



如何将 Milesight 的网关和设备集成到 Cumulocity IoT 平台



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



前言

Cumulocity IoT 是由 Software AG 提供的一款领先的物联网平台，旨在帮助企业快速实现设备连接、数据采集与智能分析。它支持多种协议和设备类型，具备高度的扩展性和灵活性，能够满足从小型试点到大规模部署的各种需求。平台内置丰富的应用和微服务，如设备管理、实时数据可视化、告警处理和远程控制，极大简化了物联网解决方案的开发和运维过程。此外，Cumulocity IoT 支持边缘计算和云端协同，助力用户实现低延迟和高效能的数据处理。其开放的API接口和强大的集成能力，使得企业能够轻松将物联网数据与现有的业务系统融合，推动数字化转型和智能运营。

本文主要介绍如何使用 UG65 网关对接 Cumulocity IoT 平台，并且从 Cumulocity IoT 平台同步 AM319 设备数据作为示例的完整操作过程。

特别说明：本文提到的 AM319 设备仅是演示使用，并不代表不支持其他类型的 Sensor，读者需要根据自己的实际情况参考本文的步骤。


1. 前置条件

- 网关型号：UG65或者 UG56、UG67 也可以
- 传感器型号：AM319
- 网关已经接入互联网

2. 注册账号

访问 [Cumulocity | Cumulocity](#) 点击右上角的 “Try it free” ，填写基本信息即可





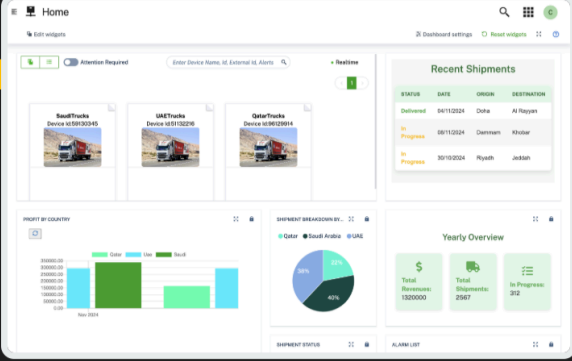
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The journey from connected to smart products requires both expertise and the



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SEE HOW EASY IOT CAN BE

Discover the great things you can do with the Cumulocity platform:

- ✓ Connect devices and consume live data in under 5 minutes
- ✓ Analyze and visualize your data to gain insights and turn them into action
- ✓ Monitor devices with smart rules and alarms
- ✓ Integrate with existing enterprise applications, OT systems, and cloud services

GET STARTED TODAY

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First Name *

Last Name *

Company *

Job Title
Please Select

Work Email *

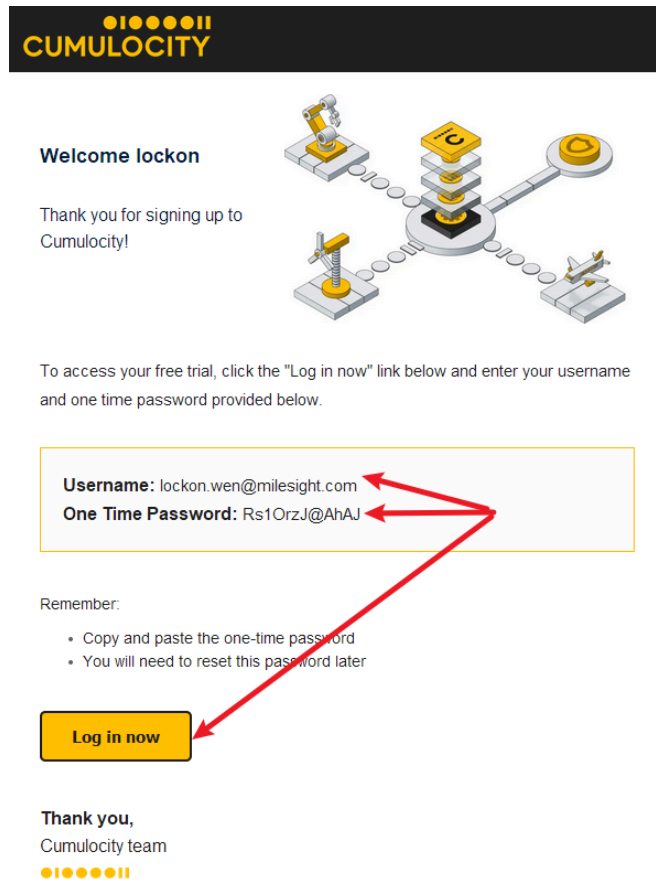
Phone Number

United States +1

By submitting this form I understand that Cumulocity and its group of companies may contact me with information about its products, services and events and I give consent to Cumulocity to process my personal data for these purposes. I understand that I can withdraw consent at any time by following the unsubscribe link in any email I receive. For information on our privacy policy and your rights, check out our [privacy policy](#).

☐ I agree to [Cloud Trial Service Agreement](#) as per the laws. *

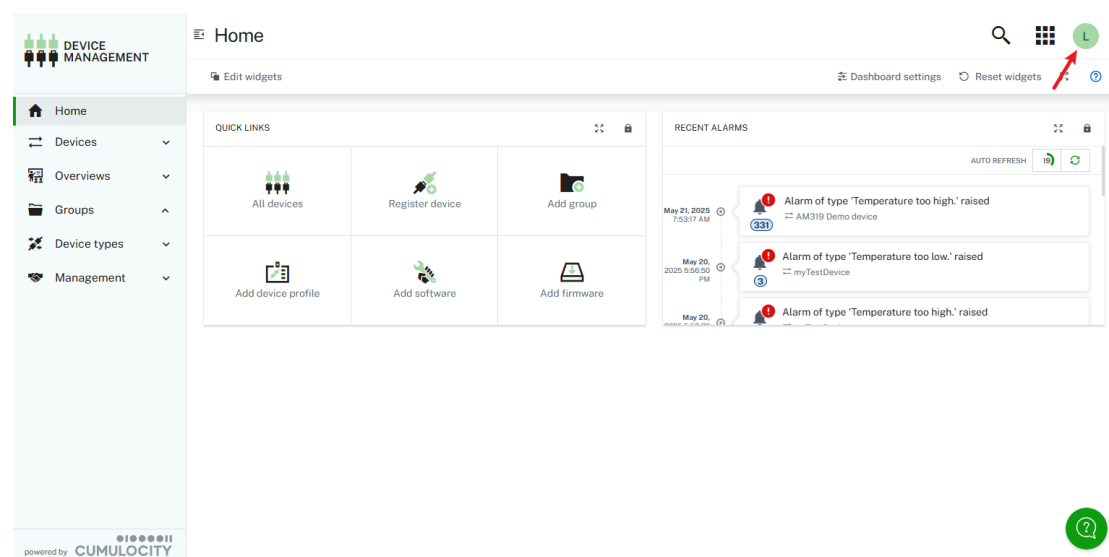
点击提交后平台会给你的注册邮箱发送激活邮件里面包含了**登录地址**，**用户名**和**初始密码**，第一次访问需要修改原始密码，根据平台的页面提示操作就可以了：



