Feasycom WMK-KIT2(UWB)

User Guide

Release 3.0

Table of contents

[中文]

Chapter 1

Program Introduction - WMK-K2 (UWB)

Feasycom Warehouse Management KIT2(UWB) **WMK-K2** is a set of combined products based on **UWB** protocol,which can quickly carry out sub-meter precise positioning requirements assessment test.

The suite contains, **Iot cloud platform Feasycloud**, **UWB Gateway** and **Tag Beacon**.These combine to help with asset location, asset protection, alert management, and more.

Additional sensor devices in Feasycom Warehouse Management KIT1(BLE) can also be combined to jointly provide a more complete warehouse solution.

Also, other asset location and asset protection scenarios similar to this requirement can be used, and if you have additional requirements based on this suite, such as more quantity requirements, software requirements, you can also purchase additional quantity tags or custom implementations.

Chapter 2

Feasycom Warehouse Management KIT2 - WMK-K2 (UWB)

2.1 Plist

Table 1: WMK-K2(UWB) Plist

FSC-UP3312A&B	4pcs	Gateway
FSC-UP3311	2pcs	UWB Tags(internal battery)
other 1	4pcs	FSC-UP3312A&B adapter plug
other 2	1pcs	FSC-UP3311 battery shell opener
other 3	1pcs	RJ45 connecting line
other 4	1pcs	USB connecting line

2.2 KIT Specifications

2.2.1 FSC-UP3312A/B | UWB Gateway specification

Note

Power supply via PoE or DC Notice:Make sure that the router or switch supports PoE power supply

Table 2: FSC-UP3312A & FSC-UP3312B UWB Gateway

UWB standard	IEEE 802.15.4 & 802.15.4z
Wi-Fi	2.4G
Radius of reception	≥40m
Accuracy	≤40cm
Power supply	**PoE** or **DC**
Installation technology	Wall hanging or suction top

2.2.2 FSC-UP3311 | UWB Tags specification

Table 3: FSC-UP3311 UWB Tags

UWB standard	IEEE 802.15.4 & 802.15.4z
Wi-Fi	2.4G
Radius of reception	≥40m
Accuracy	≤40cm
Power supply	**2*AAA** battery(Supports replaceable batteries)
Installation technology	Multiple
Options	IMU, Button, Vibration, Buzzer, NFC

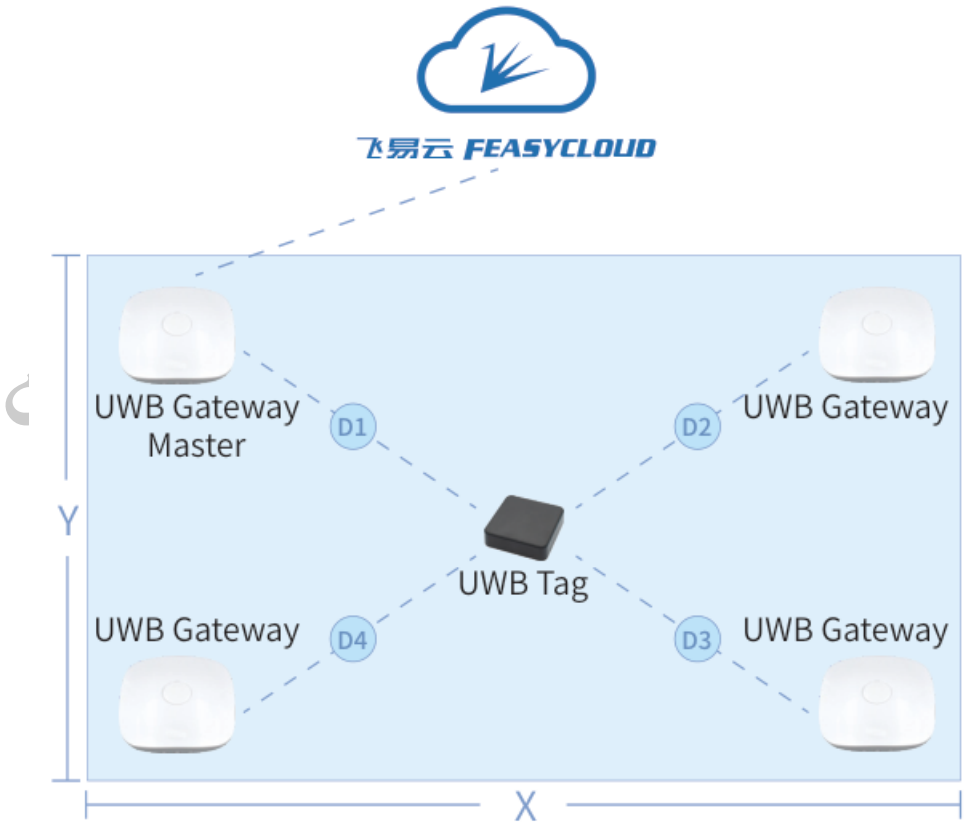
Chapter 3

Application and device deployment

3.1 Application video

[WMK-K2 Video Show]

3.2 Application deployment diagram



3.3 Deployment recommendations

- An area needs to have 4 base station gateways
- The gateway needs to be on the same plane as much as possible
- The gateway needs to be more than 50 cm away from the wall
- D1+D3 or D2+D4 should be less than the maximum receiving distance of the tag or gateway

Chapter 4

How to boot a device

4.1 Working status indication

- Indicator light **Blue** :Working properly
- Indicator light **Red** :Set distribution mode (only for base station gateway)
- Indicator light **Flashing blue** :Not working properly

Chapter 5

Quick suite evaluation

5.1 Preparation for assessment

5.1.1 System Environment Requirements

1) Windows system :Windows10 or higher;
2) Google Chrome Ver :ver 112 or higher;
3) Feasycom Feasycloud.

5.1.2 Preparation of equipment

- FSC-UP3312 Gateway ;
- USB connecting line,PC;
- Feasycloud has authorized login email account and password;
- Internet-connected router WiFi or mobile phone to enable hotspot.

5.2 Feasycloud login

The following is based on Windows 10 and Google Chrom browser 119 operating environment to demonstrate the operation instructions:

Use the email address registered at the time of purchase to log in to the Feasycloud website. The access address is as follows:

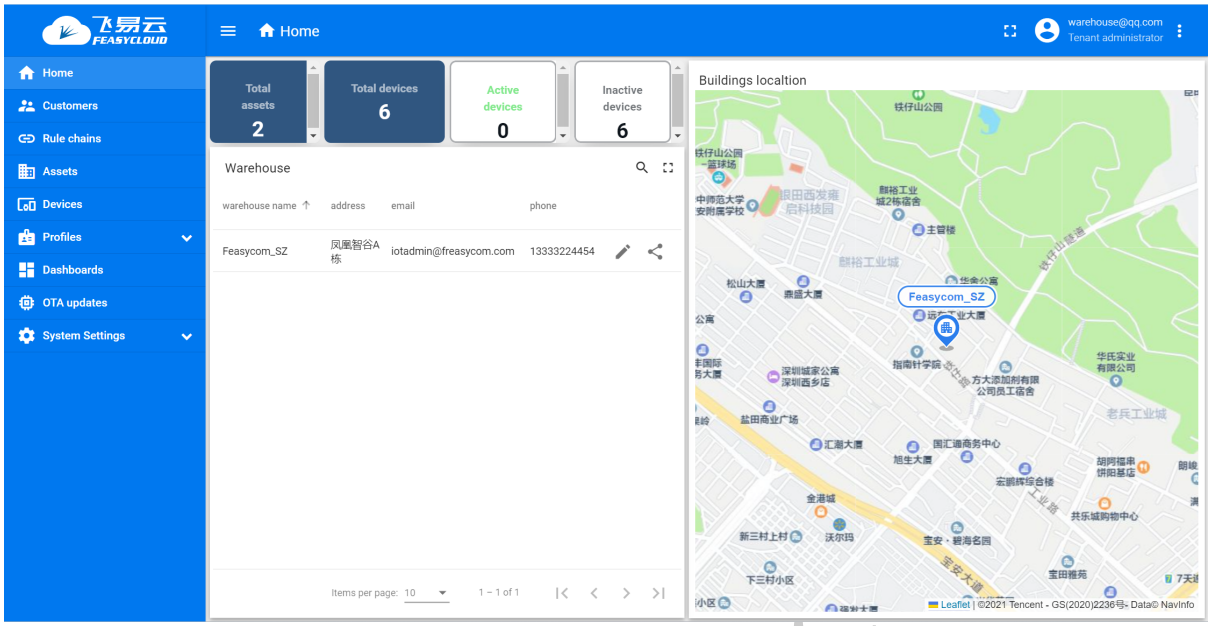
Domestic server,URL:https://feasycloud.com.cn

Foreign server,URL:https://feasycloud.com

If yes, your mailbox will receive the activation email, please find the notification email in your mailbox ,and click the notification link to operate, enter for the first time, you need to create a custom login password.

