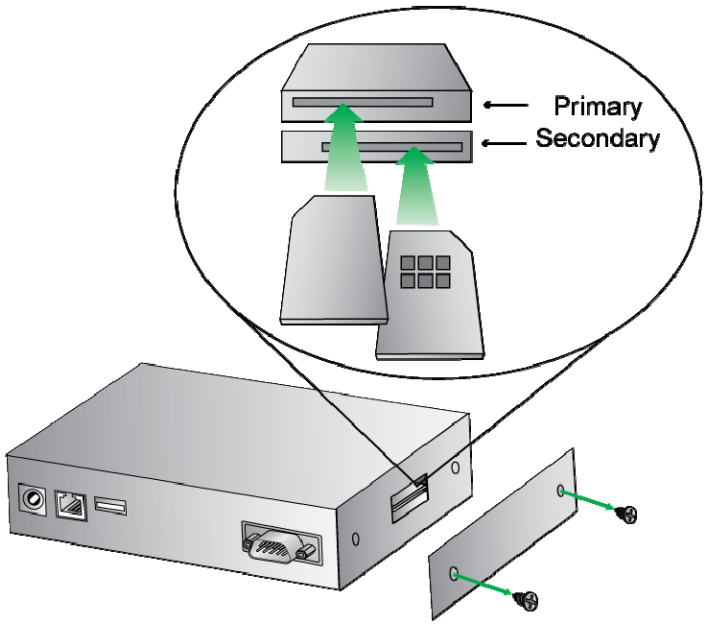


Figure 70: Inserting the SIM card

Step 2: Configuring the Cellular Interface

1. Click on Configuration > Mobile from the left-hand menu.
2. The ConnectPort X4 has two SIM slots with Slot 1 being the primary SIM slot. If you wish to use SIM Slot 2, use the SIM drop-down box to select "Slot 2", and then click Set as Primary.

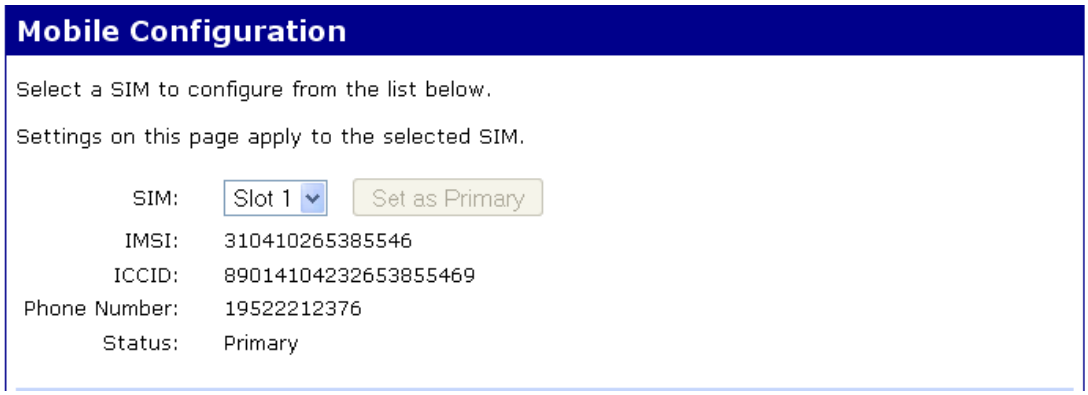


Figure 71: Mobile Configuration

1. Configure the Mobile Service Provider Settings by entering the Service Provider, Service Plan/APN, and Customer Plan Name appropriate for your environment as shown.

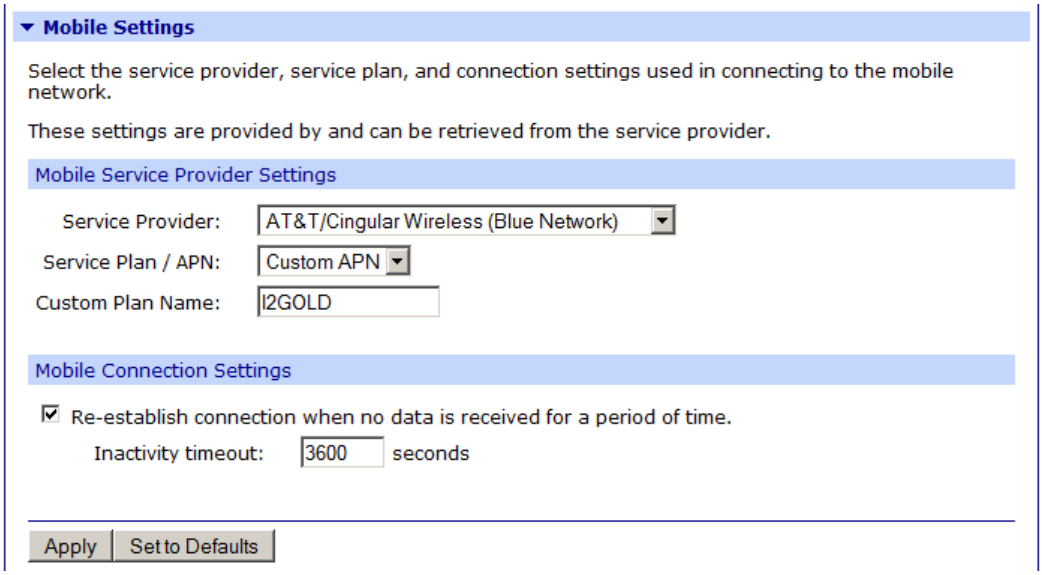


Figure 72: Mobile Settings

2. Click Apply when finished.

Verifying the Cellular Connection Status

Once the correct cellular configuration has been applied, the ConnectPort X4 will begin to establish the cellular connection. You can verify the connection status by navigating to the Administration > System Information > Mobile page.

