How to Use MQTT to Connect to the ioThinx 4510 Series

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Contents

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In this tutorial, you will learn how to use MQTT to configure a client as a publisher or subscriber. We demonstrate two scenarios: the ioThinx 4510 as a subscriber and the ioThinx 4510 as a publisher.

Prepare the Following Items

- ioThinx IIoT Starter Kit (ioThinx 4510, 45MR-1601, 45MR-2600, and 45MR-3800)
- Software: Mosquitto (1.5.8), MQTTlens, ioThinx 4510 (with firmware v1.1 installed)

Broker Settings on the Computer

Introduction to Mosquitto

For information about Eclipse Mosquitto, please refer to the following web page: https://mosquitto.org/. Mosquitto can be used to implement versions 5.0, 3.1.1, and 3.1 of the MQTT protocol.

Host
IP address: 192.168.127.200

Moxa ioThinx 4510
IP address: 192.168.127.254

Install Mosquitto

Download **Mosquitto** from the following website and install it:
https://mosquitto.org/download/

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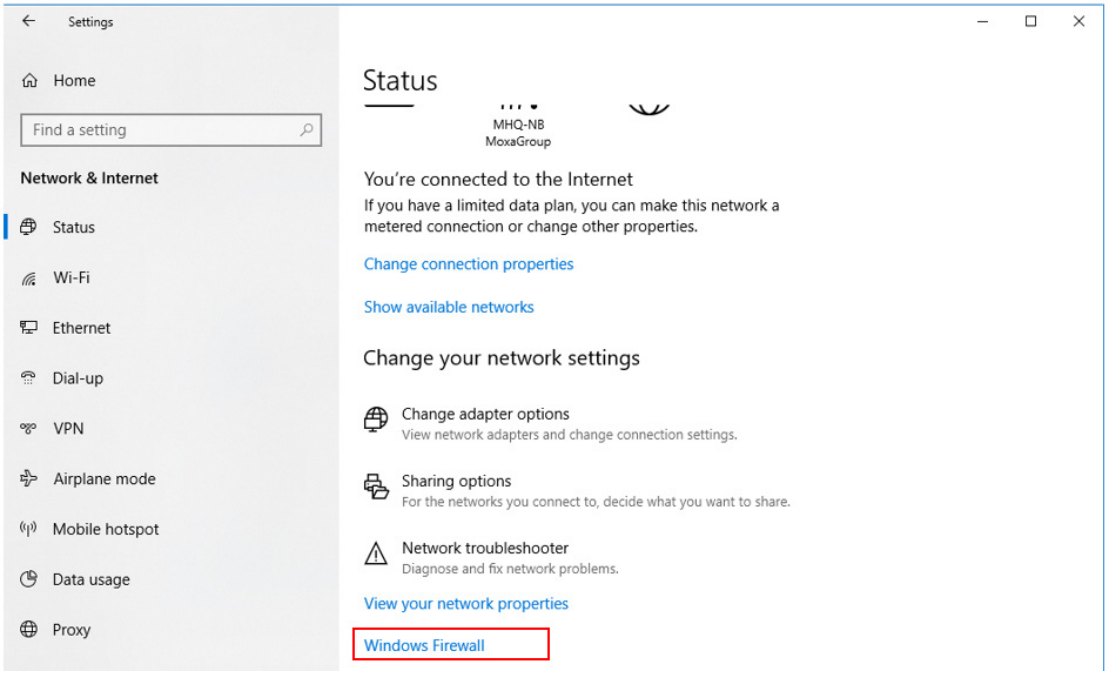
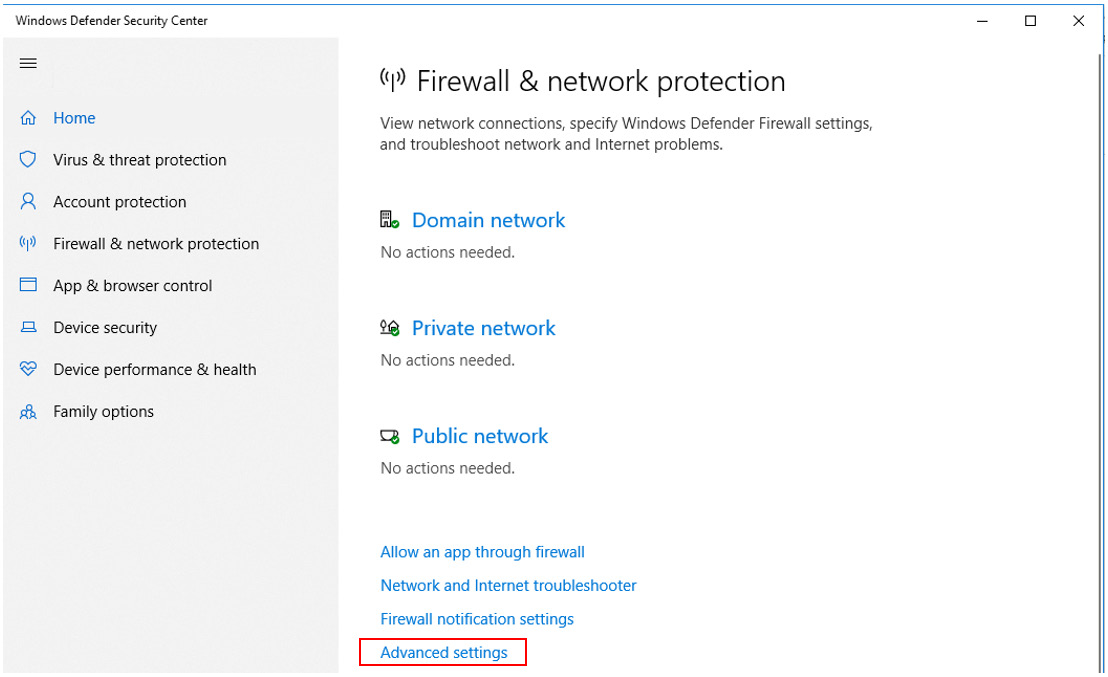
Enable port 1883 on the firewall

