MULTITECH®

MultiConnect® Conduit™ IOT Starter Kit For LoRa® Technology

Getting Started

WWW.MULTITECH.COM

MultiConnect Conduit IoT Starter Kit for LoRa Technology

Part Number: 82102252L

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MultiConnect Conduit IoT Starter Kit for LoRa Technology

The MultiConnect Conduit IoT Starter Kit for LoRa Technology provides everything needed to rapidly get your LoRa proof of concept up, running, and connected to the cloud – all in one box. The Starter Kit is designed to enable you to obtain sensor information and display it in the cloud within minutes of opening the box.

Note: Before getting started, check for an updated version of this document at https://www.multitech.com/brands/multiconnect-conduit-lora-starter-kits.

Starter Kit Products

Note: The following image and list show the Ethernet-only Starter Kit.

Item	Device	Qty		Item	Device	Qty
1	Ethernet cable	1		10	mDot Developer Kit	1
2	Power supply with changeable blades	1		11	mDot Micro Developer Kit	1
3	Micro USB cables	2		12	mDot module	1
4	GPS antenna	1		13	xDot Micro Developer Kit	1
5	LoRa antennas	2		14	mDot Box	1
6	Conduit with a pre-installed LoRa accessory mCard	1		15	Starter Kit Getting Started Guide	1
7	Ribbon cable	1		16	Quick Starts and Legal Notice	6
8	9 Volt batteries	2		Not shown	LTE antennas (LTE models only)	2
9	Screwdriver	1			Wi-Fi antenna (Wi-Fi/Bluetooth models only)	1

Getting Started with the Conduit

IMPORTANT: The Starter Kit Conduit is pre-configured to communicate with the IBM Cloud and the mDot Box. Resetting the Conduit removes the Starter Kit configuration. For steps to restore Starter Kit settings, go to https://www.multitech.com/support/resolutionid/5080639.

Requirements

In addition to starter kit contents:

- Non-cellular models require an Ethernet connection.
- Cellular models require a mini SIM card (2FF form factor) card from your network provider.

Registering a DeviceHQ Account

IMPORTANT: When the Conduit restarts during initial configuration, a new IP address is assigned to it via WAN. You need this value to access the Conduit's web administration interface. Particularly for Ethernet-only models, DeviceHQ offers quick access to the new IP address.
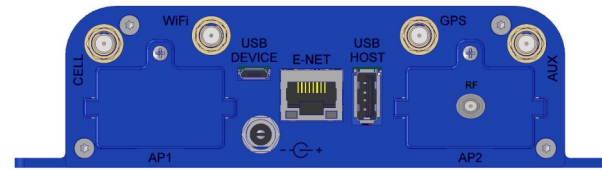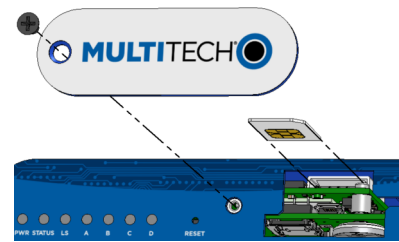
If you don't have a DeviceHQ Account:

1. Open an Internet browser window and go to www.devicehq.com. If you have an account, login and skip to Step 3.
2. If you don't have a DeviceHQ account, click **Register Account** and complete the registration form. Your email will be your user name. MultiTech sends a link to activate your account. Click the link to log in.
3. On the DeviceHQ dashboard, click your email address in the upper right corner and select **Account Info**. Highlight and copy the value in the Key field. You will need this in Step 5 of *Configuring the Conduit*.

MULTITECH®
@multitech.com ▾
Account Info

Preparing Conduit Hardware

1. For cellular models, install the SIM card.

   a. Remove the screw that secures the MultiTech nameplate to the enclosure.

   b. Insert your SIM card into the SIM slot at the top of the opening, so the contacts are on the bottom and the notched corner is on the right side as shown.

   c. Replace the nameplate.

2. Attach a LoRa antenna to the LoRa mCard's RF connector in the AP2 slot on back of the Conduit. Finger-tighten the antenna.

3. Attach the power supply blades for your country to the power supply.

4. Connect the power supply to the Conduit and plug it in to an electric outlet. The PWR, STATUS, and LS LEDs turn on and flash a few times. After 90-120 seconds, STATUS starts blinking.

