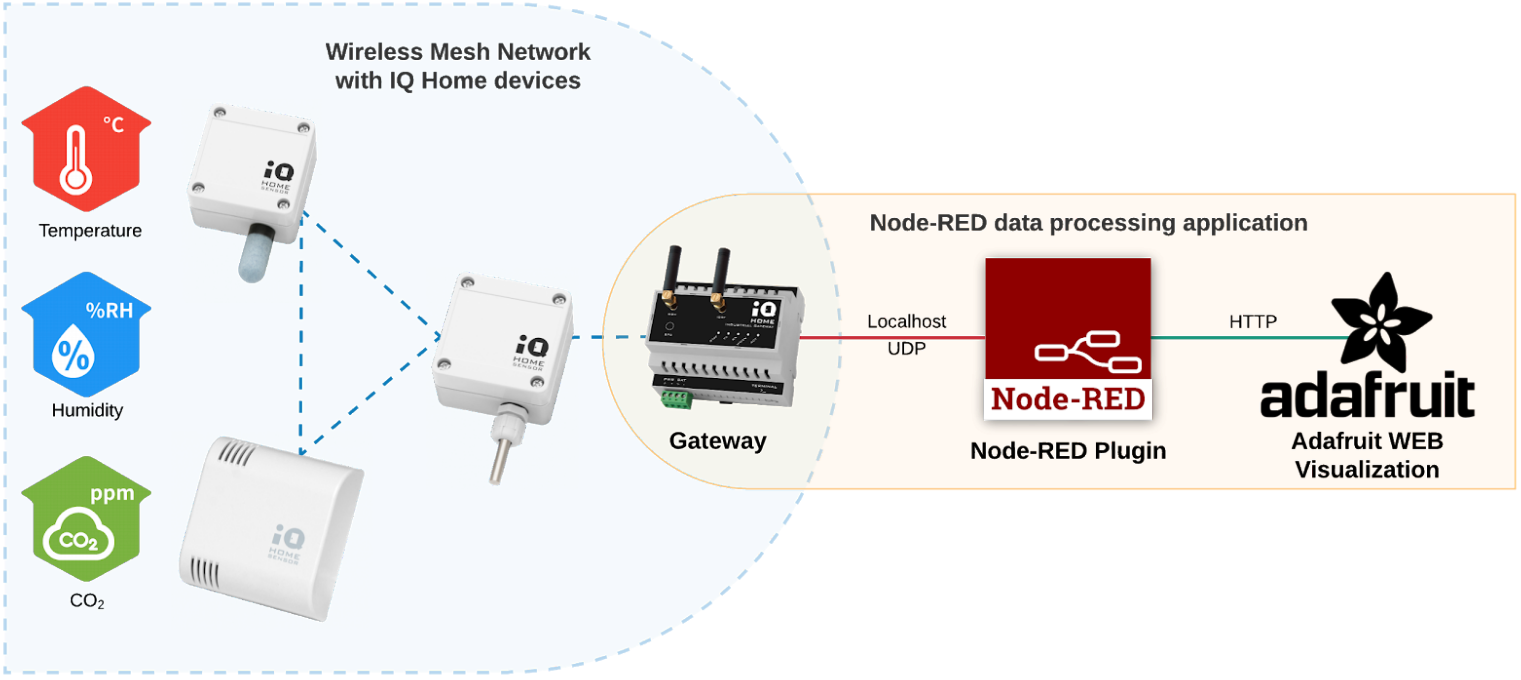
Uploading sensor data to Adafruit IO with Node-RED