1. Here we use Windows 10 as an example. First, open the **Windows Firewall**.



2. Select **Advanced settings**.



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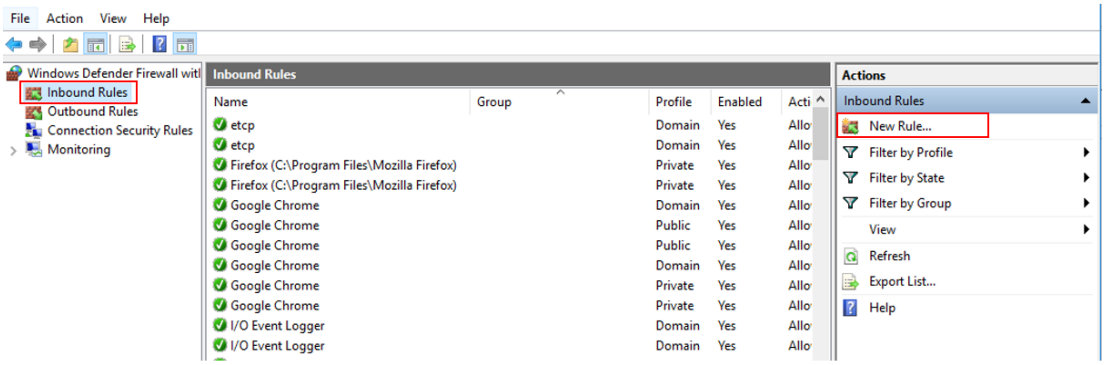
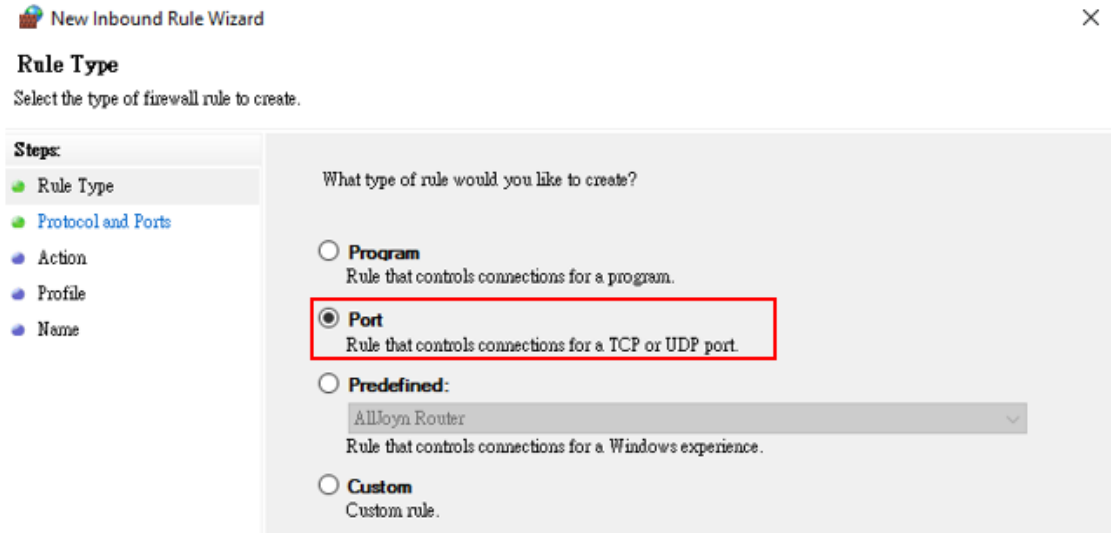
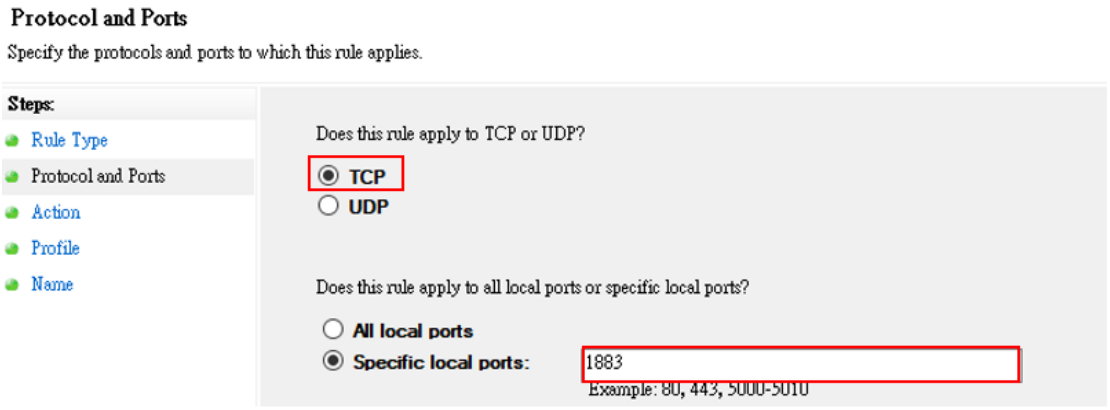
3. Select **Inbound Rules** and create a **New Rule**.



