



# Milesight AIoT Sensing Platform

User Guide



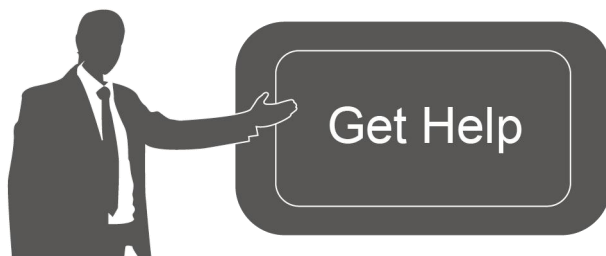
## Readers

This guide is intended for the following users:

- Distributors
- Network Planners
- On-site technical support and maintenance personnel
- Network administrators responsible for network configuration and maintenance

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For assistance, please contact

Milesight technical support:

Email: [iot.support@milesight.com](mailto:iot.support@milesight.com)

Support Portal: [support.milesight-iot.com](https://support.milesight-iot.com)

Tel: 86-592-5085280

Fax: 86-592-5023065

Address: Building C09, Software Park  
Phase III, Xiamen 361024,  
China

## Revision History

Date	Doc Version	Description
May 15, 2023	V 1.0	Initial version
July 20, 2023	V 1.1	1. Update installation commands 2. Add dashboards, rules and HTTP/MQTT recipients

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# 1. Product Introduction

## 1.1 Overview

Milesight AIoT Sensing Platform, based on the open-source Thingsboard, provide an efficient solution to collect and store data from Milesight sensing cameras. Besides, the Milesight AIoT Sensing Platform is able to manage and maintain the remote sensing cameras.

## 1.2 Key Features

- Support smart recognition of meter data on the image from sensing cameras
- Support monitoring and storing data of remote devices
- Support managing and monitoring bulk of devices
- Support firmware and configuration file updating remotely
- Friendly GUI for easy configuration

## 1.3 Recommended System

### Hardware

For 1 to 300 devices

- RAM: 8 GB
- Disk: 50 GB

For 300 to 500 devices

- RAM: 16 GB
- Disk: 200 GB

### Software

Operating System:

- Ubuntu Kinetic 22.10
- Ubuntu Jammy 22.04 (LTS)
- Ubuntu Focal 20.04 (LTS)
- Ubuntu Bionic 18.04 (LTS)

# 2. Installation

## 2.1 Requirement

- Milesight AIoT Sensing Platform Image Package
- WinSCP
- Putty (or other SSH tool)
- Install Docker: [for Ubuntu](#)

Milesight AIoT sensing platform supports to install by compose or command, please select one of them to complete the installation.

## 2.2 Compose Installation

1. Download a Milesight AIoT sensing platform's image package from Milesight website and import it to the local path of system via WinSCP or other tools.

2. Push image to the docker.

```
sudo -i  
docker load < ~/msaiotsensingplatform.tar
```

3. Create docker compose files:

```
nano docker-compose.yml
```

Add the following lines to the yml file:

```
version: '3.0'  
services:  
  mysp:  
    restart: always  
    image: "msaiotsensingplatform:1.0.1.1"  
    ports:  
      - "5220:9090"  
      - "1883:1883"  
      - "7070:7070"  
      - "5683-5688:5683-5688/udp"  
    environment:  
      TB_QUEUE_TYPE: in-memory  
      CASSANDRA_URL: localhost:9042  
      CASSANDRA_KEYSPACE_NAME: msaiotsensingplatform  
    volumes:  
      - /var/mysp-data:/data  
      - /var/mysp-logs:/var/log/msaiotsensingplatform
```

Parameter introduction:

- **5220:9090** - connect local port 5220 to exposed internal HTTP port 9090, and both of them should not be changed, otherwise the platform may not work well.

- **1883:1883** - connect local port 1883 to exposed internal MQTT port 1883. The local port will be used on SC series camera configurations.
- **7070:7070** - connect local port 7070 to exposed internal Edge RPC port 7070
- **5683-5688:5683-5688/udp** - connect local UDP ports 5683-5688 to exposed internal COAP and LwM2M ports
- **/var/myisp-data:/data** - mounts the host's dir **/var/myisp-data** to platform DataBase data directory
- **/var/myisp-logs:/var/log/msaiotsensingplatform** - mounts the host's dir **/var/myisp-logs** to platform logs directory
- **myisp** - friendly local name of this machine
- **restart: always** - automatically start IoT Sensing platform in case of system reboot and restart in case of failure.
- **image: msaiotsensingplatform:1.0.1.1** - image name

4. Run the following commands, before starting docker container(s), to create folders for storing data and logs. These commands additionally will change the owner of newly created folders to the docker container user. The **chown** command is used to change the owner of the directories, and it requires sudo permissions (command will request password for a sudo access):

```
sudo useradd -m msaiotsensingplatform
sudo groupadd msaiotsensingplatform //ignore the exist error
sudo usermod -aG msaiotsensingplatform msaiotsensingplatform
mkdir -p /var/myisp-data && sudo chown -R msaiotsensingplatform:msaiotsensingplatform /
var/myisp-data
chmod -R 777 /var/myisp-data
mkdir -p /var/myisp-logs && sudo chown -R msaiotsensingplatform:msaiotsensingplatform /
var/myisp-logs
chmod -R 777 /var/myisp-logs
```

5. Set the terminal in the directory which contains the docker-compose.yml file and execute the following commands to up this docker compose directly:

```
docker compose up -d
docker compose logs -f myisp
```

It will take about 1 minute to complete the installation and start the program.

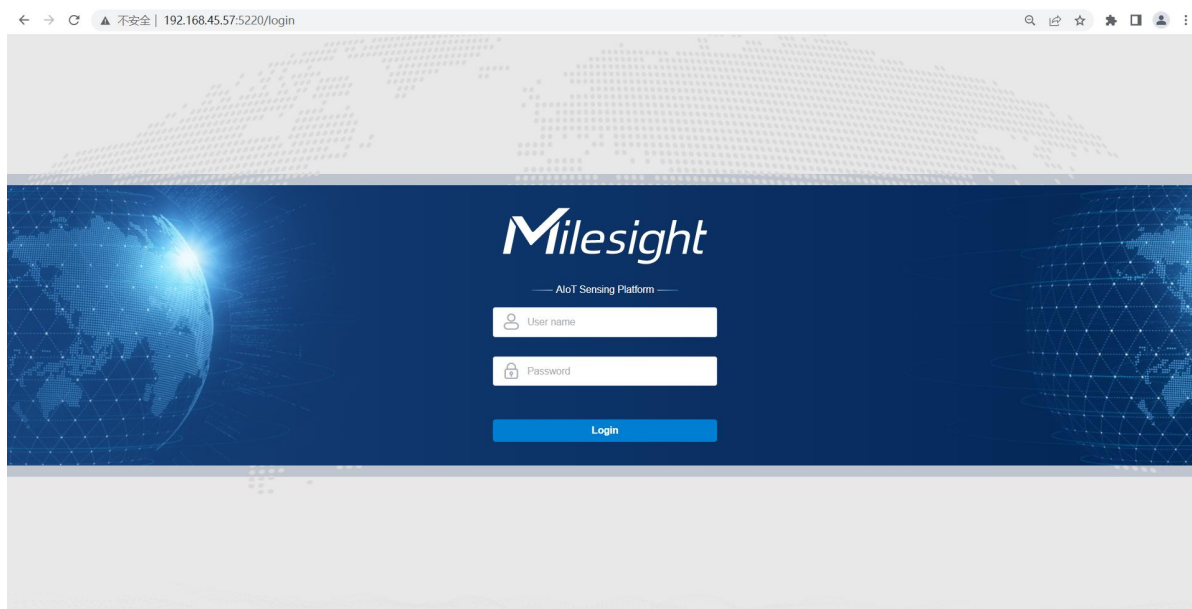
**Note:** Docker Compose as docker-compose (with a hyphen) is deprecated. It is recommended to use Docker Compose V2 instead. If you still rely on docker compose as standalone, here is the list of the above commands:

```
docker-compose up -d  
docker-compose logs -f mysp
```

