



# AIoT Sensing Platform

User Guide



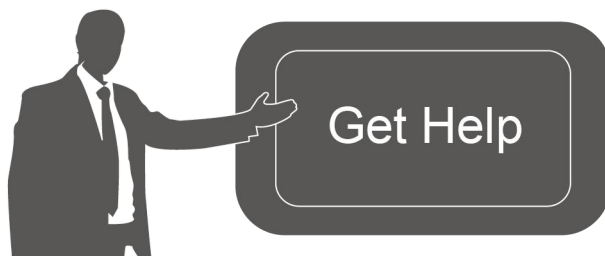
## Readers

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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## Revision History

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# Contents

1. Product Introduction .....	4
1.1 Overview .....	4
1.2 Key Features .....	4
1.3 Recommended System .....	4
Hardware .....	4
Software .....	4
2. Installation .....	4
2.1 Requirement .....	4
2.2 Compose Installation .....	5
2.3 Command Installation .....	8
3. Operation Guide .....	10
3.1 Connect Device .....	10
3.2 Sensing Data .....	12
3.3 OTA Updates .....	15

# 1. Product Introduction

## 1.1 Overview

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

## 1.2 Key Features

- Support smart recognition of data on the image from sensing cameras
- Support monitor and store data of remote devices
- Support managing and monitoring bulks of devices
- Support firmware and configuration file update 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

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

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 AIoT sensing platform 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
```

3. Create docker compose file:

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

Add the following lines to the yml file:

```
version: '3.0'  
services:  
  mysp:  
    restart: always  
    image: "msaiotsensingplatform:1.0.0.1"  
    ports:  
      - "5220:9090"  
      - "1883:1883"  
      - "7070:7070"  
      - "5683-5688:5683-5688/udp"  
    environment:  
      TB_QUEUE_TYPE: in-memory  
    volumes:  
      - ~/.mysp-data:/data  
      - ~/.mysp-logs:/var/log/msaiotsensingplatform
```

Parameter introduction:

- **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
- **1883:1883** - connect local port 1883 to exposed internal MQTT port 1883

- **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
- **~/.mysp-data:/data** - mounts the host's dir **~/.mysp-data** to platform DataBase data directory
- **~/.mysp-logs:/var/log/msaiotsensingplatform** - mounts the host's dir **~/.mysp-logs** to platform logs directory
- **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.
- **image: msaiotsensingplatform:1.0.0.1** - image name

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

```
mkdir -p ~/.mysp-data && sudo chown -R 799:799 ~/.mysp-data
mkdir -p ~/.mysp-logs && sudo chown -R 799:799 ~/.mysp-logs
```

Create authorities for new folders:

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

It will take about 1 minutes 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:

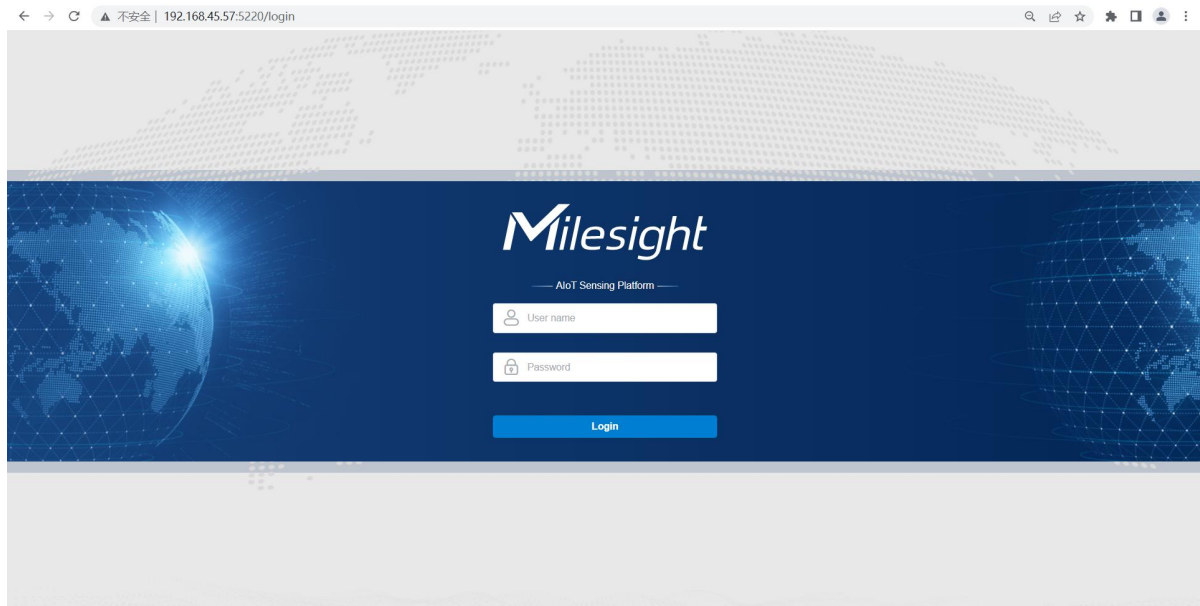
***docker-compose up -d***

***docker-compose logs -f mysp***

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

Default username: admin

Default password: password



7. In case of any issues you can examine service logs for errors. For example to see platform logs execute the following command:

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

To stop the AIoT Sensing platform:

```
docker compose stop mysp
```

To start the 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 AIoT sensing platform 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 following commands, before starting docker container(s), to create folders for storing data and logs. These commands additionally will change owner of newly created folders to docker container user. To do this (to change user) **chown** command is used, and this command requires sudo permissions (command will request password for a sudo access):

```
mkdir -p ~/.mysp-data && sudo chown -R 799:799 ~/.mysp-data  
mkdir -p ~/.mysp-logs && sudo chown -R 799:799 ~/.mysp-logs
```

Create authorities for new folders:

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

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

```
docker run -it -p 5220:9090 -p 1883:1883 -p 7070:7070 -p 5683-5688:5683-5688/udp -v ~/.mysp-data:/data -v ~/.mysp-logs:/var/log/msaiotsensingplatform --name mysp --restart always msaiotsensingplatform:1.0.0.1
```

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



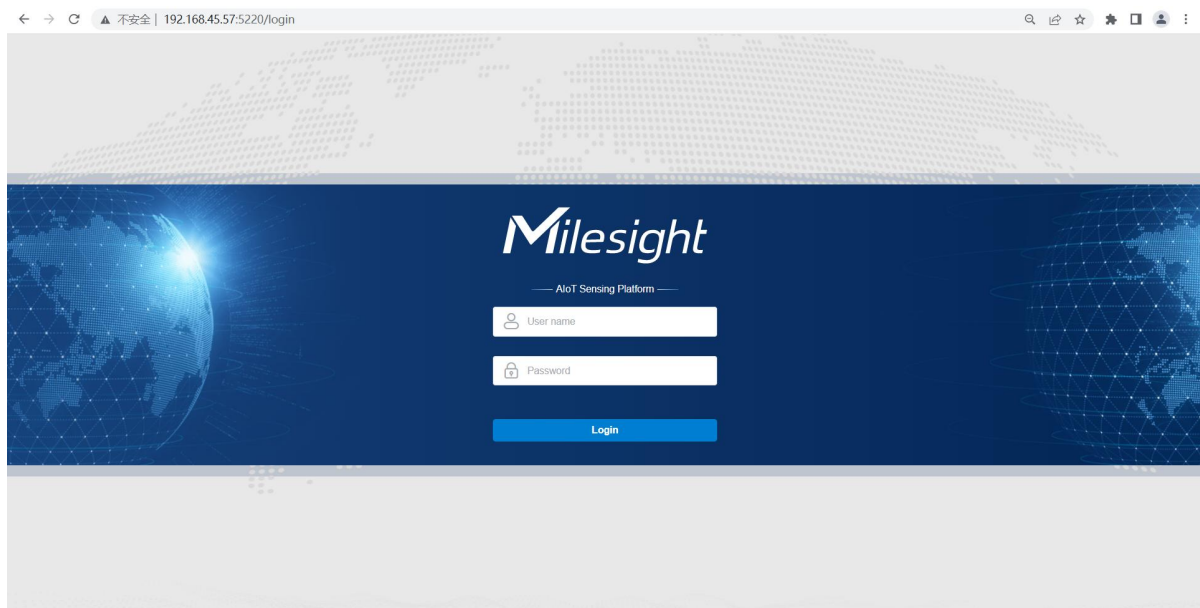
- `-p 5683-5688:5683-5688/udp` - connect local UDP ports 5683-5688 to exposed internal COAP and LwM2M ports
- `-v ~/.mysp-data:/data` - mounts the host's dir `~/.mysp-data` to platform DataBase data directory
- `-v ~/.mysp-logs:/var/log/msaiotsensingplatform` - mounts the host's dir `~/.mysp-logs` to 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:1.0.0.1` - 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](http://your-host-ip:5520) in your browser to visit the login page.

Default username: admin

Default password: password



6. Connect to AIoT Sensing Platform:

```
docker attach mysp
```

To stop the AIoT Sensing platform:

```
docker stop mysp
```

To start the AIoT Sensing platform:

```
docker start mysp
```

## 3. Operation Guide

### 3.1 Connect Device

**Step 1:** Click “+” to add a device by adding the device SN.

The screenshot displays the Milesight web interface. On the left is a dark sidebar with the Milesight logo and navigation links for 'Devices', 'Objects', and 'OTA Updates'. The main content area is titled 'Devices' and contains a 'Devices List' table with columns for 'Created time', 'Name', 'Device model', 'Device SN', and 'Status'. A red box highlights a '+' icon in the top right of the table, next to a search icon. Overlaid on this is a modal window titled 'Add a new device' with a close button (X) in the top right corner. The modal contains three required input fields: 'Name \*' with the value 'Sensing Camera2', 'Device model \*' with the value 'SC541', and 'Device SN \*' with the value '29902309GXP5'. At the bottom right of the modal are 'Cancel' and 'Save' buttons.

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

### MQTT Settings

Enable ☒

Host

Port

Topic

Username

Password

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

The screenshot shows the Milesight web interface with the 'Devices' tab selected. The 'Devices List' table contains one entry: a 'Sensing Camera' with device model 'SC541' and SN '29902309N3L2', which is currently 'Active'. A red box highlights the action button (a square with a plus sign) located to the right of the 'Active' status.

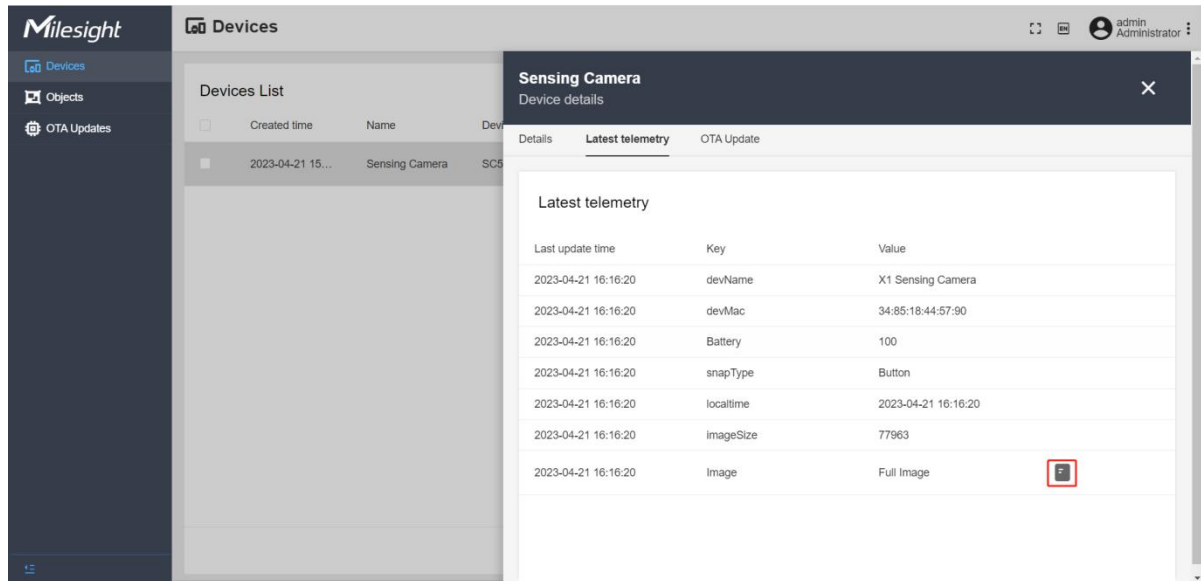