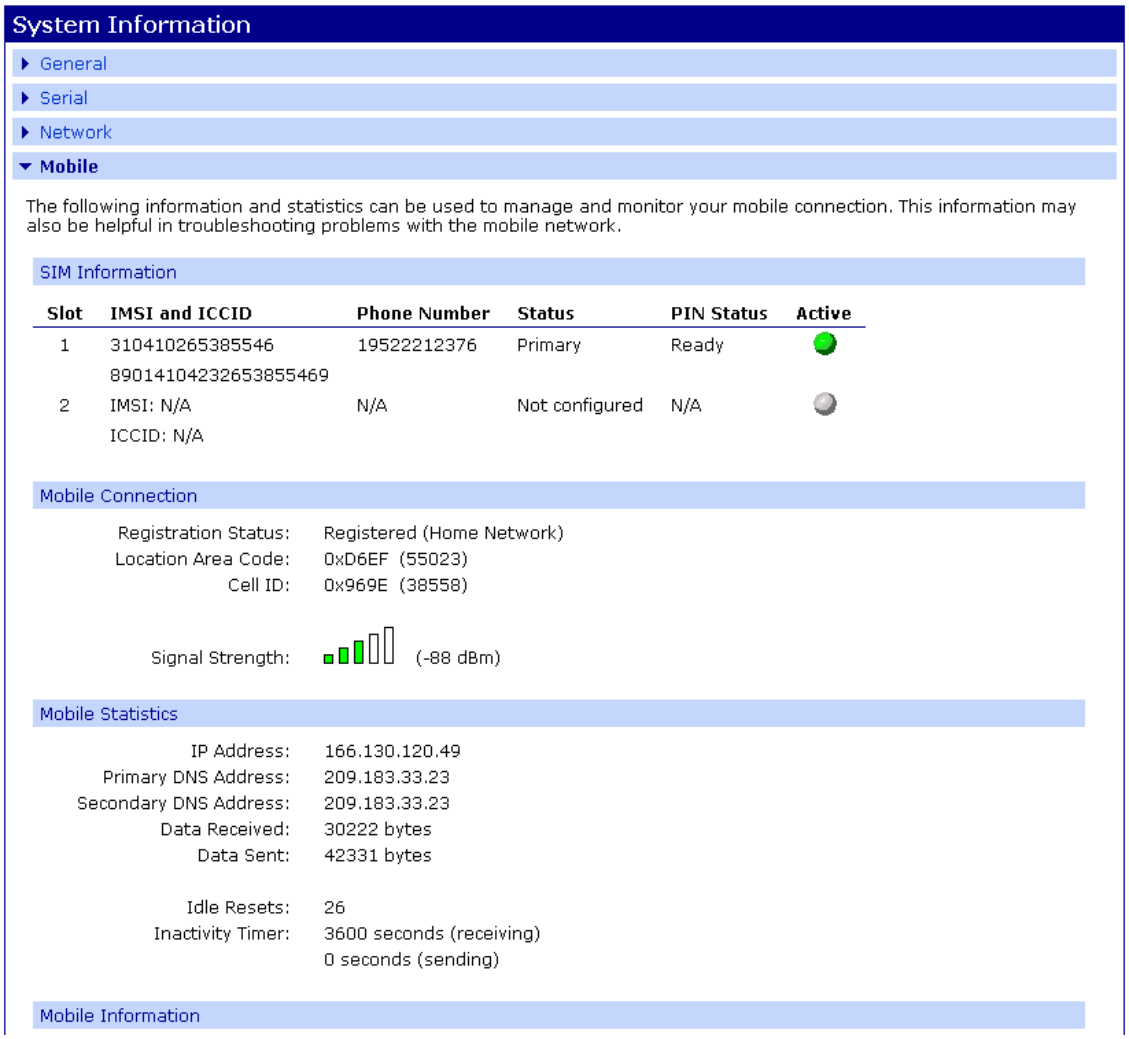


Figure 73: Verification

NOTE: In the above example, the ConnectPort X4 is connected to the cellular network and has obtained the 166.130.120.49 address for its cellular interface.

Appendix B: Configuring for CDMA Cellular Networks

This Appendix provides an overview of how to configure the Wireless WAN interface of the ConnectPort X4 for CDMA cellular networks for carriers like Verizon and Sprint.

This Appendix also describes how to view the ConnectPort X4 cellular connection status, and its IP Gateway priority list.

CDMA Cellular Configuration Example (Verizon)

NOTE: This example assumes that the ESN/MEID# for the ConnectPort X4 has been activated with your cellular provider. You can find the ESN/MEID# on the bottom of your unit.

To configure a CDMA ConnectPort X4 cellular interface perform the following steps:

1. Click on Configuration > Mobile from the left-hand menu and select Verizon Wireless from the Service Provider drop-down menu. You should see a screen similar to the following:

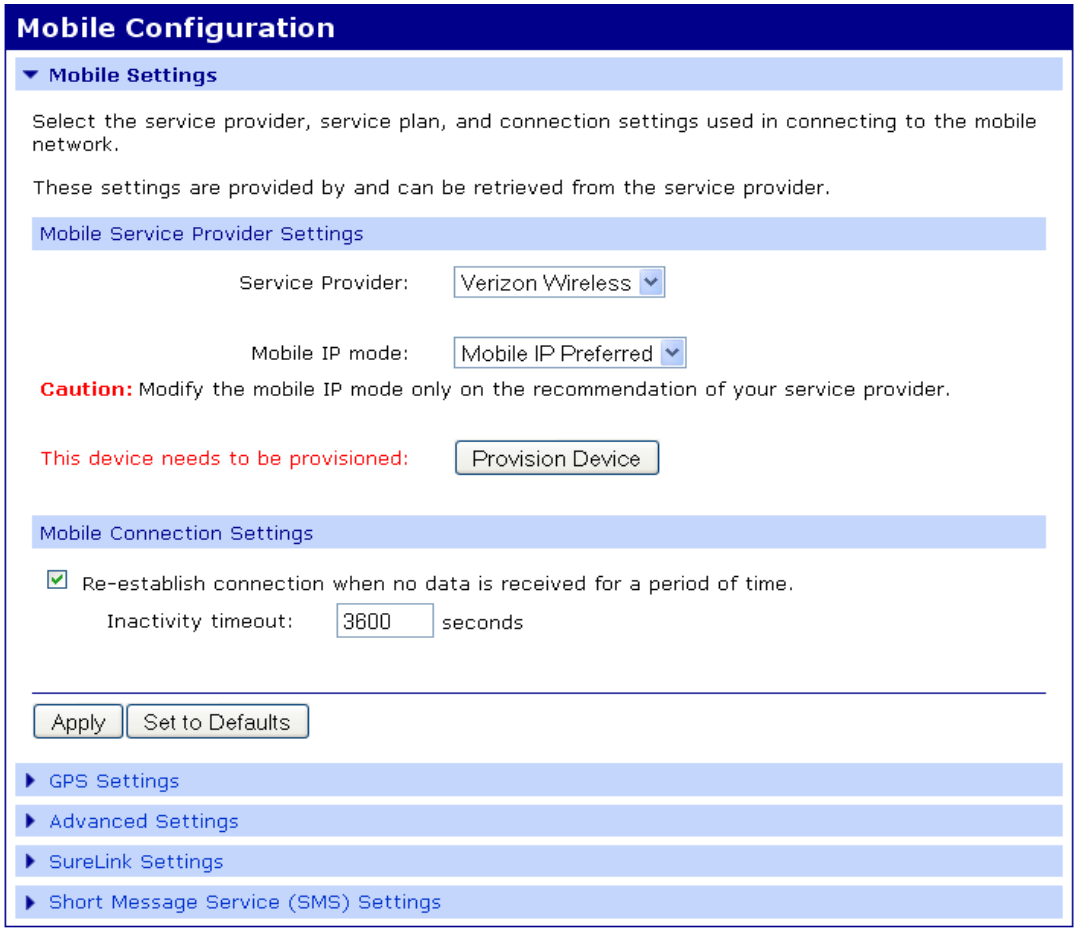


Figure 74: Mobile Configuration

2. After selecting a Service Provider, the unit needs to go through its provisioning process. Click the Provision Device button, and then follow the steps displayed within the Mobile Device Provisioning dialog screens.

   NOTE: The default options within the Mobile Device Provisioning dialog screens will be correct for most installations.

