

# The Things Stack For LoRAWAN User Manual

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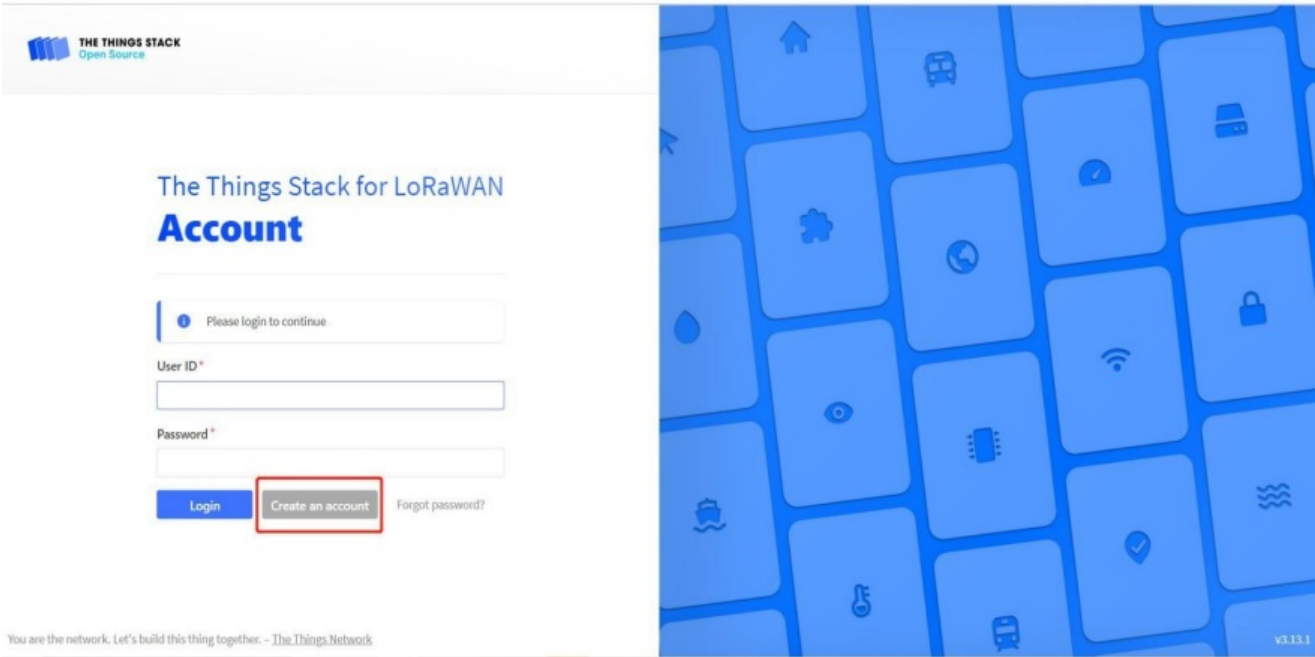
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## The Things Stack For LoRAWAN



## Product Information

### Specifications

- **Product Name:** The Things Stack
- **Website:** <https://lora.alfaiot.com/console/gateways>

## Product Usage Instructions

### Create a New User Account

1. Go to the website address <https://lora.alfaiot.com/console/gateways>
2. Click on “Create an account” to enter the new account and password interface
3. Input the new account information and click “Create account”
4. The new account will be created successfully

### Login to Your Account

1. Input your username and password
2. Click on the login button

### Application Configuration

Follow the steps below for application configuration:

1. Step 1
2. Step 2
3. Step 3
4. Application configuration will be successful

### Add a Gateway

Follow the steps below to add a gateway:

1. Step 1
2. Step 2

### Add a Device

Follow the steps below to add a device:

**Note:** Make sure the gateway is online before proceeding.

1. Gateway is online
2. Step 1
3. Step 2
4. Step 3
5. Step 4
6. Step 5
7. Device added successfully

## Data Checking

To check data, trigger the meter to uplink data after the network join operation.

## Command

To send a command, follow the steps below:

1. Take the remote valve control (close valve) command as an example
2. Check the command
3. Downlink command success
4. Trigger the meter to make valve control success

## Frequently Asked Questions (FAQ)

- **Q: How can I create a new user account?**

A: To create a new user account, follow the instructions provided in section 1 of the user manual.

