Milesight

AI ToF People Counting Sensor

VS133-P

User Guide

Contents

Chapter 1. Preface..... 5

Copyright Statement..... 5

Safety Instruction..... 5

Revision History..... 6

Chapter 2. Product Introduction..... 9

Overview..... 9

Key Features..... 9

Chapter 3. Hardware Introduction..... 10

Packing List..... 10

Hardware Overview..... 11

Dimension(mm)..... 11

Reset Button..... 11

Wiring Diagram..... 12

Chapter 4. Power Supply..... 13

Chapter 5. Installation..... 14

Preparation before Installation..... 14

Covered Detection Area..... 14

Installation Position..... 16

Environment Requirements..... 17

Installation Step..... 17

Factors Affecting Accuracy..... 18

Chapter 6. Access the Sensor..... 19

Chapter 7. Operation Guide..... 22

Basic Counting Settings..... 22

Deployment Parameters..... 22

Device Strategies..... 24

Line Crossing Counting..... 25

Region People Counting....28
Advance Property Settings....31
Children Distinction....31
Staff Detection....33
Group Counting....34
Shopping Cart Fill Level Detection....36
U-turn Filtering....37
Occlusion Settings....41
Obstacle Exclusion....42
I/O Settings....43
Heat Map....47
Multi-Device Stitching....48
Overview....48
Master Device Setting....50
Node Device....54
Data Presentation....54
Dashboard....55
Report....56
Communication....58
802.1x Protocol....58
VPN....59
TCP/IP....60
HTTPS....61
Data Push Settings....61
BACnet Object Settings....66
Validation....68
System....71
Device Info....71
User....72

Time Configuration..... 74
Remote Management..... 75
System Maintenance..... 77
Chapter 8. Communication Protocol..... 81
Periodic Report..... 81
Trigger Report..... 83
Line Crossing People Counting..... 83
Region People Counting..... 84
Dwell Time Detection..... 86
Occlusion Detection Alarm..... 87
Chapter 9. Services..... 89

Chapter 1. Preface

Copyright Statement

This guide may not be reproduced in any form or by any means to create any derivative such as translation, transformation, or adaptation without the prior written permission of Xiamen Milesight IoT Co., Ltd (Hereinafter referred to as Milesight).

Milesight reserves the right to change this guide and the specifications without prior notice. The latest specifications and user documentation for all Milesight products are available on our official website http://www.milesight.com

Safety Instruction

Milesight will not shoulder responsibility for any loss or damage resulting from not following the instructions of this operating guide.

Warning:
Serious injury or death may be caused if any of these warnings is neglected.

- This installation must be conducted by a qualified service person and should strictly comply with the electrical safety regulations of the local region.
- To avoid risk of fire and electric shock, do keep the product away from rain and moisture before installation.
- Do not touch components which may be hot.
- Make sure the plug is firmly inserted into the power socket.
- Make sure the device is firmly fixed when installing.
- The device must not be disassembled or remodeled in any way.

CAUTION:
Injury or equipment damage may be caused if any of these cautions are neglected.

- Do not place the device where the temperature is below/above the operating range.
- The device must never be subjected to shocks or impacts.
- Do not expose the device to where a laser beam equipment is used.
- To prevent heat accumulation, do not block air circulation around the device.

- Use a soft, dry cloth to clean the lens of the device. Stubborn stains can be removed using a cloth dampened with a small quantity of detergent solution, then wipe them dry.
- Do not use volatile solvents such as alcohol, benzene or thinners as they may damage the surface finishes.

Revision History

Data	Doc Version	Description
May 24, 2023	V1.0	Initial version
Aug. 10, 2023	V1.1	1. Add staff lanyard accessory; 2. Add multi-device stitching feature; 3. Add installation height detection feature; 4. Add DHCP feature; 5. Display HTTP/MQTT connection status and support data re-transmission feature; 6. Add DST time feature; 7. Add ToF frequency setting.
Sep. 28, 2023	V1.2	1. Add Region Monitoring and dwell time function; 2. Add Heat Map function; 3. Add Feet Tracking tracking mode of counting; 4. Add preview layout edition feature; 5. Add cumulative count reset schedule feature; 6. Add HTTPS web access and data transmission feature.
Nov. 30, 2023	V1.3	1. Add Group Counting function; 2. Add video validation function; 3. Add other functions.
Mar. 31, 2024	V1.4	1. Add 802.1x protocol; 2. Compatible with Milesight Development Platform;

Data	Doc Version	Description
		3. Add SSH enable/disable option; 4. Add shopping cart detection and trigger DO settings; 5. Add ToF lighting mode and noise filtering; 6. Add validation record task list.
May 20, 2024	V1.5	1. Compatible with Milesight DeviceHub 2.0; 2. Add Enhanced Detection Mode. 3. Update installation distance.
Jun. 19, 2024	V1.6	1. Add OpenVPN; 2. Add BACnet protocol; 3. Add tailgating detection; 4. Add detection line list.
Feb. 11, 2025	V1.7	1. Add configuration of Wi-Fi passwords at login, user passwords are required to contain 4 styles. 2. Add Obstacle Exclusion. 3. Add Occlusion Detection. 4. Add Wirings. 5. Support Individual Filter of Group Counting. 6. Supports automatic replacement of device information when subscribing to a topic. 7. Add LED indicator switch and diagnostic function for support. 8. Support for the master device to report the status of node devices in multi-device stitching mode. 9. Support for importing HTTPs certificates. 10. Support for downloading logs and Ping detection. 11. Support for tailgating alarm trigger direction. 12. Delete HTTP communication.

Data	Doc Version	Description
May 28, 2025	V1.8	1. Add U-turn automatic filtering. 2. Add Record Track Start/Stop Points and show Static Track Line. 3. Add Log Mode - File to choose the level of the download log files. 4. Modify the display style of real-time track line and preview layout. 5. Support input the password of the uploaded direct installation certification.

Chapter 2. Product Introduction

Overview

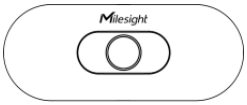
VS133-P is a sensor that uses second-generation ToF technology to accurately count people. This technology provides more precise depth maps and longer detection distances while maintaining an excellent privacy protection rate. The advanced ToF technology combined with an AI algorithm enables the sensor to handle complex scenes and distinguish non-human objects with up to 99.8% accuracy. With easy installation, VS133-P is ideal for entrances or corridors in retail stores, malls, offices, subways, and other locations.

Key Features

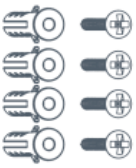
- Up to 99.8% accuracy combining the 2nd generation ToF technology and AI algorithm
- Support Multi-Device Stitching which enables the linking of multiple devices, allowing for up to four-device stitching to expand coverage
- Support both motion and dwell time heat map for anonymous customer tracking
- Support the counting of shopping cart with different fill levels
- Support advanced Heat Map function which provides deeper insights by visually representing the distribution and intensity of foot traffic
- High compatibility of data transmission from Ethernet port (HTTP/MQTT/BACnet/CGI)
- Various serial ports are equipped
- Working well even in low-light or completely dark environments with great lighting adaptability
- Free from privacy concerns without image capturing
- Allow to collect people counting data by differentiating between children and adults and detecting staffs via identification features for clearer people analysis
- Smart U-turn detection to filter redundant counting of people wandering in the area
- Support queuing management via dwell time detection and regional people counting
- Wider field angle to obtain longer-distance depth maps and cover a larger area
- Support local data storage and data retransmission to collect data securely
- Easy configuration via Ethernet port for web GUI configuration
- Quick and easy management with Milesight DeviceHub and Milesight Development Platform

Chapter 3. Hardware Introduction

Packing List

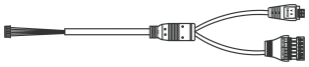


1 × VS133-P Device



4 × Ceiling Mounting Kits

8 × Staff Tags



1 × Multi-interface Cable

1 × Warranty Card

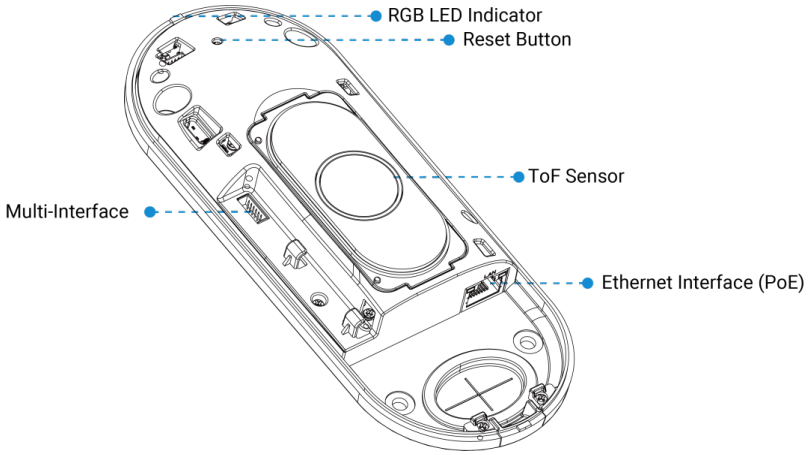
1 × Quick Guide

Note:

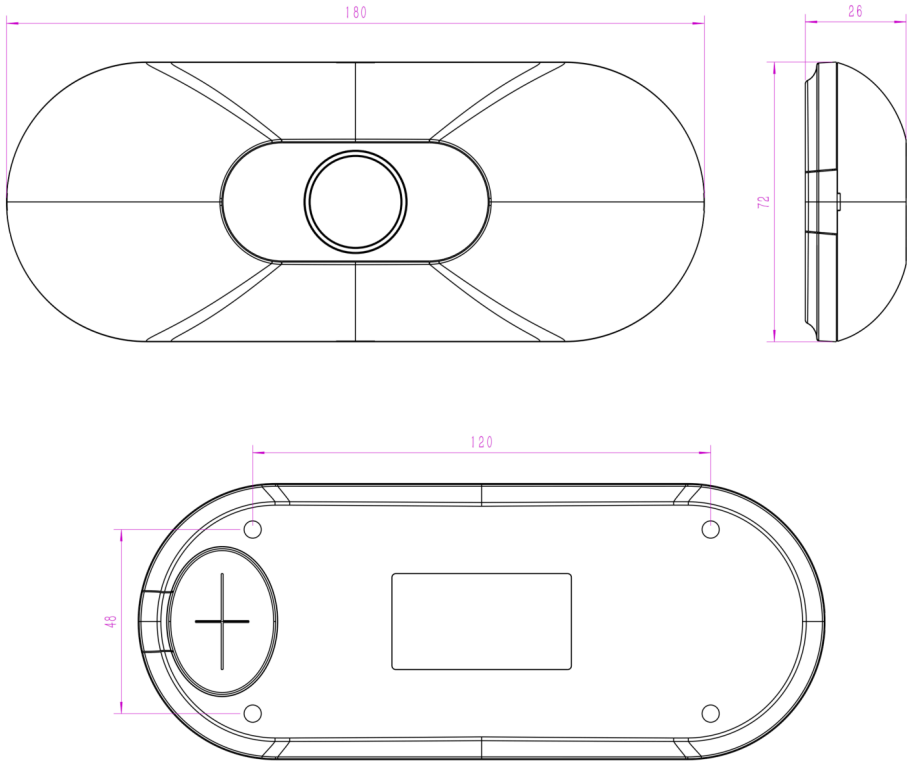
1. The device supports mounting kits and people counter accessories. For more information, please scan the QR code.

2. If any of the above items is missing or damaged, please contact your sales representative.

Hardware Overview



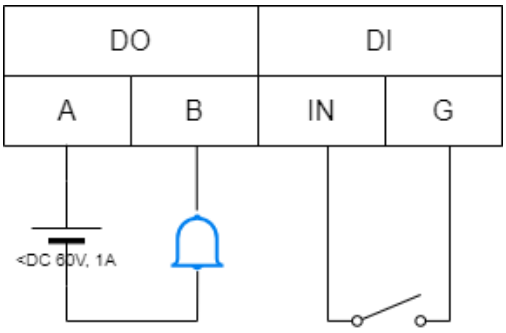
Dimension(mm)



Reset Button

Function	Action	LED Indication
Reset to Factory Default	Press and hold the reset button for more than 10 seconds.	Green light blinks until the reset process is completed

Wiring Diagram



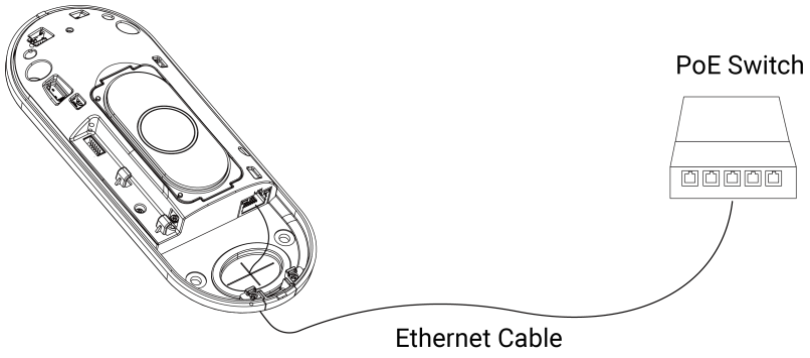
Chapter 4. Power Supply

VS133-P can be powered by 802.3**at PoE+**. Choose one of the following methods to power up the device.

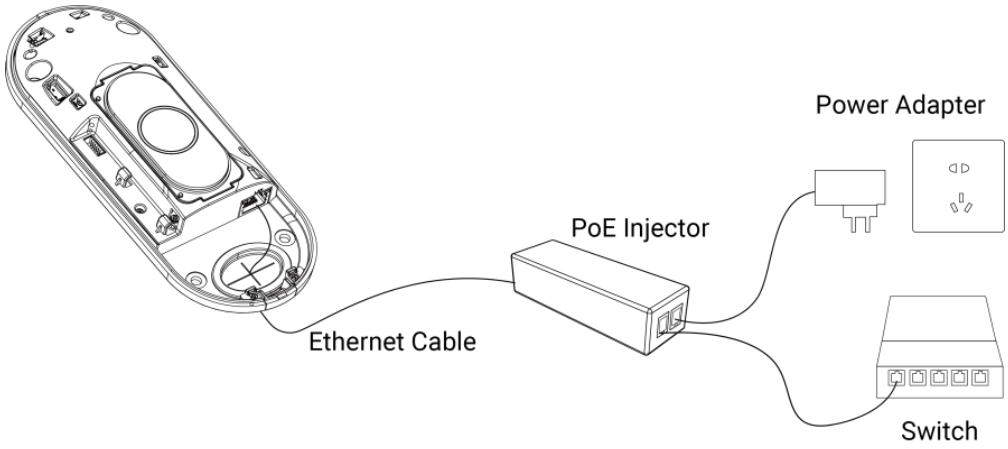
Warning:

The Type-C port on the device **cannot** be used for power supply!

Powered by a PoE Switch



Powered by a PoE Injector



Chapter 5. Installation

Preparation before Installation

Covered Detection Area

Table 1. Parameter Definition

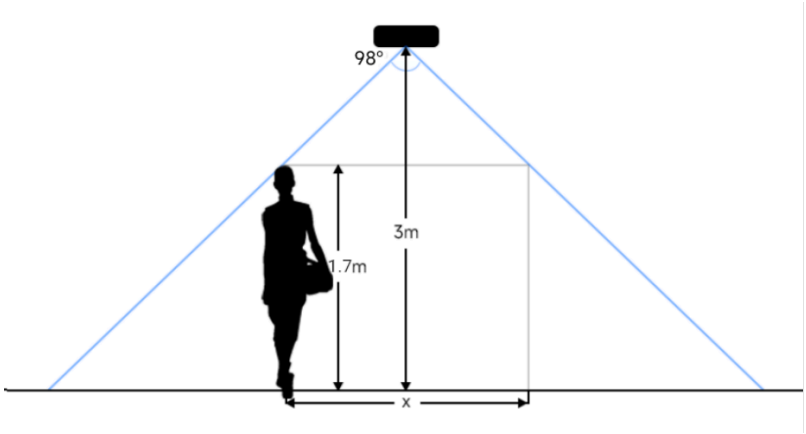
Parameters	Explanation	Value
H	Installation height	hmax+d+Δd≤ H ≤3.5 m
d	Minimum detection distance of device	0.5 m
Δd	Distance measurement error of device	0.035 m
h_{max}	Maximum pedestrian height	Example 1.8 m
h	Average pedestrian height	Example 1.7 m
α	ToF horizontal field of view angle	98°
β	ToF vertical field of view angle	80°
x	Length of detection range	2 × tan(α/2) × (H-h)
y	Width of detection range	2 × tan(β/2) × (H-h)

Example:

When the maximum pedestrian height is 1.8 m, then the minimum installation height is 1.8+0.5+0.035=2.335 m.

The monitored area refers to the range visible to the device, which is displayed on the dashboard; the detection area, which is smaller, refers to the range within the monitored area where the device can detect changes in the number of people.

The detection area depends on the device's field of view angle, installation height, and target height. The following figure uses the horizontal field of view angle, an installation height of 3 meters, and a target height of 1.7 meters as an example for illustration:

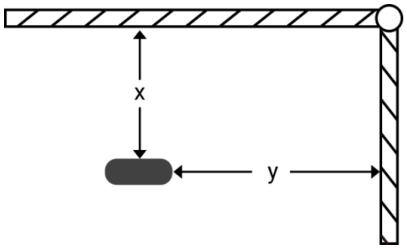


For example, if the Average height of pedestrians is 1.7 m, the detection area corresponding to each installation height is as follows:

Installation Height (m)	Monitored Area (m)	Detection Area (m)
2.5	5.75 × 4.20	1.84 × 1.34
2.6	5.98 × 4.36	2.07 × 1.51
2.7	6.21 × 4.53	2.30 × 1.68
2.8	6.44 × 4.70	2.53 × 1.85
2.9	6.67 × 4.87	2.76 × 2.01
3.0	6.90 × 5.03	2.99 × 2.18
3.1	7.13 × 5.20	3.22 × 2.35
3.2	7.36 × 5.37	3.45 × 2.52
3.3	7.59 × 5.54	3.68 × 2.69
3.4	7.82 × 5.71	3.91 × 2.85
3.5	8.05 × 5.87	4.14 × 3.02

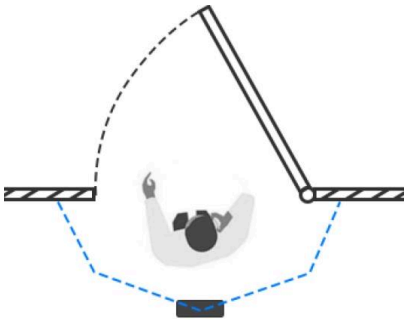
Installation Position

- Avoid installing the device against the wall and ensure that the distance between the device and the wall as follows:



Condition	Standard Environment	The carpet/floor is Dark (need to set max noise filtering level)
Normal imaging	x>50cm, y>60cm	x>50cm, y>75cm
Normal counting	x>50cm, y>50cm	x>50cm, y>50cm

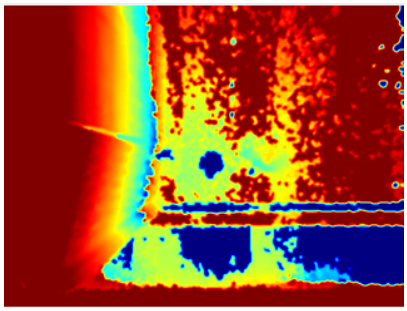
- When you install devices on the top of swinging doors, it is suggested to keep the door normally open. If the door must be normally closed, please install the device on the other side of the door to keep away from the door movement. And it is suggested to keep away from the door with a distance of at least 30 cm.



- Ensure that there are no other objects blocking the ToF light within a 30 cm radius of the front of the device.
- Tilt installation should be avoided. Ensure that the front of the device and the ground plane are paralleled.

Environment Requirements

- Avoid 940nm light which may result in incorrect counting.
- Outdoor sunlight shining on the over channel will not have any effect, but the mirrored reflections that allow sunlight to shine on the ToF Sensor should be avoided.
- Make sure there are no obstacles within the live view of device. Otherwise, the device imaging may appear abnormally red or it will affect people counting. Set the appropriate noise filtering level according to the actual image. The more difficult it is to see the target, the higher the filter value should be.



Installation Step

Note:
Check that the device and accessories are complete according to the **Quick Start Guide** in the unit's box.

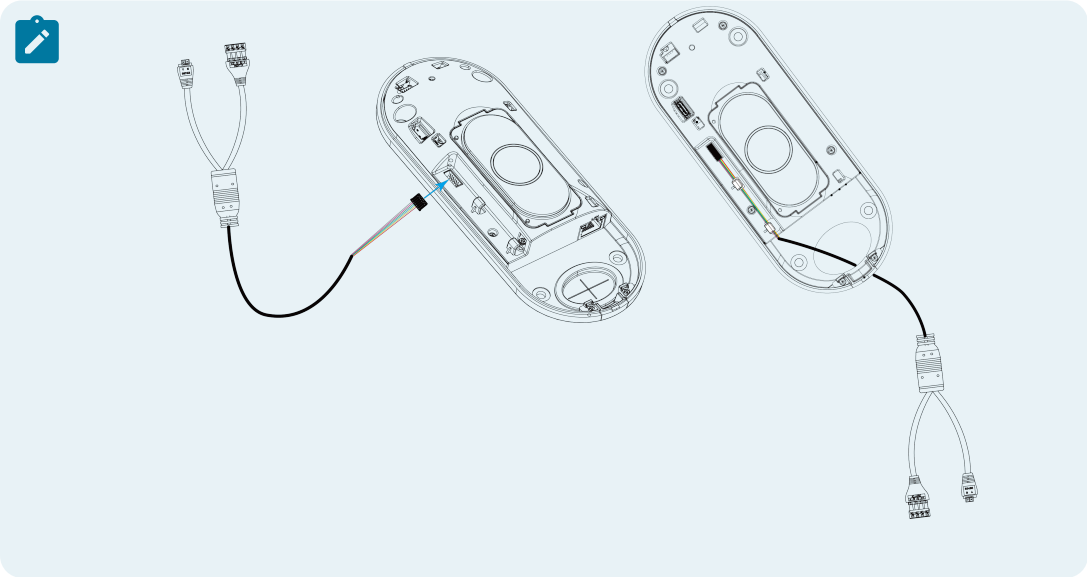
Ceiling Mount

Step 1: Ensure the thickness of the ceiling is more than 30 mm, rill 4 holes with a diameter of 6mm according to the mounting holes of device. If the wire needs to be extended to the interior of the ceiling, a wire hole with a suitable size is also required to be drilled.

Step 2: Fix the wall plugs into the ceiling holes.

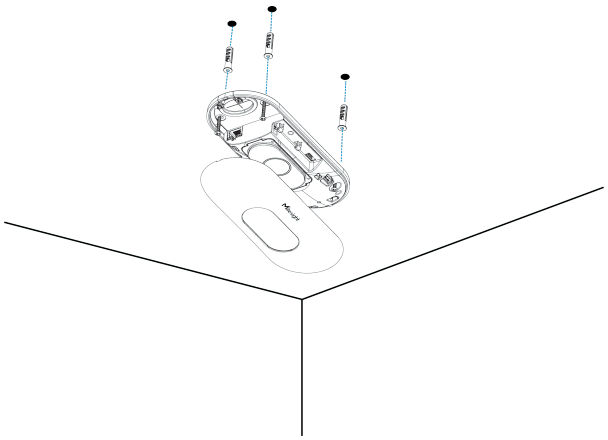
Step 3: Remove the cover on the device, and then connect all required wires and pass them through the wire hole behind the device or block on the side of the device if the wires need to be protruded from the side of the device.

Note:
if the alarm I/O of VS133-P is going to be used, please connect a multi-interface cable to the device



Step 4: Fix the device to the wall plugs via mounting screws; remember to adjust the mounting direction according to the detection area requirement.

Step 5: Fix the cover back to the device.



Factors Affecting Accuracy

- Wearing a fisherman's hat or carrying a cardboard box on the shoulder: The target will not be recognized because it will become unlike a human in depth map.
- Handheld or cart-carrying a humanoid doll with sufficient height to pass by: The doll will be mistakenly detected as people because it is human-like in depth map.

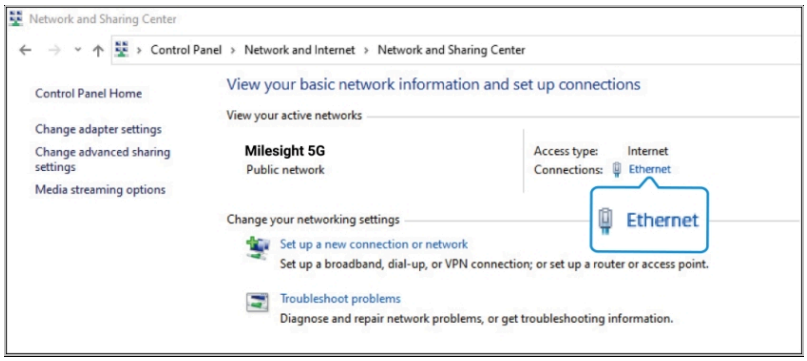
Chapter 6. Access the Sensor

The device provides user-friendly web GUI for configuration and users can access it via Ethernet port. The recommended browsers are Chrome and Microsoft Edge. The default IP of Ethernet port is **192.168.5.220** (can be found on the device label).

