Integrate Milesight Gateways and Devices into the Cumulocity IoT Platform

Version Change Log			
Version	Revision Date	Revision Details	Revised By
V1.0	20250513	Initial	Lockon

Preface

Cumulocity IoT is a leading IoT platform provided by Software AG, designed to help enterprises quickly achieve device connectivity, data collection, and intelligent analytics. It supports multiple protocols and device types, offering high scalability and flexibility to meet requirements ranging from small pilots to large-scale deployments. The platform includes rich applications and microservices such as device management, real-time data visualization, alarm handling, and remote control, significantly simplifying the development and operation of IoT solutions. Moreover, Cumulocity IoT supports edge computing and cloud collaboration, enabling users to achieve low latency and high-efficiency data processing. Its open API interfaces and powerful integration capabilities allow enterprises to easily merge IoT data with existing business systems, driving digital transformation and intelligent operations.

This document mainly introduces the complete process of connecting the UG65 gateway to the Cumulocity IoT platform and synchronizing AM319 device data from the Cumulocity IoT platform as an example.

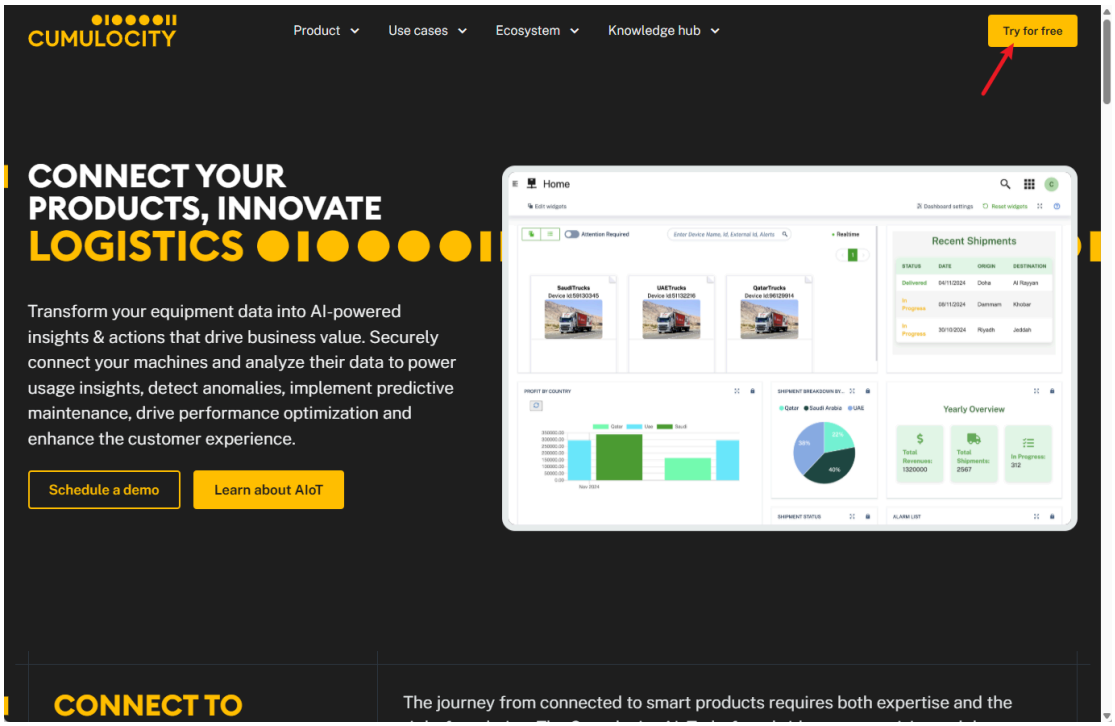
Special Note:
The AM319 device mentioned here is only for demonstration purposes and does not imply that other types of sensors are not supported. Readers should refer to the steps according to their actual situations.

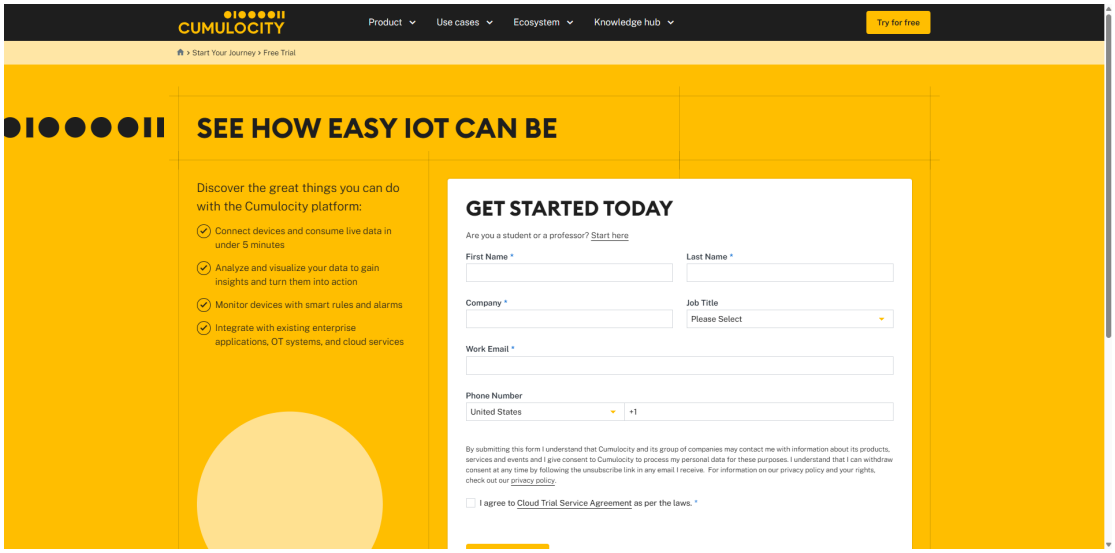
1. Prerequisites

- **Gateway model:** UG65, UG56, UG67 are all supported
- **Sensor model:** AM319
- **Gateway has internet access**

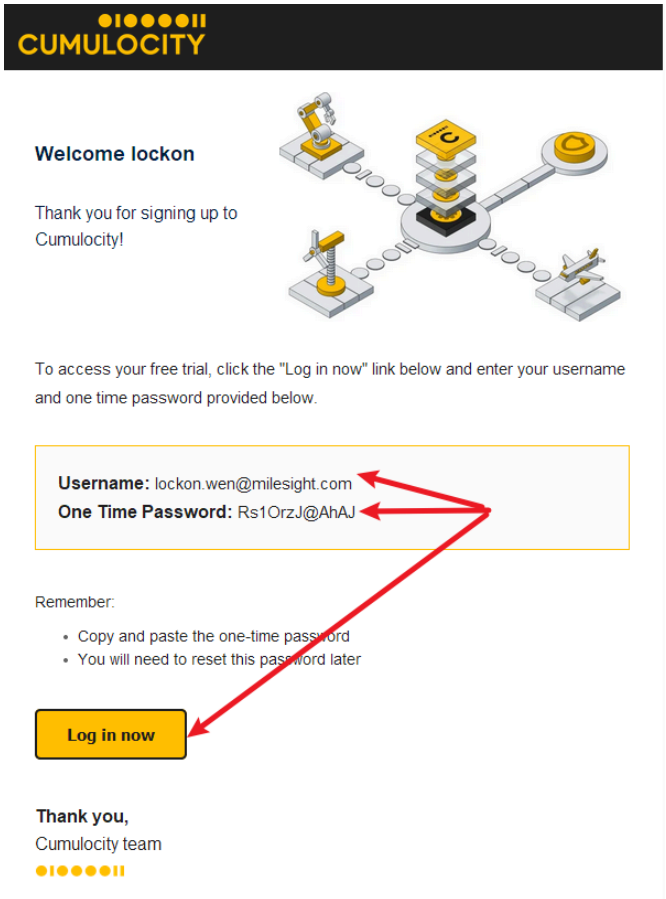
2. Register an Account

Visit Cumulocity | Cumulocity and click the **"Try it free"** button at the top right corner.
Fill in the basic information.





After submission, the platform will send an activation email to your registered email address, which includes the **login URL, username,** and **initial password**.