至此，我们的账号就注册完成，接下来可以登录使用了。

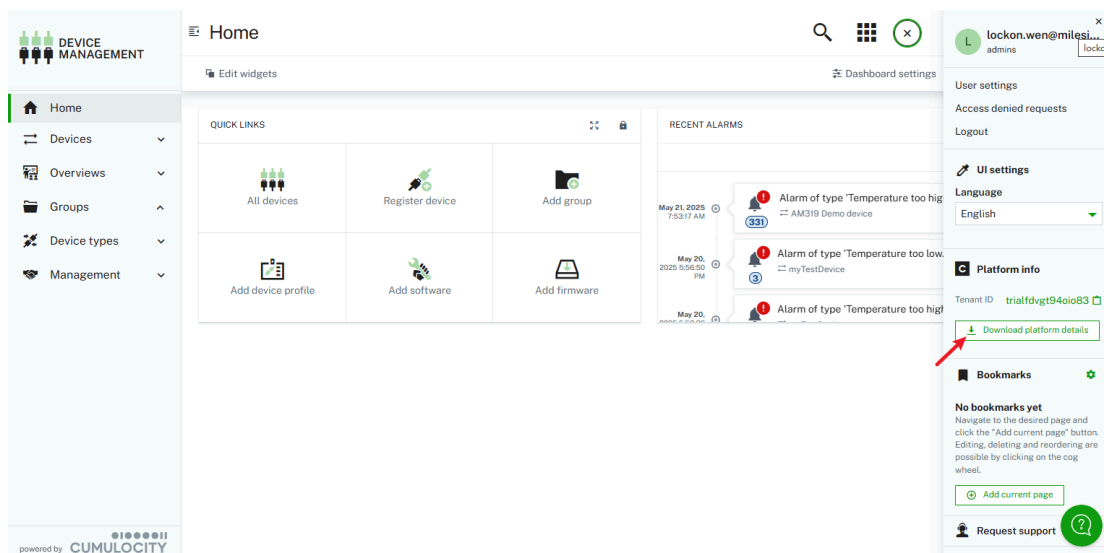
3. 获取平台基本信息

点击邮件中的登录地址，登陆后，如图操作：



如图操作，点击 “Download platform details ” 按钮：





你会下载一个 json 格式的文件，使用文本编辑器打开，如图所示（图中是我的，读者需要根据自己的实际情况参考对照）：

```

1 {
2   "time": "2025-05-20T09:30:05.967Z",
3   "tenantId": "trialfdvgt94oio83",
4   "tenantSelfLink": "https://trialfdvgt94oio83.eu-latest.cumulocity.com/currentTenant",
5   "tenantDomainName": "trialfdvgt94oio83.eu-latest.cumulocity.com",
6   "url": "https://trialfdvgt94oio83.eu-latest.cumulocity.com/apps/devicemanagement/index.html#/device/9510204/measurements",
7   "userId": "lockon.wen@milesight.com",
8   "userPermissions": {
9     "user": [
10      "ROLE_TENANT_ADMIN"
11    ],
12    "groups": [
13    ]
14  }
15 }

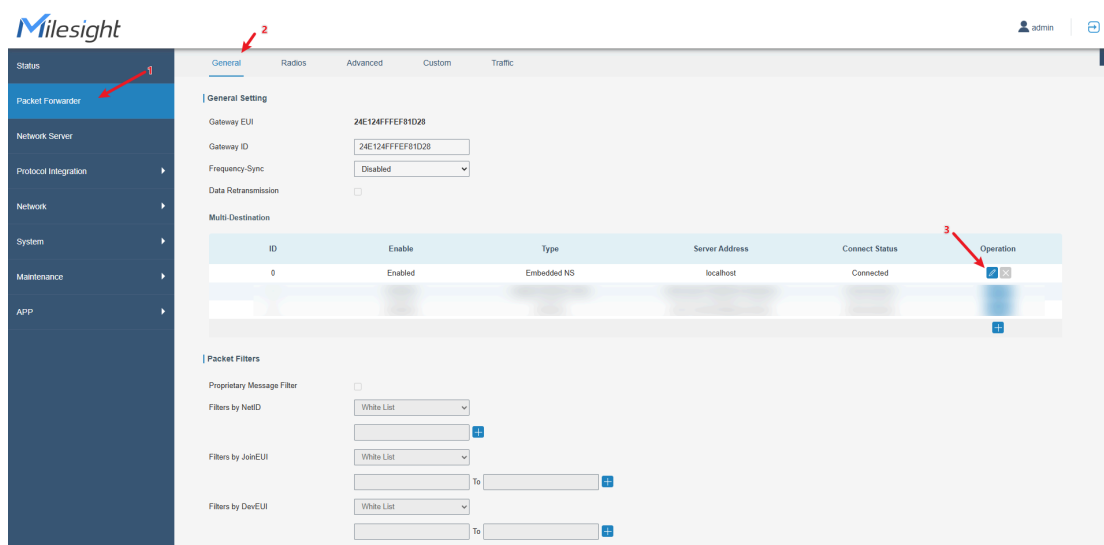
```