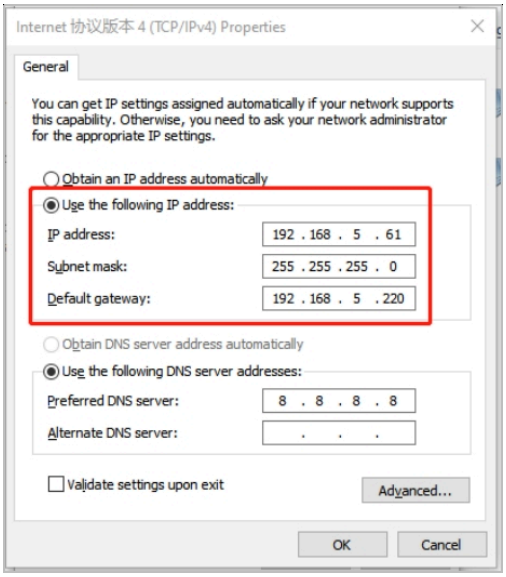
Step 1: Connect the device to PC via PoE injector or PoE switch.

Step 2: Change the IP address of computer to 192.168.5.0 segment as below:

1. Go to Start → Control Panel → Network and Internet → Network and Sharing Center → Ethernet → Properties → Internet Protocol Version 4 (TCP/IPv4).

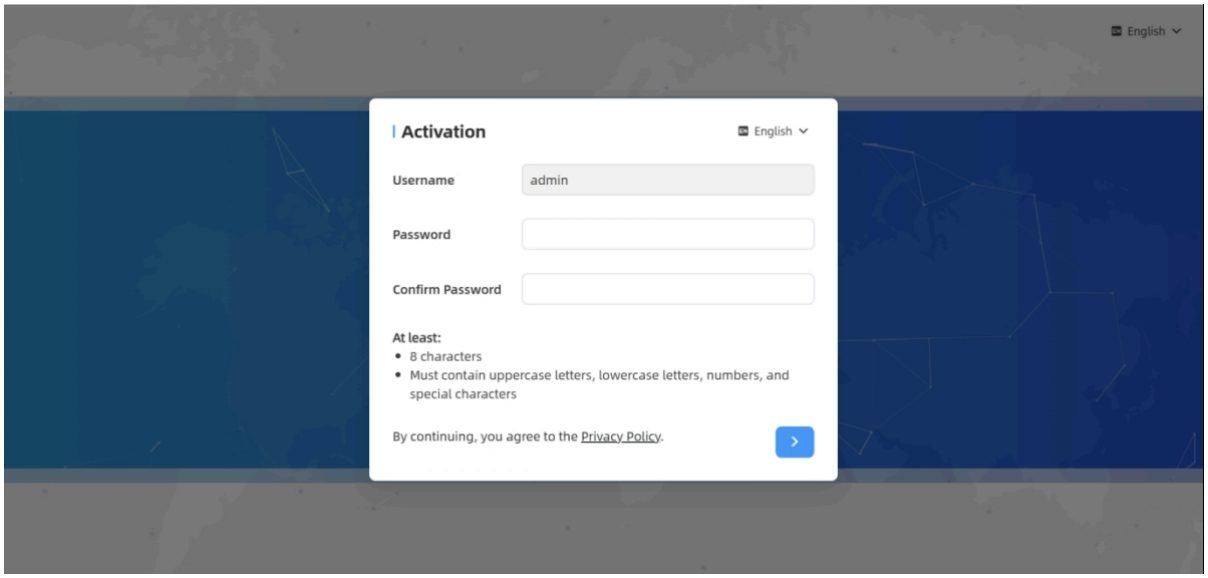


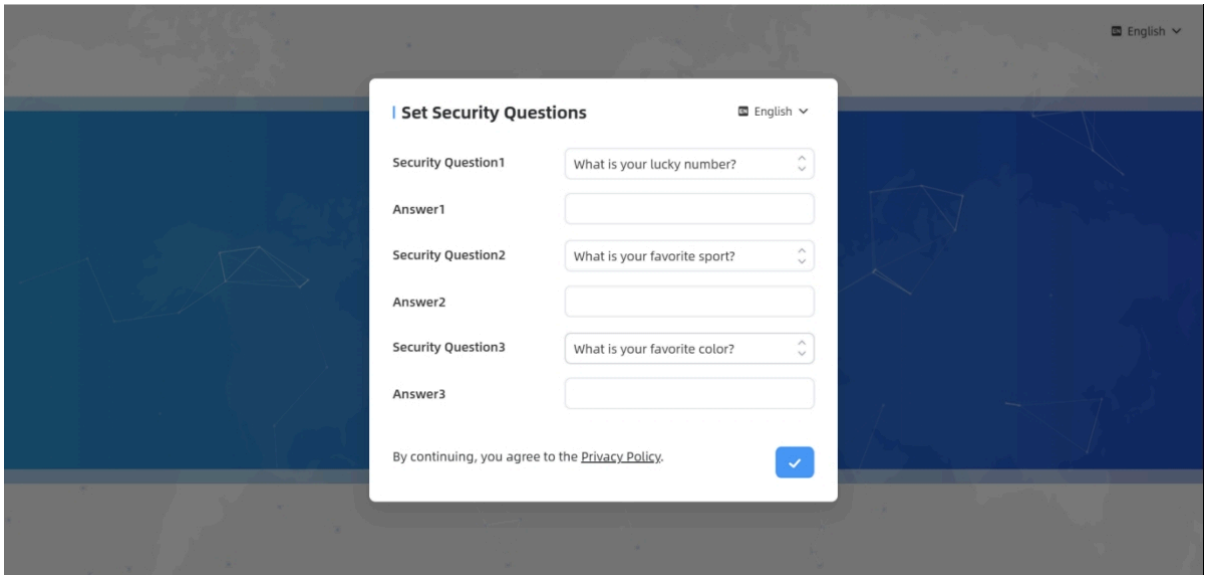
2. Enter an IP address that in the same segment with sensor (e.g. 192.168.5.61, but please note that this IP address shall not conflict with the IP address on the existing network).



Step 3: Open the Browser and type 192.168.5.220 to access the web GUI.

Step 4: Users need to set the password and three security questions when using the sensor for the first time.





Step 5: After configuration, log in with username (admin) and custom password.

Note:

1. Logion password must be 8 to 63 characters long and contain numbers, lowercase letters, uppercase letters and special characters. If the password is entered incorrectly five times, the account will be locked for 10 minutes.
2. It is recommended that users regularly update their passwords to enhance device security and prevent unauthorized access.
3. You can click the “forgot password” in login page to reset the password by answering three security questions when you forget the password if you set the security questions in advance.

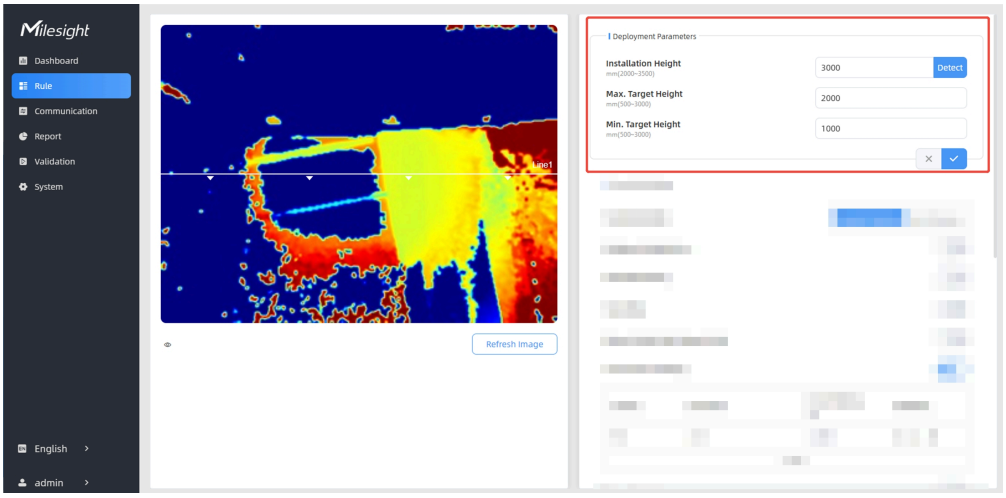
Chapter 7. Operation Guide

Basic Counting Settings

To ensure proper device operation, users are required to complete the basic counting settings first, which includes setting deployment parameters, device strategies, enable line crossing or region people counting.

Deployment Parameters

Deployment parameters typically include the installation height of the device, the height of the target to be counted, and the corresponding target height setting when other counting strategies are enabled.



Parameters	Description
Installation Height	Set the device installation height. Click **Detect** to detect the current installation height automatically. **Note:** 1. Ensure that there is no object directly below the device avoiding interfering the height detection. 2. The automatic detection of the installation height is not supported with dark floor/carpet (black, grey, etc.)

Parameters	Description
Max. Target Height	Set the maximum target height, then the device will ignore the objects higher than this setting value.
Min. Target Height	Set the minimum target height, then the device will ignore the object shorter than this setting value.
Child Filter Height	Set the max child height when children distinction feature is enabled.
Fully Loaded Cart Height	Set fully loaded cart height when shopping cart fill level detection is enabled. The device will count the shopping cart as full when it detects the object inside the shopping cart higher than this height.
Empty Cart Height	Set empty cart height when shopping cart fill level detection is enabled. The device will count the shopping cart as empty when it detects the object inside the shopping cart shorter than this height.

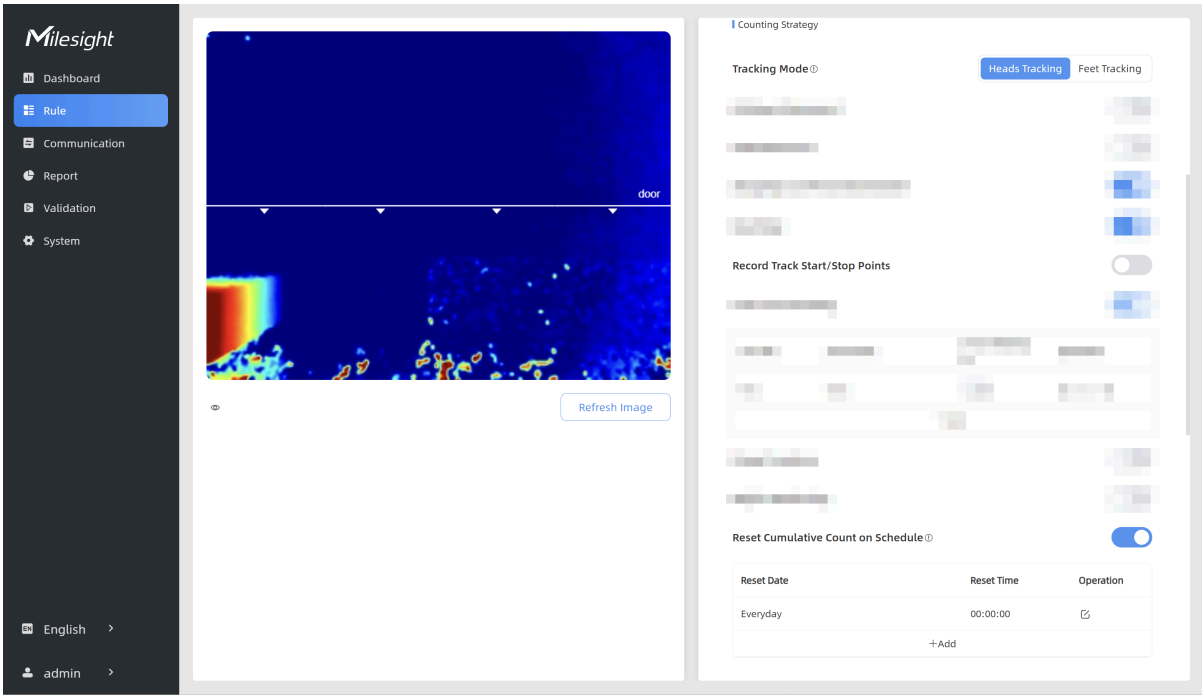
Note:

Due to the error in ToF distance measurement (0.035 m), the Max. Target Height should be set as maximum pedestrian height plus 0.035 m and the Min. Target Height as minimal pedestrian height minus 0.035 m in the actual applications.

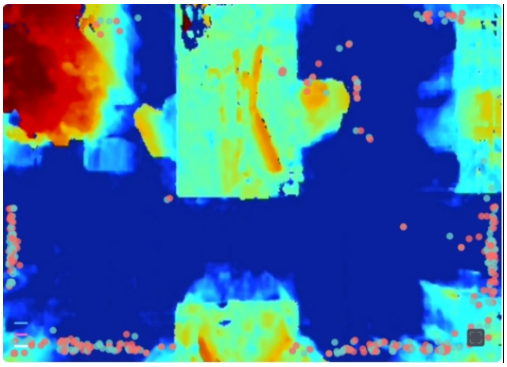
Example:

if the pedestrian height is 1.6 m to 1.8 m, the Max. and Min. Target Height should be configured as 1.835 m and 1.565 m respectively.

Device Strategies



Parameters	Description
Tracking Mode	Select the tracking mode of counting, including Heads Tracking and Feet Tracking: When the device detects both feet of the target in the FOV, it generates a trajectory line based on the movement path of the feet. When the target's head and shoulders are detected, a corresponding trajectory line is generated according to the movement path of the head and shoulders. **Note:** • Only Feet Tracking is supported when the working mode is multi-device stitching. • It is recommended to use heads tracking mode when the installation height is low in standalone working mode.

Parameters	Description
Record Track Start/Stop Points	Enable to record the start track points and end track points of people in the live view for the position adjustment of the detection line. It can store 5000 track points at most, with green as the starting point and red as the stop point. 
Reset Cumulative Count on Schedule	Enable to periodically reset cumulative count on schedule. Support up to 5 reset schedules. Cumulative Count includes: Total In/Out counting of each detection line. Max./Avg. Dwell Time of each detection region. Total Effective Audience and Avg. Attention Time of each attention region.
Enhanced Detection Mode	Turn on when any one of the following situations occurs, it will ensure normal counting and detecting: • The depth image is abnormal; • There is obstacle in the live view; • Installation conditions are not met.

Line Crossing Counting

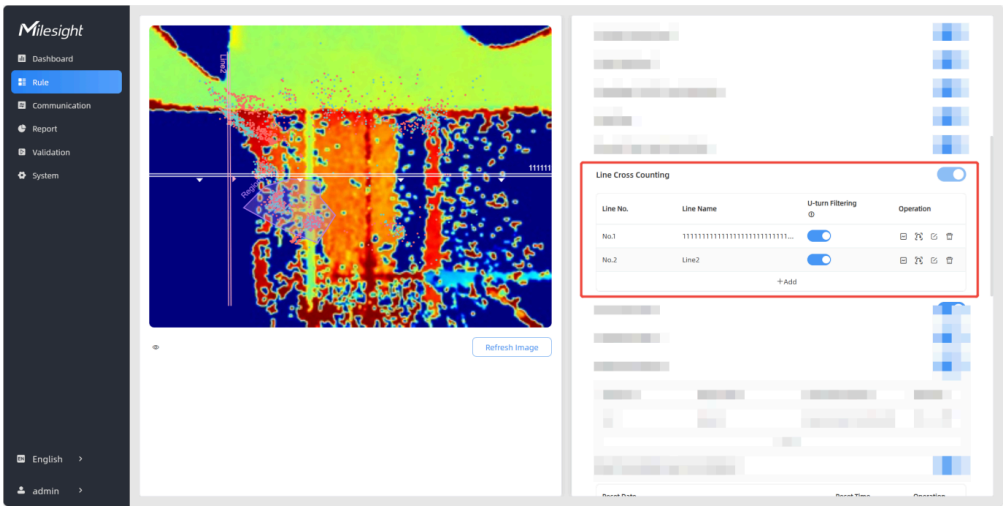
Users can draw detection lines to count the number of people entering or exiting.

Note:

1. Ensure that the detected target can pass through the detection line completely. It's recommended that the detection line is perpendicular to the In/Out direction and on the center of the detection area without other objects around.
2. Redundant identification spaces are needed on both sides of the detection line for the target detection. This ensures stable target recognition and tracking before crossing the detection line, which will make the detection and count more accurate.
3. It is recommended to draw the detection line as close to the center of the image as possible, and ensure that the target has already been detected before crossing the line.

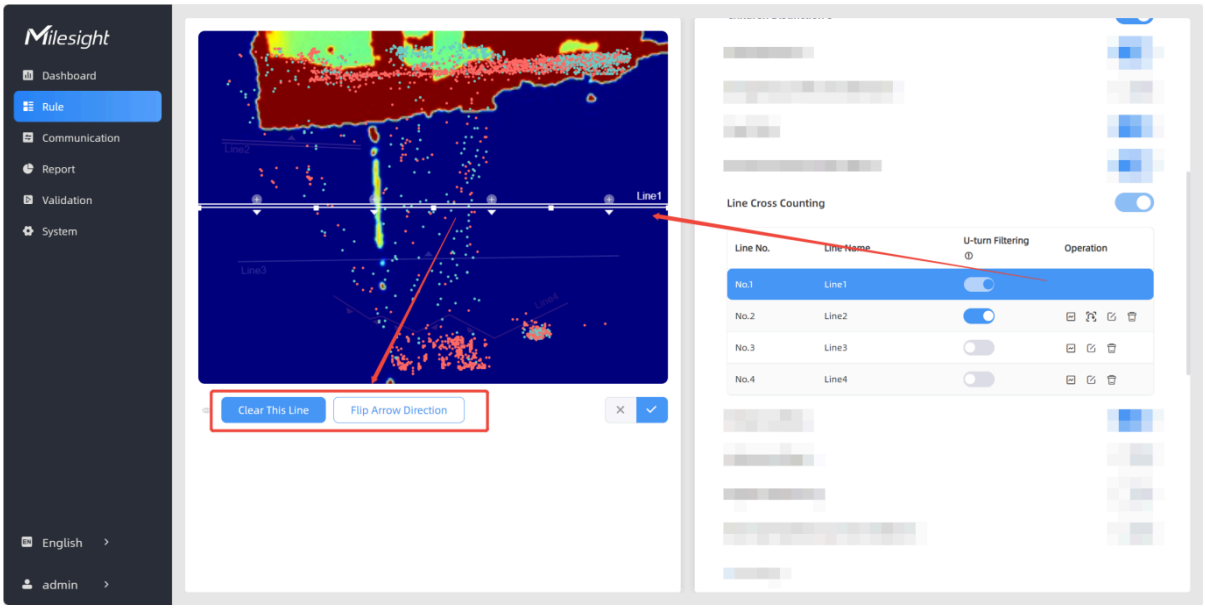
Step 1: Please ensure that the deployment parameters and device strategies have been configured before using this feature.

Step 2: Find the list of detection lines. Click **+Add** to draw a new detection line or click to edit the existed detection line on the live view.



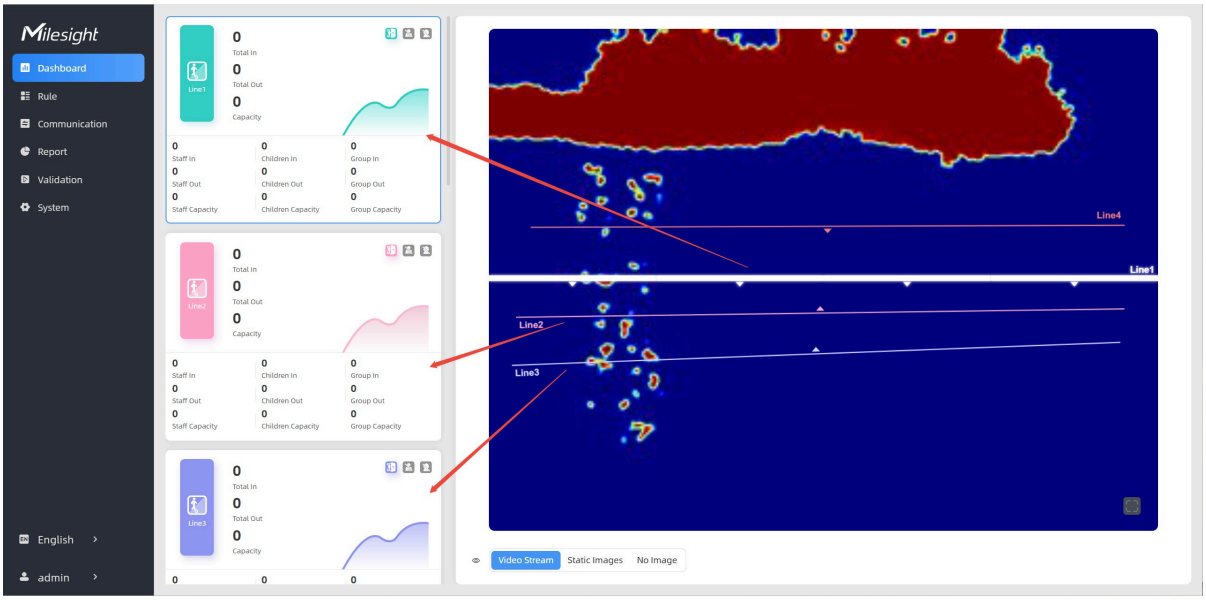
Step 3: Left-click to start drawing and drag the mouse to draw a line, left-click again to continue drawing a different direction edge, and right-click the mouse to complete the drawing. The line can be dragged to adjust the location and length. One device supports at most 4 broken lines with maximum 10 points each.

Step 4: If users want to redraw this line, click **Clear This Line** or drag the vertices of the broken line to adjust. The arrow direction of the detection line depends on your drawing direction. If users need to flip the line, click **Flip Arrow Direction.** Then click to finish drawing.

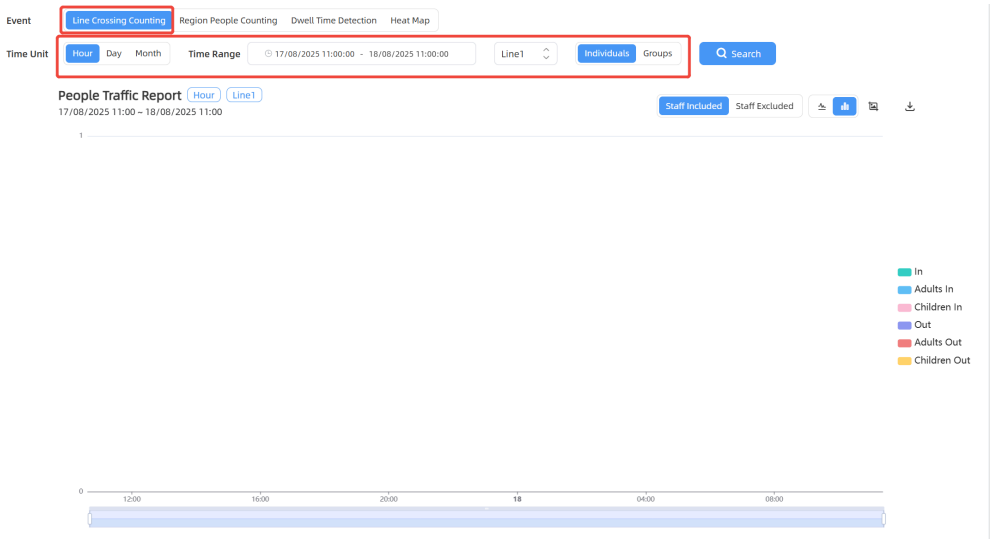


Step 5: Users can click to customize the name of line. If users need to delete a certain line, click .

Step 6: Users can see the effect in Dashboard.



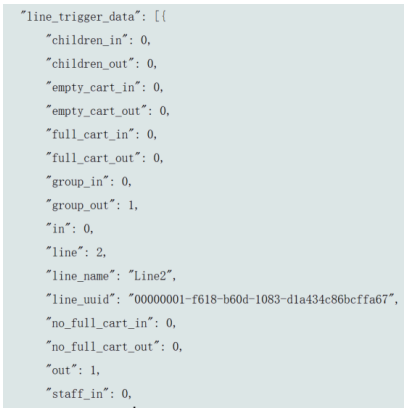
To view line's data for a certain time period and generate report, please refer to Report.