3. When the following screen is displayed, select the **Automatically provision the mobile device** option.

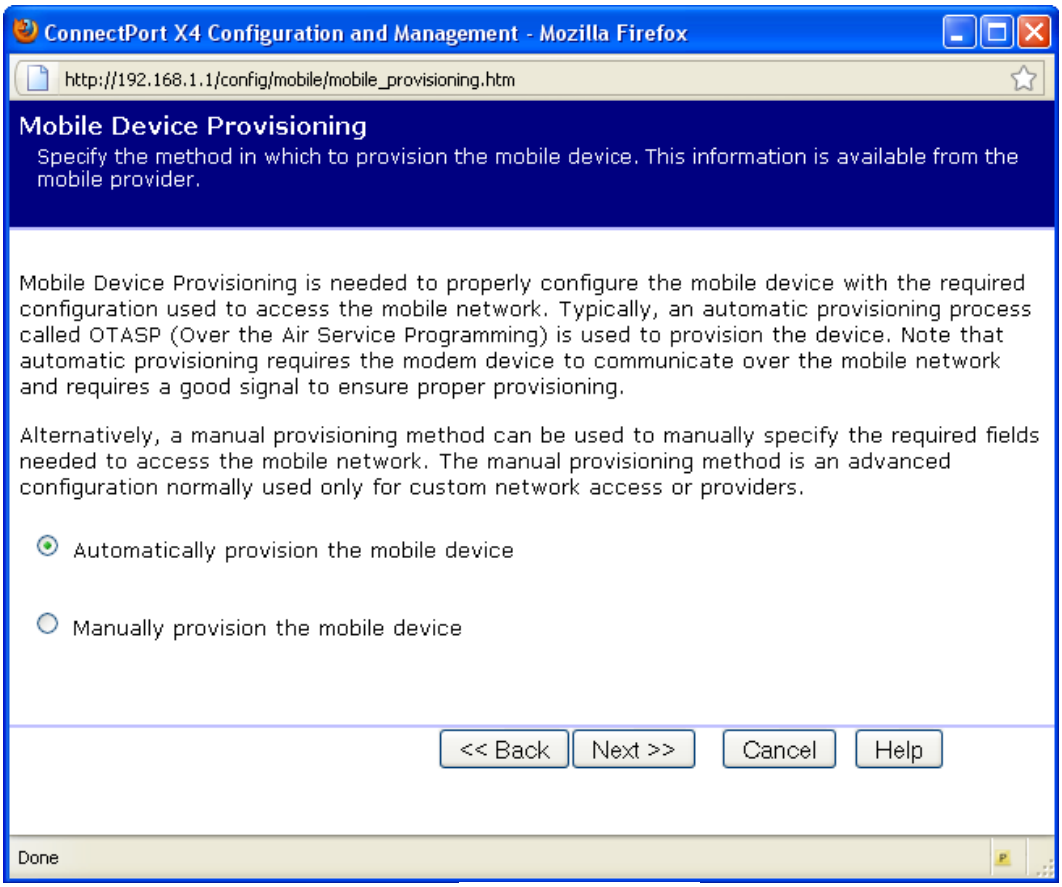


Figure 75: Mobile Device Provisioning

4. Continue to go through the mobile provisioning process until you see the following screen. This screen will indicate that the mobile provisioning process completed successfully.

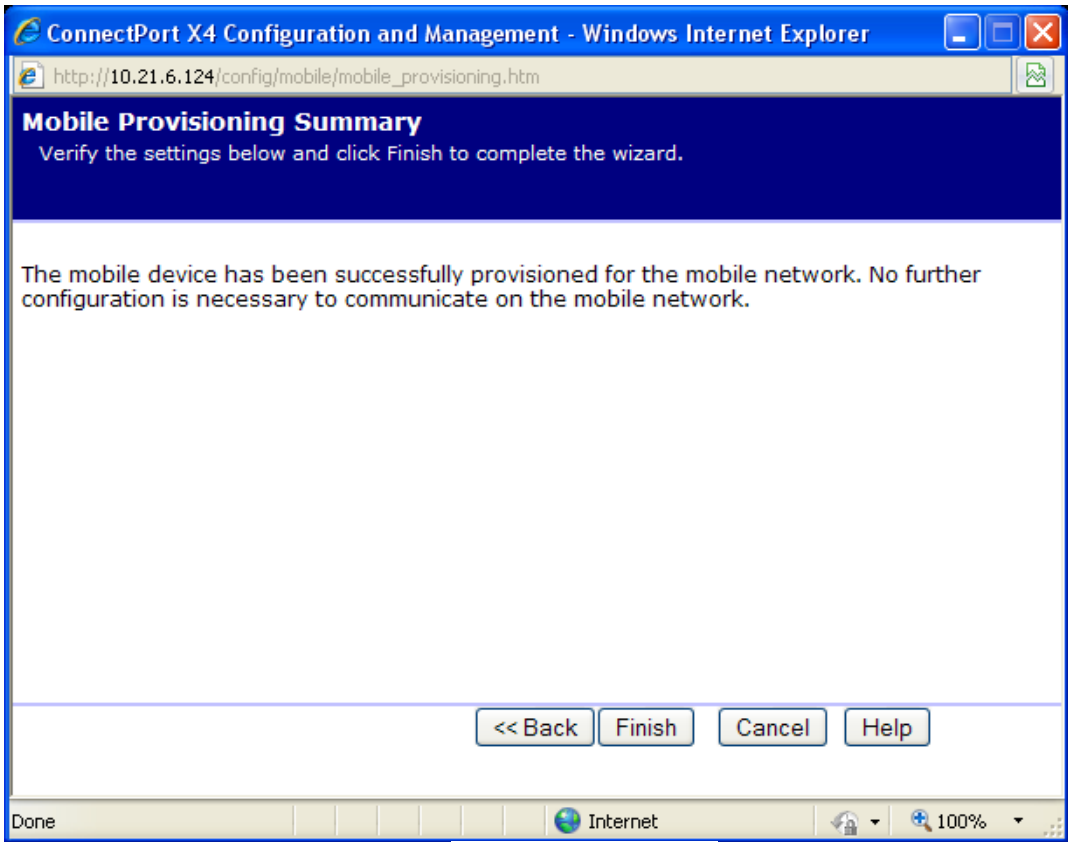


Figure 76: Mobile Provisioning Summary

5. Click Finish to return to the Mobile Configuration page.
6. Click Apply on the Mobile Configuration page when finished.

Verifying the Cellular Connection Status

Once the correct cellular configuration has been applied, the ConnectPort X4 will begin to establish the cellular connection. You can verify the connection status by navigating to the Administration > System Information > Mobile page.

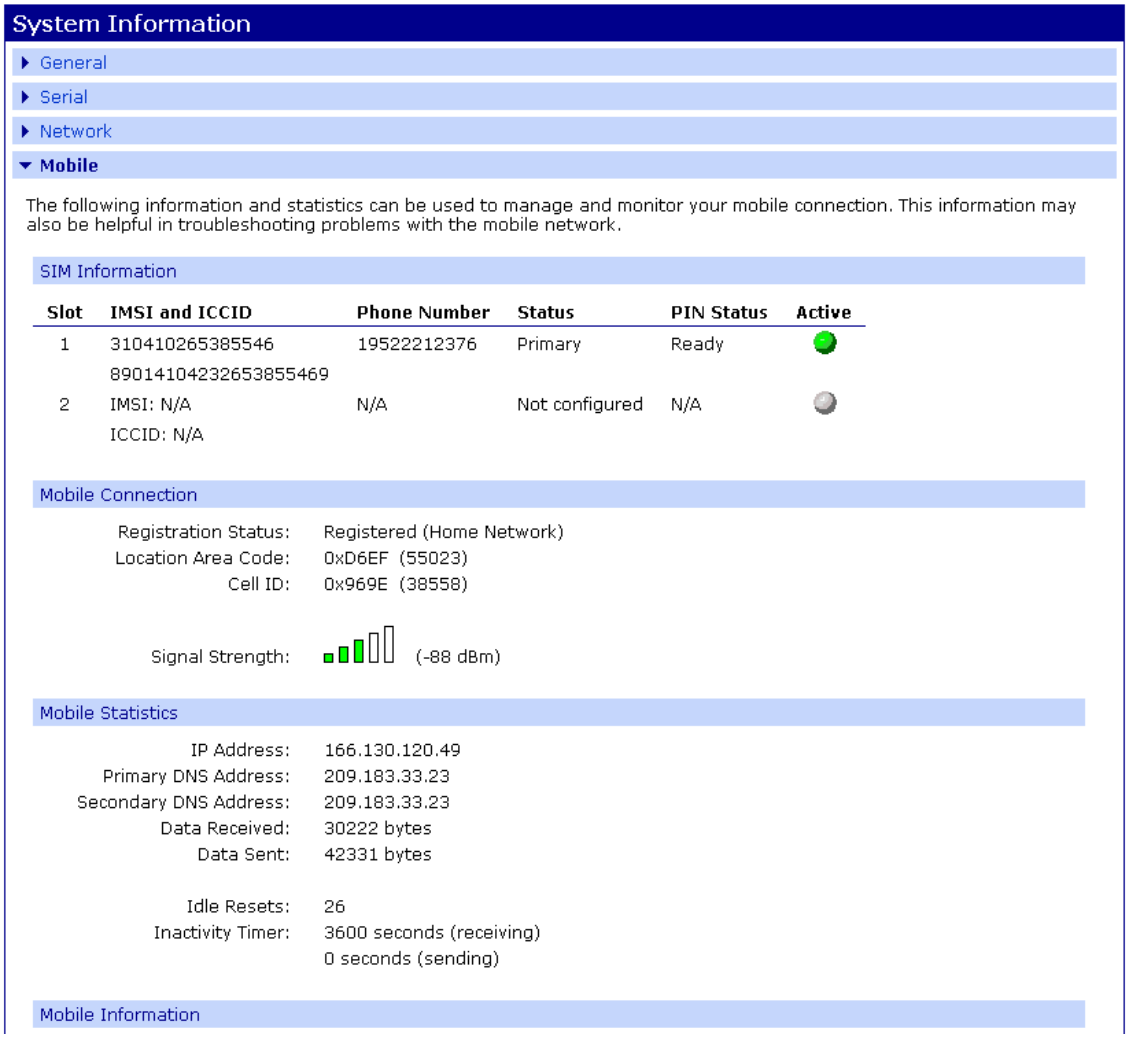


Figure 77: Verification

NOTE: In the above example, the ConnectPort X4 is connected to the cellular network and has obtained the 166.130.120.49 address for its cellular interface.