- **Q: How can I add a gateway?**

A: Refer to section 4 of the user manual for detailed instructions on adding a gateway.

- **Q: How do I check data?**

A: Check section 6 of the user manual for instructions on how to trigger the meter to uplink data.

- **Q: What if I encounter issues with command execution?**

A: If you face any issues with command execution, refer to section 7 of the user manual for troubleshooting steps.

## USING

### 1. Create new user account

Login the website address: <https://lora.alfaiot.com/console/gateways>

Click Create an account to enter the New account and password interface

The screenshot shows a web browser window with the URL [lora.alfaiot.com/oauth2/login?n=%2Foauth2%2Fauthorize%3Fclient\\_id%3Dconsole%26redirect\\_uri%3D%252Fconsole%252Foauth2%2Fcallback%26response\\_type%3Dcode%26stat...](https://lora.alfaiot.com/oauth2/login?n=%2Foauth2%2Fauthorize%3Fclient_id%3Dconsole%26redirect_uri%3D%252Fconsole%252Foauth2%2Fcallback%26response_type%3Dcode%26stat...). The page header includes the 'THE THINGS STACK Open Source' logo. The main heading is 'The Things Stack for LoRaWAN Account'. Below this, there is a message 'Please login to continue' and a form with two input fields: 'User ID \*' and 'Password \*'. At the bottom of the form are three buttons: 'Login', 'Create an account' (which is highlighted with a red rectangular box), and 'Forgot password?'. The background of the page is a blue grid pattern with various IoT-related icons such as a house, car, train, puzzle piece, eye, Wi-Fi symbol, lock, water drop, and a gear. The footer text reads 'You are the network. Let's build this thing together. - The Things Network' and the version 'v3.13.1' is visible in the bottom right corner.

Input the new account information and click Create account the new account is creted completely

THE THINGS STACK  
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## The Things Stack for LoRaWAN

### Create a new account

User ID \*  
dongjian

Name  
dongjian

Email \*  
yan\_cao@dojustek.com

Password \*  
\*\*\*\*\*

Confirm password \*  
\*\*\*\*\*

[Create account](#) [Login](#)

You are the network. Let's build this thing together. - The Things Network

## 2. Login account

Input username and password and login

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## The Things Stack for LoRaWAN