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www.iqhome.org

Contents

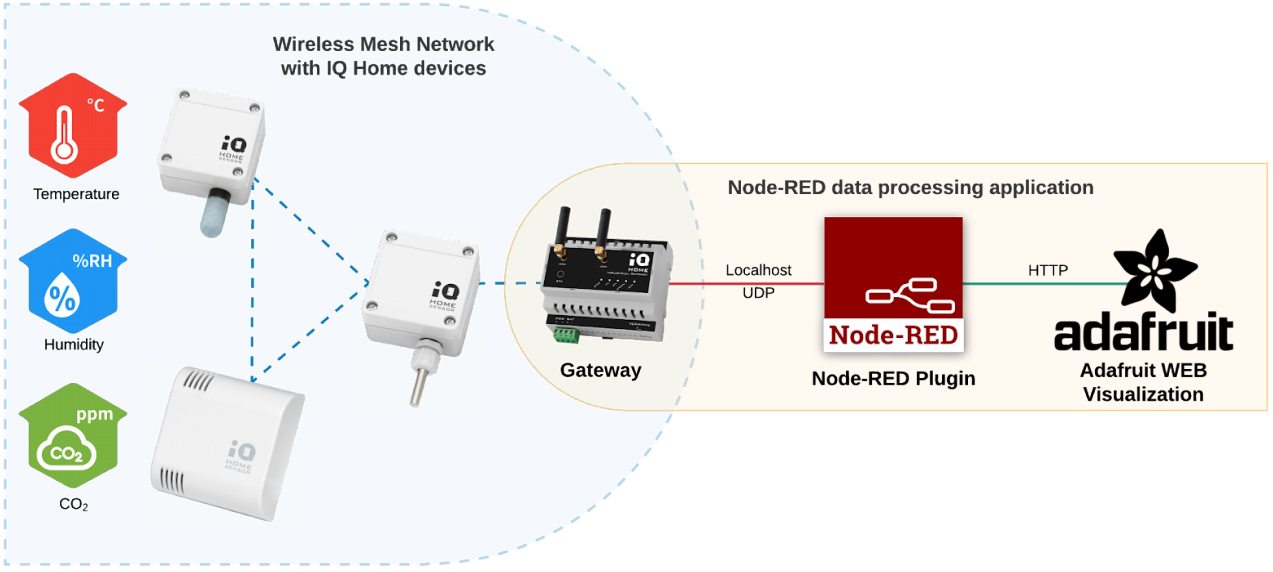
1 Overview

In this guide, you will learn how to use the **Adafruit IO** free data visualization platform with your IQHome Gateway and Sensors.

The pre-installed Node-RED service and IQHome package on your Gateway will be used to periodically collect and upload your sensor data to Adafruit IO.

What you will need:

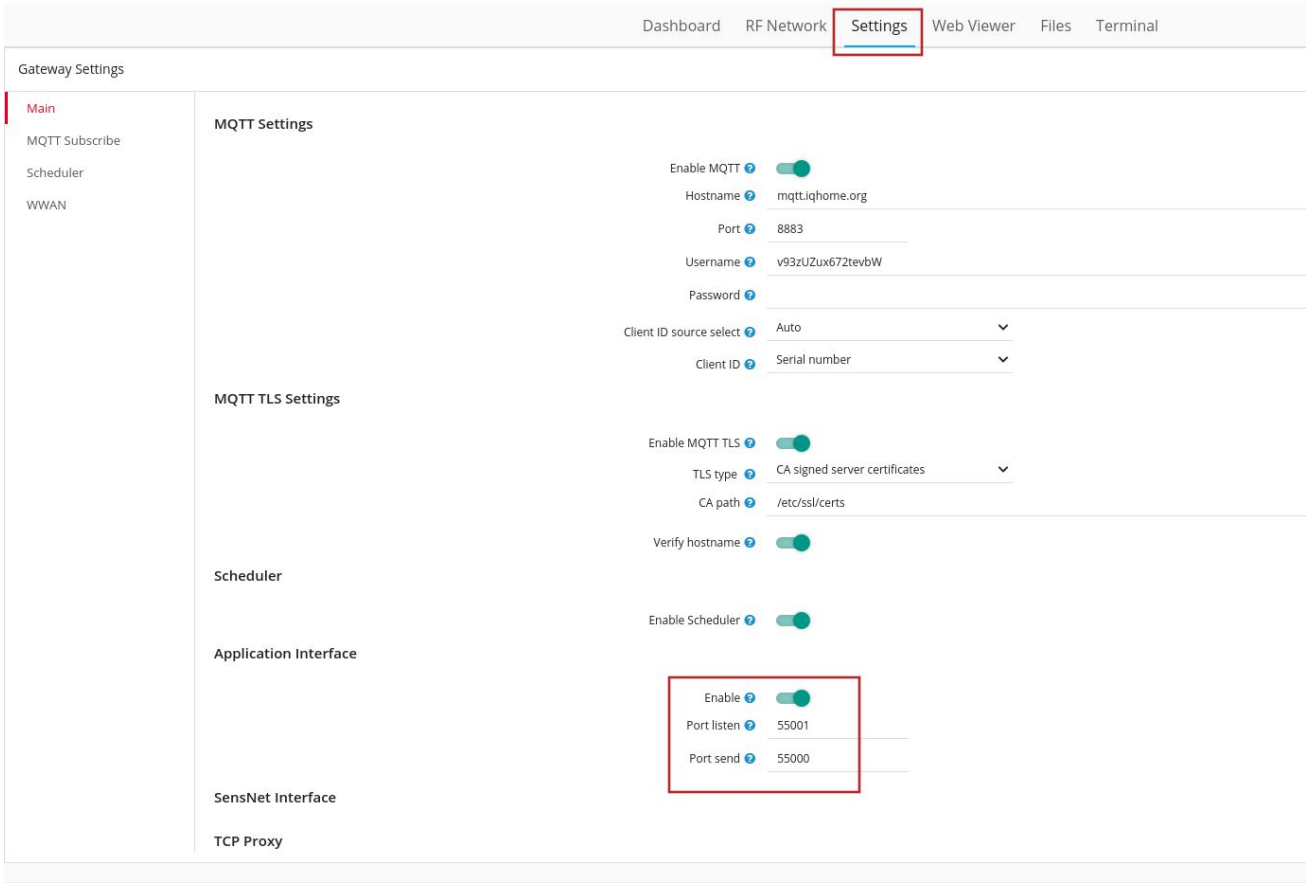
- IQ Home Gateway
- IQ Home Sensor
- Adafruit IO Account



2 Enable the Application Interface

To connect to the Adafruit IO service, first, we need to enable the Application Interface feature on your gateway.

