Workshop

Build-a-wireless-sensing-application

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SENSECAP

Workshop

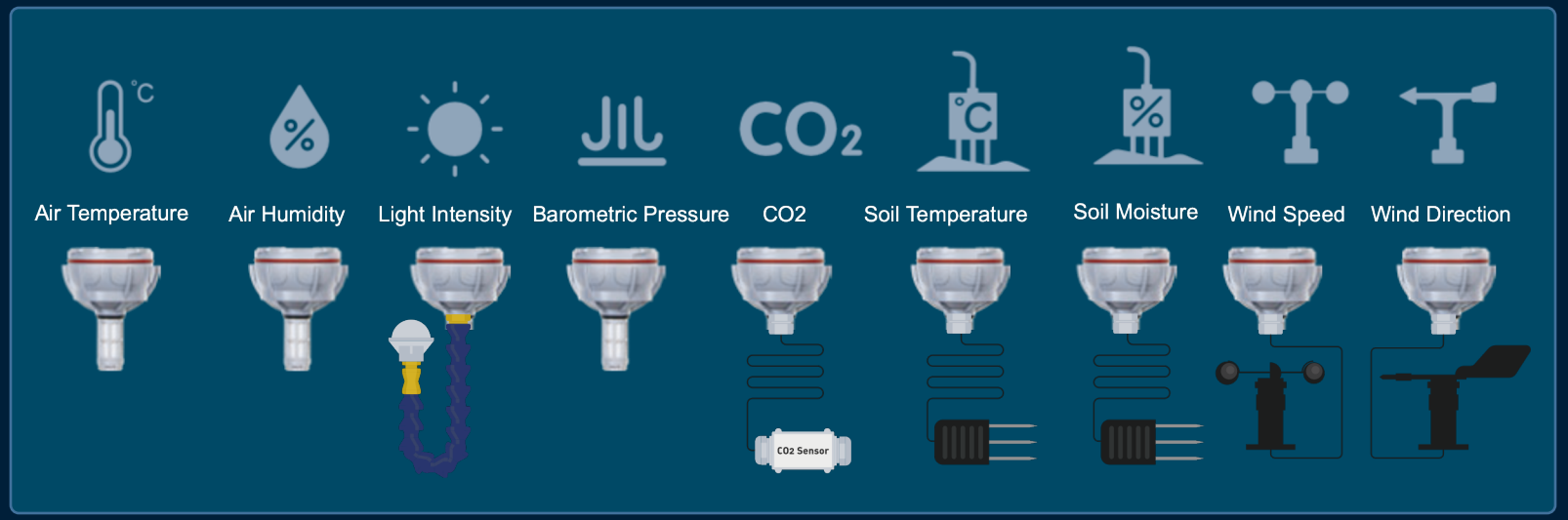
In today's workshop, we will go through three-part, by a few steps, we can connect the SenseCAP LoRaWAN sensor to the cloud and deploying an open-source dashboard.