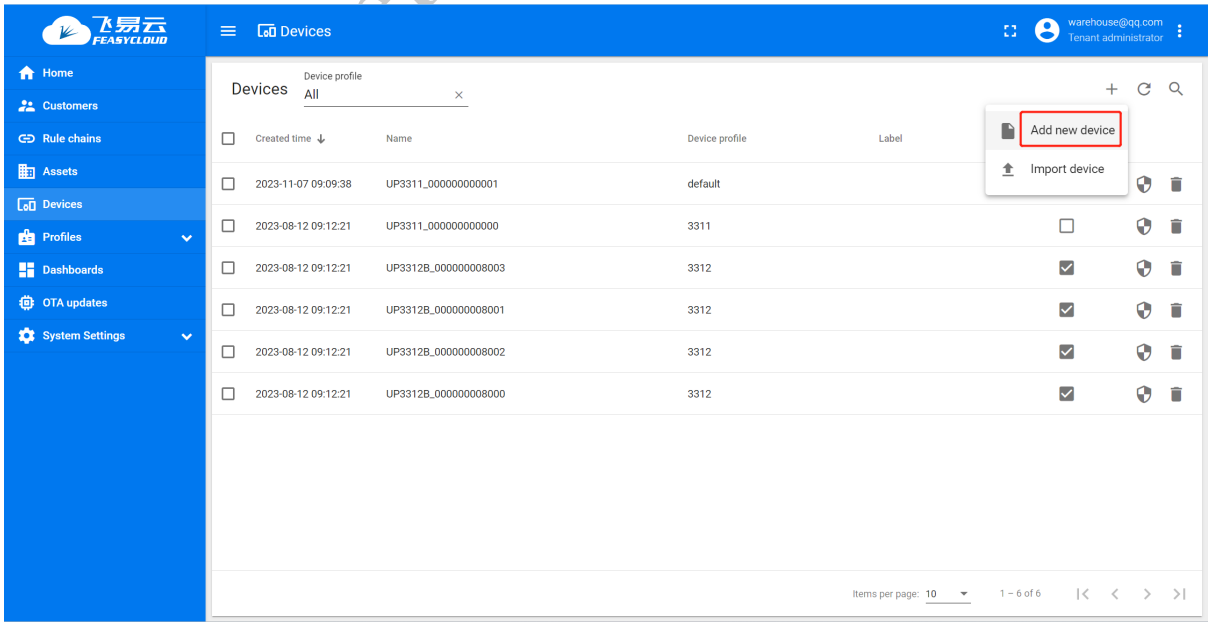
If not, please consult your sales or send an email to **sales@feasycom.com** for consultation, we will contact you in the first time after receiving your email.

After you login successfully, you will enter the Home main page

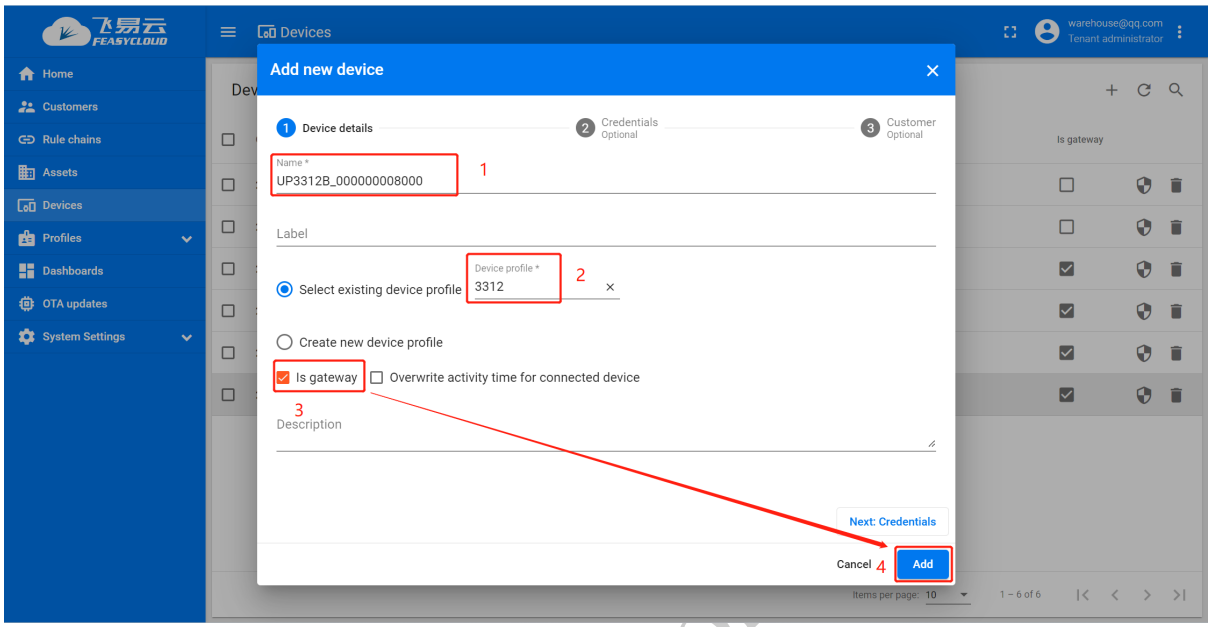


5.3 Add the base station gateway

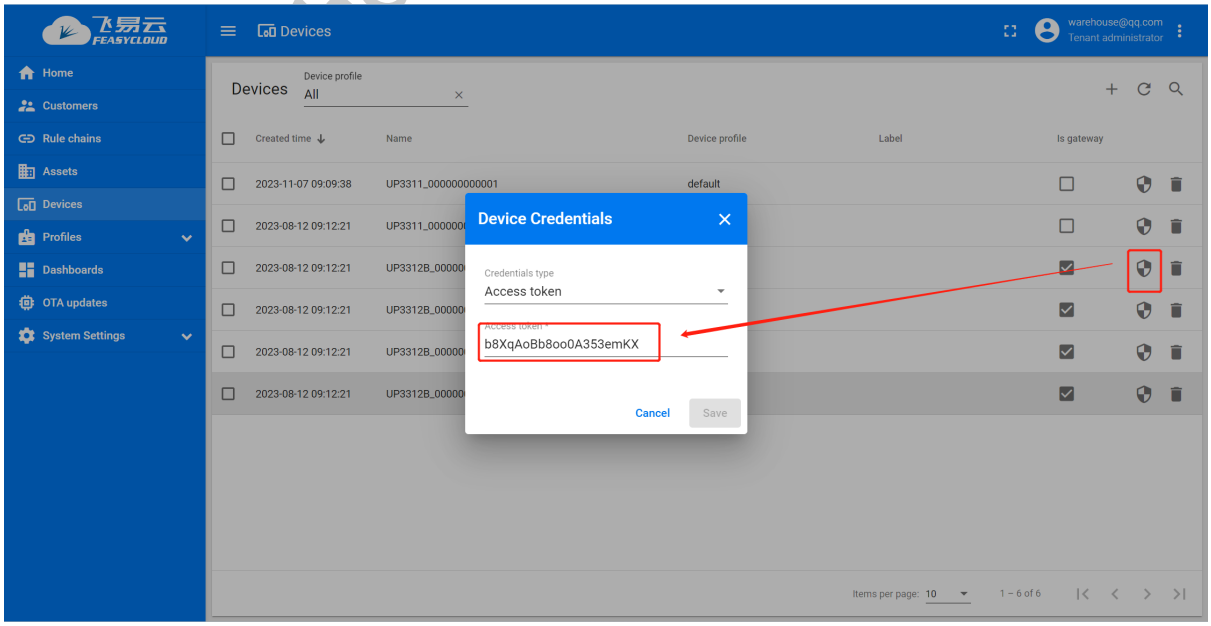
Step 1. On the feasycloud_home, access the device configuration page through the **Device** in the left navigation menu. Click the **Add New device** button