6. After installation, type <http://your-host-ip:5220> in your browser to visit the login page.

Default username: admin

Default password: password



7. You can check service logs to find out errors in case of any issue. For example, you can execute the following command to check platform logs:

```
docker compose logs -f mysp
```

To stop the Milesight AIoT Sensing platform:

```
docker compose stop mysp
```

To start the Milesight AIoT Sensing platform:

```
docker compose start mysp
```

**Note:** Docker Compose as docker-compose (with a hyphen) is deprecated. It is recommended to use Docker Compose V2 instead. If you still rely on docker compose as standalone, here is the list of the above commands:

```
docker-compose logs -f mysp  
docker-compose stop mysp  
docker-compose start mysp
```

## 2.3 Command Installation

1. Download the Milesight AIoT sensing platform's image package from Milesight website and

import it to local path of system via WinSCP or other tools.

2. Push image to docker.

```
sudo -i
docker load < ~/msaiotsensingplatform.tar
docker images
```

3. Run the following commands, before starting docker container(s), to create folders for storing data and logs. These commands additionally will change the owner of newly created folders to the docker container user. The **chown** command is used to change the owner of the directories, and it requires sudo permissions (command will request password for a sudo access):

```
sudo useradd -m msaiotsensingplatform
sudo groupadd msaiotsensingplatform //ignore the exist error
sudo usermod -aG msaiotsensingplatform msaiotsensingplatform
mkdir -p /var/mysp-data && sudo chown -R msaiotsensingplatform:msaiotsensingplatform /
var/mysp-data
sudo chmod -R 777 /var/mysp-data
mkdir -p /var/mysp-logs && sudo chown -R msaiotsensingplatform:msaiotsensingplatform /
var/mysp-logs
sudo chmod -R 777 /var/mysp-logs
```

4. Execute the following commands to run this docker directly:

```
docker run -it -p 5220:9090 -p 1883:1883 -p 7070:7070 -p 5683-5688:5683-5688/udp -v /var/
mysp-data:/data -v /var/mysp-logs:/var/log/msaiotsensingplatform --name mysp --restart al
ways msaiotsensingplatform:1.0.1.1
```

Parameter introduction:

- **docker run** - run this docker
- **-p 5220:9090** - connect local port 5220 to exposed internal HTTP port 9090, this is not allowed to change, or the platform may not work well
- **-p 1883:1883** - connect local port 1883 to exposed internal MQTT port 1883
- **-p 7070:7070** - connect local port 7070 to exposed internal Edge RPC port 7070
- **-p 5683-5688:5683-5688/udp** - connect local UDP ports 5683-5688 to exposed internal COAP and LwM2M ports
- **-v /var/mysp-data:/data** - mounts the host's dir **/var/mysp-data** to platform DataBase data directory
- **-v /var/mysp-logs:/var/log/msaiotsensingplatform** - mounts the host's dir **/var/mysp-logs** to platform logs directory
- **-name mysp** - friendly local name of this machine



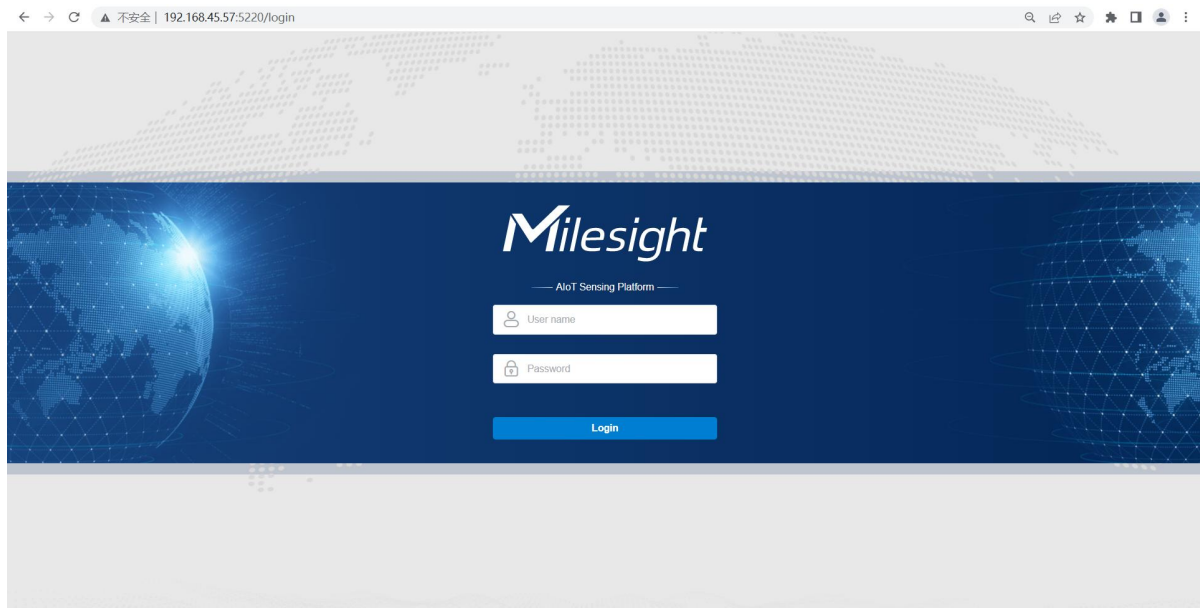
- **--restart always** - automatically start AIoT Sensing platform in case of system reboot and restart in case of failure.
- **msaiotsensingplatform:1.0.1.1** - image name

It will take about 1 minutes to complete the installation and start the program.

5. After installation, type <http://your-host-ip:5520> in your browser to visit the login page.

Default username: admin

Default password: password



6. Connect to the Milesight AIoT Sensing Platform:

```
docker attach mysp
```

To stop the Milesight AIoT Sensing platform:

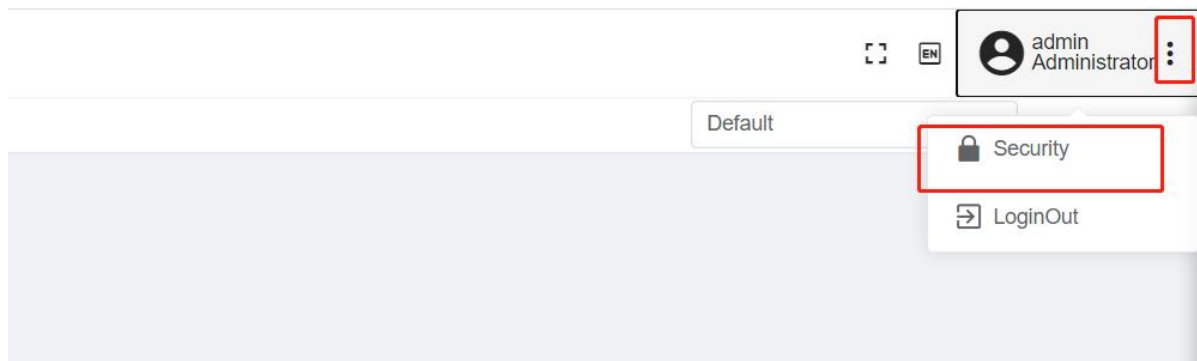
```
docker stop mysp
```

To start the Milesight AIoT Sensing platform:

```
docker start mysp
```

## 2.4 Change Password

After login, it is suggested to change password for security.