CDMA Cellular Configuration Example (Sprint)

NOTE: This example assumes that the ESN/MEID# for the ConnectPort X4 has been activated with your cellular provider. You can find the ESN/MEID# on the bottom of your unit.

To configure a CDMA ConnectPort X4 cellular interface perform the following steps:

1. Click on Configuration > Mobile from the left-hand menu and select Sprint PCS from the Service Provider drop-down menu. You should see a screen similar to the following:

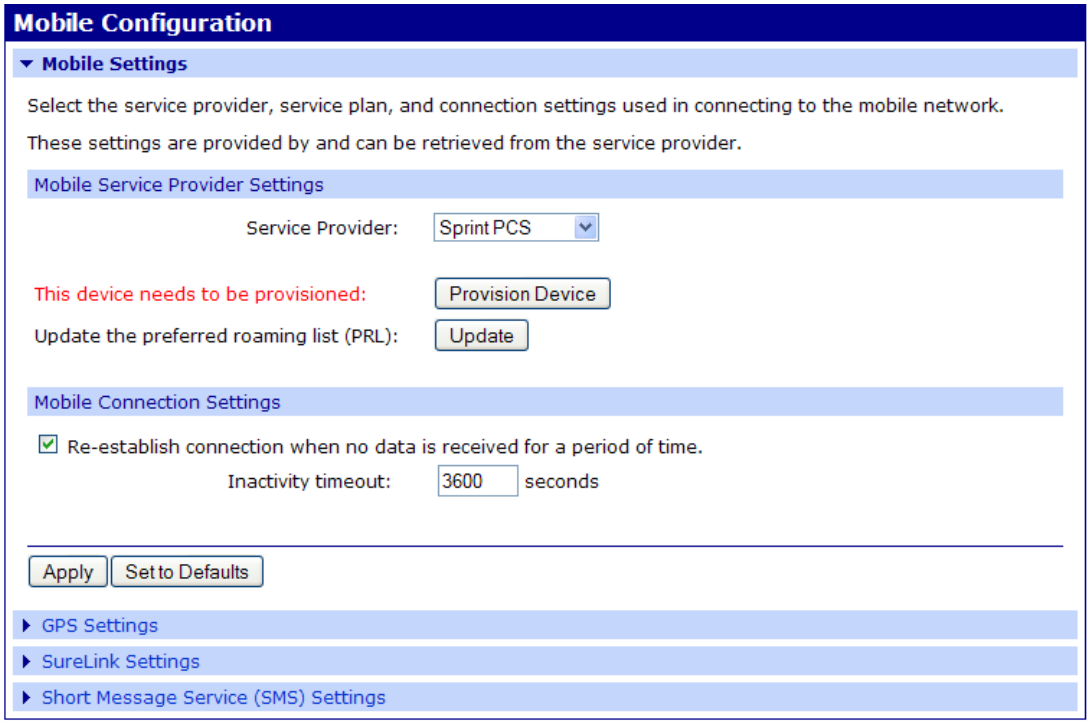


Figure 78: Mobile Configuration

2. After selecting a Service Provider, the unit needs to go through its provisioning process. Click the Provision Device button, and then follow the steps displayed within the Mobile Device Provisioning dialog screens.

   NOTE: The default options within the Mobile Device Provisioning dialog screens will be correct for most installations.

3. When the following screen is displayed, select the **Automatically provision the mobile device** option.

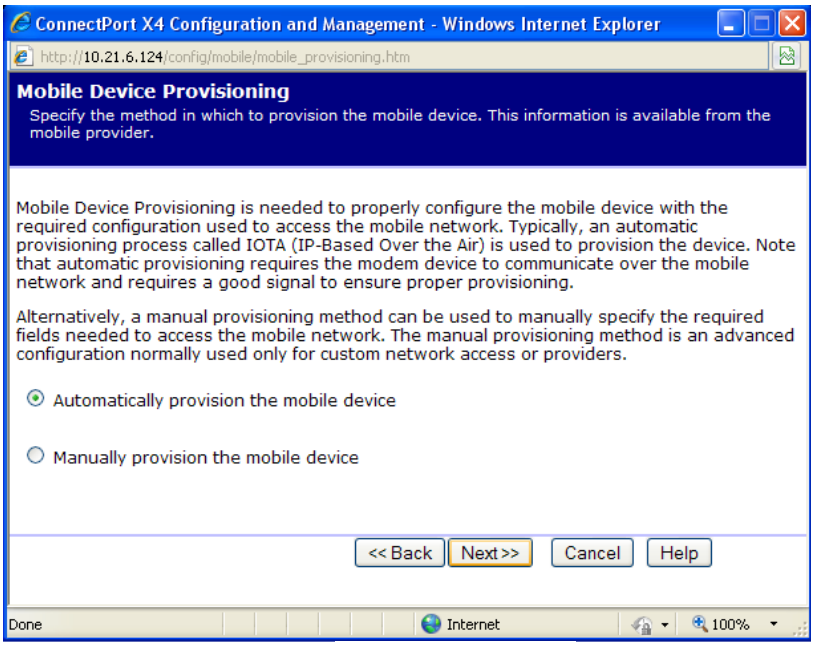


Figure 79: Mobile Device Provisioning

4. Continue to go through the mobile provisioning process until you see the following screen. This screen will indicate that the mobile provisioning process completed successfully.

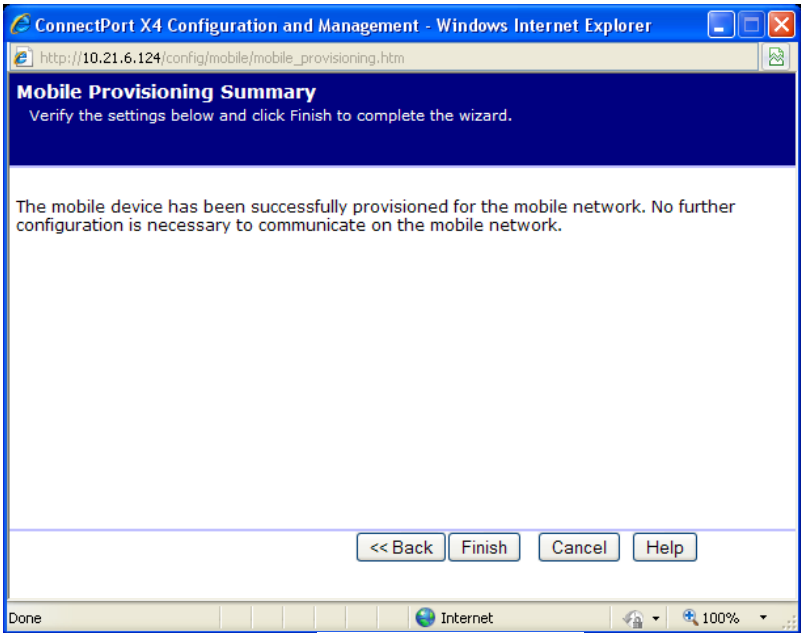


Figure 80: Mobile Provisioning Summary

5. Click Finish to return to the Mobile Configuration page.
6. Click Apply on the Mobile Configuration page when finished.

