



SC8131 Training



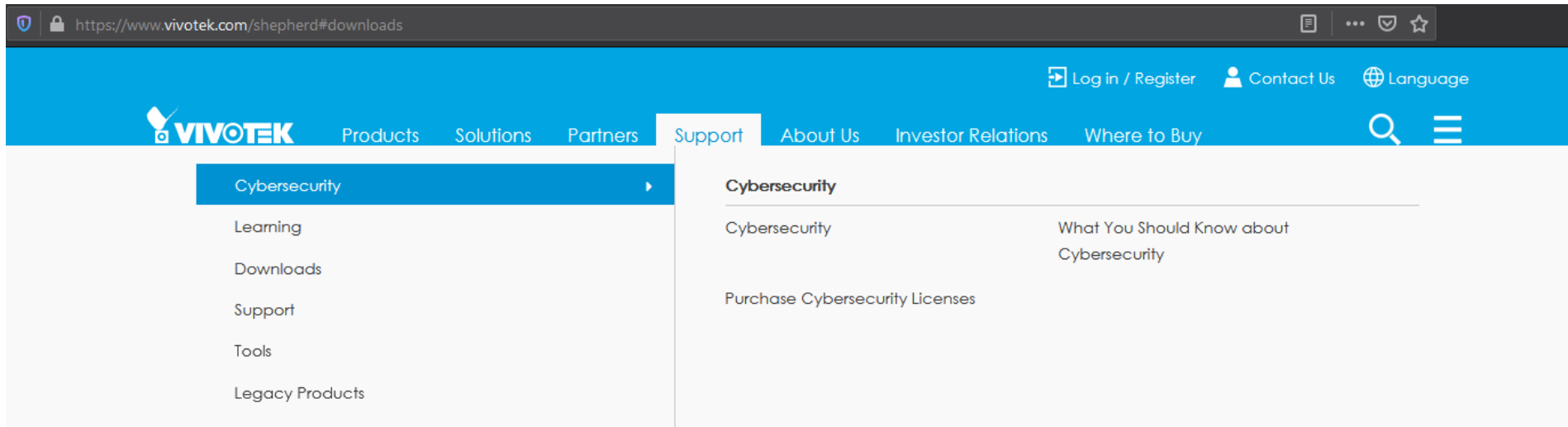
- Shepherd for massive camera management
- Camera Placement
- Basic settings
- Analytics Settings
- Rules
- Report integration
- Validator/device center

Shepherd



Download

Download: <https://www.vivotek.com/shepherd#downloads>



Software Downloads



Shepherd v3.3.0.1

All feature for camera f/w 0x06a or above



Shepherd v2.4.0.201

Configuration for camera before f/w 0x06a

Upgrade camera to 0x06a

User Interface

104 device(s) found

Search with IP range

Home

Camera template

Assign IP

Maintenance

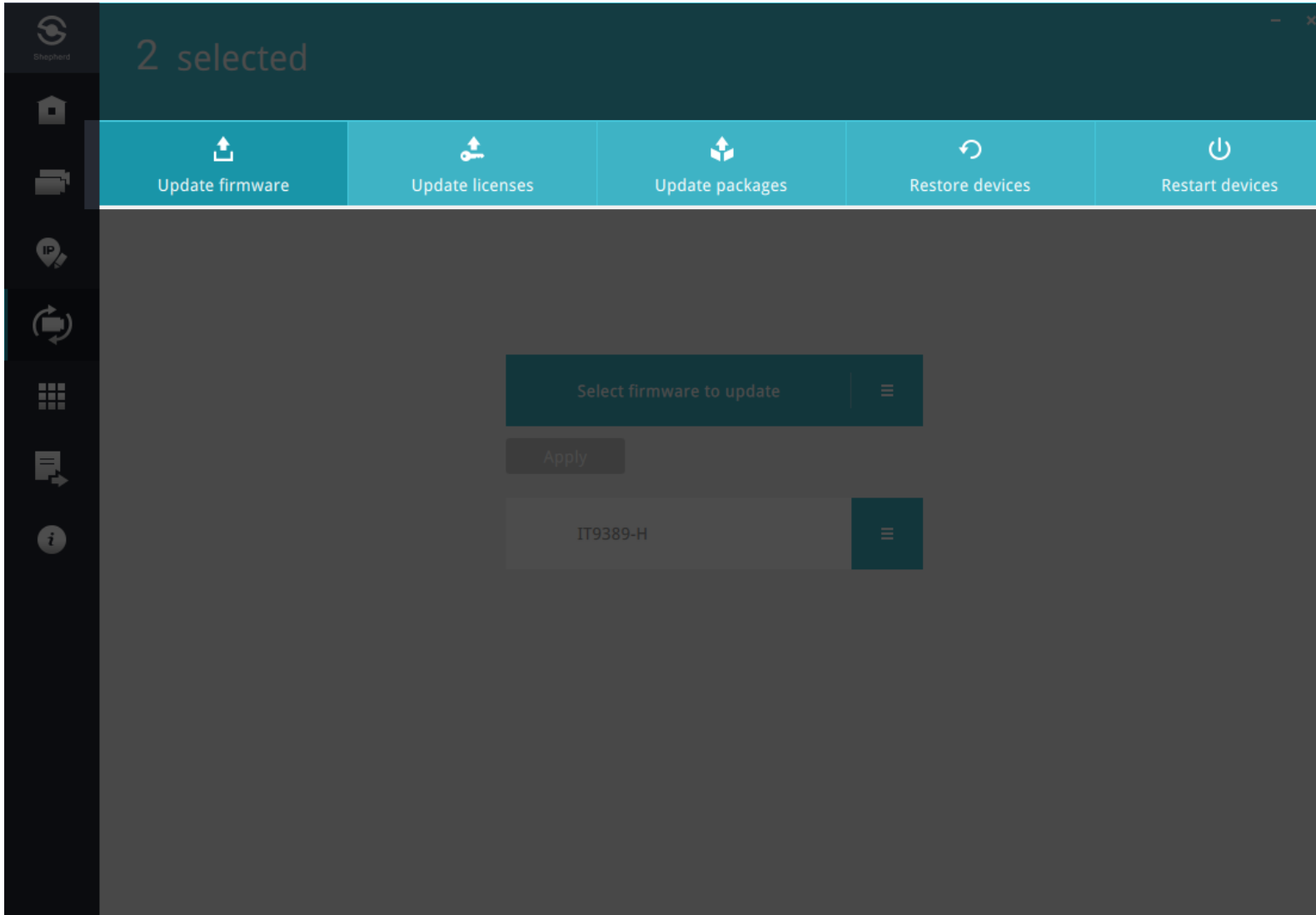
Package management

Export device & debug report

Information

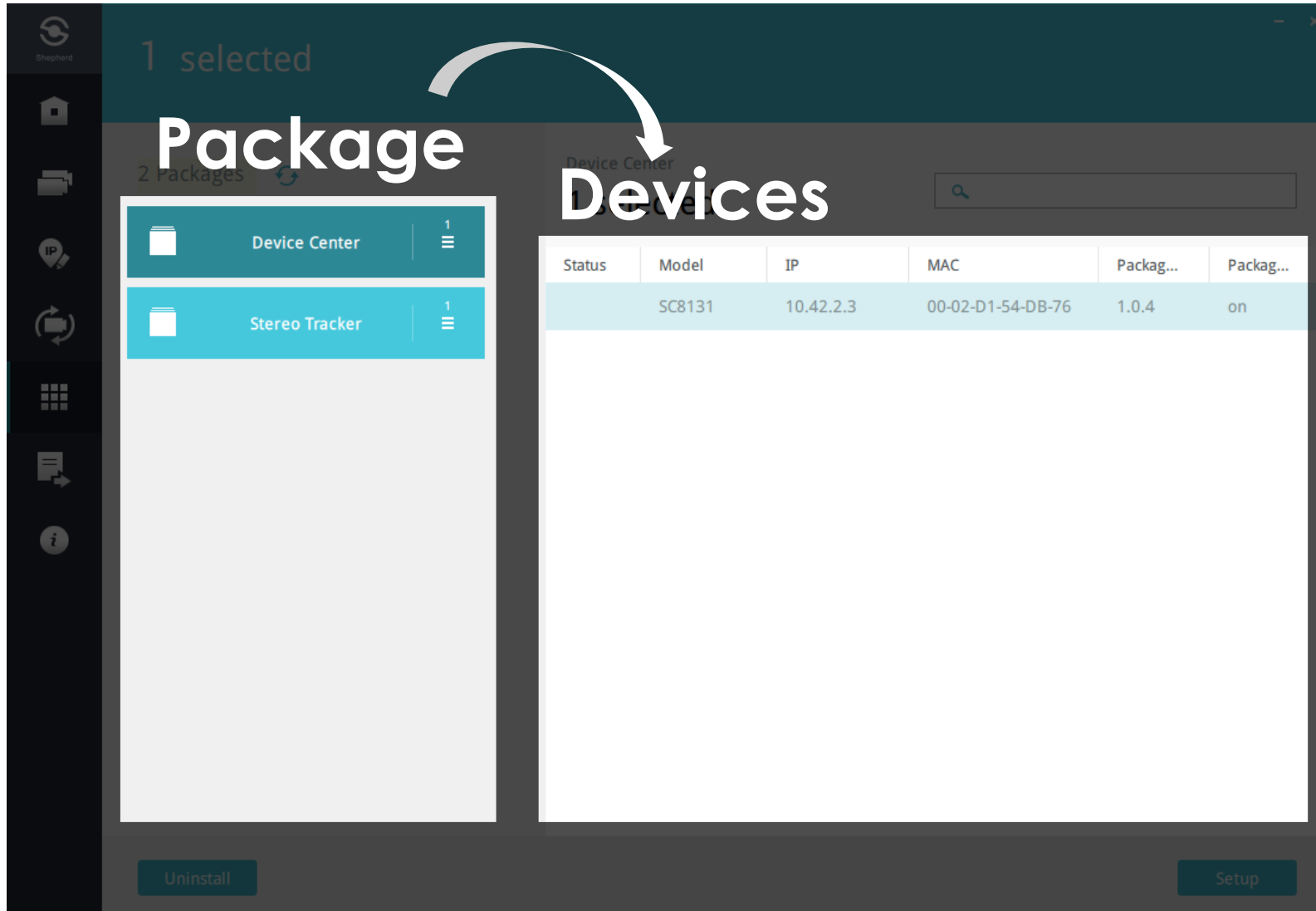
Status	Model	IP	MAC	Firmware	HTTP	HTTPS	Client
	CC8130	10.42.2.64	00-02-D1-1D-21-83	0202a1	80		
	FD8130	10.42.2.65	00-02-D1-27-D3-1C	0200b4	80		
	VS8100	10.42.2.121	00-02-D1-2A-C3-6C	0102b	80		
	AW-GEV-264A-1...	10.42.2.122	00-02-D1-30-90-20	0117	80		
	ND8322P	10.42.2.19	00-02-D1-32-65-9C	2.4.0.204	80	443	3454
	AW-GEV-264A-3...	10.42.2.149	00-02-D1-32-99-5B	0119	80		
	AW-GEV-104A-1...	10.42.2.31	00-02-D1-33-27-D8	0116	80		
	SC8131	10.42.2.52	00-02-D1-36-8C-7B	0105f	80		
	SC8131	169.254.45.25	00-02-D1-36-8C-7B	0105f	80	443	
	AW-GEV-104A-1...	10.42.2.47	00-02-D1-3A-8B-E5	0119	80		
	SD8161	10.42.2.17	00-02-D1-3C-02-7E	0122b_Beta...	80		
	IP9171-HP	10.42.2.22	00-02-D1-3C-02-7E	0122b_Beta...	80		
	ND8541	10.42.2.37	00-02-D1-3C-02-7E	0122b_Beta...	80	443	3454

Updates



Firmware
License
Package

Package Management UI



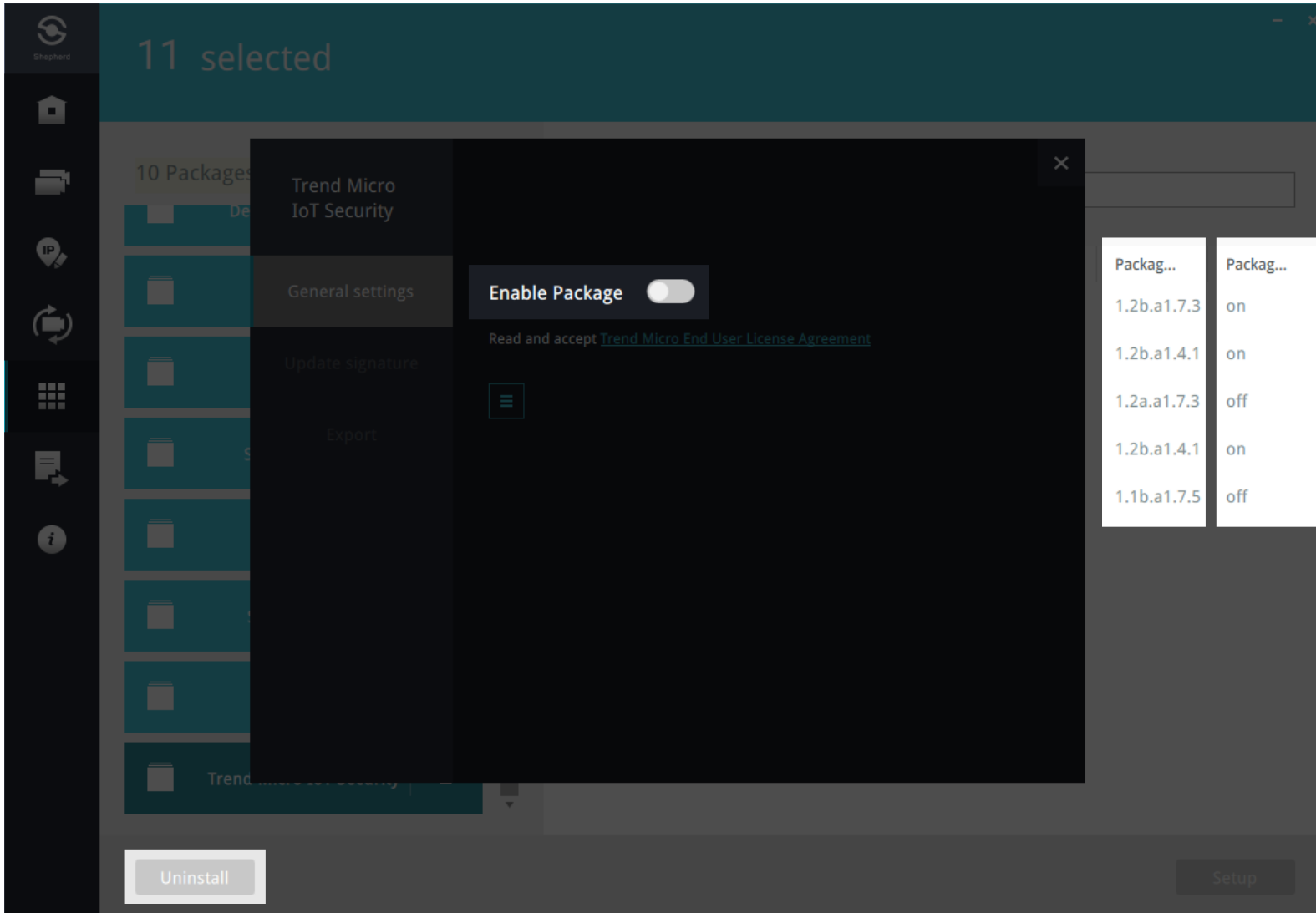
The screenshot displays the Package Management UI. On the left, a sidebar contains a 'Package' section with two items: 'Device Center' and 'Stereo Tracker'. The 'Device Center' item is selected, and a white arrow points from it to the 'Devices' section on the right. The 'Devices' section features a search bar and a table with the following data:

Status	Model	IP	MAC	Packag...	Packag...
	SC8131	10.42.2.3	00-02-D1-54-DB-76	1.0.4	on

At the bottom of the interface, there are 'Uninstall' and 'Setup' buttons.

