

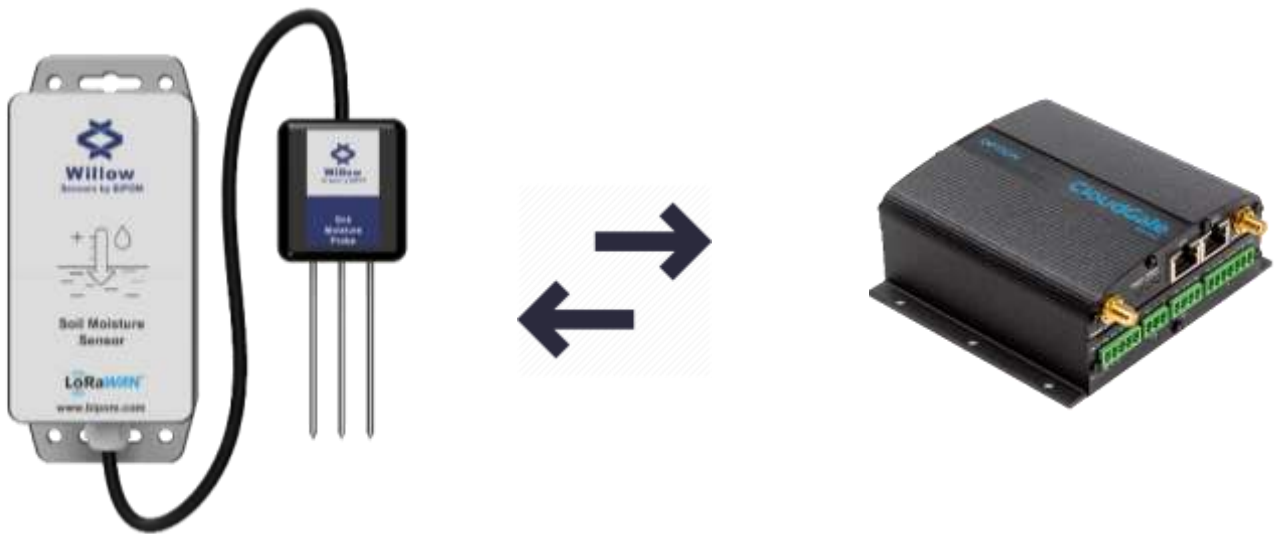


# Willow Sensors

## Outdoor Soil Moisture Sensor

### Quick Start Guide

Document Revision: 1.00



## Overview

The quick start guide explains the steps that should be followed by the user to realize the integration of WS-O-8-AE-SM-1 to Cloudgate and start to use the sensor.