Verifying the Cellular Connection Status

Once the correct cellular configuration has been applied, the ConnectPort X4 will begin to establish the cellular connection. You can verify the connection status by navigating to the Administration > System Information > Mobile page.

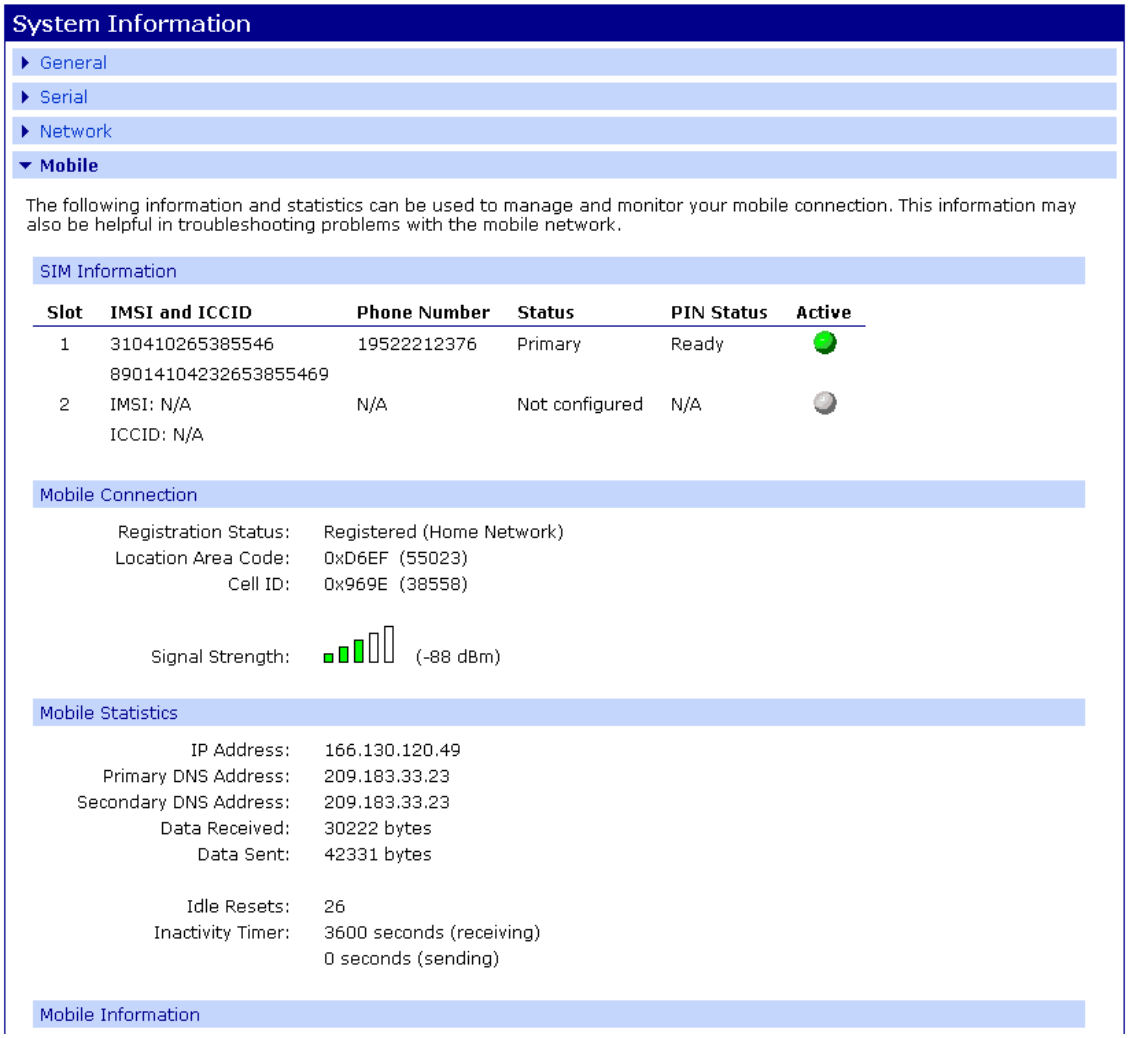


Figure 81: Verification

NOTE: In the above example, the ConnectPort X4 is connected to the cellular network and has obtained the 166.130.120.49 address for its cellular interface.

Appendix C: Configuring for WiMAX Networks

This Appendix provides an overview of how to configure the Wireless WAN interface of the ConnectPort X4 for WiMAX networks.

This Appendix also describes how to view the ConnectPort X4 Wireless WiMAX connection status, and its IP Gateway priority list.

Step 1: Connecting to the ConnectPort X4 Home Page

1. Connect one end of the provided Ethernet cable to your PC, and the other end to the ConnectPort X4 Ethernet port (ensure that your PC is configured to obtain its IP address via DHCP).
2. Open the web interface of the ConnectPort X4 by navigating to the 192.168.1.1 address in a web browser on the PC. You will see a screen similar to the following (this is the device's Home page):

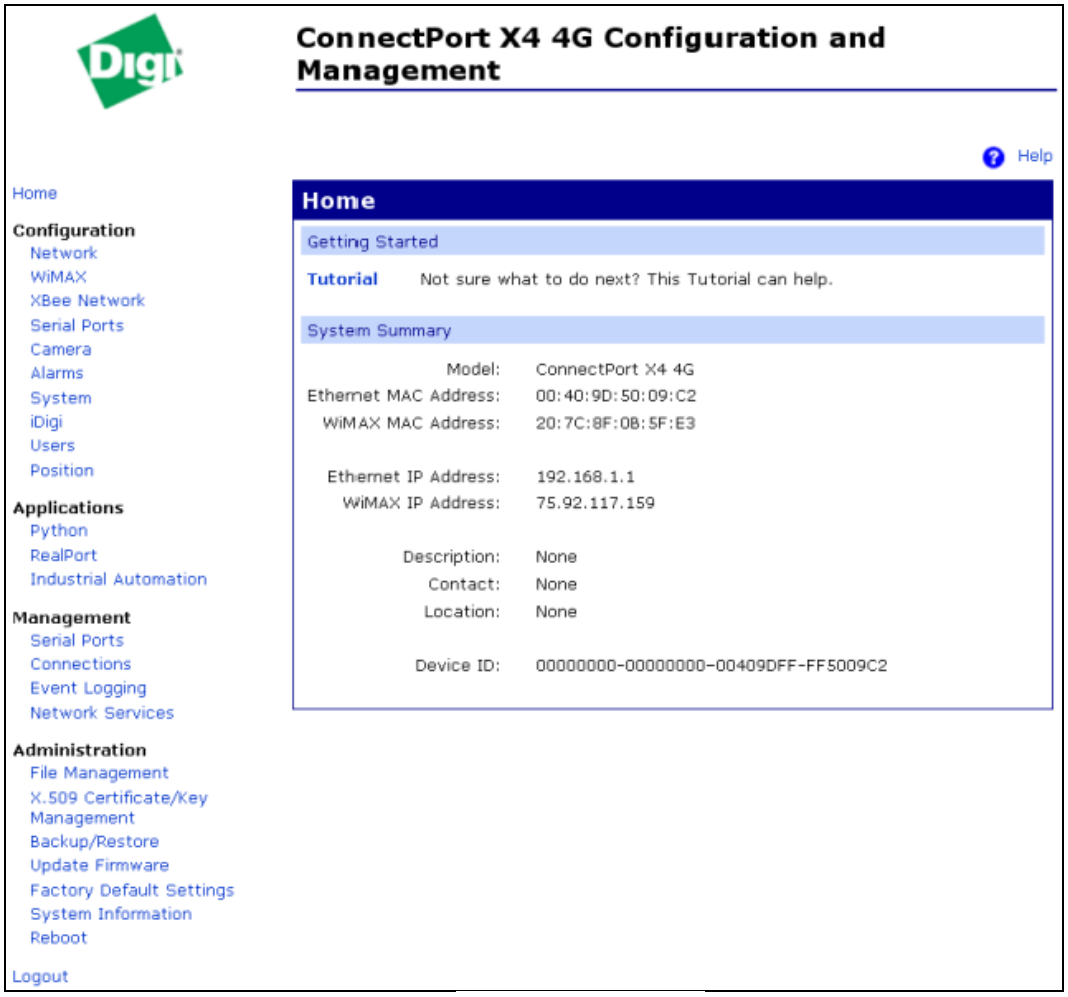


Figure 82: ConnectPort X4 Home Page

Step 2: Configuring the Wireless WAN Interface for WiMAX Networks

> **NOTE:** This example assumes that the WiMAX (WAN) MAC address for the ConnectPort X4 has been activated with your WiMAX provider. You can find the (WAN) MAC address on the bottom of your unit.