**Step 4:** Click the button on the right of device item to check the latest information of device and the image.

The screenshot shows the Milesight web interface with the 'Sensing Camera' details modal open. The 'Latest telemetry' tab is selected, displaying a table of device data. A red box highlights the action button (a square with a plus sign) located to the right of the 'Full Image' value in the 'Image' row.

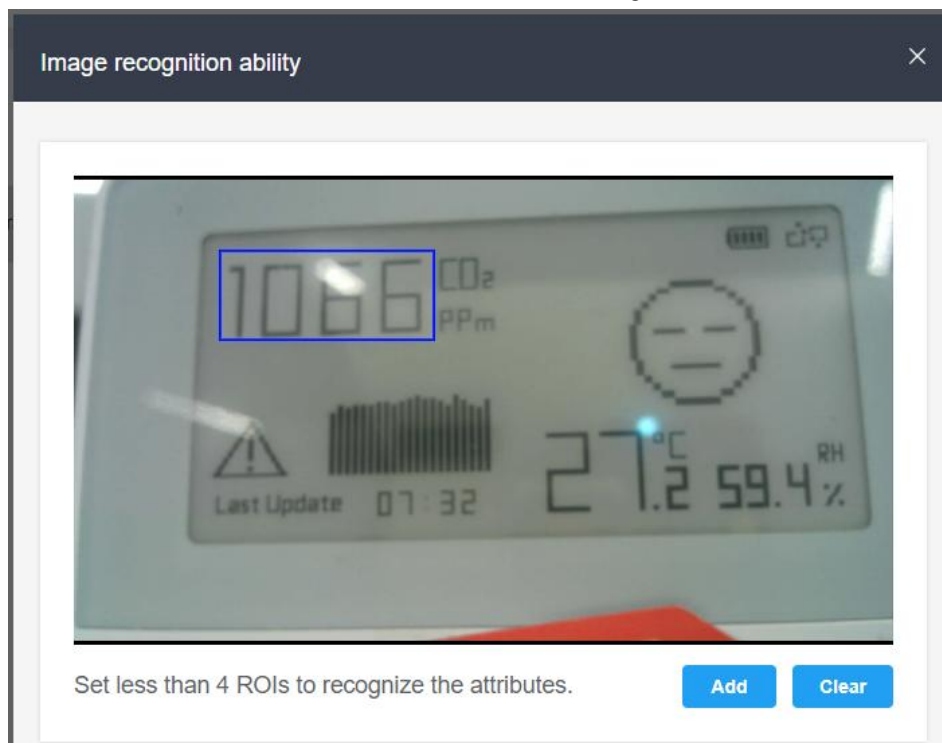
Last update time	Key	Value
2023-04-21 16:16:20	devName	X1 Sensing Camera
2023-04-21 16:16:20	devMac	34:85:18:44:57:90
2023-04-21 16:16:20	Battery	100
2023-04-21 16:16:20	snapType	Button
2023-04-21 16:16:20	localtime	2023-04-21 16:16:20
2023-04-21 16:16:20	imageSize	77963
2023-04-21 16:16:20	Image	Full Image

## 3.2 Sensing Data

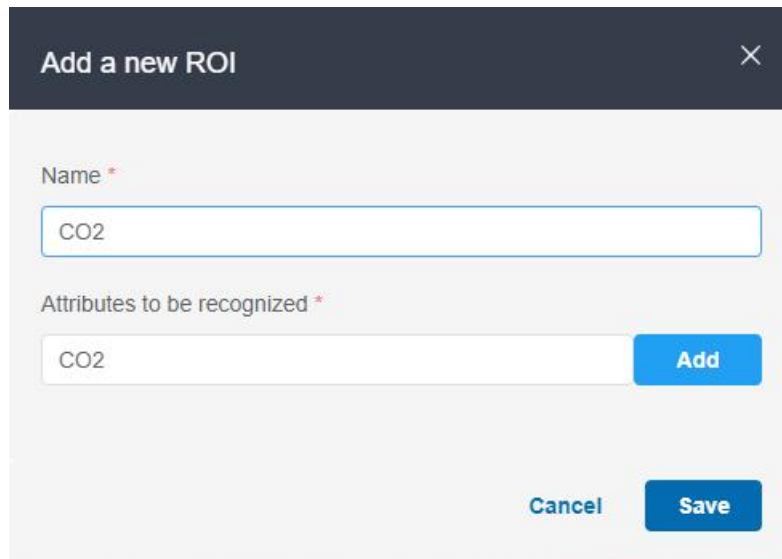
**Step 1:** Go to **Device** page, click the button on the right of device item to check the latest information of device, click the full image.



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

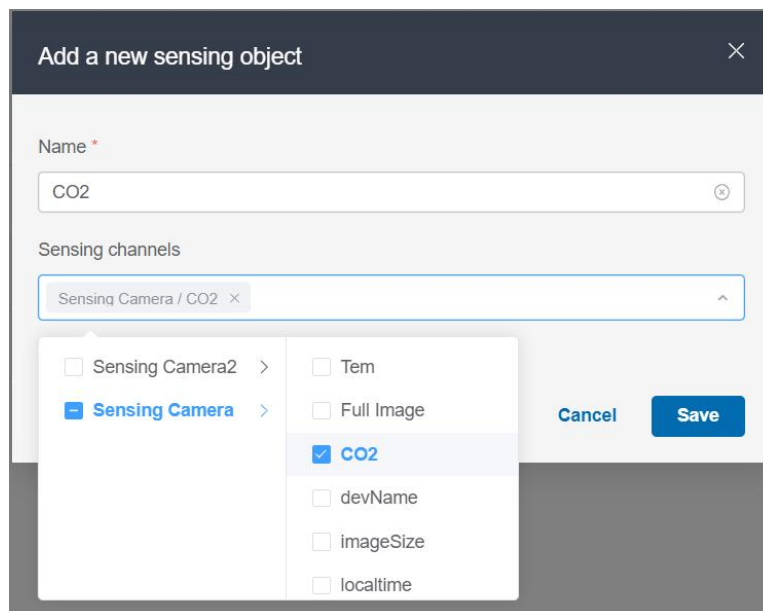


Set a name and an attribute name, click **Save** to save all settings.



The 'Add a new ROI' dialog box has a dark header with a close button. It contains two main sections: 'Name' with a text input field containing 'CO2', and 'Attributes to be recognized' with a text input field containing 'CO2' and an 'Add' button. At the bottom right are 'Cancel' and 'Save' buttons.