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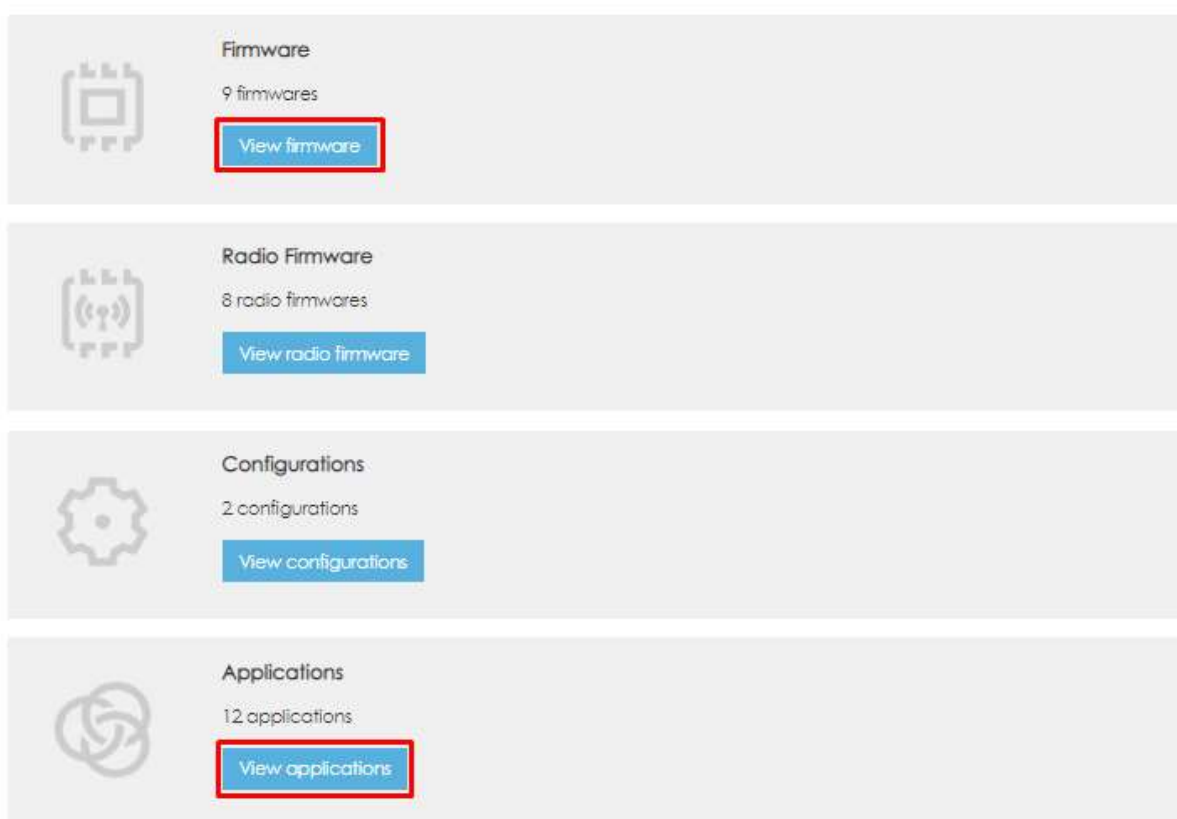
## Integration Steps

### Cloudgate Configurations

Cloudgate requires one time setup for the LuvitRED installation to enable LoRaWAN functionality. After the one time setup, user can skip Cloudgate Configuration steps.

To realize configurations, go to <https://cloudgateuniverse.com/library> and download the latest firmware and LuvitRED application. Choose which firmware to download according to your Cloudgate model.

1. View firmware and download it according to your Cloudgate model.



The screenshot displays a web interface with four main categories, each with an icon and a button:

- Firmware**: 9 firmwares. Button: View firmware (highlighted with a red box).
- Radio Firmware**: 8 radio firmwares. Button: View radio firmware.
- Configurations**: 2 configurations. Button: View configurations.
- Applications**: 12 applications. Button: View applications (highlighted with a red box).

2. View applications and click on Option LuvitRED 2.0



The screenshot shows a card for the 'Option LuvitRED 2.0' application:

- Option LuvitRED 2.0**: Easy-to-use graphical, "drag and drop & visual wiring" configuration environment for design and deployment of smart M2M and IoT solutions on CloudGate. This version of LuvitRED has to be used together with Option CloudGate firmware 2.x.x!
- Available for:** All groups
- Button: View details



3. Download the latest version

**Option LuvitRED 2.0**  
Easy-to-use graphical, "drag and drop & visual wiring" configuration environment for design and deployment of smart M2M and IoT Solutions on CloudGate. This version of LuvitRED has to be used together with Option CloudGate firmware 2.x.x!

[Release notes](#)

Version	Download	What's new
2.27.1		<a href="#">What's new</a>
2.27.0		<a href="#">What's new</a>
2.26.1		<a href="#">What's new</a>

4. Now we are ready to complete configurations of Cloudgate. Once you open the Home Page of Cloudgate go to Provisioning tab and upload files we have downloaded.

**CloudGate** Connecting THINGS to the cloud Log out **OPTION**

Home Interfaces Firewall Connection Persistence **Provisioning** System Plugins VPN

## Device Provisioning

Check for updates

Upload device provisioning file

Settings

Note: this will automatically install updates to the gateway, even when automatic provisioning has been disabled. "Check for updates" can cause data traffic on your wireless operator subscription.