The WiMAX activation process for a ConnectPortX4 behaves more like WiFi than Cellular CDMA. Instead of activating an ESN or MEID on the cellular network, and then provisioning the ConnectPort X4 with the appropriate cellular network settings, once the Wireless WAN WiMAX MAC is activated on the WiMAX network the ConnectPort X4 may automatically establish its WiMAX connection.

This example assumes that the ConnectPort X4 has already been activated on the WiMAX network. As a result, you can refer back to the ConnportX4 Home page (displayed on the previous page) and observe that this particular unit has already obtained a WiMAX IP address.

In the event you need to modify this configuration, perform the following steps:

1. Click on Configuration > WiMAX from the left-hand menu and you should see a screen similar to the following:

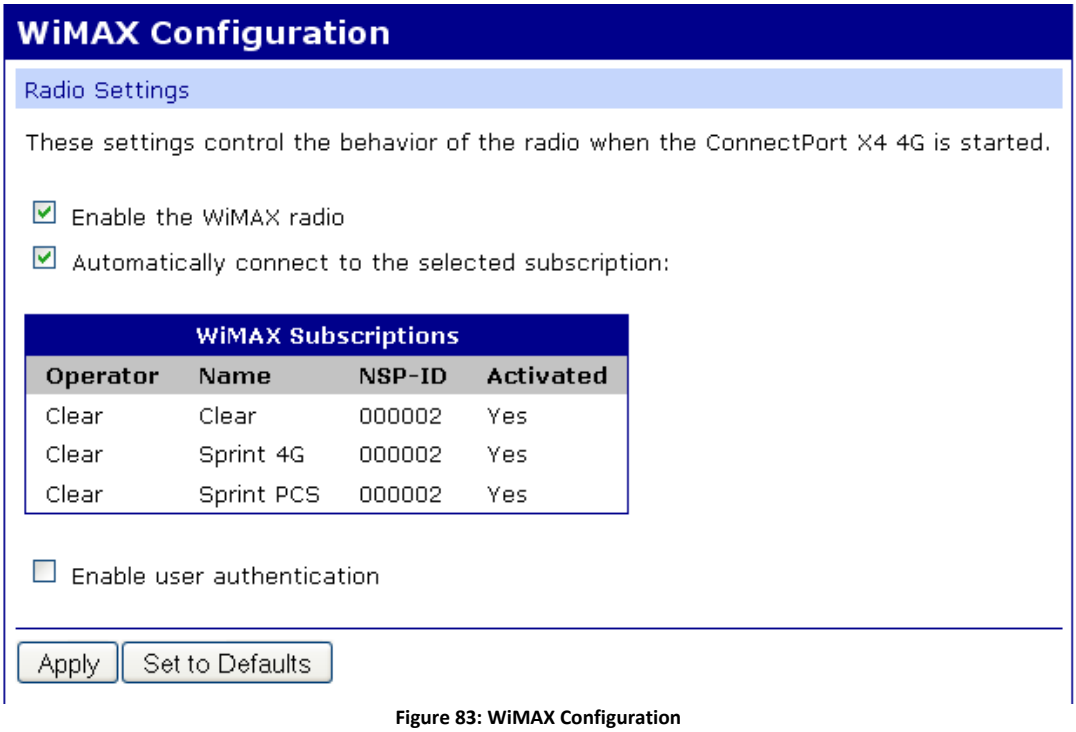


Figure 83: WiMAX Configuration

2. By default the ConnectPort X4 enables the WiMAX radio and attempts to connect to the best available network based on all the active subscriptions. In the event you wish to select a specific WiMAX subscription, click the appropriate WiMAX subscription (Sprint 4G in this example), then click Apply.

3. Before the ConnectPort X4 attempts to establish this new WiMAX configuration, the existing WiMAX connection needs to be disconnected by clicking **Disconnect**.

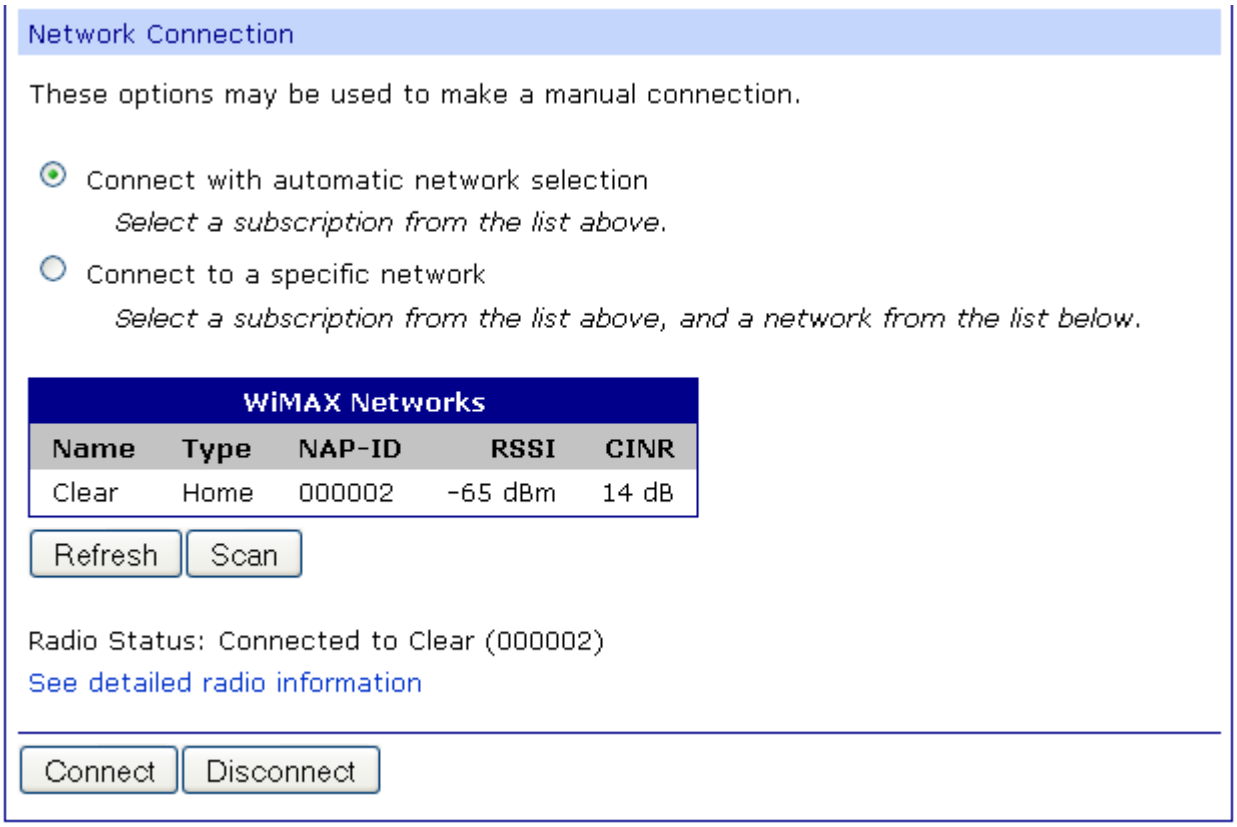


Figure 84: Network Connection

4. At this point the ConnectPort X4 has no WiMAX connection established. Click Connect in order to establish the new WiMAX connection.