### Account

Please login to continue

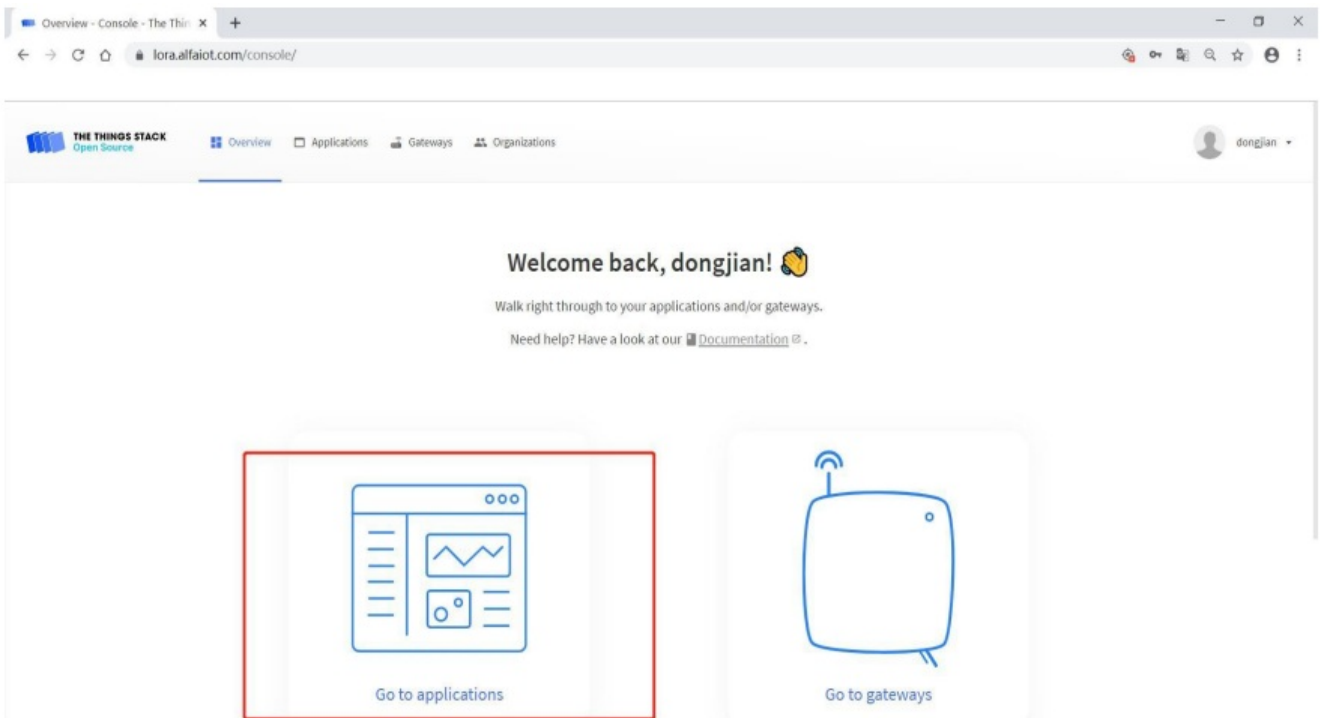
User ID \*  
dongjian

Password \*  
\*\*\*\*\*

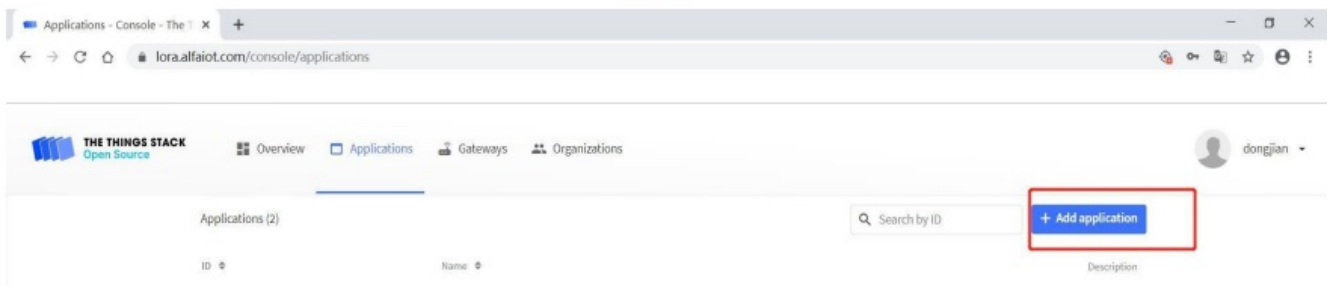
[Login](#) [Create an account](#) [Forgot password?](#)