Step 2. Device profile select **3312** and check as gateway.



Step 3. Modify the credentials of the gateway, and the credentials are obtained from the gateway through the serial port AT command (**AT+TOKEN**)

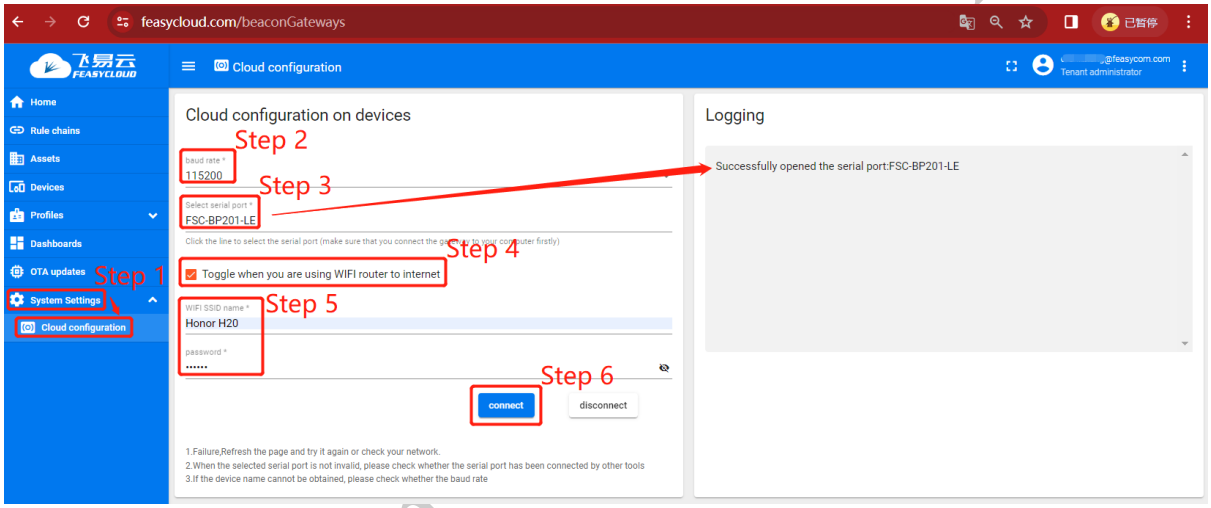


5.4 Gateway Distribution Network

The following is based on Windows 10 and Google Chrom browser 119 operating environment to demonstrate the operation instructions:

FeasyCloud provides network distribution functions.

FSC-UP3311 UWB gateway needs to be connected to the Internet, please use the SSID information and corresponding password of the WiFi AP that can be connected to the Internet to connect the gateway device to the network.



Step 1. In FeasyCloud-Home ,navigate to the configuration page under **system setting - Cloud configuration** in the left navigation menu;

Step 2. In the cloud configuration page, click **baud rate** and select the baud rate corresponding to the device. The general gateway program defaults to 115200;

Step 3.1 Connect your **FSC-UP3312 UWB gateway ** to your computer via **Micro-USB** cable. At the same time, a serial device will be added to your computer system, assuming that the serial port is **COM2**;

Step 3.2 In the cloud configuration page , click **Select serial port**. In the list of devices that pop up, select the corresponding serial port **COM2** (Tip :you can plug and unplug the USB port to

see the vanishing change of the serial port is the device serial port number).

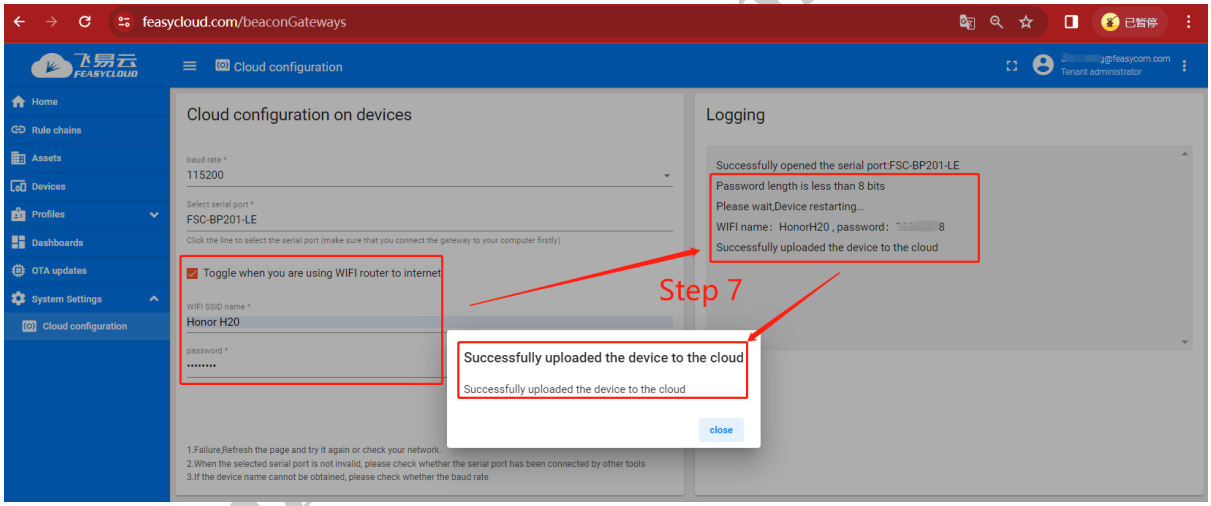
After adding and connecting Successfully, in the **Logging** window on the right side of the cloud platform, ** successfully opened the serial port:xxxx** will be prompted, indicating that the device was successfully connected;

Step 4 Select **Toggle when you are using WIFI router to internet** : √ ;

Step 5. Enter the contents of the valid **WiFi SSID name** and ** Password ** fields of the WiFi AP you can connect to the Internet with;

> **Note**
>
> Only 2.4G band hotspots can be connected

Step 6. click **connect** ,your gateway device FSC-UP3312 will enter the automatic network, and the cloud device will be automatically added.