Step 3: Viewing the WiMAX Connection Status

1. After a few moments, you can check the WiMAX connection status by navigating to the **Administration > System Information > WiMAX** page. You should see a screen similar to the following displaying the active Subscription Name (Sprint 4G in this case) as well as additional WiMAX information.

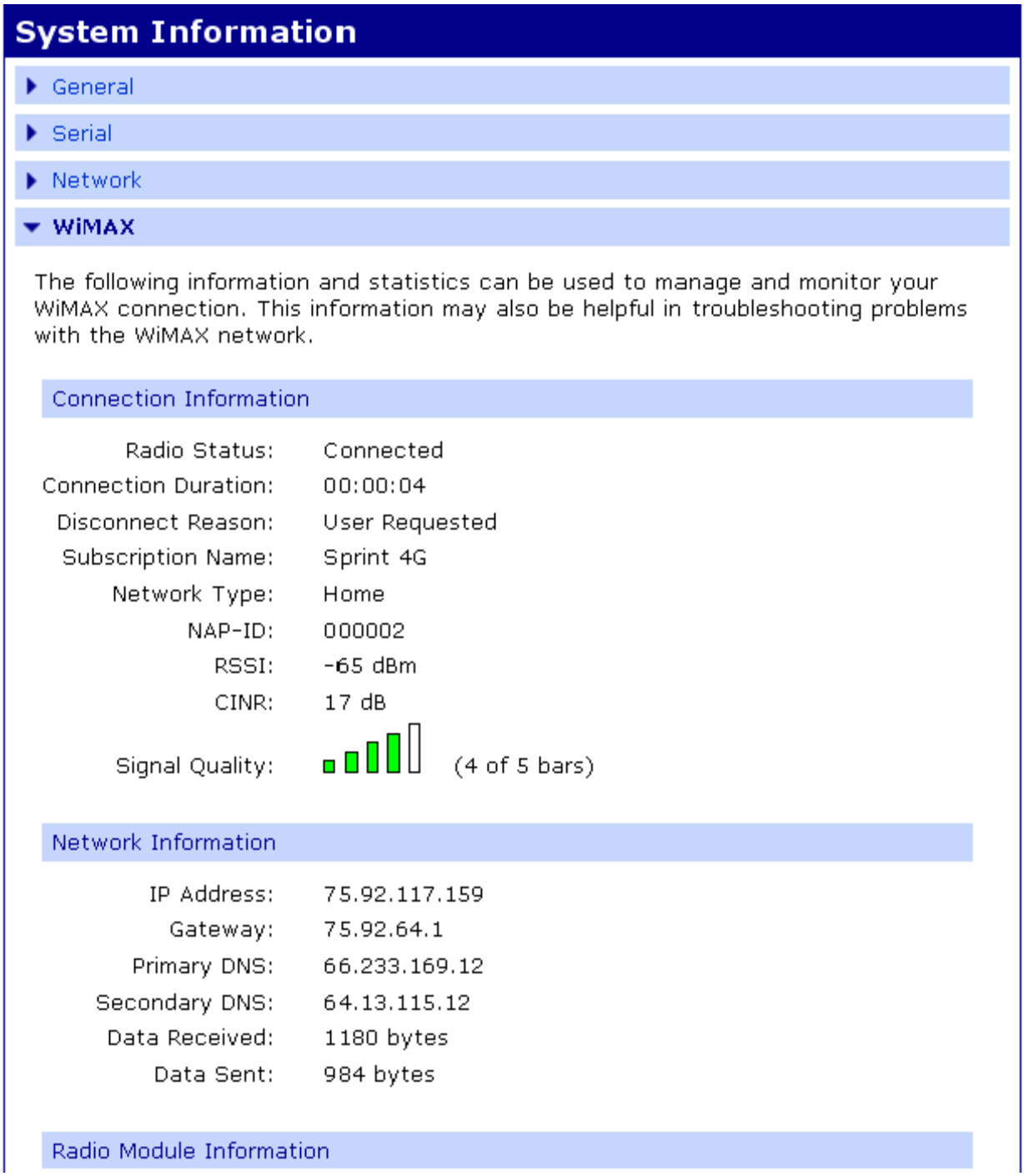


Figure 85: System Information

Appendix D: Troubleshooting

XBee® devices fail to join the ConnectPort X4's XBee® network

Is the ASSC LED solid green?

If the ASSC LED is solid green on the XBee Sensor, XBee Smart Plug, or XBee Wall Router, it indicates that the XBee device is waiting to join a network, but has been unable to do so (once it joins it will blink its ASSC LED). This condition may mean one of two things; the ConnectPort X4 is turned off, or the XBee device is out of range of the ConnectPort X4.

To troubleshoot this problem, move the XBee device closer to the ConnectPort X4 and/or ensure that the XBee device is turned on.

Is the ASSC LED blinking green?

The XBee Sensor, XBee Smart Plug, or XBee Wall Router will blink their ASSC LED when they are attached to a ZigBee network. If the XBee device has a blinking ASSC LED, but the device does not appear in the list of XBee devices connected to the ConnectPort X4, then the XBee device has either connected to the wrong ZigBee network, or the ConnectPort X4 simply needs to rediscover the list of its attached XBee devices.

To troubleshoot this problem, first try clicking the Discover XBee Devices button on the ConnectPort X4's XBee Network page as described on page 35. If this is unsuccessful, move the XBee device closer to the ConnectPort X4 (and if possible configure the devices on the other XBee network to block network joins).

Once the XBee device has been moved closer to the ConnectPort X4, factory reset the XBee device (in order to force the XBee device to go through its XBee network discovery phase again). To factory reset an XBee device, simply press the reset button on the side of the unit 4 times (at a rate of 2 times per second). Once this is done, the XBee device should connect to the ConnectPort X4's XBee network, and then show up in its list of attached XBee devices (as described on page 35).

If this fixes the problem, return to the "Step 5: Create your first iDigi Dia Project" section and proceed with Step 12 on page 35.

If your devices still are not appearing in the XBee devices list, please contact Digi's Technical Support (see Contact Information on page 3).

iDigi Manager Pro™ does not discover your ConnectPort® X4

If it is not practical to install JRE 1.6 or newer on your PC in order to allow the auto-discovery process to properly configure your ConnectPort X4 to communicate with iDigi, you can configure the device manually by following these steps:

1. Add the ConnectPort X4 to your iDigi inventory by clicking the **Add Manually** button and then entering the MAC address (found on the bottom of the device) into the appropriate field. After the MAC address is entered, click the **Add** button.
2. After your ConnectPort X4 MAC address entry appears in the list, click the **OK** button to add the device to your iDigi inventory.

Note: When entering a MAC address use the following format XXXXXX:XXXXXX.