Check for updates

Upload device provisioning file

Select file:  Dosya seçmedi

Clear

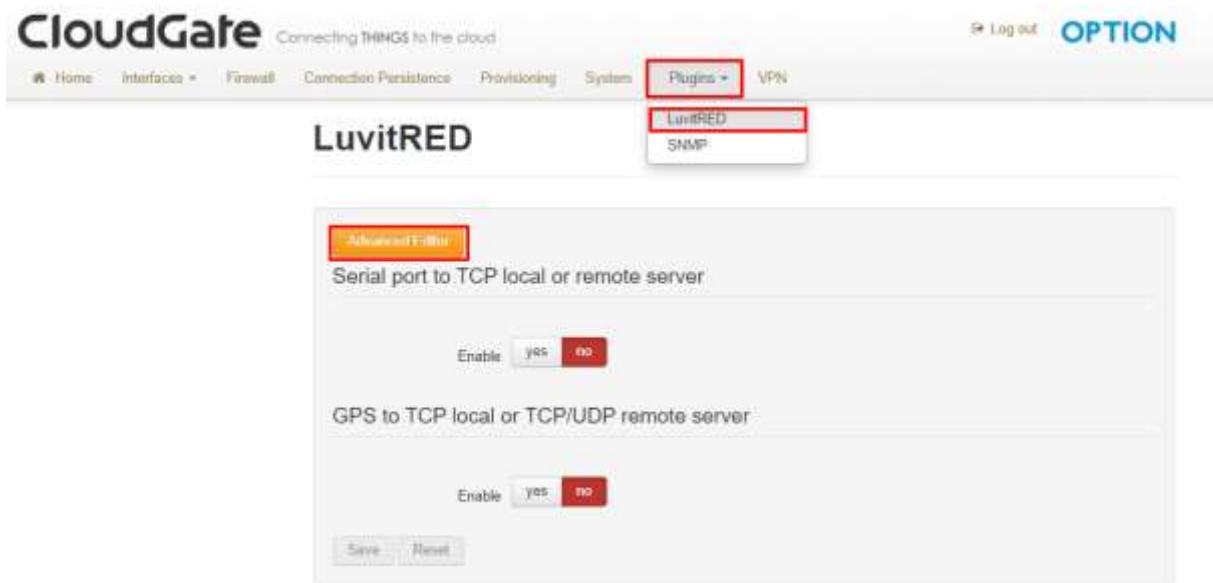
Once the process done, you should be able to see related files on the home page.

Firmware version: **Option mini micro Firmware - 2.98.2**

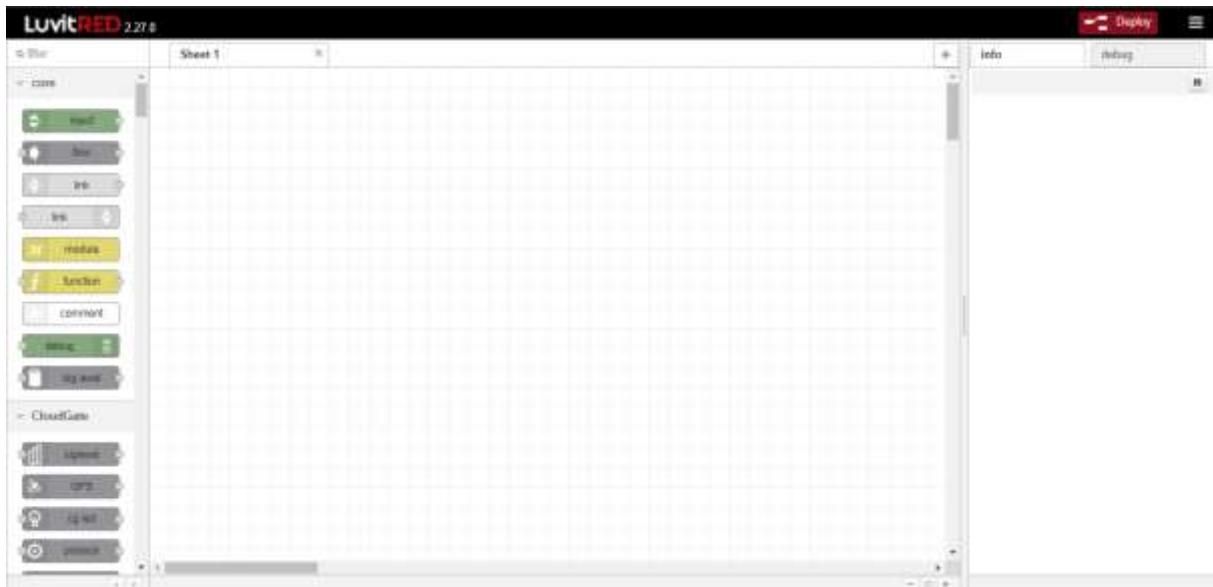
Image version: **Option LuvitRED 2.0 - 2.27.0**