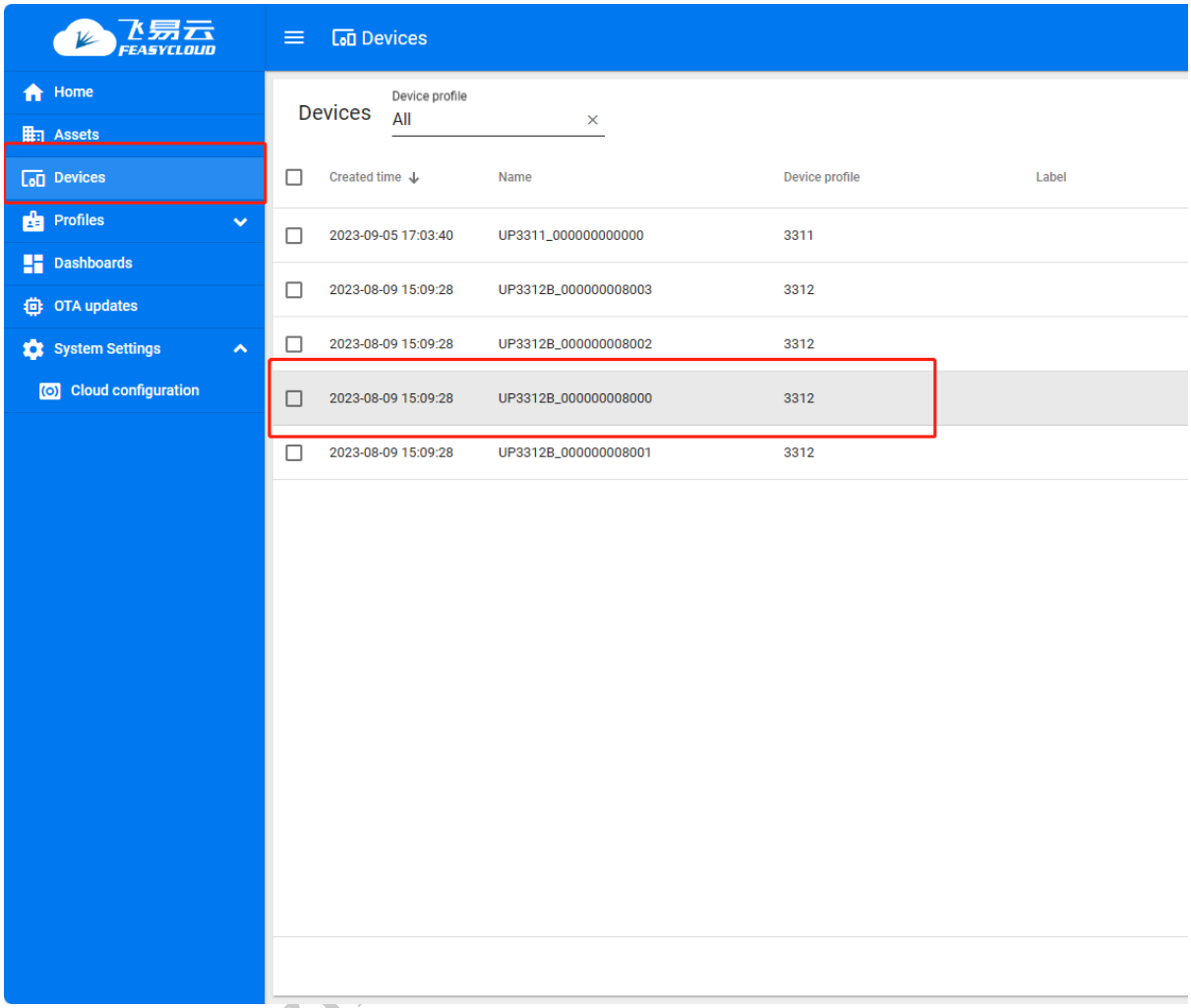
Step 7. In the **Logging** window, show the progress of the network connection and the progress of the cloud added gateway device.

If the addition is successful, the page will appear **Successfully uploaded the device to the cloud** in a popup ;

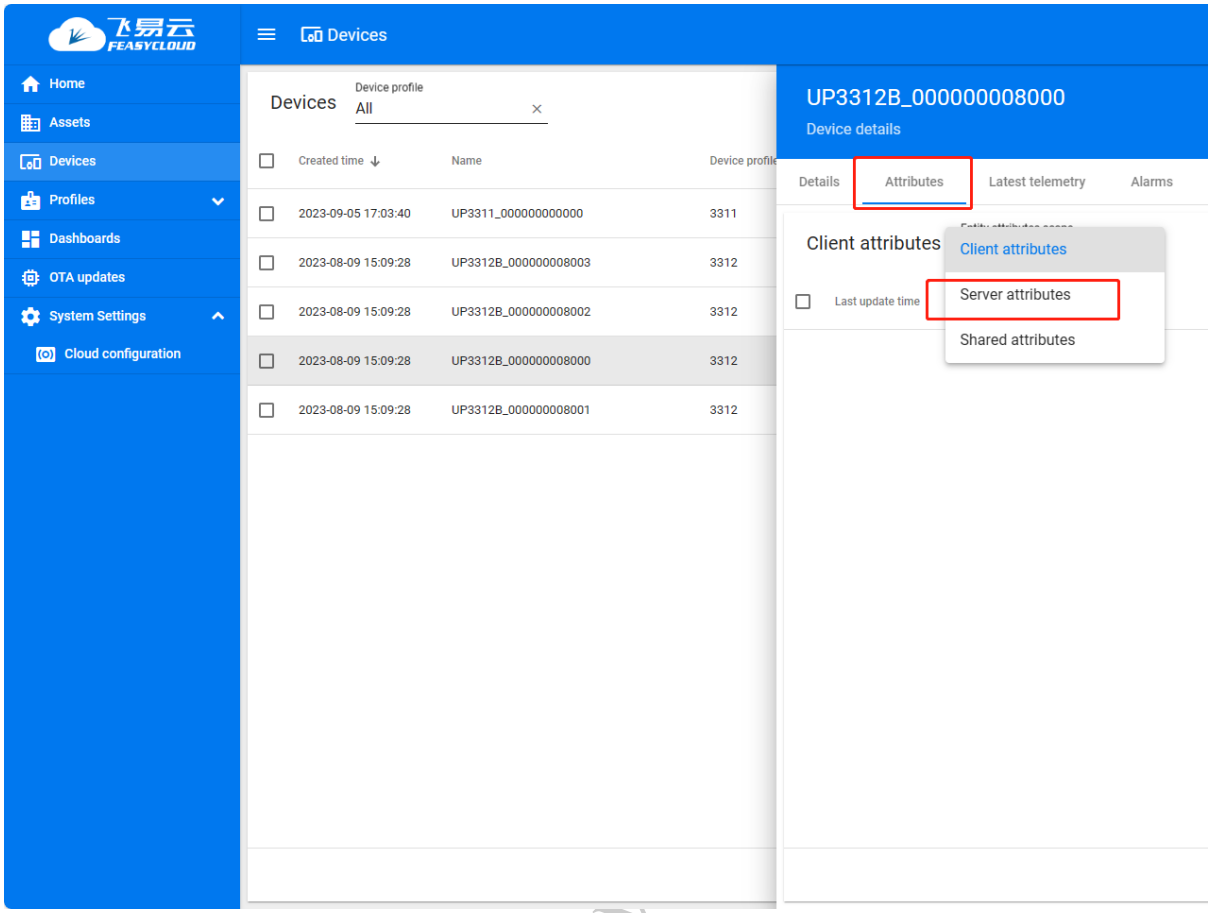
If there is an exception, please press the page popup to prompt the error message, or according to the Logging information on the right side of the page to troubleshoate.