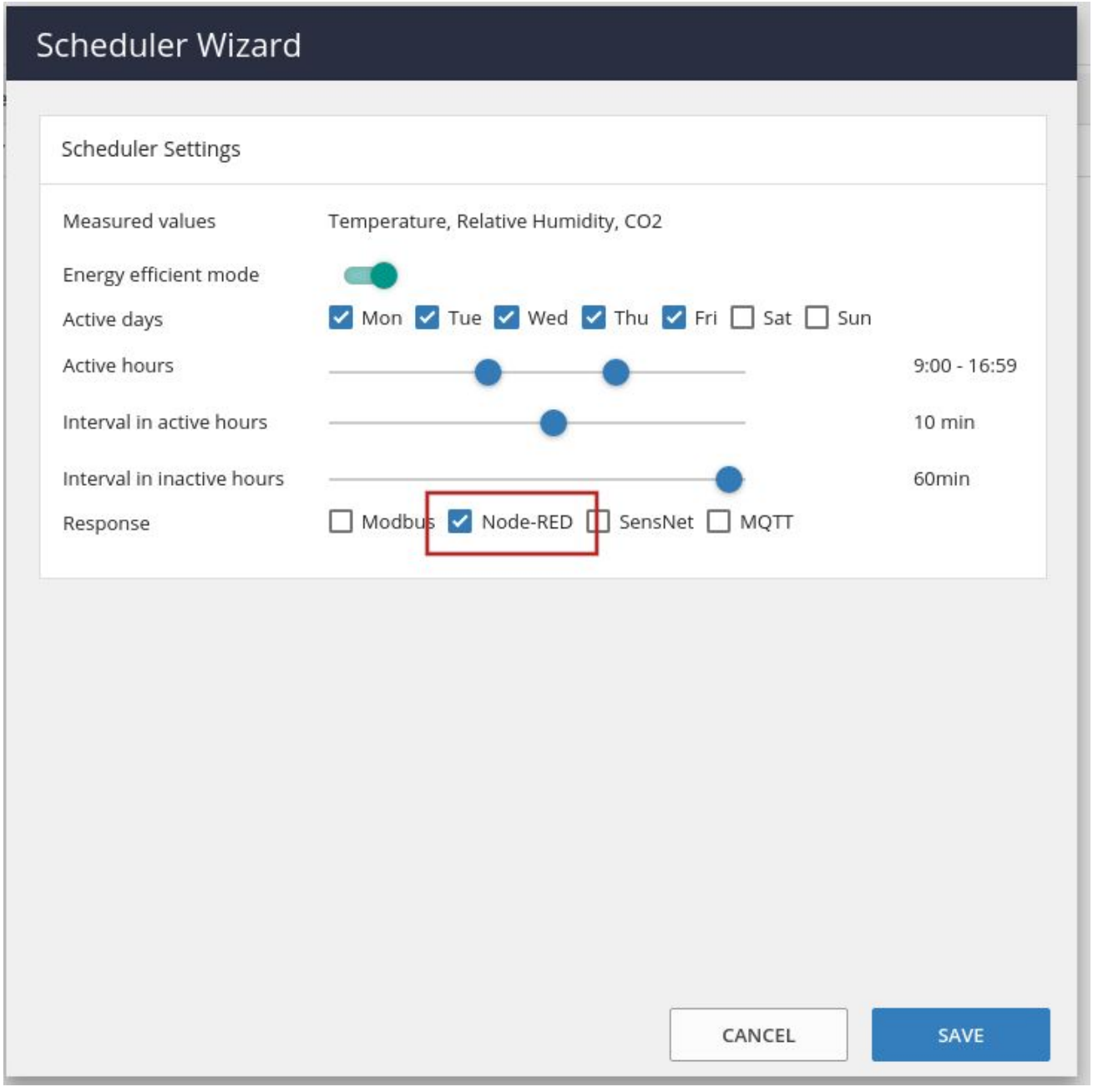
1. Connect to the Gateway using the "**Link It!**" Software
2. Go to the "**Settings**" tab
3. Enable "**Application Interface**" and set a "**Port Send**" value (e.g. 55000)



The **Port Send** value selected here will be used in Node-RED.

Then enable the Node-RED scheduler for the sensors.

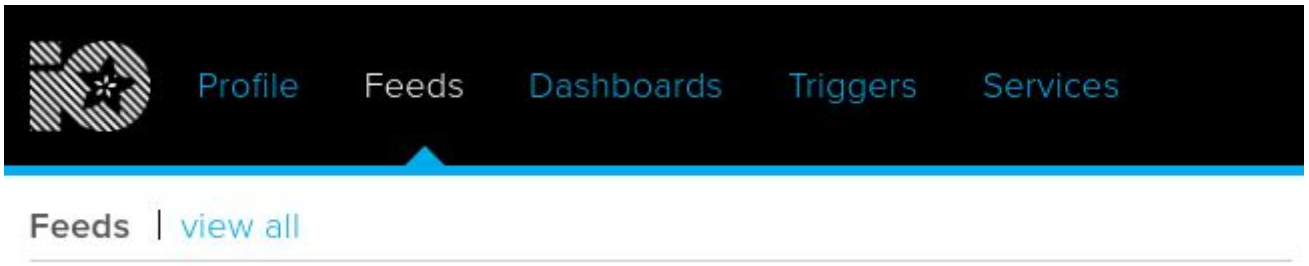
1. Open the “**RF Network**” tab
2. Switch to **“Sensor Data”**
3. Click on the clock icon in the top right corner labeled “**Create Scheduler”**
4. Enable the “**Node-RED**” Response option