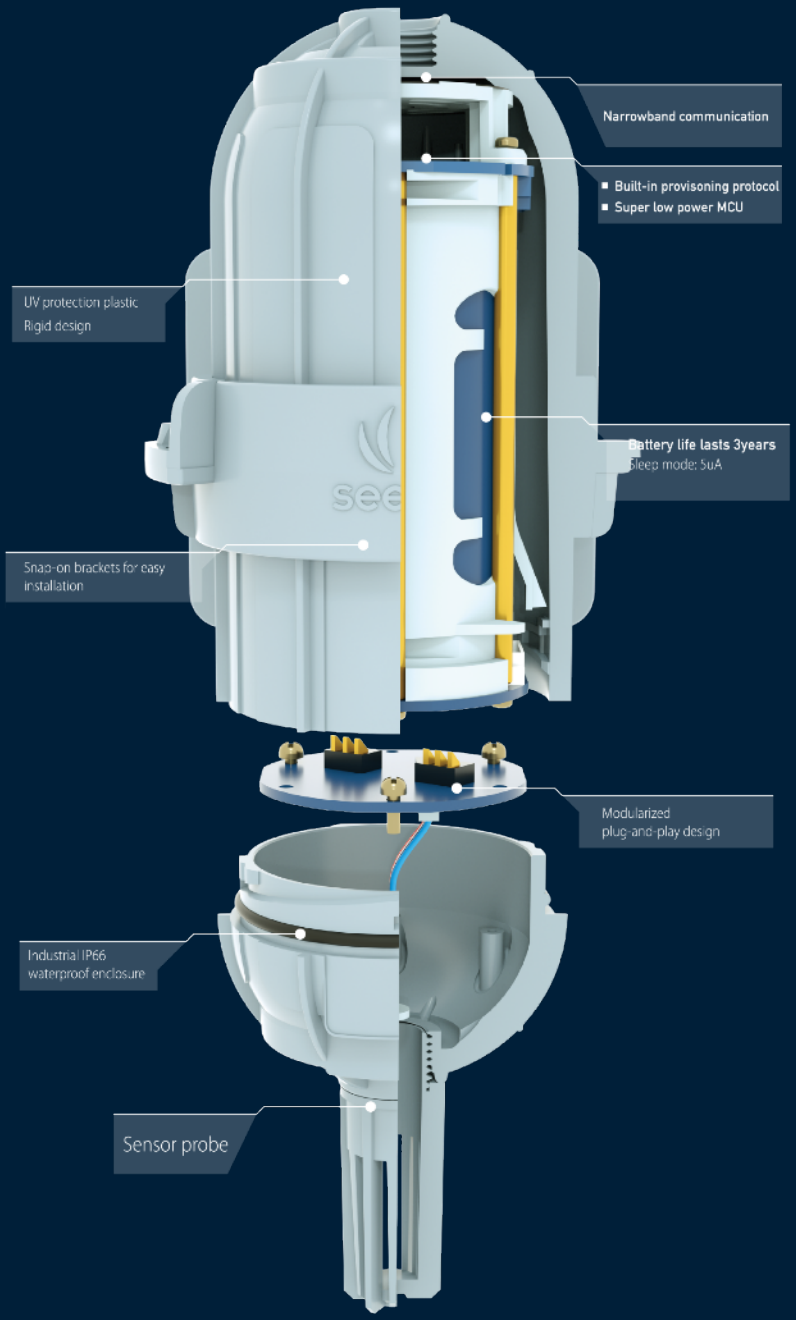
1	SenseCAP brief introduce	• What is SenseCAP?
2	Experience the SenseCAP Portal	• How to get started? • Bind device and check sensor data • HTTP and MQTT API
3	Deploy open-source dashboard	• Install Docker • Deploy the open-source dashboard

SENSECAP

SenseCAP is an industrial wireless sensor network product series. Based on the LoRaWAN protocol with multiple ISM bands, SenseCAP can be deployed worldwide. It’s encapsulated in an IP66 enclosure, making it applicable in outdoor remote sensing scenarios such as Smart Farming, Smart City and other IoT applications that need low-power, long-distance, long-term data collection.

Visit https://solution.seeedstudio.com/ for detail product information





Applications

Agriculture

Livestock

Environment Monitoring

Why SenseCAP?

Industrial design with IP66 enclosure and supports extended operating temperature range

Provides a variety of cloud services with Open API for further development

10km

Ultra-wide-distance transmission, up to 10km

Applicable to world - wide market with multiple ISM bands: US915, EU868, CN470

Based on LoRaWAN protocol and certified by FCC, CE, and RoHS

SENSECAP

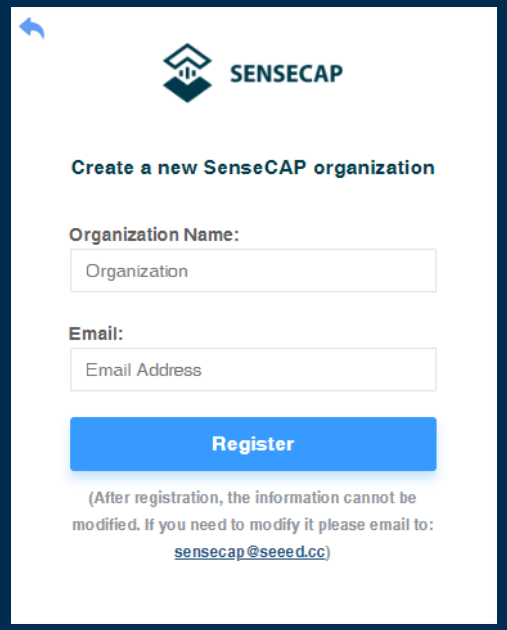
#1 Experience the SenseCAP Portal

SENSECAP

#1 Experience the SenseCAP Portal

1. **Sign up SenseCAP Account**
2. Bind device and join network
3. Experience Portal
4. API

Hello, let's get started.