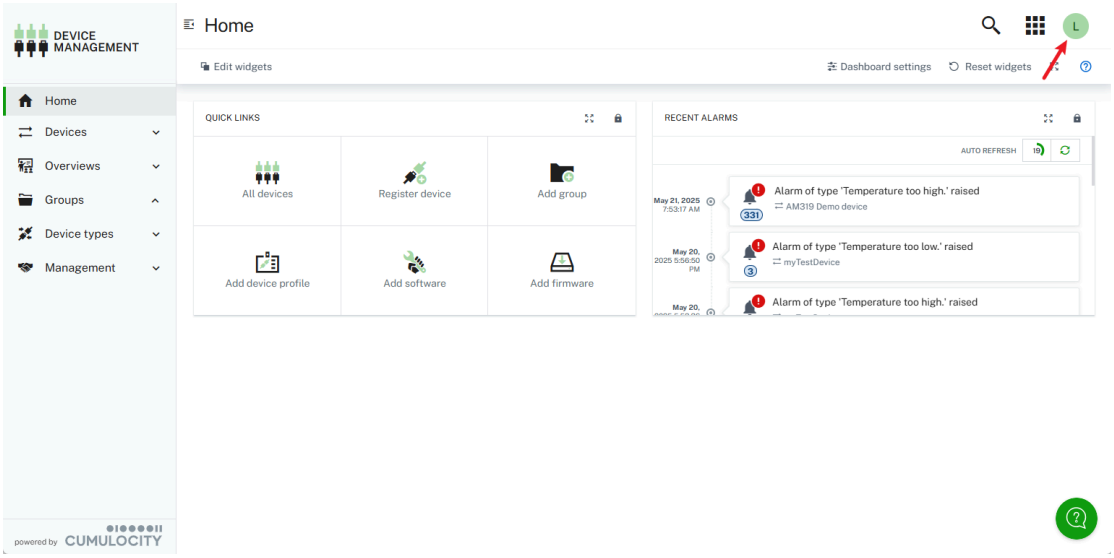


When logging in for the first time, you need to change the original password by following the platform's page instructions.

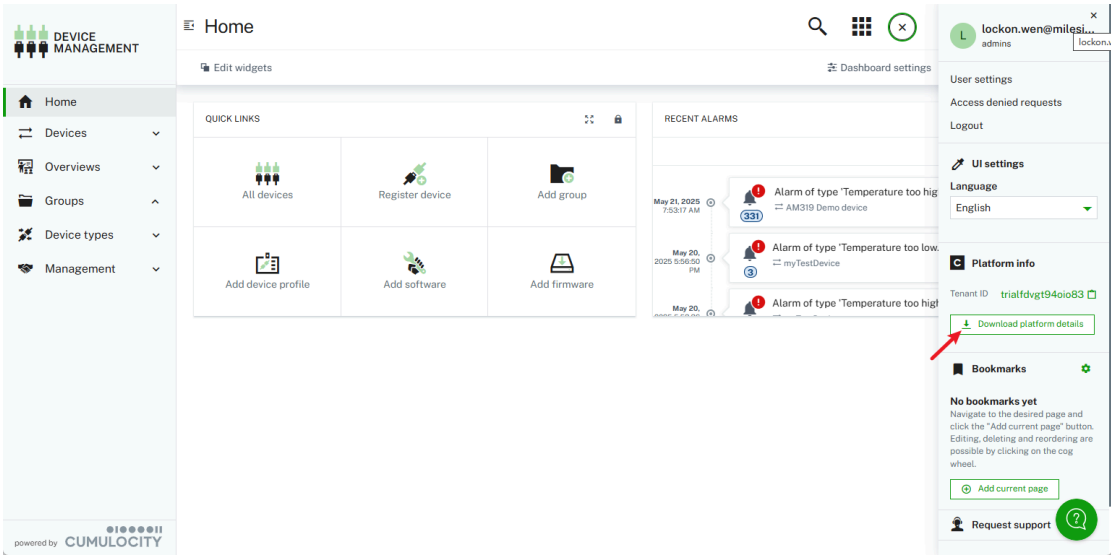
At this point, your account registration is complete, and you can log in and start using the platform.

3. Obtain Basic Platform Information

Click the login URL in the email.
After logging in, perform the following operations as shown:

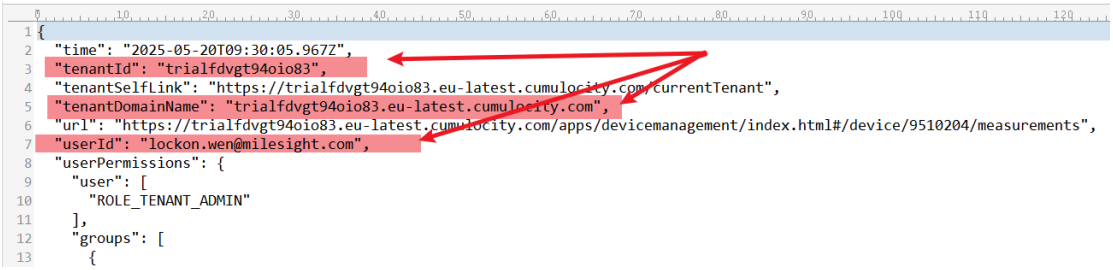


Click the "**Download platform details**" button:



You will download a JSON file.

Open it with a text editor, as shown below (this example is mine; readers should refer to their own information):



```
{
  "time": "2025-05-20T09:30:05.967Z",
  "tenantId": "trialfdvgt94oio83",
  "tenantSelfLink": "https://trialfdvgt94oio83.eu-latest.cumulocity.com/currentTenant",
  "tenantDomainName": "trialfdvgt94oio83.eu-latest.cumulocity.com",
  "url": "https://trialfdvgt94oio83.eu-latest.cumulocity.com/apps/devicemanagement/index.html#/device/9510204/measurements",
  "userId": "lockon.wen@milesight.com",
  "userPermissions": {
    "user": [
      "ROLE_TENANT_ADMIN"
    ],
    "groups": [
      {
```

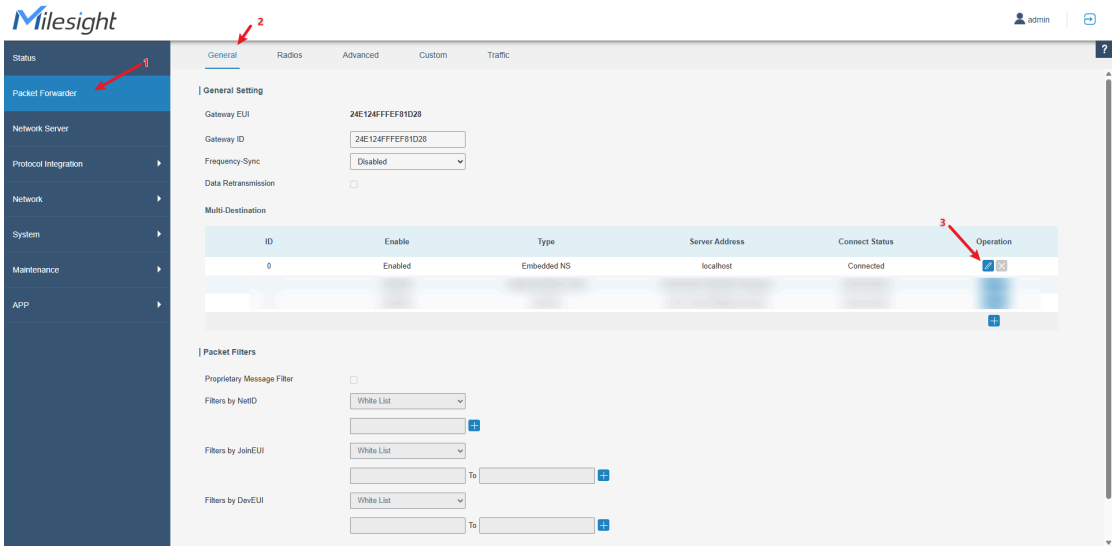
Copy the parameters marked in red; they will be used in the subsequent steps.