4. Select **Port** in the **Rule Type**.



5. Select **TCP** and enter **1883** in the **Specific local ports** input box.



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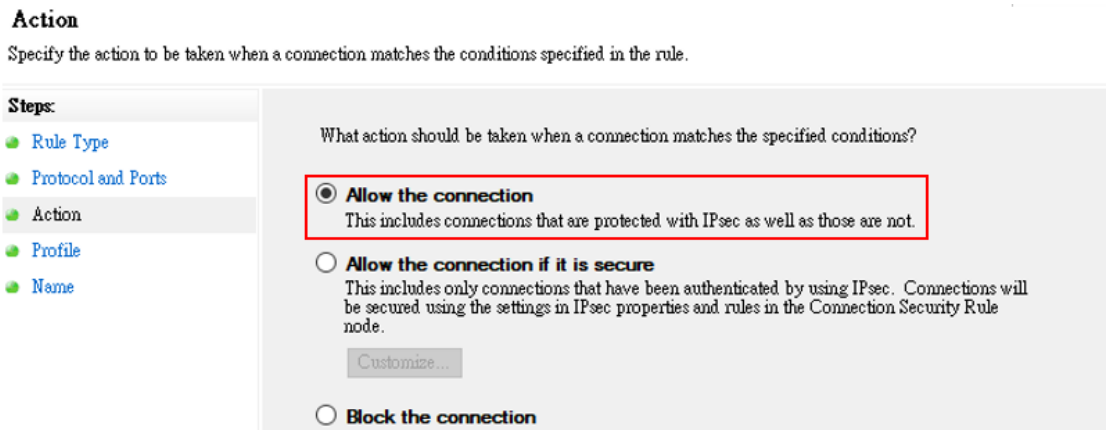
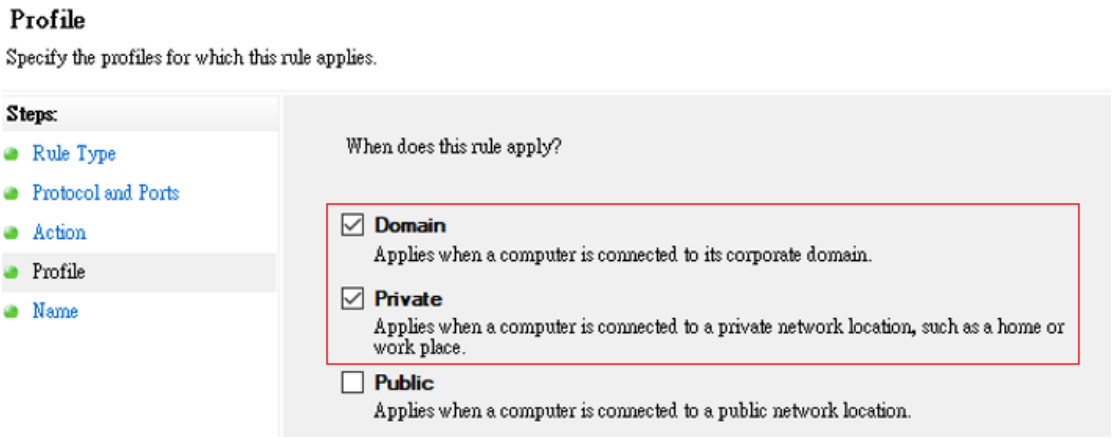
6. Select **Allow the connection**.



