# A Beginner’s guide to send data to Device Cloud from a ZigBee Network

# 1 Document History

| Date | Version | Change Description | Author |
|---|---|---|---|
| 12 Sep 14 | 1.0 | Initial Release | Ankur Mathur |
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# 3 Introduction

## *3.1 Outline*

A getting stated guide for people to create basic setup for sending data from a ZigBee network to Etherios Device Cloud.

## *3.2 Audience*

This guide has been written for users with a basic understanding of XBee modules, Digi ConnectPort gateways and Etherios Device Cloud.

This application note applies only to ZigBee or DigiMesh network of module(s) and Connect Port X2/X4/X2e gateway.

## *3.3 Assumptions*

This document assumes that devices are set to their factory default configurations.

## *3.4 Scope*

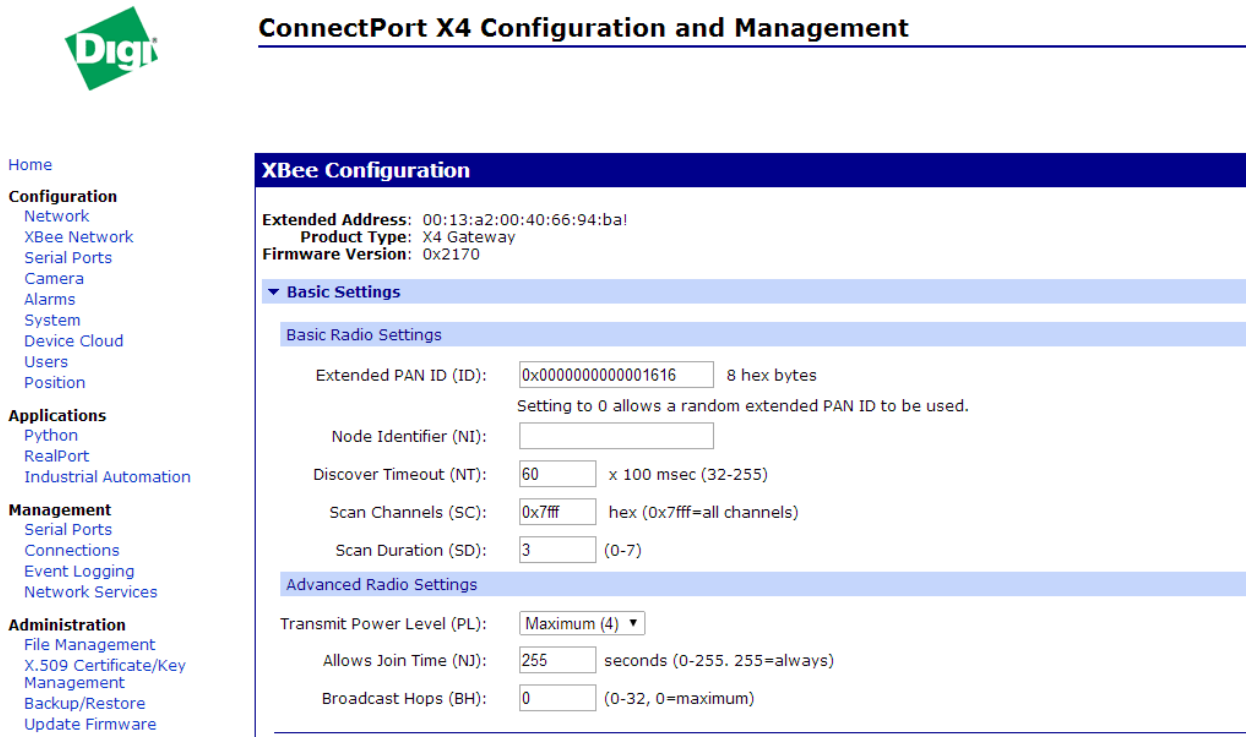
This document will cover aspects of setting up a network for data transmission to Device Cloud using a Python Script. It does not teach Python Programming.

# 4 Setting up network between XBee and gateway

## 4.1 Configuring gateway

Plug in your ConnectPort gateway to network and accessing its Web UI using appropriate IP address. You can find gateway using Digi's "Device Discovery" Tool (refer section 8).

In Gateway's Web UI, navigate to **XBee network->Configuration**. Select Coordinator from **Network View of XBee Devices**. Enter appropriate Extended PAN ID (ID) parameter and click "Apply" button at end.