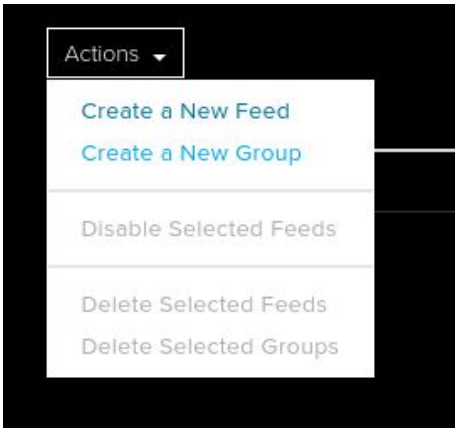
You can also set the time intervals between the sensor measurements.

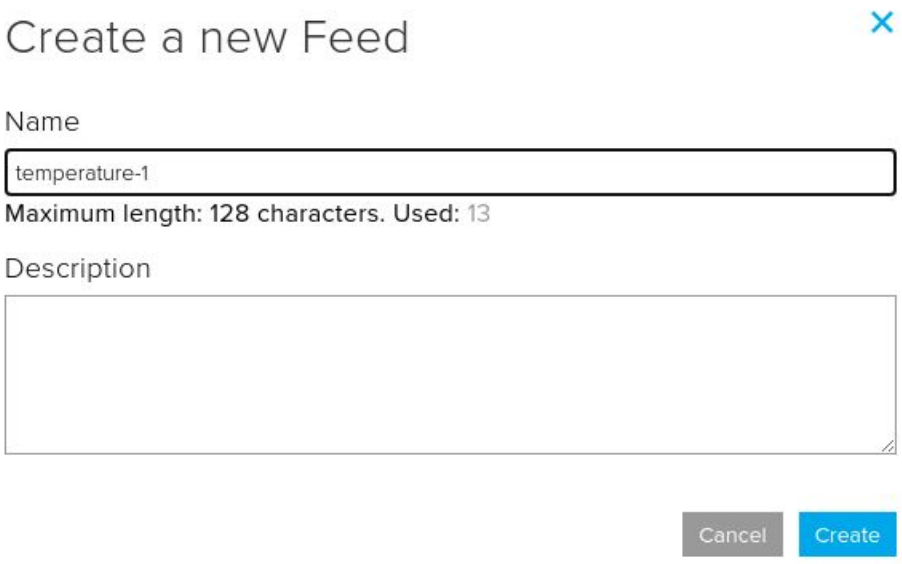
3 Configure your Adafruit IO account

1. Open Adafruit IO and log in or create a free account if you don't already have one
2. Open **Feeds > View all**



3. Click on **Actions > Create a New Feed** and name your new feed. By default, our Node-RED package uses {sensor type}-{device address} as topic names (e.g. temperature-1), but you can use any other name





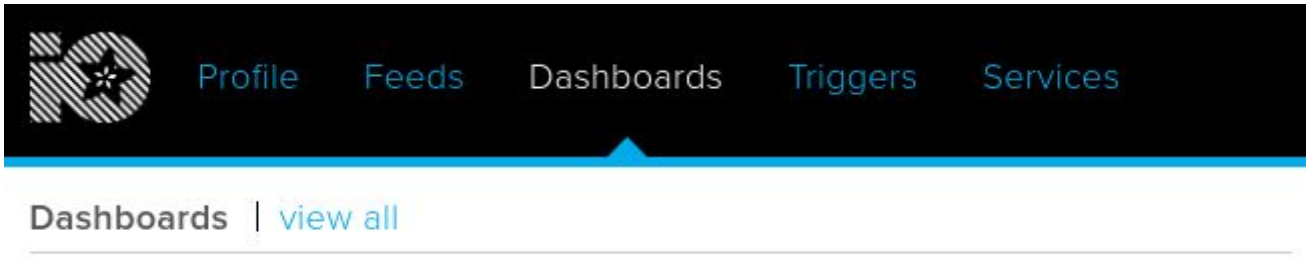
Note

You can easily identify your sensors and their device addresses by using the “**indicate”** button in the right-click menu of the sensors under the **RF Network** tab in **LinkIt!** and finding the blinking LED on the sensor.