### Change Password

Current password \*

Current password

New password \*

New password

Confirm new password \*

Confirm new password

At least:

- 8 characters
- 2 types of characters: numbers, letters and symbols

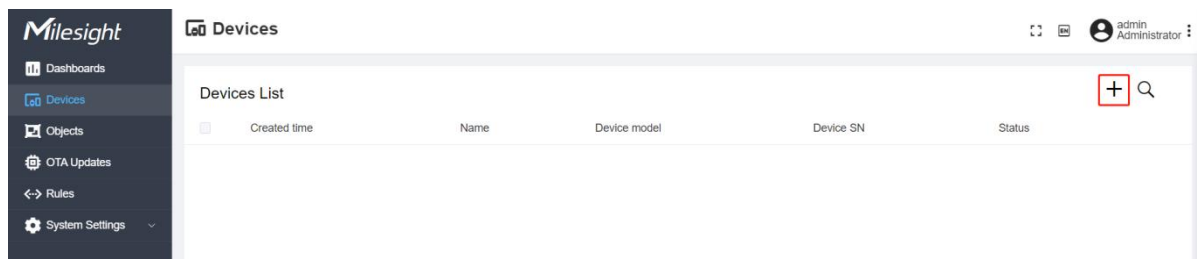
Discard

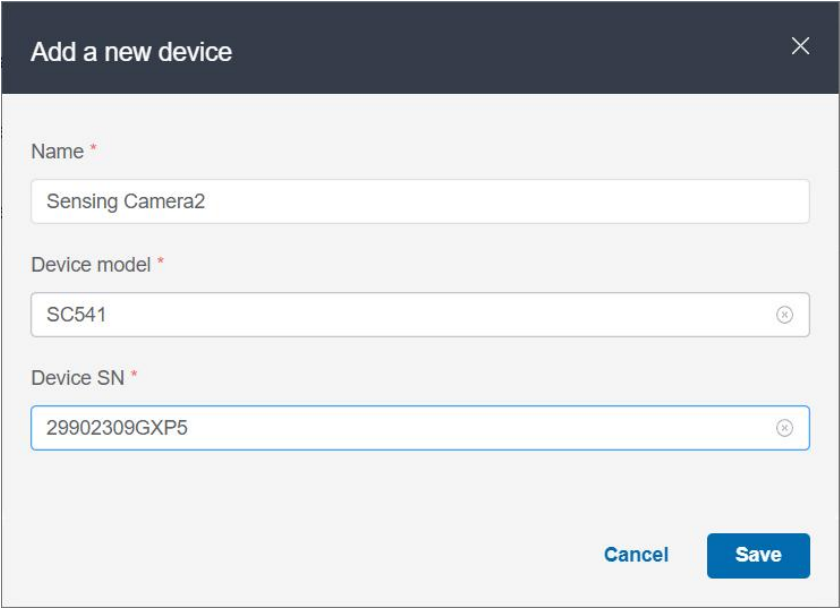
Change Password

## 3. Operation Guide

### 3.1 Connect Device

**Step 1:** Go to **Devices** page, click “+” to add a device by the device SN.



A modal window titled "Add a new device" with a close button (X) in the top right corner. It contains three text input fields: "Name" with the value "Sensing Camera2", "Device model" with the value "SC541", and "Device SN" with the value "29902309GXP5". Each field has a small red asterisk to its left. At the bottom right, there are two buttons: "Cancel" and "Save".

Add a new device

Name \*

Sensing Camera2

Device model \*

SC541

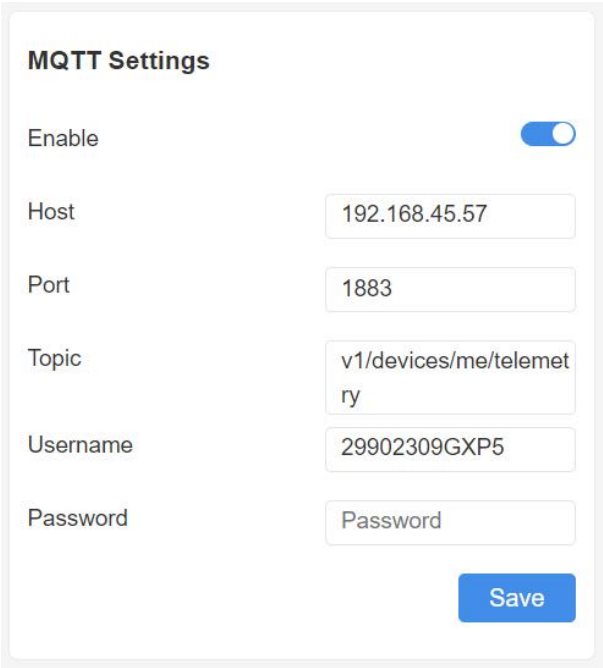
Device SN \*

29902309GXP5

Cancel Save

**Step 2:** Ensure the device has been connected to the network which can reach to the platform and configure the device to connect to the platform. Take the SC541 as an example, you should set the platform information as below:

- Host: IP address or domain name of the Milesight AIoT Sensing platform
- Port: communication port of the Milesight AIoT Sensing platform
- Topic: v1/devices/me/telemetry
- Username: SN of the device
- Password: leave blank

A form titled "MQTT Settings". It starts with an "Enable" toggle switch that is turned on. Below are six input fields: "Host" (192.168.45.57), "Port" (1883), "Topic" (v1/devices/me/telemetry), "Username" (29902309GXP5), and "Password" (Password). A blue "Save" button is at the bottom right.