Be able to view "line_periodic_data" and "line_total_data" in the Periodic Report and "line_trigger_data" in the Trigger Report.

```
"line_periodic_data": [{
    "children_in": 0,
    "children_out": 0,
    "group_in": 0,
    "group_out": 0,
    "in": 0,
    "line": 1,
    "line_name": "Line1",
    "line_uuid": "00000000-2cf7-9870-584b-ebdd1bd8b3d3986a",
    "out": 0,
    "staff_in": 0,
    "staff_out": 0
}],
```

```
"line_total_data": [{
    "capacity_counted": 3,
    "children_in_counted": 1,
    "children_out_counted": 0,
    "group_in_counted": 37,
    "group_out_counted": 34,
    "in_counted": 37,
    "line": 1,
    "line_name": "Line1",
    "line_uuid": "00000000-2cf7-9870-584b-ebdd1bd8b3d3986a",
    "out_counted": 34,
    "staff_in_counted": 0,
    "staff_out_counted": 0
}],
```



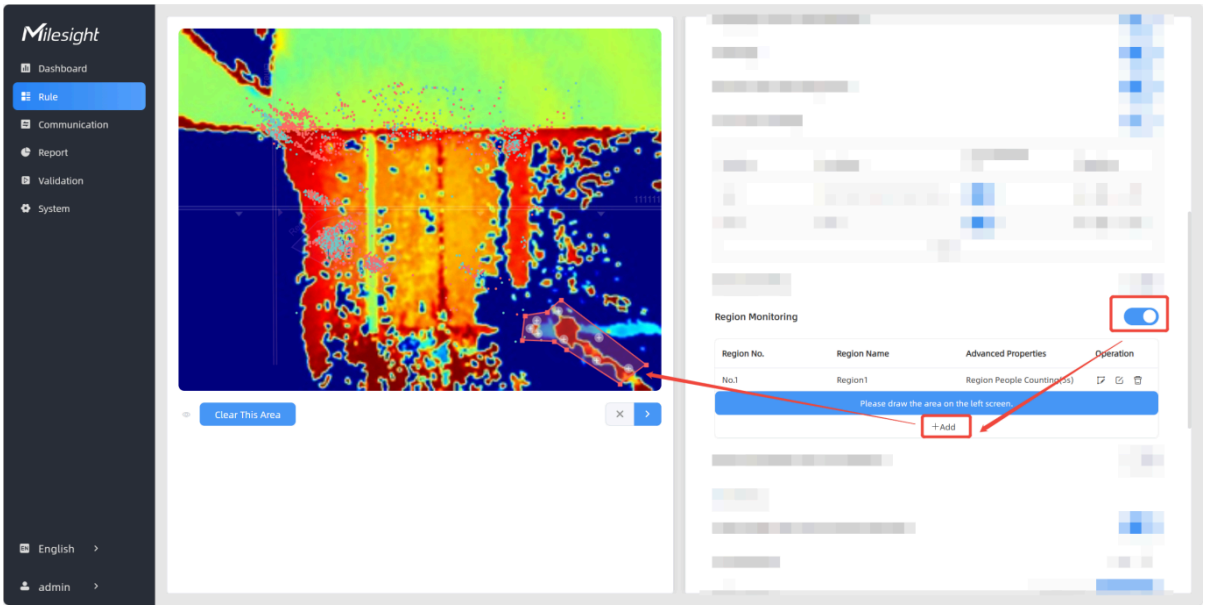
```
"line_trigger_data": [{
    "children_in": 0,
    "children_out": 0,
    "empty_cart_in": 0,
    "empty_cart_out": 0,
    "full_cart_in": 0,
    "full_cart_out": 0,
    "group_in": 0,
    "group_out": 1,
    "in": 0,
    "line": 2,
    "line_name": "Line2",
    "line_uuid": "00000001-f618-b60d-1083-d1a434c86bcffa67",
    "no_full_cart_in": 0,
    "no_full_cart_out": 0,
    "out": 1,
    "staff_in": 0,
```

Region People Counting

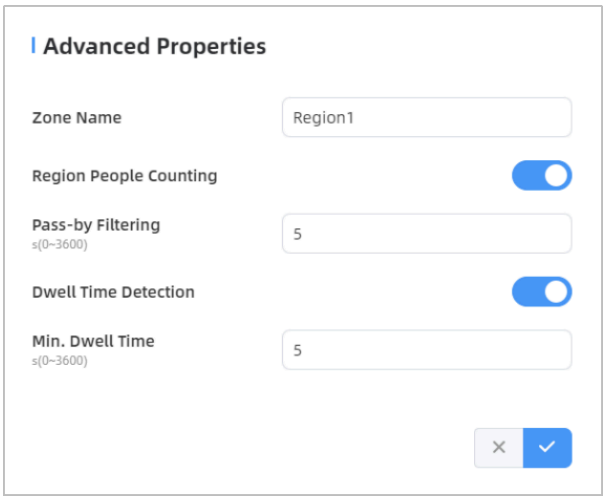
The device supports monitoring the number and the dwell time of people in the region, providing more valuable analysis data.

Step 1: Please ensure that the deployment parameters and device strategies have been configured before using this feature.

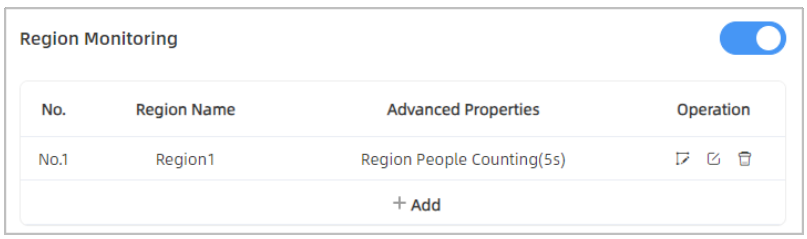
Step 2: Enable Region Monitoring. Click **+Add** to add the region monitoring on the live view. Up to 4 regions are supported with maximum 10 points each.



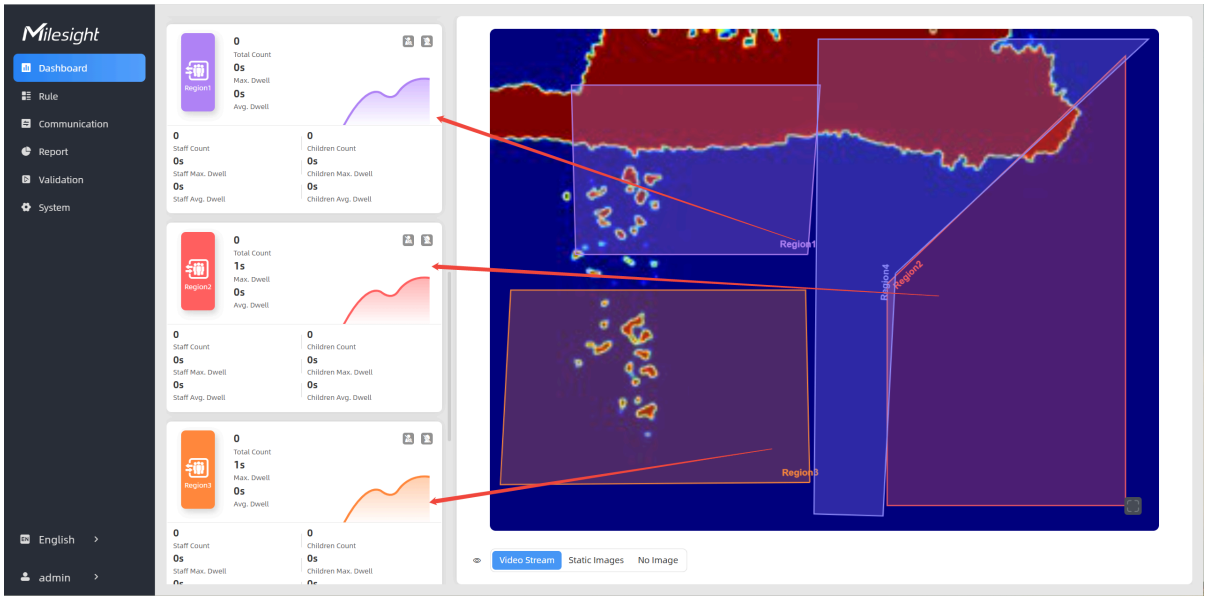
Step 3: Customize the zone name and enable Region People Counting or Dwell Time Detection as needed.



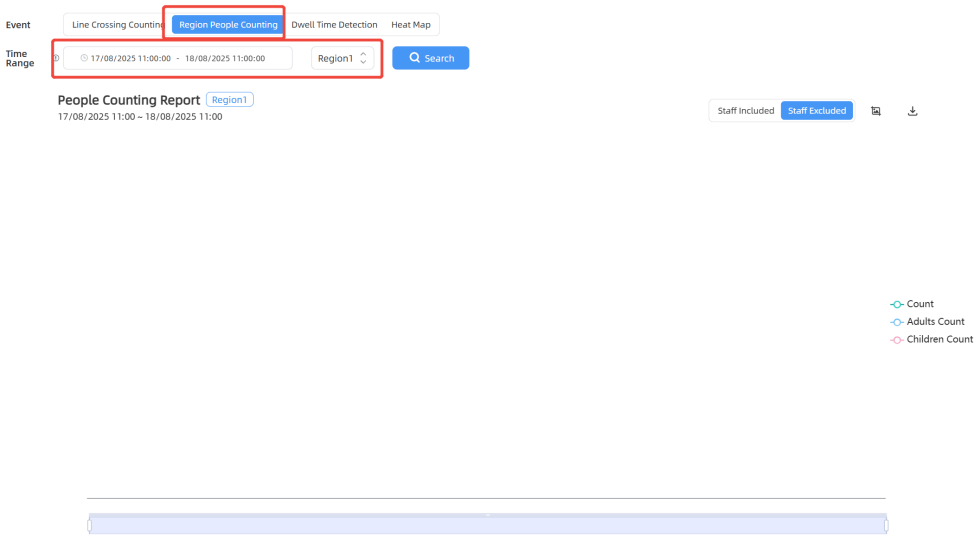
Step 4: The configuration is displayed in the list after the configuration is complete. You can redraw the areas by clicking the redraw button in the list. Click the edit button to modify the advanced settings of the areas or click delete button to delete the areas separately.



Step 5: Users can see the effect in Dashboard.



To view region's data for a certain time period and generate report, please refer to Report.



Be able to view "region_data" in the Periodic Report and "region_trigger_data" in the Trigger Report.

```
"region_data": {
    "dwell_time_data": [{
        "avg_dwell_time": 9,
        "children_avg_dwell_time": 65,
        "children_max_dwell_time": 3452,
        "max_dwell_time": 452,
        "region": 1,
        "region_name": "Region1",
        "region_uuid": "00000000-71f8-34a4-08cd-eb36ced99d0deccf",
        "staff_avg_dwell_time": 28,
        "staff_max_dwell_time": 247
    }],
    "region_count_data": [{
        "current_children": 3,
```

```
"region_trigger_data": {
    "region_count_data": [{
        "current_children": 0,
        "current_empty_cart": 1,
        "current_full_cart": 0,
        "current_no_full_cart": 0,
        "current_staff": 0,
        "current_total": 0,
        "region": 1,
        "region_name": "Region1",
        "region_uuid": "00000000-56d2-14e0-127d-593379f616bd65df"
    }, {
        "current_children": 0,
        "current_empty_cart": 1,
        "current_full_cart": 0,
```

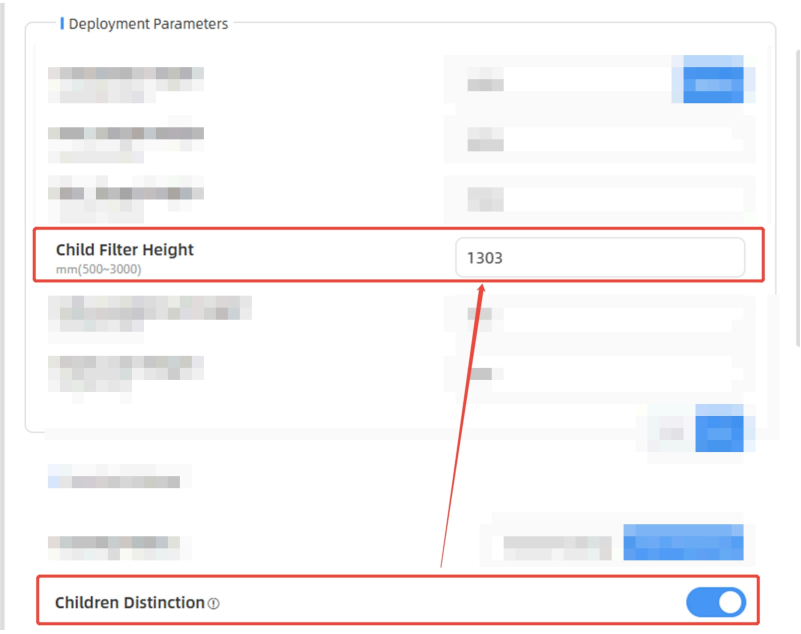

Advance Property Settings

The advanced property function uses AI recognition to intelligently distinguish various target properties. Before using the advanced property function, please ensure that you have completed the setting of the basic counting function.

Children Distinction

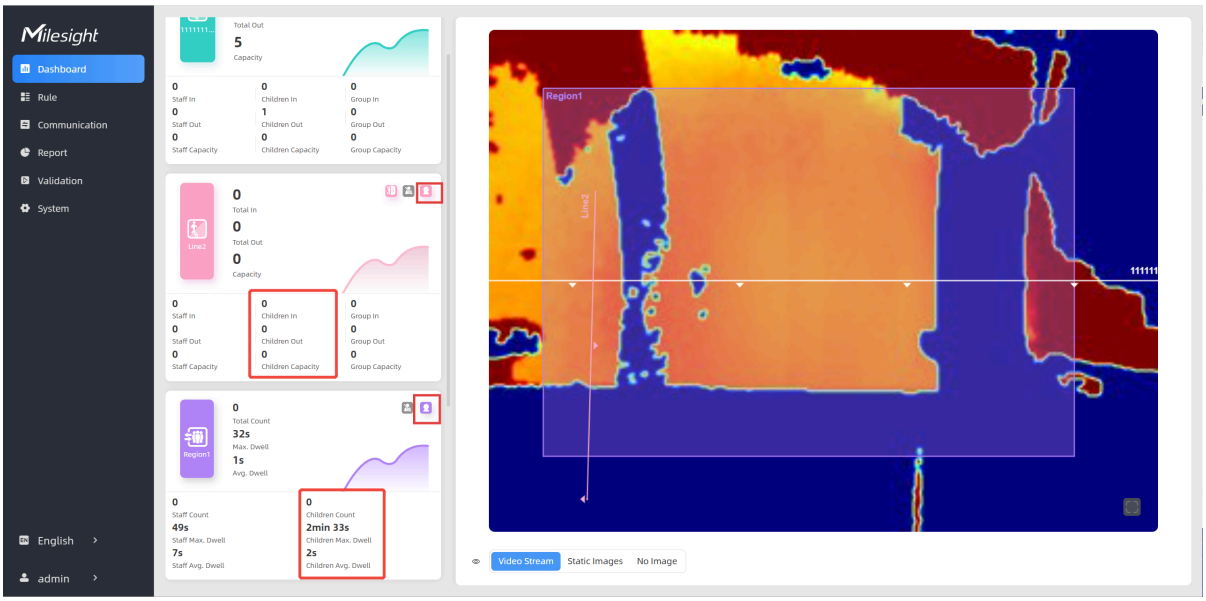
The device identifies individuals below the child filter threshold as children.

Step 1: Enable **Children Distinction**, it will display the development parameters for child filter height.

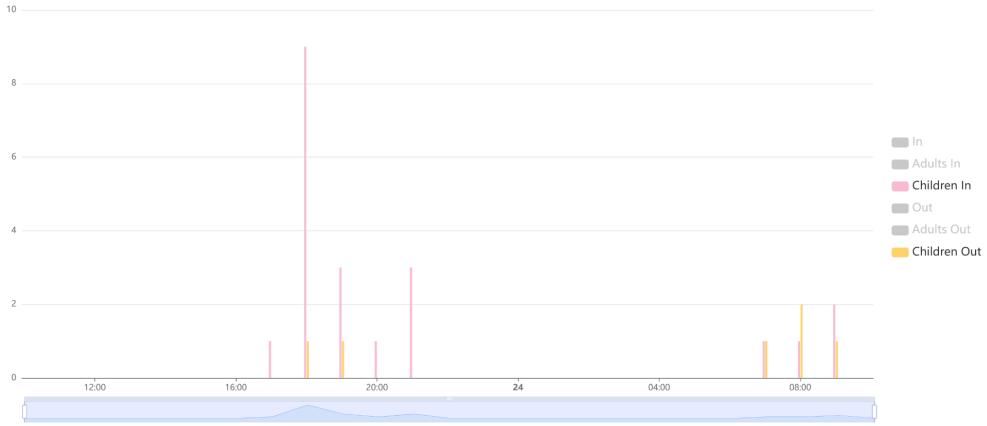


Step 2: Enter a threshold value, anyone with a height below this will be identified as a child by the device. Then click to finish configuration.

Step 3: Users can see the effect in Dashboard.



To view children's data for a certain time period and generate report, please refer to Report.



Users can also view the data through Periodic Report and Trigger Report.

Note:

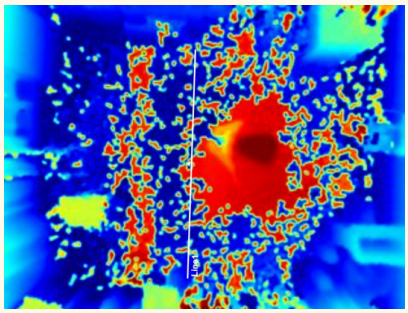
- Children under 1.1m in height, children in strollers/shopping carts, children being held, and children covered by an adult have a probability of undercounting.

Staff Detection

The device will detect staff members who wear a designated accessories.

Important:

1. Dark floor/carpet (black, grey, etc.) will affect the device to count staffs when Staff Detection is enabled.



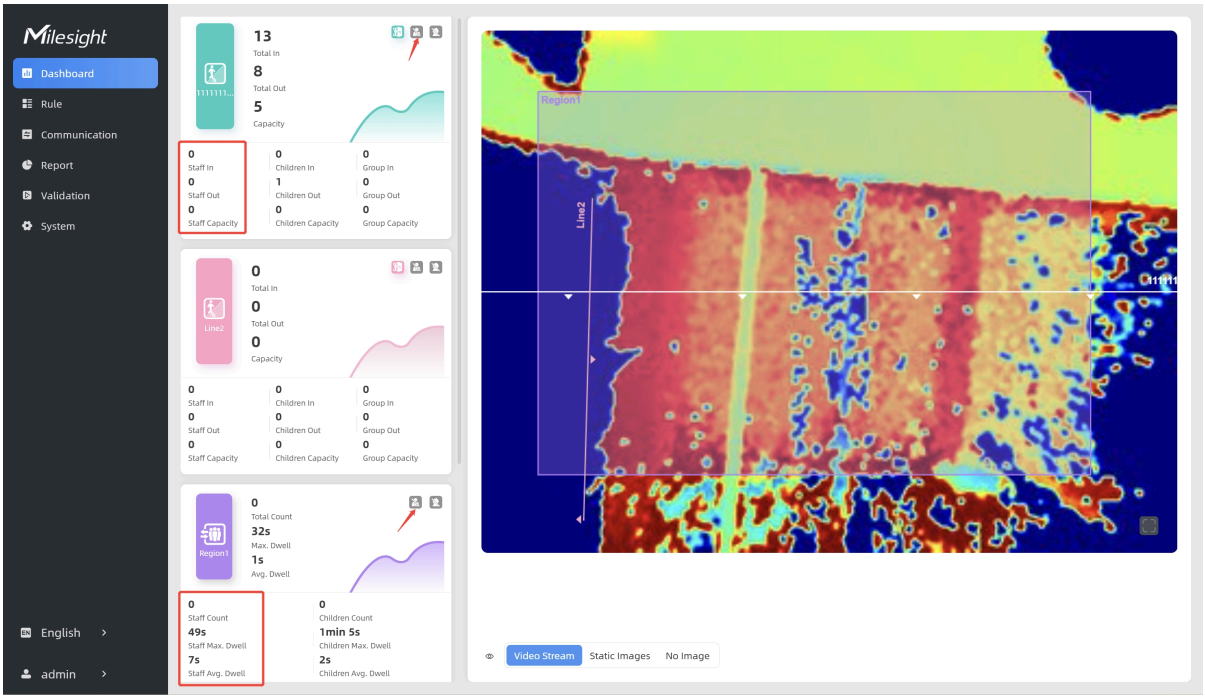
Step 1: Check the optional accessories are complete in the unit's box. For optimal detection, it is suggested to use the staff accessories provided by Milesight.

Have staffs wear Staff Tags on the visible parts (neck, shoulders, etc.).

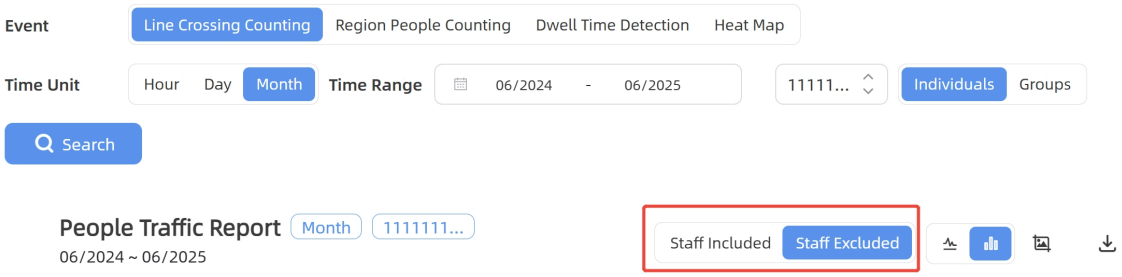
Reflective stripe requirements: width > 2cm, 500 cd/lux.m^2

Step 2: Enable **Staff Detection**.

Step 3: Users can see the effect in Dashboard.



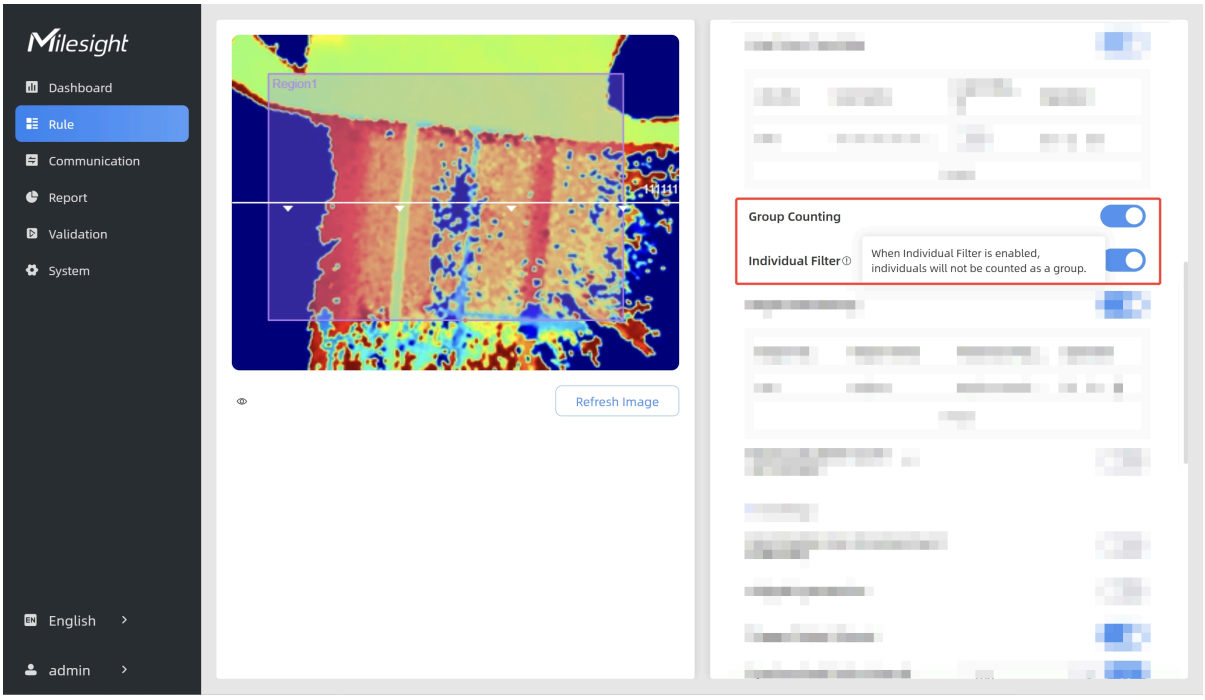
To view staffs' data for a certain time period and generate report, please refer to Report.



Users can also view the data through Periodic Report and Trigger Report.