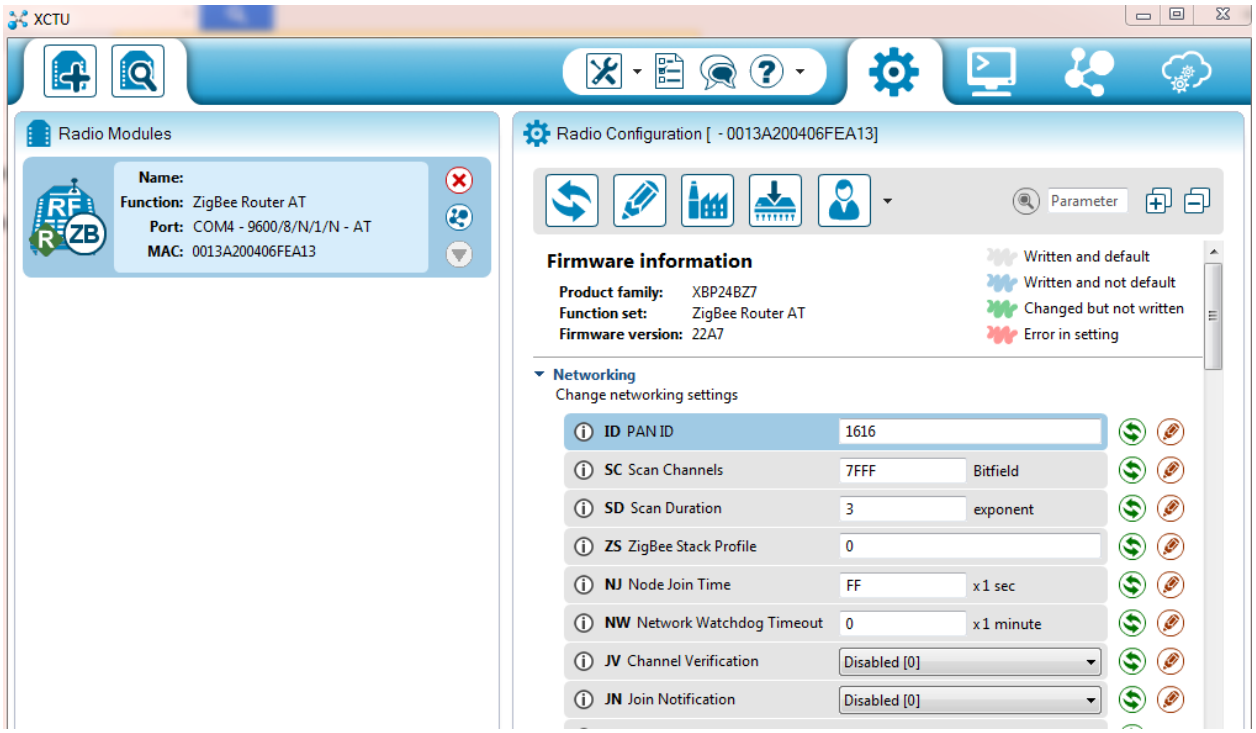

The above step will initiate a ZigBee network with the specified PAN ID.

## 4.2 Configuring XBee module

Place XBee module on Digi's XBIB Dev board and connect to PC.
Open XCTU and select appropriate COM port to load module's current configuration.

Make sure that module is not acting as Coordinator. If so, load modules with Router or End Device firmware (ZigBee Router AT recommended). There can be only one coordinator in a ZigBee network, which is Connect Port gateway in this case.

Set the same PAN ID that you have used to create a ZigBee network. This is required to make sure that module will join network created by ConnectPort gateway. PAN ID can be set by providing appropriate value in white box next to its entry. Click "Write" button to save the modifications made.