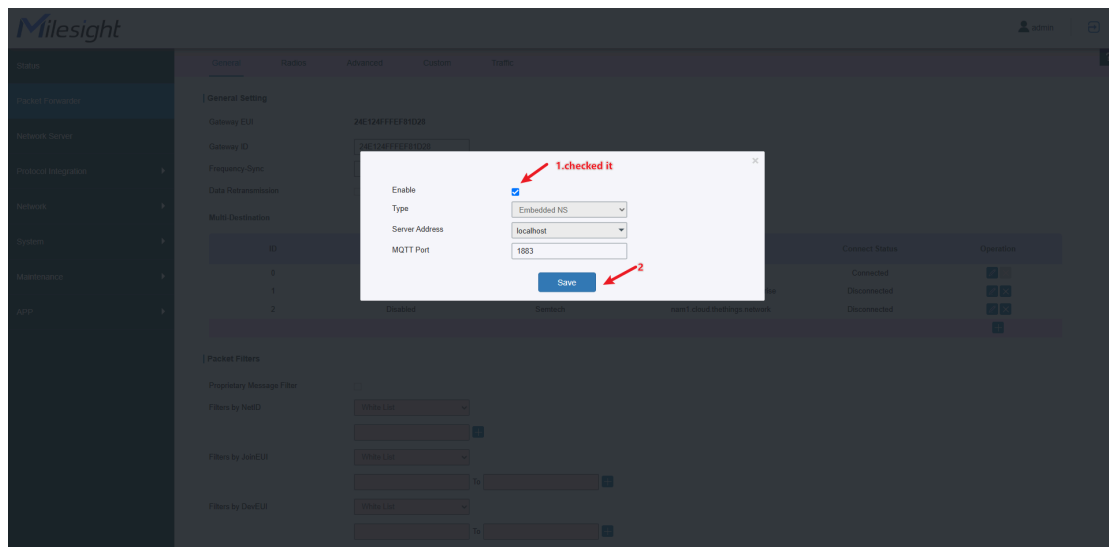
把里面红色标记的参数拷贝出来，后面的步骤会用到。

4. 网关配置

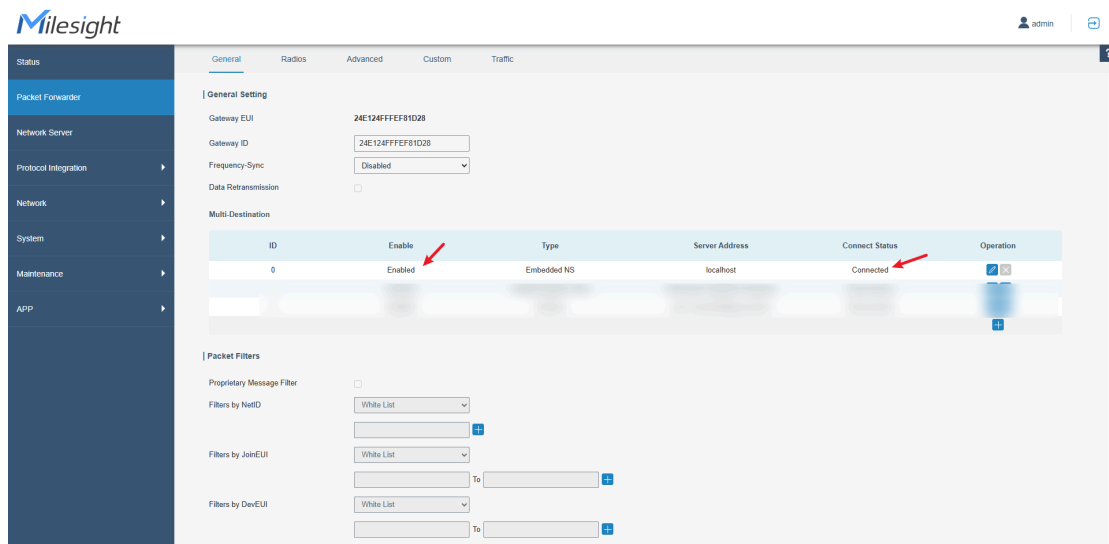
4.1. 开启内置 NS:

首先登录我们的网关管理界面（参考 <[How to Login Web GUI of Milesight Gateway](#)>）然后参考下面的截图操作即可：





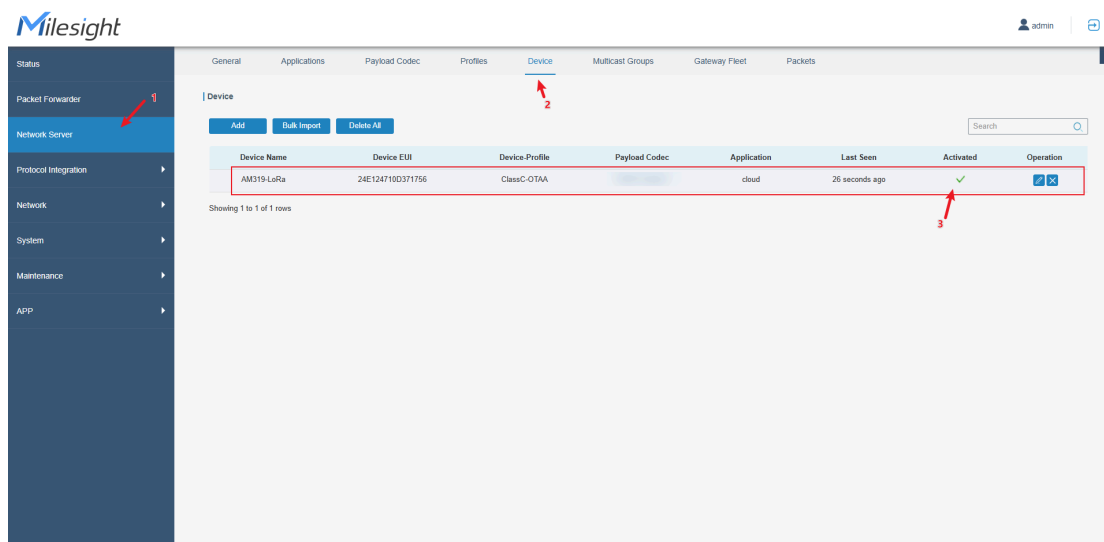
如下图，显示 Embedded NS 已经 Enabled 并且 Connected，则说明启用成功了：



4.2. 添加 Sensor

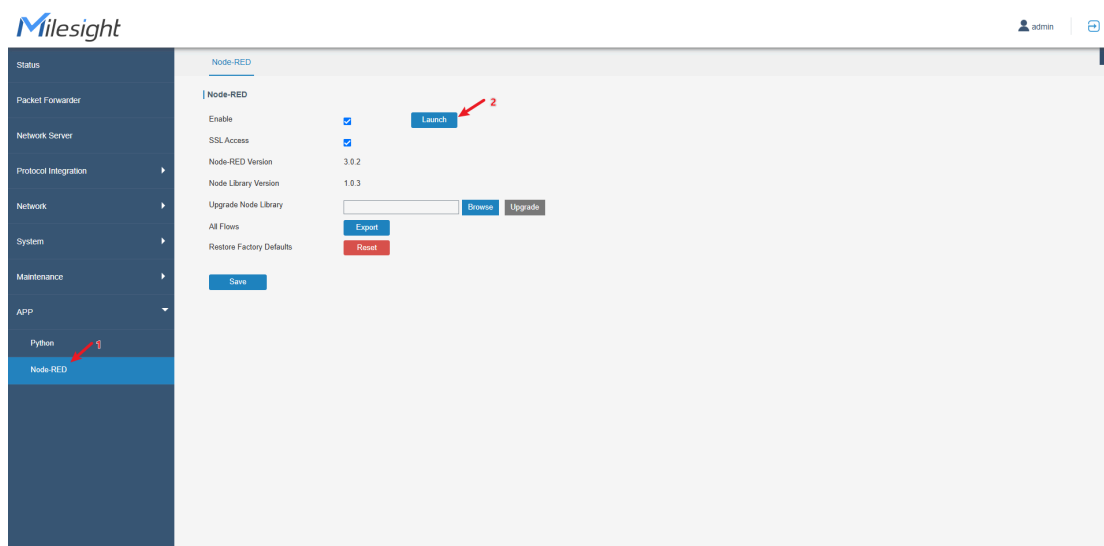
参考 <[How to Connect LoRaWAN Nodes to Milesight Gateway](#)> 操作即可，添加完成后的结果如下：