MQTT Settings

Enable ☒

Host 192.168.45.57

Port 1883

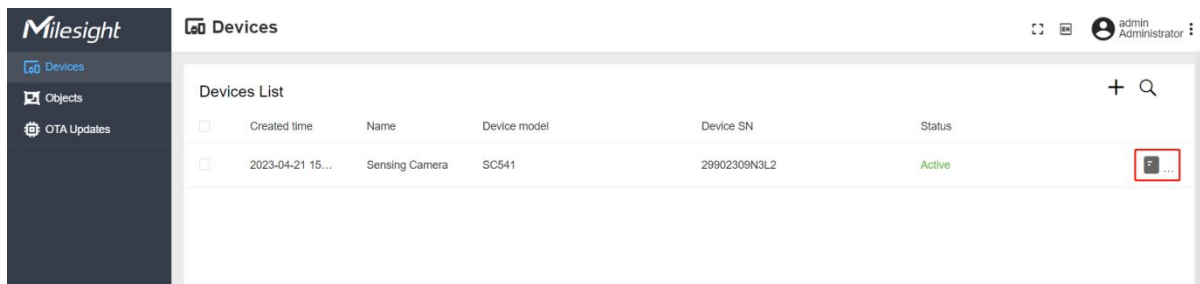
Topic v1/devices/me/telemetry

Username 29902309GXP5

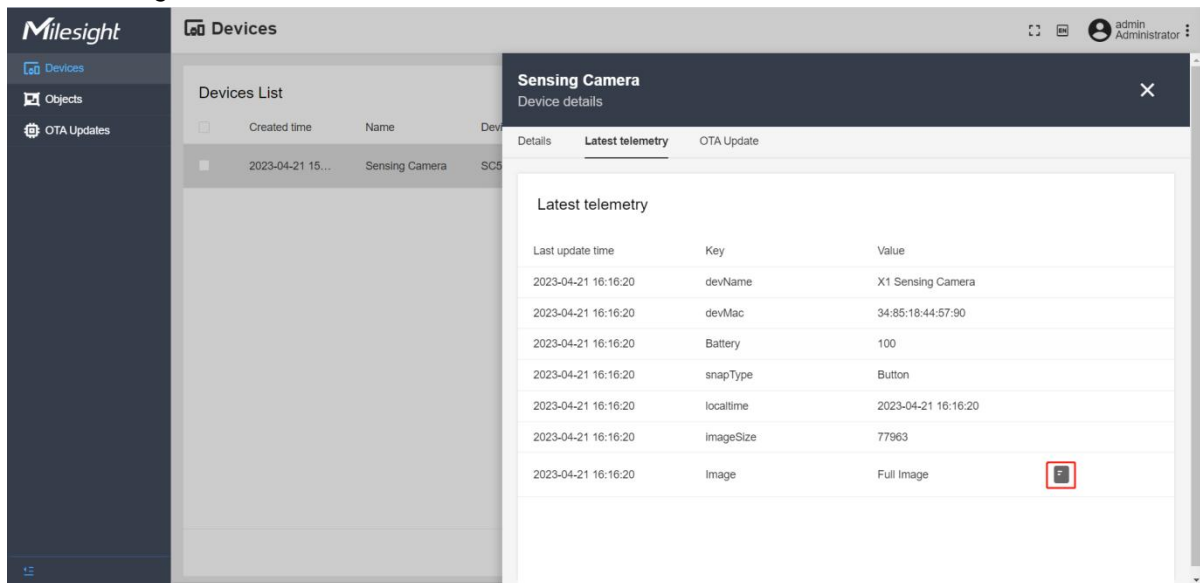
Password Password

Save

**Step 3:** Only when the device sends the image to the platform, will the platform change the status to Active. If the device does not send data for more than 24 hours, the status will change to Inactive.

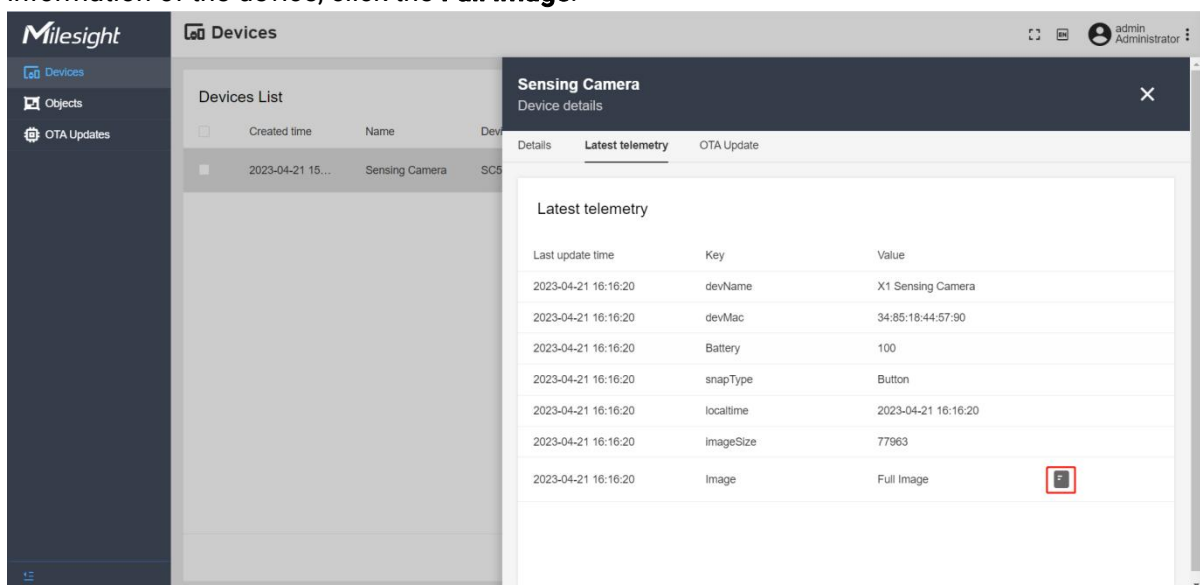


**Step 4:** Click the button on the right of the device item to check the latest information of device and the image.

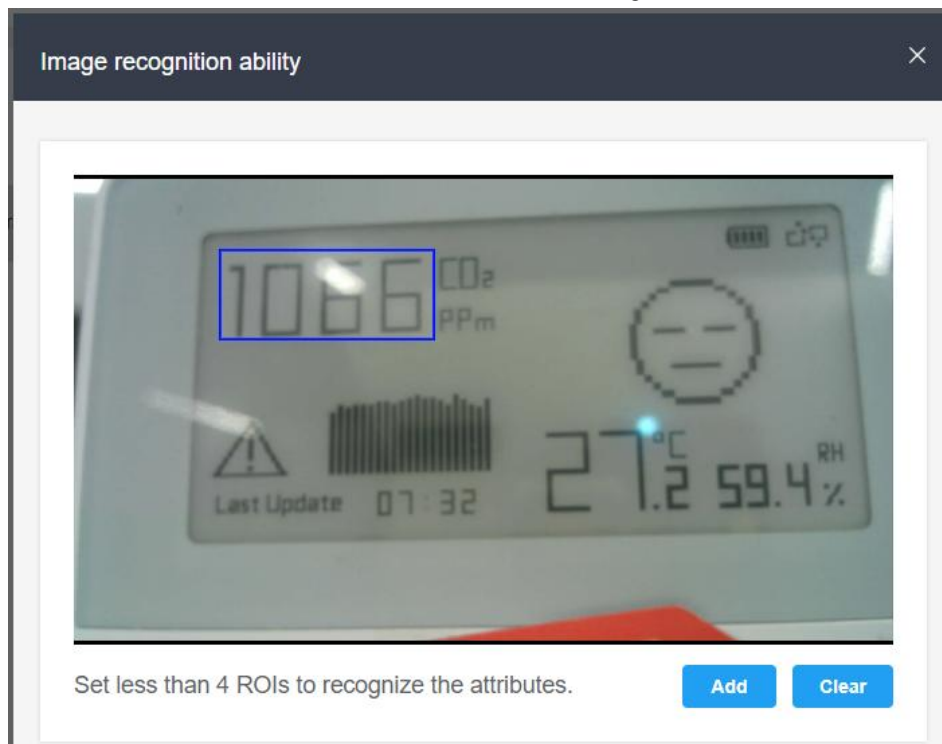


## 3.2 Sensing Data

**Step 1:** Go to **Device** page, click the button on the right of the device item to check the latest information of the device, click the **Full Image**.



**Step 2:** Draw at least a ROI area to cover the data on the image, then click **Add**.



Set a name and an attribute name, click **Save** to save all settings.

The screenshot shows a form titled "Add a new ROI" with a close button (X) in the top right. The form has two main sections. The first section is labeled "Name \*" and contains a text input field with the value "CO2". The second section is labeled "Attributes to be recognized \*" and contains a text input field with the value "CO2" and a blue "Add" button to its right. At the bottom of the form, there are two buttons: "Cancel" and "Save".

**Step 3:** Go to **Objects** page, click "+" to add sensing objects which need to be monitored.

**Add a new sensing object**

Name \*

CO2

Sensing channels

Sensing Camera / CO2

- ☐ Sensing Camera2
- ☒ Sensing Camera
- ☐ Tem
- ☐ Full Image
- ☐ devName
- ☐ imageSize
- ☐ localtime

Cancel Save

**Step 4:** Click the button on the right of the object item to check the sensing data.

**Milesight**

Objects

Sensing objects list

Created time	Name
2023-04-24 15:23:00	stdf
2023-04-24 15:00:18	CO2
2023-04-24 14:53:49	battery

**CO2 Sensing object details**

Details Sensing Data

Sensing channel: Sensing Camera2/2990230f

Time range: 2023-04-25 00:00:00 To 2023-04-25 23:59:59

Search

Created time	Value	
2023-04-25 13:22:46	("CO2":994ppm)	[Download]
2023-04-25 13:17:43	("CO2":907ppm)	[Download]
2023-04-25 13:12:37	("CO2":902ppm)	[Download]
2023-04-25 13:07:34	("CO2":902ppm)	[Download]
2023-04-25 13:02:27	("CO2":)	[Download]
2023-04-25 12:57:23	("CO2":)	[Download]
2023-04-25 12:52:18	("CO2":)	[Download]

Users can also set the time range to search for the historical data, then select the data to download as json format file.