- Sign Up on sensecap.seeed.cc
- Name your organization
- Email address for future login
- Account profile
- Verify email
- Login

SENSECAP

#1 Experience the SenseCAP Portal

1. Sign up SenseCAP Account
2. **Bind device and join network**
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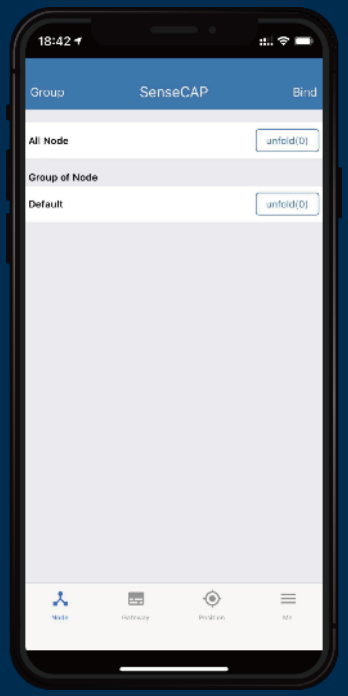
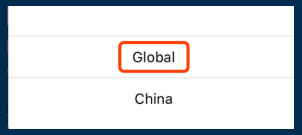


Install SenseCAP App

With this App, you can bind the devices with your account by simply scanning the QR code on the device.

- Open the App, and chose the global site



- Login with the account you registered in step 1.

Scan the QR code to install App

iOS

Android

SENSECAP

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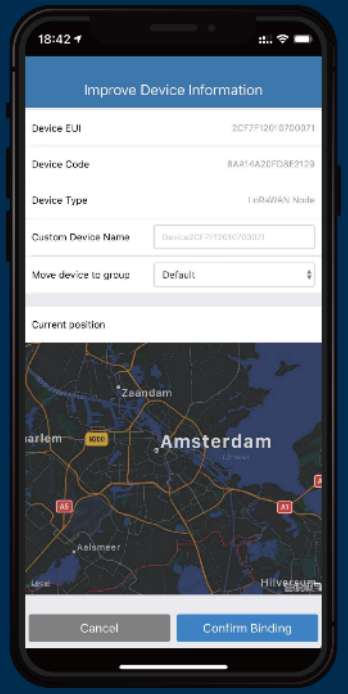

- Scan the QR code on the sensor device
- Name your sensor or leave it as default
- Confirm binding

SENSECAP

#1 Experience the SenseCAP Portal

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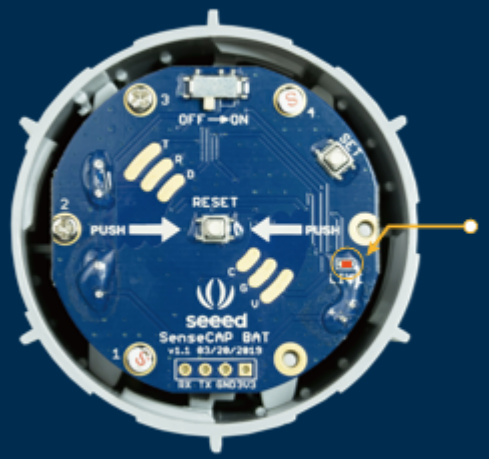

1.Turn the sensor probe counterclockwise you will see the power switch and LED indicator.

2.Powering on the device by flipping the switch to “ON”

3.Watch the LED status

- Flashing once after powering on, then turn OFF
- Quick flashing for 2s about 5s later, means join the network successfully
- Push the RESET button again, if the LED never shows quick flashing.