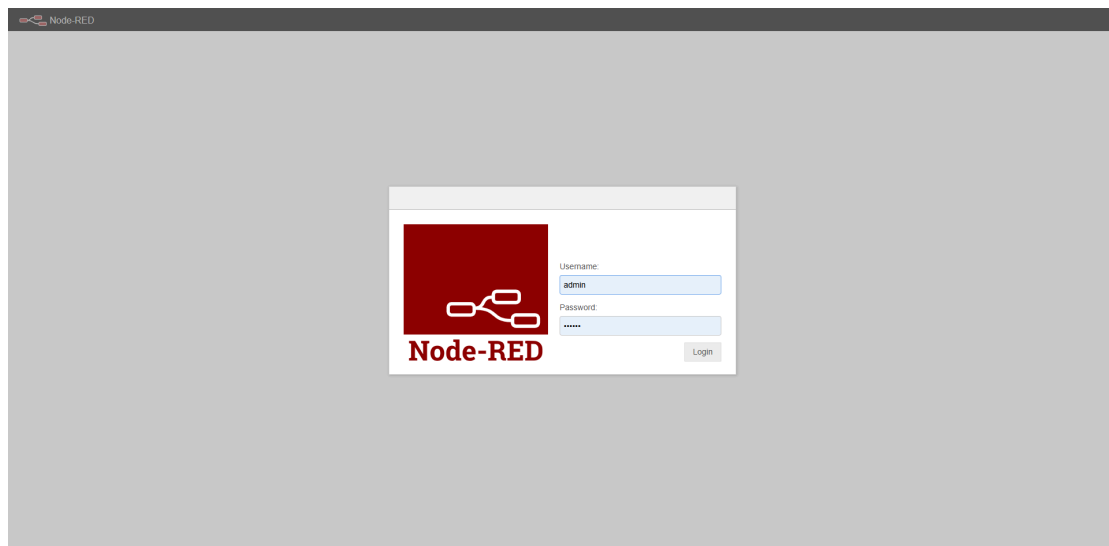




4.3. 开启 Node-Red 功能

参考 <[How to use Dashboard on Node Red of Milesight Gateway](#)> 操作即可，开启后，登录到网关的 Node-Red 界面如下图：





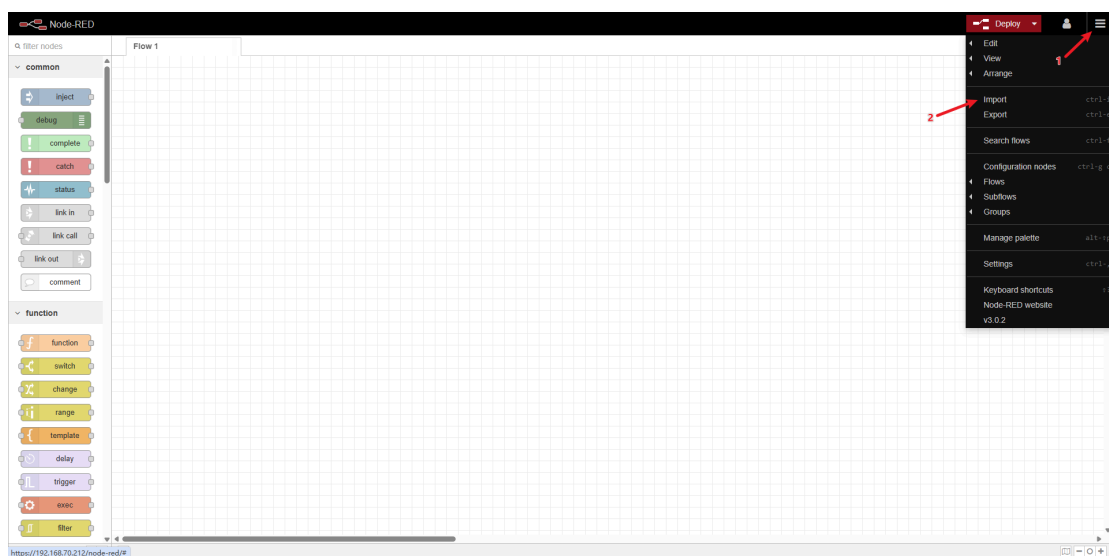
说明：这里的用户名密码和网关的管理界面的用户名密码是一样的。

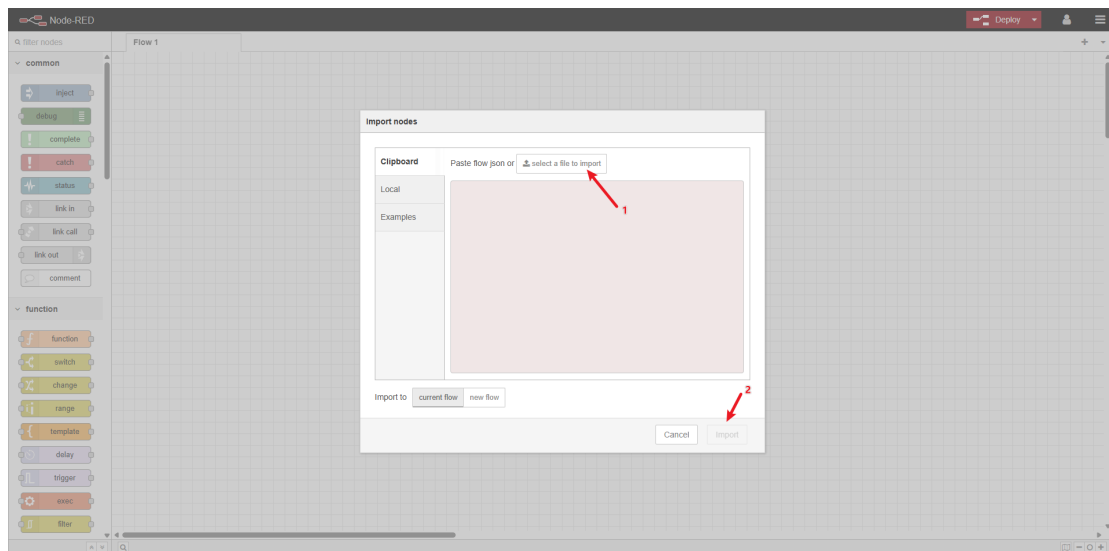
4.4. 导入 flow 案例

从下面的地址下载已经做好了案例文件：

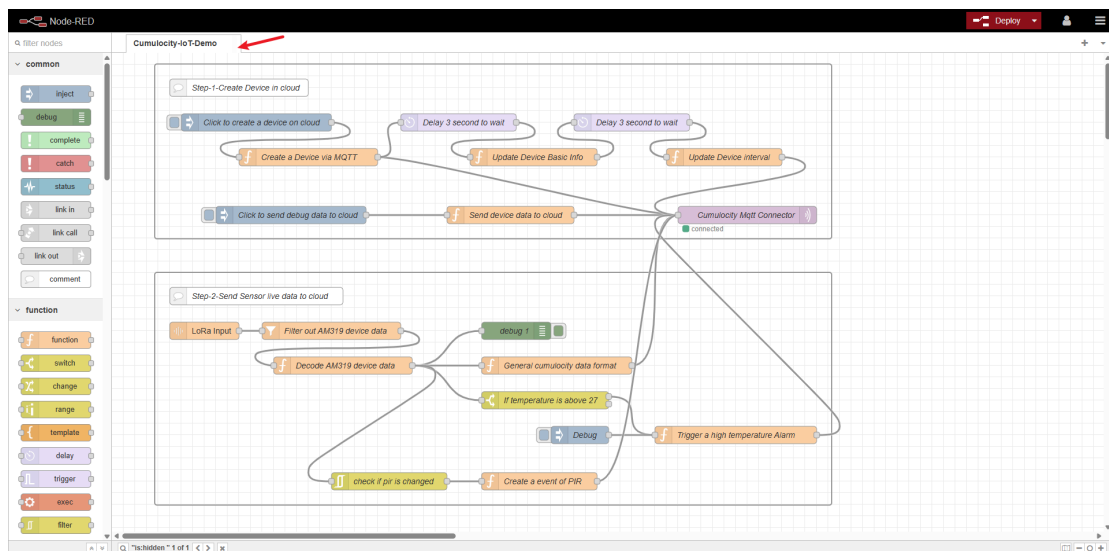
<http://resource.milesight-iot.com/Support/lockon/node-red-demos/Cumulocity-IoT-Demo.json>