### LoRaWAN Sensor Activation LuvitRED

After completing one time setup, “LuvitRED” option will be shown under the “Plugins” tab. The user can access to LuvitRED by clicking “Plugins -> LuvitRED”. A new screen appears after clicking “Plugins -> LuvitRED”. Click on the “Advanced Editor” to access LuvitRED.



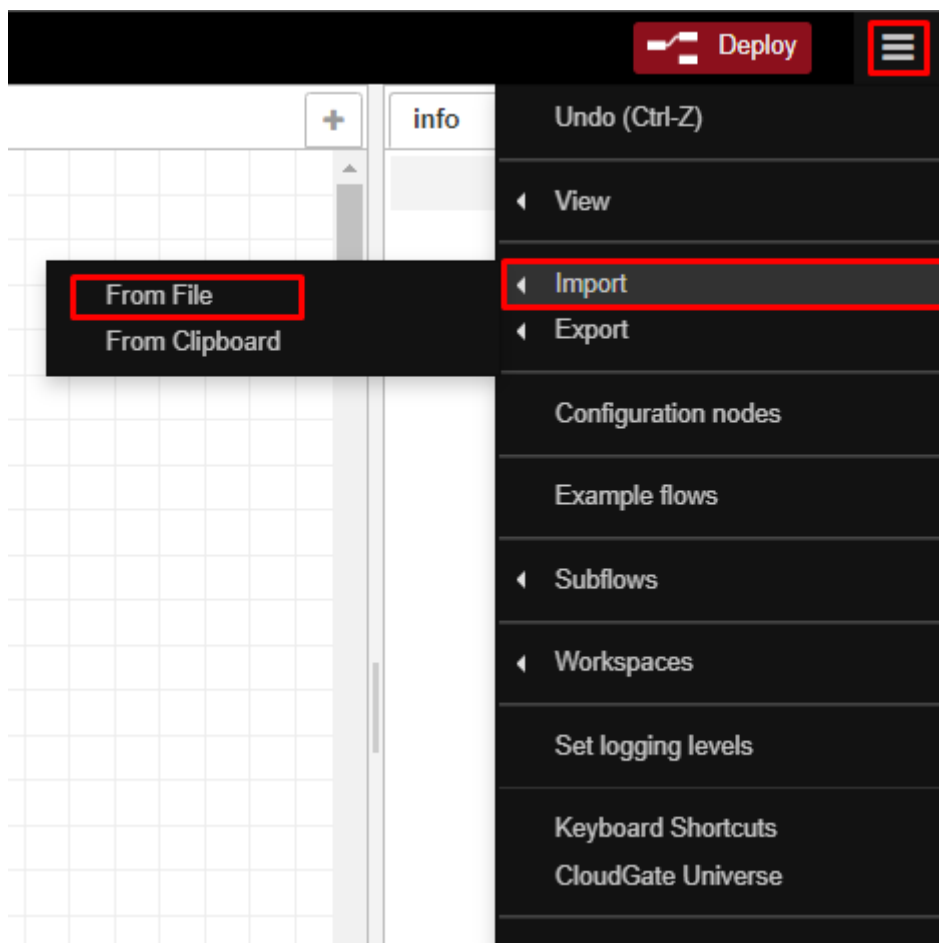
The following screen will appear after opening LuvitRED.