CO2

Sensing object details

Details

Sensing Data

30 data selected

Download

<input checked="" type="checkbox"/>	Created time	Value	
<input checked="" type="checkbox"/>	2023-04-25 13:48:11	{"CO2":}	<input type="text" value=""/>
<input checked="" type="checkbox"/>	2023-04-25 13:43:07	{"CO2":}	<input type="text" value=""/>
<input checked="" type="checkbox"/>	2023-04-25 13:38:02	{"CO2":}	<input type="text" value=""/>
<input checked="" type="checkbox"/>	2023-04-25 13:32:56	{"CO2":}	<input type="text" value=""/>
<input checked="" type="checkbox"/>	2023-04-25 13:27:50	{"CO2":}	<input type="text" value=""/>
<input checked="" type="checkbox"/>	2023-04-25 13:22:46	{"CO2":994ppm}	<input type="text" value=""/>
<input checked="" type="checkbox"/>	2023-04-25 13:17:43	{"CO2":907ppm}	<input type="text" value=""/>

**Note:** The Milesight AIoT Sensing platform does not support recognizing the data on the pictures and it needs to push pictures to Milesight AIoT Inference platform to recognize and return the results. For more details please refer to ***Milesight AIoT Inference Platform User Guide***. If the value is unrecognized or error, click the button beside the value to manually type the data and click **Artificial recognize**.

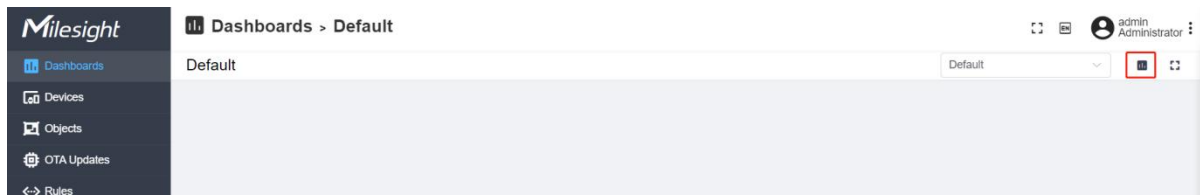
CO2

Artificial recognize

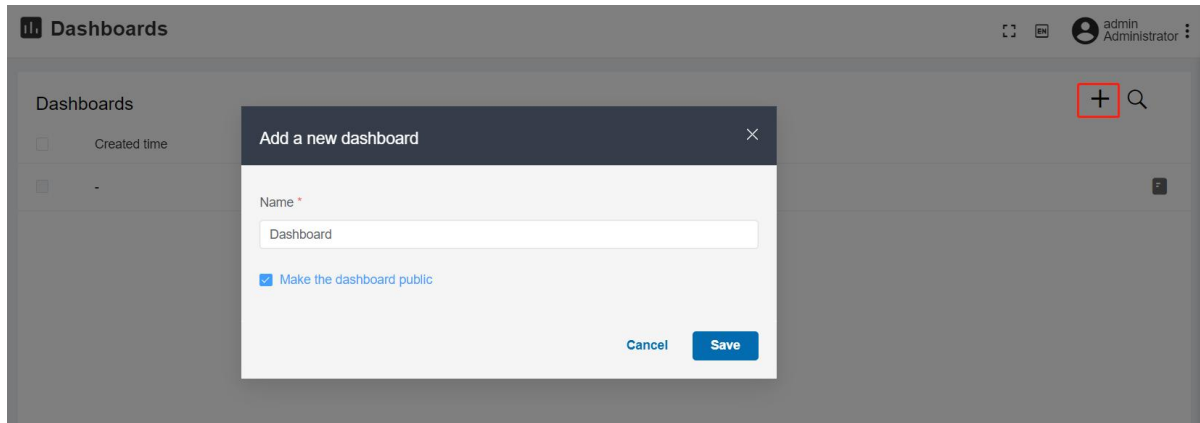
## 3.3 Dashbaord

### Create a Dashboard

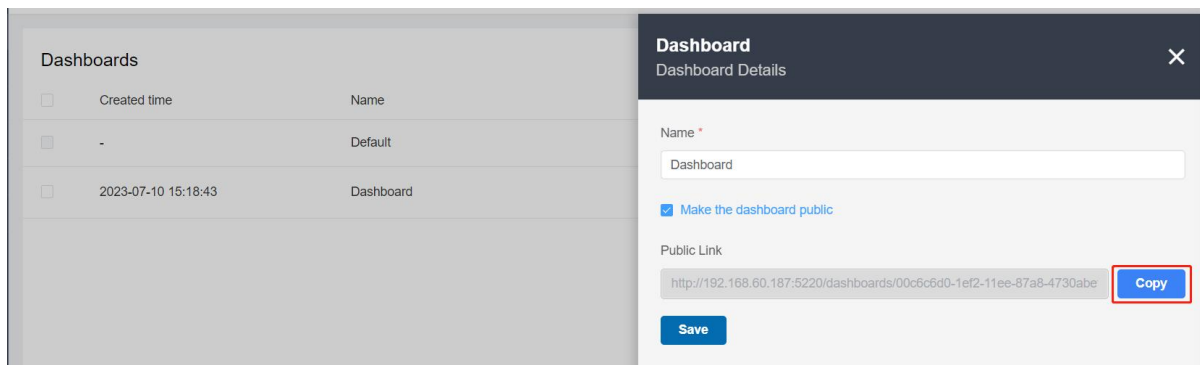
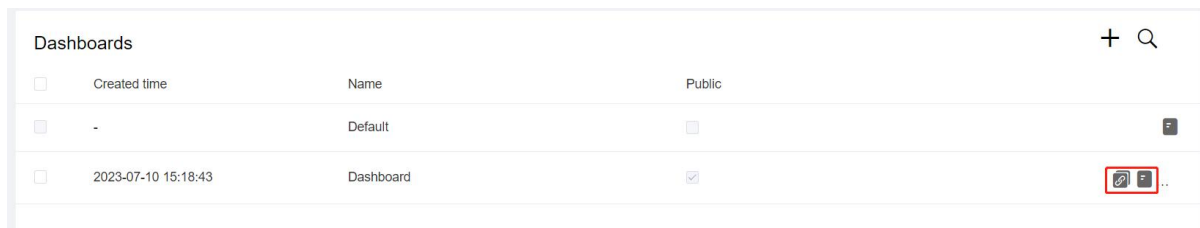
**Step 1:** Go to the **Dashboards** page. The default dashboard can not be deleted. Click the icon on the top-right corner to go to the dashboard management page.



**Step 2:** Click “+” to add a new dashboard, click **Save**.



If **Make the dashboard public** is enabled, the platform can generate a public link to share this dashboard.