然后参考下面的截图操作，导入到你的本地环境即可：





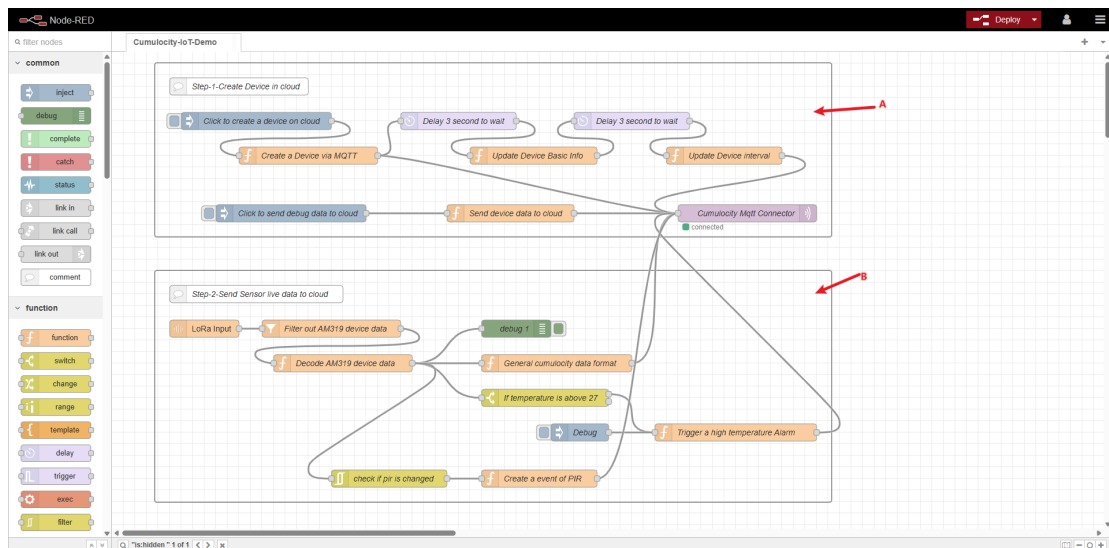
成功导入后，结果如下：



4.5. 示例 flow 详细说明

如图所示：

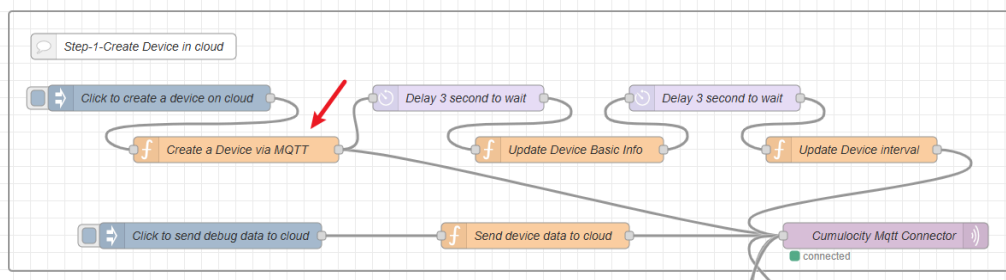




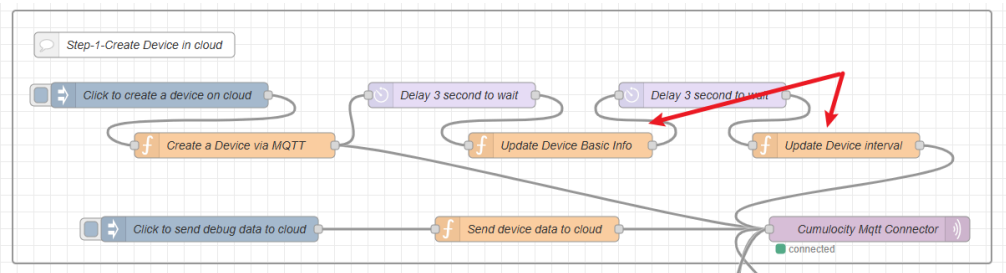
整个案例分两个部分，分别是 A 部分 和 B 部分。

A 部分的主要功能：

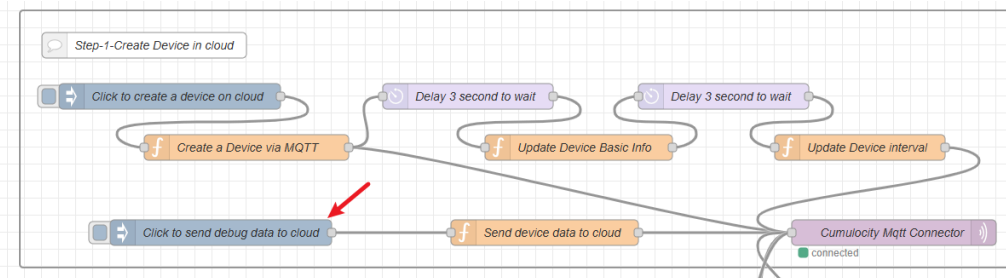
- 远程调用 API 的方式创建 Device



- 更新 Device 的基本信息（序列号、设备类型等）

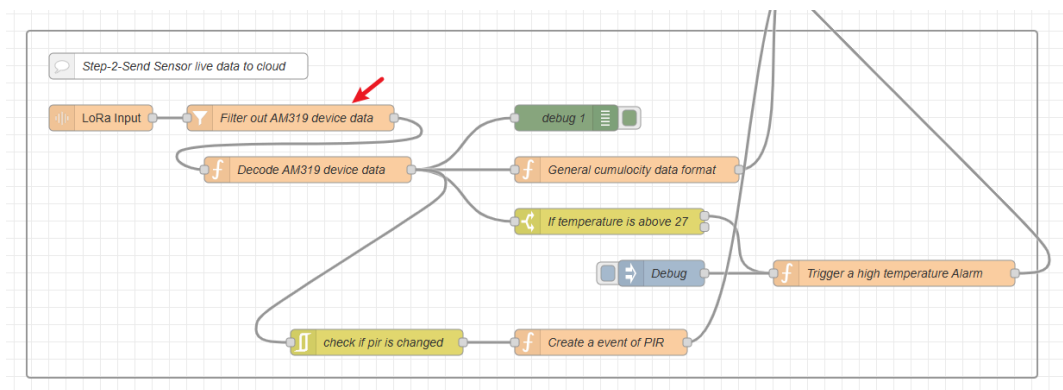


- Debug 测试

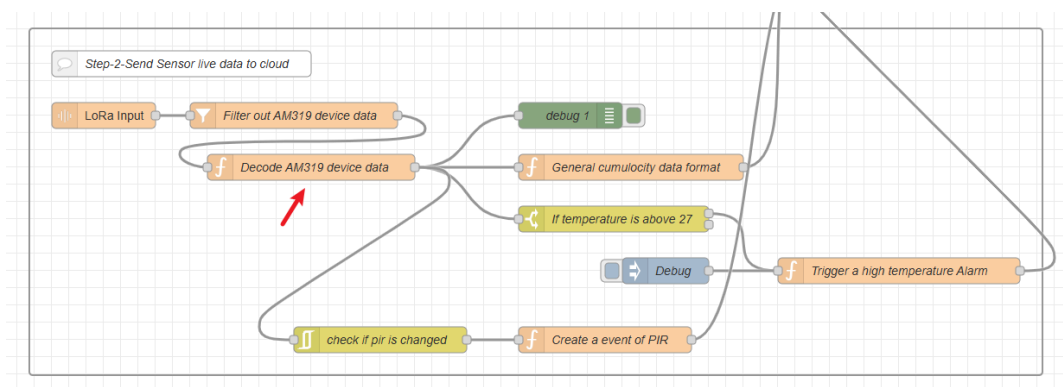


B 部分的主要功能:

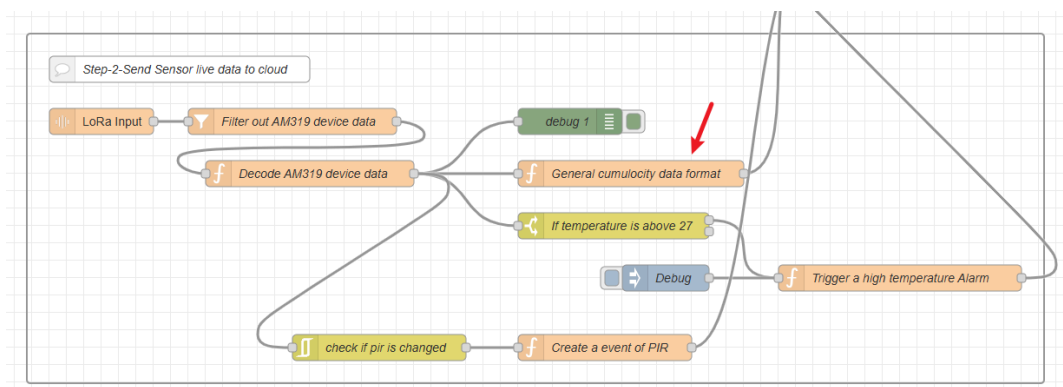
- 从网关过滤 AM319 设备数据



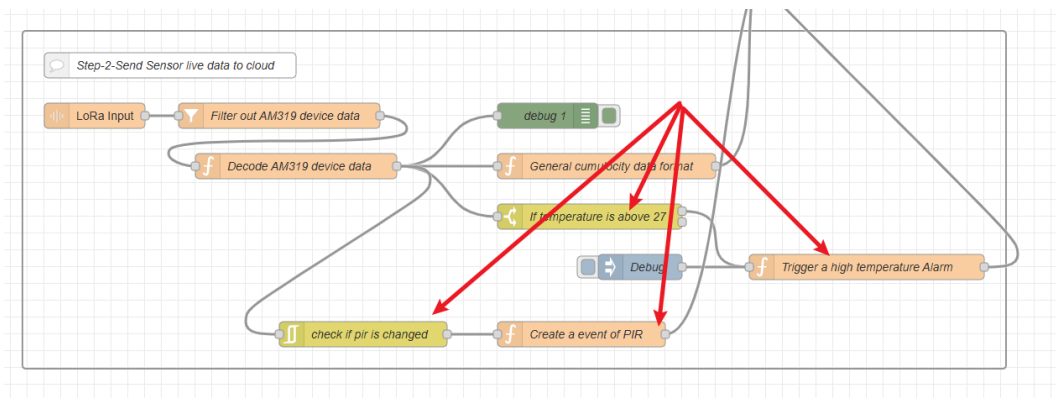
- 解码 AM319 数据



- 上报数据到平台



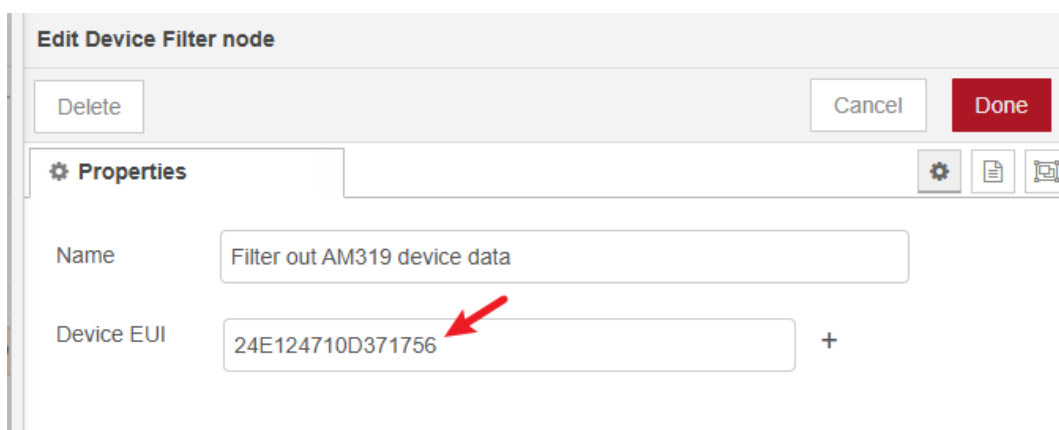
- 编写 Alarm 触发规则、Rule 触发规则



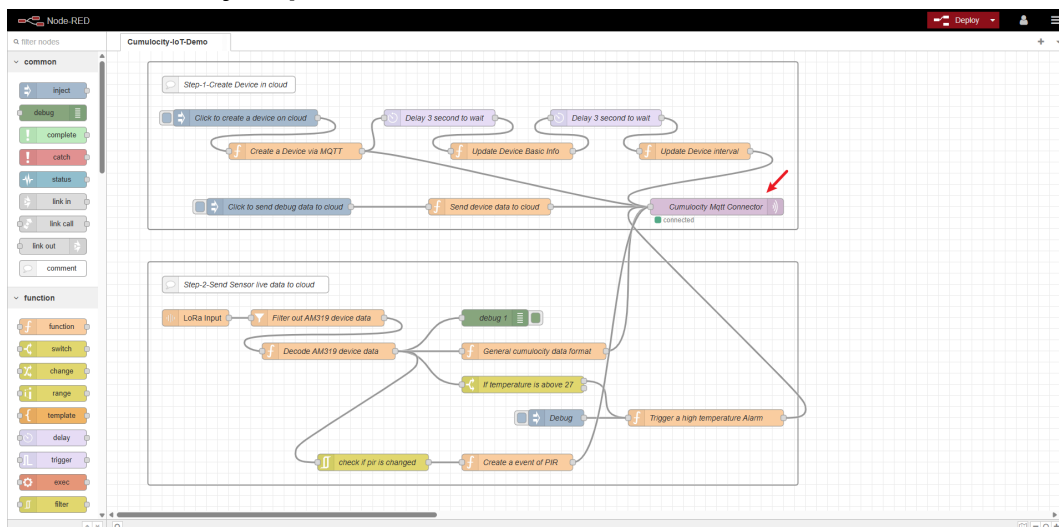
5. 如何使用

请按照下面的顺序进行修改：

- 修改 “Filter out AM319 device data” 的 “Device EUI” 为你实际设备的数据：



- 修改 “Decode AM319 device data” 里面的代码，参考 <[How to Use Decoder on Node Red](#)> 操作即可（如果你使用的 Sensor 就是 AM319，此处可以不用修改，直接用我的就可以）
- 修改 “Cumulocity Mqtt Connector” 里面的连接信息，如图操作：



Node-RED interface showing a flow for Cumulocity IoT integration. The flow is divided into two steps:

- Step-1-Create Device in cloud:** Includes nodes for "Click to create a device on cloud", "Create a Device via MQTT", "Delay 3 second to wait", "Update Device Basic Info", "Update Device Interval", "Click to send debug data to cloud", and "Send device data to cloud".
- Step-2-Send Sensor live data to cloud:** Includes nodes for "LoRa Input", "Filter out AM319 device data", "Decode AM319 device data", "General cumulocity data format", "If temperature is above 27", "Debug", "Trigger a high temperature Alarm", "check if pin is changed", and "Create an event of PIR".