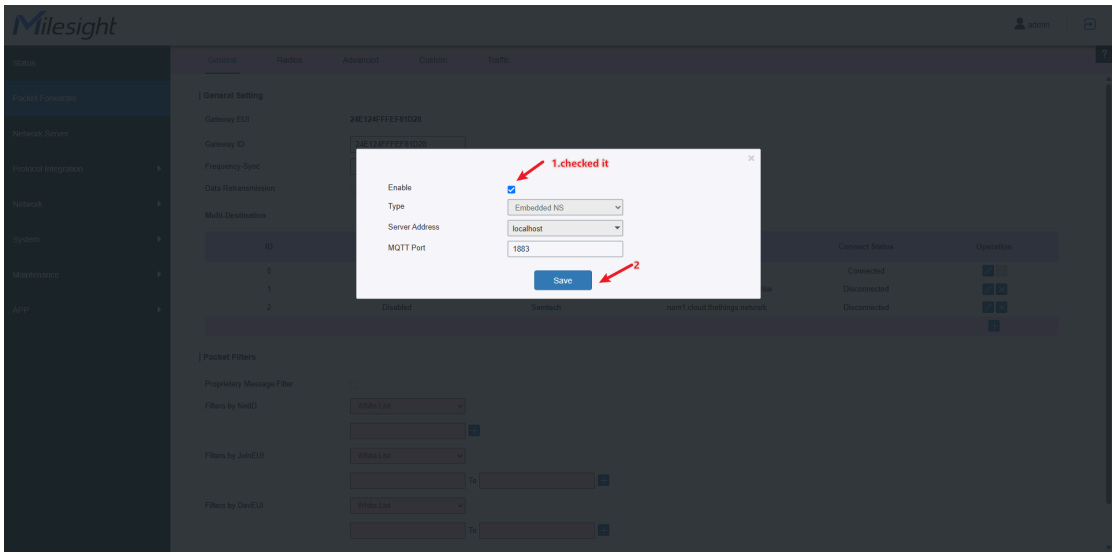
4. Gateway Configuration

4.1. Enable Embedded NS:

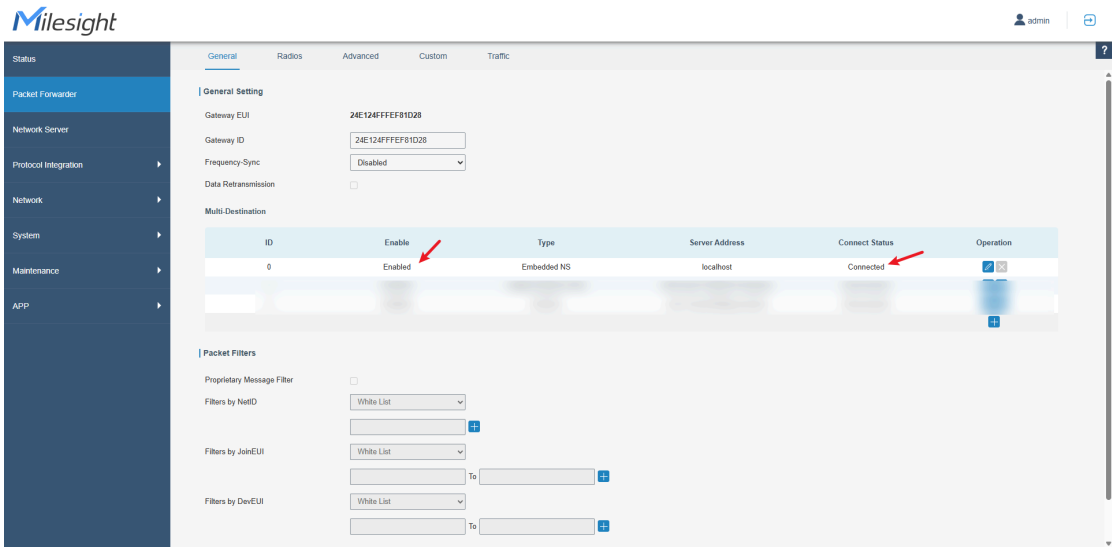
First, log in to your gateway management interface (refer to <How to Login Web GUI of Milesight Gateway>).

Then operate as shown in the screenshots:





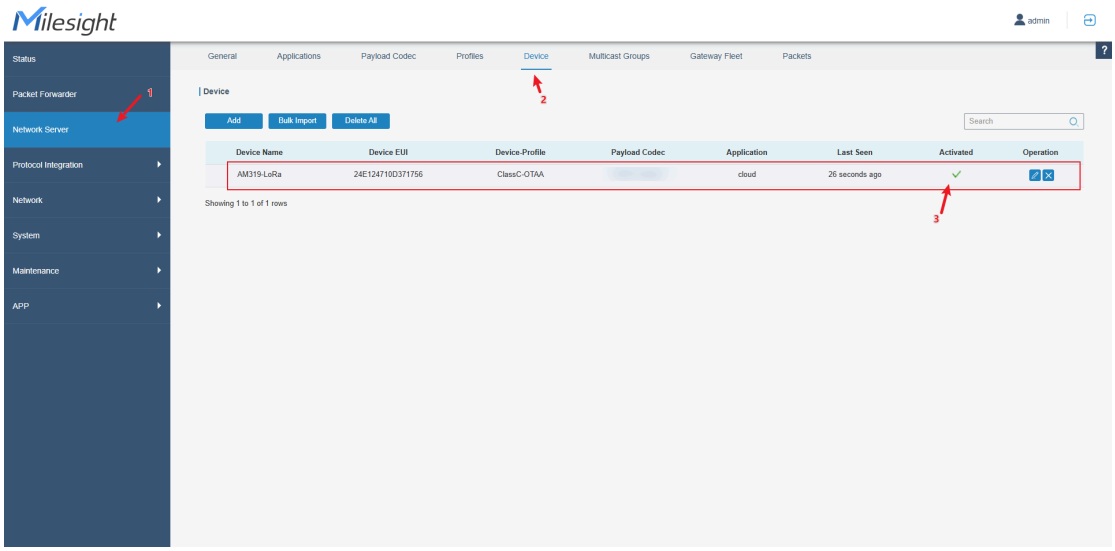
If the status shows Embedded NS is **Enabled** and **Connected**, it means the Embedded NS is successfully enabled.



4.2. Add Sensor

Refer to <How to Connect LoRaWAN Nodes to Milesight Gateway> to add your sensor.

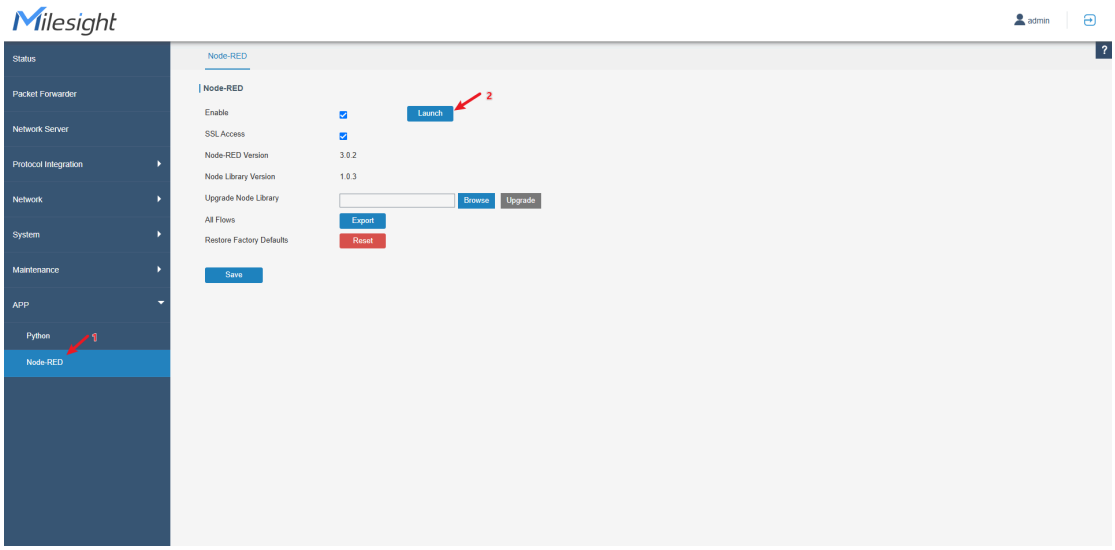
The completed result should look like this:

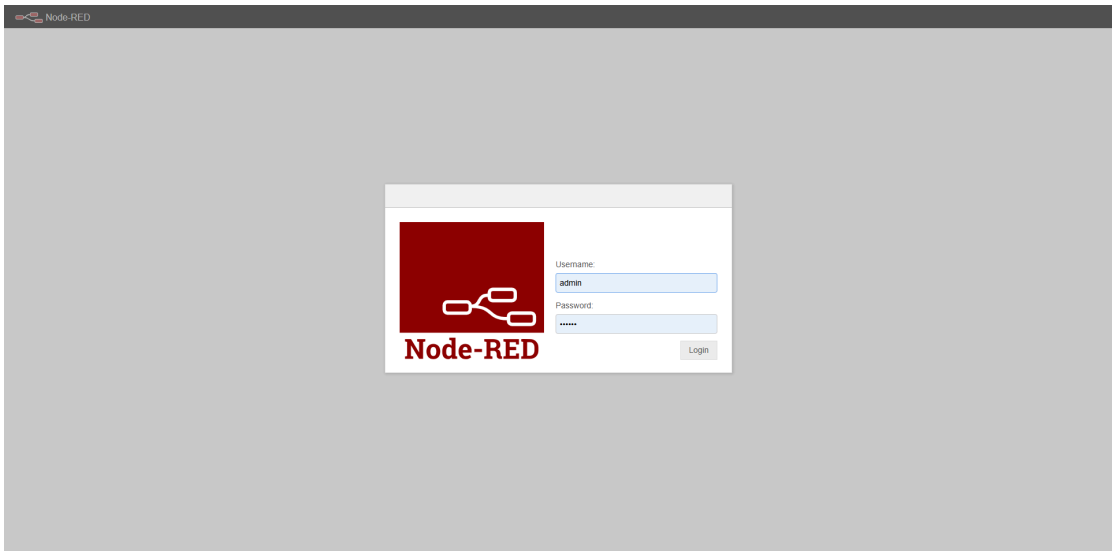


4.3. Enable Node-Red Function

Refer to <How to use Dashboard on Node Red of Milesight Gateway> to enable Node-Red.