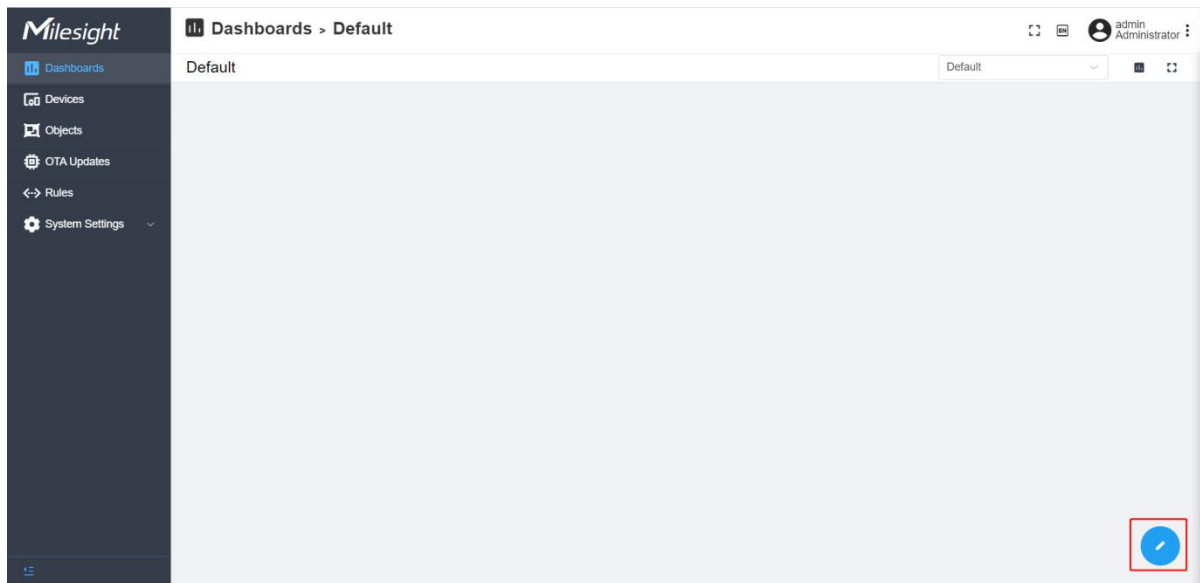
**Step 3:** Select the dashboard and delete if necessary.



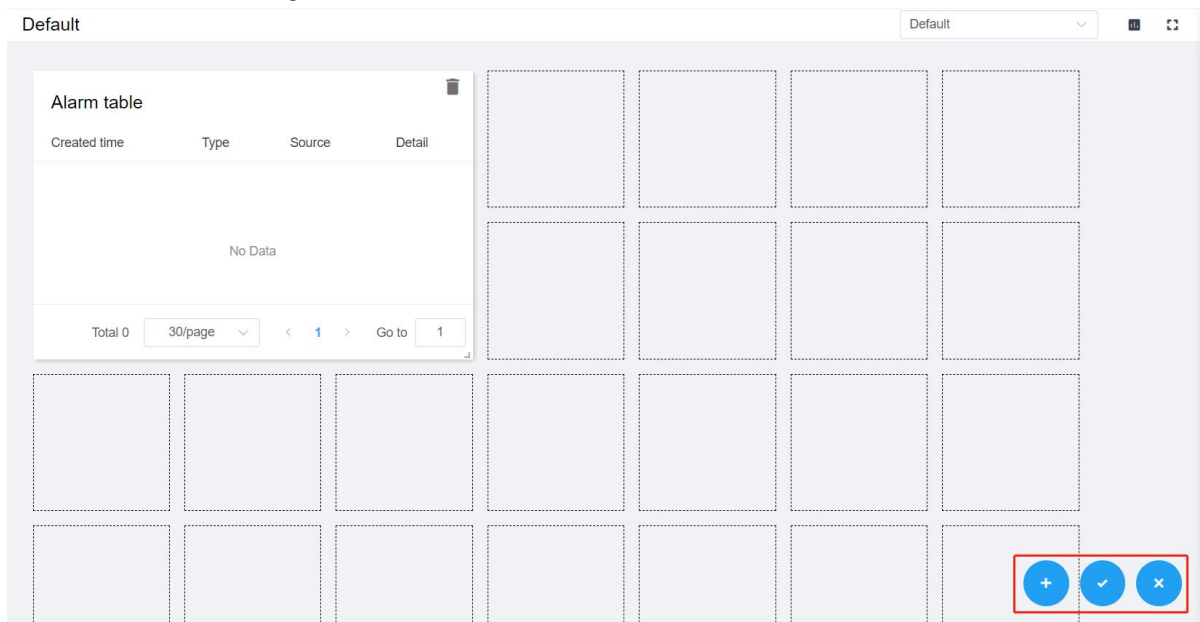


## Edit the Dashboard

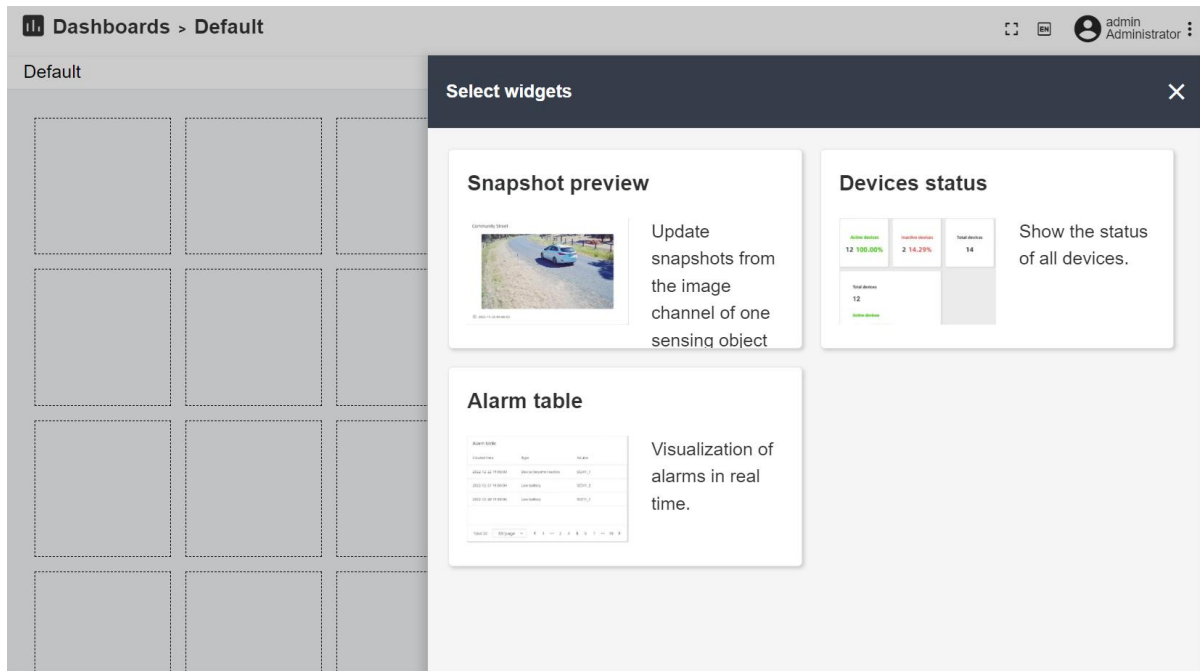
**Step 1:** Go to the **Dashboards** page and click the pen icon to go to the edition mode of this dashboard.