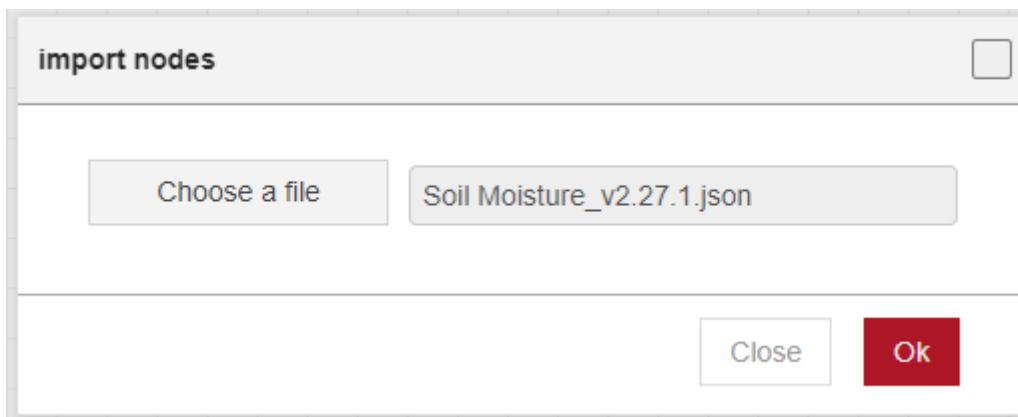


Import the application that we provide you by following the below steps. Download the application by using the embedded document below.



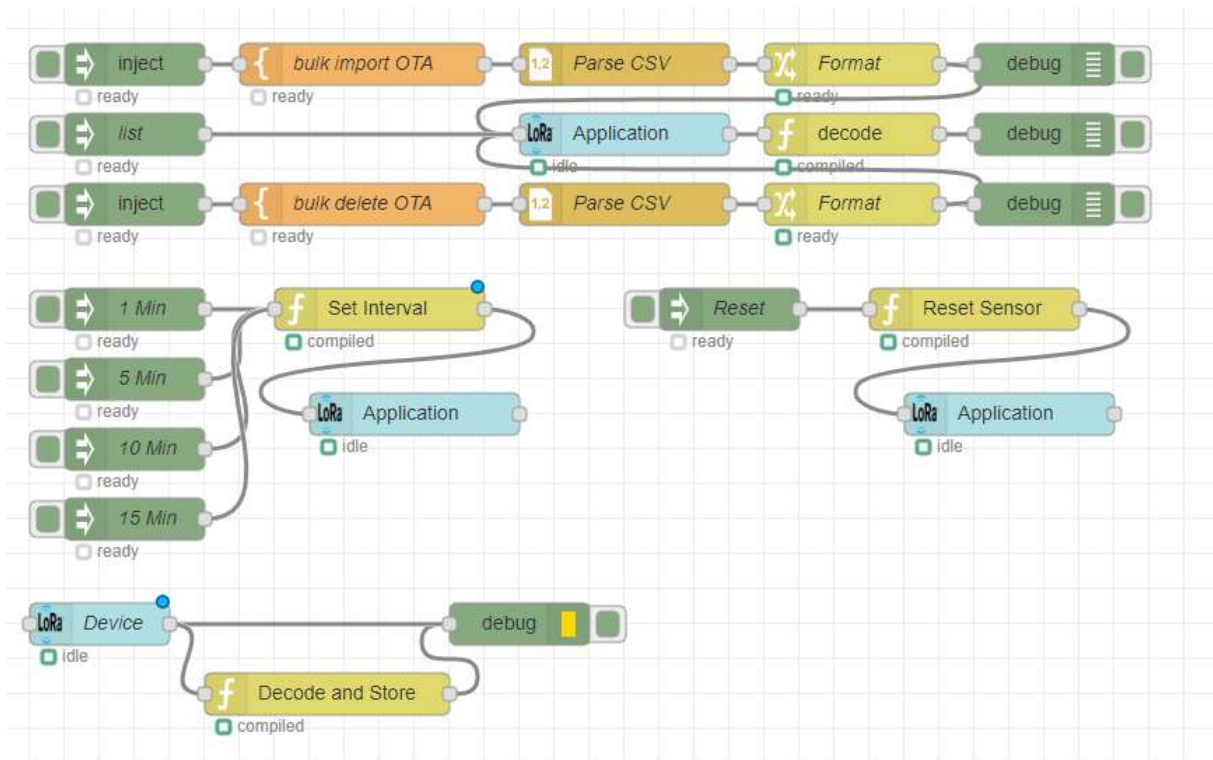
The user can only import JSON files, by clicking menu icon at the top right side and click "Import -> From File" then choose the file we provide you.