After enabling, log into the gateway's Node-Red interface as shown below:





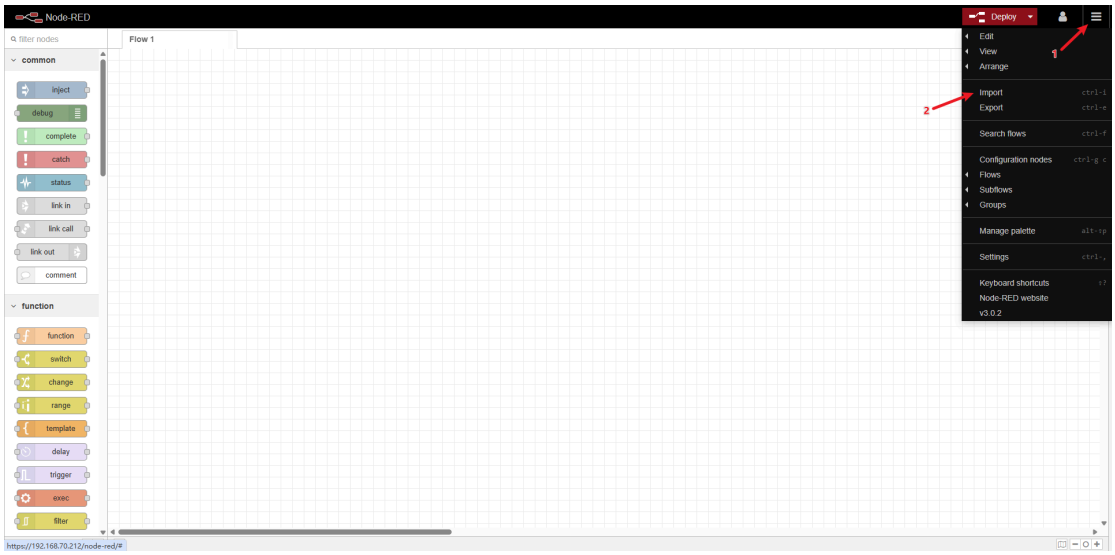
Note:
The username and password here are the same as the gateway management interface.

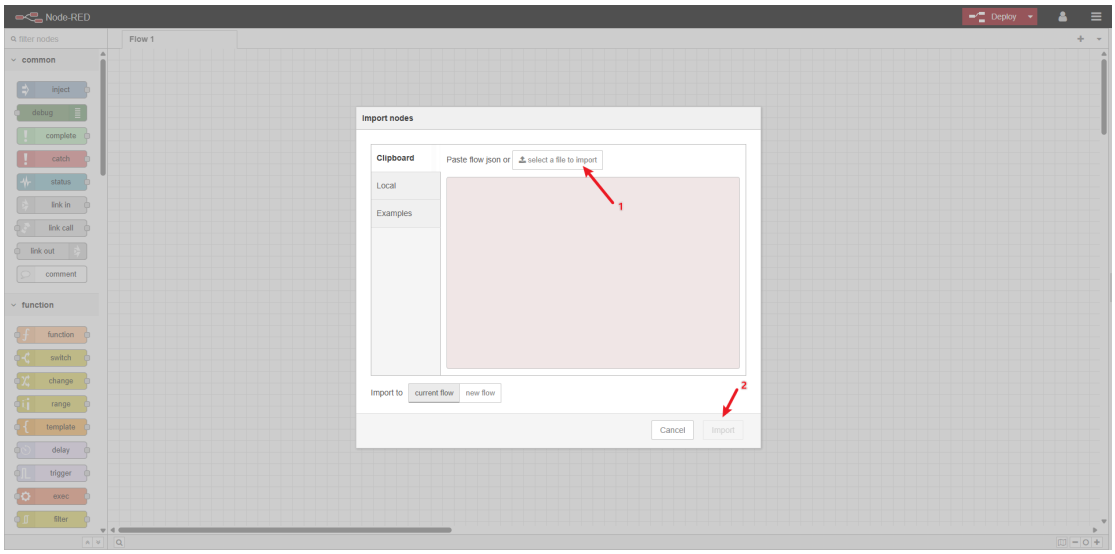
4.4. Import Flow Example

Download the prepared example flow file from the following address:

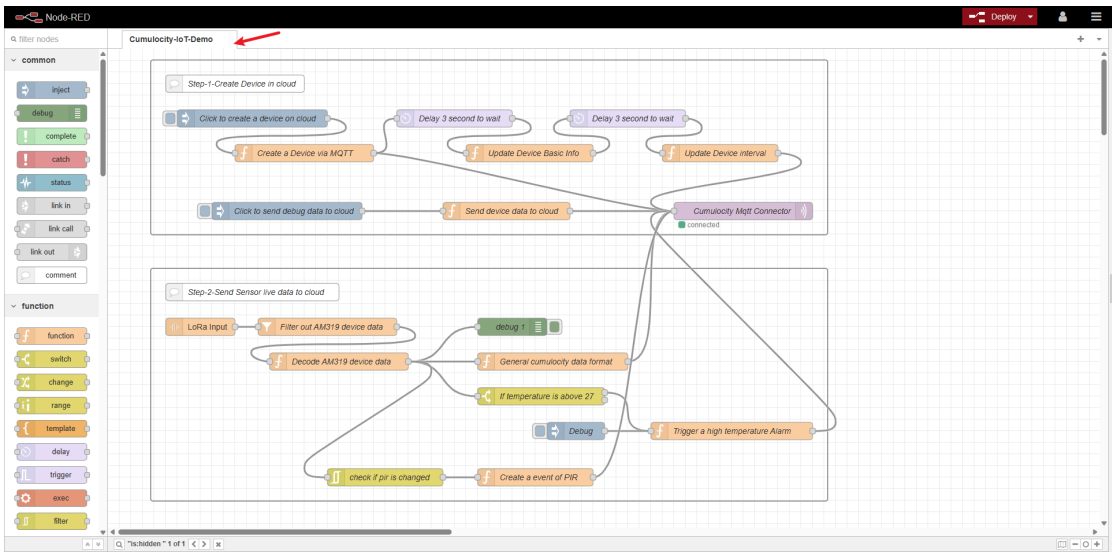
http://resource.milesight-iot.com/Support/lockon/node-red-demos/Cumulocity-IoT-Demo.json

Then follow the screenshots below to import it into your local environment:



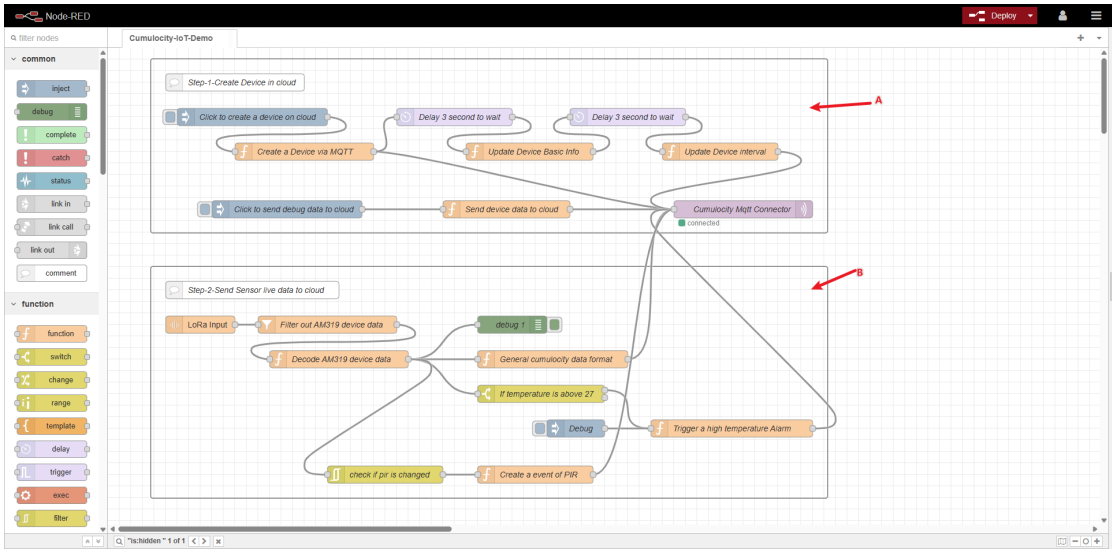


After successful import, you will see:



4.5. Detailed Explanation of the Example Flow

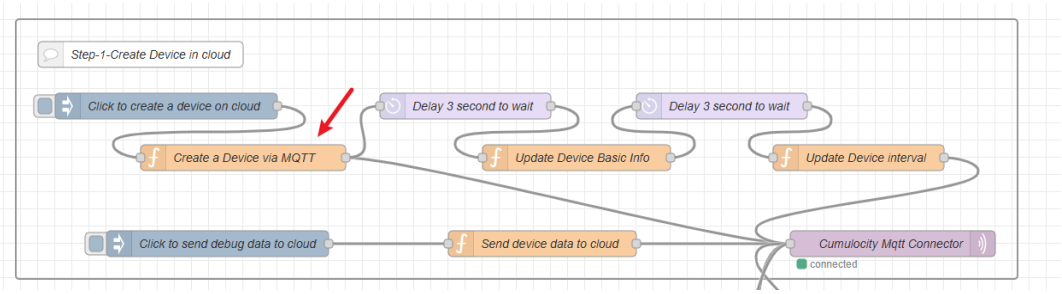
As shown:



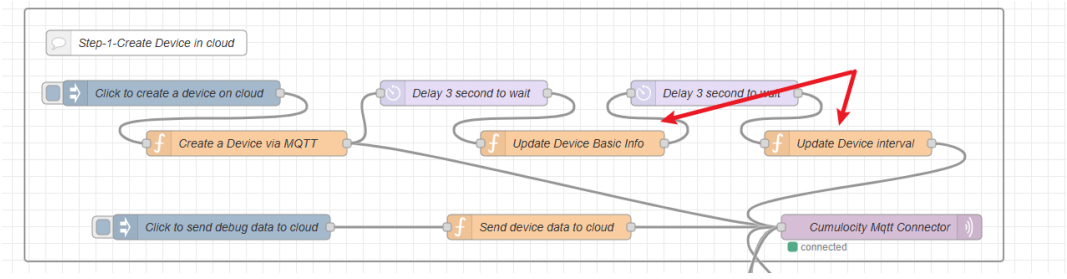
The entire example is divided into two parts: **Part A** and **Part B.**

Main functions of Part A:

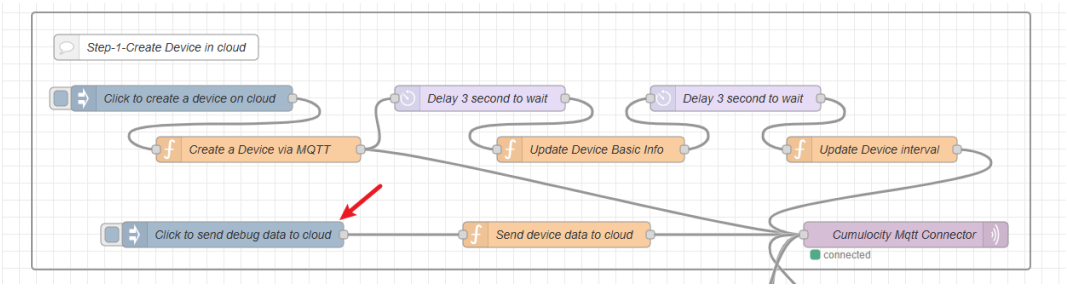
- Device Create devices remotely by calling APIs



- Update basic device information (serial number, device type, etc.)

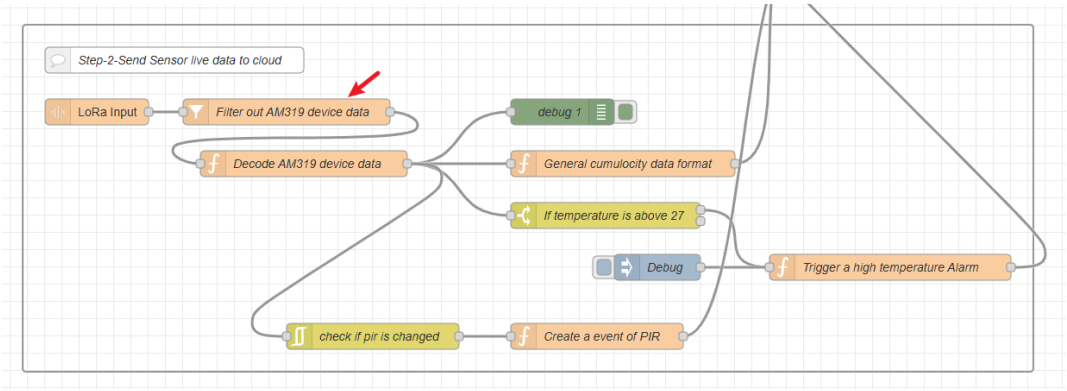


- Debug testing

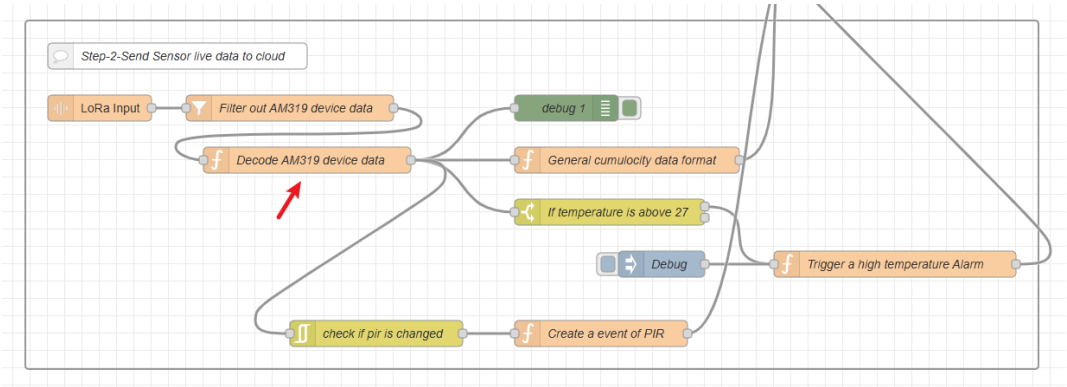


Main functions of Part B:

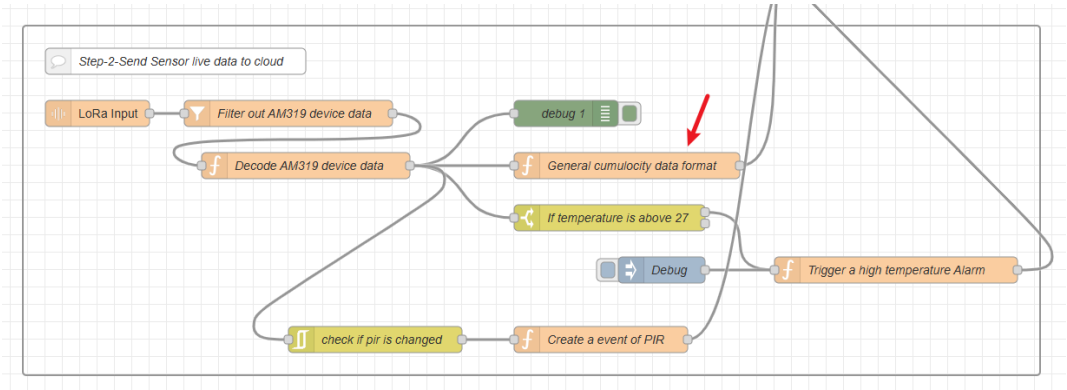
- Filter AM319 device data from the gateway



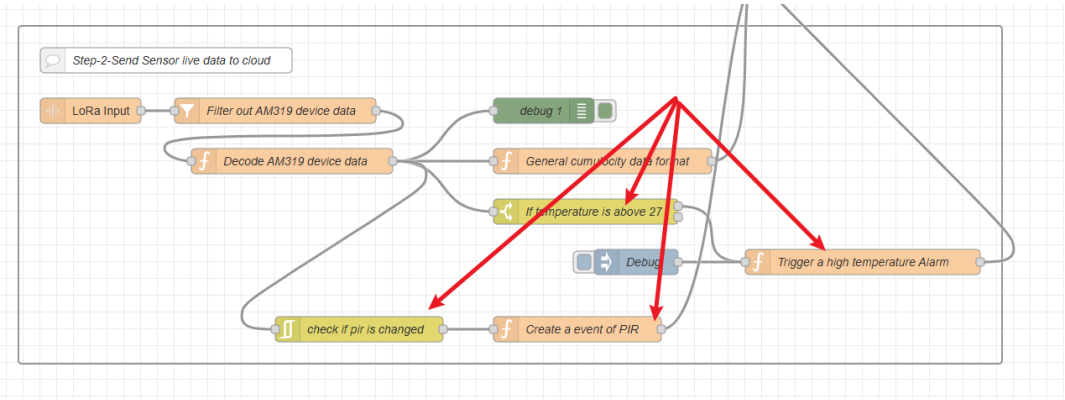
- Decode AM319 data



- Report data to the platform



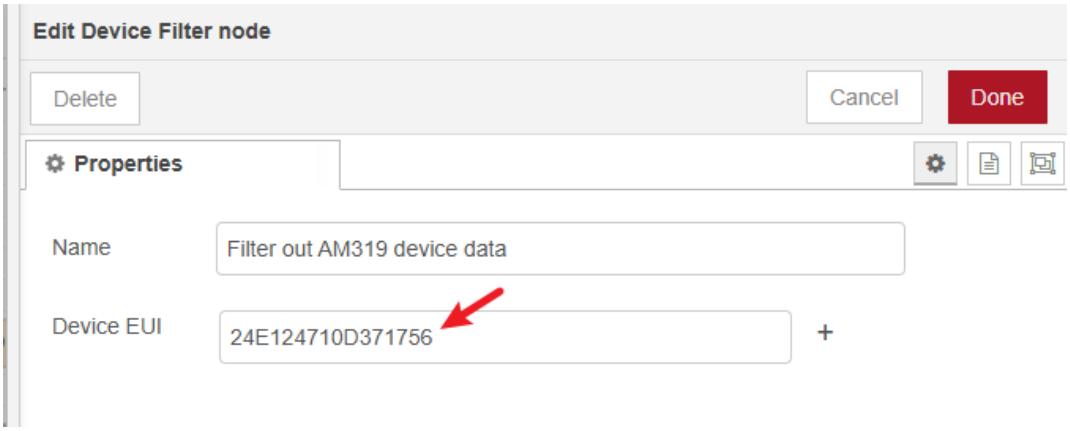
- Define Alarm trigger rules and Rule trigger rules