7. Select **Domain** and **Private**.



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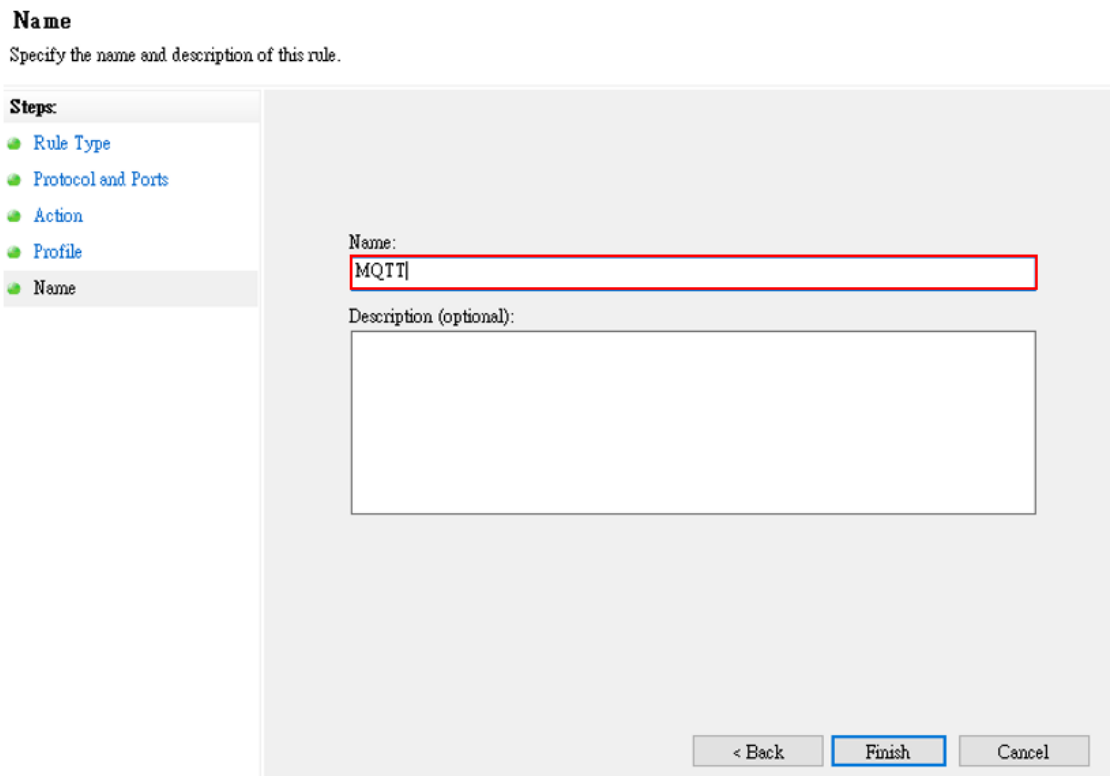
8. Enter the **Name** and **Description (optional)**, and then click **Finish**.



9. Run **Mosquitto Broker** from **Task Manager**.

   Type **Ctrl + Alt + Delete** to open **Task Manager**, click the **mosquitto** row to select it, and then right click in the status column and select **Start**.

Set Up MQTT on the ioThinx 4510

Enable MQTT Client Service

1. Log in to the ioThinx 4510:

   Step 1: Open your web browser and type the default IP address of the device: 192.168.127.254.

   Step 2: On the login page, type the default username/password (admin/moxa) to log in to the Web Console.