Devices are grouped by package

Batch Package Management



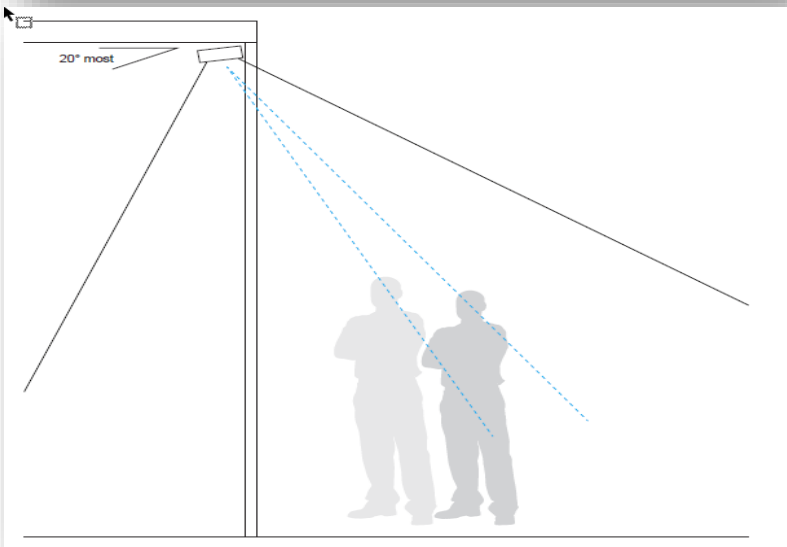
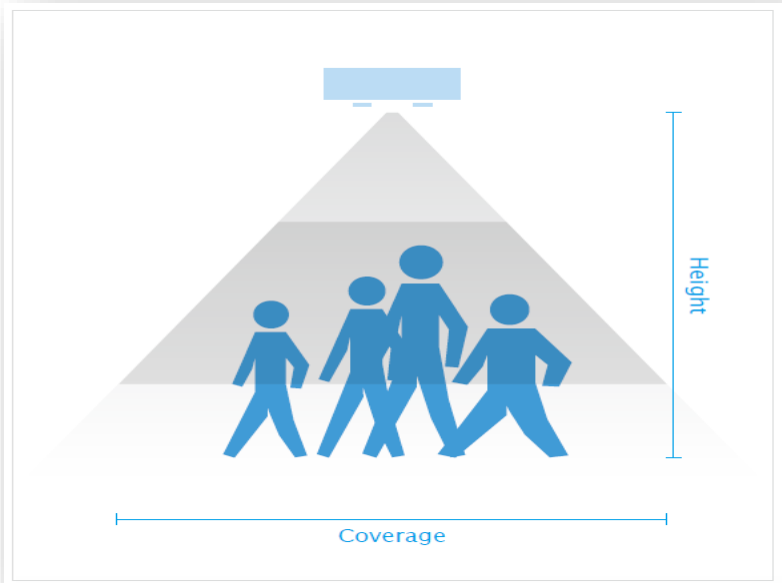
- Update
- Turn ON/OFF
- Uninstall

1. Use Shepherd to locate your camera.
2. Use Shepherd to update firmware.
3. Use Shepherd to restore the camera.

Camera Placement



Camera Placement



- The Camera must install parallel to the ground with max tilt 20 degrees.
- The suggested installation height is 2.4 meters to 3.6 meters by default.
- With **Zoom-in Factor** adjustments the camera can be installed up to 5 meters.
- *See Course 4 for Tilt & Stitching functions.*

Camera Placement

- Hallway



Feature:

Open area without obstacle on the route.

Installation:

Camera “Face down” and make sure the counting area can cover the width of the hallway.

- Door avoid swing area



Feature:

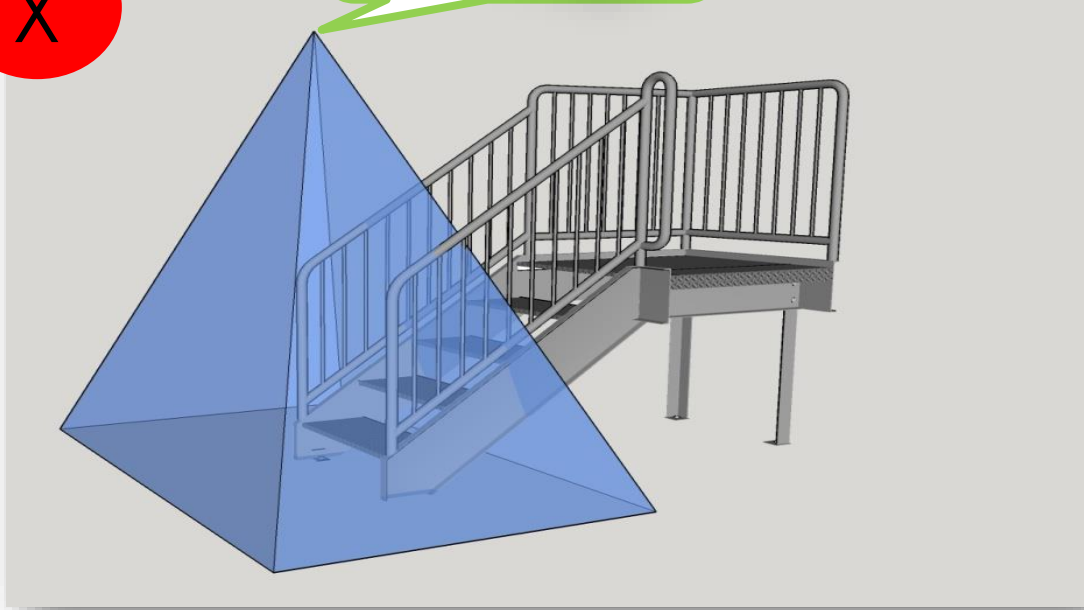
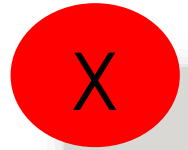
Door or other obstacle may block the line of sight between camera and incoming people.

Installation:

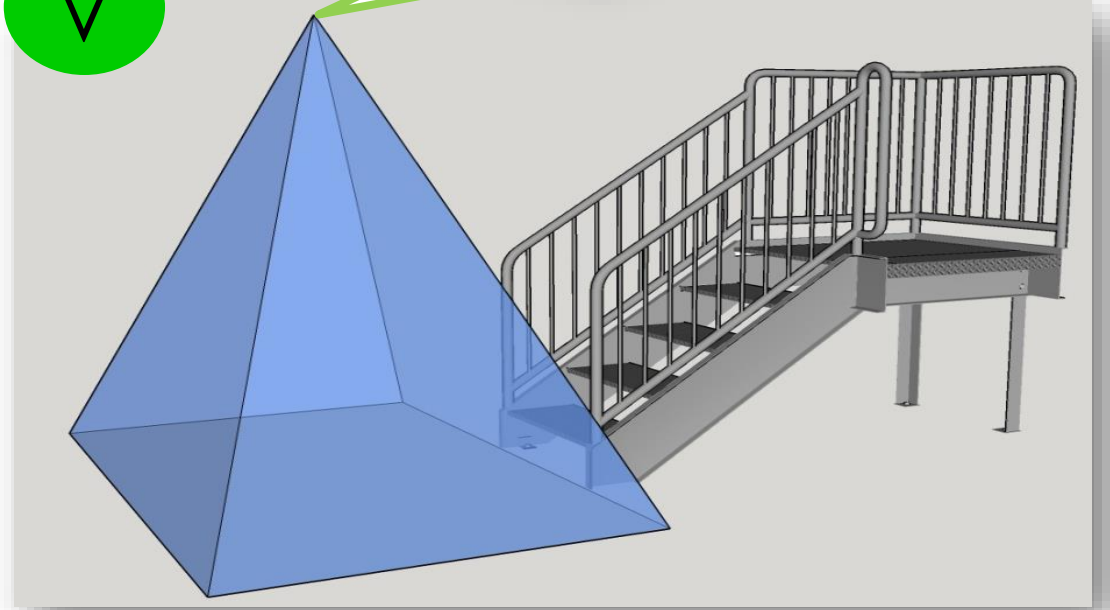
- Camera should “see” 1/3 of it’s view “outside” the door.
- Tilt if you can’t put the camera any closer to the door.

Camera Placement

- Example - Avoid uneven floor



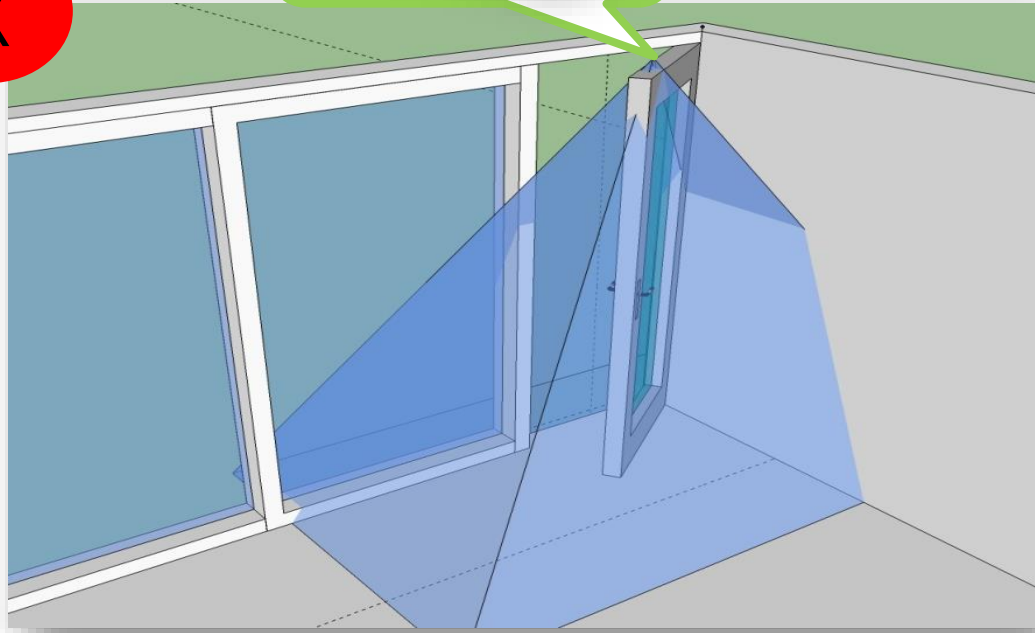
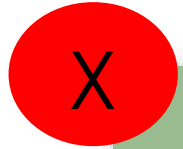
FOV covered stairs caused unexpected result of height filter.



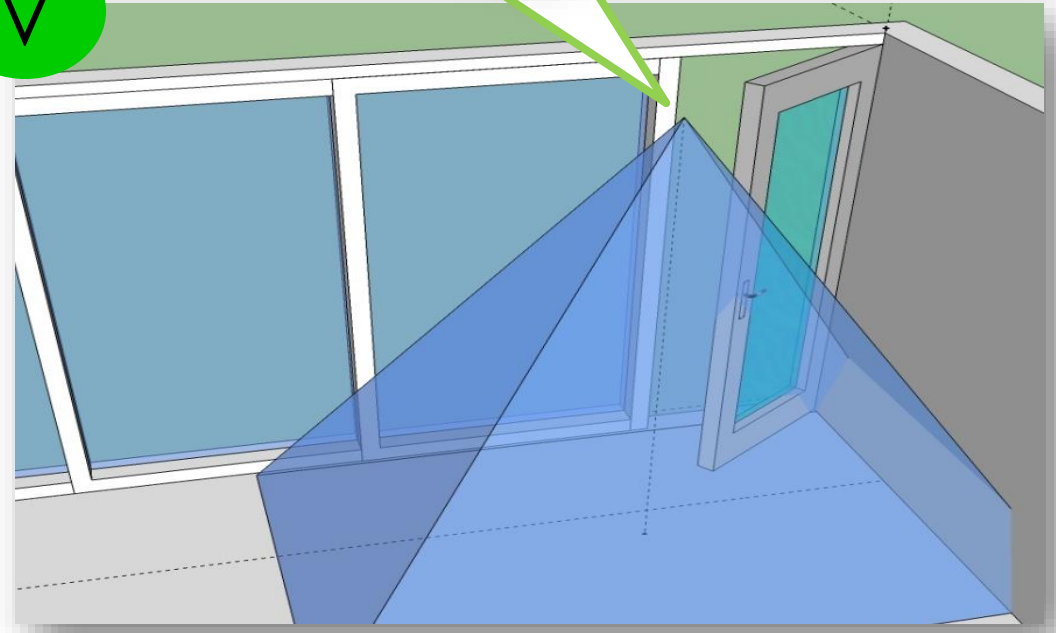
Solution: Install the camera on even floor.

Camera Placement

- Example - Avoid Swing Door



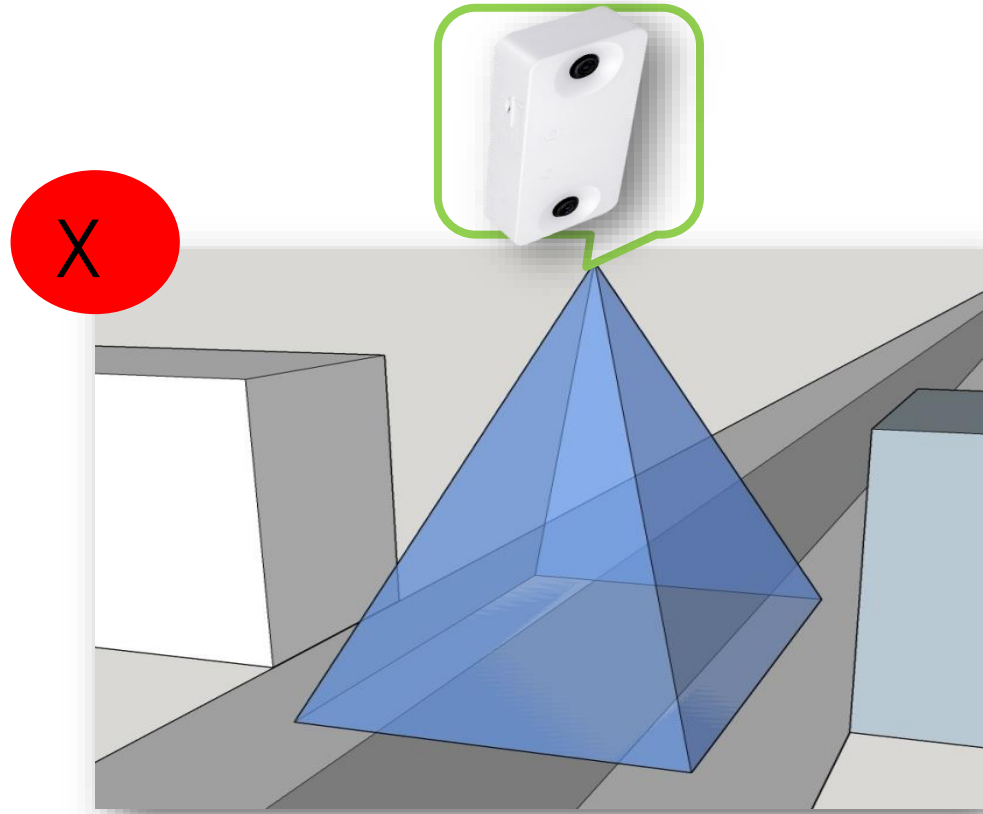
FOV cover swing doors
might cause false object and miscount.