Group Counting

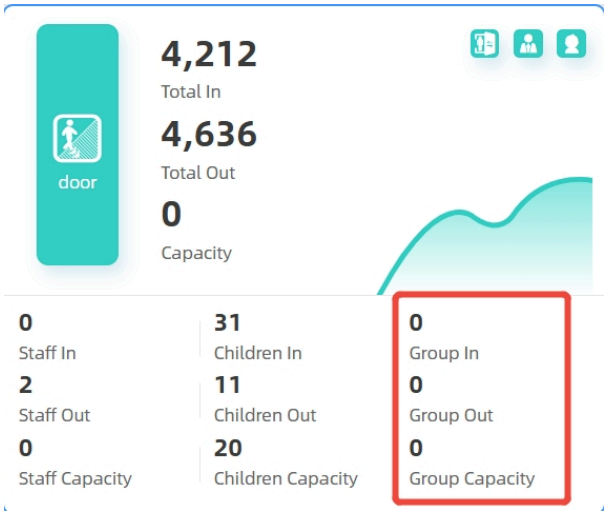
The device is capable of simultaneously recognizing and counting multiple people entering or passing through the detection area during the same period of time. By analyzing distance, movement direction, and speed differences, it provides deeper insights into customers' behaviors. **This function is only applicable for line cross people counting.**



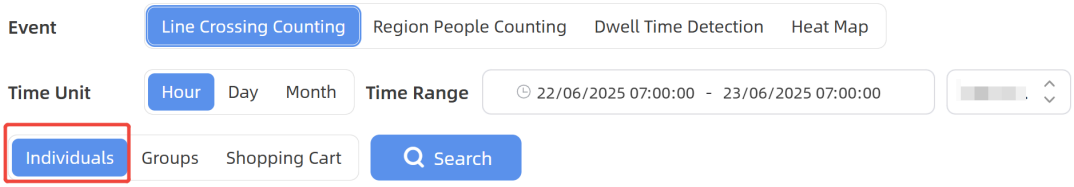
Step 1: Click to enable the **group counting** function, the device considers a group of people as a single group.

Step 2: Choose to enable or disable **Individual Filter**. When enabled, device will only count two or more individuals as a group.

Step 3: Users can see the effect in Dashboard .



To view groups' data for a certain time period and generate report, please refer to Report.

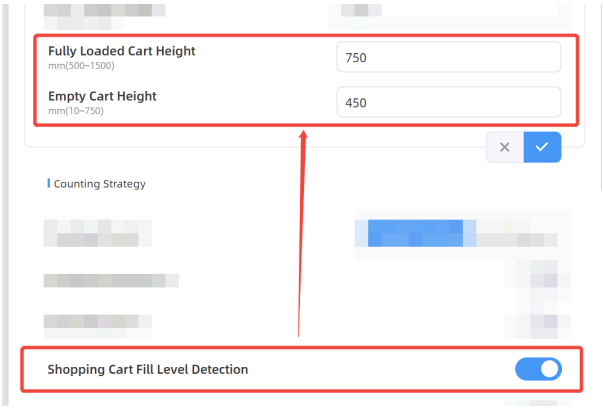


Users can also view the data through Periodic Report and Trigger Report.

Shopping Cart Fill Level Detection

This function is capable of recognizing shopping carts and detecting their overflow status, thereby facilitating the collection of data on cart usage and sales. The collected information can be leveraged to analyze customer shopping behaviors and purchasing power, offering valuable references for store operation and management decisions.

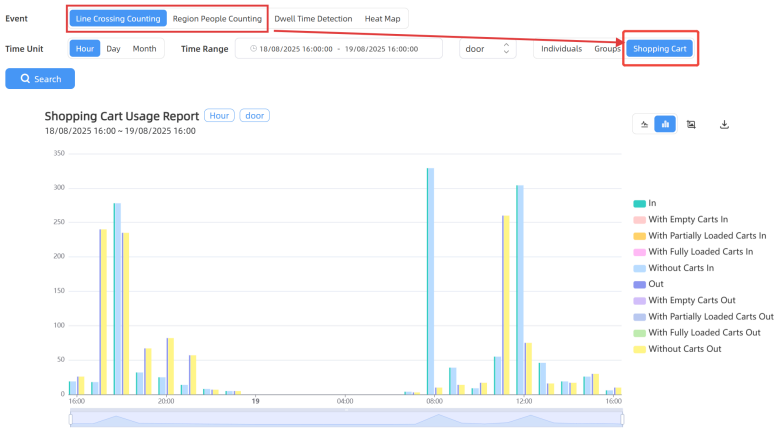
Step 1: Enable **Shopping Cart Fill Level Detection**, it will display the development parameters for cart height.



Step 2: Enter a threshold value, the device will count the carts of different status according to the preset shopping cart heights. Then click to finish configuration.

Step 3: Users can see the effect in Dashboard.

To view shopping carts' data for a certain time period and generate report, please refer to Report.



Users can also view the data through Periodic Report and Trigger Report.

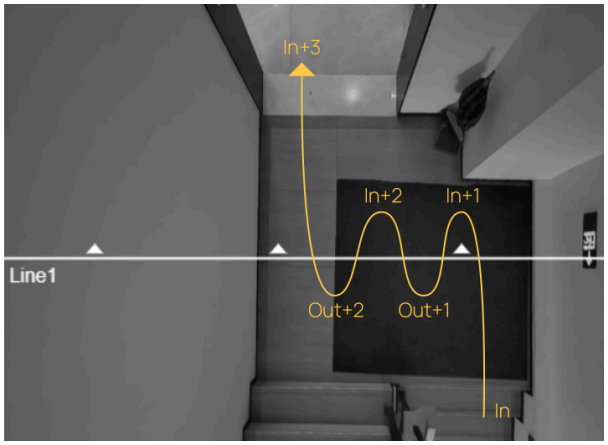
Note:

1. Line cross counting and region people counting will include cart counting if this option is enabled.
2. The shopping carts will not trigger the device to send trigger reports immediately, but the device will only send trigger reports when people pass through.

U-turn Filtering

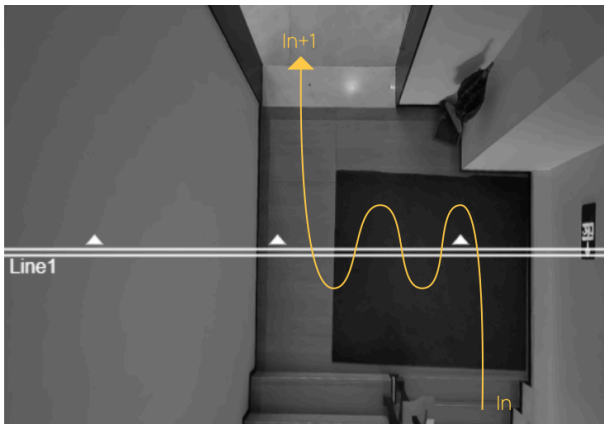
The device supports the U-turn filtering function, filtering out the people who are actually not in / out of the entrance, to avoid repeated counting. Users can draw an area for every line and the device will count the In and Out values only when people pass this area.

Disable U-turn filtering:



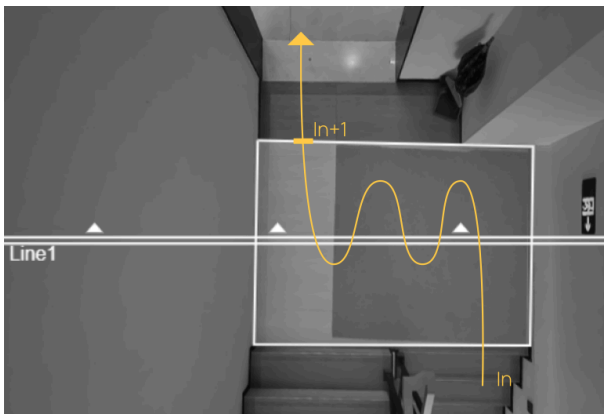
Enable U-turn filtering:

The device automatically filters out the wandering crowd in the live view.



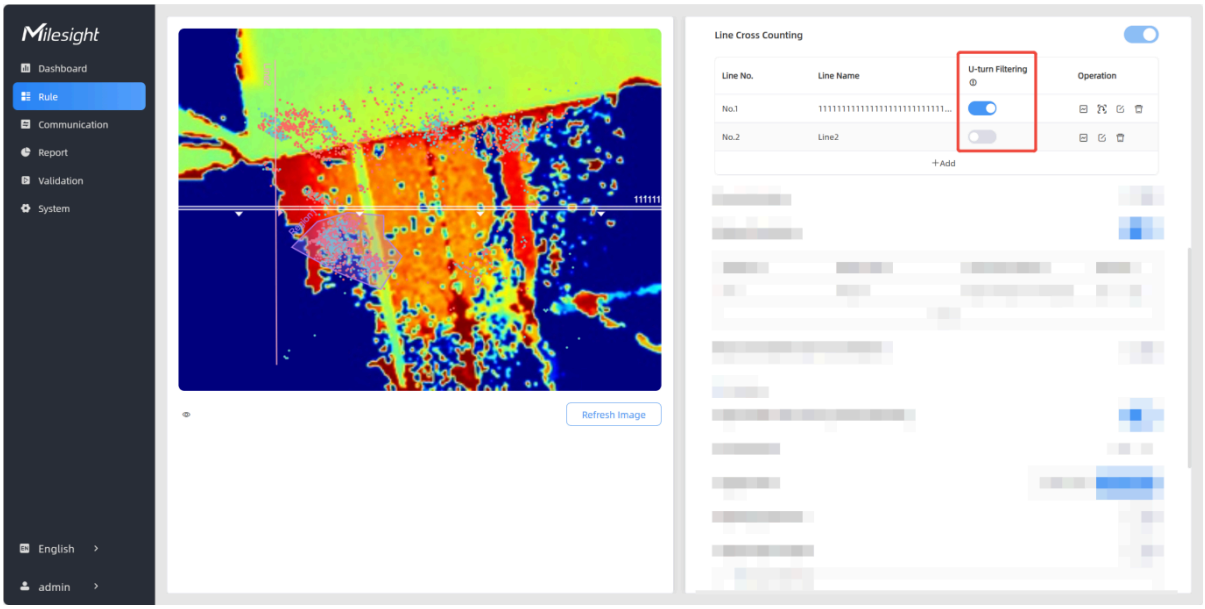
Enable U-turn filtering & Draw areas:

When you care about the timeliness of the statistics, you can choose to draw the U-turn area.



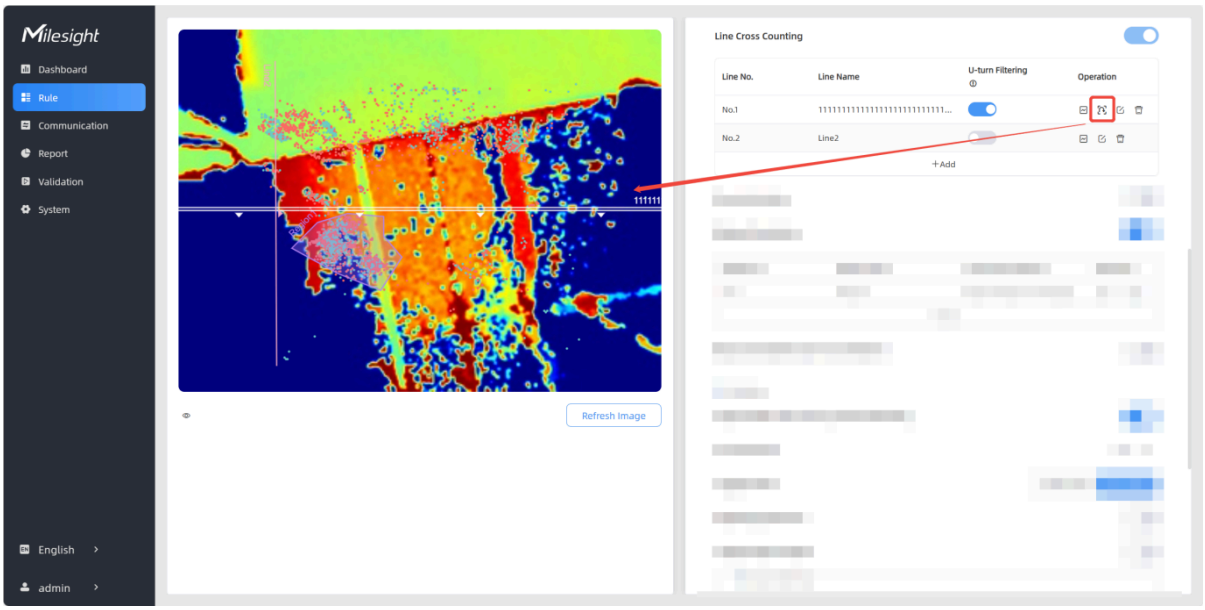
The above illustration is for reference only, here are the steps to draw the U-turn area:

Step 1: Enable U-turn Filtering to filtering repeated counting.



If you requires to use U-turn area filtering, please continue below steps:

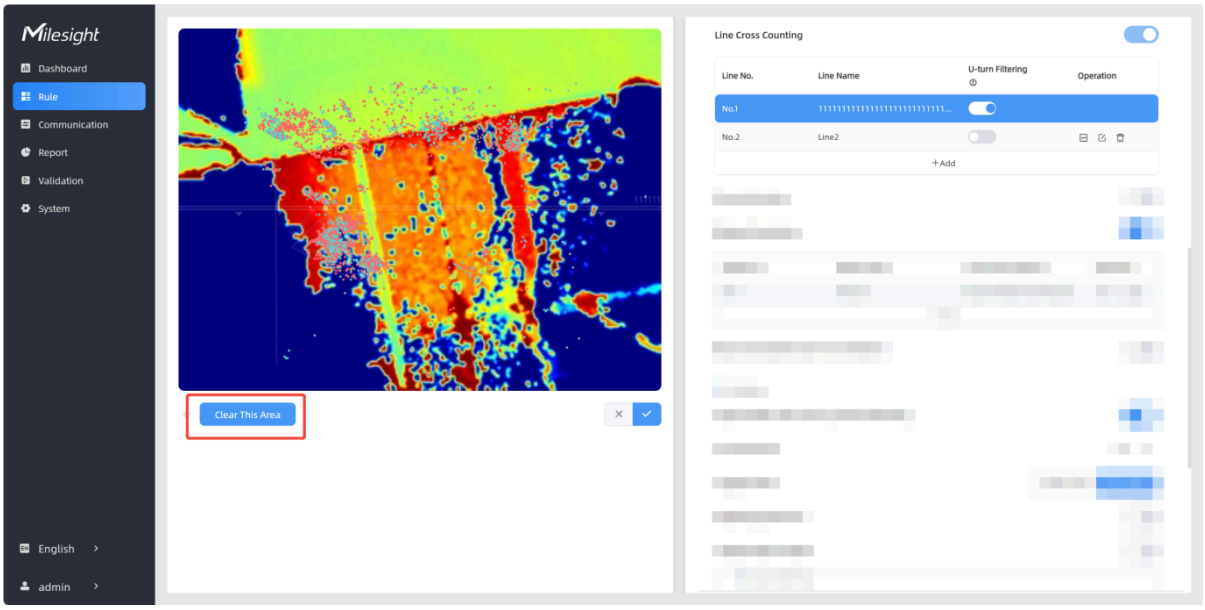
Step 2: Click to edit U-turn areas for existed detection line on the live view.



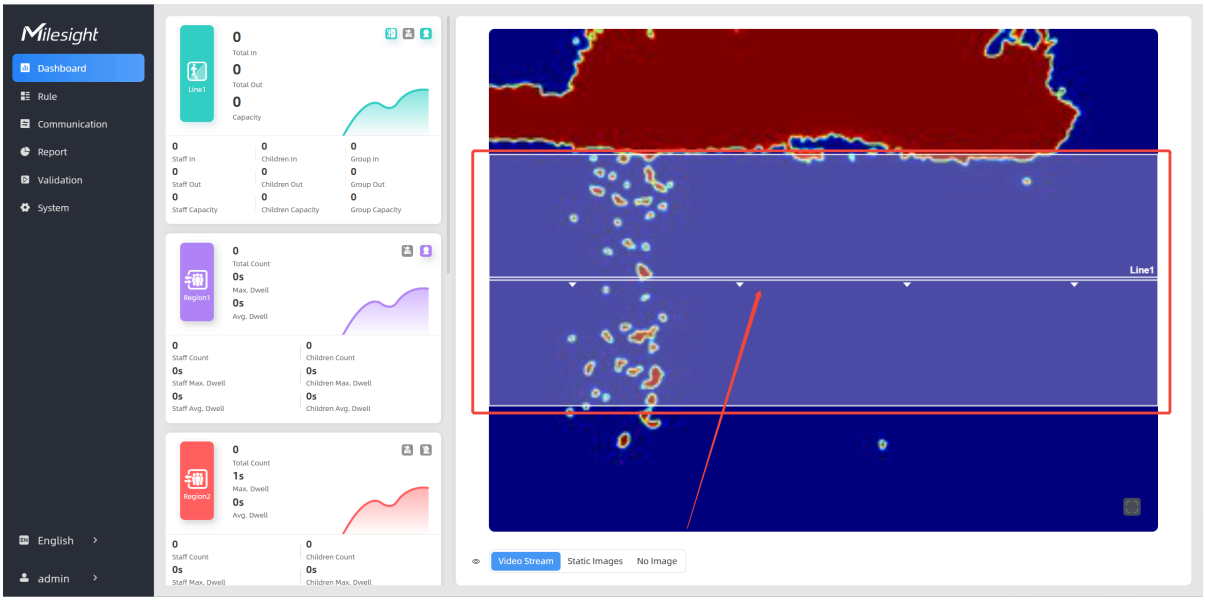
Step 3: Left-click to start drawing and drag the mouse to draw an edge. Then left-click again to continue drawing a different direction edge. Right-click the mouse to complete the drawing. The area can be dragged to adjust the location and length. One device supports up to 4 areas with maximum 10 segments each.

Step4: If users want to redraw the area, click **Clear This Area** or drag the vertices of the area to adjust. Then click  to finish drawing.

Step 5: If users need to delete a certain U-turn area, click  , then click **Clear This Area**.

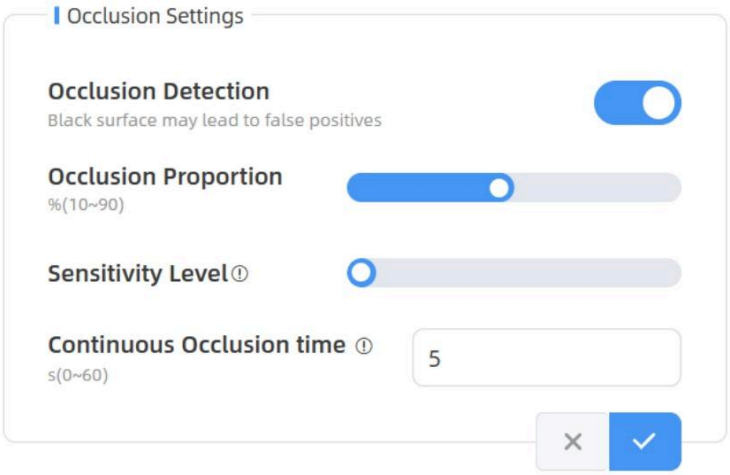


Step 6: Users can see the effect in Dashboard.



Occlusion Settings

Occlusion Detection can be enabled in the event of an occlusion so that the sensor can be detected in time if it has been maliciously occluded. Alarms are issued when occlusion occurs, and notification of deactivation is given when occlusion is lifted.



Step 1: Enable **Occlusion Detection** when you notice that the device's FOV is blocked.

Step 2: Drag Occlusion Proportion progress bar, adjust the threshold for the percentage of the entire field of view that must be occluded to trigger an alarm. Default: 50%.

Drag Sensitivity Level progress bar, adjust the sensitivity of the occlusion trigger. The higher the level, the easier it is to detect occlusion, but the false alarm rate increases. Default: 2.

Fill in Continuous Occlusion time, set the duration the sensor must be obscured before an alarm is issued.

Step 3: Click to complete the configuration.

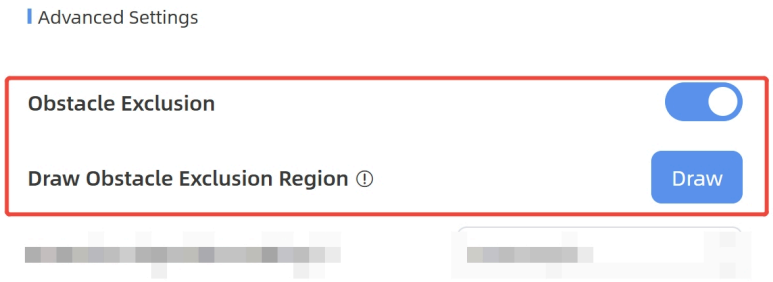
Note:

1. Not recommended for use in environments with black carpets.
2. When multi-device stitching mode is enabled, the occlusion setting parameters of the master and node devices are synchronized. Regardless of which device is masked, the master device will trigger the trigger the alarm.

Users can also view the data through Periodic Report and Trigger Report.

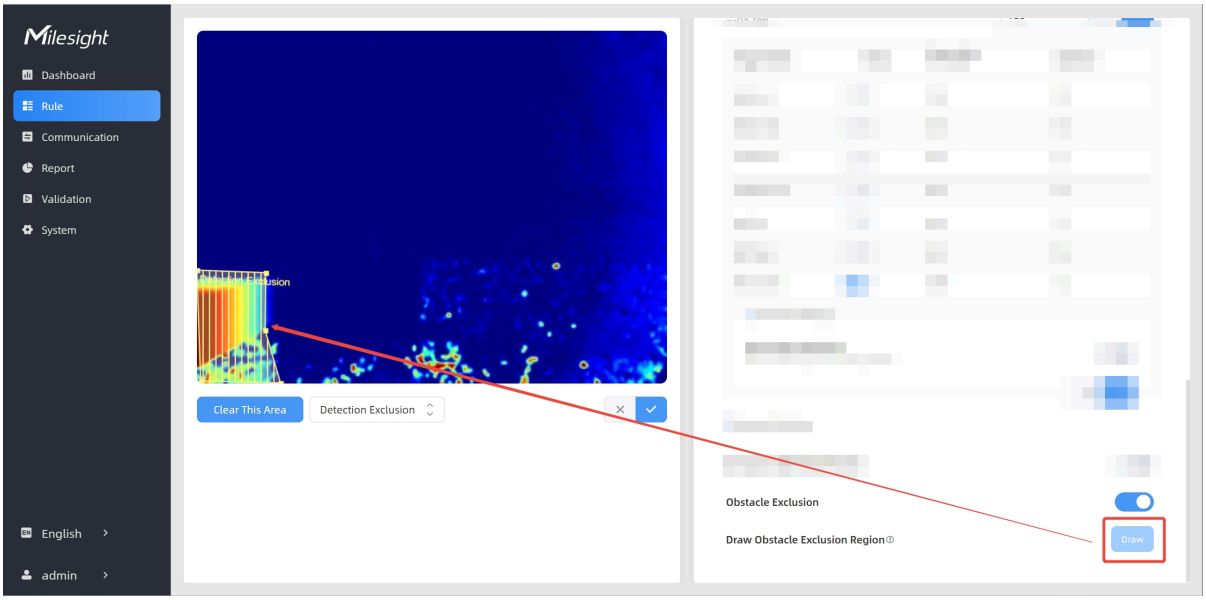
Obstacle Exclusion

When there is an immovable static obstacle within the detection range of the device, and the detection line or region cannot be adjusted to avoid the obstacle, this function can be activated to filter out obstacles similar to humans.



Step 1: Enable **Obstacle Exclusion**, click **Draw** button.

Step 2: Left-click the live view to start drawing and drag the mouse to draw an edge. Left-click again to continue drawing a different direction edge. Right-click the mouse to complete the drawing.



The region can be dragged to adjust the location and length.

One device supports up to 4 regions with maximum 10 segments each.

Step 3: Choose the method of exclusion.

Detection Exclusion: Select it when you don't want to detect anything in this area. You can just draw the highest part of the obstacle, the device will use this highest part as a reference to automatically exclude this specific area.