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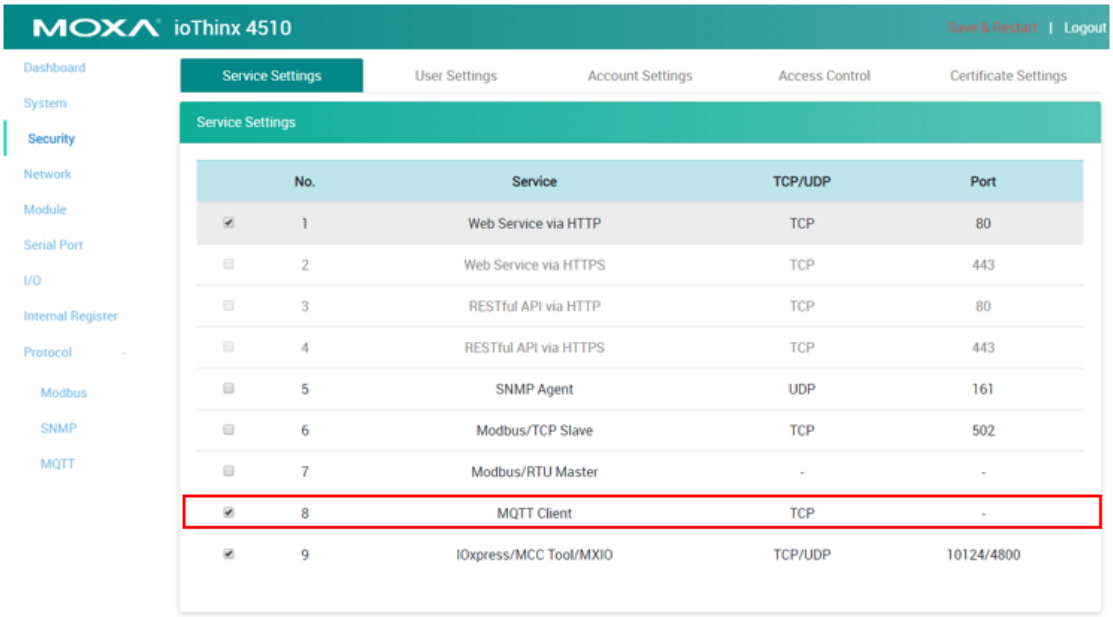
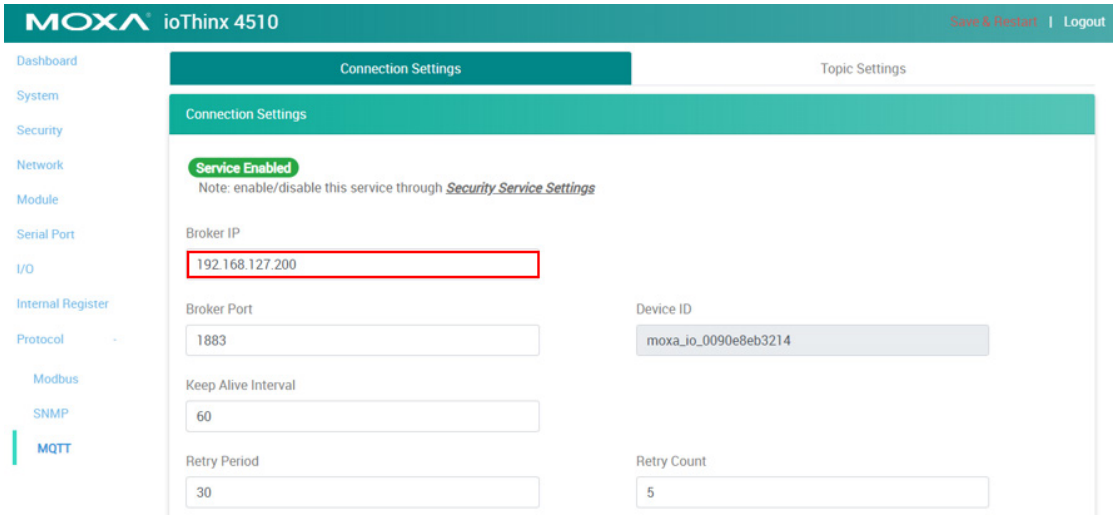
2. Click **Security** in the left menu. Select **Service Settings** at the top of the page and then select **MQTT Client**.