SENSECAP

#1 Experience the SenseCAP Portal

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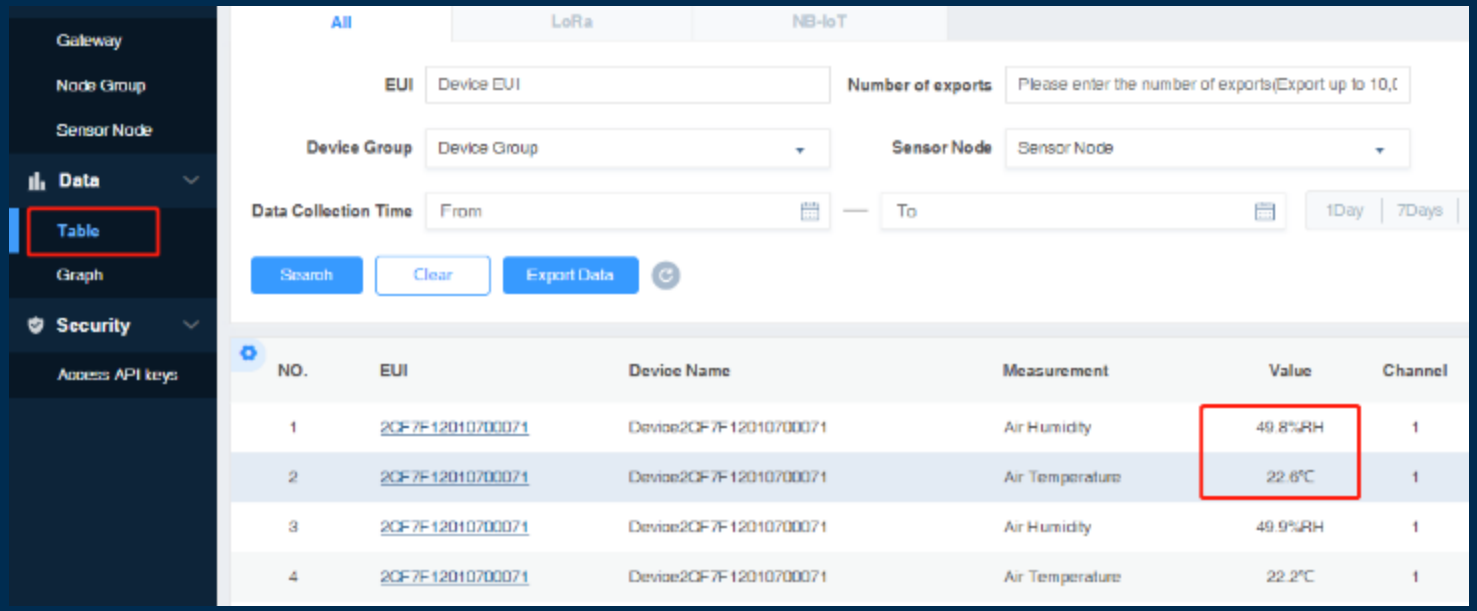
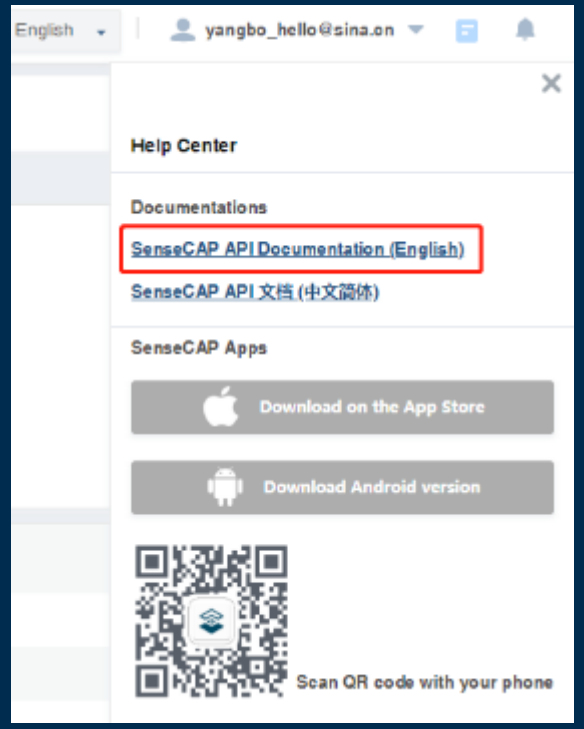
3. **Experience Portal**
4. API



SENSECAP

#1 Experience the SenseCAP Portal

1. Sign up SenseCAP Account
2. Bind device and join network
3. Experience Portal
4. **API**



We provide SenseCAP HTTP API and MQTT API to simplify the implementation of your application.