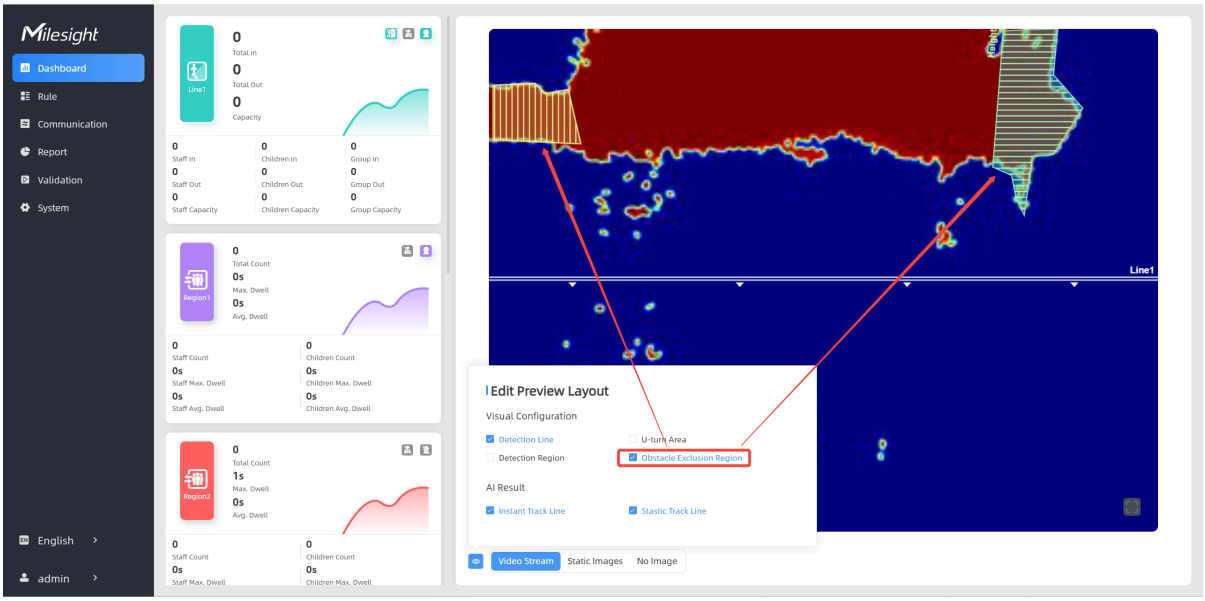
(For example, in a shelf scene, you can just frame the top end of the shelf, then the shelf won't be mistakenly detected as a person.)

Height Exclusion: Select it when you want to avoid mixing obstacles with targets and creating false detections. You can just box out the parts that are easy to confuse with the targets.

(For example, in the scene of a gate passage, you can draw the shape of the gate to avoid the device misjudging a child passing through as an adult, as the child may blend into the shape of the gate.)

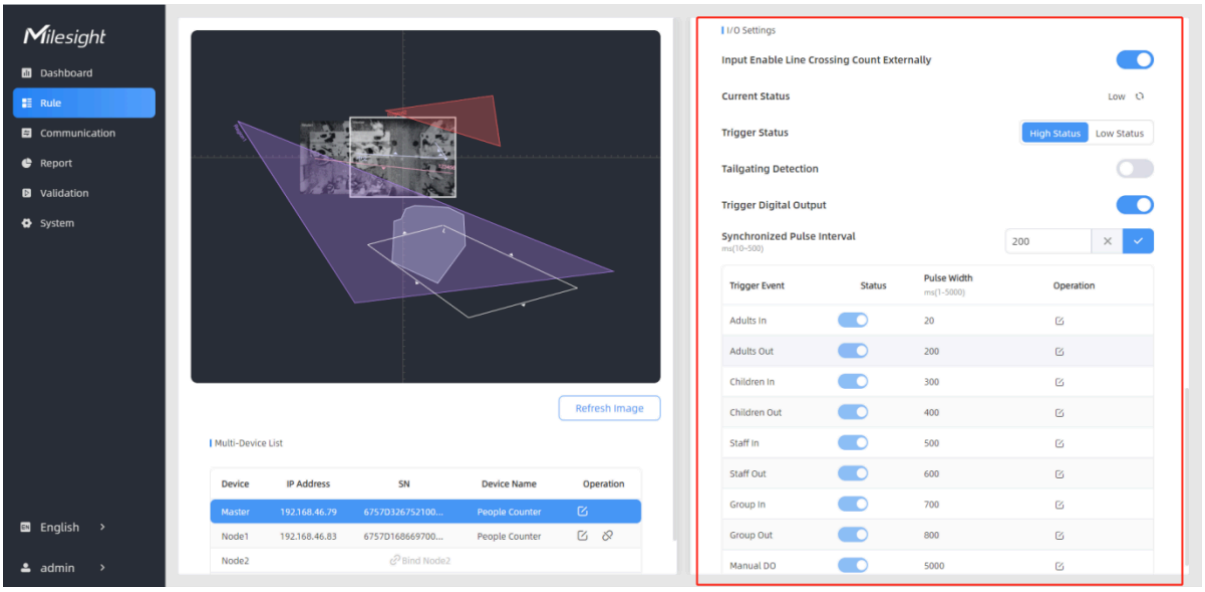
Step 4: Click  to complete drawing.

Step 5: Users can see the effect in Dashboard.



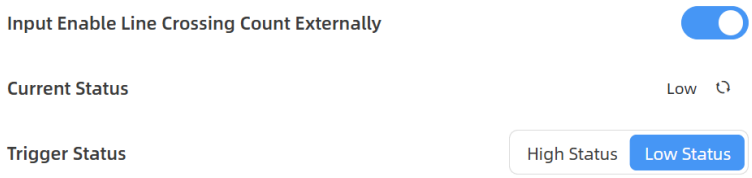
I/O Settings

The device supports Digital Input and Output. Please refer to the wiring diagram and use the Multi-interface Cable to connect the device in the correct sequence.



Input Enable Line Crossing Count Externally

This option is used to enable or disable the counting function for the Digital Input. Only when trigger status is the same as the current status, will the device count the data.

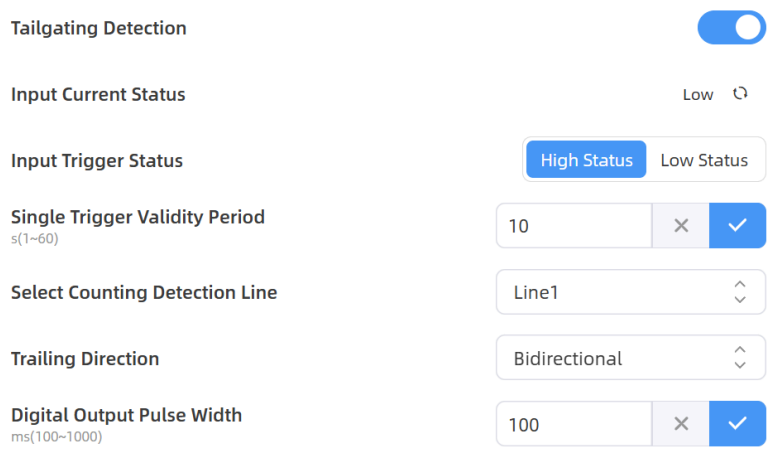


Low Status=two contacts disconnected, High Status=two contacts closure

Tailgating Detection

In some places where card swiping is needed at entrances and exits, this function can be enabled to identify unauthorized break-ins, card piggybacking, and sending alerts when an abnormal event is detected. Tailgating Detection supports DO signal output and MQTT/HTTP report alarms.

This function is only recommended for single gate, and it is suggested to draw the detection line around the gate and add u-turn filtering region.

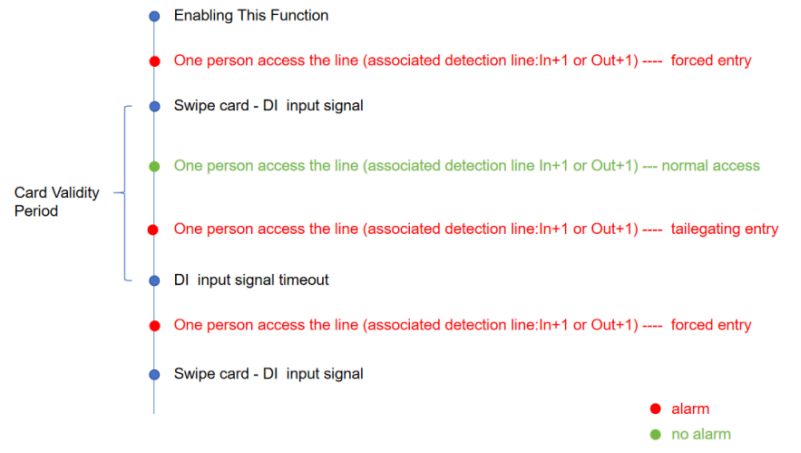


Step 1: Choose **High Status** or **Low Status**, configure determines the status of the external input trigger. The device can be configured to use the trigger status as the signal criterion for determining whether a card has been swiped. The trigger level signal of DI must be greater than or equal to 50ms for a valid external input signal.

Step 2: Configure Single Trigger Validity Period, specifying how long the gate stays open to permit passage for one individual.

Step 3: Select Counting Detection Line, which tailgating detection will be applied. An alarm is triggered when the number of crossings exceeds the number of card swipes. Select Trailing Direction, when you want to monitor for tailgating in both the entry and exit directions, select Bidirectional; When you only want to be alerted if tailgating occurs in the entry direction, select Entry Direction, and vice versa.

Step 4: Configure Digital Output Pulse Width.



Note:

The Dashboard will display the three latest alarm information when this function is enabled.

Trigger Digital Output

Step 1: Enable **Trigger Digital Output**, the digital output will send a preset width of high level.

Step 2: Fill in **Synchronized Pulse Interval**, the interval between multiple pulses when several people pass through or multiple events trigger at the same time.

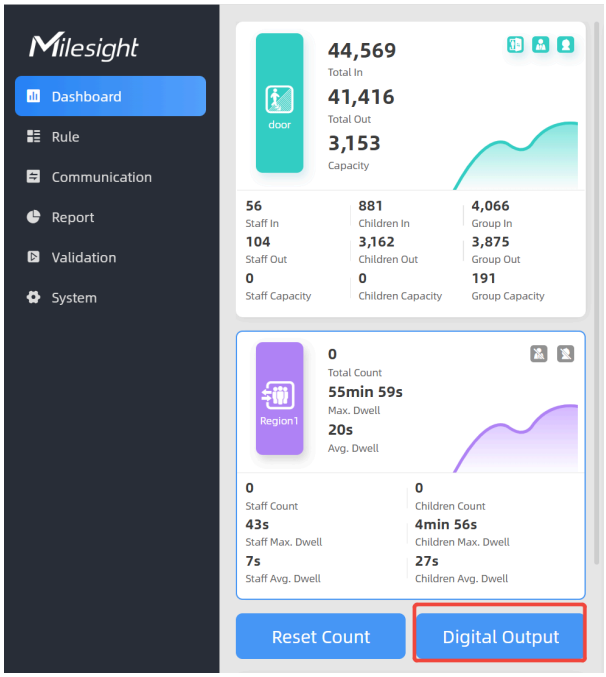
Step 3: Enable trigger events.

Trigger Event	Status	Pulse Width ms(1-5000)	Operation
Adults In		100	
Adults Out		200	
Children In		300	
Children Out		400	
Staff In		500	
Staff Out		600	
Group In		700	
Group Out		800	
Manual DO		5000	

Parameters	Description
Trigger Event	The events to trigger the DOs to send pulse signals.

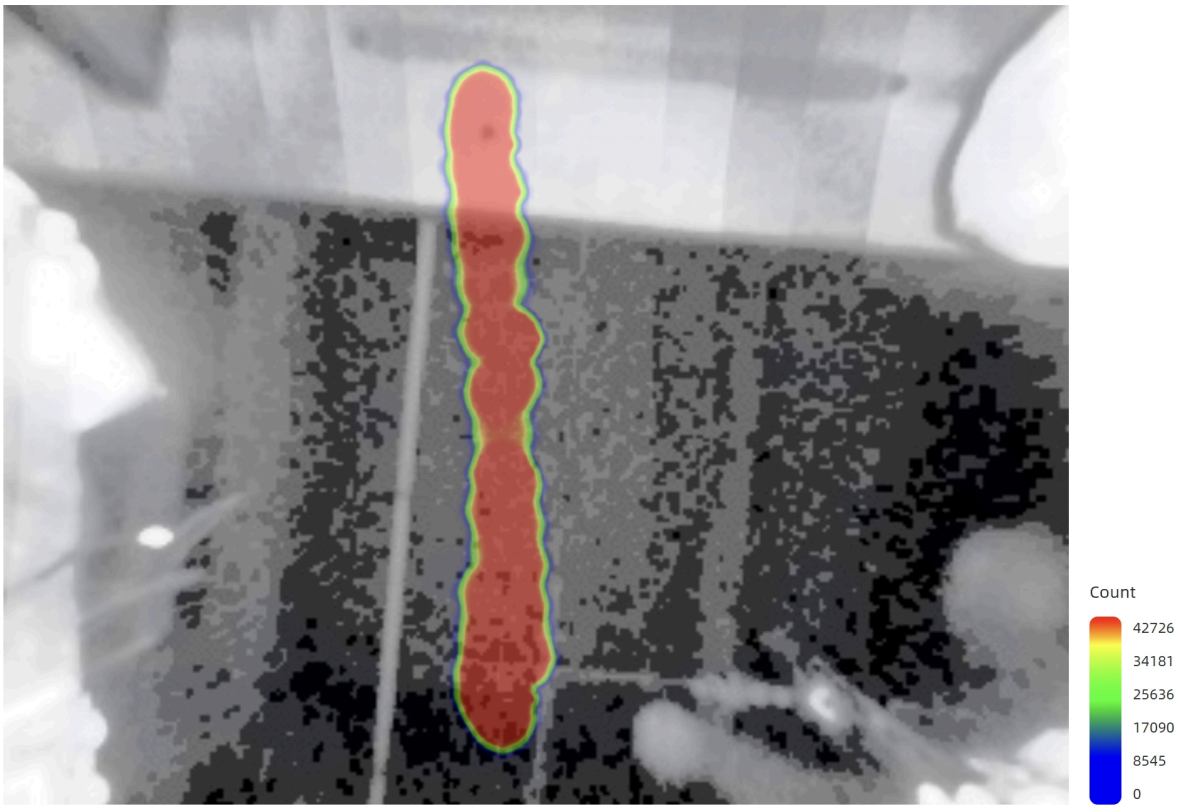
Parameters	Description
	Note: If staff event triggers, sending staff pulse signals, does not synchronize gender or adult pulse signals.
Status	Enable or disable the event to trigger the output of a pulse signal.
Pulse Width	The duration of the pulse signal.
Operation	Click to edit the information.

Step 4: Users can see the effect in Dashboard.



Heat Map

Heat Map function analyzes personnel movement and displays intuitive and accurate statistical analysis results in different colors in a temporal or spatial pattern, as needed, to provide insights for better business management.



Support Motion Heat Map and Dwell Heat Map. The motion heat map shows where the most people flow. And the dwell heat map shows the areas where people stay for the longest time.

Step 1: Click to enable the **Heat Map** function, the device start to record.

Step 2: To view heat map's data for a certain time period and generate report, please refer to Report.

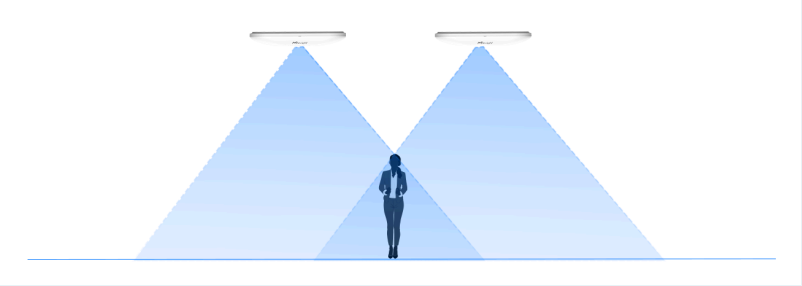
Multi-Device Stitching

Overview

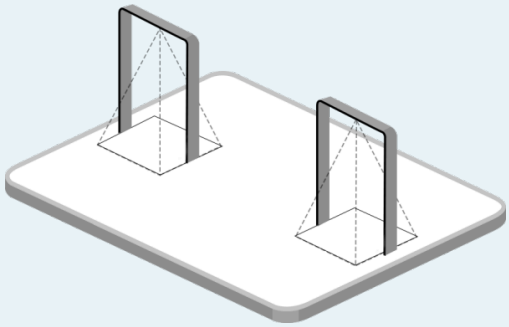
Multi-device stitching is mainly used to monitor a larger detection area than just the area covered by a single device. When using this feature, devices should be installed next to each other and ensure the detection areas are tangent or overlapping.

Note:

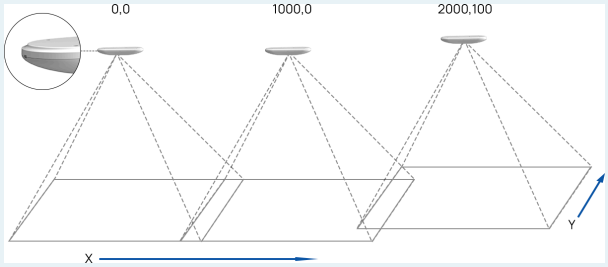
1. Ensure the head of one person can be seen on both live views at the same time.



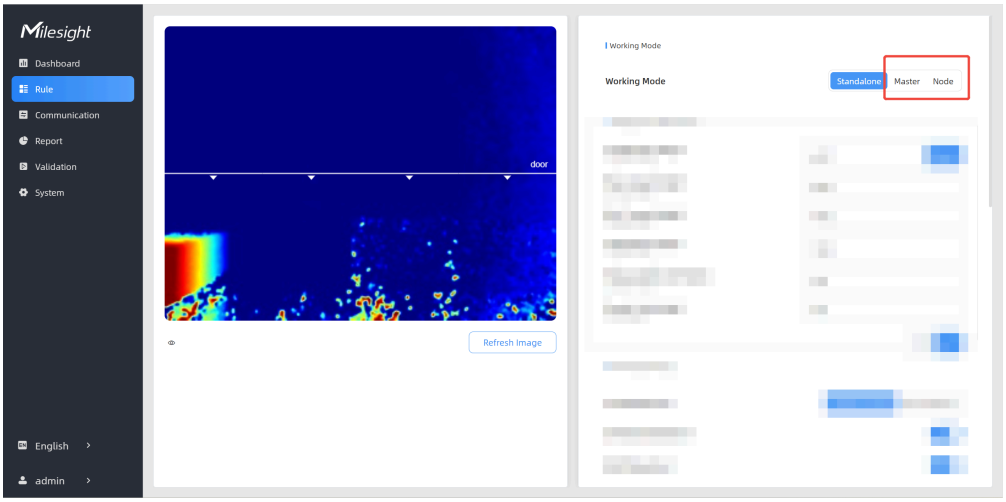
2. The devices can also be installed without overlapping.



3. Device positioning is done via X&Y coordinates. For example, the installation direction of the master device is shown as below. When the master device's coordinate is (0, 0), the coordinates of the node devices are all positive values



Before using this feature, set one device as **Master Mode** and other devices as **Node Mode**.



- Master Mode: Receive target tracks and view from the device, responsible for all counts, rule setting, data push and other functions.
- Node Mode: Only extends the view of the master device.

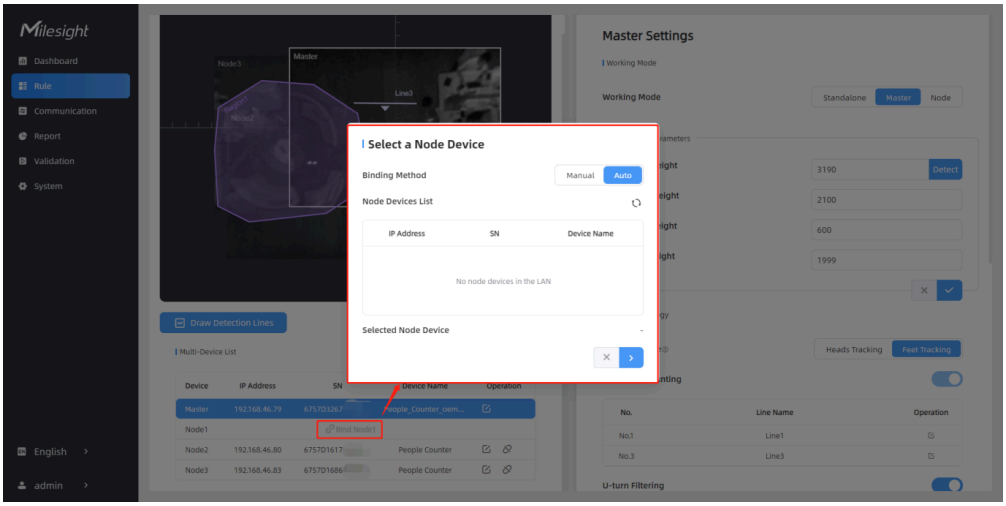
Master Device Setting

Step 1: Go to the master device web GUI, then click Bind Node on Multi-Device List.

Manual: You can add a node device by the IP address, HTTP Port, Username or Password.

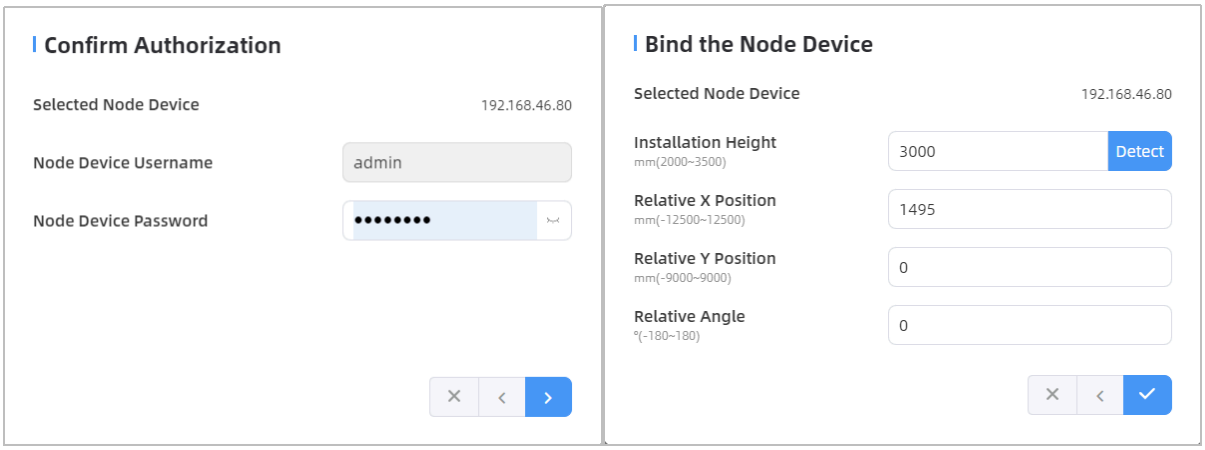
Note:
Please ensure that the device you want to add is on the same local network as the master device and has low latency.

Auto: The device will use multicast protocol to search for the unbound node devices under the same local network.

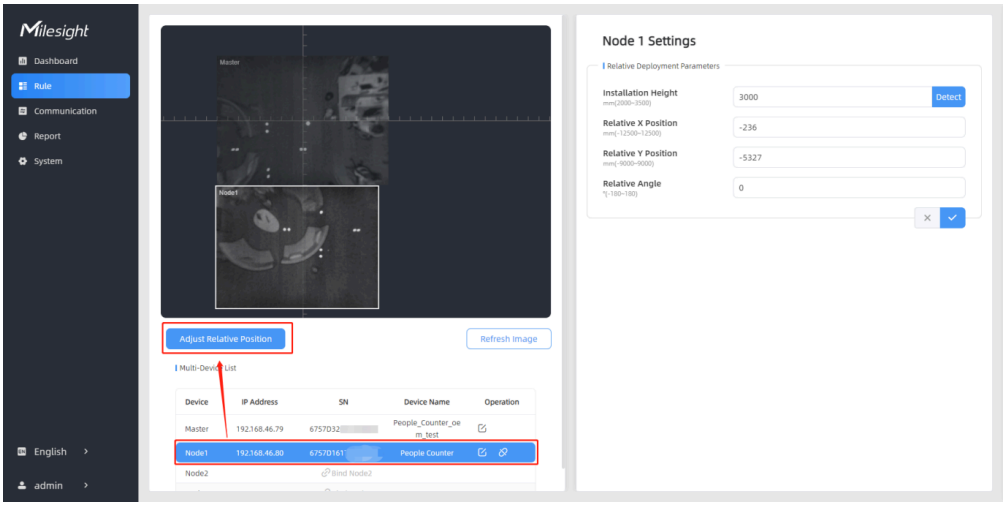


Step 2: Select the node device and type the login password of the node device.