Connection and Topic Settings

1. Select **MQTT** in the left menu and then set the **Broker IP** (your host's IP) under **Connection Settings**.



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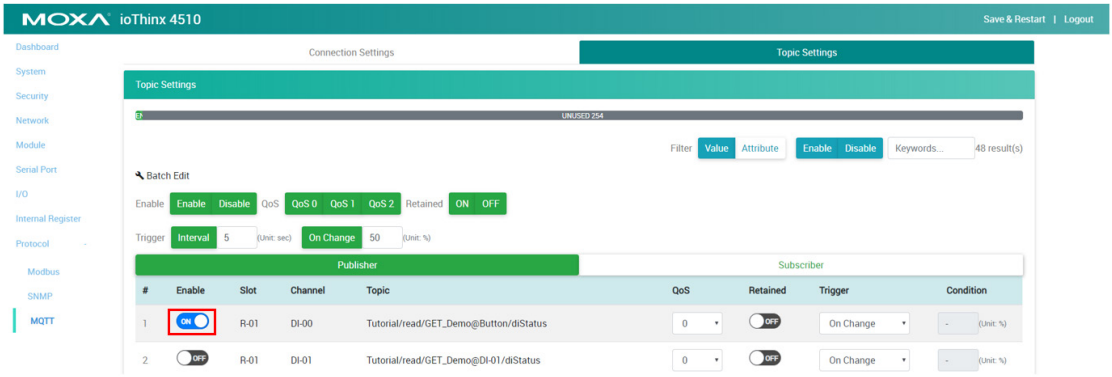
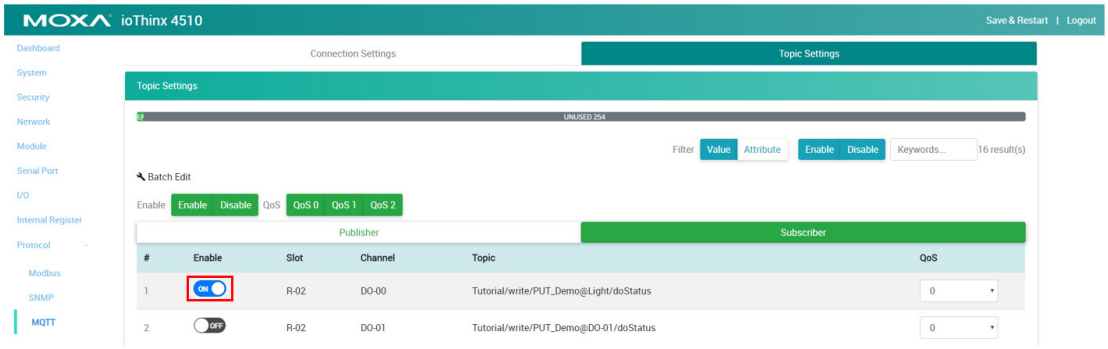
2. Click **Publisher** and enable **Topic#1 (DI-00)**, and then click **Subscriber** and enable **Topic#1 (DO-00)**.





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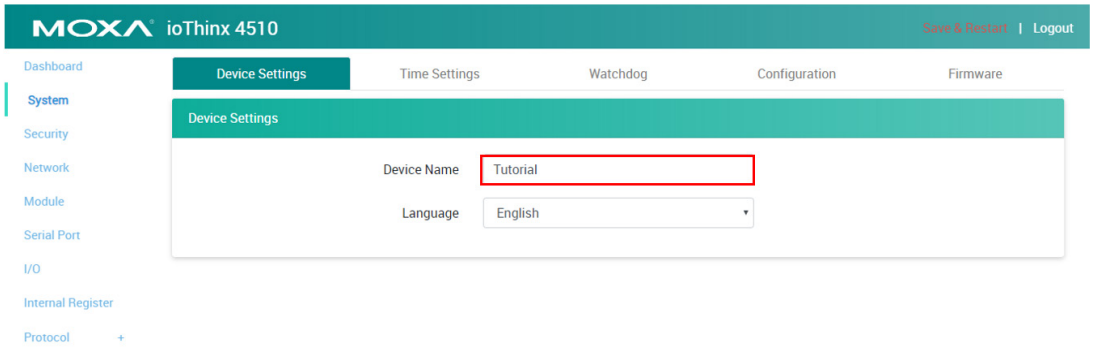
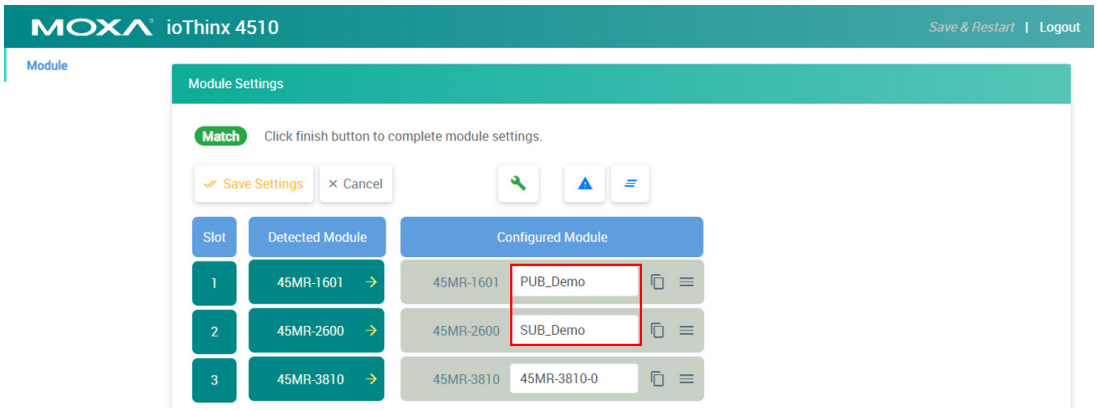
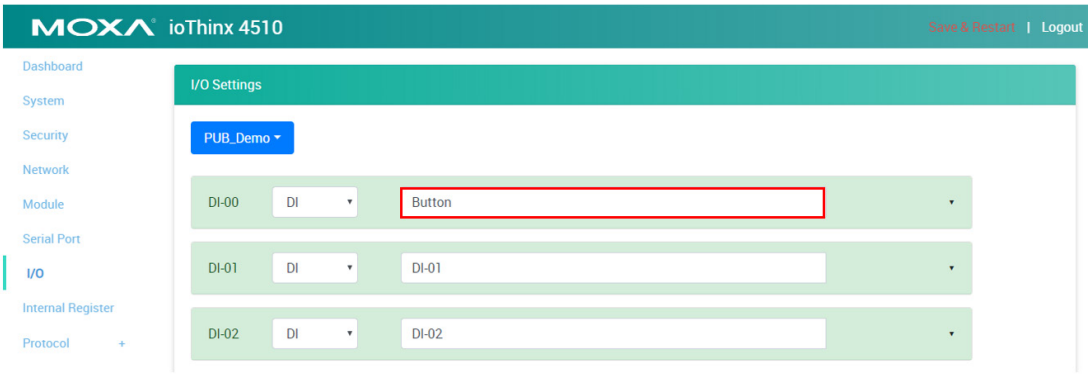
Note: The content of the **Topic** is based on **Device Name, Module name**, and **I/O channel**. You can change these values in **Device Settings, Module Settings**, and **I/O Settings**.