5. Plug one end of the Ethernet cable into your computer and the other into the E-NET port on the Conduit.

Configuring the Conduit
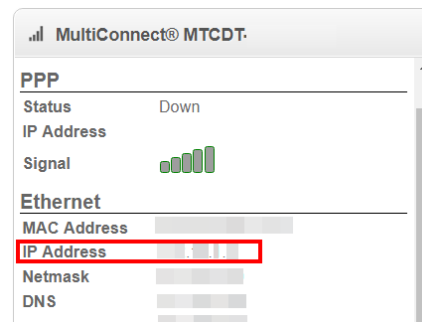
Log into the Conduit's AEP interface:

1. Open an Internet browser and enter the device's default address: **http://192.168.2.1**. A screen appears telling you the connection is not private or not secure. This occurs because the device is self-signed.

   a. To continue to the login page:

   ■ If using Internet Explorer, select **Continue to this website**.

   ■ If using Chrome, click **ADVANCED** and then click **Proceed to 192.168.2.1**.

   ■ If using Firefox, click **Advance** and then click **Add Exception**. Click **Confirm Security Exception**.

   c. Login.

   ■ Enter the default Username: **admin**.

   ■ Enter the default Password: **admin**.

   ■ Click **Login**.

   After up to 30 seconds, the First-Time Setup Wizard launches.

2. Click **Next** and step through the Wizard screens to set the following.

   Tip: Do not click Finish until you complete Steps a through e. If you accidently exit the wizard, click **Administration** and select **Initial Setup** to reopen it.

   a. Password (Setting a new password is recommended)

   b. Date and time

   c. PPP (Cellular models only)

   d. IP Setup - eth0

   e. Access Configuration (Ethernet models only): Under HTTP Redirect to HTTPS, check the box next to Via WAN.

   ■ For cellular models, the default settings are correct.

   ■ For non-cellular models, set Direction to **WAN** and Mode to **DHCP Client**.

3. Click **Finish.**

4. Click **Administration** and select **Access Configuration.** Under the Node-Red section, check the box for **Via WAN**. Click **Continue** to close the pop-up. Click **Submit**.

5. Click **Administration,** and select **Remote Management**. Under Remote Server, select **Enabled** and paste the key copied from DeviceHQ in the **Account Key** field (from *Registering a DeviceHQ Account* Step 3 or the email sent by MultiTech). Click **Submit.**

6. Click **Save and Restart**. Wait for 2 minutes for the device to restart.

7. Remove the Ethernet cord from your computer and connect it to a router or LAN allowing the Conduit to access the Internet.

8. Power cycle the Conduit (disconnect and then reconnect the power supply), so it gets an IP Address from the router and checks into DeviceHQ. Wait 2 minutes for the device to complete this process before going to Step 9.

9. In an Internet browser, go to **www.devicehq.com** and log in. Click **Devices**, then click on your device listing (not the check box for the device). A pop-up window opens showing device details. The new IP Address the Conduit acquired via WAN appears under Ethernet. Record the new IP address.

10. Open a new browser tab and enter the new IP address to access the Conduit's interface.

Preparing the mDot Box

To get started with the mDot Box:

1. Attach a LoRa antenna to antenna connector on the mDot Box and finger-tighten.

2. Remove the battery cover on the back of the mDot Box. Remove the protective cap from a 9-volt battery provided with the starter kit and connect it to the mDot Box's 9-volt connector. Put the battery in the battery slot and replace the cover.
   Note: Battery life is limited. Power off device when not in use.