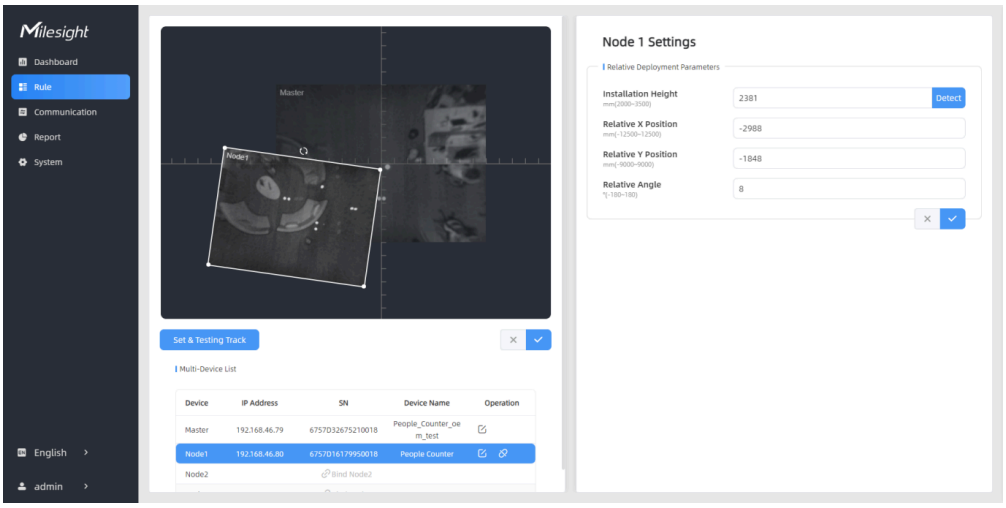
Step 3: Fill in the installation height of a node device and relative position information if these parameters are already measured. If not, save default settings and skip to Step 4.



Step 4: Select the node device on the Multi-Device List, click **Adjust Relative Position**.



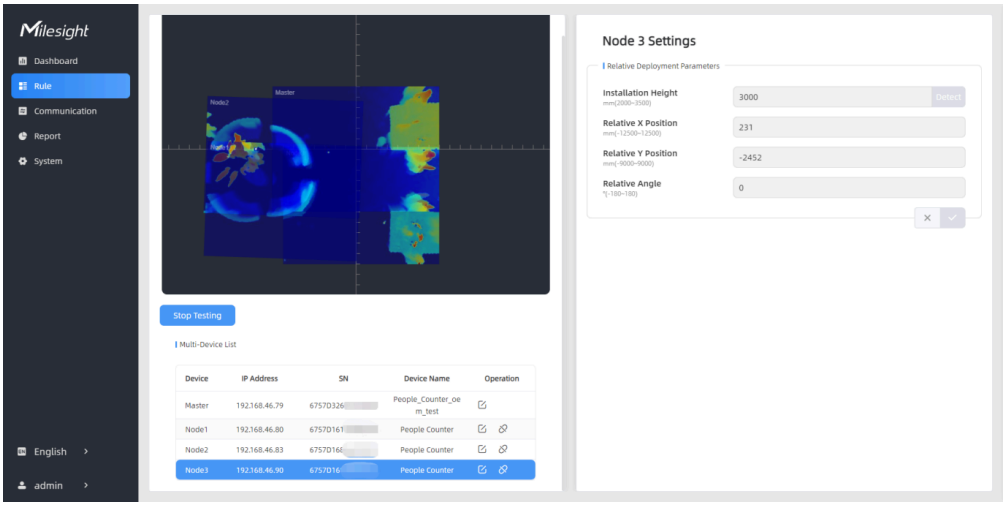
Drag the live view of node device to adjust the location and angle, and the relative position parameters will change automatically as your operations. Besides, users can also adjust the size of this live view.



Tip:

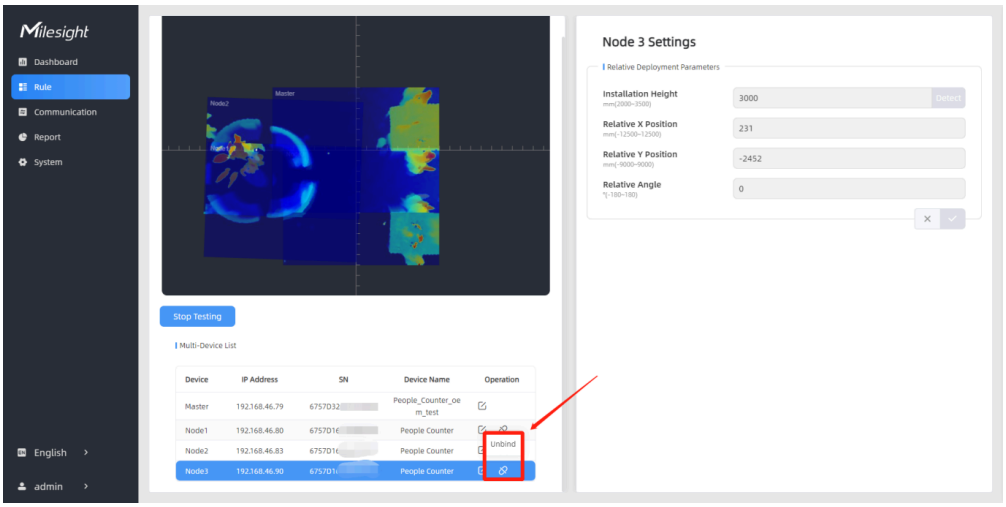
Cut the staff tags or other reflective stripes into pieces and stick them to the ground of overlapping areas, then drag the live view of node devices to make highlight markers in the two live views overlap. This allows equipment splicing configuration **without measurement**.

Step 5: Click **Set & Testing Track**, then check if the tracking lines are connected and smooth when people pass on the live views of multiple devices. If not, click **Stop Testing** to adjust the node device's live view location slightly.

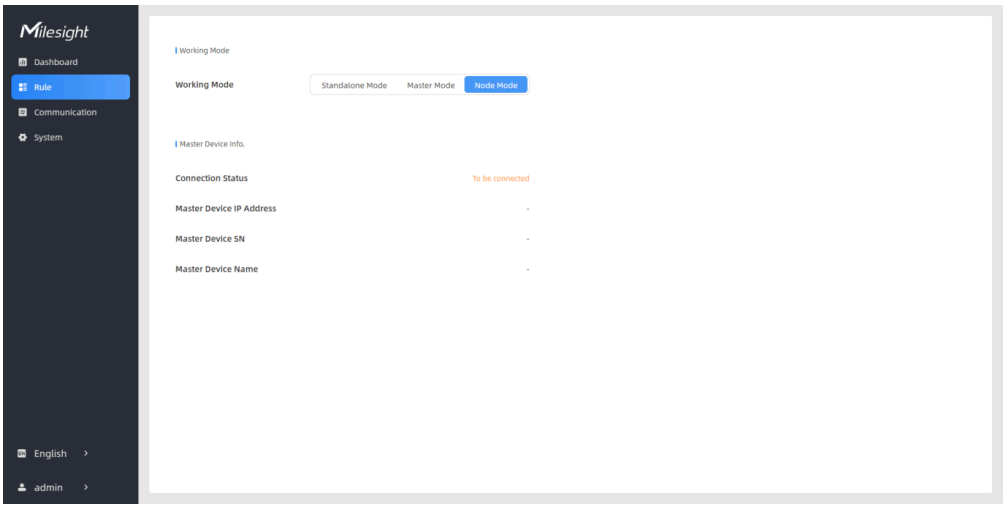


Step 6: When all settings are completed, users can draw detection lines and even U-turn areas on the new stitching live view the same as standalone mode devices.

Step 7: Click Unbind to disconnect the node device if necessary.



Node Device

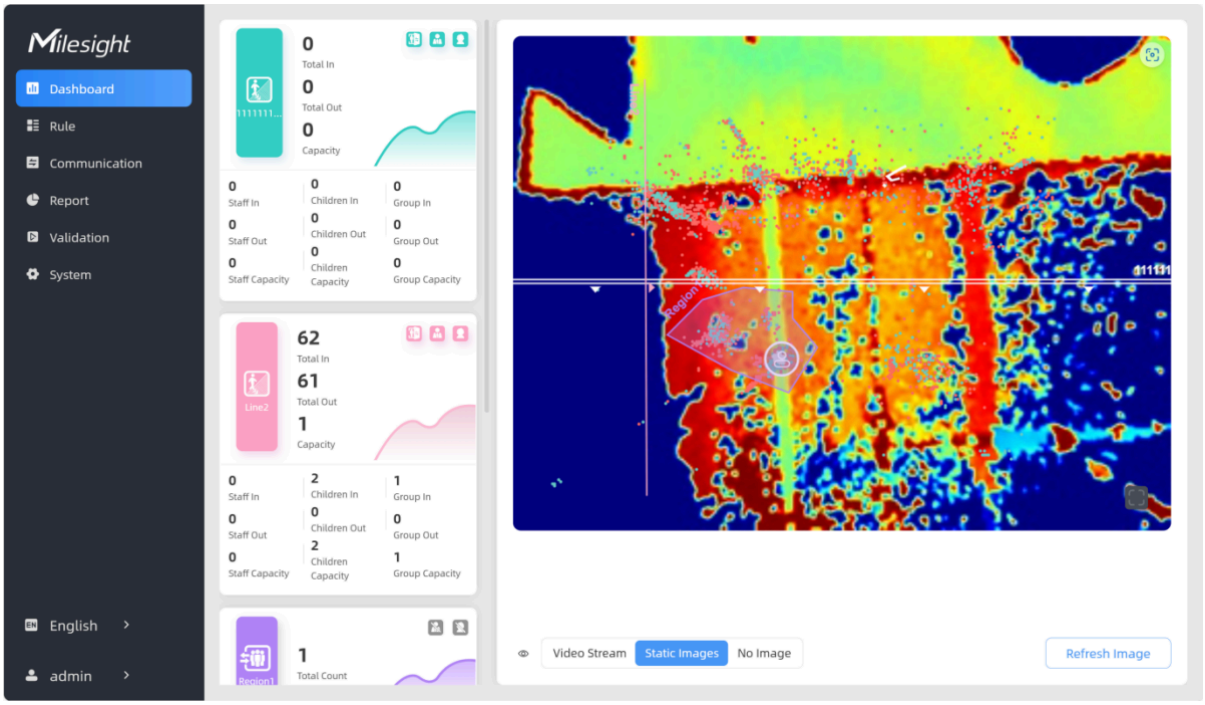


Parameters	Description
Connection Status	Show the connection status between the node device and master device.
Master Device IP Address	Show master device's IP address. When this IP address is under the same network with the node device, the node device can be bind to the master device.
Master Device SN	Show the master device's serial number.
Master Device Name	Show master device name.
Unbind Master Device	Click **Unbind** to release the connection status, this device will be deleted from the list of the master device.

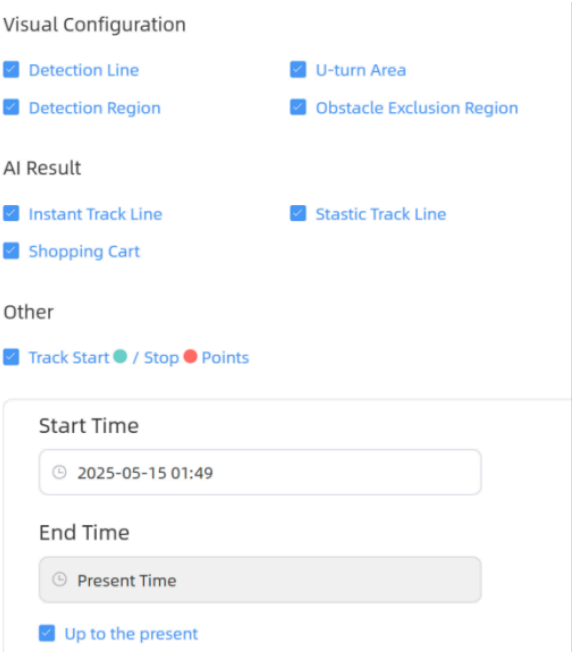
Data Presentation

After completing the configuration of both the basic counting and advanced property, the device will offer multiple data presentation options, including dashboards, reports, command line outputs, etc. You can choose the appropriate method to view the data according to your needs.

Dashboard

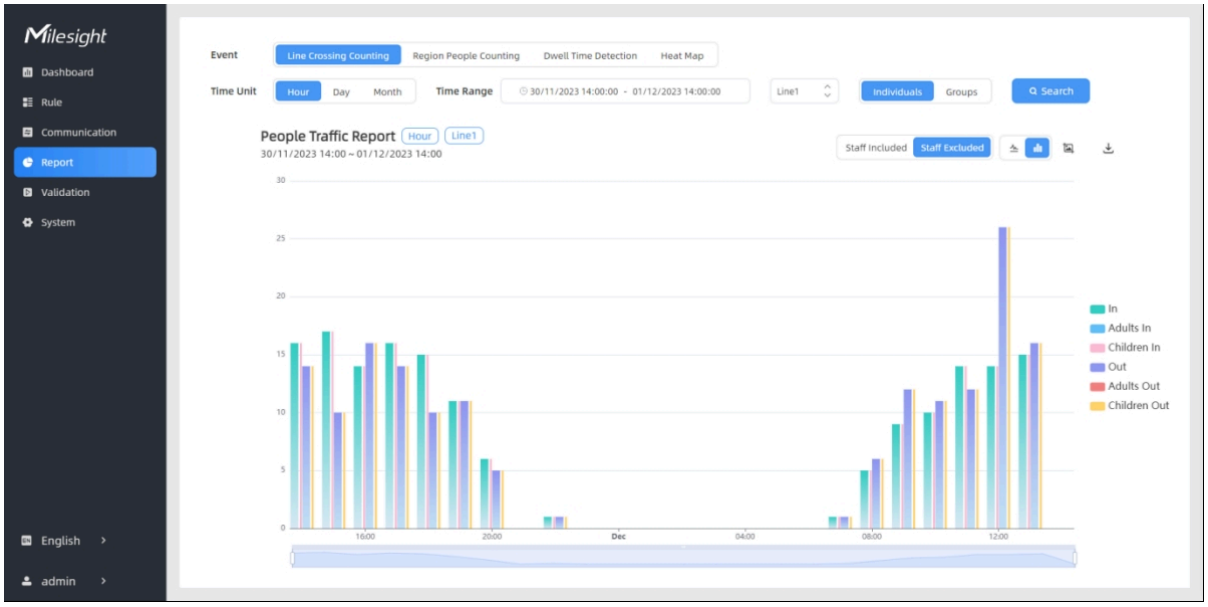


Parameters	Description
	Hide Capacity: Hide the total count data capacity; **Children Excluded:** Exclude children data from statistical data. **Staff Excluded:** Exclude staff data from statistical data.
Reset Count	Clear all accumulated entrance and exit people counting values.
Digital Output	Click to output high level signal from alarm out interface when Manual DO event is enabled. **Alarm Output:** dry contact
	Click to edit preview layout to show or hide the lines, areas and track points as needed. **Instant Track Line:** Show or hide the target's track line through the live view. **Static Track Line:** Show or hide the history of the target's track line in the live view. Supports up to 1000 historical tracks, which will disappear when you re-fresh the page.

Parameters	Description
	Shopping Cart: Show or hide real-time positions of the shopping carts.  **Note:** If some of the options are not shown, please check if the corresponding function of the rule is enabled.
Scene Preview	Select video stream preview, static image preview or no image preview as needed.

Report

The device supports visual line chart or bar chart generation to display people traffic and supports report exporting. Before using this feature, do ensure that the device time is correct on **System** page.



Parameters	Description
Event	Select the event which you want to query the report. Line crossing counting, region people counting, dwell time detection and heat map are optional. When "regional people counting" is selected, it may take up to 30 seconds to retrieve data from a long time period, with a maximum of 20,000 records available at once.
Time Unit	Select the unit to generate the graph or export the data.
Time Range	Select the time range to generate the graph.
Report Type	For heat map report, Motion Heatmap and Dwell Heatmap are optional.
Search	Click to generate or refresh the graph according to the previously selected option.
Staff Included / Staff Excluded	Select whether to include staff counting values on the graph.
	Select the display type as line or bar.
	Click to download the chart screenshot.

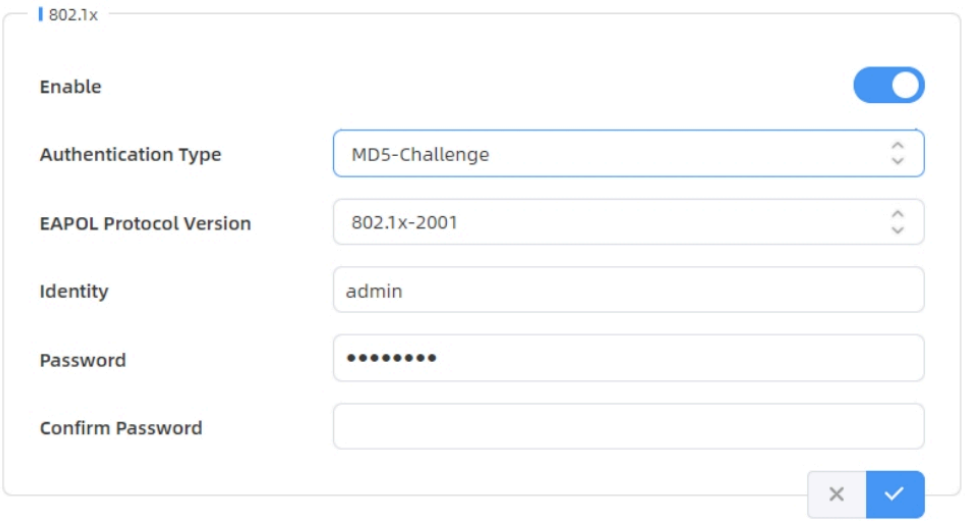
Parameters	Description
	Export the historical traffic data as CSV file according to the selected option. The device can store up to one million data records to CSV file.
	The chart displays multiple data types. Click on any category will hide it from the chart.

Note:
When working mode is on Node mode, the device will not generate this report.

Communication

802.1x Protocol

The IEEE 802.1x is an authentication protocol to allow access to networks with the use of RADIUS server.



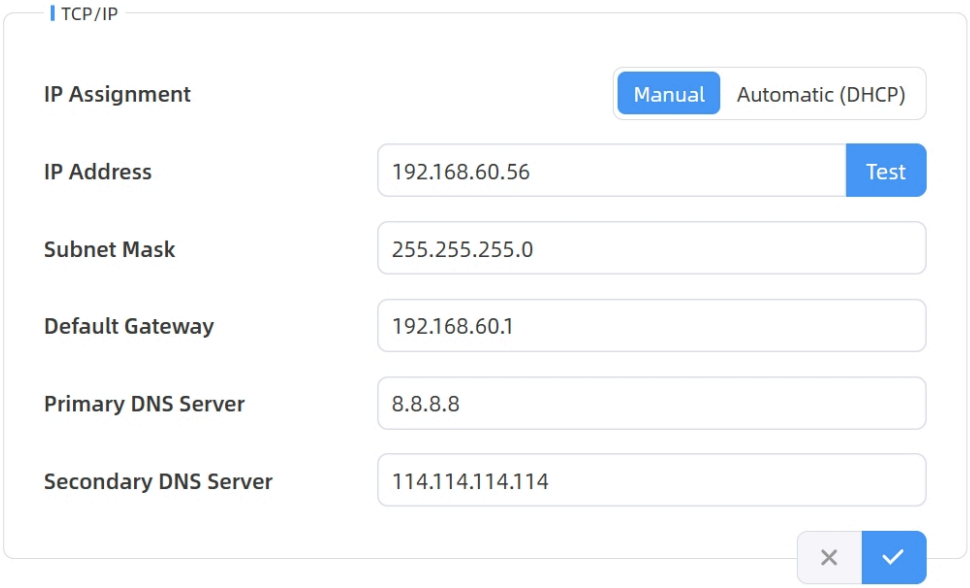
Parameters	Description
Authentication Type	It's fixed as MD5-Challenge.
Enable	Enable or disable 802.1x authentication.
EAPOL Protocol Version	802.1x-2001 or 802.1x-2004 is optional.

Parameters	Description
Identity	Set the Identity for 802.1x authentication.
MD5-Challenge	
Password	Set the password for 802.1x authentication.
Confirm Password	Enter the password again.
EAP-TLS	
CA File	Upload the CA file.
Client Certificate File	Upload the certificate file.
Client Key File	Upload the client keys.
Key Password	Set the password for the client key.

VPN

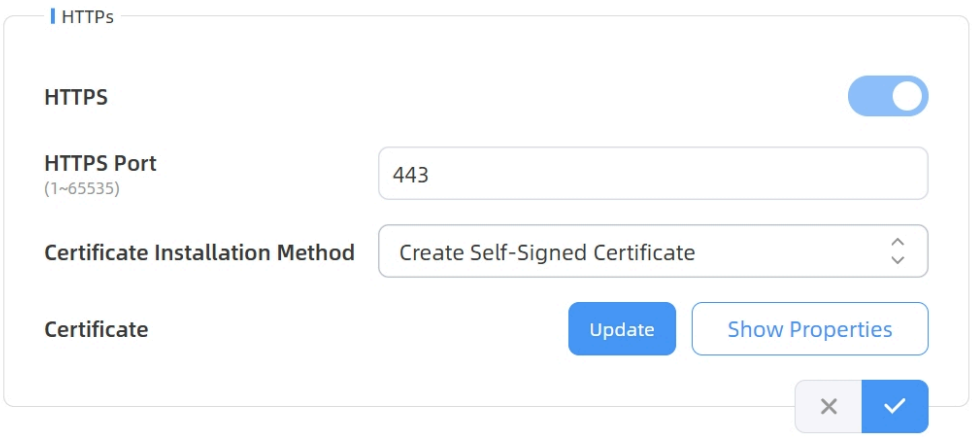
Parameters	Description
OpenVPN Configuration File	Import the ".conf" or ".ovpn" format OpenVPN client configuration profile.
Status	Show the connection status of the device and the VPN server: Disconnected, Connecting or Connected.
Device Virtual IP	Show the virtual IP of device.
Sever Virtual IP	Show the virtual IP of VPN Server.
Duration	Show the connection duration.

TCP/IP



Parameters	Description
IP Assignment	Manual or Automatic (DHCP) is optional.
IP Address	Set the IPv4 address of the Ethernet port, the default IP is **192.168.5.220**.
Subnet Netmask	Set the Netmask for the Ethernet port.
Default Gateway	Set the gateway for the Ethernet port's IPv4 address.
Primary DNS Server	Set the primary IPv4 DNS server.
Secondary DNS Server	Set the secondary IPv4 DNS server.
Test	Click to test if the IP is conflicting.

HTTPS

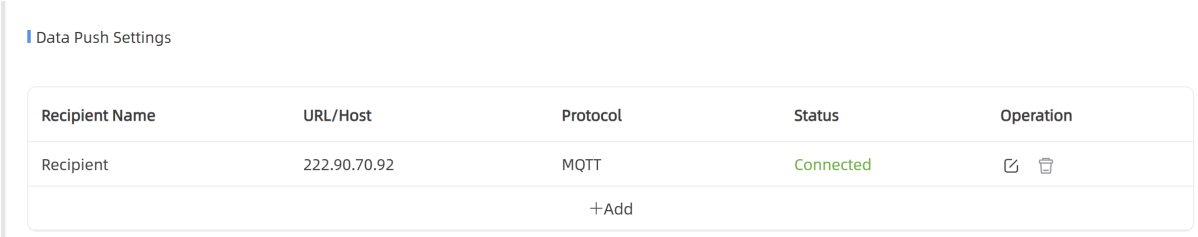


Parameters	Description
HTTPS	Start or stop using HTTPS.
HTTPS Port	Web GUI login port via HTTPS, the default is 443.
Certificate Installation Method	**Create Self-signed Certificate:** upload the custom CA certificate, client certificate and secret key for verification. **Direct Installation Certificate:** upload the ".pem/.crt/.cer" format certificates issued by awarding organizations for verification.
Certificate	Create the SSL certificate.
Key Password	If the uploaded direct installation certificate requires key decryption, enter the password here to verify the certificate.

Data Push Settings

The device supports adding data recipients (supports HTTP(s)/MQTT(s)/BACnet). The device will proactively push data to the receivers according to the configured reporting scheme.

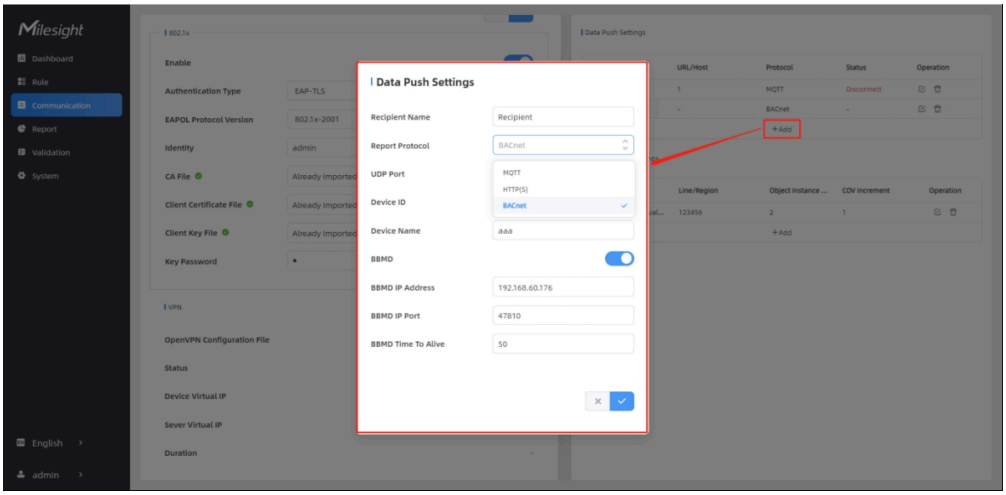
Besides, users can get the people counting data or configure the device via CGI.