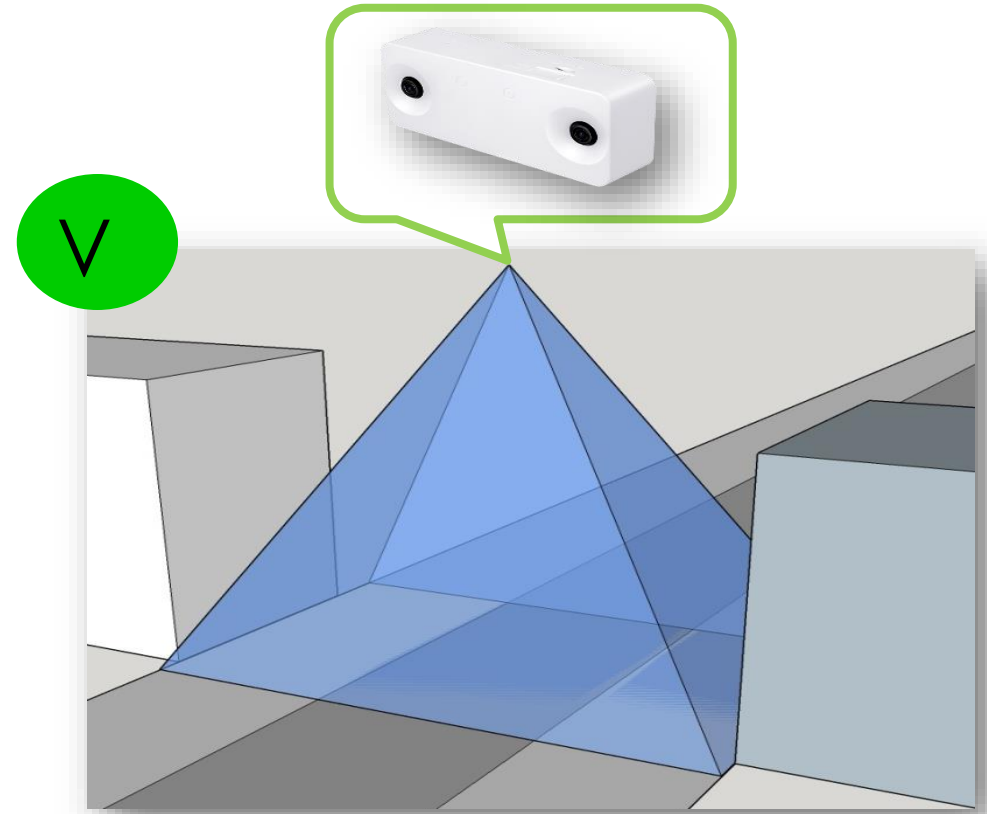
Solution: Install the camera away from door.

Camera Placement

- Example - Utilize the HFOV



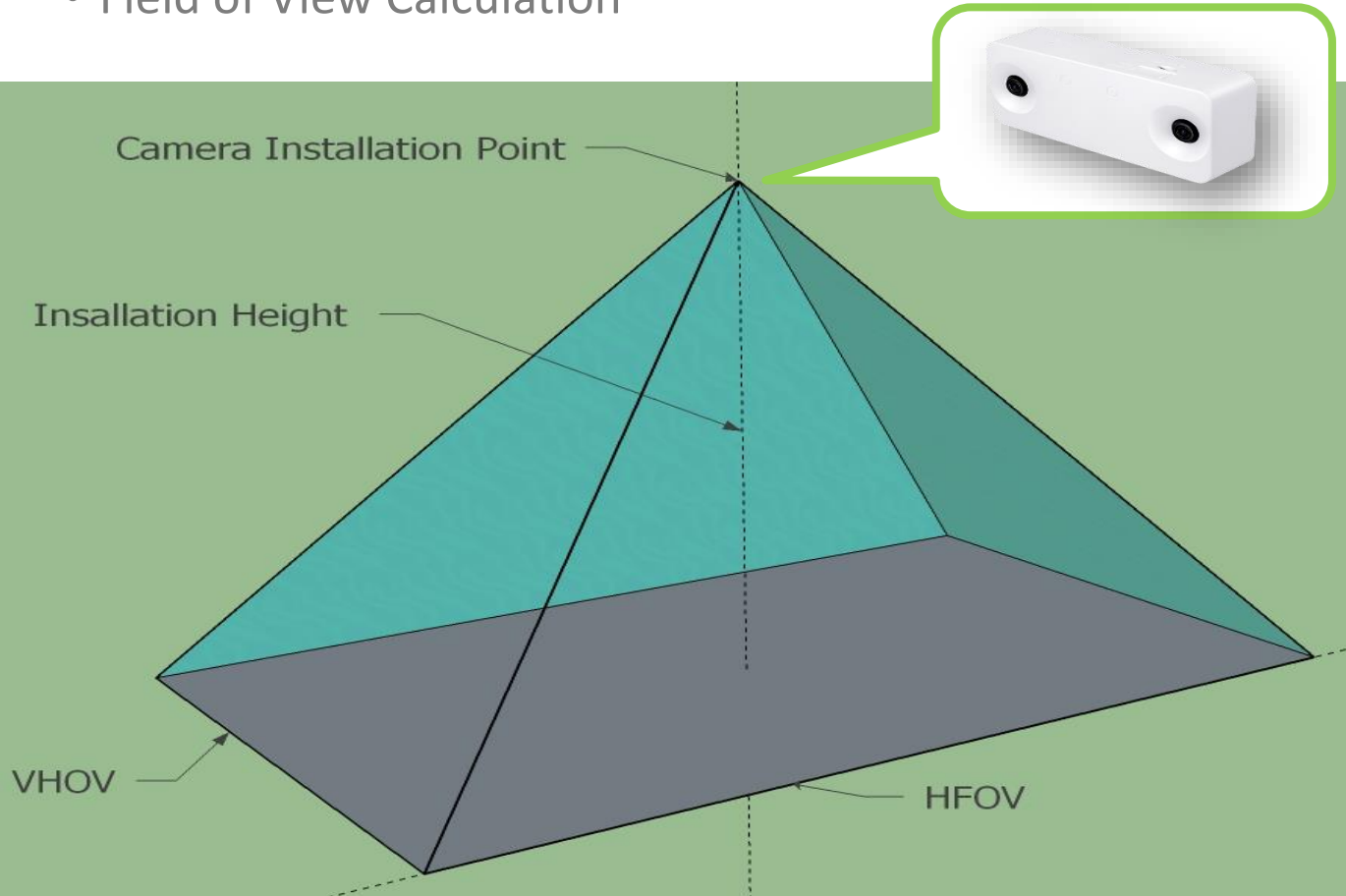
VFOV is shorter than HFOV,
might leave gap in passage.



Solution: Utilize the longer HFOV
to cover the passage.

Camera Placement

- Field of View Calculation



Installation Height (cm)	FOV		
	Zoom-In Factor	H-FOV (cm)	V-FOV (cm)
500	1.8	550.5	349.8
480	1.7	563.2	357.9
460	1.6	570.8	362.8
440	1.5	573.4	364.4
420	1.4	570.8	362.8
400	1.3	563.2	357.9
380	1.1	581.0	369.3
360	1	560.6	338.5
340	1	509.7	307.7
320	1	458.7	277.0
300	1	407.7	246.2
280	1	356.8	215.4
260	1	305.8	184.6
240	1	254.8	153.9

- *What's Zoom-In factor?*

Camera Placement

- Zoom-In factor: Scale up the view to improve the accuracy.

Report Rules

10/15/2020 17:06:30

Advanced ▾

Sensitivity
Less false alarms Less missing objects

Depth noise filter ⓘ
1 18
* Depth noise will only be seen when display of custom properties is depth.

Optical Zoom
1x 1.8x

Exclusive area
Area
Area
+ Add

Save Discard



Basic Settings



Basic Settings

- Network configurations – Fix IP is always recommended.

Network > General settings

Network type

- LAN
 - Get IP address automatically
 - Use fixed IP address
 - IP address: 192.168.42.99
 - Subnet mask: 255.255.255.0
 - Default router: 192.168.42.1
 - Primary DNS: 8.8.8.8
 - Secondary DNS:
 - Primary WINS server:
 - Secondary WINS server:
- PPPoE
- Enable IPv6

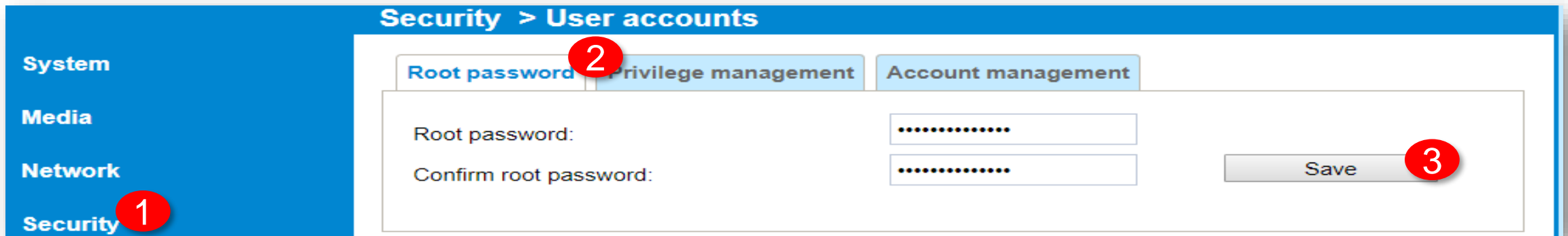
Save

DNS is important!

Basic Settings

- Set Root password –

Avoid simple password especially it's connecting to Internet.



Security > User accounts

System
Media
Network
Security **1**

Root password **2** Privilege management Account management

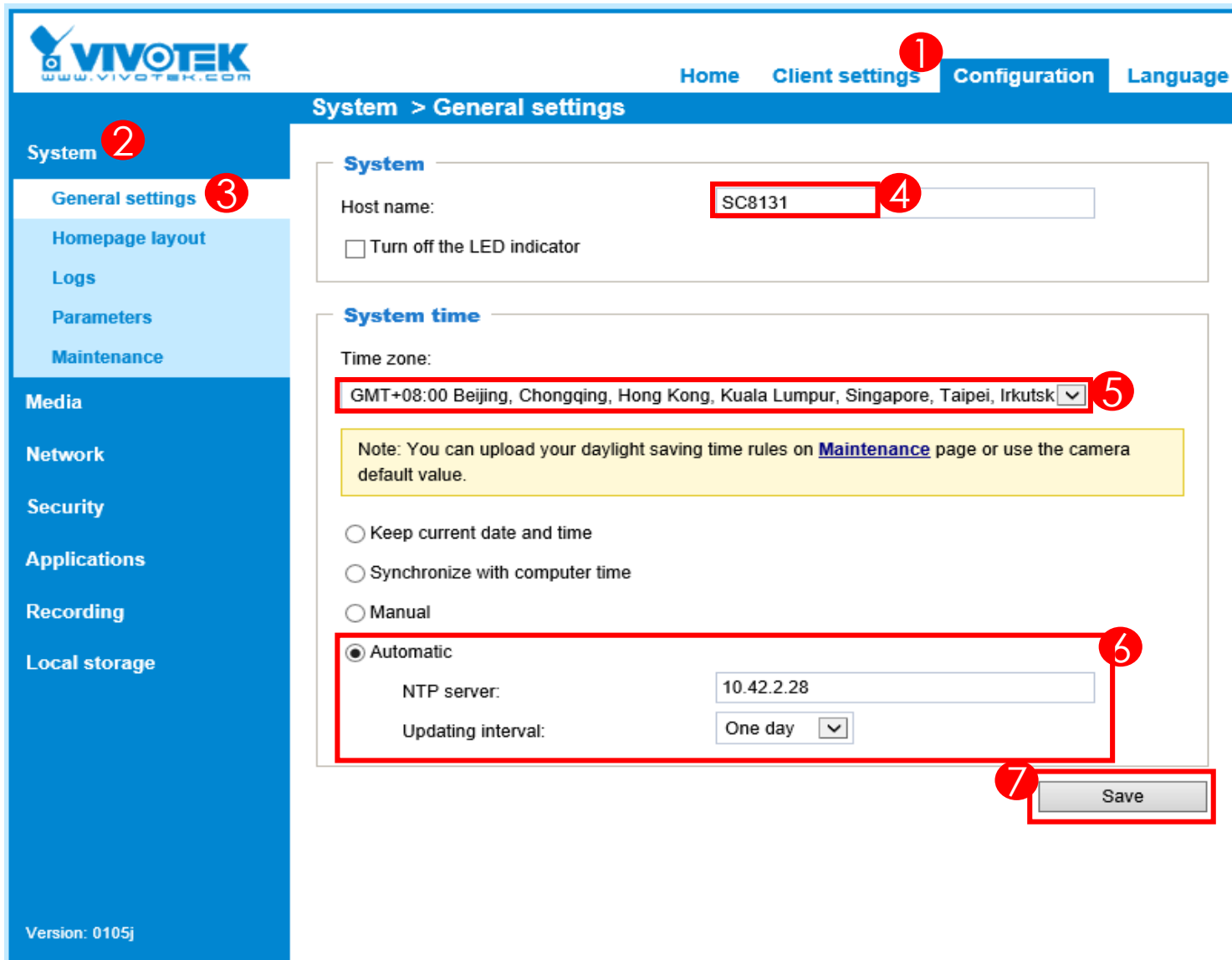
Root password:

Confirm root password:

Save **3**

Basic Settings

- Set Host Name and Time – Suggest to set a meaningful host name.