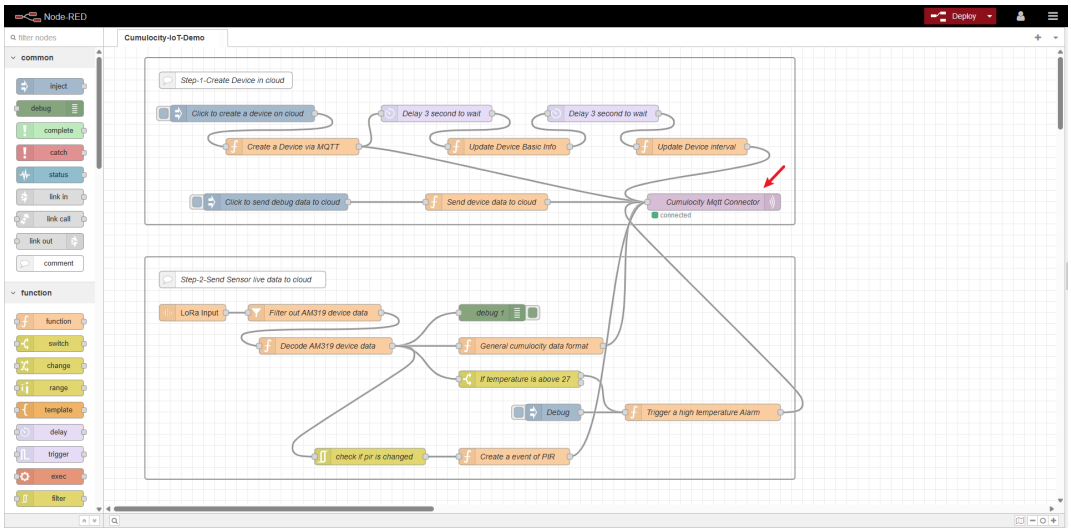
5. How to Use

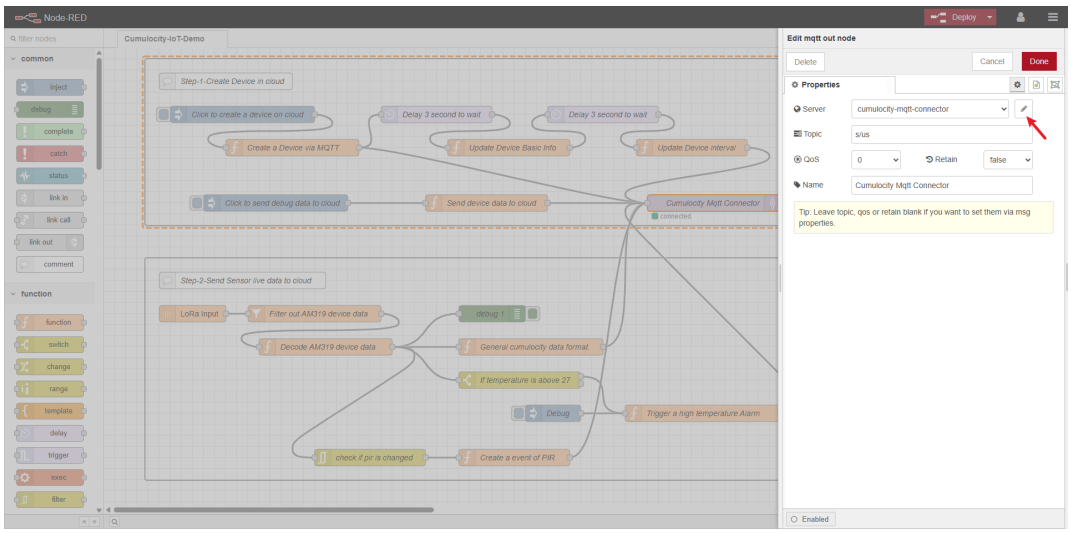
Please modify in the following order:

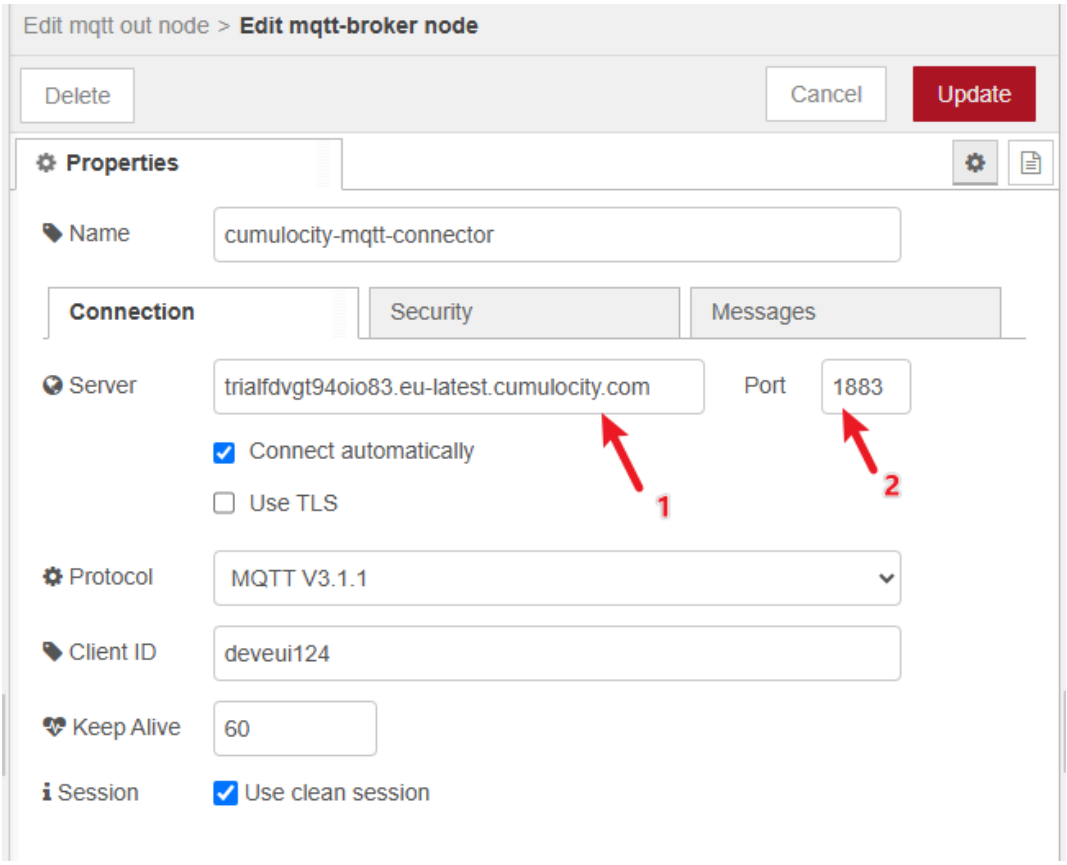
- Change the "**Device EUI**" in "**Filter out AM319 device data**" to your actual device's data.