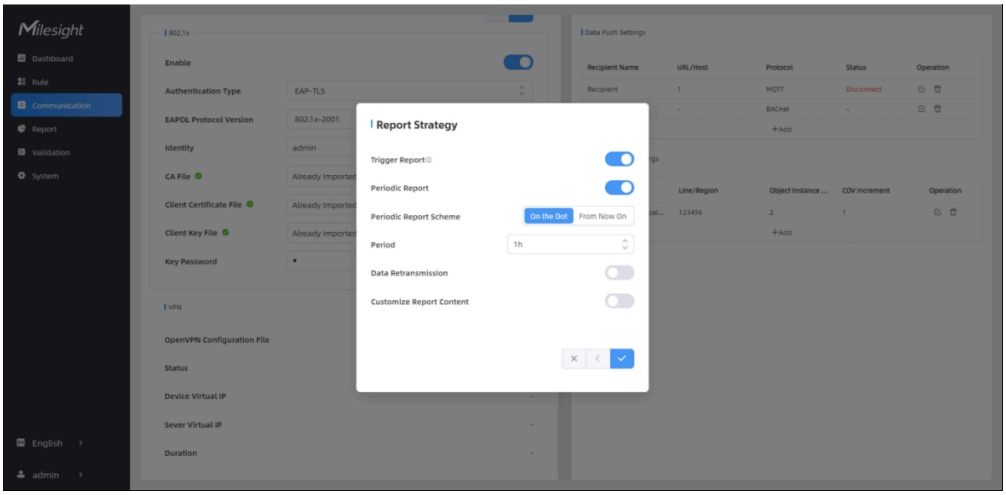


Parameters	Description
Recipient Name	Show the recipient name.
URL/Host	Show the URL/host of HTTP(s) server or MQTT broker.
Protocol	Show the report protocol.
Status	Show connection status from device to HTTP(s) server or MQTT broker.
Operation	Click to edit the information or delete the recipient.

Note:

- Up to 6 receivers can be added, but there can only be one BACnet protocol.
- When working mode is the Node mode, the device will not support Data Push Settings.

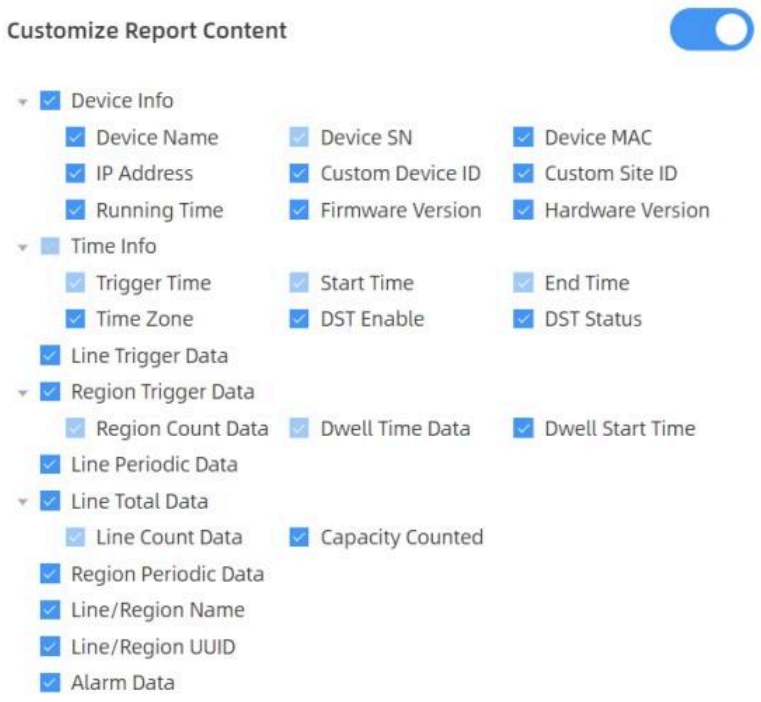




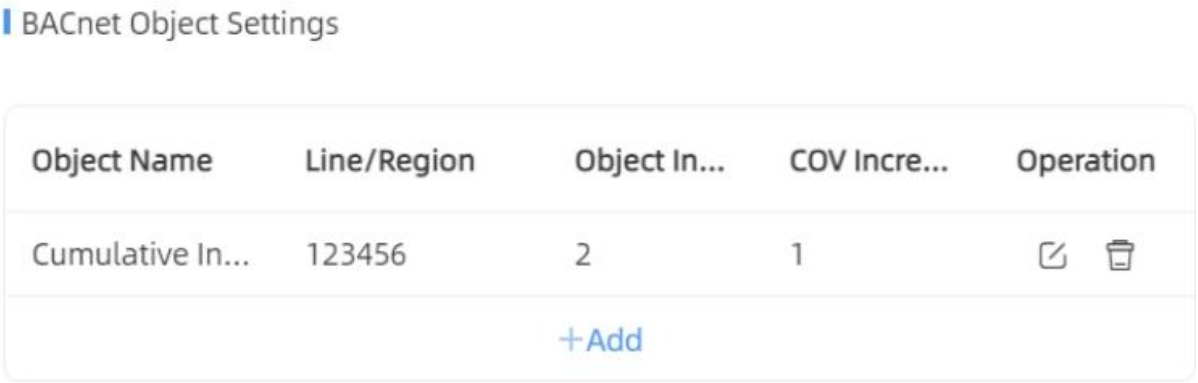
Parameters	Description
Recipient Name	Customize the recipient name.
Report Protocol	HTTP(s), MQTT and BACnet are optional.
HTTP(s)	
URL	The device will post the people counting data in json format to this URL.
Connection Test	Click **Test** to send test message to URL to check connectivity.
User	The username used for authentication.
Password	The password used for authentication.
MQTT	
Host	MQTT broker address to receive data.
Port	MQTT broker port to receive data.
Client ID	Client ID is the unique identity of the client to the server. It must be unique when all clients are connected to the same server, and it is the key to handle messages at QoS 1 and 2.
Username	The username used for connecting to the MQTT broker.
Password	The password used for connecting to the MQTT broker.
Topic	Topic name used for publishing. These strings will be replaced with device info when subscribing to a topic:

Parameters	Description
	$devsn：Device SN $prdmd：Product Model $devid：Customized Device ID $siteid：Customized Site ID  **Note:** Please replace the specific information when subscribing the topics to test if works.
QoS	QoS0, QoS1, QoS2 are optional.
TLS	Enable the TLS encryption in MQTT communication.
Certificate Type	CA Signed Server or Self Signed is optional. **CA signed server certificate:** verifying with the certificate issued by Certificate Authority (CA) that is pre-loaded on the device. **Self signed certificates:** upload the custom CA certificates, client certificates and secret key for verification.
BACnet	
UDP Port	Set communication port of BACnet/IP. Range: 1~65535. The default port is 47808.
Device ID	The unique BACnet device identifier that needs to be different from other devices.
Device Name	The device name to represent the device.
BBMD	Enable or disable BBMD(BACnet/IP Broadcast Management Device) if BACnet devices of different network subnets should work together.
BBMD IP Address	Peer ip for BBMD or ip for externally registered devices.

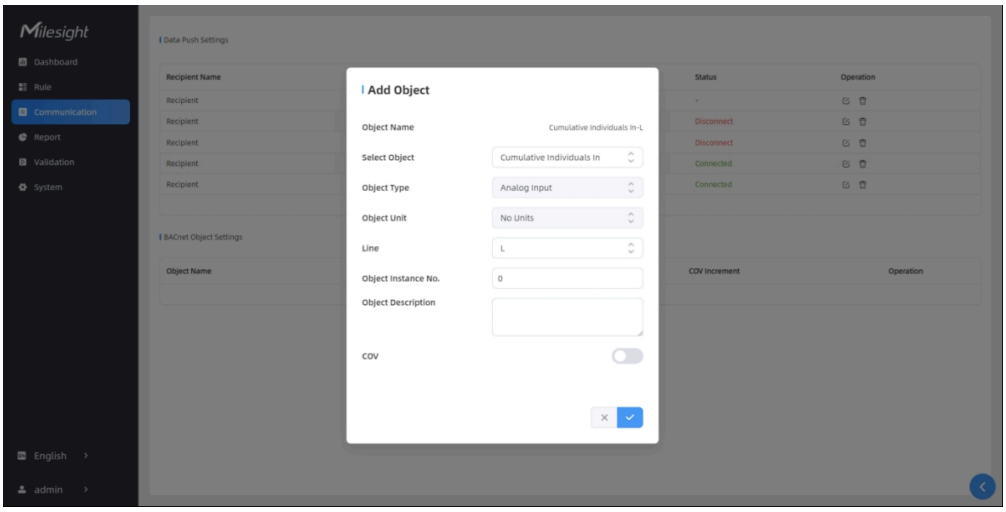
Parameters	Description
BBMD IP Port	Set UDP/IP communication ports.
BBMD Time To Alive	The interval between sending a registration update message to a BBMD device in other subnets.
Report Strategy	
Trigger Report	Report immediately when there is a change of the line crossing people counting number or region people counting number.
Counting Report Control	Enable this option if you don't want to receive frequent trigger reports from line cross counting and region people counting when there is too much foot traffic. You will receive the cumulative data after the cooldown period.
Periodic Report	Select the periodic report of “On the Dot” or “From Now On”. **On the Dot:** The device will report at the top of each hour. For example, When the interval is set to 1 hour, it will report at 0:00, 1:00, 2:00 and so on; when the interval is set to 10 minutes, it will report at 0:10, 0:20, 0:30, and so on. **From Now On:** Begin reporting from this moment onwards and regularly report based on the interval cycle.
Periodic Report Scheme	
Period	
Data Retransmission	Enable to resend stored data packets from the disconnected period when the device's network connection is restored. Every recipient supports to receive 30,000 pieces of data at most.
Customize Report Content	Customizable selection of content to be reported, avoiding data redundancy.

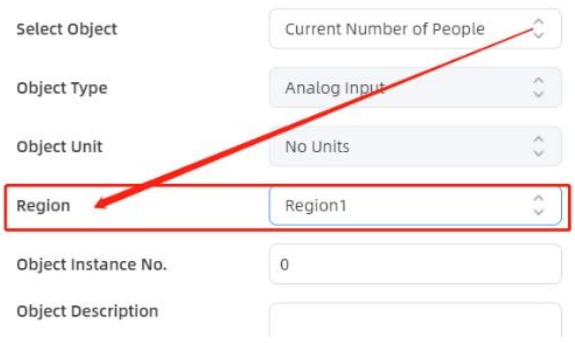
Parameters	Description
	 **Note:** When the device is in Master mode, the **Node Device Info** will appear. Including SN, MAC, Software, Product Model, IP, and Connection Status.

BACnet Object Settings



Parameters	Description
Object Name	Show the object name.
Line/Region	Show the detection line or region name for the data association for the current object.
Object Instance No.	Unique instance number in BACnet when the variable data reported by the device is an object.
COV Increment	Show the minimum change value for the current object.
Operation	Click to edit the information or delete the object.

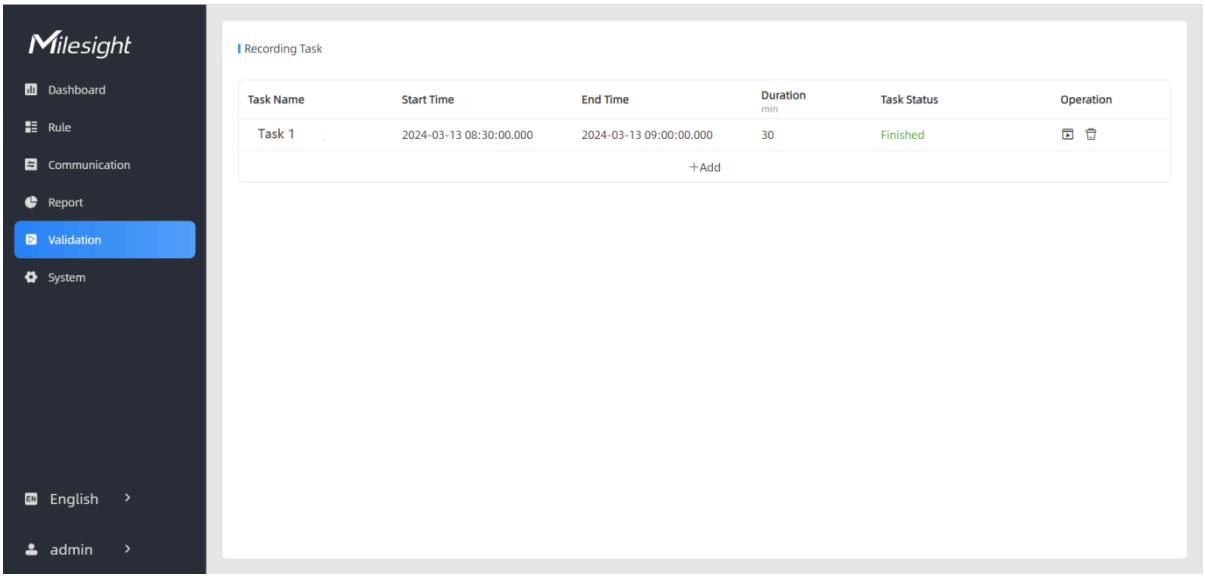


Parameters	Description
Object Name	Show the object name, it consists of the name and line / region of the selected object.
Select Object	Select the variable data for the device as an object.
Line/Region	Select one of the detection line or region which object you select. 

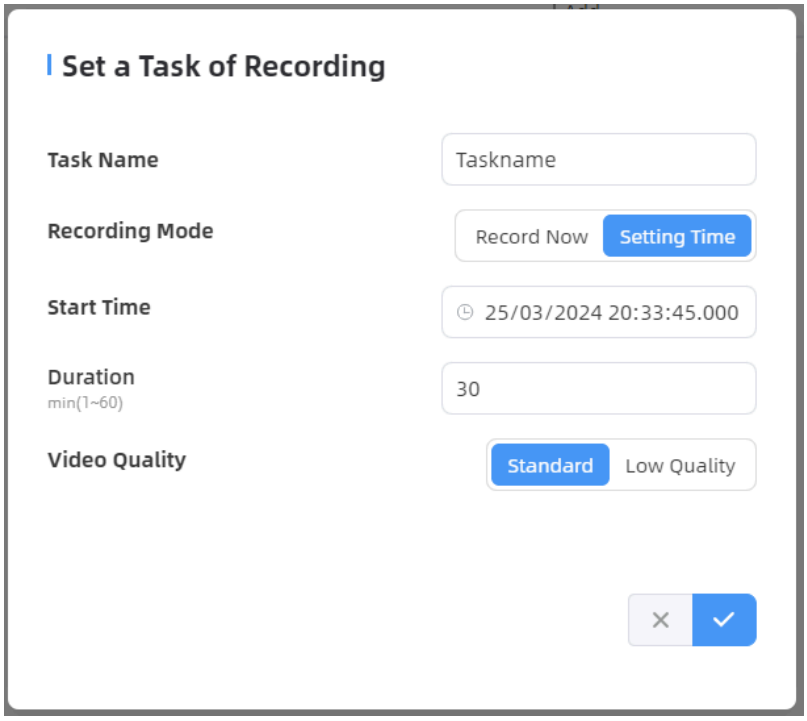
Parameters	Description
Object Instance No.	Set the object instance number.
Object Description	Set the object description.
COV	Enable, when object value changes, it will send notification of new value to BACnet client.
COV Increment	Set the minimum change value for the current object.

Validation

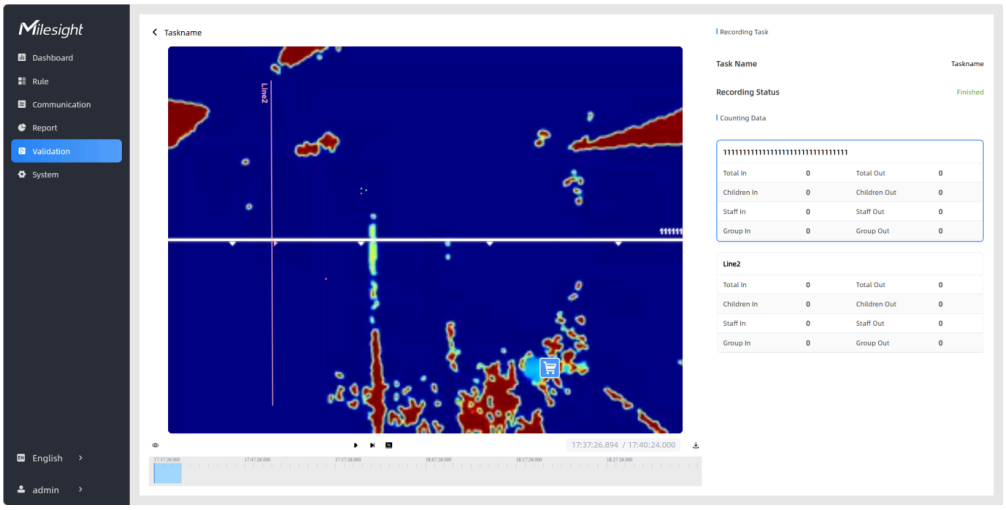
Video validation function can assist users in verifying the accuracy of people counting by setting up a video recording task.



Parameters	Description
Task Name	Show the task name.
Start/End Time	Show the start time and end time of this video.
Duration	Show the length of the video.
Task Status	Show the video task status.
Operation	Click to check the video details, stop recording or delete the task.
+Add	Click to add a video task. One device can add up to 12 tasks.



Parameters	Description
Task Name	Customize a name for this task.
Recording Mode	Record Now or Setting Time is optional.
Start Time	Set the start recording time.
Duration	Set the duration of the recording, the duration of all tasks should not be more than 60 minutes.
Video Quality	When video quality is low, the video size will be smaller and quicker to download.



Note:

- The setting time range of different tasks can not be overlap.
- Detection rules and ToF frequency parameters cannot be modified during the recording process.
- Recording tasks can only be performed on the master device when multi-device stitching.
- If the validation videos need to be played locally, please use the specialized player provided by Milesight: Milesight VS Player.

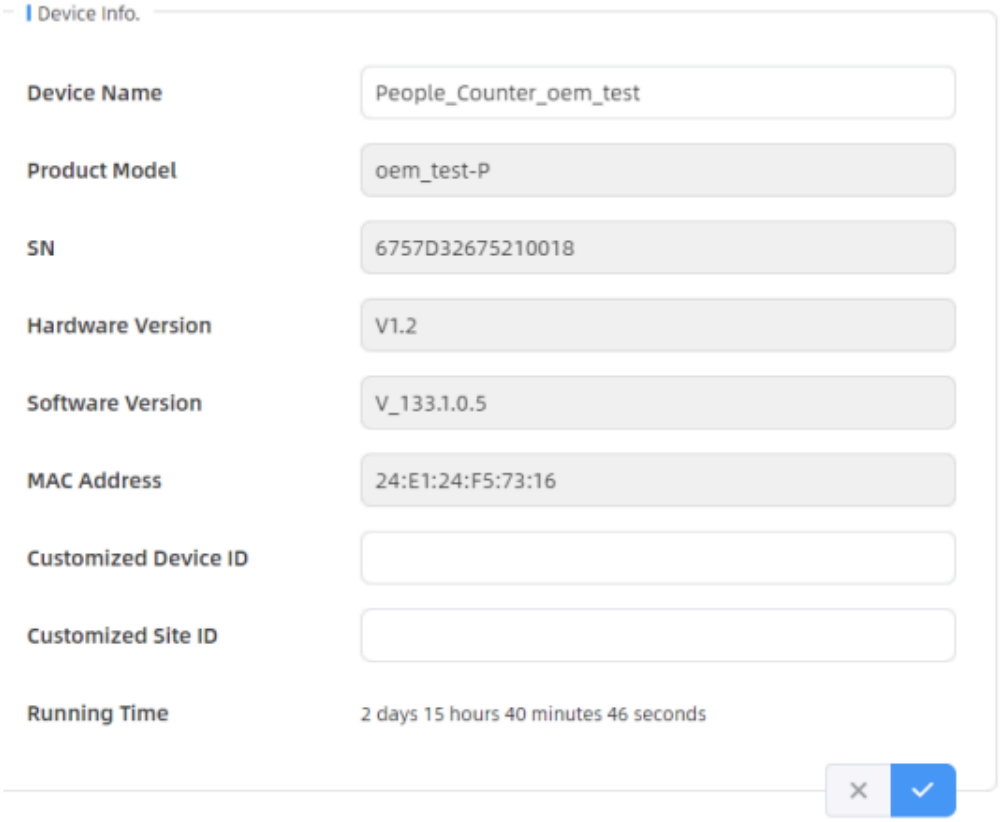
Parameters		Description
Edit Pre-view Layout	Visual Configuration	Show/Hide relevant rule in the recording footage. ☐ Detection Line ☑ U-turn Area ☑ Detection Region ☑ Obstacle Exclusion Region
	AI Result	Show/Hide track line in the recording footage. **Real-time Track Line**: real-time trajectory line of the targets **Static Track Line:** historical trajectory line of the targets **Shopping Cart:** historical trajectory points of the shopping carts
	Other	Show/Hide track points in the recording footage.

Parameters		Description
Playback Button		Rewind/Pause/Play/Forward(supports switching between 0.5x, 1x, 2x, and 4x playback speed).
	15:20:50.035 / 15:21:04.000	Start time and end time of the recording.
		Download video stream footage to check problem.

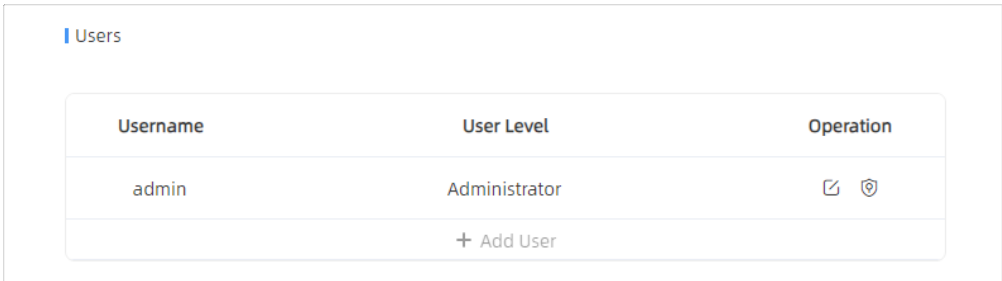
System

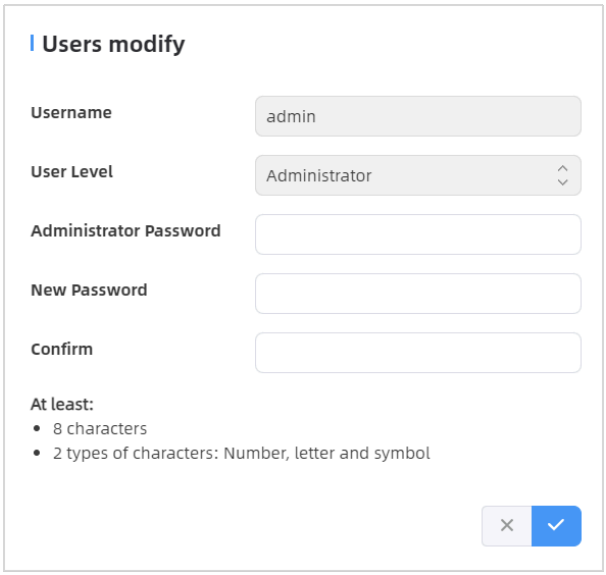
Device Info

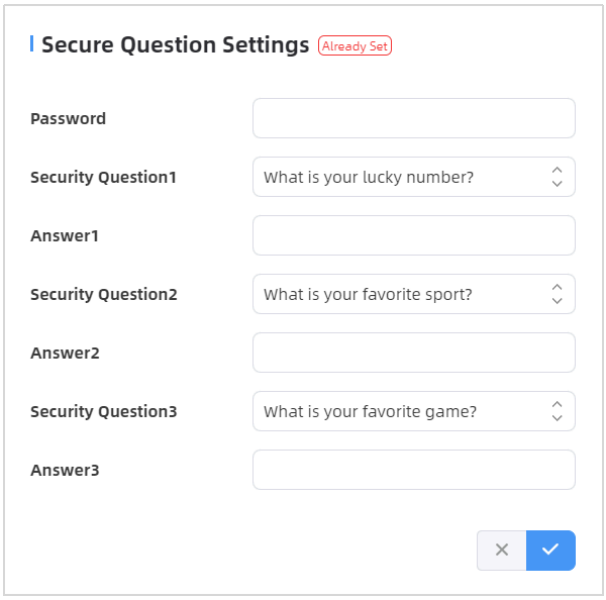
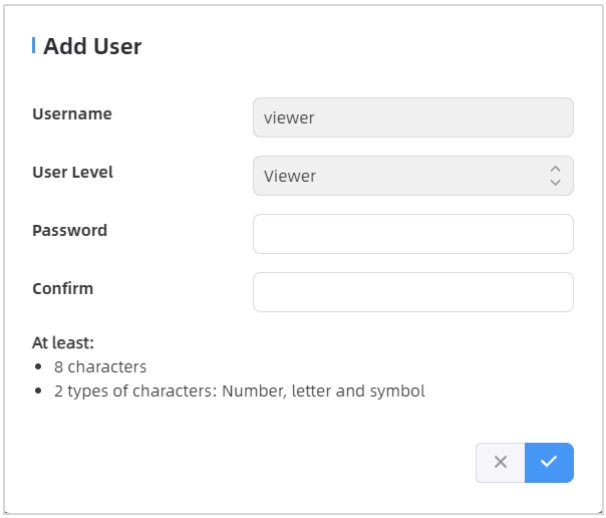
All information about the hardware and software can be checked on this page. Besides, users can modify the device name, customize device ID and site ID for large amounts of devices management.