You are the network. Let's build this thing together. - The Things Network

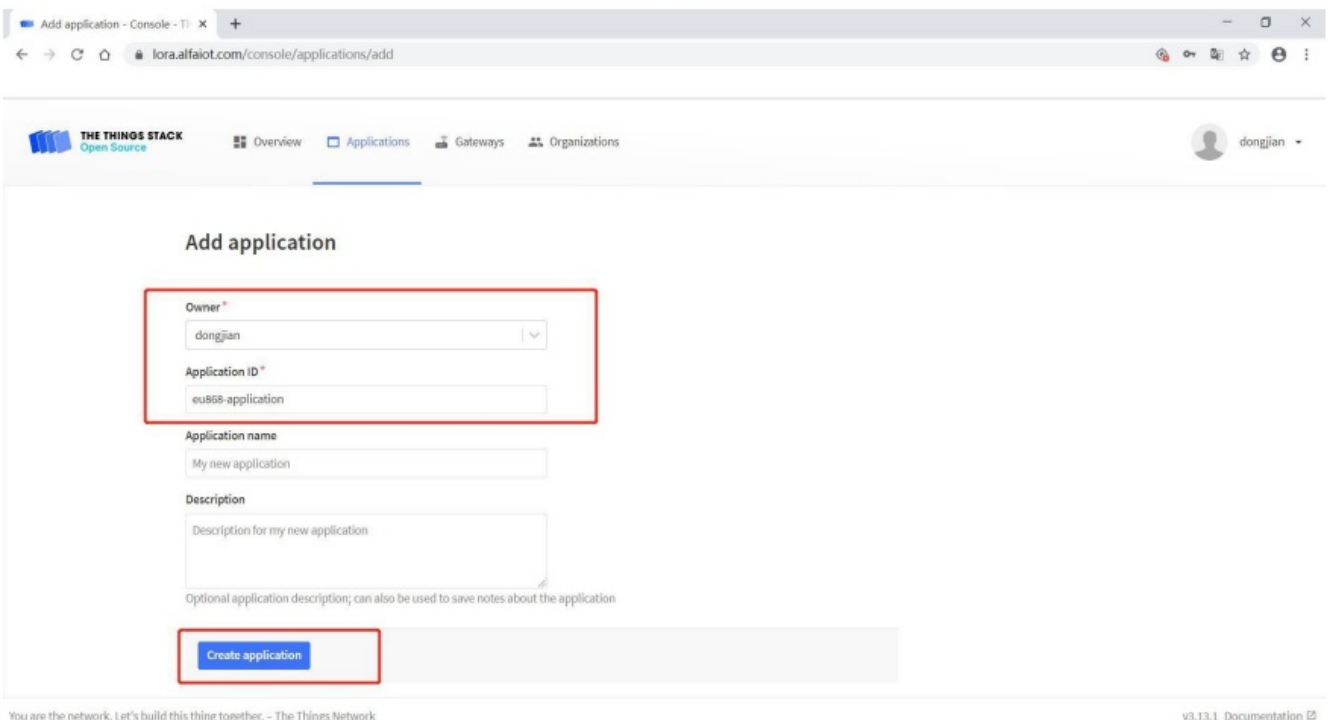
## 3. Application configuration



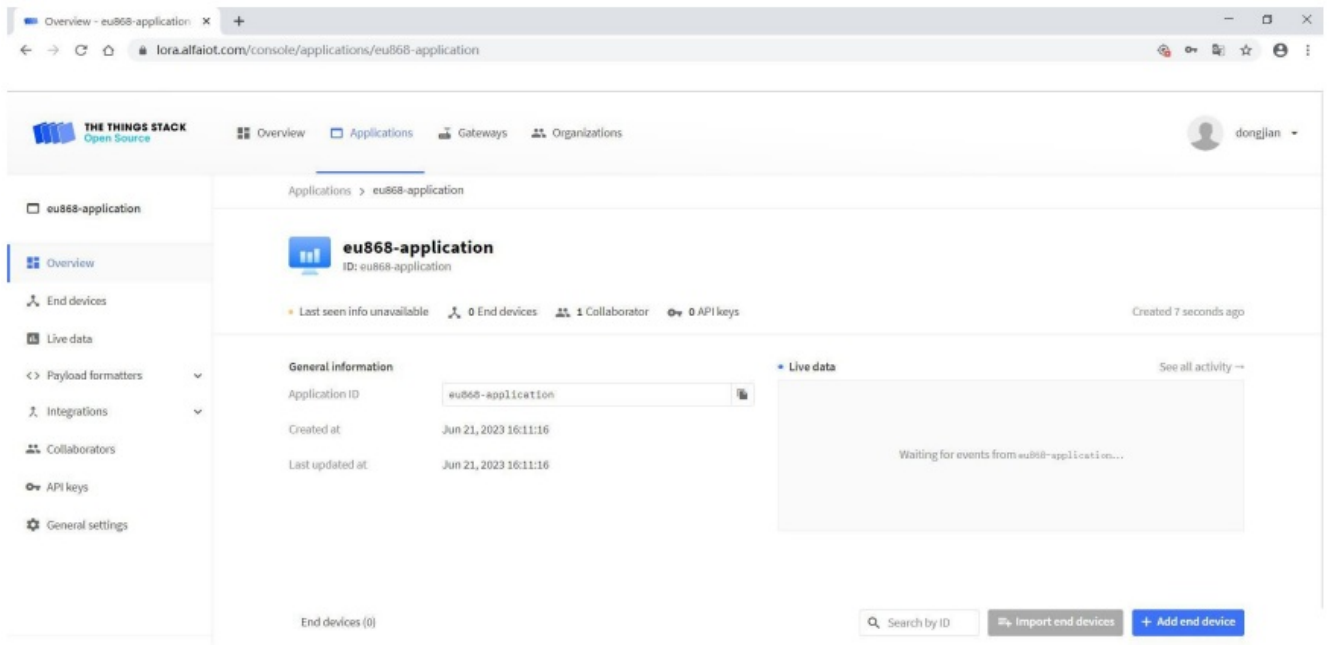
### Step 1



### Step 2

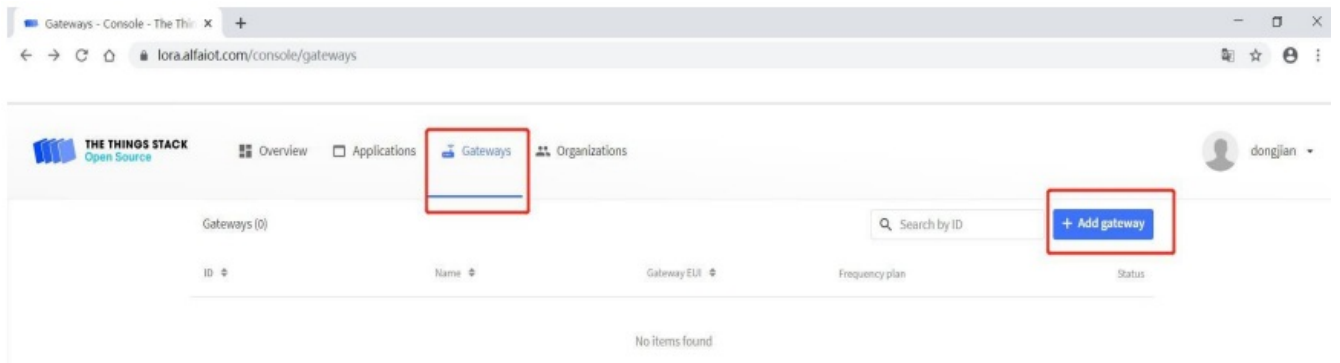


### Step 3



Application configuration success

#### 4. Add the gateway




Step 1

Add gateway - Console - The Things Stack

loras.alfaiot.com/console/gateways/add

THE THINGS STACK  
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OverviewApplicationsGatewaysOrganizations

 dongjian

## Add gateway

### General settings

Owner\*

dongjian

Gateway ID ⓘ\*

eu868-gateway-7489

Gateway EUI ⓘ

54 D9 B4 FF FE 29 74 69

Gateway name ⓘ

eu868-gateway-7489

Frequency plan ⓘ

Europe 863-870 MHz (SF9 for RX2 - recommended)

Schedule downlink rate ⓘ

☐ Enabled

Enable server-side buffer of downlink messages

Enforce duty cycle ⓘ

☒ Enabled

Recommended for all gateways in order to respect spectrum regulations

Schedule any time delay ⓘ\*

530 milliseconds

Configure gateway delay (minimum: 130ms, default: 530ms)

### Gateway updates

Automatic updates

☐ Enabled

Gateway can be updated automatically

Channel

Stable

Channel for gateway automatic updates

Create gateway

Step 2

Overview - EU868-gateway-7469 x

lora.alfaiot.com/console/gateways/eu868-gateway-7469

THE THINGS STACK  
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Overview Applications Gateways Organizations