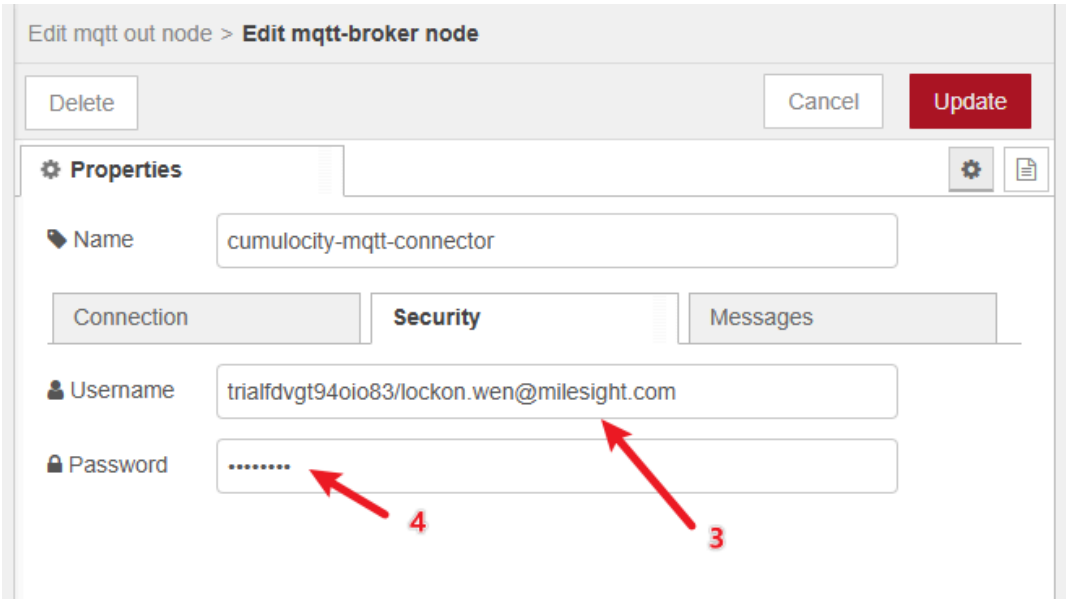


- Modify the code inside "**Decode AM319 device data**" according to <How to Use Decoder on Node Red>. (*If you use the AM319 sensor, you can use my code directly without modification.*)
- Modify the connection information inside "**Cumulocity Mqtt Connector**" as shown:


Node-RED
Deploy
Cumulocity-IoT-Demo
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
function
switch
change
range
template
delay
trigger
exec
filter
Step-1-Create Device in cloud
Click to create a device on cloud
Delay 3 second to wait
Delay 3 second to wait
Create a Device via MQTT
Update Device Basic Info
Update Device interval
Click to send debug data to cloud
Send device data to cloud
Cumulocity Mqtt Connector
connected
Step-2-Send Sensor live data to cloud
LoRa Input
Filter out AM319 device data
debug 1
Decode AM319 device data
General cumulocity data format
If temperature is above 27
Debug
Trigger a high temperature Alarm
check if pir is changed
Create a event of PIR

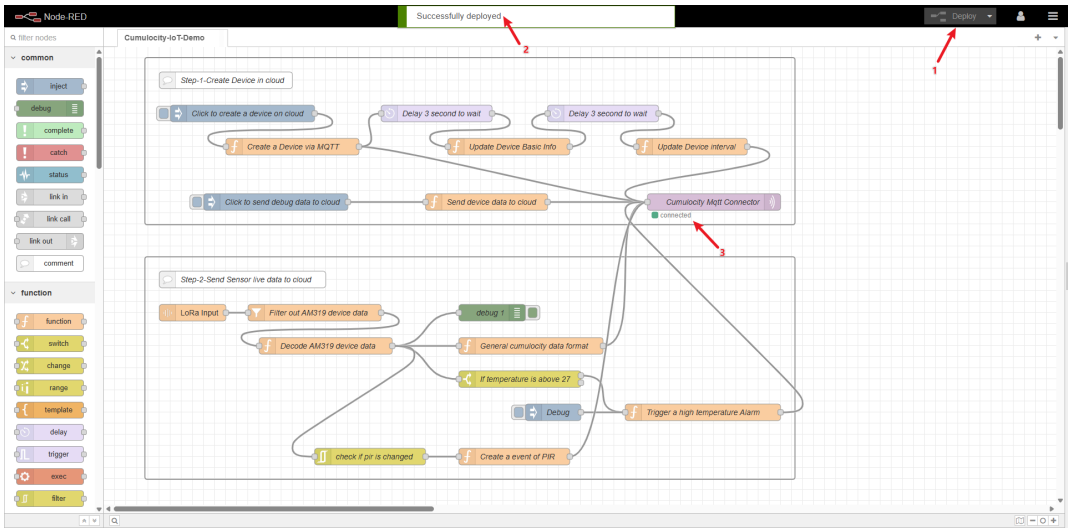

Node-RED
Deploy
Cumulocity-IoT-Demo
Edit mqtt out node
Delete
Cancel
Done
Properties
Server
cumulocity-mqtt-connector
Topic
s/us
QoS
0
Retain
false
Name
Cumulocity Mqtt Connector
Tip: Leave topic, qos or retain blank if you want to set them via msg properties.
Enabled



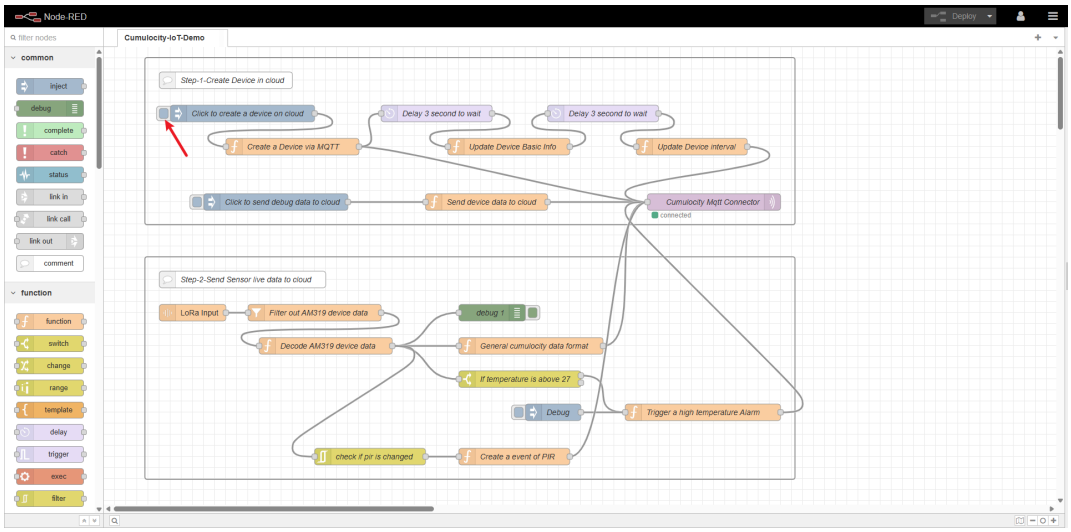


The parameters here come from step 3. Modify according to the format shown in my screenshot with your own data.

After modification, click " **Update** " and then " **Deploy** ". You will see the **Cumulocity Mqtt Connector** plugin turn green and show " **connected** " as below:

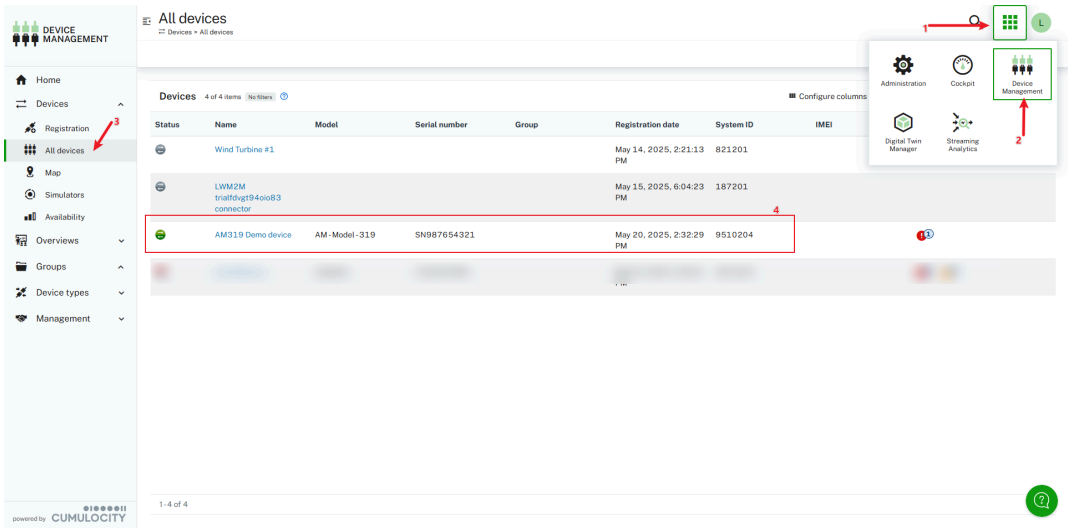


- Click the "**Click to create a device on cloud**" button:



Wait about 1 minute.