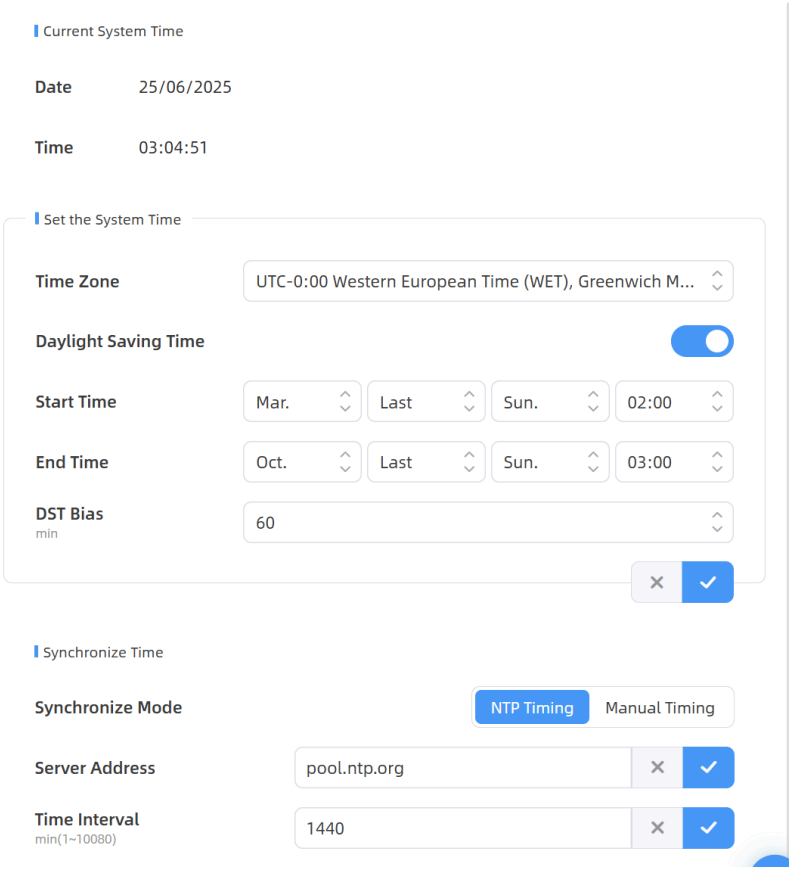
User



Parameters	Description
	You can change the login password of this device. 
	Click to set three security questions for your device. In case that you forget the password, you can click **Forget Password** button on login page to reset the password by answering three security questions correctly.

Parameters	Description
	
+ Add User	Click to add a viewer, who will only have access to the "Dashboard" and "Report" interfaces. 

Time Configuration

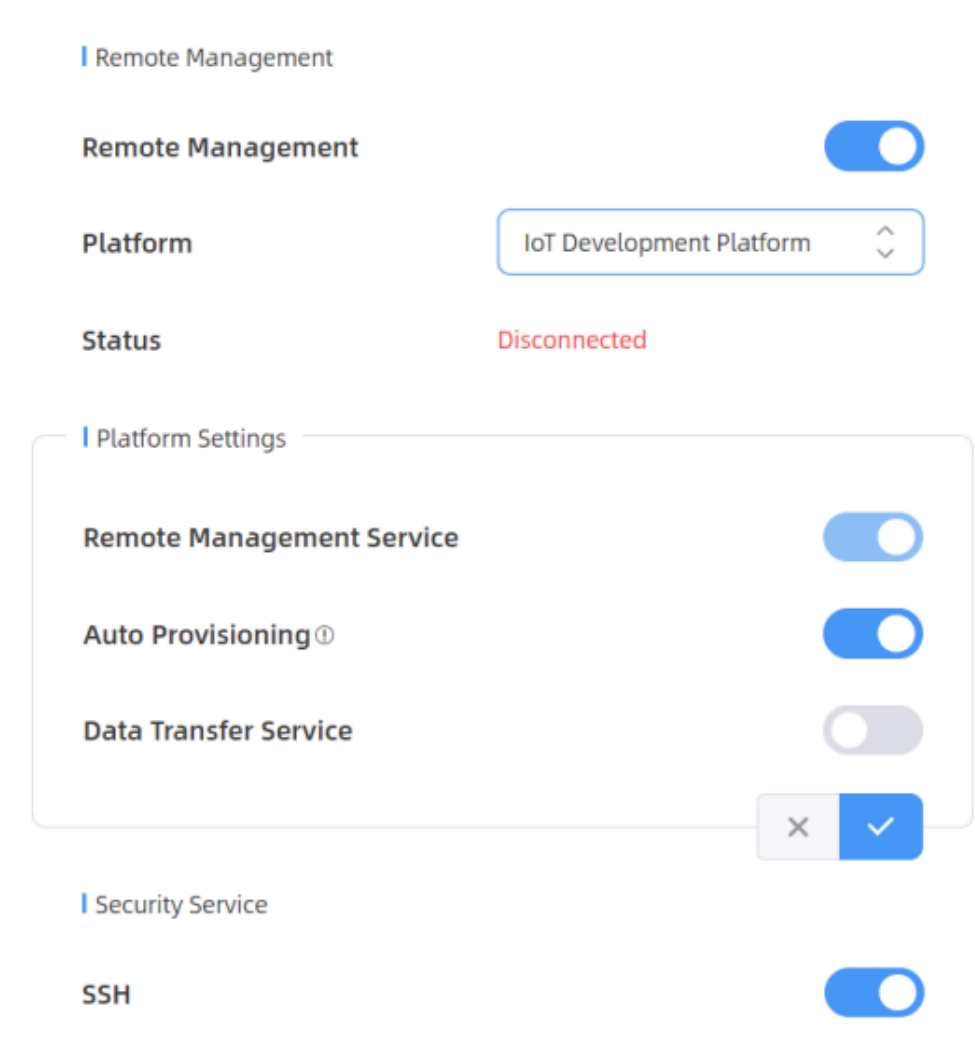


Parameters	Description
Time Zone	Choose the time zone for your location.
Daylight Saving Time	Enable or disable Daylight Saving Time (DST). **Start Time:** the start time of DST time range. **End Time:**the end time of DST time range. **DST Bias:** the DST time will be faster according to this bias setting.
Synchronize Mode	NTP Timing or Manual Timing is optional.
Server Address	NTP server address to sync the time.
Time Interval	Set the interval to sync time with NTP server.
Setting Time	Set the device time manually.

Parameters	Description
Synchronize with computer time	Synchronize the time with your computer.

Remote Management

Milesight provides remote management service for this device via Milesight DeviceHub platform or Milesight Development Platform. Before connecting, do ensure the device is connected to the network and Internet connection is stable.

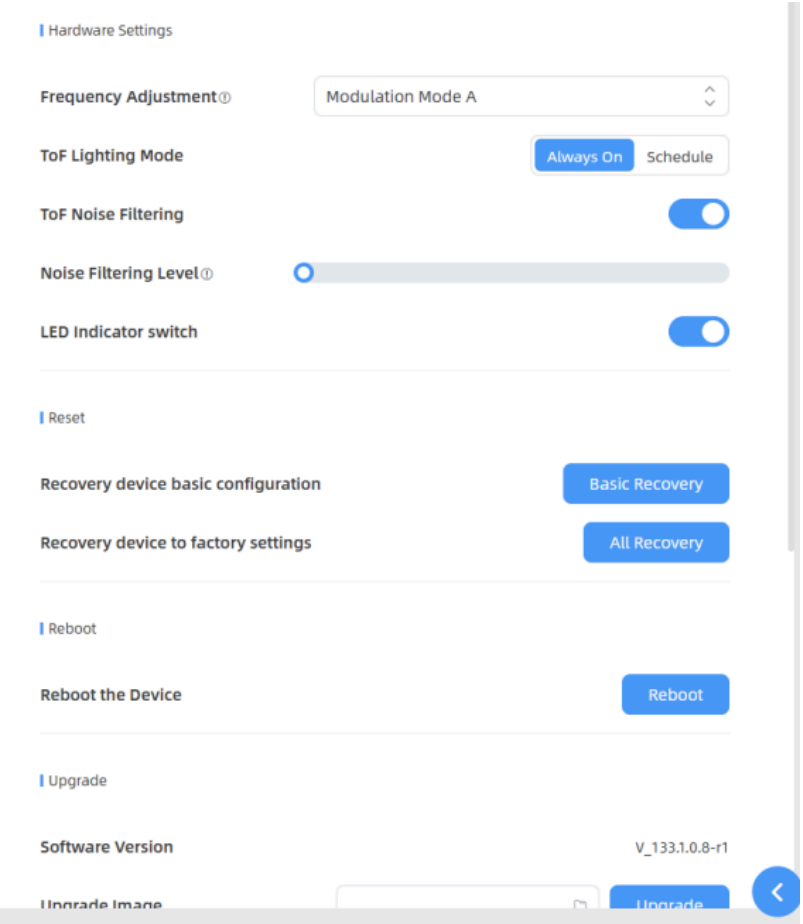


Parameters	Description
Remote Management	
Remote Management	Enable or disable to manage the device through Milesight platforms.

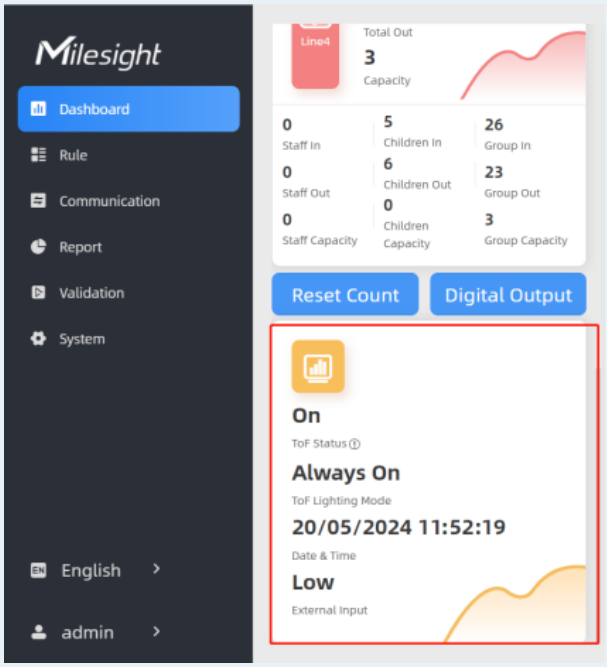
Parameters	Description
Remote Management	
Platform	DeviceHub, DeviceHub 2.0 or IoT Development Platform is optional.
Status	Show the connection status between the device and the DeviceHub.
DeviceHub	
Server Address	IP address or domain of the DeviceHub management server.
Activation Method	Select activation method to connect the device to the DeviceHub server, the options are **Authentication Code** and **Account**.
DeviceHub 2.0	
Server Address	IP address or domain of the DeviceHub management server.
Synchronize Device Name	Enable or disable to synchronize device name on devicehub 2.0.
Synchronize Customized ID	Customize the device ID and site ID.
IoT Development Platform	
Remote Management Service	Enable to change the device settings via Milesight Development platform.
Auto Provisioning	Enable to receive and deploy the configurations from Milesight Development Platform after the device is connected to Internet.
Data Transfer Service	Report people counting data to Milesight Development platform.

Parameters	Description
Security Service	
SSH	Enable or disable SSH access. The SSH port is fixed as 22.

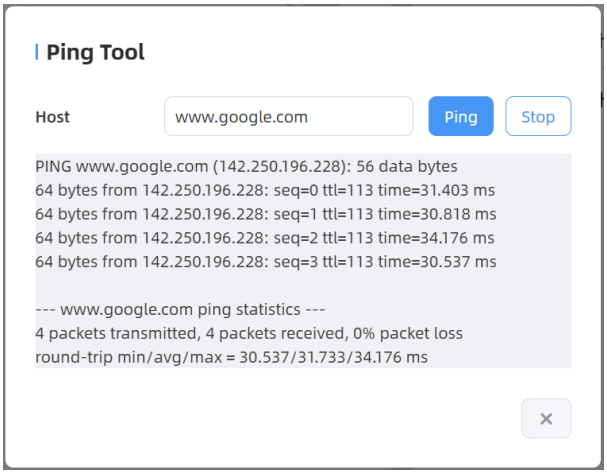
System Maintenance



Parameters	Description
Frequency Adjustment	Adjust the ToF frequency modulation mode to avoid the interference of surrounding IR devices. When using Multi-Device Stitching, please avoid using the same mode with other node devices. **Note:** if there is only one option, please contact Milesight IoT support: iot.support@milesight.com
ToF Lighting Mode	Adjust the ToF light mode as Always On or Schedule. When using Schedule mode, the device will only turn on the ToF light during scheduled time range to save power.

Parameters	Description
	Note: 1. ToF light off will not affect the periodic report. 2. When the device is working under master mode, it will also sync the ToF lighting mode settings with Node devices. And users can also configure this mode on the webpage of every node devices. 3. During validation, the ToF lighting will be fixed as On irregardless of its lighting mode configuration. 4. When using ToF Lighting Mode, the Dashboard will display relevant information. 
ToF Noise Filtering	Filter the noisy point on the screen when working with dark floor or carpet.
Noise Filtering Level	Set the appropriate noise filtering level according to the actual image. The more difficult it is to see the target, the higher the filter value should be set.
LED Indicator switch	Enable or disable LED indicator when device is in normal operation.

Parameters	Description
Reset	**Recovery device basic configuration:** keep the IP settings and user information when resetting.
	Recovery device to factory settings: reset device to factory default, which needs to verify admin password.
Reboot	Restart the device immediately.
Upgrade	Click the folder icon and select the upgrading file, then click the **Upgrade** button to upgrade. The update will be done when the system reboots successfully. **Note:** The upgrade process takes about 1-10 minutes. Do not turn off the power and complete automatic restart after the upgrade.
Backup and Restore	**Export Config File:** Export configuration file.
	Import Config File: Click the file icon and select the configuration file, click **Import** button to import configuration file.
Diagnostics	**System Log:** Download log files that can be used for troubleshooting.
	Log Mode - File: Select the desired level of the download log files for troubleshooting. Recommendation level to Fatal, Error and Warn. Fatal: recording device crashes or unrecoverable critical events Error: recording errors that is abnormal for a critical function Warn: recording events that may cause problems Debug: recording detailed internal operational and status information Trace: recording all events
	IP Ping: Type the IP address or URL to test network connection.

Parameters	Description
	

Chapter 8. Communication Protocol

The device will post the people counting data in json format to HTTP URL or MQTT broker. For details on the configuration method, please refer to Recipient.

Periodic Report


```
{
  "device_info": {
    "cus_device_id": "11111111111111111111111111111111111111",
    "cus_site_id": "3aaaaa",
    "device_mac": "24:E1:24:B0:3D:3D",
    "device_name": "P3222222222222222222222222222222",
    "device_sn": "6757D16179950018",
    "firmware_version": "V_133.1.0.7-a2",
    "hardware_version": "V1.0",
    "ip_address": "192.168.60.212",
    "running_time": 11110
  },
    "line_periodic_data": [{
    "children_in": 0,
    "children_out": 0,
    "group_in": 0,
    "group_out": 0,
    "in": 0,
    "line": 1,
    "line_name": "Line1",
    "line_uuid": "00000000-2cf7-9870-584b-ebdd1bd8b3d3986a",
    "out": 0,
    "staff_in": 0,
    "staff_out": 0
  }],
  "line_total_data": [{
    "capacity_counted": 3,
    "children_in_counted": 1,
    "children_out_counted": 0,
    "group_in_counted": 37,
    "group_out_counted": 34,
```

```
    "in_counted": 37,
    "line": 1,
    "line_name": "Line1",
    "line_uuid": "00000000-2cf7-9870-584b-ebdd1bd8b3d3986a",
    "out_counted": 34,
    "staff_in_counted": 0,
    "staff_out_counted": 0
}],
"nodeDeviceInfo": [{
    "devSn": "6757D16677160016",
    "ip": "192.168.60.193".
    "mac": "24:E1:24:F7:4C:1D",
    "product": “vs133-p ",
    "status": "connect",
    "version": "V_133.1.0.8"
}],
"region_data": {
    "dwell_time_data": [{
        "avg_dwell_time": 9,
        "children_avg_dwell_time": 65,
        "children_max_dwell_time": 3452,
        "max_dwell_time": 452,
        "region": 1,
        "region_name": "Region1",
        "region_uuid": "00000000-71f8-34a4-08cd-eb36ced99d0deccf",
        "staff_avg_dwell_time": 28,
        "staff_max_dwell_time": 247
    }],
    "region_count_data": [{
        "current_children": 3,
        "current_staff": 0,
        "current_total": 3,
        "region": 1,
        "region_name": "Region1",
        "region_uuid": "00000000-71f8-34a4-08cd-eb36ced99d0deccf"
    }]
},
```

```
  "time_info": {
    "dst_status": false,
    "enable_dst": false,
    "end_time": "2024-05-30T12:27:00+08:00",
    "start_time": "2024-05-30T12:26:00+08:00",
    "time_zone": "UTC+8:00 China Standard Time (CT/CST)"
  }
}
```


Trigger Report

Line Crossing People Counting


```
{
  "device_info": {
    "cus_device_id": "11111111111111111111111111111111111111",
    "cus_site_id": "aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa",
    "device_mac": "24:E1:24:46:58:69",
    "device_name": "P22222222222222222222222222222222",
    "device_sn": "6757D16452160013",
    "firmware_version": "V_133.1.0.7",
    "hardware_version": "V1.0",
    "ip_address": "192.168.60.183",
    "running_time": 58,
  },

  "line_trigger_data": [{
    "children_in": 0,
    "children_out": 0,
    "empty_cart_in": 0,
    "empty_cart_out": 0,
    "full_cart_in": 0,
    "full_cart_out": 0,
    "group_in": 0,
    "group_out": 1,
    "in": 0,
    "line": 2,
    "line_name": "Line2",
```

```
    "line_uuid": "00000001-f618-b60d-1083-d1a434c86bcffa67",
    "no_full_cart_in": 0,
    "no_full_cart_out": 0,
    "out": 1,
    "staff_in": 0,
    "staff_out": 0
  }],
  "alarm_data": [{
    "alarm_direction": "out",
    "alarm_type": "tailgating alarm",
    "line": 1,
    "alarm direction": ”in”,
    "line_name": "Line1",
    "line_uuid": "00000000-6b34-a2b6-4263-a145f1c16e5f14e0"
  }],
  "time_info": {
    "dst_status": true,
    "enable_dst": true,
    "time": "2024-05-30T14:28:11+10:00",
    "time_zone": "UTC+8:00 China Standard Time (CT/CST)"
  }
}
```


Region People Counting


```
{
  "device_info": {
    "cus_device_id": "11111111111111111111111111111111111111",
    "cus_site_id": "aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa",
    "device_mac": "24:E1:24:46:58:69",
    "device_name": "P22222222222222222222222222222222",
    "device_sn": "6757D16452160013",
    "firmware_version": "V_133.1.0.7",
    "hardware_version": "V1.2",
    "ip_address": "192.168.60.236",
    "running_time": 57982
  },
  "region_trigger_data": {
```

```
"region_count_data": [{
    "current_children": 0,
    "current_empty_cart": 1,
    "current_full_cart": 0,
    "current_no_full_cart": 0,
    "current_staff": 0,
    "current_total": 0,
    "region": 1,
    "region_name": "Region1",
    "region_uuid": "00000000-56d2-14e0-127d-593379f616bd65df"
}, {
    "current_children": 0,
    "current_empty_cart": 1,
    "current_full_cart": 0,
    "current_no_full_cart": 0,
    "current_staff": 0,
    "current_total": 0,
    "region": 2,
    "region_name": "Region2",
    "region_uuid": "00000001-90ac-7b5a-7f0c-88005c90416b04cb"
}, {
    "current_children": 0,
    "current_empty_cart": 1,
    "current_full_cart": 0,
    "current_no_full_cart": 0,
    "current_staff": 0,
    "current_total": 0,
    "region": 3,
    "region_name": "Region3",
    "region_uuid": "00000002-97c7-75f7-85e8-047f3c0f10123334"
}, {
    "current_children": 0,
    "current_empty_cart": 1,
    "current_full_cart": 0,
    "current_no_full_cart": 0,
    "current_staff": 0,
    "current_total": 0,
```

```
        "region": 4,
        "region_name": "Region4",
        "region_uuid": "00000003-2f4c-722e-0251-0f3c77bb7e9cfebb"
      }]
  },
  "time_info": {
    "dst_status": true,
    "enable_dst": true,
    "time": "2024-05-30T14:28:14+10:00",
    "time_zone": "UTC+8:00 China Standard Time (CT/CST)"
  }
}
```


Dwell Time Detection


```
{
  "device_info": {
    "cus_device_id": "11111111111111111111111111111111111111",
    "cus_site_id": "aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa",
    "device_mac": "24:E1:24:46:58:69",
    "device_name": "P22222222222222222222222222222222",
    "device_sn": "6757D16452160013",
    "firmware_version": "V_133.1.0.7",
    "hardware_version": "V1.2",
    "ip_address": "192.168.60.236",
    "running_time": 57981
  },
  "region_trigger_data": {
    "dwell_time_data": [{
      "children": false,
      "duration": 5800,
      "dwell_end_time": "2024-05-30T14:28:12+10:00",
      "dwell_start_time": "2024-05-30T14:28:06+10:00",
      "people_id": 3022,
      "region": 1,
      "region_name": "Region1",
      "region_uuid": "00000000-56d2-14e0-127d-593379f616bd65df",
      "staff": false
```

```
    }, {
      "children": false,
      "duration": 5800,
      "dwell_end_time": "2024-05-30T14:28:12+10:00",
      "dwell_start_time": "2024-05-30T14:28:06+10:00",
      "people_id": 3022,
      "region": 2,
      "region_name": "Region2",
      "region_uuid": "00000001-90ac-7b5a-7f0c-88005c90416b04cb",
      "staff": false
    }]
  },
  "time_info": {
    "dst_status": true,
    "enable_dst": true,
    "time": "2024-05-30T14:28:12+10:00",
    "time_zone": "UTC+8:00 China Standard Time (CT/CST)"
  }
}
```


Occlusion Detection Alarm


```
{
  "device_info": {
    "cus_device_id": "123",
    "cus_site_id": "456",
    "device_mac": "00:16:28:94:AE:24",
    "device_name": "xxxxxx",
    "device_sn": "6757E39092560018",
    "firmware_version": "V_133.1.0.7",
    "hardware_version": "V1.2",
    "ip_address": "192.168.60.213",
    "running_time": 87749,
  },
  "time_info": {
    "dst_status": false,
    "enable_dst": false,
    "time": "2025-01-17T14:04:32+08:00",
```

```
    "time_zone": "UTC+8:00 China Standard Time (CT/CST)"
  },
  "tof_occlusion_trigger": {
    "device_sn": "6757E39092560018",
    "occlusion_status": "occluded"
  }
}
```

Chapter 9. Services

Milesight provides customers with timely and comprehensive technical support services. End-users can contact your local dealer to obtain technical support. Distributors and resellers can contact directly with Milesight for technical support.

Technical Support Mailbox: iot.support@milesight.com

Online Support Portal: https://support.milesight-iot.com

Resource Download Center: https://www.milesight.com/iot/resources/download-center/

MILESIGHT CHINA

TEL: +86-592-5085280

FAX: +86-592-5023065

Add: Building C09, Software Park Phase III, Xiamen 361024, Fujian, China