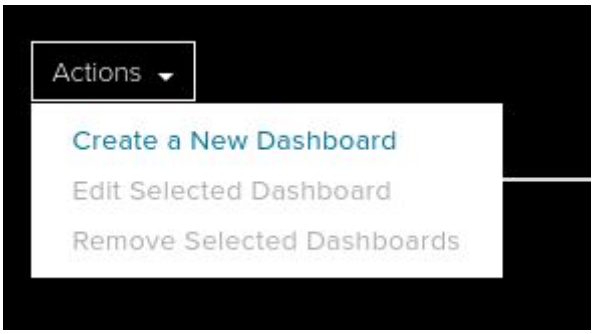
4. Create the feeds for all other sensors. In this example, we are using a temperature (device address: 1) and a temperature+humidity sensor (device address: 2), so we create a new feed (topic) for each of them

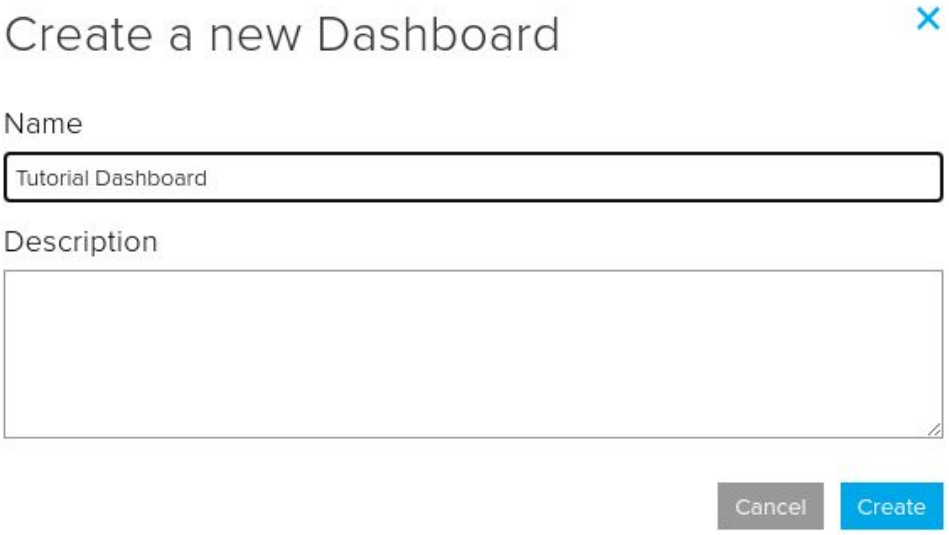
Note the values in the **Key** column, these are going to be used in Node-RED