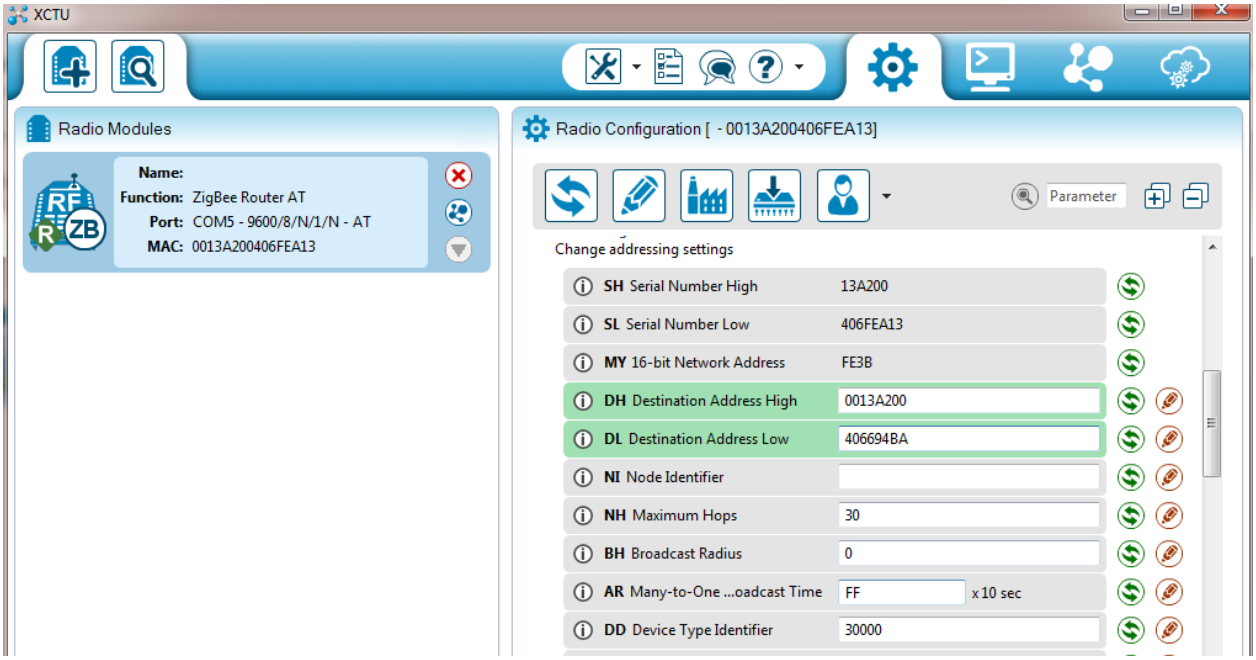

If both ConnectPort gateway and XBee module are in vicinity of each other, then module will connect to gateway's coordinator in few seconds.

You can verify it by observing "Association LED" (Red light) on XBIB interface board which will start blinking once module successfully joins a network.

Alternate method is to check Operation 16-bit PAN ID parameter on both devices. If they have same hex values, then you have successfully setup a network between ConnectPort gateway and XBee module.

## How to set up destination address parameter?

Provide coodinator's mac address i.e. its **SH** and **SL** parameter to module's **DH** and **DL** parameter respectively. You can also provide coordinator's alias address i.e. 0x0000000000000000 (default value on Router AT firmware) as well to these fields. See below image for reference:



# 5 Connecting gateway to Device Cloud

Now we need to create a communication link between ConnectPort gateway and Etherios Device Cloud.

In ConnectPort gateway Web UI, navigate to "Device Cloud" under "Configuration". Provide appropriate URL as shown below and click "Apply".