The "Cumulocity Mqtt Connector" node is shown as connected. The right sidebar displays the "Edit mqtt out node" configuration for the "cumulocity-mqtt-connector" node, with a red arrow pointing to the "Server" dropdown menu.

Configuration window for the "Edit mqtt out node > Edit mqtt-broker node". The window shows the "Properties" tab with the following settings:

- Name:** cumulocity-mqtt-connector
- Connection:**
 - Server:** trialfdvgt94oio83.eu-latest.cumulocity.com (indicated by red arrow 1)
 - Port:** 1883 (indicated by red arrow 2)
 - ☒ Connect automatically
 - ☐ Use TLS
- Protocol:** MQTT V3.1.1
- Client ID:** deveui124
- Keep Alive:** 60
- Session:** ☒ Use clean session

Edit mqtt out node > **Edit mqtt-broker node**

Delete Cancel **Update**

Properties

Name cumulocity-mqtt-connector

Connection Security Messages

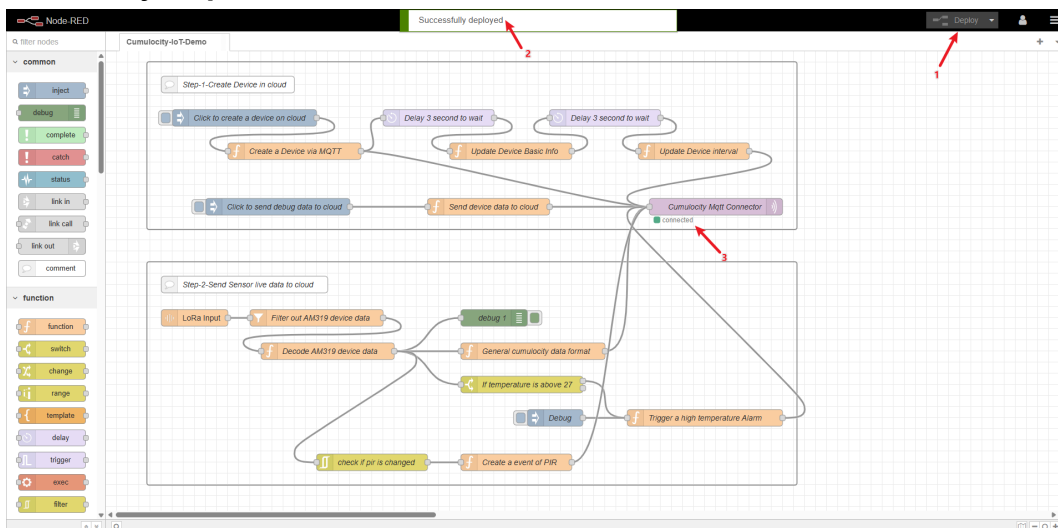
Username trialfdvgt94oio83/lockon.wen@milesight.com

Password

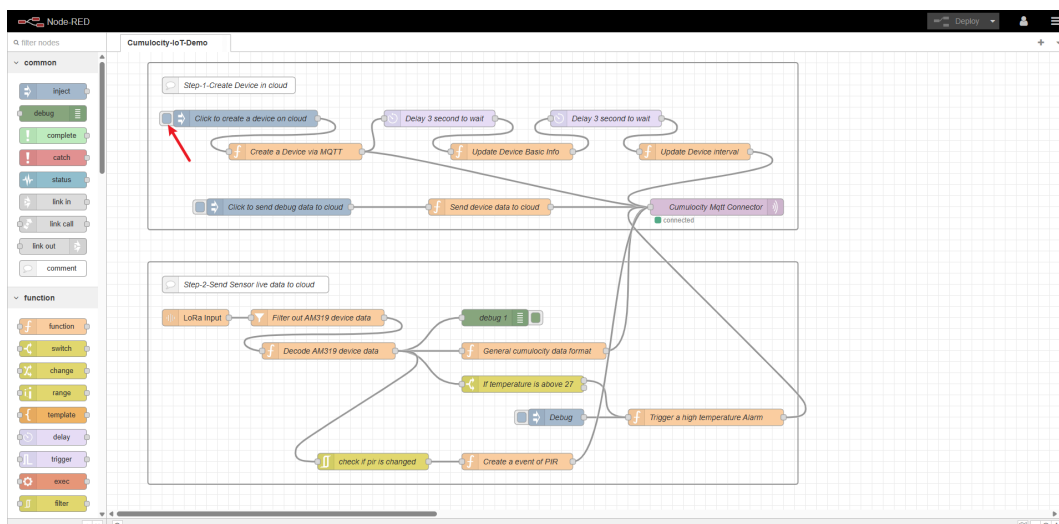
4 3

这里的参数是从第 3 步获取的，参考我的截图里面的内容格式修改成你自己的就可以了。

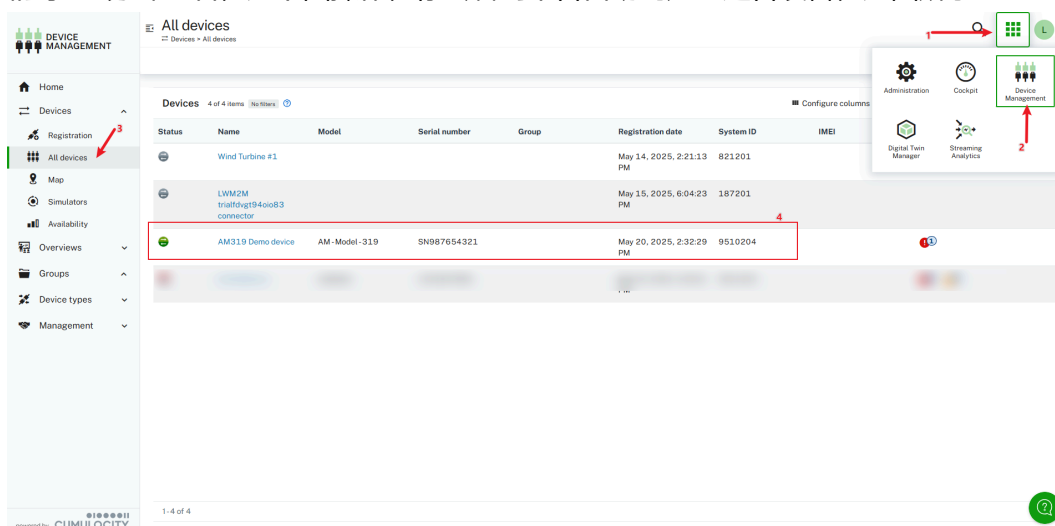
修改完成后，点击“**Update**”，然后再点击“**Deploy**”即可，你会看到插件 **Cumulocity Mqtt Connector** 显示绿色的 **connected**，如下图所示：