5. Open **Dashboards > View all**



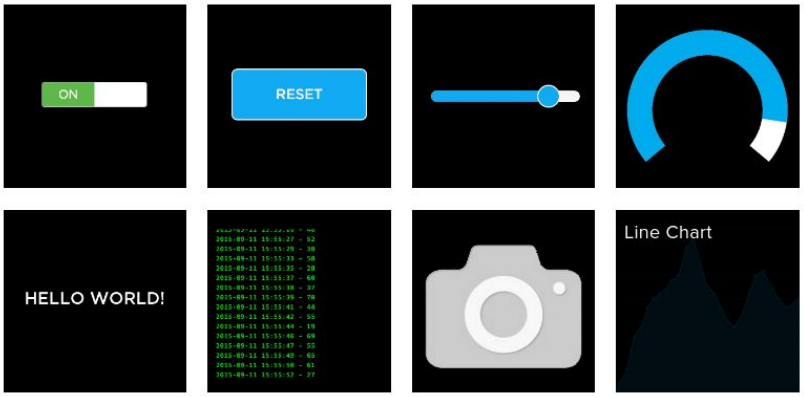
6. Create a new dashboard



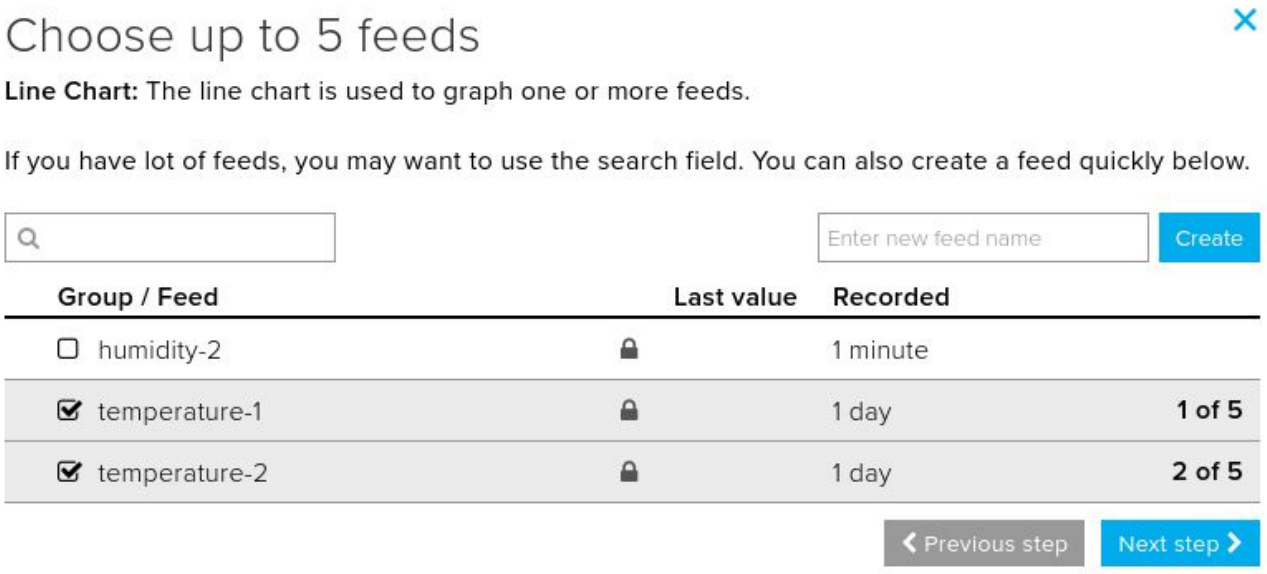


7. Open your new dashboard and click on the blue plus button in the top right corner to create a new block

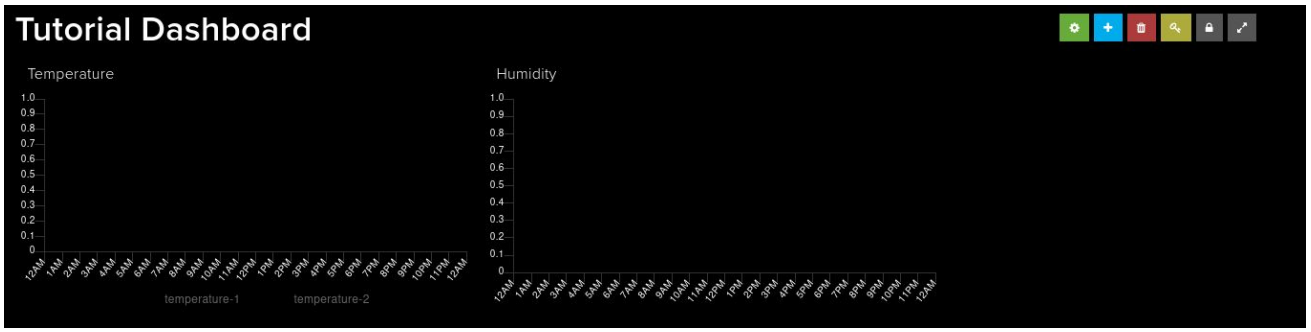
8. Select **Line Chart**



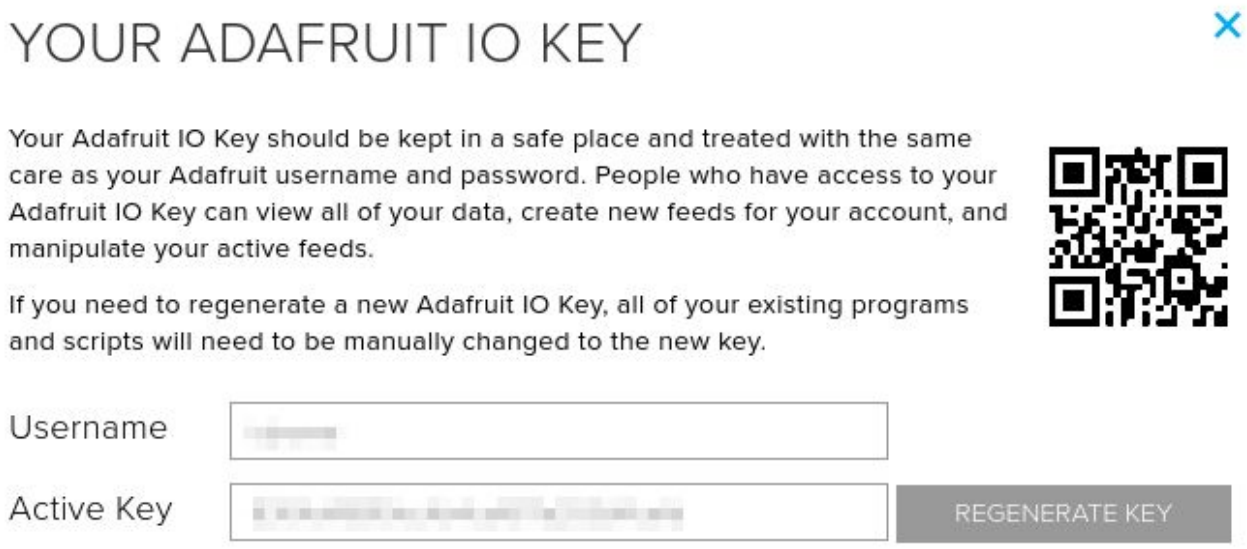
9. Select both temperature feeds and click **Next step**



10. On the next page, you can customize the settings for your line chart, but for now, the defaults are fine. Give a name to the new chart and click **Create block**
11. Repeat the same steps for other kinds of sensor values you would like to visualize



12. Click on the **Adfruit IO Key** button in the top right corner, and note down your **Username** and **Active Key**. They will be used in Node-RED in the next step



WARNING!

If you decide to regenerate your Adafruit IO key, you will have to update your Node-RED configuration with your new IO key!