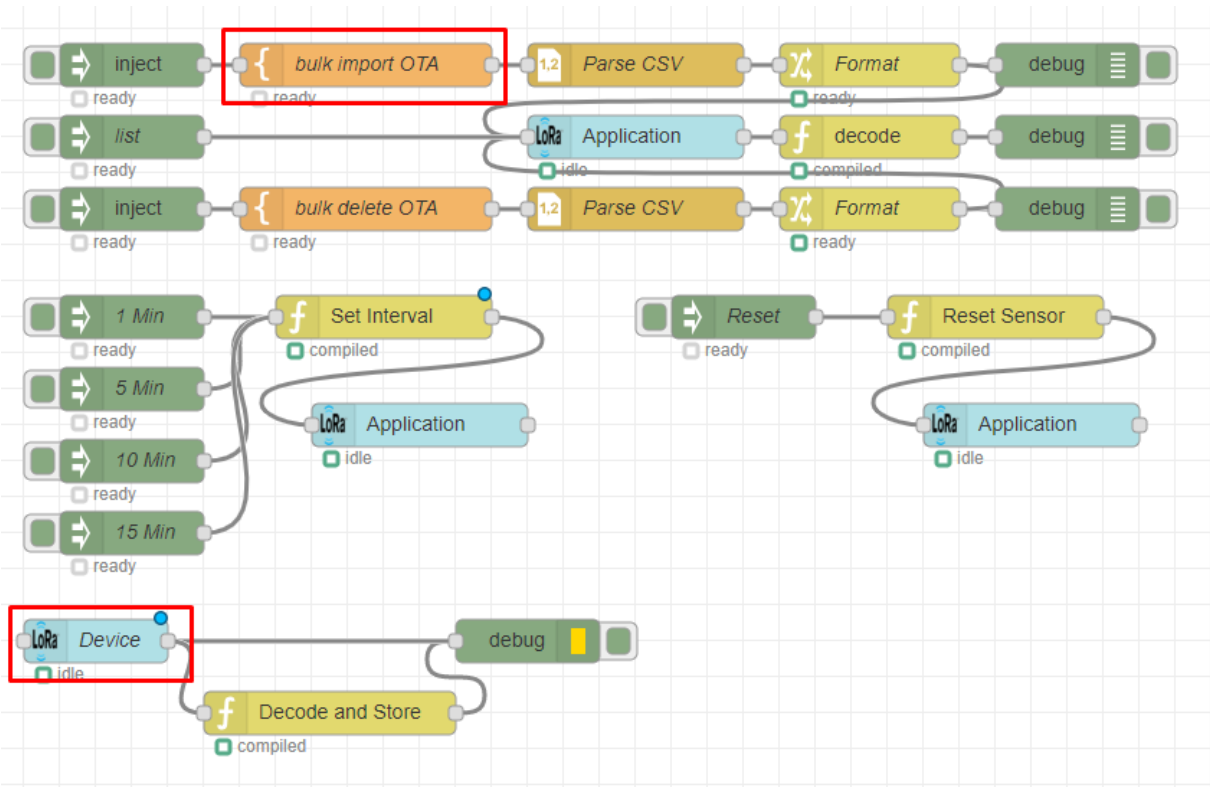
Application should look like the following flow.



**Flow Configuration**

As a next step we will enter “Device EUI” and “App Key” to connect our sensor.

Firstly, double click on “bulk import OTA” node and enter name, device EUI, and application key, as string.