For US Cloud: login.etherios.com

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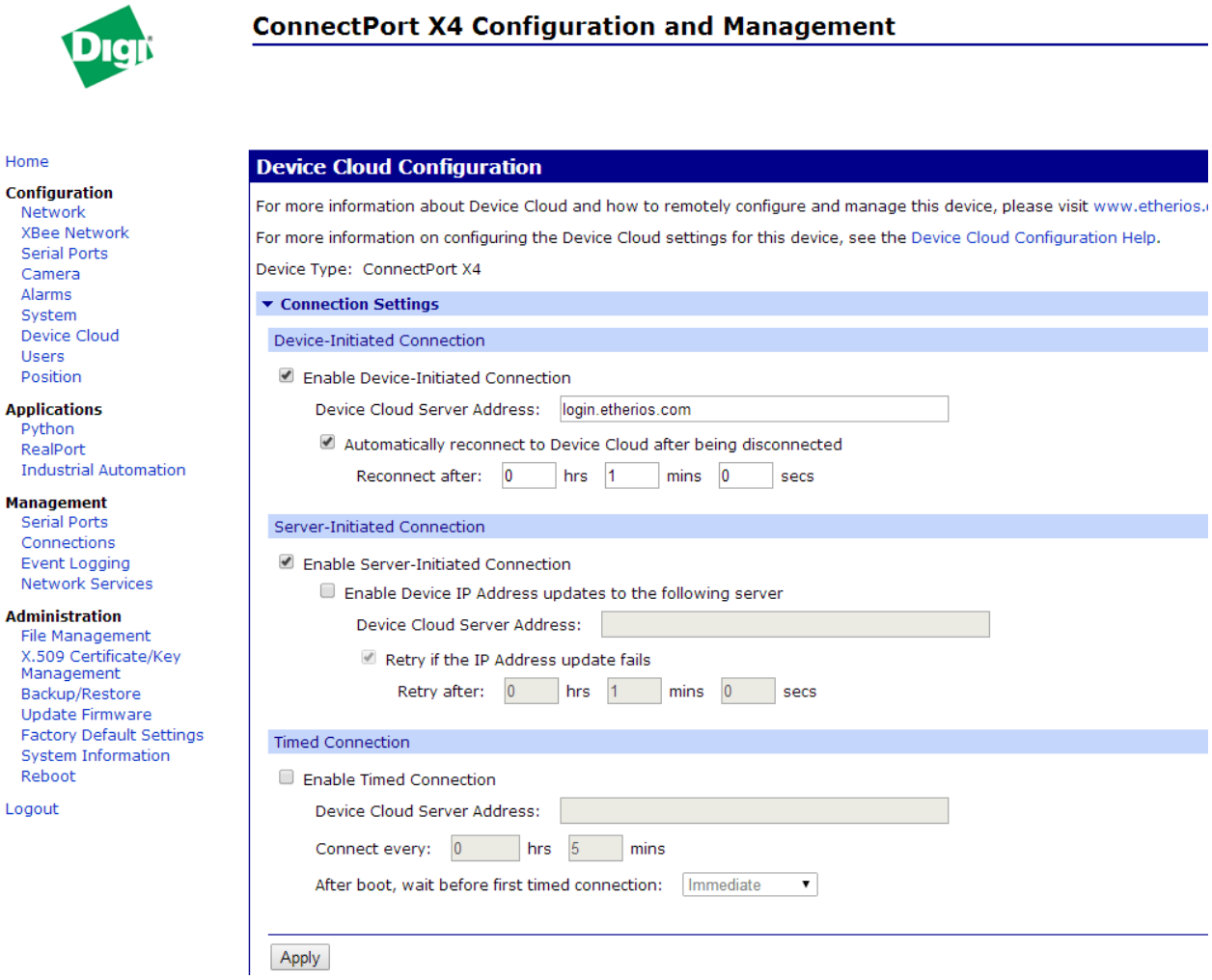
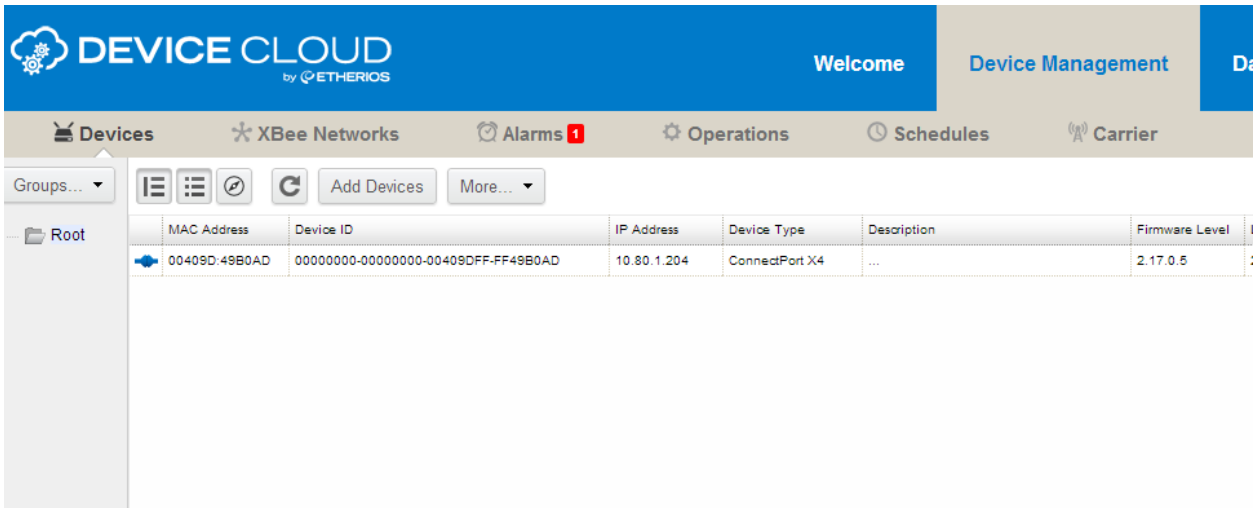
For UK Cloud: login.etherios.co.uk

Make sure you have an active account on Device Cloud. If not, then you can create a new one by visiting below provided web link:
https://myaccount.etherios.com/



Browse to respective cloud URL in browser and navigate to **Device Management->Device** tab present on top of window. Click Add devices button and follow the options to add your gateway to device cloud.