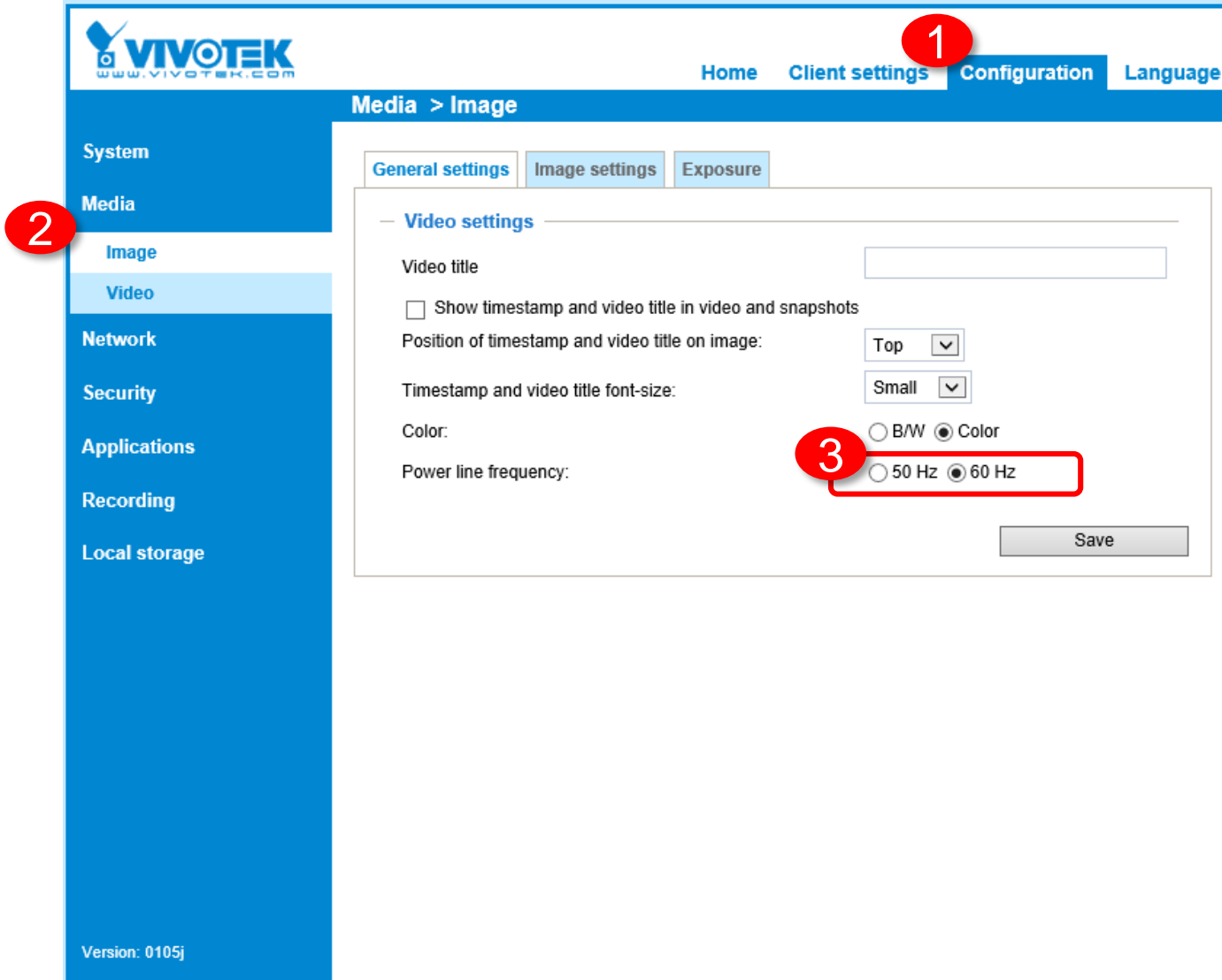


The screenshot displays the VIVOTEK web interface for 'System > General settings'. The interface includes a navigation menu on the left with categories like System, Media, Network, Security, Applications, Recording, and Local storage. The main content area is divided into two sections: 'System' and 'System time'. The 'System' section contains a 'Host name' input field with the value 'SC8131' and a checkbox for 'Turn off the LED indicator'. The 'System time' section features a 'Time zone' dropdown menu set to 'GMT+08:00 Beijing, Chongqing, Hong Kong, Kuala Lumpur, Singapore, Taipei, Irkutsk', a note about daylight saving time rules, and three radio button options: 'Keep current date and time', 'Synchronize with computer time', and 'Automatic'. The 'Automatic' option is selected, and its sub-section includes an 'NTP server' input field with '10.42.2.28' and an 'Updating interval' dropdown menu set to 'One day'. A 'Save' button is located at the bottom right of the form.

Version: 0105j

Basic Settings

- Set Power Frequency



Version: 0105j

1. Set up the network.
2. Set up the time zone.
3. Set up the power frequency.

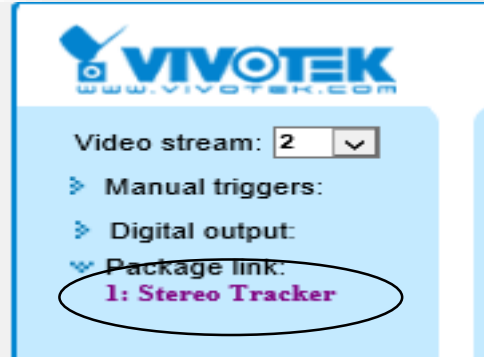
Analytics Settings



Analytics Settings

- Find Analytics Setting Pages

1. From Index page click “1: Stereo Tracker” hyperlink.

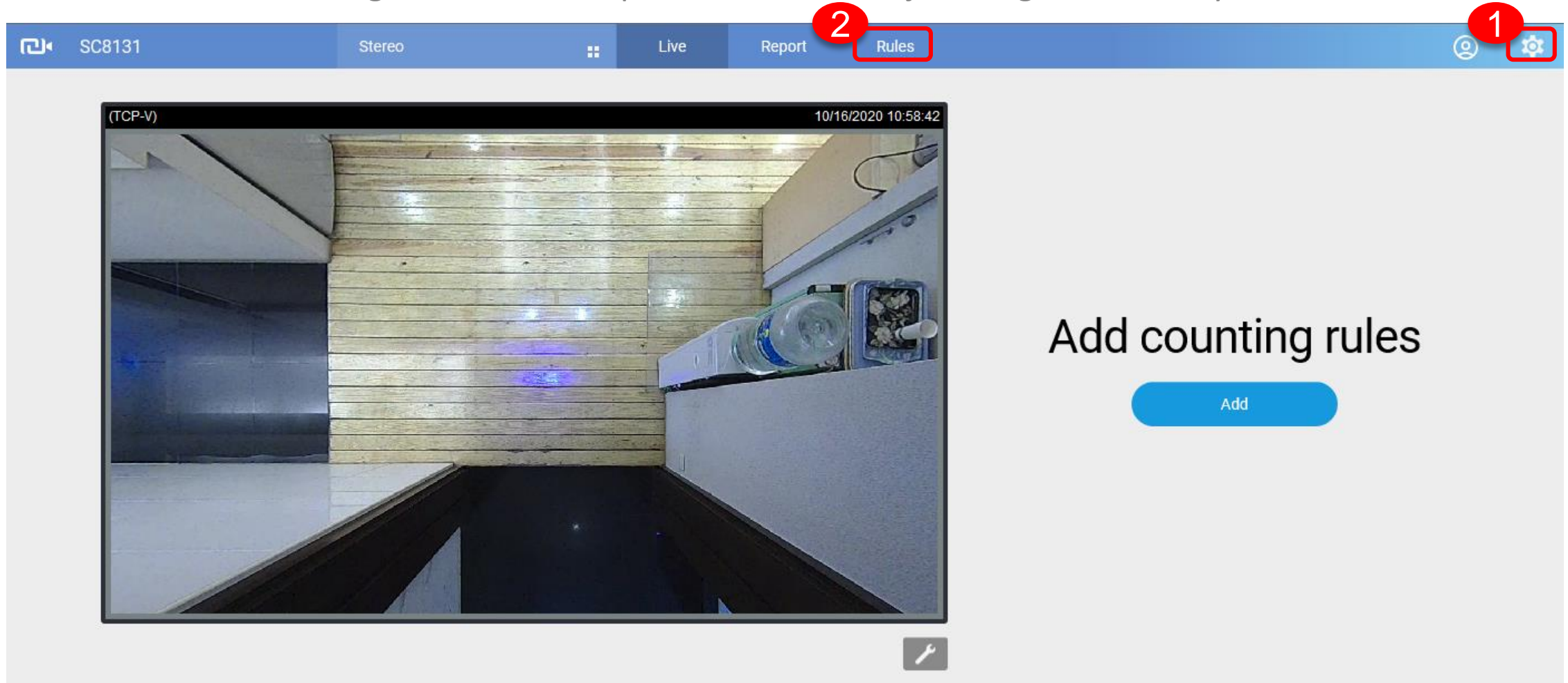


2. From “Index” -> “Configuration” -> “Applications” -> “Package management” -> “Stereo Tracker”



Analytics Settings

- **Camera settings:** Configure the installation height, algorithm settings, and exclusive area settings.
- **Rules:** Draw the counting-lines, and set up the max./min. object height, and analytics event rules.

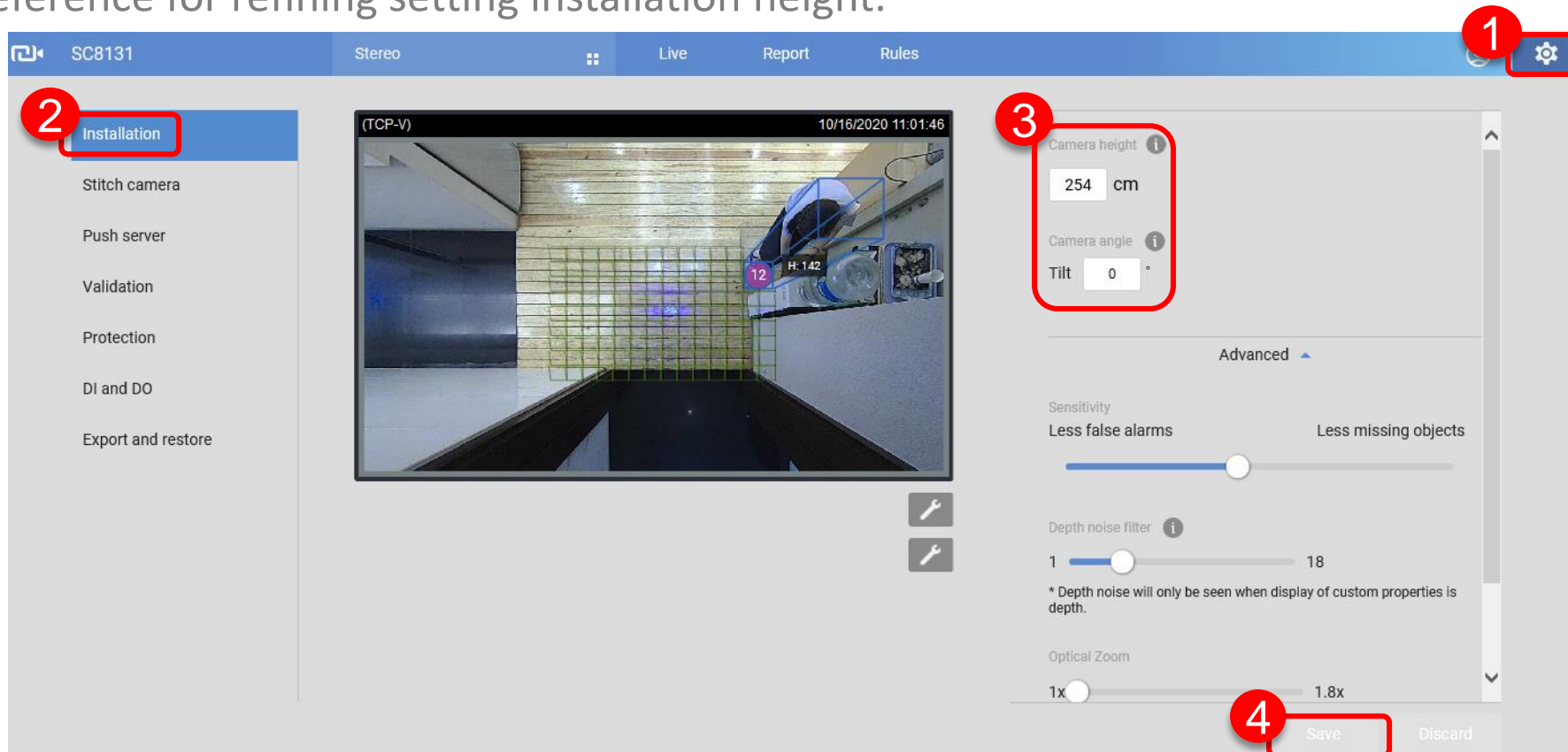


The screenshot displays the VIVOTEK analytics interface. At the top, a blue navigation bar contains the camera ID 'SC8131', 'Stereo' mode, 'Live' status, and a menu with 'Report' and 'Rules' options. The 'Rules' option is highlighted with a red box and a red circle containing the number '2'. In the top right corner, there is a user profile icon and a settings gear icon, both also highlighted with red boxes and red circles containing the number '1'. The main area shows a camera feed of a kitchen counter with a wooden backsplash and a water dispenser. The feed is labeled '(TCP-V)' and shows a timestamp of '10/16/2020 10:58:42'. A blue 'Add' button is positioned below the feed, and the text 'Add counting rules' is displayed above it. A small wrench icon is visible at the bottom right of the camera feed area.

Analytics Settings

- Camera Settings

1. **Installation Height:** Set camera installation height manually.
2. **Camera Tilt angle:** In case you install the camera titled, you have to enter the right angle. Recommended tilt angle below 20 degrees.
3. **Check detection height:** Check camera's detection height with internal algorithm. This Calibration is a reference for refining setting installation height.



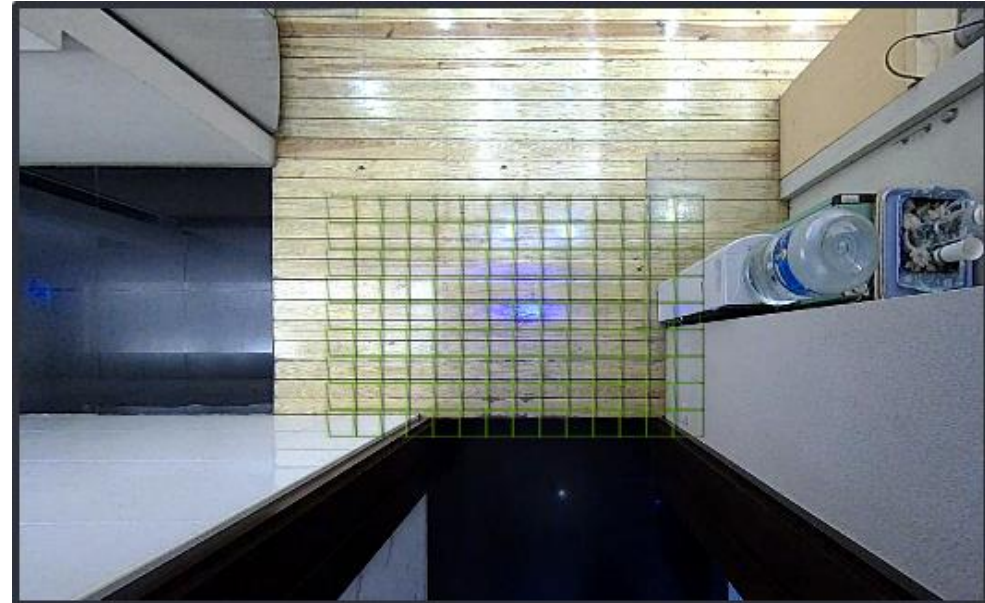
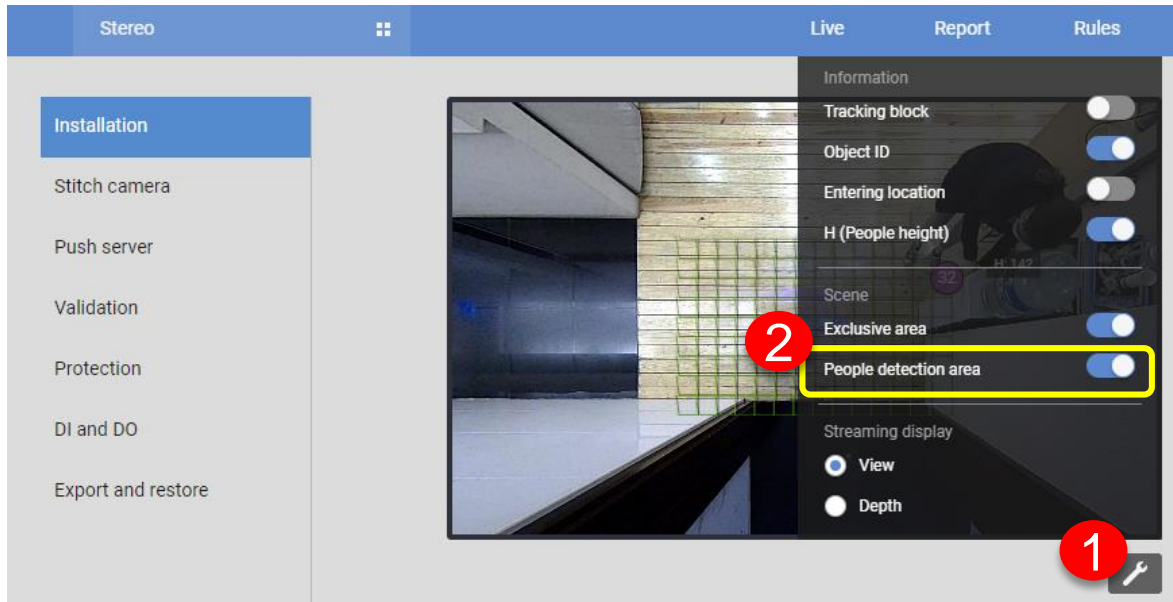
Analytics Settings

- Camera Settings

1. People Detection Area:

The feet area that camera provide the highest accuracy in people counting.
Calculated based on camera installation height and optical zoom factor.