In this demonstration, we changed our **Topic #1 (DI-00 and DO-00)** as below:

Publisher **Topic#1**(DI-00):Tutorial/read/PUB_Demo@Button/diStatus

Subscriber **Topic#1**(DO-00):Tutorial/write/SUB_Demo@Light/doStatus

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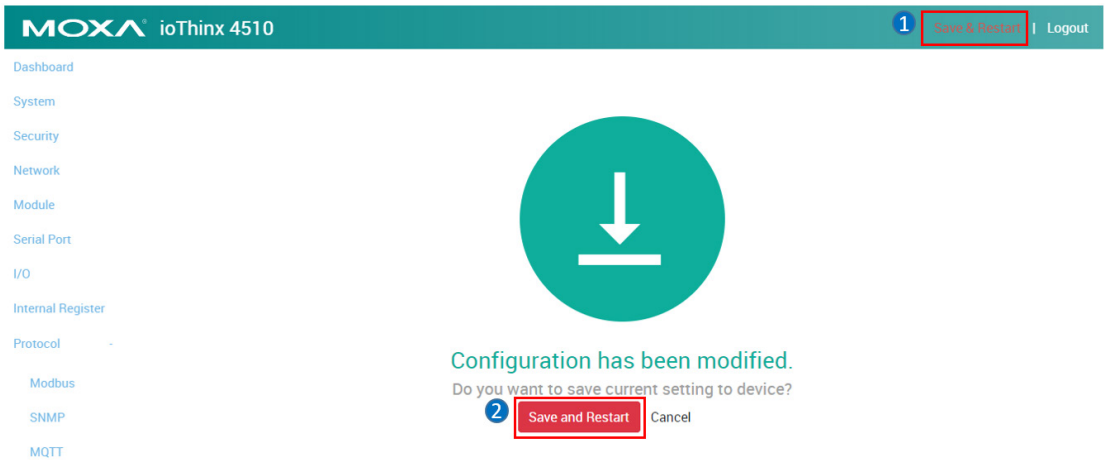
3. Click **Save & Restart** in the upper-right corner, and then click **Save and Restart** in the center of the page.



Publisher and Subscriber Settings

Introduction to MQTTlens

MQTTLens is a chrome application that supports MQTT communications. MQTTLens can be used to simulate communicating with the ioThinx 4510 via MQTT.

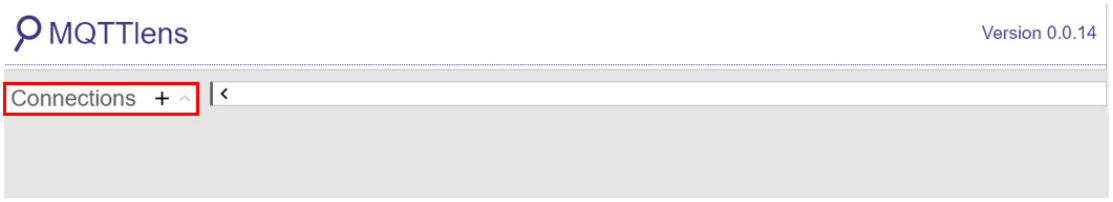
Configuring MQTTlens

1. Install **MQTTlens**

   You can download **MQTTlens** from the following link:

   https://chrome.google.com/webstore/detail/mqttlens/hemojaaeigabkbcookmlgmdigohjobjm