EU868-gateway-7469

Overview

Live data

Location

Collaborators

API keys

General settings

Hide sidebar

Gateways > EU868-gateway-7469

**EU868-gateway-7469**  
ID: eu868-gateway-7469

Last seen 1 second ago ↑ 1 ↓ 0 1 Collaborator 0 API keys Created 7 minutes ago

**General information**

Gateway ID: eu868-gateway-7469

Gateway EUI: 54 D0 B4 FF FE 29 74 69

Gateway description: None

Created at: Jun 21, 2023 15:24:43

Last updated at: Jun 21, 2023 15:24:43

Gateway Server address: lora.alfaiot.com

**LoRaWAN information**

Frequency plan: EU\_863\_870\_TTN

Global configuration: Download global\_conf.json

**Live data**

15:31:52 Receive gateway status Metrics: { ackr: 0, rxfr: 1, rxin: 1, ... }

**Location**

Change location settings →

Gateway is online

## 5. Add the device

Overview - eu868-application x

lora.alfaiot.com/console/applications/eu868-application

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Overview Applications Gateways Organizations

eu868-application

Overview

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General settings

Hide sidebar

Applications > eu868-application

**eu868-application**  
ID: eu868-application

Last seen info unavailable 0 End devices 1 Collaborator 0 API keys Created 13 minutes ago

**General information**

Application ID: eu868-application

Created at: Jun 21, 2023 16:11:16

Last updated at: Jun 21, 2023 16:11:16

**Live data**

Waiting for events from eu868-application...