Here is an example

**Edit template node**

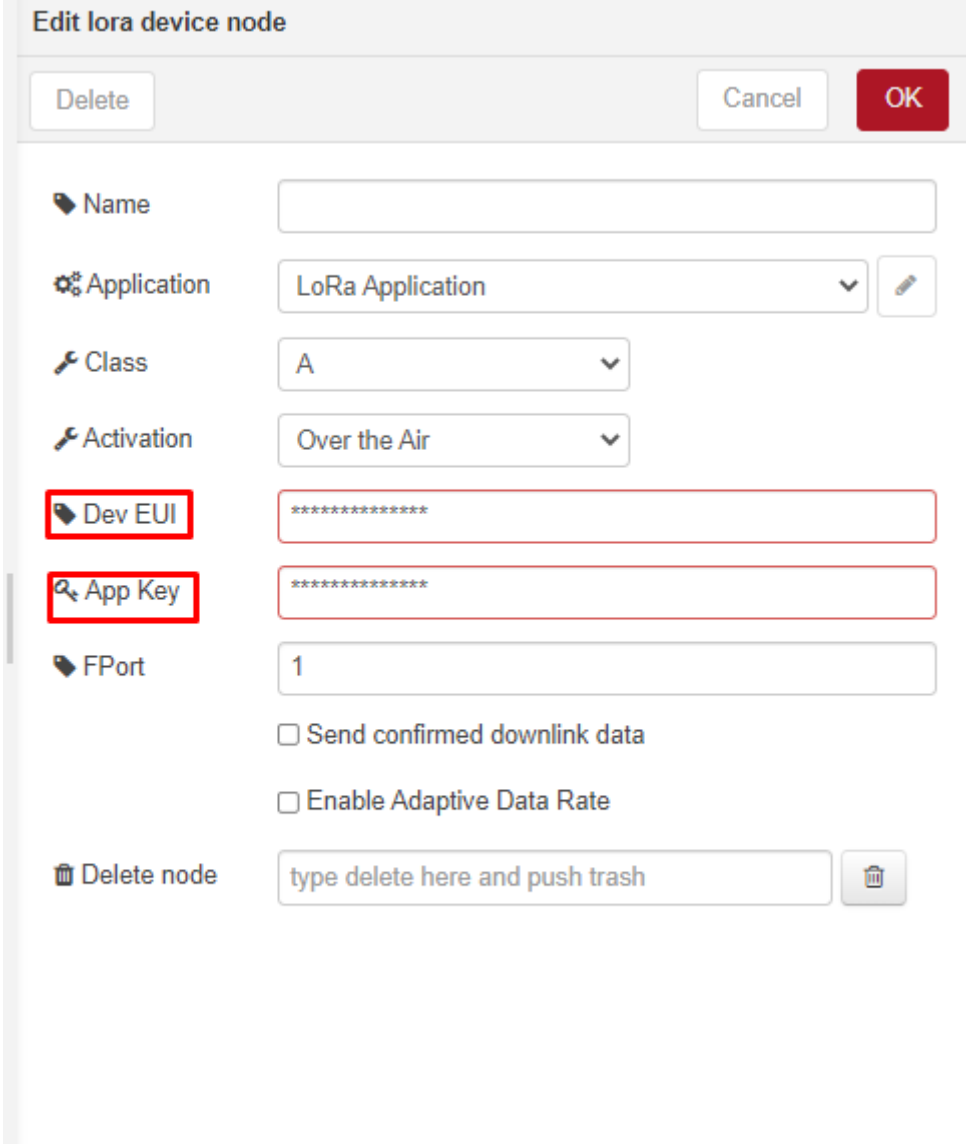
Delete Cancel OK

Name bulk import OTA

Template

```
1 name,DevEUI,AppKey
2 "deviceName", "123456", "654321"
3
```

Once it is done click “OK” and double click “Device” node and enter Device EUI and Application Key into related sections.