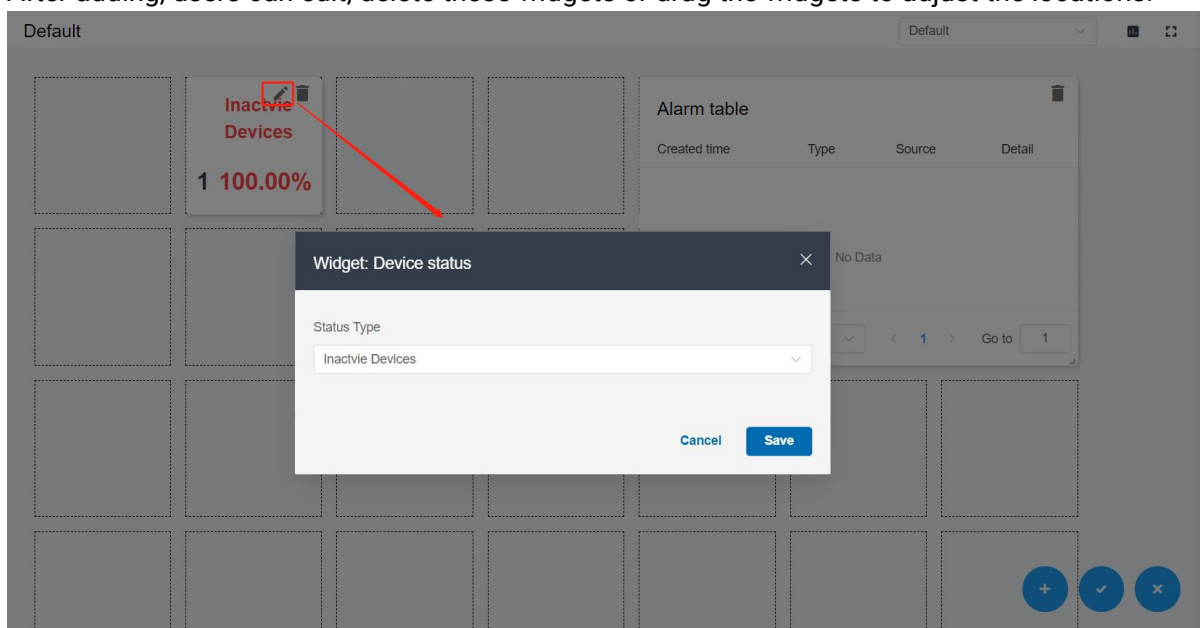
**Step 2:** Click “+” to add widgets, click “✓” to save the widgets and exit the edition mode, and click “x” to cancel the settings and exit the edition mode.



The Milesight AIoT Sensing platform supports adding multiple types of widgets.

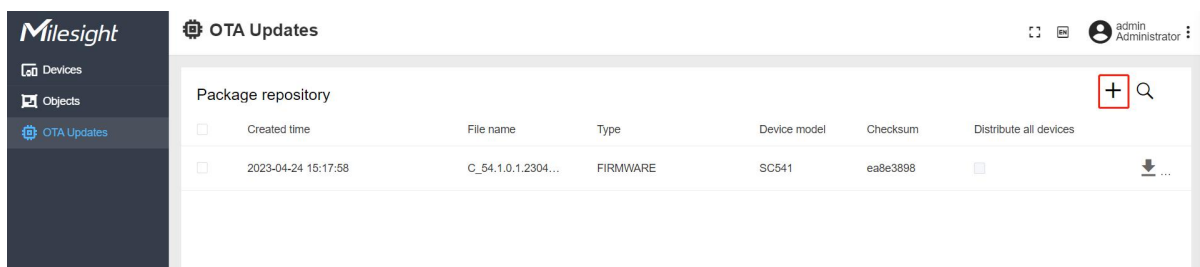


After adding, users can edit, delete these widgets or drag the widgets to adjust the locations.



## 3.4 OTA Updates

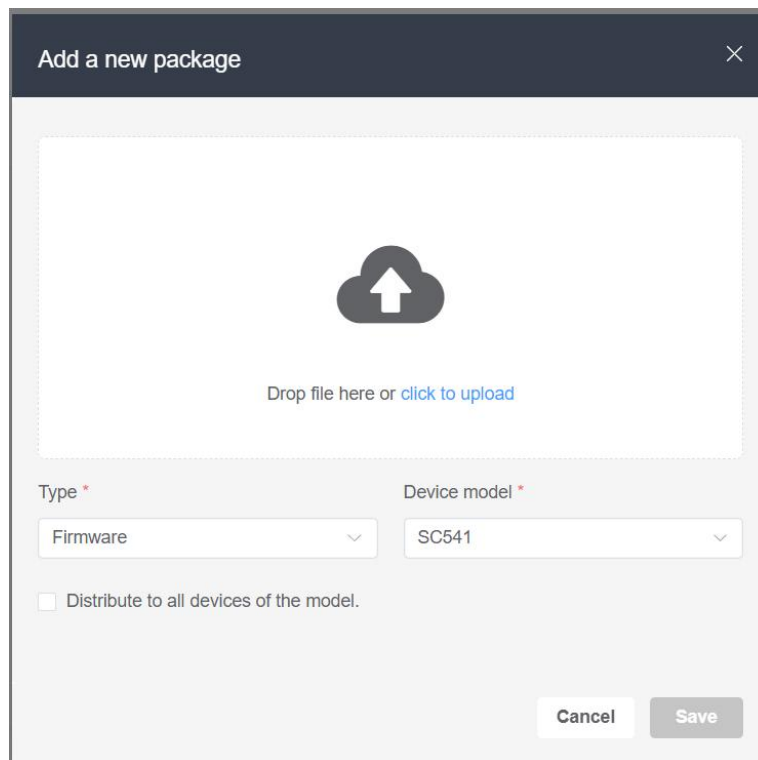
**Step 1:** Go to the **OTA Updates** page and click “+” to add a new package.



**Step 2:** Select the type as firmware or configuration file and select the model, then drag the file to the corresponding area and upload. Click **Save to finish the setting**.

**Note:**

- 1) if **Distribute to all devices of the model** option is enabled, the platform will apply the firmware or configuration file to all devices of this model right away.
- 2) Click [here](#) to get SC541 configuration file template.



Add a new package

Drop file here or [click to upload](#)



Type \* Device model \*

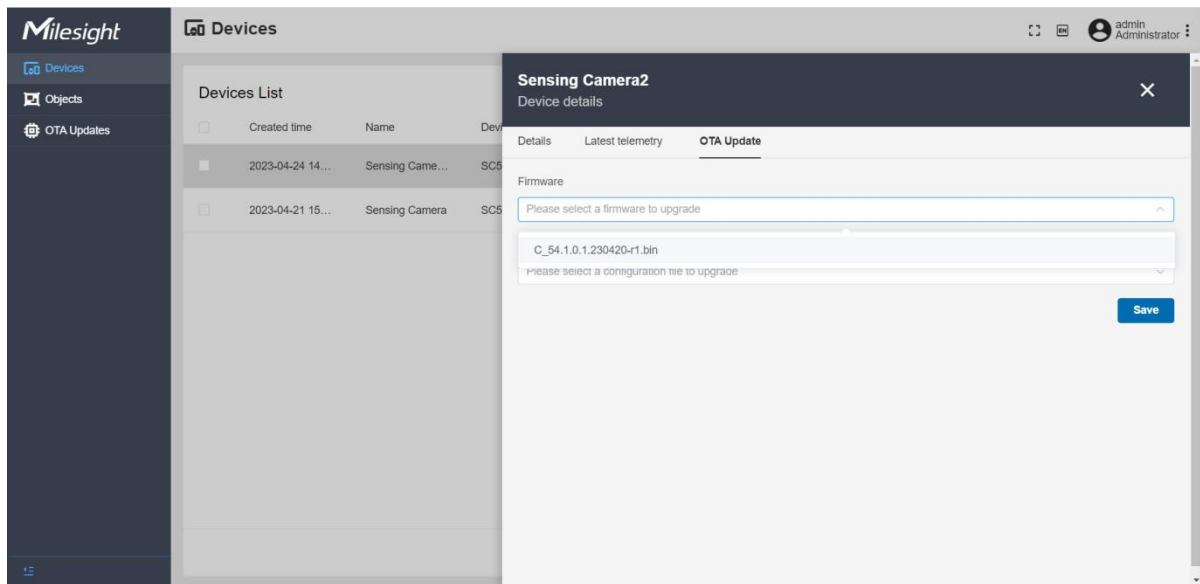
Firmware SC541

☐ Distribute to all devices of the model.