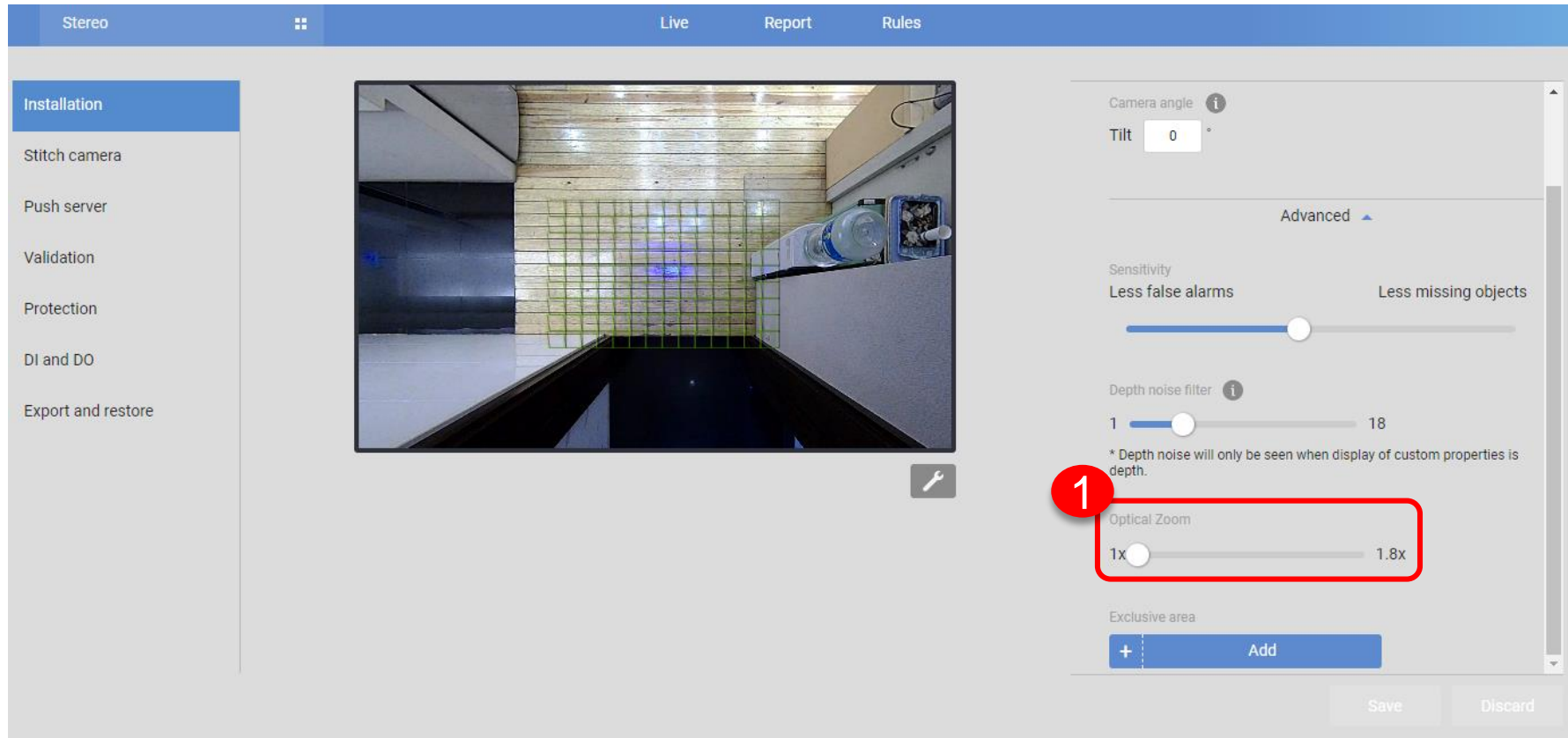
2. **The counting rules should cover the whole passage and mostly fall into detection area.**



Detection area is based on feet projection position,
SC8131 doesn't need the area to cover the whole body of the target person.

Analytics Settings

- Optical Zoom (optional)
 - During 2.4 meters to 3.6 meters height, the **object's pixels** are sufficient and clear for people counting algorithm calculation.
 - While installing higher than 3.6 meters, **higher Zoom-in factor value** could provide clearer image for counting algorithm.

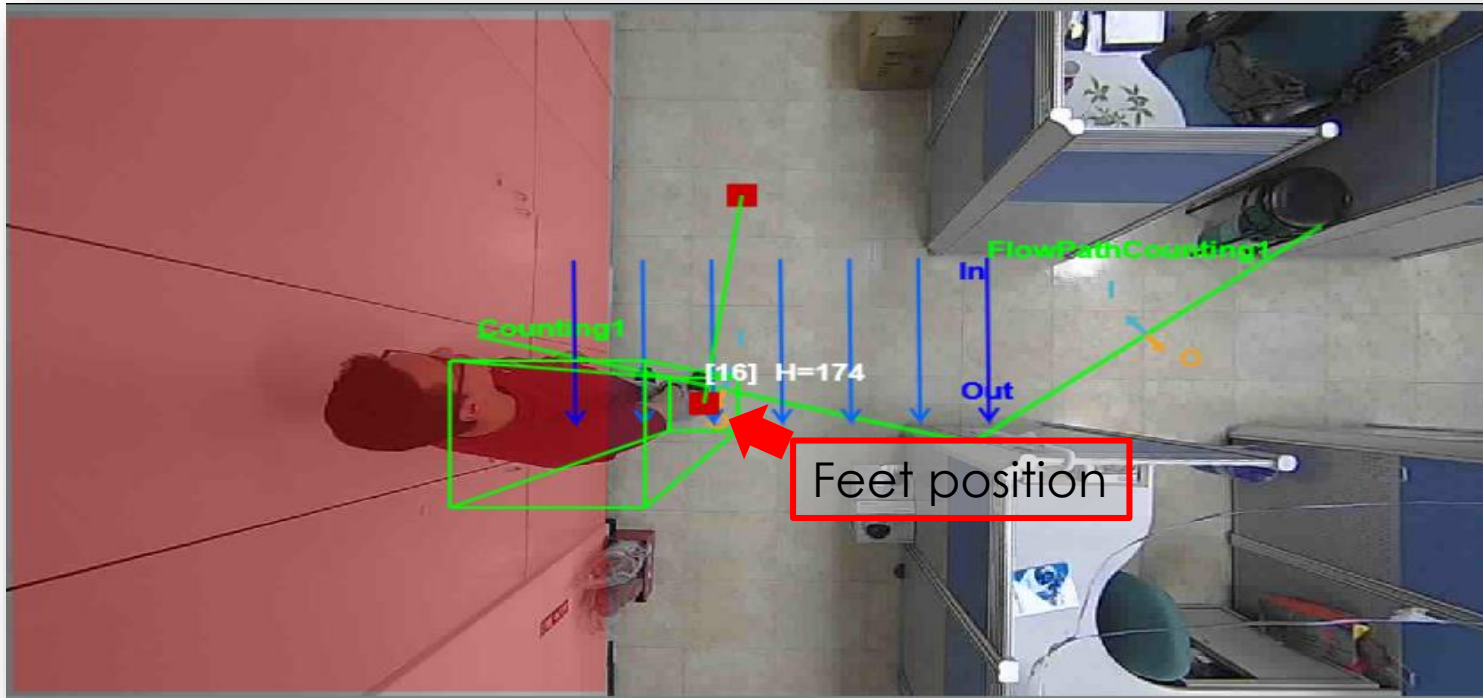


Analytics Settings

- Exclusive Area –

The camera is tracking the “feet” of the person, not his head.

So the excluded area should not be drawn on the area where people might walk through.



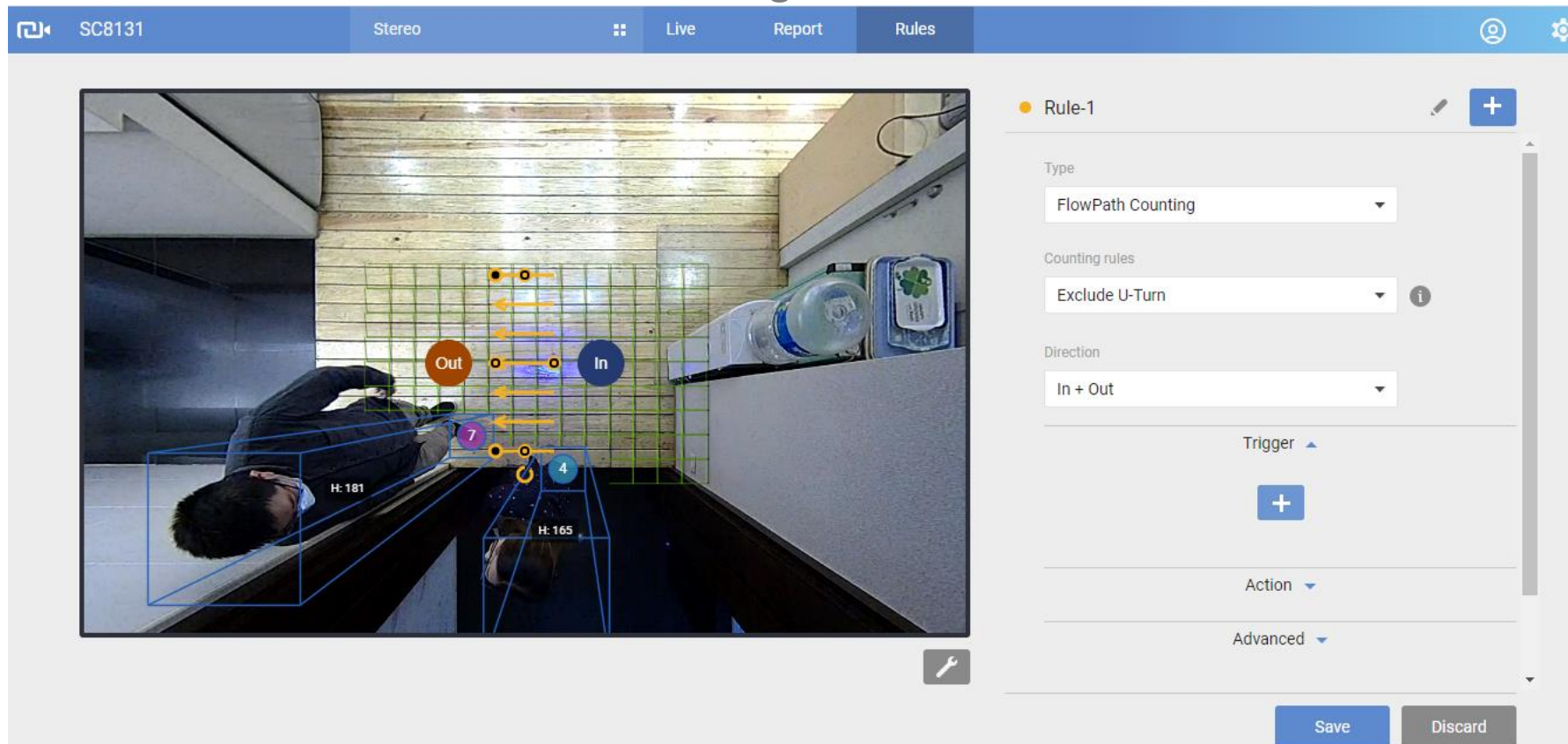
If the body or the head of the person is inside the excluded area, the person will still be detected, since his feet are outside this area.

1. Set up the installation height & tilt angle.
2. Set the optical zoom.
3. Draw an exclusive area.

Rules

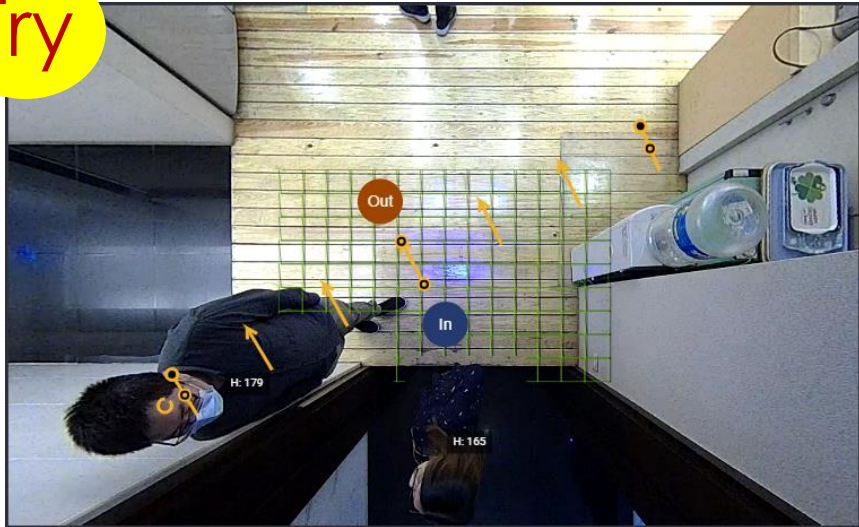
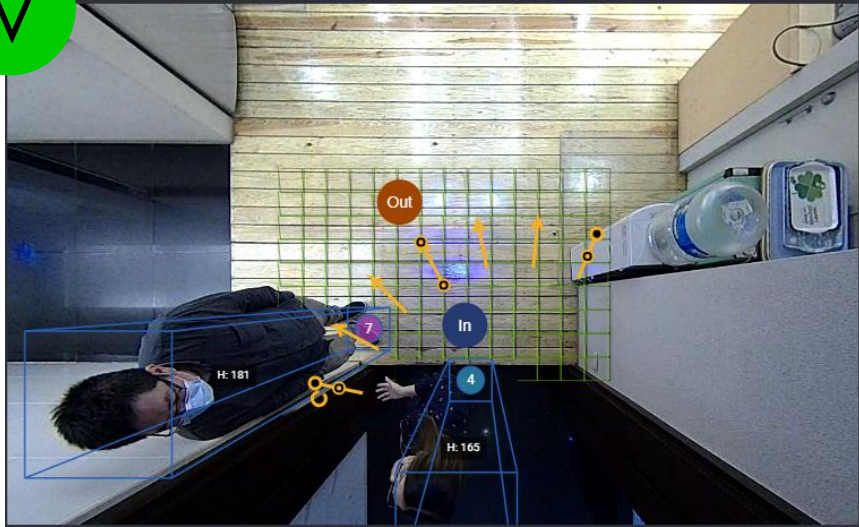


- Analytics Rules – Draw Flow Path within the counting area.



- We recommend users to use Flow Path instead of counting line for better accuracy. Counting line is only for legacy usage.