**Step 3:** Go to **Objects** page, click + to add sensing objects which needs to monitor.



The 'Add a new sensing object' dialog box has a dark header with a close button. It contains a 'Name' field with 'CO2'. Below it is a 'Sensing channels' section with a dropdown menu showing 'Sensing Camera / CO2'. A dropdown menu is open, showing a list of options: 'Sensing Camera2', 'Sensing Camera' (highlighted with a blue bar), 'Tem', 'Full Image', 'CO2' (checked with a blue checkmark), 'devName', 'imageSize', and 'localtime'. 'Cancel' and 'Save' buttons are at the bottom right.

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

The screenshot shows the Milesight web interface. On the left is a sidebar with 'Devices', 'Objects', and 'OTA Updates'. The main area is titled 'Objects' and contains a 'Sensing objects list' table. The table has columns for 'Created time' and 'Name'. The list shows four objects: 'sdf' (2023-04-24 15:23:00), 'CO2' (2023-04-24 15:00:18), and 'battery' (2023-04-24 14:53:49). The 'CO2' object is selected. To the right, a modal window titled 'CO2 Sensing object details' is open. It has tabs for 'Details' and 'Sensing Data'. The 'Sensing Data' tab is active, showing a table with columns for 'Created time' and 'Value'. The table lists several data points, including one with a value of '{\"CO2\":994ppm}' which is highlighted with a red box. A 'Download' button is visible in the top right of the modal.

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

Created time	Value
2023-04-25 13:22:46	{\"CO2\":994ppm}
2023-04-25 13:17:43	{\"CO2\":907ppm}
2023-04-25 13:12:37	{\"CO2\":902ppm}
2023-04-25 13:07:34	{\"CO2\":902ppm}
2023-04-25 13:02:27	{\"CO2\":}
2023-04-25 12:57:23	{\"CO2\":}
2023-04-25 12:52:18	{\"CO2\":}

Users can also search for the historical data and download as json format file.