Visit below provided link to learn configuring and troubleshooting ConnectPort gateway for Connection to the Device Cloud:
http://www.digi.com/support/kbase/kbaseresultdetl?id=3186




Now gateway is added to Device Cloud.
If gateway is properly configured Device Cloud will how added device as **Connected** and a Connected blue symbol will appear, if not connected it will be in red color.

# 6 Running python script on gateway

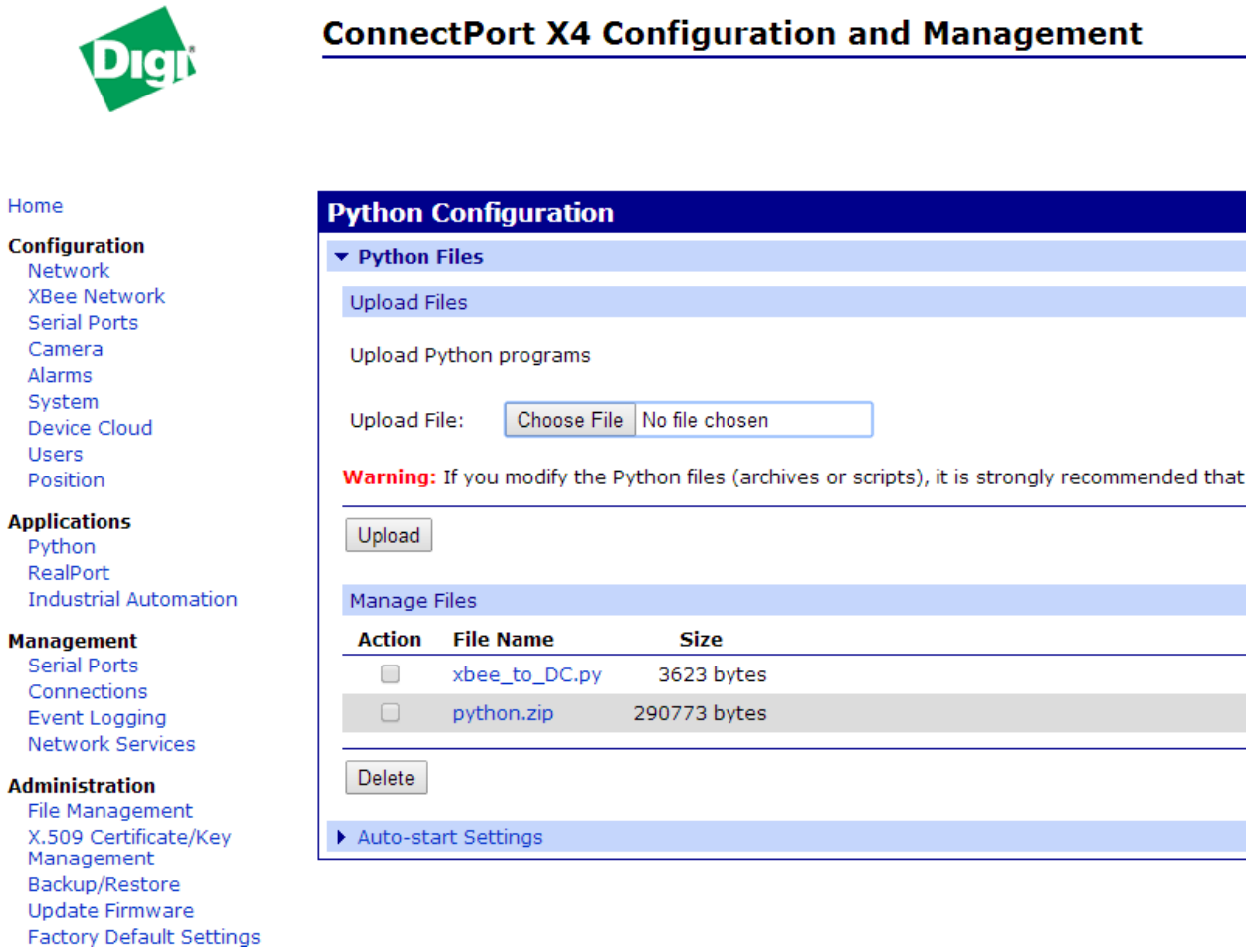
You need a python script running on ConnectPort gateway that redirects all incoming data from XBee module(s) to Device Cloud it is connected to.