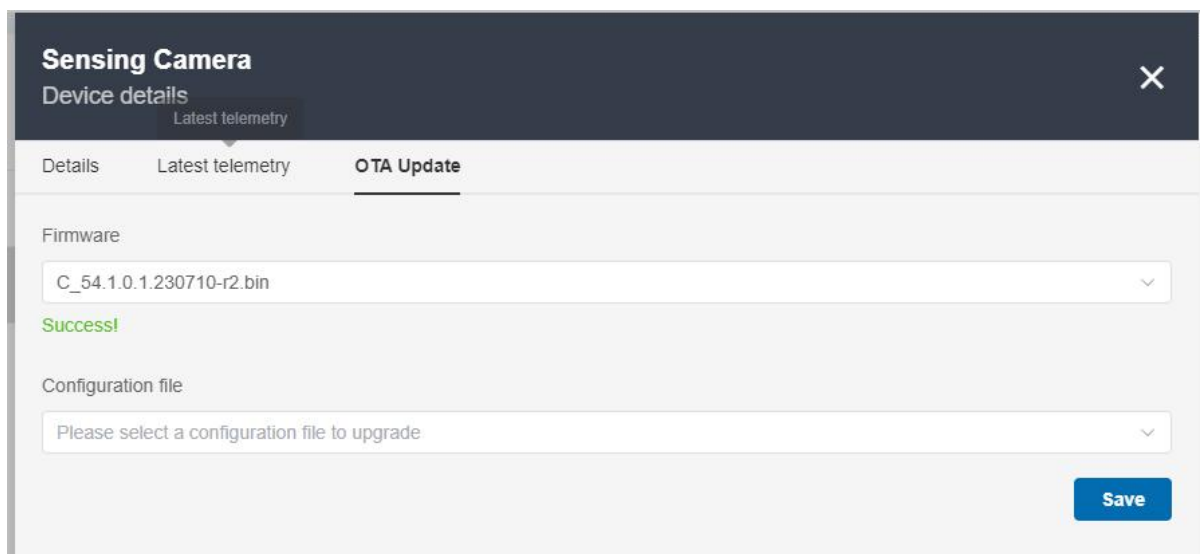
Cancel Save

**Step 3:** Go to the **Devices** page and select the device you need to upgrade or apply configuration. then click the button on the right of it and navigate to the **OTA Update** page. Users can select the firmware or configuration file. Click **Save** to finish the setting.

Devices List						+ Q
<input type="checkbox"/>	Created time	Name	Device model	Device SN	Status	
<input type="checkbox"/>	2023-07-13 10:14:53	299023092R74	SC541	299023092R74	Active	
<input type="checkbox"/>	2023-07-13 10:14:53	2990230910A6	SC541	2990230910A6	Active	

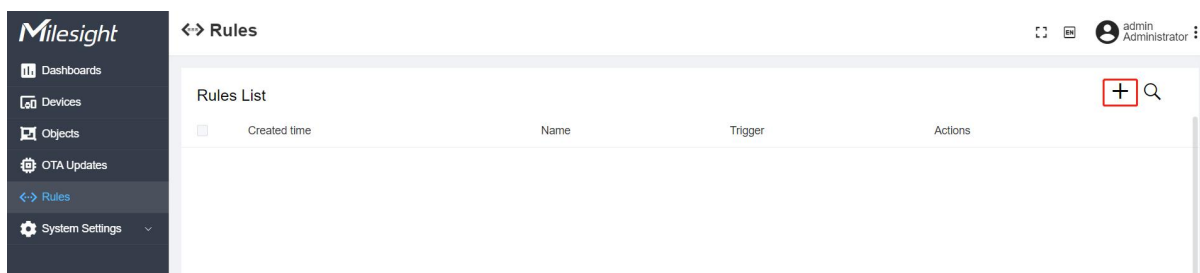


Milesight AIoT sensing platform will distribute these files to device at 3:00 everyday or when the device restart. The device will check if the firmware version or the configuration is the same as the current version. If not, it will update the firmware or configurations. When finishing updating, it will show the update result.



## 3.5 HTTP/MQTT Recipients

**Step 1:** Go to the **System Settings > Recipients** page and click “+” to add a new recipient.



**Step 2:** Configure the recipient information. The recipient can be a HTTP server or a MQTT

broker.

Add a new recipient

Name \*

MyHTTP

Transmission protocol

HTTP Post

URL \*

http://example.com/httpevent

User name

Password

Cancel

Save

Add a new recipient

Name \*

Please enter the recipient name

Transmission protocol

MQTT

Host \*

example.com

Port \*

Please enter the port of the host (1~65535)

Topic \*

Please enter the topic of MQTT

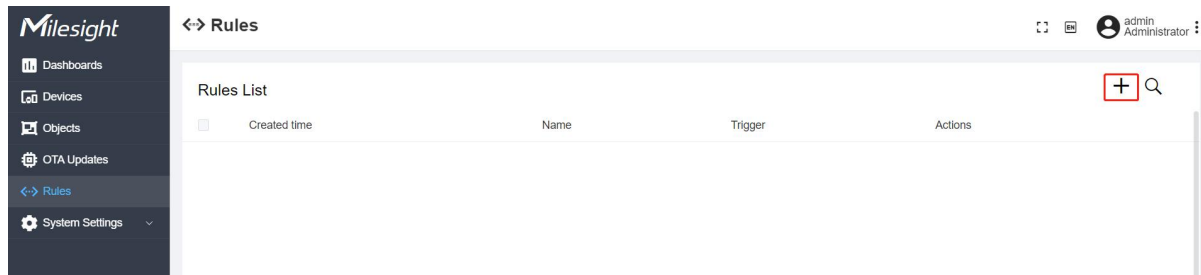
User name

Password

Cancel

Save

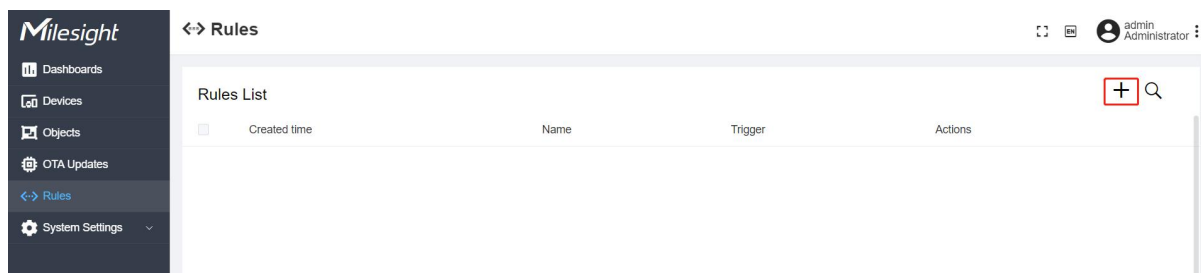
**Step 3:** Go to the **Rules** page, click “+” to add a new rule.



**Step 4:** Select trigger condition as **Once data received** and select the recipients. One rule supports adding 5 recipients at most.

## 3.6 Alarm Settings

**Step 1:** Go to the **Rules** page and click + to add a new rule.



**Step 2:** Select trigger type as low battery alarm or device offline alarm and select actions as **Send to recipients** or **Show on widget**. For **Send to recipients**, please refer to section 3.5.

Add a new rule

Name \*

Batterylow

Trigger

Low battery

Threshold(%) \*

10

Source devices

Please select source devices

Actions \*

Please select actions

Send to recipients

Show on widget

**-END-**