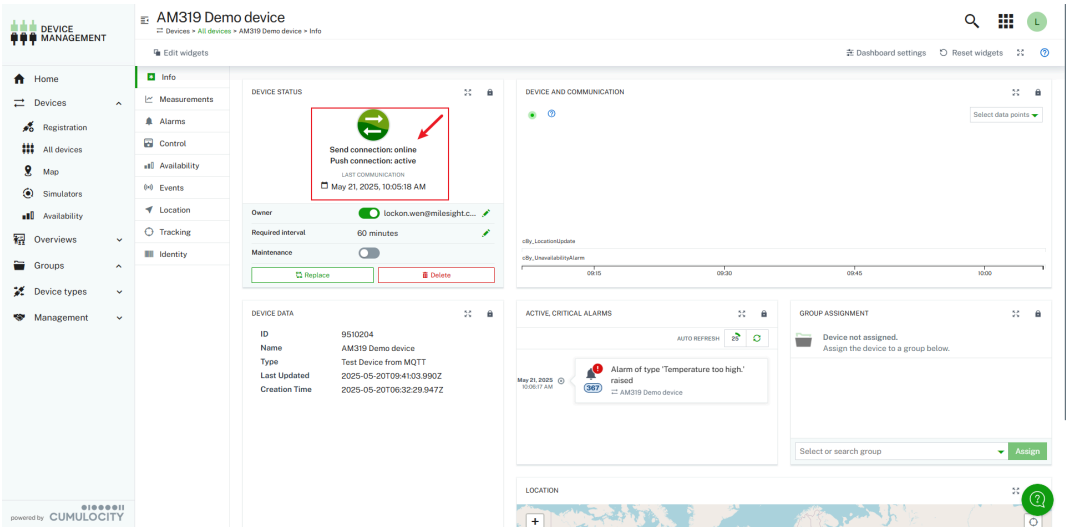
You will see the platform automatically create the device as shown:



Wait another 10-15 minutes (usually based on your sensor's reporting interval).

You will see the device starts reporting real-time data normally, and the

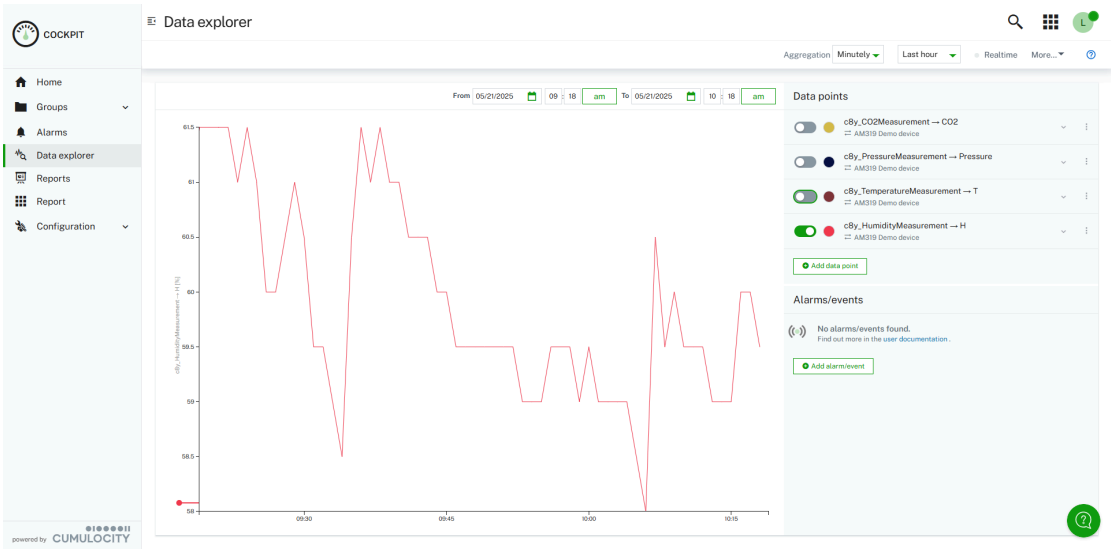
platform shows the device status as online and active:



At this point, your sensor can report data to the Cumulocity IoT platform in real time.

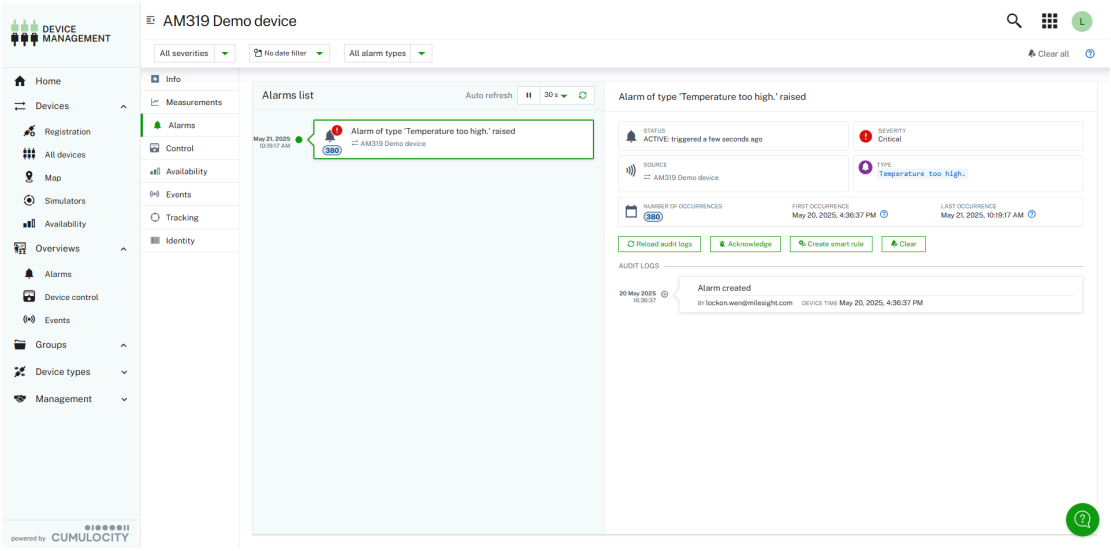
6. Example Dashboard

Here you can see the real-time updated data received from the AM319 device:



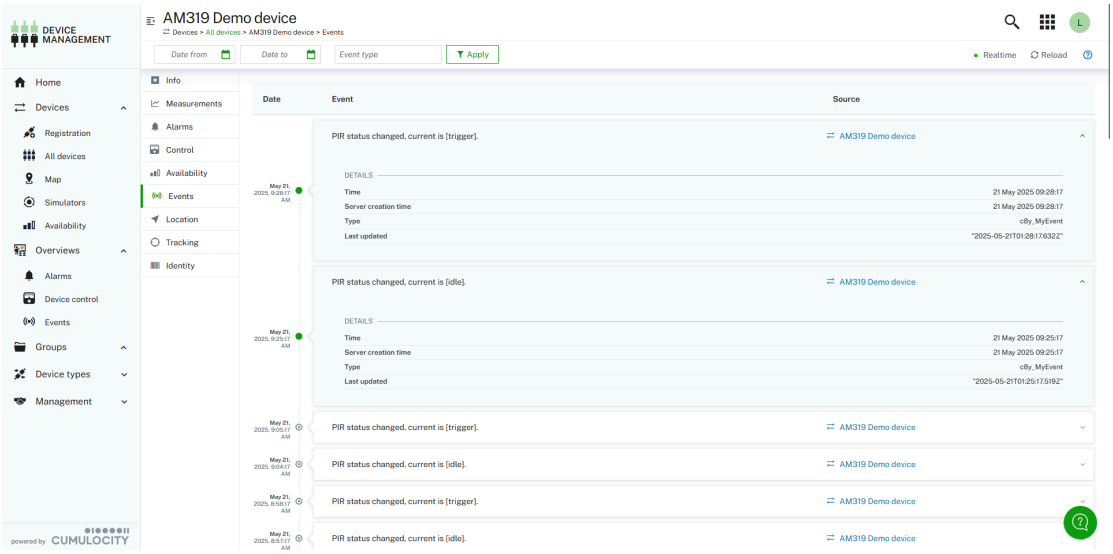
7. Example Alarm

Here you can see the sensor's alarm information displayed on the platform:



8. Example Event

Here you can see the PIR change events reported by the sensor on the platform:


DEVICE MANAGEMENT
AM319 Demo device
Devices > All devices > AM319 Demo device > Events
Date from
Date to
Event type
Apply
Realtime
Reload
Home
Devices
Registration
All devices
Map
Simulators
Availability
Overviews
Alarms
Device control
Events
Groups
Device types
Management
Info
Measurements
Alarms
Control
Availability
Events
Location
Tracking
Identity
Date
Event
Source
PIR status changed, current is [trigger].
AM319 Demo device
DETAILS
Time
21 May 2025 09:28:17
Server creation time
21 May 2025 09:28:17
Type
c8y_MyEvent
Last updated
"2025-05-21T01:28:17.632Z"
PIR status changed, current is [idle].
AM319 Demo device
DETAILS
Time
21 May 2025 09:25:17
Server creation time
21 May 2025 09:25:17
Type
c8y_MyEvent
Last updated
"2025-05-21T01:25:17.519Z"
PIR status changed, current is [trigger].
AM319 Demo device
PIR status changed, current is [idle].
AM319 Demo device
PIR status changed, current is [trigger].
AM319 Demo device
PIR status changed, current is [idle].
AM319 Demo device
powered by CUMULOCITY

-END-