- HTTP API: Manage your devices, retrieve historical data.
- MQTT API: Monitor the measurements in realtime.

https://app.gitbook.com/@sensecap/s/doc/

SENSECAP

#2 Deploy open-source dashboard

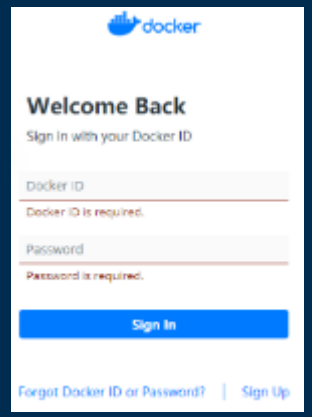
SENSECAP

#2 Deploy open-source dashboard

1. **Install Docker desktop**
2. Install Docker image
3. Config Dashboard
4. Check Data

https://docs.docker.com/docker-for-windows/install/

- We downloaded the docker installer for Windows and Mac in the flash drive.
- You need to sign up a docker account https://hub.docker.com/signup



Sign UP

Windows 10 64-bit: Pro, Enterprise, or Education (Build 15063 or later).

macOS must be version 10.13(high sierra) or newer.

Install Docker

Launch Docker and login

SENSECAP

#2 Deploy open-source dashboard

1. Install Docker desktop
2. **Install Docker image**
3. Config Dashboard
4. Check Data

Windows 10

windows-helper-load.bat

Go to "..\SenseCAP-DataVirt-SaaS-Docker-Compose" folder
Double click "windows-helper-load.bat" to install image

Mac

load.sh

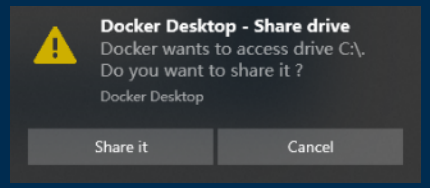
Go to "..\SenseCAP-DataVirt-SaaS-Docker-Compose" folder
Open terminal and run sudo ./load.sh

SENSECAP

#2 Deploy open-source dashboard

1. Install Docker desktop
2. **Install Docker image**
3. Config Dashboard
4. Check Data

Windows 10



Click “Share it” to allow docker access C:\

```
Loaded image: mysql/mysql-server:5.7
************load images success *************
************start build *************
Creating network "saasc_default" with the default driver
Creating mysql ... done
Creating webapi ... done
Creating webdemo ... done
mysql
webapi
webdemo
Server is running, please visit http://localhost:6060
```

Mac

```
************load images success *************
************start build ************
mysql is up-to-date
webapi is up-to-date
webdemo is up-to-date
mysql
webapi
webdemo
Server is running, please visit http://localhost:6060
```

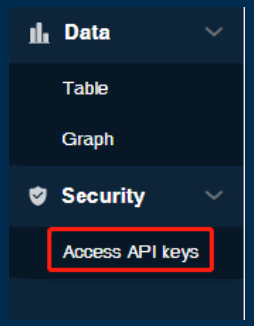
Install succeeded and visit http://localhost:6060

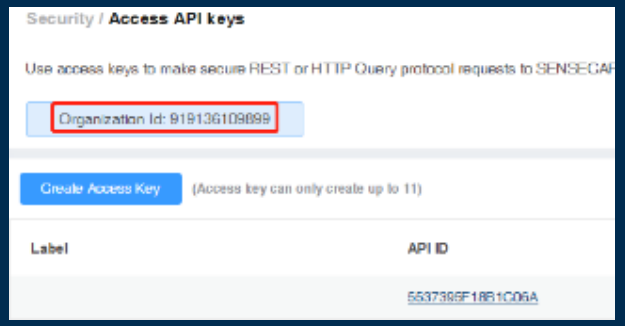
SENSECAP

#2 Deploy open-source dashboard

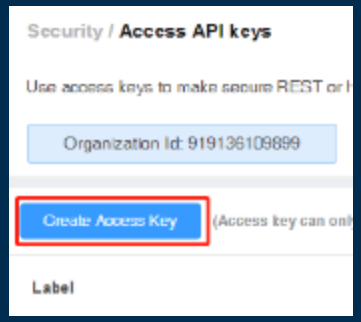
1. Install Docker desktop
2. Install Docker image
3. **Config Dashboard**
4. Check Data