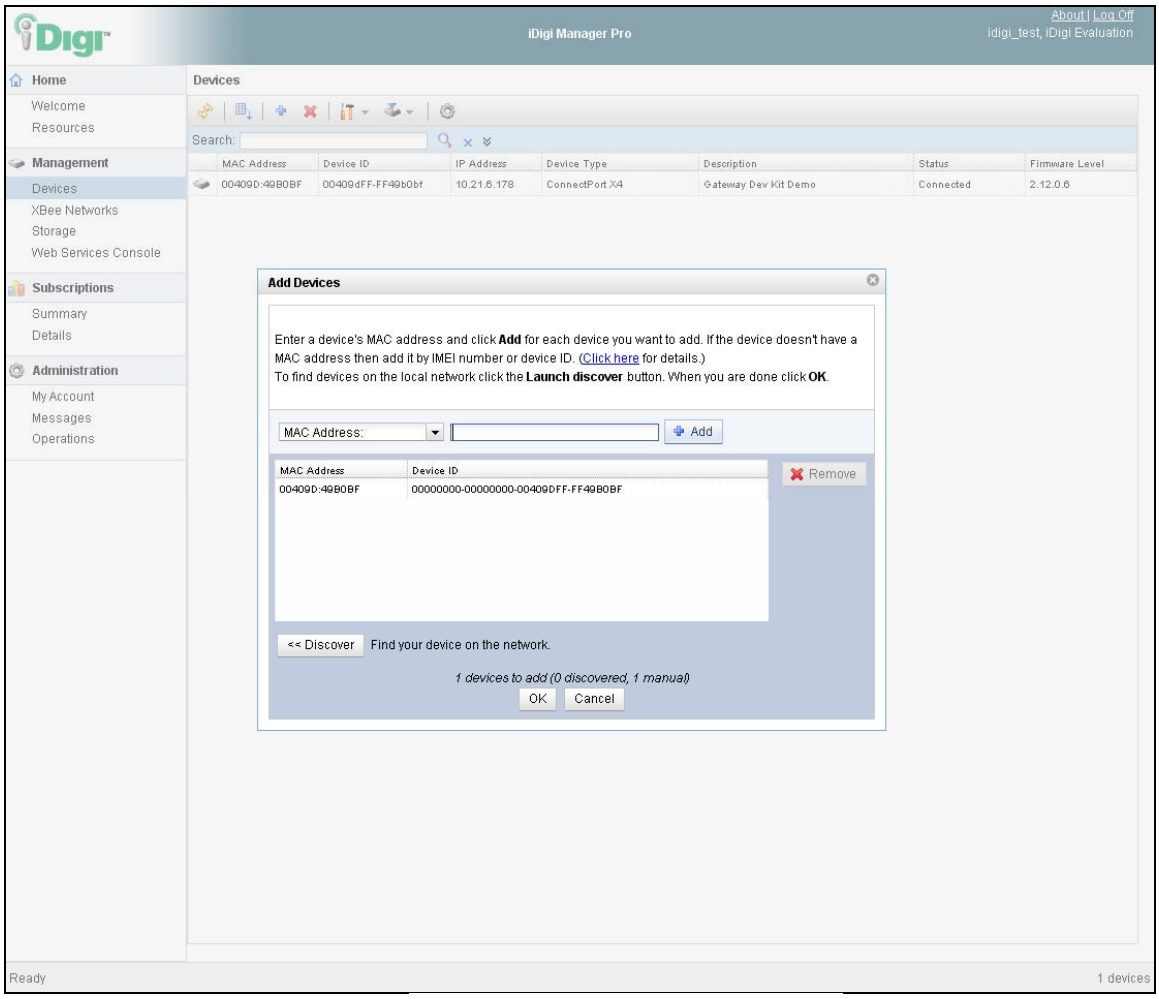


Figure 86: Manually Adding a Device to your iDigi Inventory

3. At this point in time, the ConnectPort X4 has been added to your iDigi inventory, but the device itself has not yet been configured to establish a connection to iDigi. To configure the ConnectPort X4 to establish a connection to iDigi, follow the steps below.
    a. If you know the IP address of the ConnectPort X4, connect to its web UI by entering its IP address in your web browser.
    If you do not know the IP address of the unit, use the Digi Device Discovery tool in the Start Menu, and double-click on the device to open its web UI.
    b. Click the iDigi link to configure the device's remote management configuration options. In the Digi configuration settings page, enter the DNS name of the iDigi Cloud (*developer.idigi.com*) into the iDigi Server Address field under the "Enable Device-Initiated iDigi Connection" section.
    c. Click the checkbox labeled "Automatically reconnect to iDigi after being disconnected" then click **Apply**.

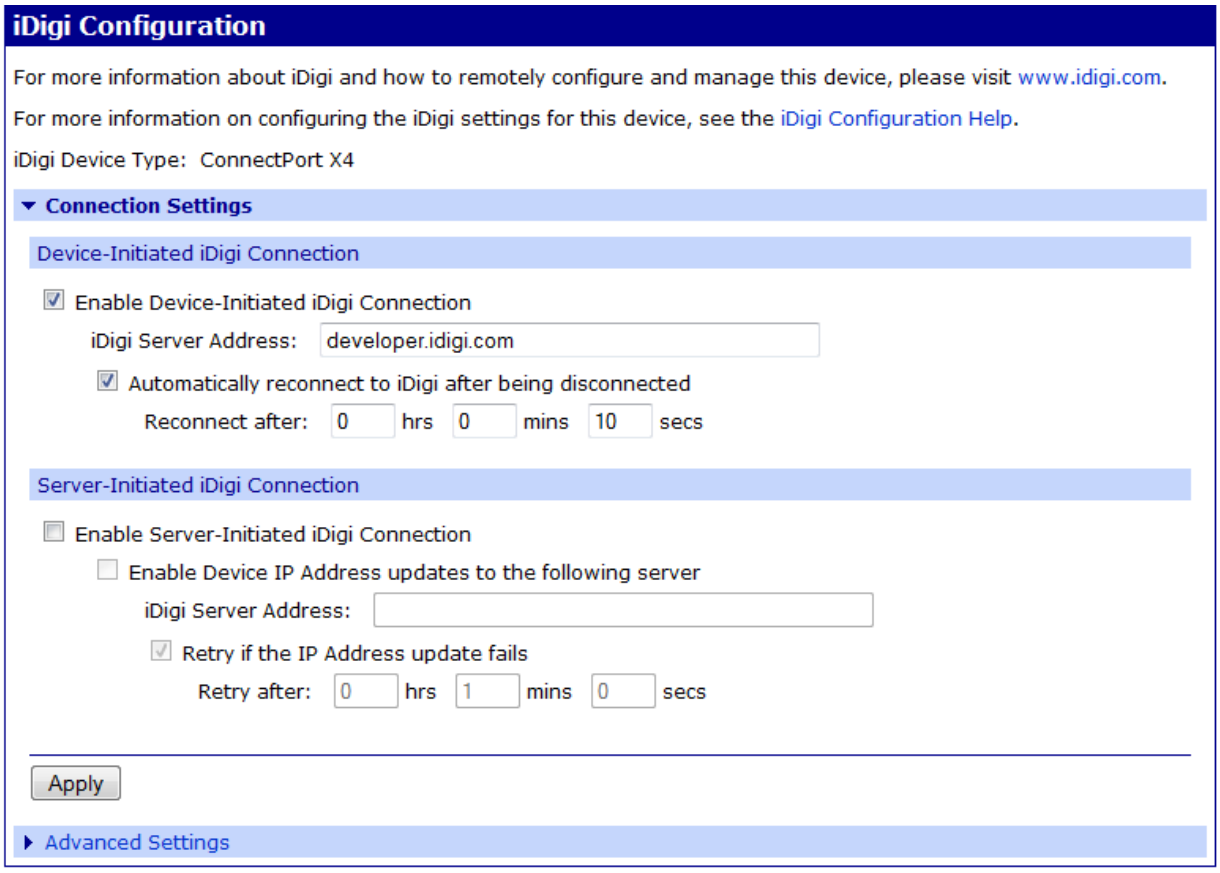


Figure 87: iDigi Configuration Page

The ConnectPort X4 will now attempt to establish a connection with iDigi, if the device is on a network with Internet access, the connection should be established in less than a minute. With the ConnectPort X4 properly configured to communicate with iDigi, and with the device added to your iDigi inventory, return to the "Add the ConnectPort X4 to your iDigi inventory" section and proceed with Step d on page 18.

iDigi Manager Pro™ lists the ConnectPort® X4 as 'Disconnected'

This condition indicates that the ConnectPort X4 and iDigi are not communicating with one another. This can occur for several reasons:

1. If the ConnectPort X4's Wireless WAN interface has the highest Gateway priority, make sure the Wireless WAN interface is up.
2. If the ConnectPort X4's Ethernet interface has the highest Gateway priority, make sure the Ethernet network has Internet access.
3. The ConnectPort X4 is unable to resolve the DNS address of "*developer.idigi.com.*"
4. If you added the ConnectPort X4 to iDigi inventory manually, the MAC address provided to iDigi may not match the actual MAC address of the ConnectPort X4.
5. The ConnectPort X4 is not configured to establish a connection with iDigi.

If you have verified that all five of these scenarios are not occurring please contact Digi's Technical Support (see Contact Information on page 3).