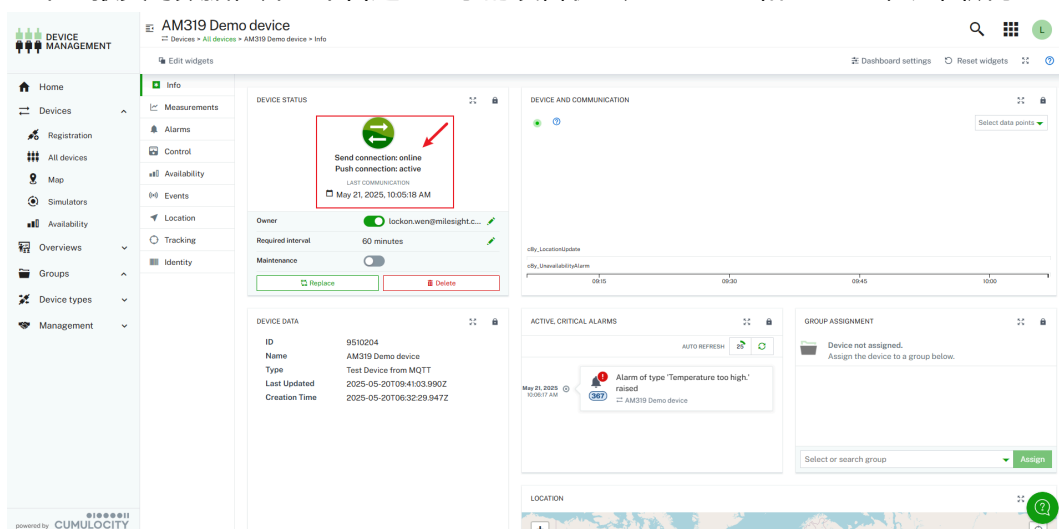
- 如下图操作，点击一下“Click to create a device on cloud”按钮：



稍等 1 分钟左右，如下图操作，你会看到平台自动创建了这台设备，如图所示：



再等待 10-15 分钟左右（一般以你的 Sensor 的上报周期为准），你会看到设备开始正常上报实时数据，并且平台这边显示的设备状态是 online 和 active，如图所示：

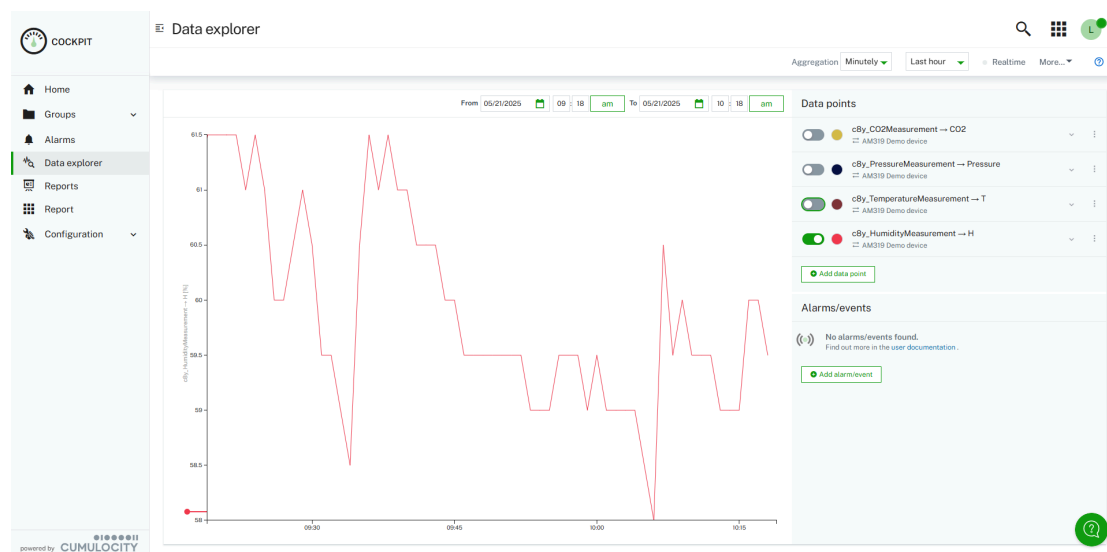




至此，我们的 Sensor 已经可以实时上报数据到 Cumulocity IoT 平台了。

6. 示例 Dashboard

这里可以看到平台收到的 AM319 的实时更新的数据：



7. 示例 Alarm

这里可以看到平台显示的 Sensor 的 Alarm 信息：

DEVICE MANAGEMENT

AM319 Demo device

All severities No date filter All alarm types Clear all

Home Devices Registration All devices Map Simulators Availability Overviews Alarms Device control Events Groups Device types Management

Info Measurements Alarms Control Availability Events Tracking Identity

Alarms list

Alarm of type "Temperature too high" raised

STATUS: ACTIVE: triggered a few seconds ago SEVERITY: Critical

SOURCE: AM319 Demo device TYPE: Temperature too high

NUMBER OF OCCURRENCES: 380 FIRST OCCURRENCE: May 20, 2025, 4:36:37 PM LAST OCCURRENCE: May 21, 2025, 10:19:17 AM

Reload audit logs Acknowledge Create smart rule Clear

AUDIT LOGS

Alarm created

20 May 2025 16:36:37 61 lockon.wend@mileage.com DEVICE TIME: May 20, 2025, 4:36:37 PM

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8. 示例 event

这里可以看到平台显示的 Sensor 的 PIR 发生变化所上报的信息：

DEVICE MANAGEMENT

AM319 Demo device

Devices > All devices > AM319 Demo device > Events

Date from Date to Event type Apply Realtime Reload

Date	Event	Source
May 21, 2025, 9:28:17 AM	PIR status changed, current is [trigger].	AM319 Demo device
May 21, 2025, 9:28:17 AM	DETAILS	
Time	21 May 2025 09:28:17	
Server creation time	21 May 2025 09:28:17	
Type	cBy_MyEvent	
Last updated	"2025-05-21T01:28:17.632Z"	
May 21, 2025, 9:28:17 AM	PIR status changed, current is [idle].	AM319 Demo device
May 21, 2025, 9:28:17 AM	DETAILS	
Time	21 May 2025 09:28:17	
Server creation time	21 May 2025 09:28:17	
Type	cBy_MyEvent	
Last updated	"2025-05-21T01:28:17.632Z"	
May 21, 2025, 9:28:17 AM	PIR status changed, current is [trigger].	AM319 Demo device
May 21, 2025, 9:28:17 AM	PIR status changed, current is [idle].	AM319 Demo device
May 21, 2025, 9:28:17 AM	PIR status changed, current is [trigger].	AM319 Demo device
May 21, 2025, 9:28:17 AM	PIR status changed, current is [idle].	AM319 Demo device

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-END-