**Edit lora device node**

Delete Cancel OK

Name

Application LoRa Application

Class A

Activation Over the Air

**Dev EUI**

**App Key**

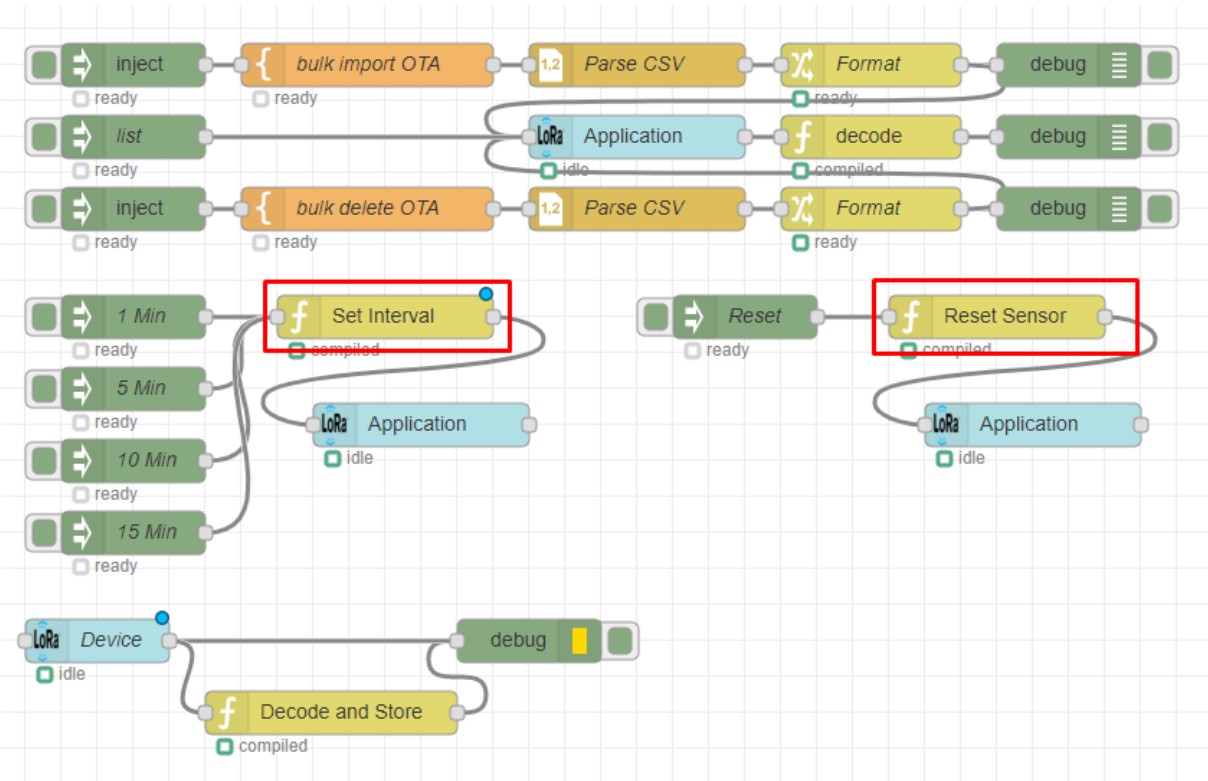
FPort

Send confirmed downlink data

Enable Adaptive Data Rate

Delete node

Lastly enter your Device EUI to the following functions.



Enter your Device EUI to the following section.

Name

```
1 -- Create a payload
2 local data = msg.payload
3 p(data)
4 msg.app = {
5   queue = {
6     ['645367566B597033'] = {
7       data=data,
8       fport = 0X0A,
9       confirmed = false
10  }
11  }
12 }
13 return msg
```

Call with empty message on startup ?

Outputs

Enter your Device EUI to the following section.

Name

```
1  |-- Create a payload
2  local data = msg.payload
3  p(data)
4  msg.app = {
5    queue = {
6      ['645367566B597033'] = {
7        data=data,
8        fport = 0X08,
9        confirmed = false
10   }
11   }
12 }
13 return msg
```

Call with empty message on startup ?

Outputs

Now you can deploy the application by pressing the “Deploy” button which is located on the top right of the page. Once you activate your sensor, it will join to the network and start to send data.

From now on, user can use debug screen to see payload.

```
20.06.2022 12:49:54 [Decode and Store]
"Sensor Battery Level (%): 100"
20.06.2022 12:49:54 [Decode and Store]
"Internal Temperature (C): 18.4"
20.06.2022 12:49:54 [Decode and Store]
"Moisture: 0"
20.06.2022 12:49:54 [Decode and Store]
"Temperature: 24.7"
```