5.5 Check the gateway device status

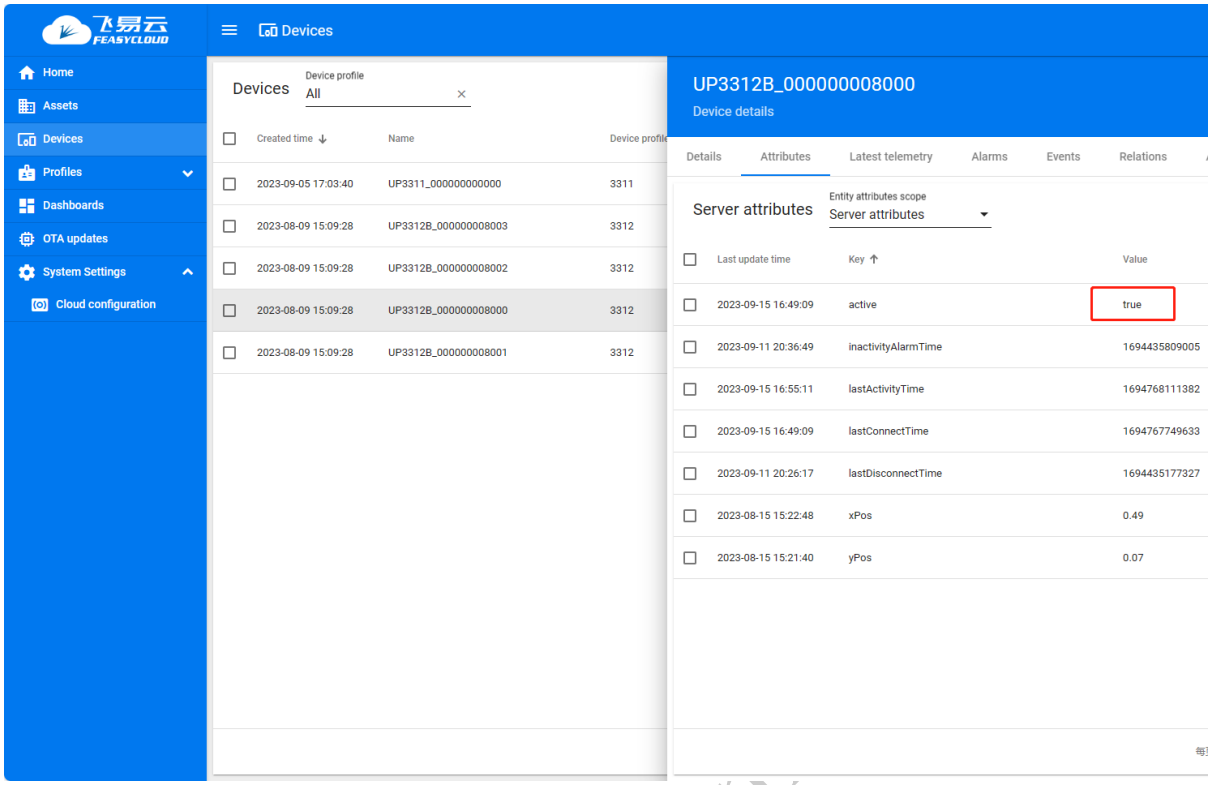
1) Click on Devices and select the device **name** as shown below for UP3312B_000000008000 device



2) Click Attributes and select Server attributes

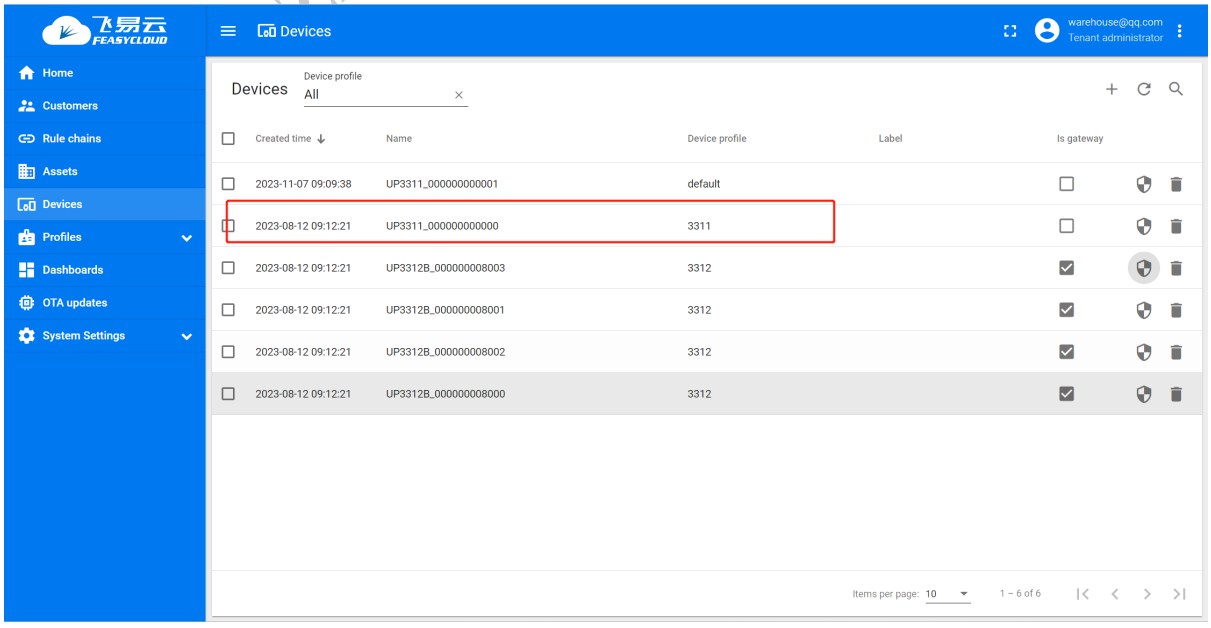


3) If the active status of the gateway is true, the distribution network is successful

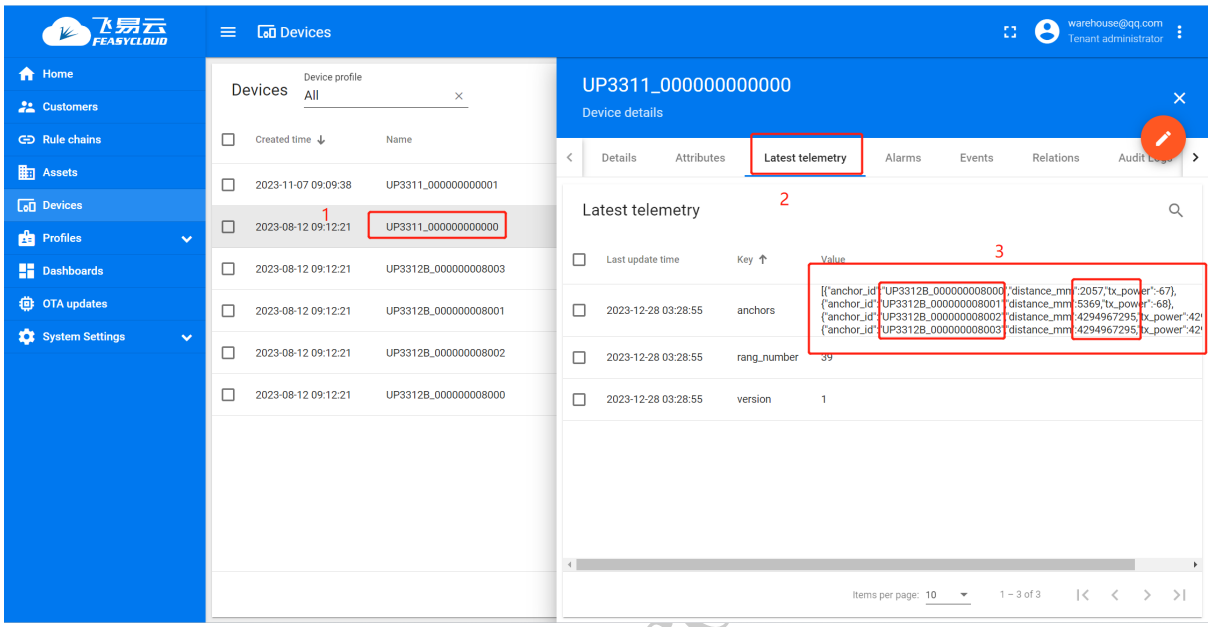


5.6 View telemetry data

1) The gateway will automatically add the scanned **3311** Tags to the device list after adding the cloud



2) Click on the **3311** Tag for details and **Latest telemetry** to see the distance data between the Tag and the 4 base stations



3) Add the remaining three base station devices, the **Device Name** needs to match the **anchor_id** in the telemetry

5.7 Interpretation of UWB Tag data

The teletransmission data of different devices are inconsistent. The devices in our set are mainly for UWB tags, and UWB tags will upload one-dimensional distance information from at least three Anchor points around it through teletransmission data.