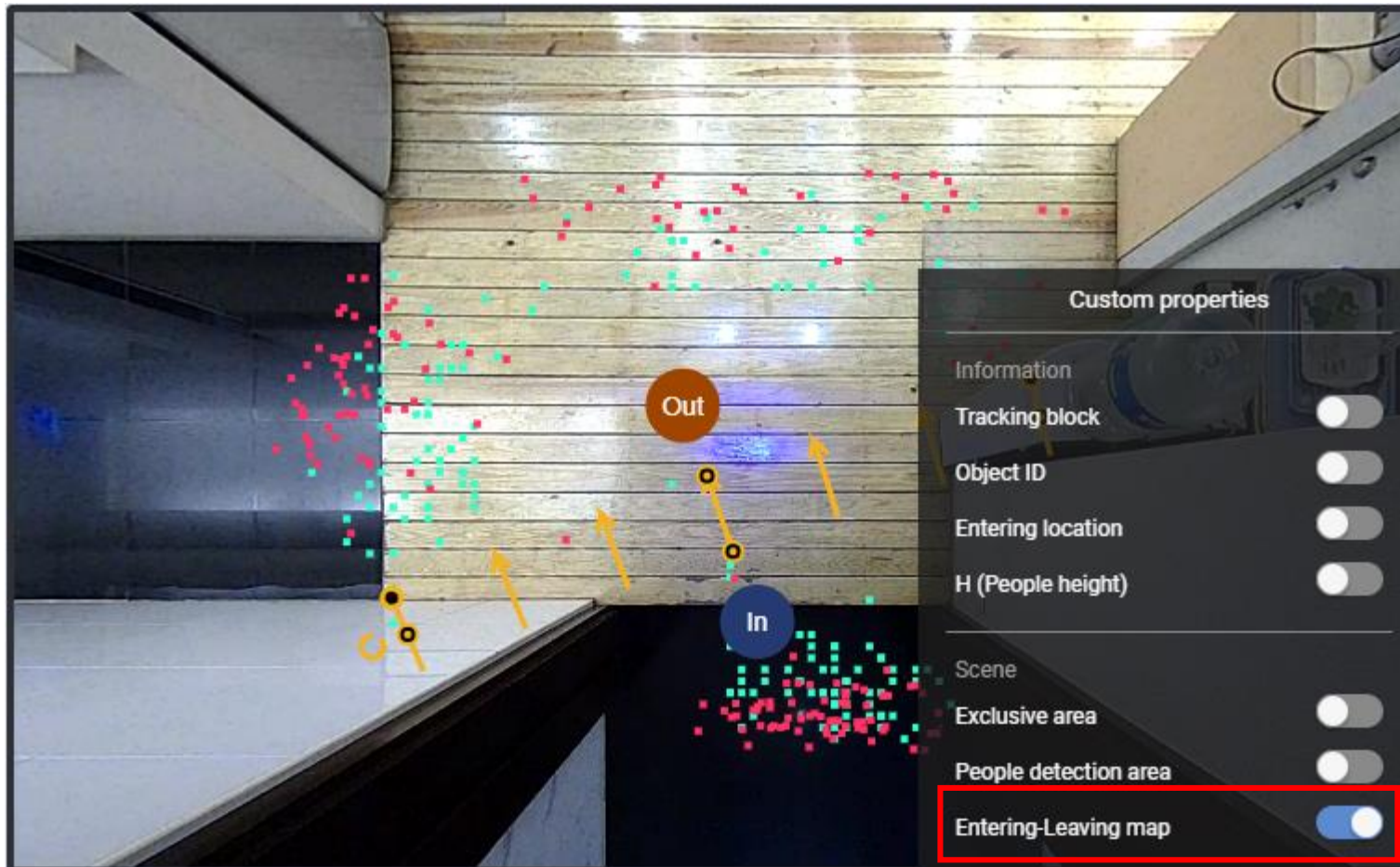
- Analytics Rules – Example



If the passage is slightly wider than the detection area, please extend the analytics rule to cover the whole passage with proper test on site to make sure the counting accuracy.

Rules

- Entering Leaving Map – Helps you to know where the object has been tracked by the camera.
Always draw flow path between the entering and leaving points.



- Entering Leaving Map– Example

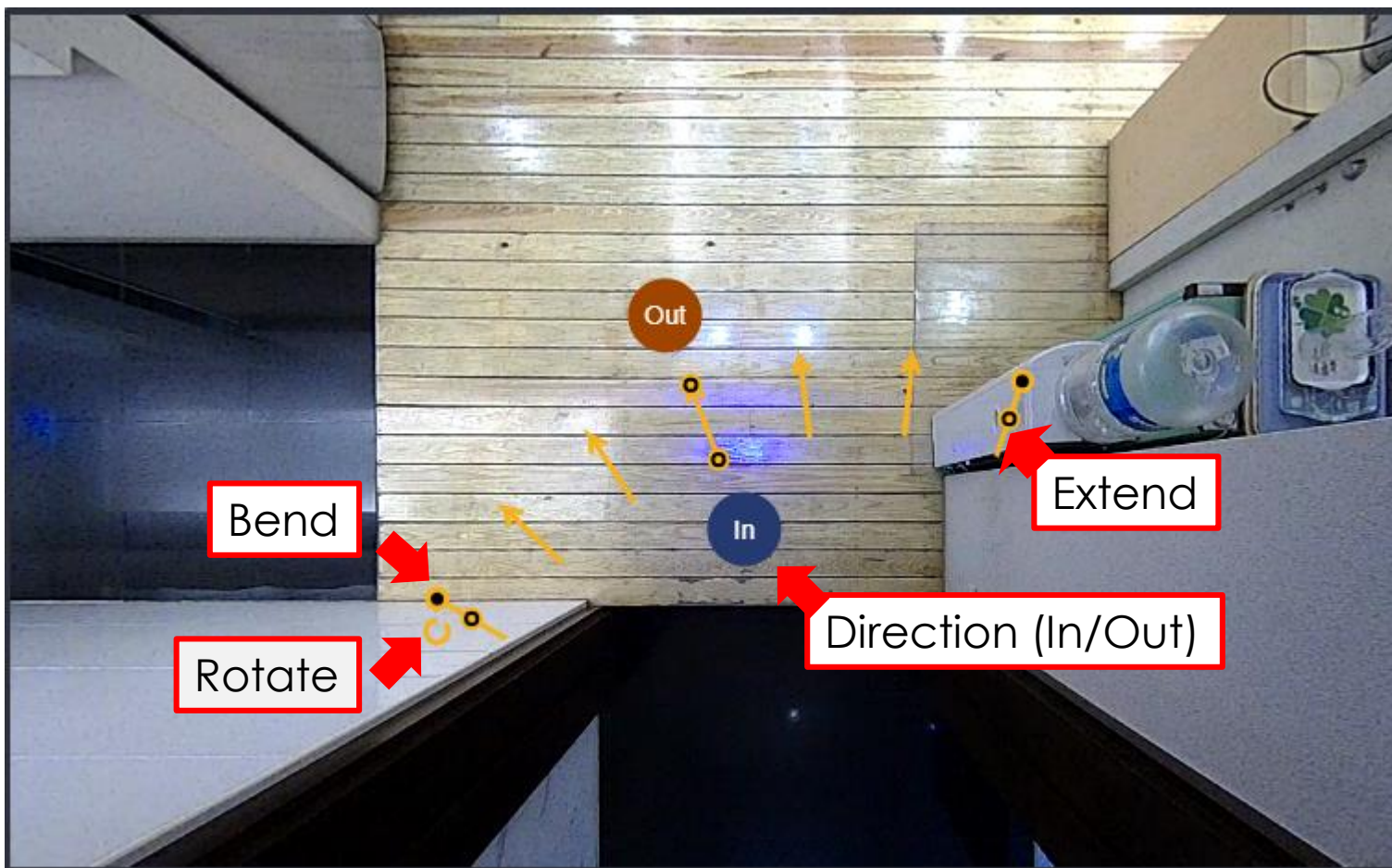


The flow path is places between start/stop points.



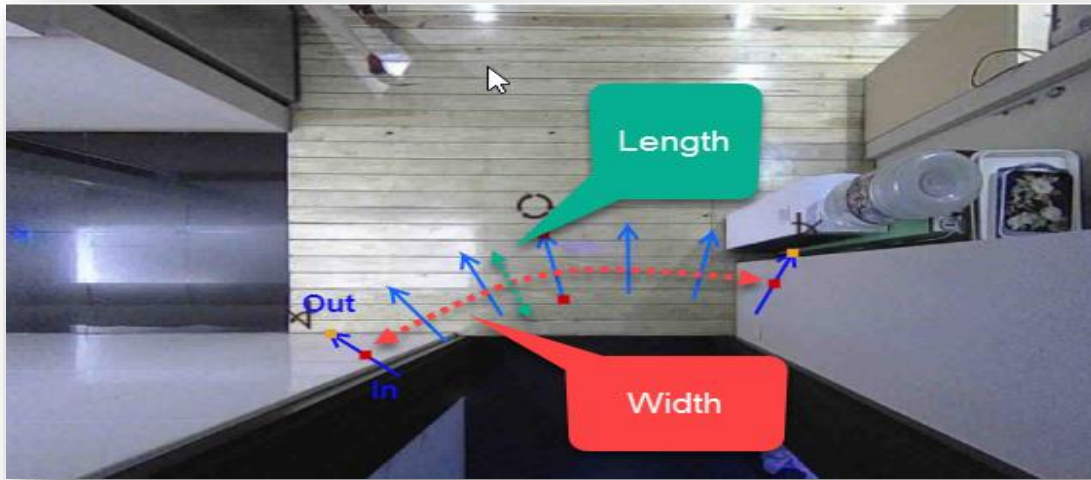
The flow path is places on the edge of object detection which might lead to miscount.

- Flow Path Counting
 - This rule consists of 7 parallel arrows. When passengers pass by along with these flow path, the stereo camera would count.
 - Users can move, rotate, adjust the angle, expand the range, and adjust the arrow's length.

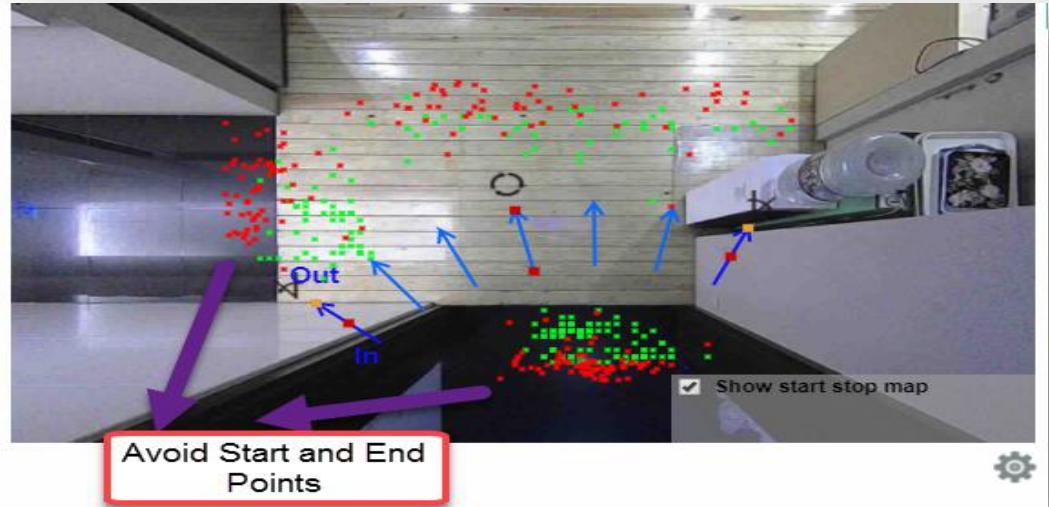


Rules

- Flow Path Counting – How to Draw the Flow Path?
 - Width: Fully cover the whole passage with the arrow and tail.
 - Length: The arrow should be drawn between the Start/Stop points.

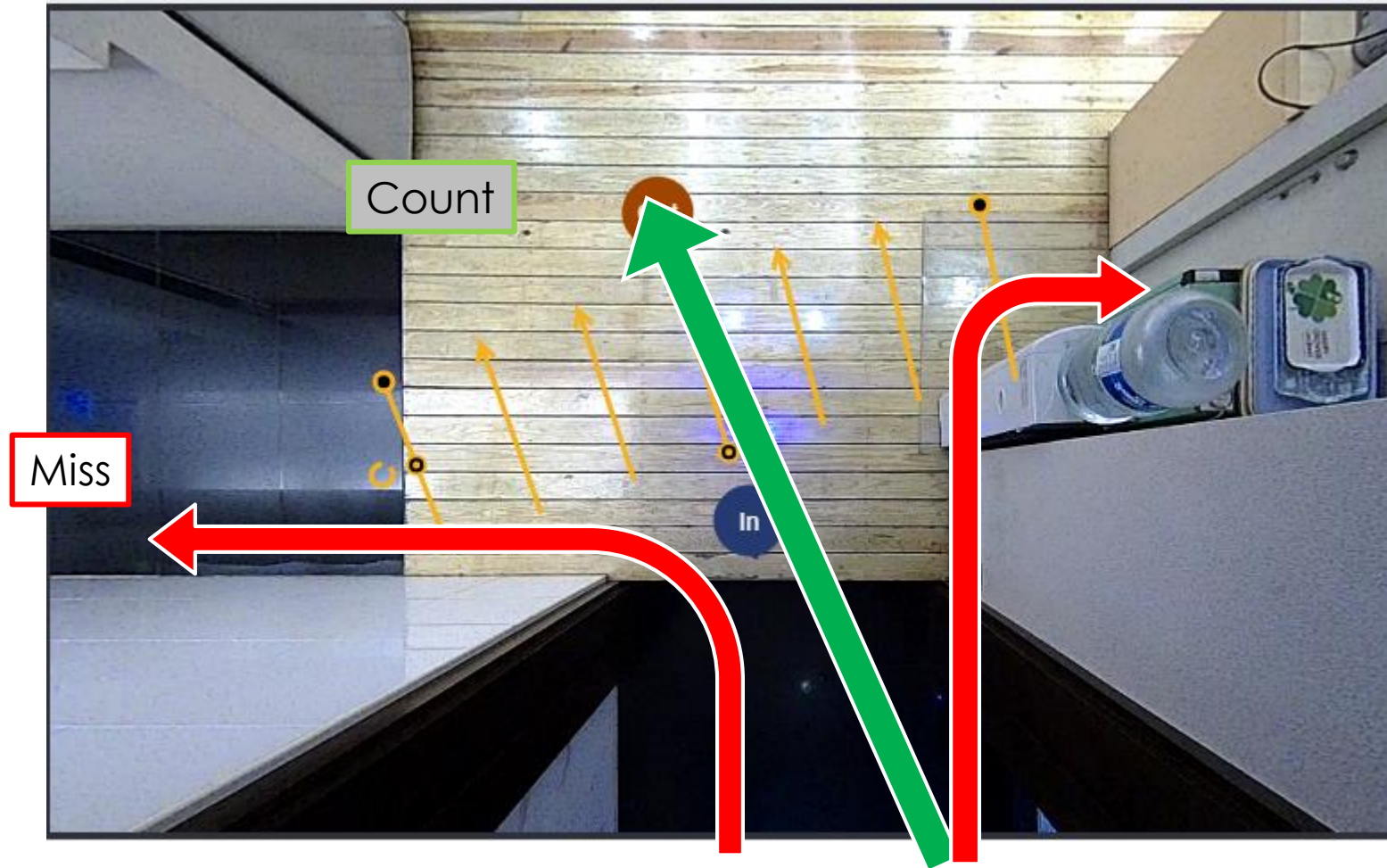
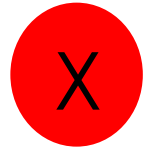


The width need to cover the whole passage.