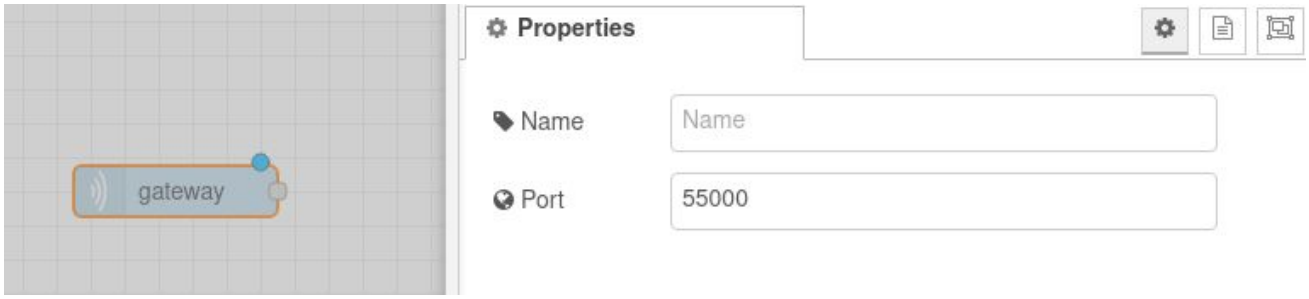
4 Set up a Node-RED network to forward the sensor data

For this demo, we will be using a **Temperature Sensor** [SI-T-02/SC] and a **Temperature and Relative Humidity Sensor** [SN-TH-02].

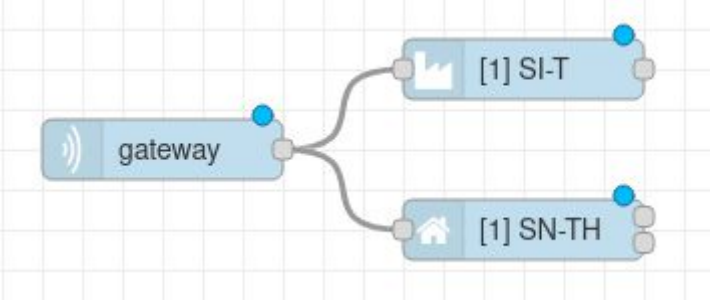
1. Switch to the **Node-RED** tab in **LinkIt!**

The **IQHome** nodes can be found in the bottom of the panel on the left side of your screen.

2. Add an iqhome **gateway** node. If you changed the used port in the first step, you can set it here by double-clicking on the node



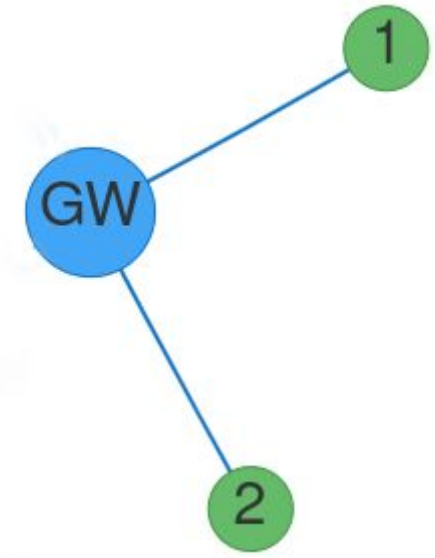
3. Add the sensor nodes corresponding to the sensors you are using in your IQHome network. In this example, we are using the **SI-T-02/SC** and **SN-TH-02** sensors, so we will add the **SI-T** and **SN-TH** nodes

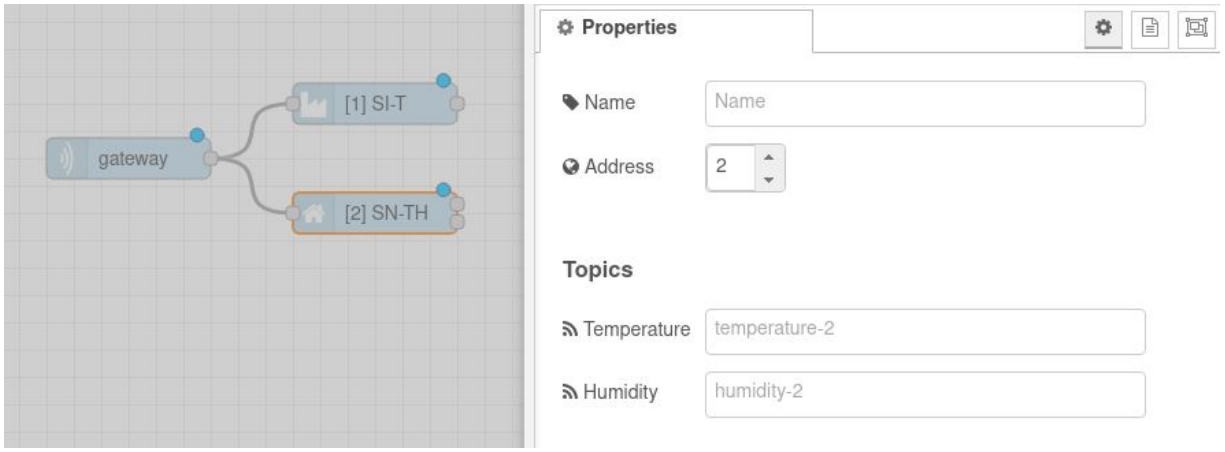


4. Set the **device addresses** corresponding to your sensor's addresses as seen in the **LinkIt! RF Network** tab by double-clicking the sensor nodes. We are using the default topic (feed) names generated by the sensor nodes, so you can leave the boxes under "Topics" empty. If you used a different topic (feed) name on the Adafruit website, you have to write the same topic names here.