Example :

a. Under the **"Latest telemetry "** page of the device UP3311_DC0D5000F0008, there is an item called **"anchors"** .Key value is a **JSON** array object ,form is : **[{anchor1},{anchor2},{anchor3}⋯]** ; b. Specifically, each **Anchor** contains the following key content :

```
"anchor_id" : "UP3312_00123456789A"
```

// The unique identification of the base station device, usually the name of the device, and the other key values are Tags.

```
"distance_mm" : 444
```

// In millimeters, it represents the distance between the tag device (UP3311_DC0D5000F0008) and the base station device (UP3312_00123456789A).

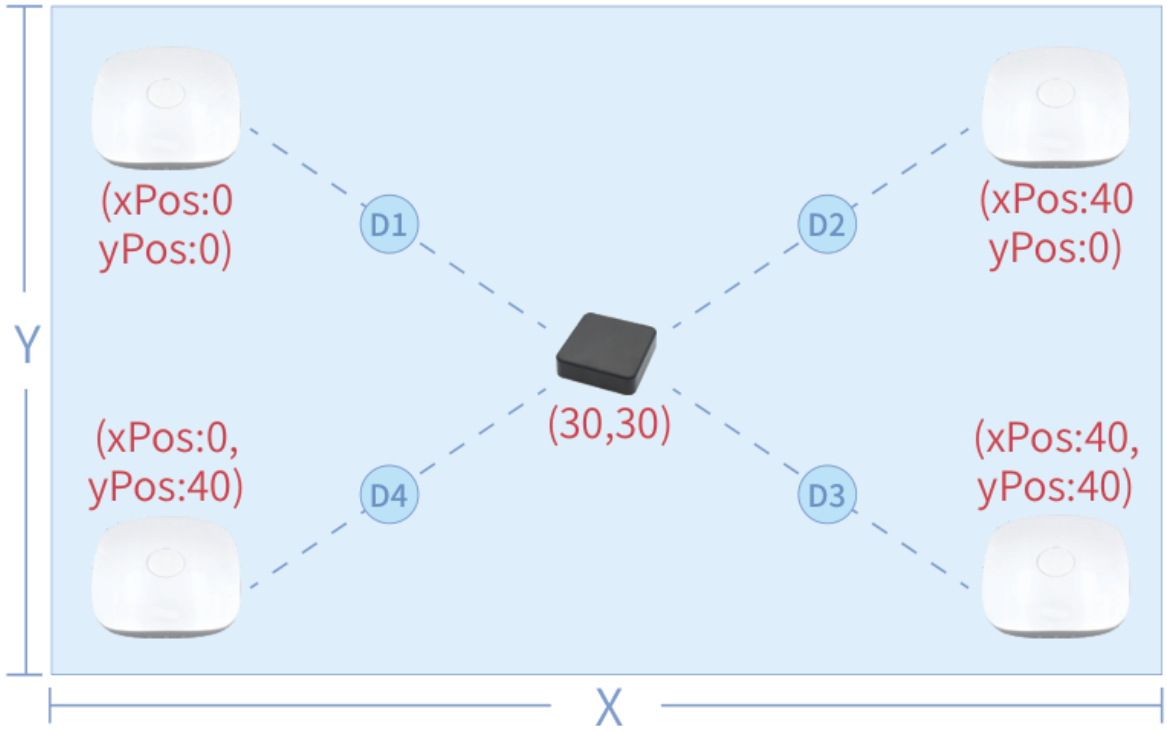
We can use the Tag to set the **"dis-tance_mm"** information of the base station **Anchor** for ranging and obtain the relative position.

If we need to obtain the two-dimensional position information of the Tag in a plane, we need the distance information of the Tag from at least 3 base stations in the plane . **FeasyCloud provides corresponding algorithms and visual monitoring** 。

Chapter 6

Visualize the location of the UWB Tag

Through the Dashboard of FeasyCloud, we can observe the actual position of the Tag in the plane, that is, the distance of the horizontal X and vertical Y relative to the coordinate origin, as shown in the following figure:



a. **Origin of coordinates** : Our top-left **G1** position;

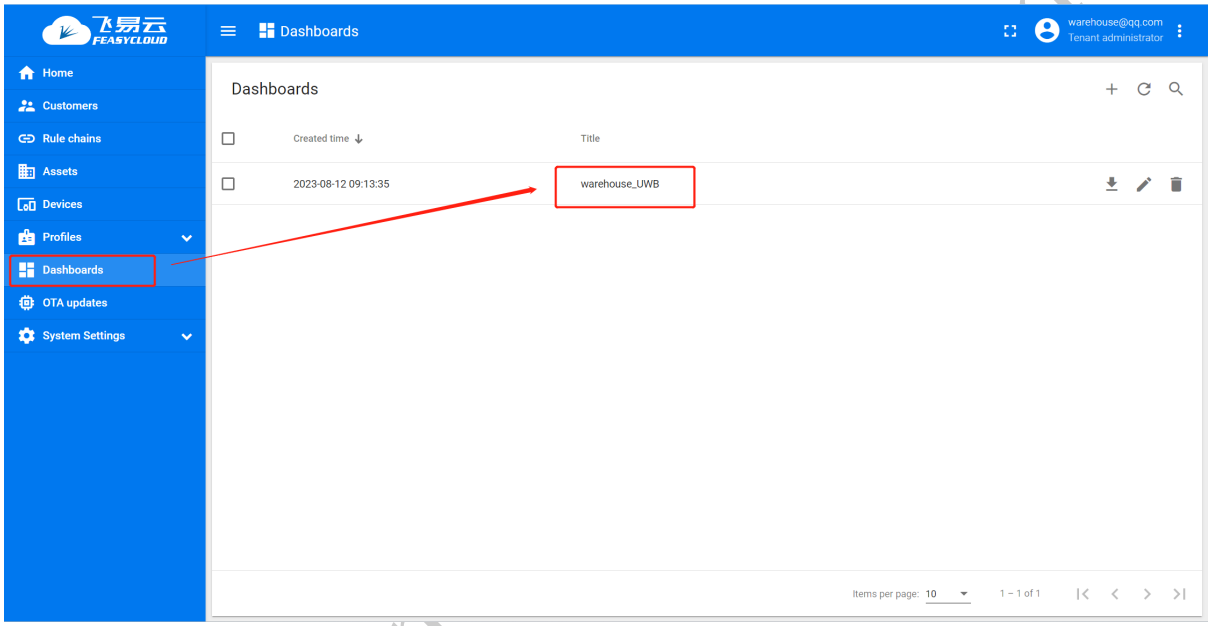
b. **Relative location of other gateways** : We need to specify **G2**, **G3**, **G4** relative to the

origin of the coordinates. That is, by setting the corresponding **xPos**, **yPos** in the device list in their Dashboard;

c. **Relative position of the Tag** : The relative position of the Tag is automatically calculated and displayed in the Dashboard.