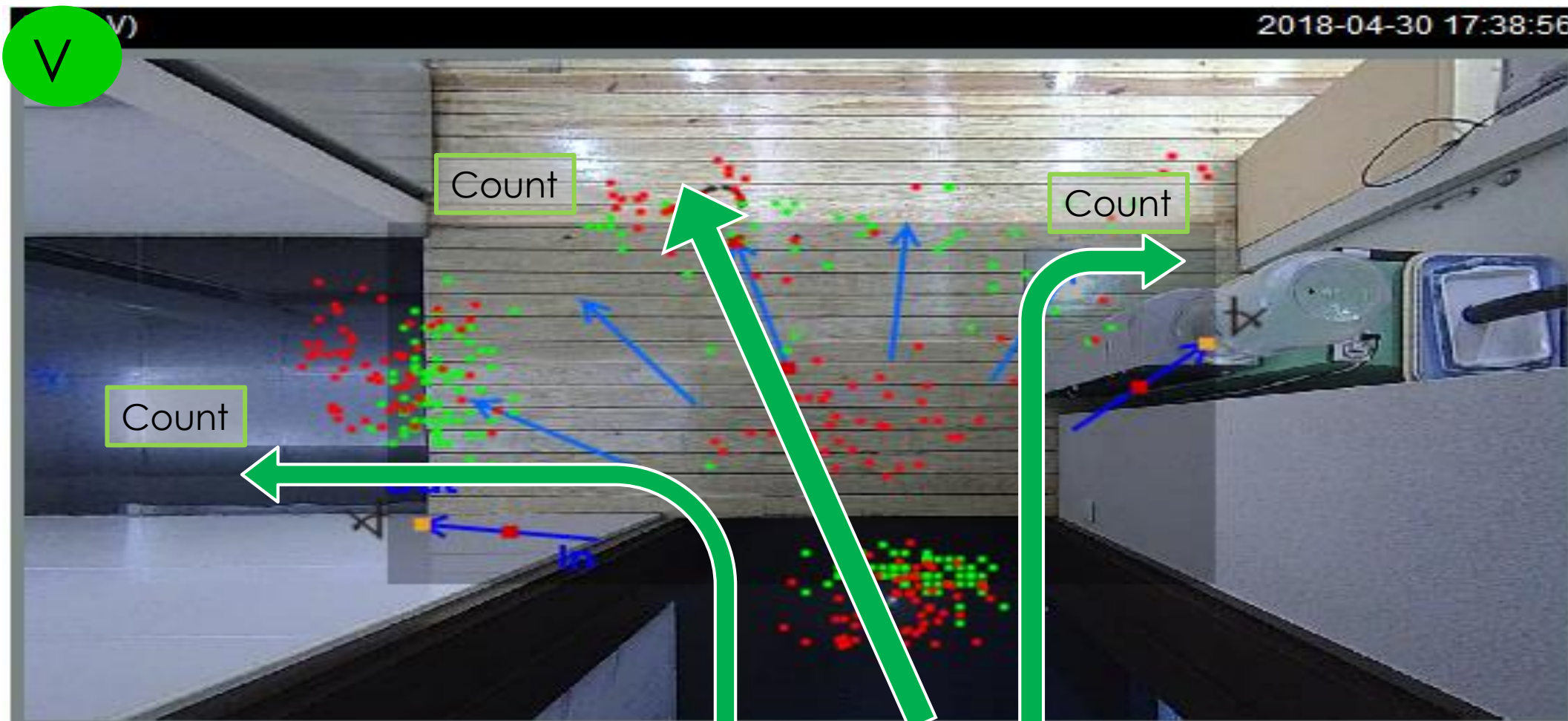
The arrows should be set between Entering/Leaving points.

- Flow Path Counting – Example



The arrow and tail didn't cover the whole passage.

- Flow Path Counting – Example



Both the arrow and the tail cover the whole passage, then check the detection area, and the start/stop map.

- Flow Path Counting – Counting Sensitivity
 - The distance a person needs to move along the arrow direction to be counted.

The screenshot displays a camera view of a hallway with a wooden wall and a counter. Yellow arrows indicate flow paths. A blue circle labeled 'In' is at the bottom, and a brown circle labeled 'Out' is at the top. The configuration panel on the right is titled 'Rule-1' and includes the following settings:

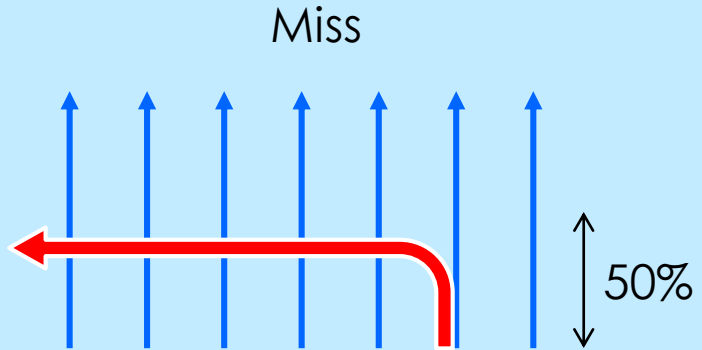
- Object type: None
- Object height: 120 ~ 190 cm
- *Between 80-250 cm
- Counting sensitivity: 1 (slider set to 1, highlighted with a red box)
- DI triggers:
 - Disable - Always counts
 - Enable - Count when DI triggers
 - Enable - Minus 1 count
- Group counting: Counts by group (toggle off)

Buttons for 'Save' and 'Discard' are at the bottom right.

Rules

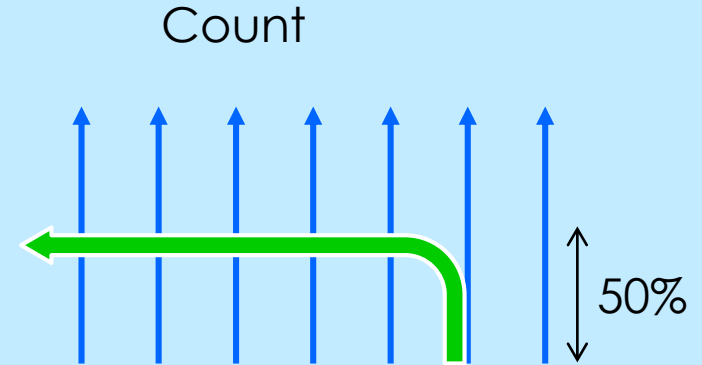
- Flow Path Counting – Example

Counting Sensitivity = 5



Not been counted in default sensitivity.
Sensitivity 5 means people need
to travel 50% length along the flow path.

Counting Sensitivity = 6



Increase the sensitivity
will let the camera count this people.

- Appendix – Flow Path Configurations.

Rule-1

Type
FlowPath Counting

Counting rules
Exclude U-Turn

Direction
In + Out

Trigger

Name: Trigger-1

Trigger
Counts (People): In ≥ 2

Action

Action
Go to Event Settings

*Save changes before set up Event Settings

Advanced

Object type
None

Object height
120 ~ 190 cm

*Between 80-250 cm

Counting sensitivity
1 10

DI triggers

Disable - Always counts

Enable - Count when DI triggers

Enable - Minus 1 count In

Group counting
Counts by group

Write to database

Interval (seconds): 60

*Minimum 60 seconds are required

After DI triggered

1. Draw a flow path rule.
2. Walk along the FOV for few times.
3. Exam the entering/leaving map.

Report



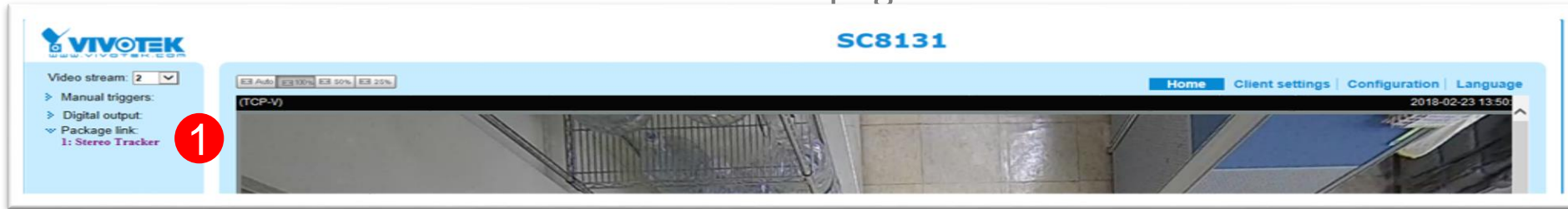
Report

- The counting report can be set as push or pull.
- Pull: Customer can retrieve counting report via CGI.
- Push: SC9131 can generate the counting report and deliver to customer server periodically.

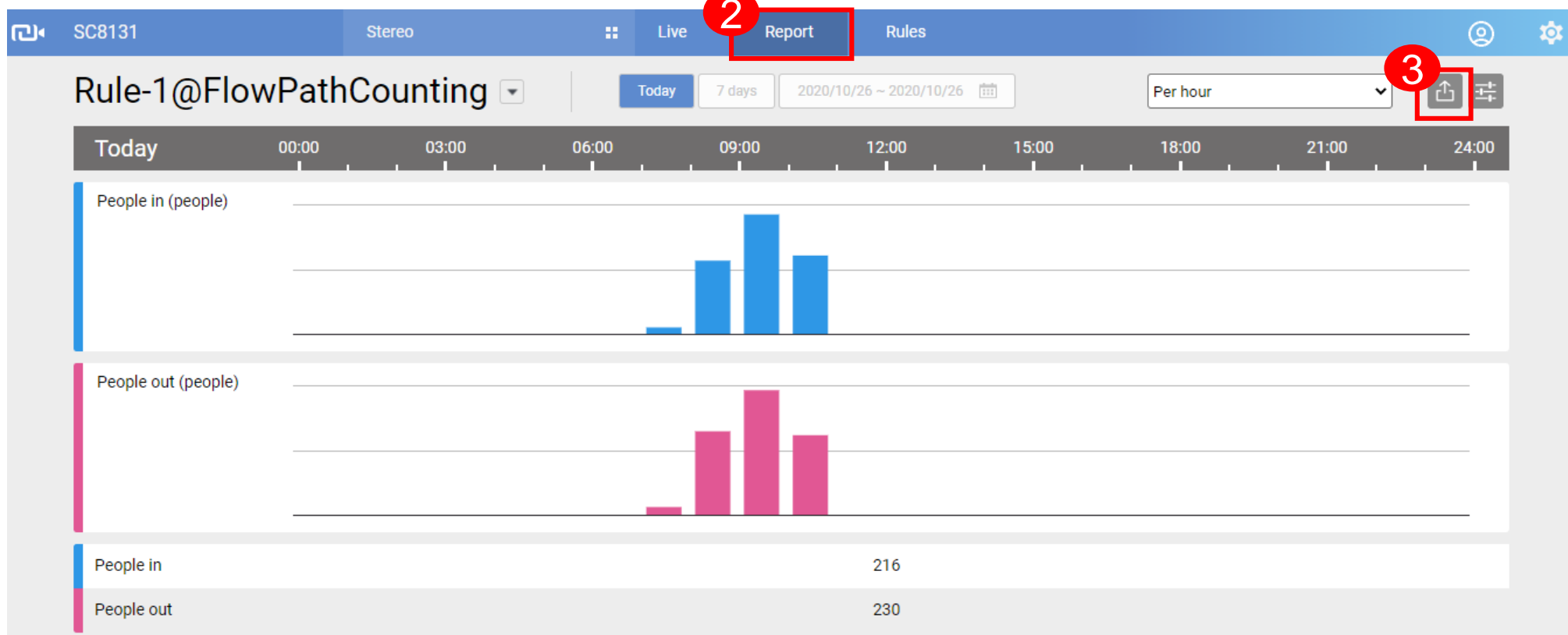


Report - CGI

- Select “Stereo Tracker” from Camera Web Index page.



- Select “Report” to view report on web or via CGI.



Export CGI

Search

Time format

UTC time

Device local time

Start time

End time

10 : 57

Specified time

11 : 22

The end of this day(24:00)

1. Select the report start time and end time
2. Select the report type:

Counting & FlowPath Counting

Counting & FlowPath Counting

Passerby Counting

Zone Detection

Queue analysis raw data

Queue analysis aggregate data

3. Select the report format:

XML

XML

CSV

JSON

4. Select the period of time does one record representing.
5. Choose whether to show the record with no people counted.
6. Copy CGI: User can utilize this feature to generate the CGI for the integration.
- Open CGI: User can review the data.

Data

VCA

Counting & FlowPath Counting

Format

XML

Time interval

Every Per hour

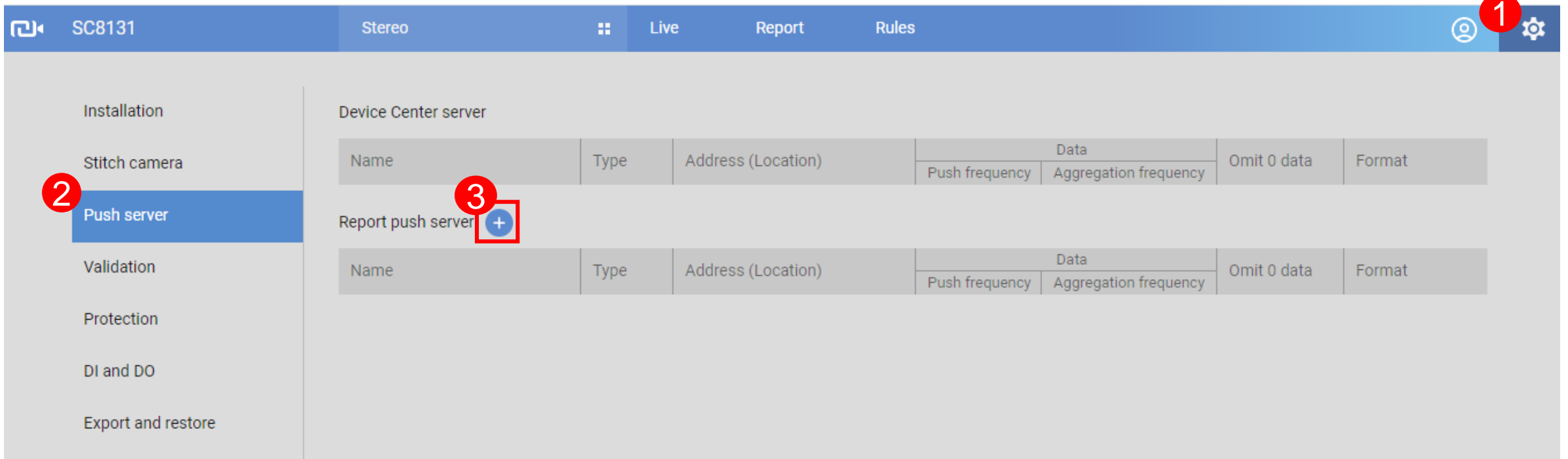
Lite mode

Hide the date when People In/People Out is zero.