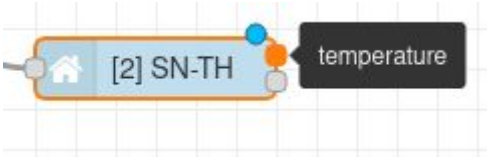
Note

You can easily identify your sensors and their device addresses by using the "**indicate"** button in the right-click menu of the sensors under the **RF Network** tab in **LinkIt!** and finding the blinking LED on the sensor.

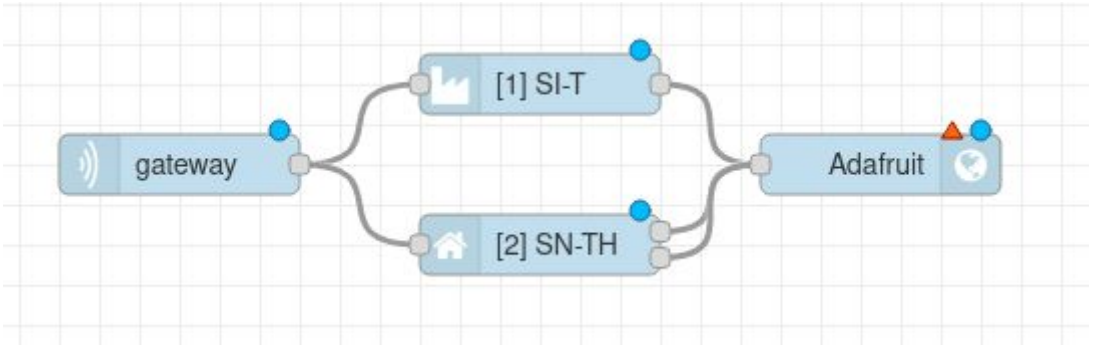




Each sensor node has outputs depending on what types of measurements can that sensor make.



5. Add an **Adafruit** node and connect it to the outputs of the sensor nodes.

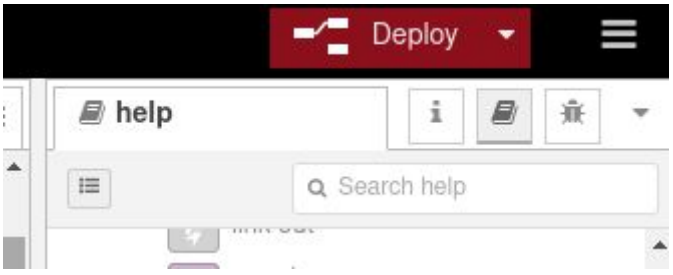


6. Double click the **Adafruit** node and enter your Adafruit **Username** and **IO Key**

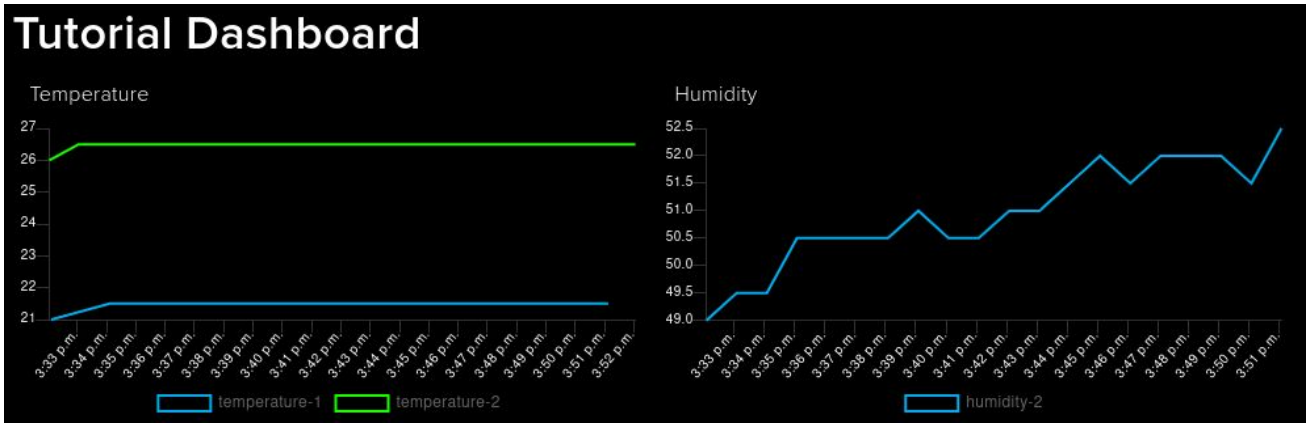
Note

The Adafruit node enforces the data limits set by Adafruit IO (max. 30 requests per minute). If you have an active Adafruit IO+ (paid) subscription, you can check the Adafruit IO+ Subscription checkbox in the Adafruit node to enable the higher (max. 60 requests per minute) data rate of the paid account.

7. **Deploy** your Node-RED network by clicking the **Deploy** button in the top right corner of your window



If you turn on your IQHome gateway and sensors, you will see the incoming data in your Adafruit IO Dashboard:



Note

You can change the horizontal scaling of your line graphs by clicking on the green cog icon in the top right corner.

5 Demo

You can find our **Adafruit** demo here:
https://io.adafruit.com/iqhome/dashboards/iqhome-demo?kiosk=true