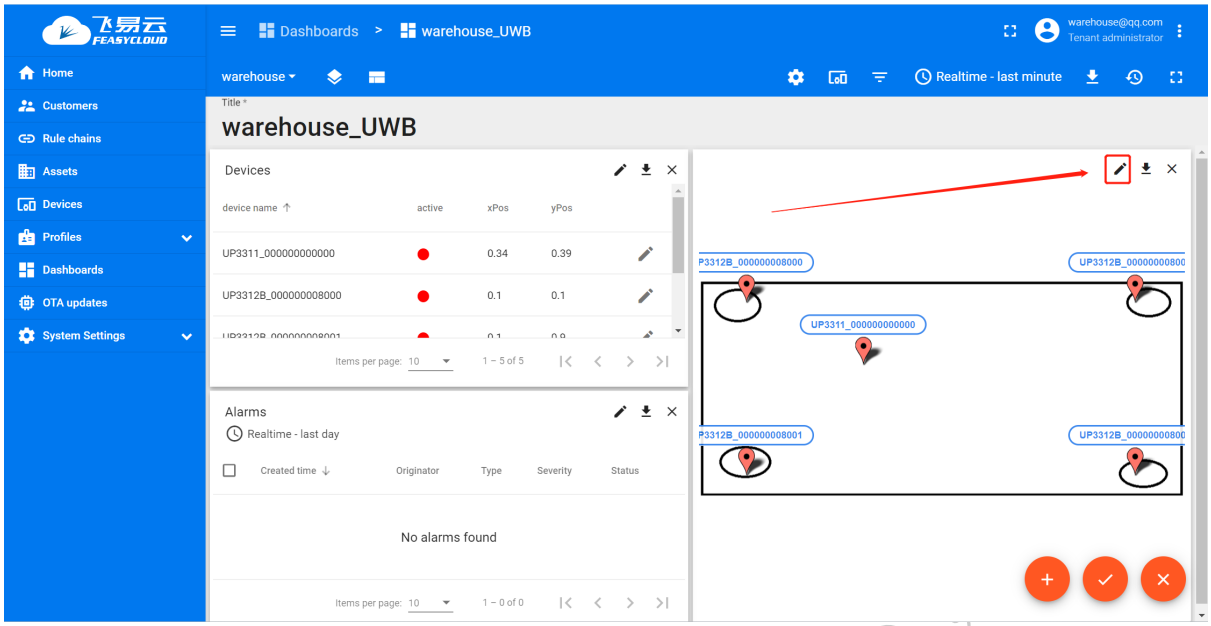
6.1 Visualize the positioning configuration process

Step 1. Enter the dashboard from the left **Dashboard** on the cloud platform, Click **warehouse_UWB** button.

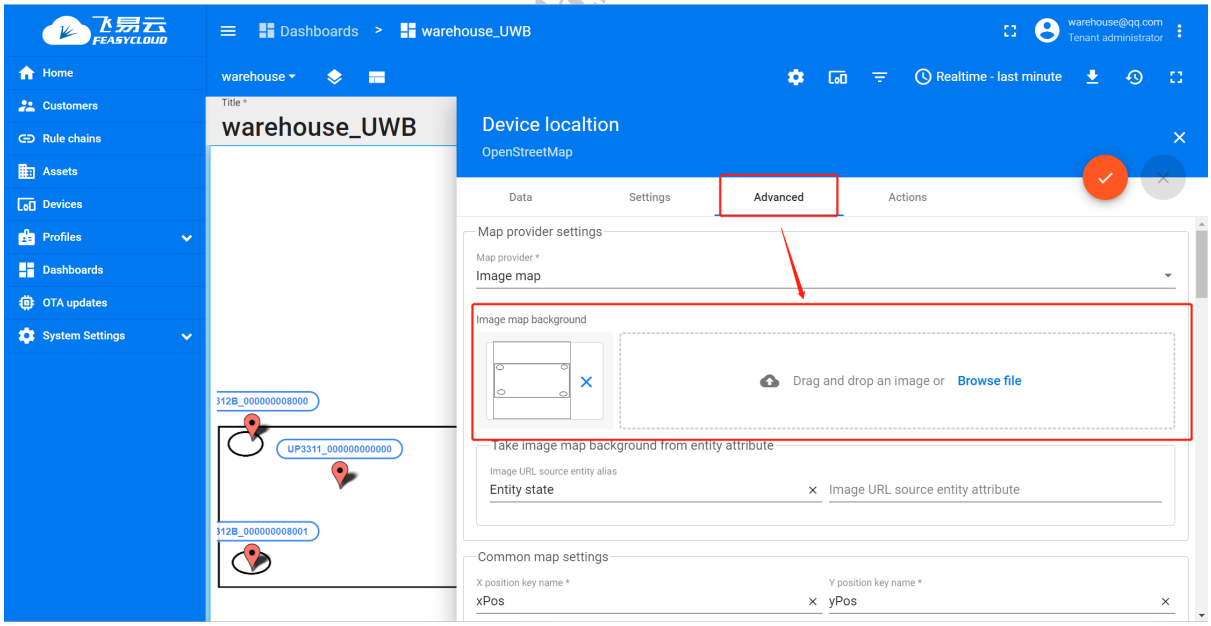


Step 2. Click on any Building , Click the Enter Edit Mode button in the bottom right corne,

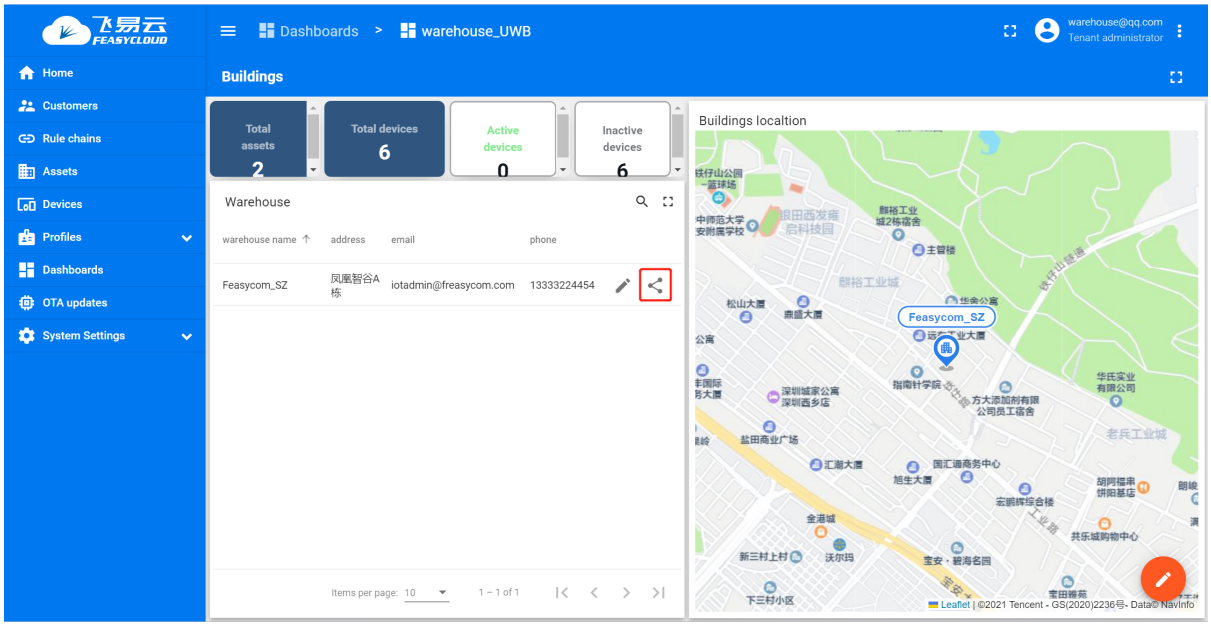
Click the **Edit Widgets** button in the top right corner of the right floor plan