3. Power up mDot Box by sliding the switch on the left side.

4. When Select Mode appears, the selection arrow (=>) indicates **LoRa Demo** by default. Press **SW1** to select.

5. Press **SW2** for **Interval.** This periodically sends sensor data to the Conduit. By default the mDot Box sends data across the LoRa network every 10 seconds. To change the Interval, press **SW1**.
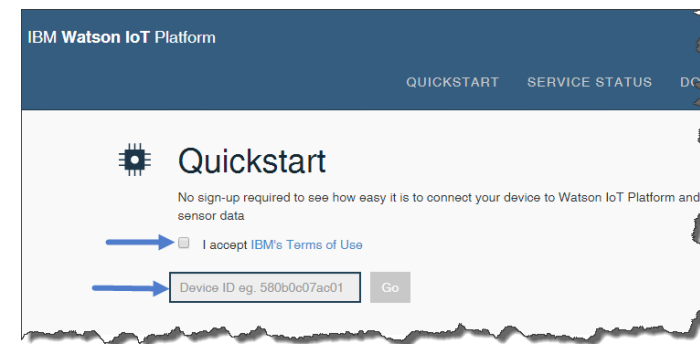
The screen displays the sensor data. For more information on the mDot Box, refer to the enclosed MultiConnect mDot Box Quick Start or go to http://www.multitech.net/developer/software/dot-box-and-evb-software/

Sending Data to the IBM Cloud

Note: For secure data submission, create a Bluemix account. When not logged in, data submitted to the IBM Bluemix Quickstart page is not private and can be accessed by any party possessing the machine address of your Conduit.
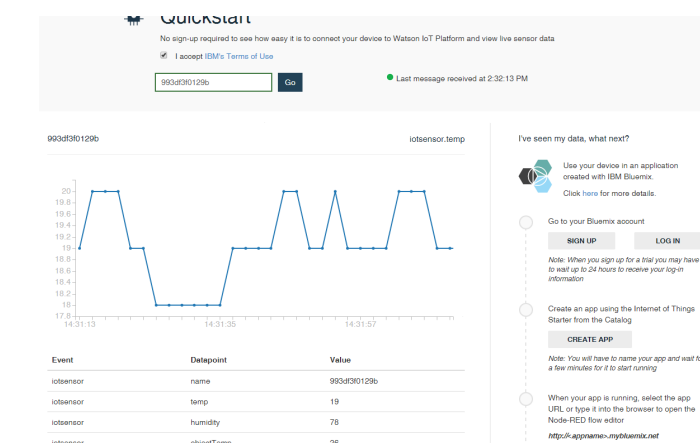
To send data from the mDot Box to the Cloud:

1. On your computer, use a web browser to go to https://quickstart.internetofthings.ibmcloud.com/.

2. Check to accept IBM's Terms of Use.

3. Find the Conduit's NODE ID, which is on the product label on the bottom. NODE ID is formatted as: 00:08:00:XX:XX:XX.

4. On the IBM Quickstart page, enter the Conduit's NODE ID in the Device ID field, using hyphens instead of the colons, for example 00-08-00-4A-01-3E.

5. Click **Go**. After a short delay, your data appears in the graphs.

Using IBM Cloud

■ Click on the datapoints fields (temperature, light, etc) below the chart to view the corresponding chart.

■ Creating an IBM Cloud account allows you to create a personalized application with safe data storage.

■ An IBM Cloud account also gives you access to a variety of data storage and analytic tools.

■ After creating an account on IBM Cloud for data storage, access the Conduit's Node-RED application and create a new output node to send data to your IBM Cloud account. Learn more about using Node-RED on the Conduit:
http://www.multitech.net/developer/wp-content/uploads/2015/08/DeviceHQ_Dev_User_Guide.pdf.

Related Documentation and Support

For more information using and developing with the products in the starter kit, refer to:

■ Quick starts for Starter Kit devices are in the box.

■ Developer Guides, AT Commands, and developer resources are available at www.multitech.net.

■ Developer forums are available at http://www.multitech.net/developer/forums.

■ If you need help, create an account and submit a support case directly to our technical support team at https://support.multitech.com.

Mbed

ARM® Mbed™ is a free, open-source platform and operating system for embedded devices using the ARM Cortex-M microcontrollers. The Mbed website provides free software libraries, hardware designs, and online tools for rapid prototyping of products. The platform includes a standards-based C/C++ SDK, a microcontroller HDK, and supported development boards, an online compiler and online developer collaboration tools.

■ MultiConnect mDot and Developer Kits: https://developer.mbed.org/platforms/MTS-mdot-f411/

■ MultiConnect xDot and Developer Kit: https://os.mbed.com/platforms/MTS-xDot-L151CC/

■ MultiConnect mDot Box: https://developer.mbed.org/platforms/mdotevb/