Go to "SenseCAP Portal" sensecap.seeed.cc





Click "Access API keys", then Copy Organization ID



Click "Create Access Key", Copy API ID, Access API keys
Those three strings will be written to .env file in the next step

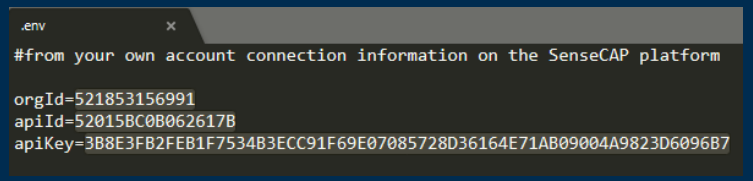
SENSECAP

#2 Deploy open-source dashboard

1. Install Docker desktop
2. Install Docker image
3. **Config Dashboard**
4. Check Data

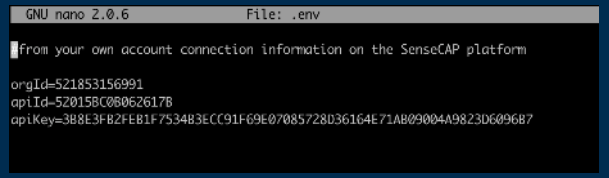
Windows 10

Go to "..\SenseCAP-DataVirt-SaaS-Docker-Compose" folder
Open ".env" file in a text editor and add the following parameters and save it



Mac

Go to "..\SenseCAP-DataVirt-SaaS-Docker-Compose" folder
Open terminal and run "nano .env" command and add the following parameters
Run "control + o" save file and run "control + x" to exit



SENSECAP

#2 Deploy open-source dashboard

1. Install Docker desktop
2. Install Docker image
3. Config Dashboard
4. **Check Data**

Now, you could be able to get your sensor data on the dashboard.
This web dashboard is open-source.

Questions?

You can take away the Temperature and Humidity sensor

How do I get the device's EUI, App EUI, App Key?

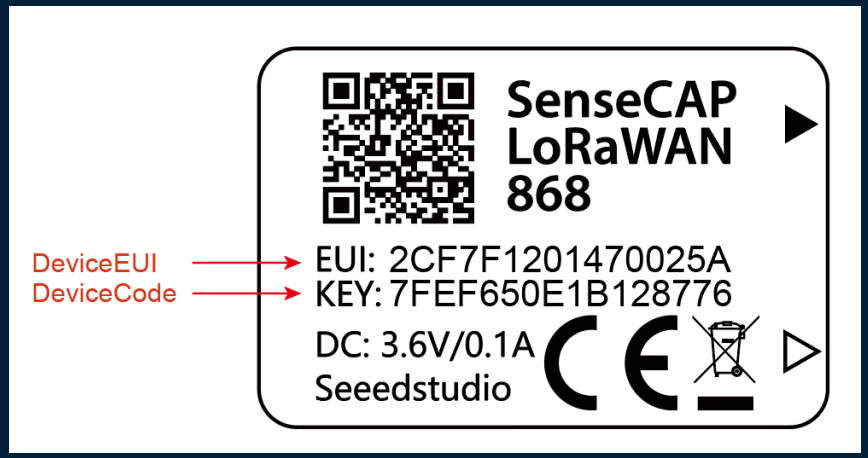
SenseCAP sensor device' s App EUI and App key have been flashed into device by Seeed. Use HTTP API to retrieve App EUI and App Key. You can use any HTTP tools or browser to issue an HTTP GET request.

https://sensecap-makerapi.seeed.cc/v1/security/device/node/acquirePrivateLorawanDeviceinfo?nodeEui=2CF7F1201470025A

&deviceCode=7FEF650E1B128776


```
{
  "code": "0",
  "data": {
    "nodeEui": "2CF7F1201470025A",
    "deviceCode": "7FEF650E1B128776",
    "lorawanInformation": {
      "dev_eui": "2CF7F1201470025A",
      "app_eui": "8000000000000006",
      "app_key": "8B6E4F5DA7DB9A485C9A60D36CD2EA39"
    }
  },
  "time": 0.01
}
```


DeviceEUI and DeviceCode is on the SenseCAP product label.

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