End devices (0)

ID Name DevEUI JoinEUI Last seen

Search by ID Import end devices **Add end device**

Step 1



API keys

General settings

Network Server address

lora.alfaiot.com

Application Server address

lora.alfaiot.com

External Join Server

☐ Enabled

Join Server address

lora.alfaiot.com

Start

Register end device - eu868

lora.alfaiot.com/console/applications/eu868-application/devices/add/manual

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Overview Applications Gateways Organizations

dongjian

eu868-application

Overview

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General settings

Applications > eu868-application > End devices > Register manually

Register end device

From The LoRaWAN Device Repository Manually

Preparation

Activation mode

☒ Over the air activation (OTAA)
 ☐ Activation by personalization (ABP)
 ☐ Multicast
 ☐ Do not configure activation

LoRaWAN version

MAC V1.0.2

Step 2

Register end device - eu868

lora.alfaiot.com/console/applications/eu868-application/devices/add/manual/steps

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Overview Applications Gateways Organizations

dongjian

eu868-application

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General settings

Applications > eu868-application > End devices > Register manually > Basic settings

Register end device

From The LoRaWAN Device Repository Manually

1 Basic settings

2 Network layer settings

3 Join settings

End device ID

68752023020302

AppEUI

11 22 33 44 55 66 77 88 00

DevEUI

E0 ED E7 16 02 18 00 25

End device name

My new end device

End device description

Description for my new end device

Optional end device description; can also be used to save notes about the end device

Network layer settings

Step 3

Register end device - eu868

loralab.com/console/applications/eu868-application/devices/add/manual/steps

eu868-application

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General settings

From The LoRaWAN Device Repository

Manually

Basic settings

End device ID's, Name and Description

Network layer settings

Frequency plan, regional parameters, end device class and session keys.

Join settings

Root keys, NetID and key labels.

Frequency plan \*

Europe 863-870 MHz (SF9 for RX2 - recommended)

LoRaWAN version \*

MAC V1.0.2

Regional Parameters version \*

PHY V1.0.2 REV A

LoRaWAN class capabilities

Supports class B

Supports class C

Advanced settings

Basic settings

Join settings

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v3.13.1 Documentation

## Step 4

Register end device - eu868

loralab.com/console/applications/eu868-application/devices/add/manual/steps

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Overview

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eu868-application

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General settings

Applications > eu868-application > End devices > Register manually > Join settings

Register end device

From The LoRaWAN Device Repository

Manually

Basic settings

End device ID's, Name and Description

Network layer settings

Frequency plan, regional parameters, end device class and session keys.

Join settings

Root keys, NetID and key labels.

Root keys

AppKey \*

00 11 22 33 44 55 66 77 88 99 AA BB CC DD EE FF

Advanced settings

Network layer settings

Add end device

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v3.13.1 Documentation

## Step 5



End devices - eu868-application | X

lora.alfaiot.com/console/applications/eu868-application/devices

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Overview Applications Gateways Organizations

eu868-application

Overview  
End devices  
Live data  
Payload formatters  
Integrations  
Collaborators  
API keys  
General settings

Applications > eu868-application > End devices

End devices (1)

Search by ID Import end devices Add end device

| ID             | Name | DevEUI                  | JoinEUI                 | Last seen      |
|----------------|------|-------------------------|-------------------------|----------------|
| 68752023020302 |      | E9 ED E7 16 02 18 00 25 | 11 22 33 44 55 66 77 88 | 16 seconds ago |

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v3.13.1 Documentation

Take the remote valve control (close valve)command as an example

Schedule downlink - 68752023020302 | X

lora.alfaiot.com/console/applications/eu868-application/devices/68752023020302/messaging/downlink

eu868-application

Overview  
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Integrations  
Collaborators  
API keys  
General settings