This screenshot shows a closer view of the 'CO2 Sensing object details' modal. The 'Sensing Data' tab is active, and a dark banner at the top indicates '30 data selected' with a 'Download' button. Below this is a table with columns for 'Created time' and 'Value'. The table lists several data points, including one with a value of '{\"CO2\":994ppm}' which is highlighted with a red box. A 'Download' button is visible in the top right of the modal.

Created time	Value
2023-04-25 13:48:11	{\"CO2\":}
2023-04-25 13:43:07	{\"CO2\":}
2023-04-25 13:38:02	{\"CO2\":}
2023-04-25 13:32:56	{\"CO2\":}
2023-04-25 13:27:50	{\"CO2\":}
2023-04-25 13:22:46	{\"CO2\":994ppm}
2023-04-25 13:17:43	{\"CO2\":907ppm}

If the value is unrecognized or error, click the button beside the value to manually type the data and click **Artificial recognize**.

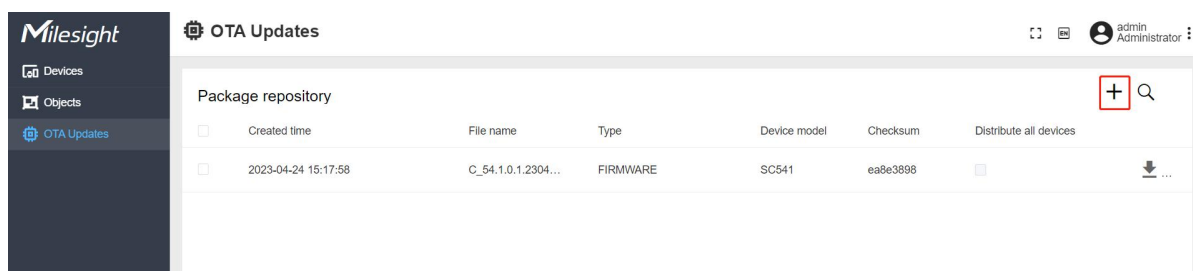
CO2

902ppm

Artificial recognize

### 3.3 OTA Updates

**Step 1:** Go to **OTA Updates** page, 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 corresponding area to upload, then click **Save**.

**Note:** 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.

Add a new package

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

Type \*

Firmware

Device model \*

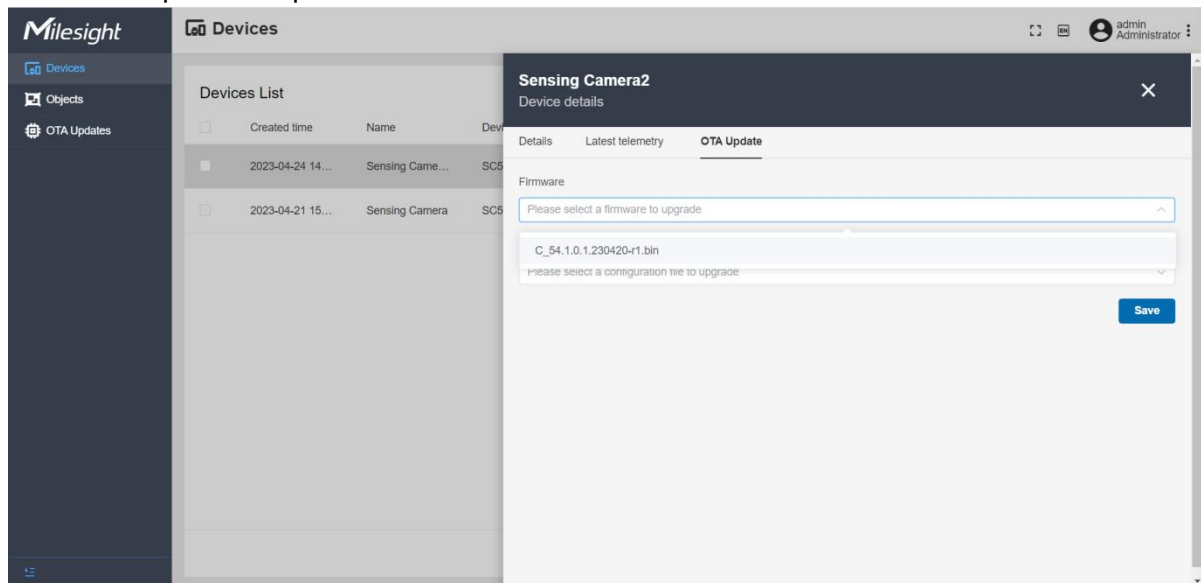
SC541

☐ Distribute to all devices of the model.

Cancel

Save

**Step 3:** Go to **Devices** page, select the device you need to upgrade or apply configuration, click the button on the right of it and navigate to OTA Update page, users can select the files and click **Save** to complete the update of one device.



**-END-**