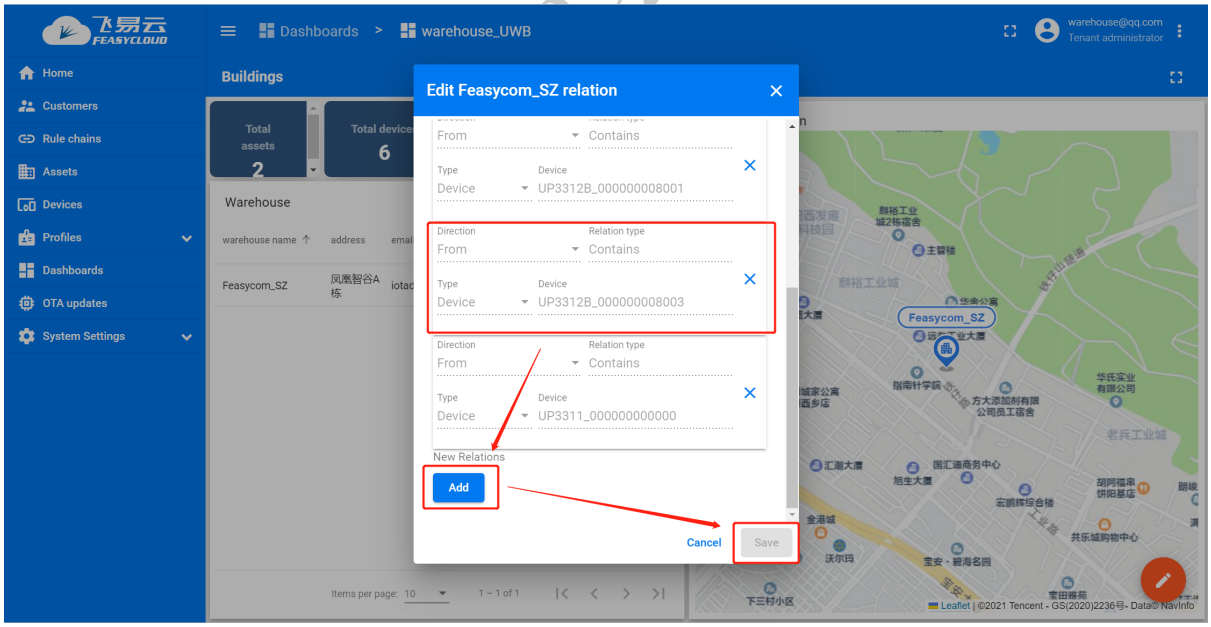


Step 3. Click **Advanced** - **Browse file** . Replace the background image of the warehouse, generally using a **2D plan** of the room



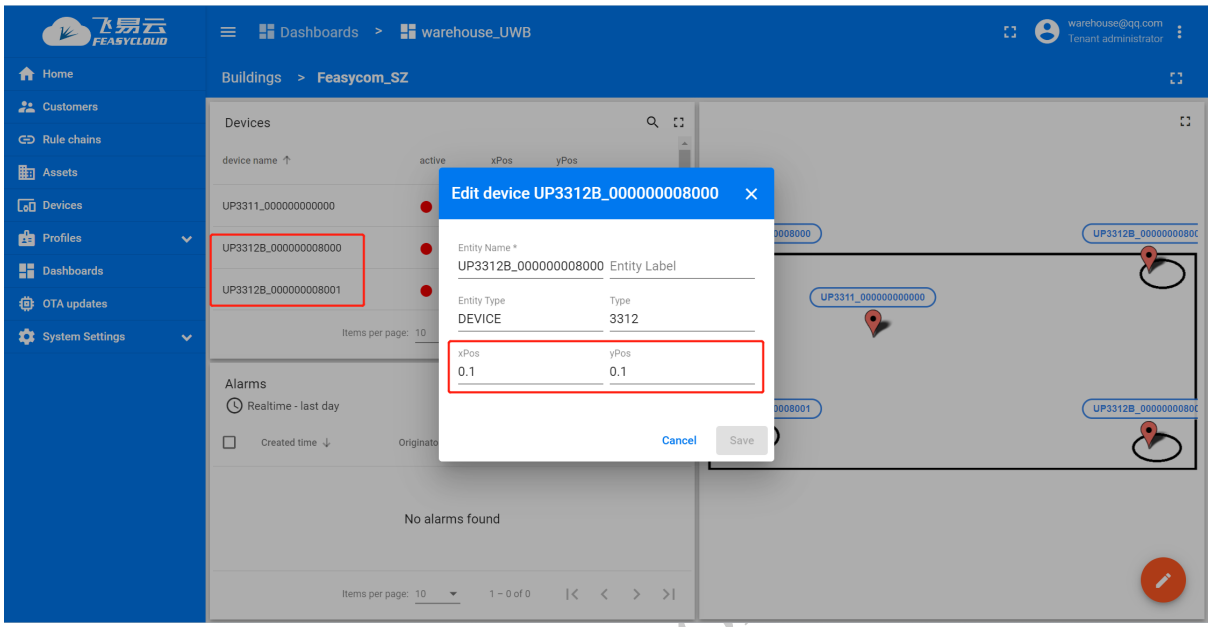
Step 4. In the **Dashboards** - **warehouse_UWB** . Click on the repository **Relation**, add both the **base station** and the **tag** to the repository,



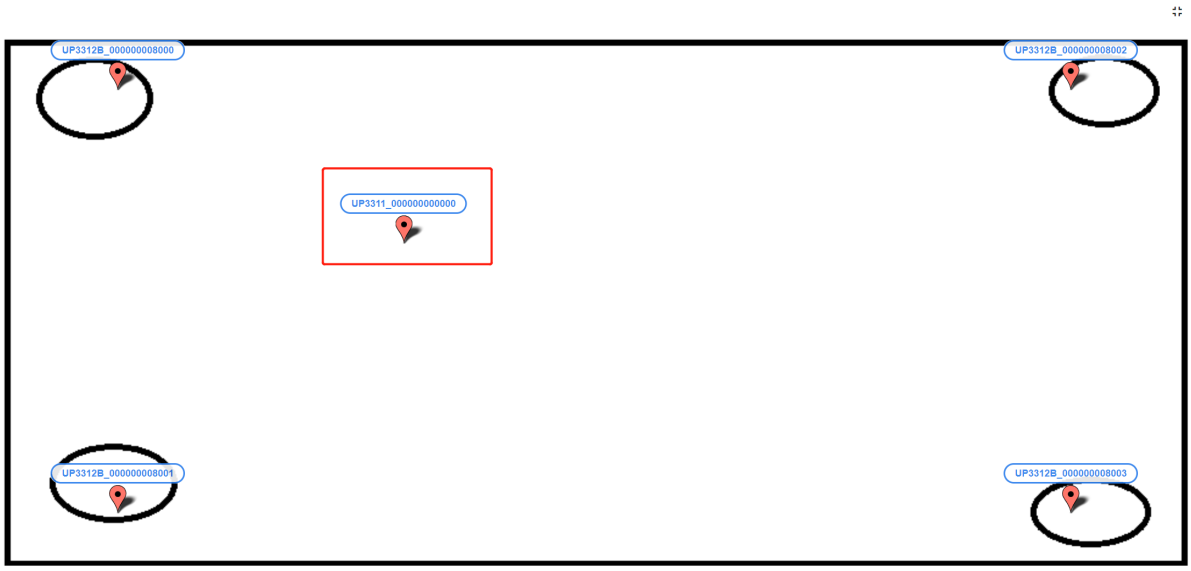


Step 5. Go to the repository where the device has been added. Under **Devices**, you can see all

the devices that have been added. Click **Modify** after **Base Station** , set a **relative coordinate** for the **base station** . **xPos** and **yPos** can only be numbers between **0 and 1** . The coordinate of the **base station gateway** is (0,0) . The coordinates of other base stations are scaled based on distance from the **base station gateway** and the size of the room.



Step 6. After the configuration is completed, you can see the floor plan of the warehouse and the location of the 4 base stations on the right side of the warehouse, and the **TAB** will dynamically refresh the ICONS based on the real-time location.



Chapter 7

More Advanced features

Our advanced operations include, but are not limited to, the following features:

Note

Notice :You can explore through the demo dashboard, but be aware that this demo dashboard may be modified and updated at any time.

Chapter 8

Contact Information

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Chapter 9

Appendix

9.1 PDF Download

PDF Download