2. Add a new connection on **MQTTlens**



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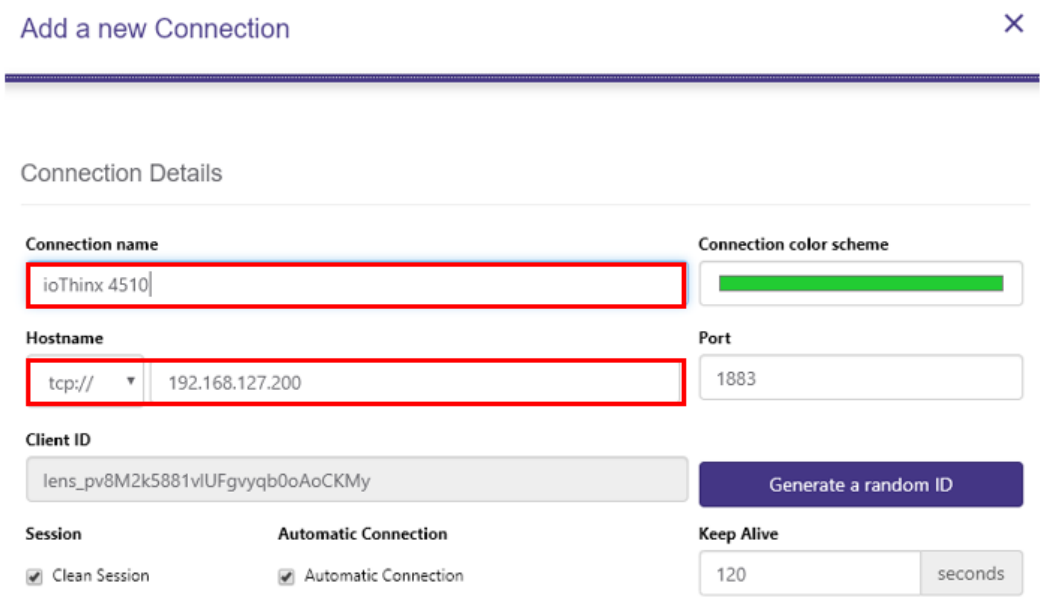
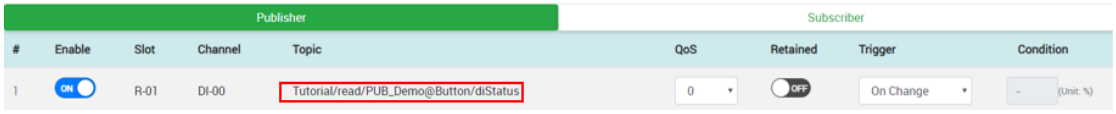
3. Enter your **Connection name** and **Hostname** (broker IP) in the associated text input boxes.



Scenario 1: Publish DI status to MQTTlens

- Publisher: ioThinx 4510
- Subscriber: MQTTlens

1. Copy the topic from the ioThinx 4510 **MQTT publisher** tab.



2. Paste the topic into the subscribe column of the **MQTTlens**, and then click subscribe.

3. Press the DI0 button on the starter kit to trigger the DI-00 channel; you should see the DI value change on your subscriber.

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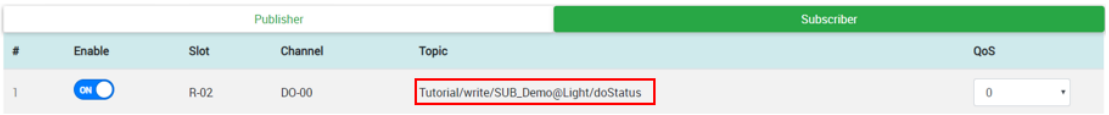
Scenario 2: Turn on ioThinx 4510's DO channel

- Publisher: MQTTlens
- Subscriber: ioThinx 4510

1. Copy the topic from the ioThinx 4510 **MQTT subscriber** page.

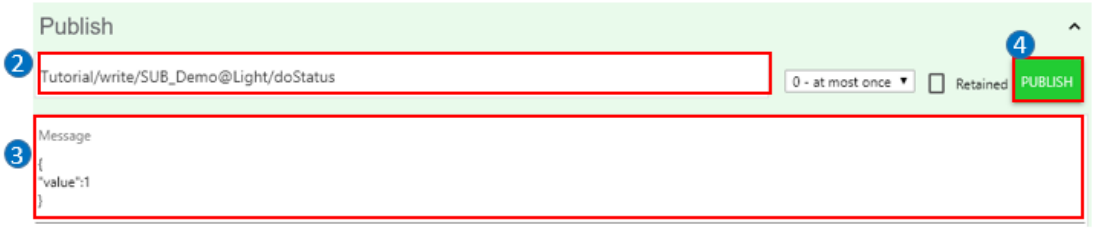


2. Paste the **Topic** into the **MQTTlens** publish column.
3. Enter the following message:

```
Message

{
"value":1
}
```

4. Click **Publish**. The DO-00 channel should respond by turning the light on.



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