Applications > eu868-application > End devices > 68752023020302

68752023020302  
ID: 68752023020302

Last seen 2 minutes ago ↑ 3 ↓ 2 Created 6 minutes ago

Overview Live data Messaging Location Payload formatters Claiming General settings

Uplink Downlink

Schedule downlink

Insert Mode

☒ Replace downlink queue  
☐ Push to downlink queue (append)

FPort

10

Payload

68 10 AA AA AA AA AA AA 04 04 A0 17 00 55 32 16

The desired payload bytes of the downlink message

☐ Confirmed downlink

Schedule downlink

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v3.13.1 Documentation

Downlink command success

### Check the command

The screenshot shows the 'Live data' tab for the 'eu868-application'. The table contains the following data:

| Time     | Entity ID      | Type                          | Data preview   |
|----------|----------------|-------------------------------|--|
| 16:37:08 | 68752023028302 | Forward downlink data message | FPort: 18 Payload: 68 10 AA AA AA AA AA AA 04 04 A0 17 00 55 32 16   |
| 16:34:56 | 68752023028302 | Forward uplink data message   | DevAddr: 00 B0 EA C4 MAC payload: 68 10 02 03 02 23 20 75 68 B1 24 90 12 00 2B 00 00 00 00 2B 00 00 00 2B 00 00 00 |
| 16:34:00 | 68752023028302 | Forward uplink data message   | DevAddr: 00 B0 EA C4 MAC payload: F1 CF 21 SNR: 11.5 RSSI: -48 Bandwidth: 125000                                   |
| 16:33:29 | 68752023028302 | Forward uplink data message   | DevAddr: 00 B0 EA C4 MAC payload: 68 10 02 03 02 23 20 75 68 B1 24 90 12 00 2B 00 00 00 00 2B 00 00 00 2B 00 00 00 |

Trigger the meter to make valve control success

Application data - eu868-app

+

[←](#)
[→](#)
[↺](#)
[🏠](#)

lora.alfaiot.com/console/applications/eu868-application/data

[🔍](#)
[☆](#)
[👤](#)
[⋮](#)

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Overview

Applications

Gateways

Organizations

dongjian ▾

eu868-application

Overview

End devices

Live data

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Applications > eu868-application > Live data

Time

Entity ID

Type

Data preview

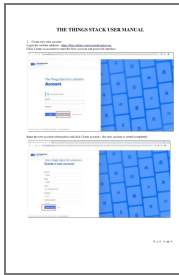
Verbose stream

Pause

Clear

|            |                |                               |  |
|------------|----------------|-------------------------------|--|
| ↑ 16:37:27 | 68752923929382 | Forward uplink data message   | DevAddr: 00 8B EA C4 MAC payload: 68 10 82 03 82 23 20 75 68 81 24 96 12 80 2B 00 00 00 00 00 00 00 00 2B 00 88 00 |
| ↓ 16:37:00 | 68752923929382 | Forward downlink data message | FPort: 10 Payload: 68 10 AA AA AA AA AA AA 04 04 A0 17 00 55 32 16   |
| ↑ 16:34:56 | 68752923929382 | Forward uplink data message   | DevAddr: 00 8B EA C4 MAC payload: 68 10 82 03 82 23 20 75 68 81 24 96 12 80 2B 00 00 00 00 00 00 00 2B 00 88 00    |
| ↑ 16:34:00 | 68752923929382 | Forward uplink data message   | DevAddr: 00 8B EA C4 MAC payload: F1 CF 21 SNR: 11.5 RSSI: -48 Bandwidth: 125000                                   |
| ↑ 16:33:29 | 68752923929382 | Forward uplink data message   | DevAddr: 00 8B EA C4 MAC payload: 68 10 82 03 82 23 20 75 68 81 24 96 12 80 2B 00 00 00 00 00 00 00 2B 00 88 00    |
| ⌂ 16:33:00 | 68752923929382 | Accept join-request           | DevAddr: 00 8B EA C4   |

## Documents / Resources



[The Things Stack The Things Stack For LoRAWAN](#) [pdf] User Manual  
The Things Stack For LoRAWAN, The Things, Stack For LoRAWAN, For LoRAWAN, LoRAWAN

## References

- [🌐 The Things Stack for LoRaWAN Console](#)
- [User Manual](#)

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