A python file for this purpose is available at below provided link:
http://www.digi.com/wiki/developer/index.php/XBee_to_Device_Cloud_-_DataPoint_Creation

This script encodes data in Base64 format to add security for uploaded information. Add that script onto ConnectPort gateway and enable auto-start.

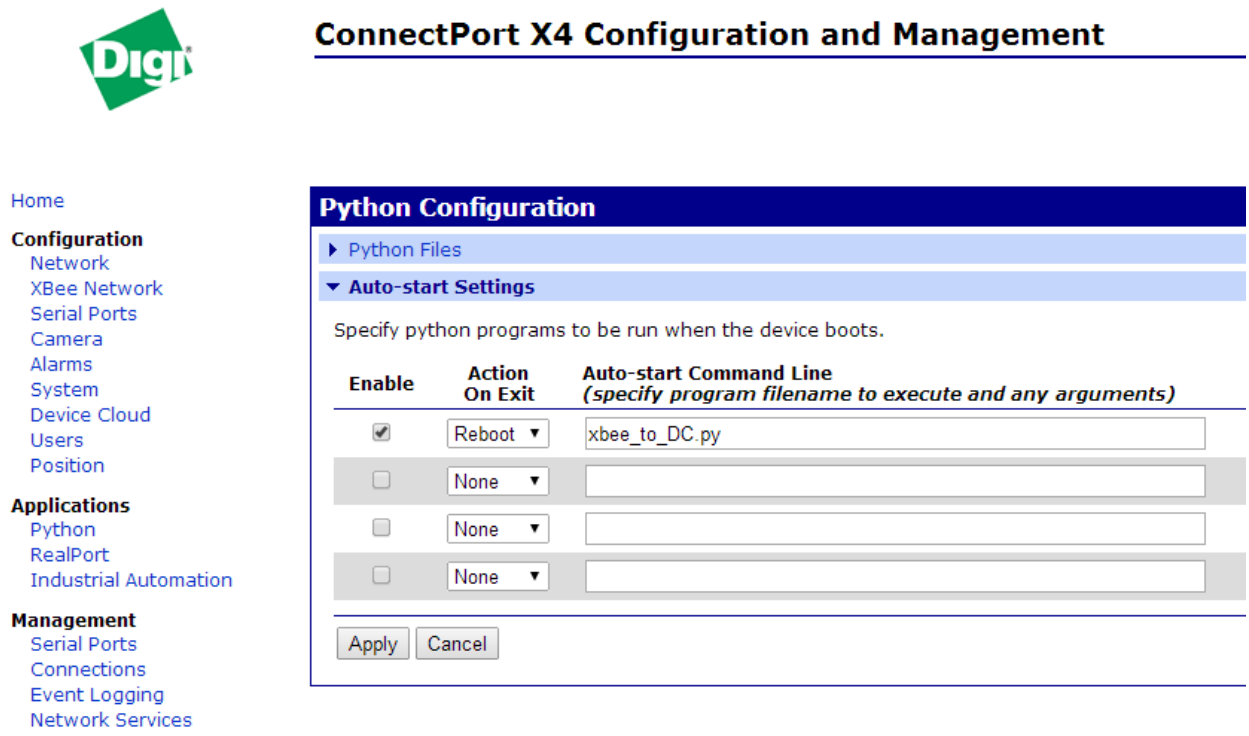
To do so, open Web UI of ConnectPort gateway and navigate to Applications->Python. Upload above script to gateway by following steps.

Click on Choose File and point to the respective python script and click upload.



Now, click on the "Auto-start Settings" section. Here, specify script name to auto-start it after every gateway reboot. See below screenshot for reference:




Click "Apply" and reboot gateway by navigating to "Administration" section.

You can use "Terminal" tab of XCTU connected with XBee module to transmit data from XBee module to XBee Coordinator sitting inside gateway.

If configured correctly, gateway will redirect all incoming data packets from Zigbee network to Device Cloud. In Device Cloud's Web UI, this data will be available under Data Services→Data Streams.

# 7 Conclusion

You have now successfully created a communication link between Device Cloud to ConnectPort gateway to XBee module and have successfully transmitted data from XBee module to Device Cloud.

# 8 Useful Software Links:

- Device Discovery Tool: http://www.digi.com/support/getasset?fn=40002265&tp=5
- X-CTU : http://www.digi.com/support/productdetail?pid=3352&type=utilities