Copy CGI Open CGI Cancel

Report – Report Push

- Set up the report push



SC8131 Stereo Live Report Rules

Installation
Stitch camera
2 Push server
Validation
Protection
DI and DO
Export and restore

Device Center server

Name	Type	Address (Location)	Data		Omit 0 data	Format
			Push frequency	Aggregation frequency		

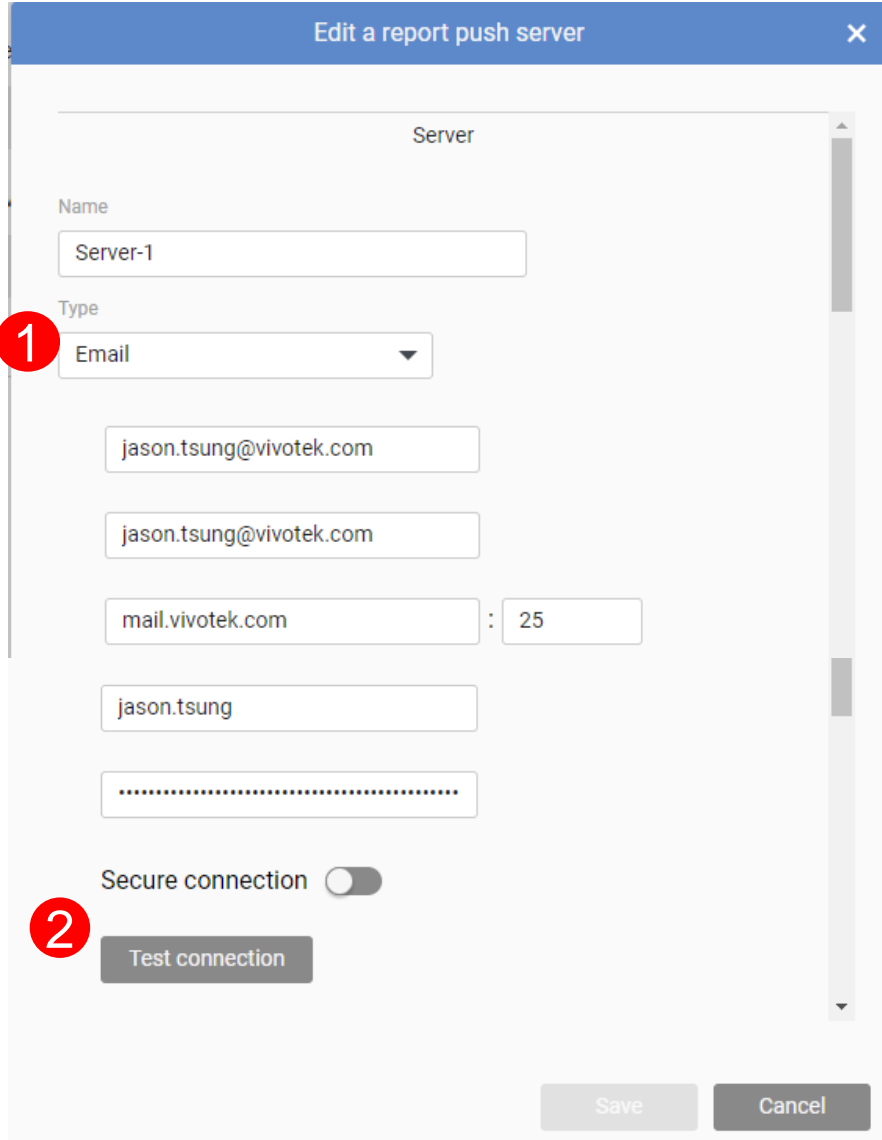
Report push server **3** +

Name	Type	Address (Location)	Data		Omit 0 data	Format
			Push frequency	Aggregation frequency		

1

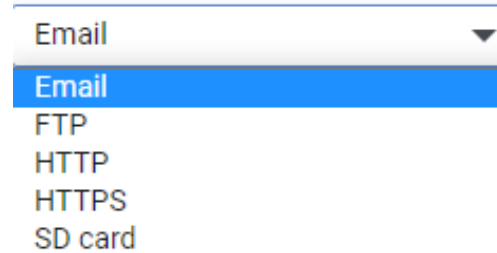
Report – Report Push

- Server Info



1. Type:

Select the server type which SC8131 will deliver the report. Now we support EMAIL/FTP/HTTP/HTTPS/SD Card.



2. Test connection:

User can press the button to test whether this server is accessible by these settings. Camera will try to send a plain text file to the server.

Report – Report Push

Edit a report push server

Data

1 VCA
Counting & FlowPath Counting

2 Format
XML

3 Push frequency
Every 1 hour

4 Aggregation frequency
Every 1 minute

Advanced settings

Device local time

*Represent start time, end time with ISO8601 format. Defaultly in UTC time

Lite mode

*Hide the date when people in/people out is zero

5 Camera status flag

*Show camera status flag in the report

6 Rule ID

*Show rule ID in the report

Save Cancel

1. VCA: Select Report type
2. Format: XML/CSV/JSON
3. Push Frequency:
Set the time interval between two report delivery.
Ex: 1 minute, 1 hour or 1 DI cycle.
4. Aggregation frequency:
Set how much time does a record representing.
Ex: 1 minute, 5 minutes or 1 DI cycle.
5. Camera status flag:

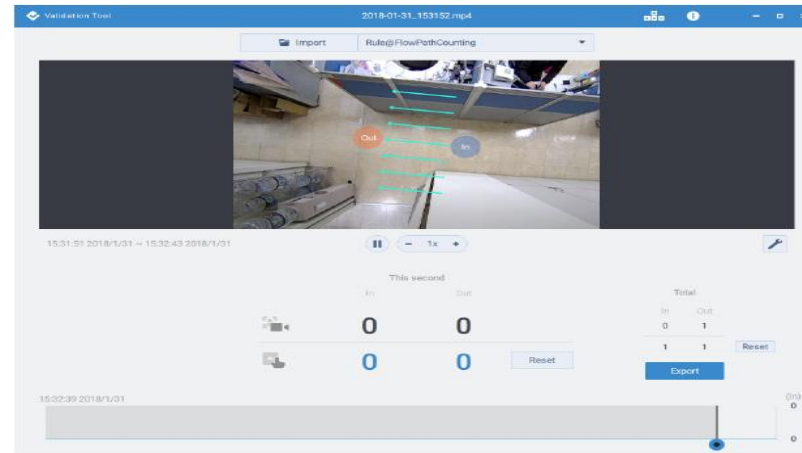
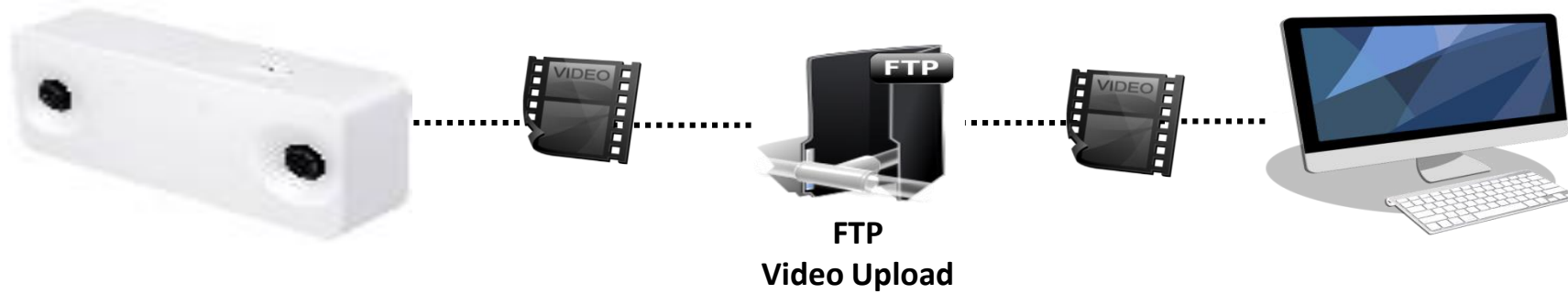
ID	Name
0	Normal
1	Resent
2	Tampering
3	Tampering & Resent
4	Power off
5	Power off & Resent
6	Power off & Tampering
7	Power off & tampering & Resent

6. Rule ID: An integer as the unique key for each rule.

1. View report via camera web UI.
2. Export the report via CGI.
3. Set up a report push.

Validator & Deice Center





Report as .csv File

**Validation Tools
(Import the Video clip)**

Validator – Camera Setting

Installation

Stitch camera

Push server

Validation

Protection

DI and DO

Export and restore

Resolution

Low resolution

- High resolution
- Low resolution
- Side by side

High resolution: Better video quality.
Low resolution: Less impact on network bandwidth.
Side by Side: Data for algorithm improvement.

Schedule type

- Time-based
- Digital input-based

Video will be always recorded in the time period.
Video will be recorded only when the DI is ON (ex: Door is opened.)

Storage settings

SD card cyclic storage

One time schedule +

The job will only be performed once.

Name	Time	Server	Server folder name
------	------	--------	--------------------

Repeated schedule +

The job will be performed every week.

Name	Time	Server	Server folder name
------	------	--------	--------------------

Validator – User Interface

Validation Tool 2018-01-31_153152.mp4

Import Rule@FlowPathCounting Select the target rule.

Display options

15:31:51 2018/1/31 ~ 15:32:43 2018/1/31

Accumulated counting result.

This second		
	In	Out
	0	0
	0	0

Reset

Total		
	In	Out
	0	1
	1	1

Export

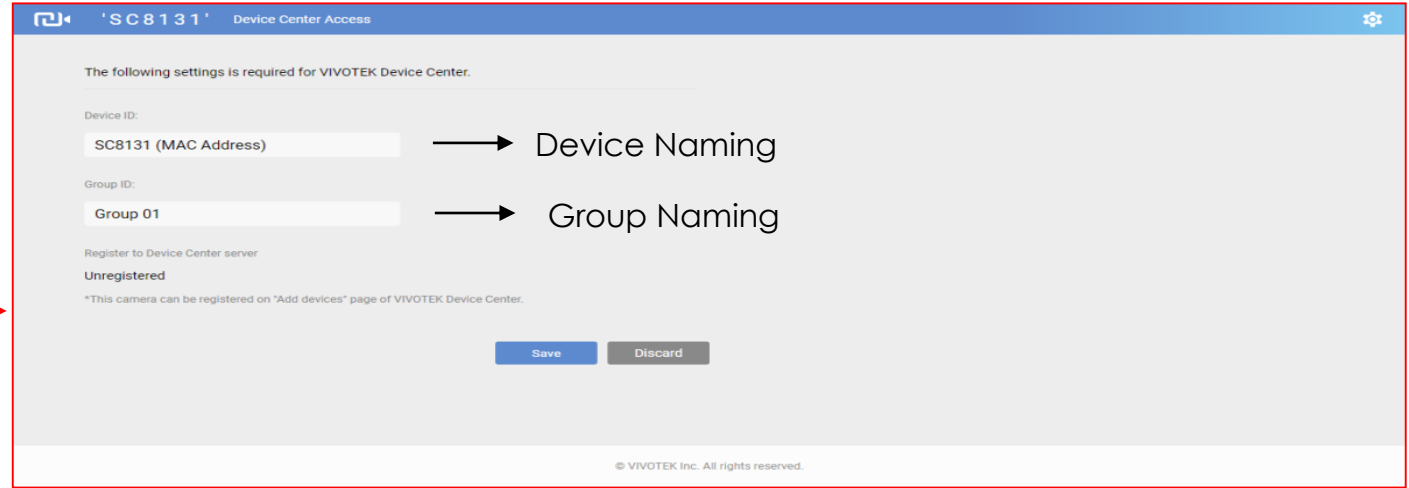
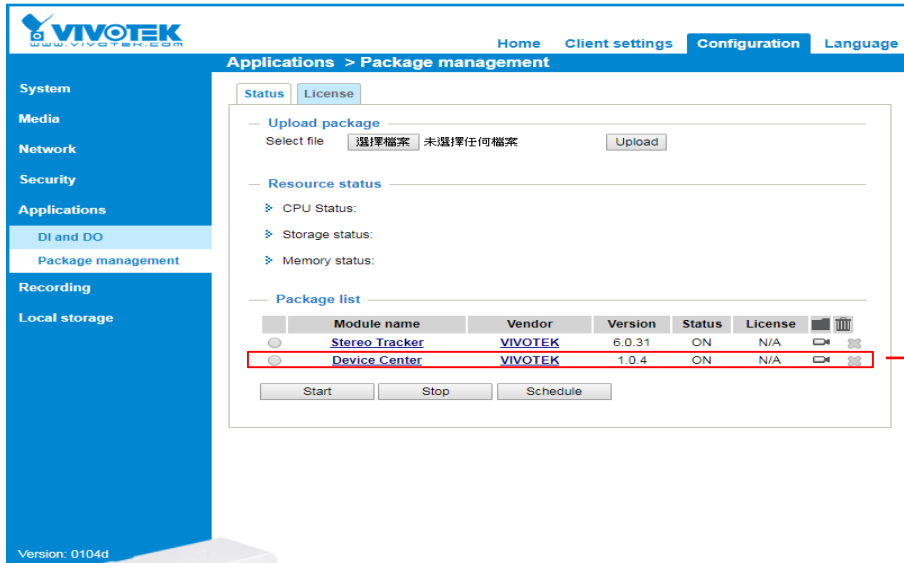
Export the result.

15:32:39 2018/1/31

Concurrent counting result.
(1 second)

Validator – Output Report

Current Time	Camera In	Camera Out	Manual In	Manual Out
2020-10-23T17:21:03	0	0	0	1
2020-10-23T17:21:05	0	0	1	0
2020-10-23T17:21:07	1	0	1	0
2020-10-23T17:21:08	0	0	1	0
2020-10-23T17:21:09	1	0	0	0
2020-10-23T17:21:10	1	0	1	0
2020-10-23T17:21:11	0	0	1	0
2020-10-23T17:21:12	1	0	0	0
2020-10-23T17:21:13	0	0	1	0
2020-10-23T17:21:14	1	0	0	0
2020-10-23T17:41:42	0	0	0	1
2020-10-23T17:41:45	0	2	0	1
2020-10-23T17:54:43	0	0	1	0
2020-10-23T17:54:44	1	0	0	0
2020-10-23T18:13:14	1	0	1	0
2020-10-23T18:13:16	1	0	1	0
2020-10-23T18:58:41	1	0	1	0
2020-10-23T18:58:42	1	0	1	0
2020-10-23T19:07:56	0	0	1	0
2020-10-23T19:07:57	1	0	0	0
2020-10-23T19:07:59	1	0	1	0
2020-10-23T19:08:00	1	0	0	0
2020-10-23T19:08:01	0	0	1	0
Total	13	2	14	3
Camera Accuracy Rate				88.24%



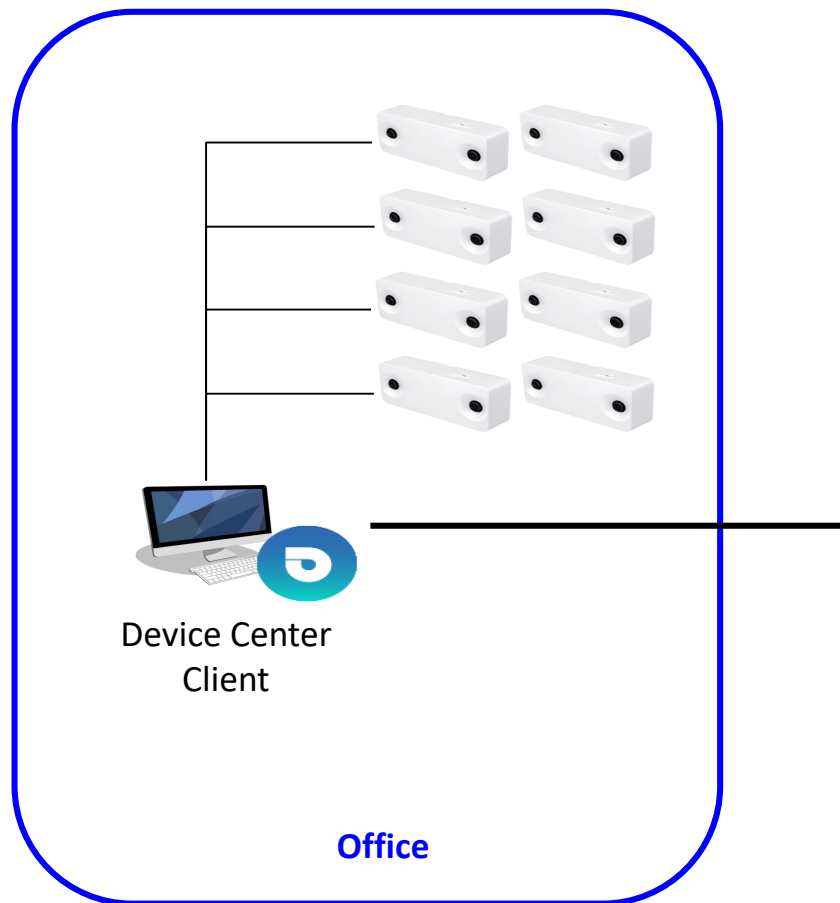
● Device Center VADP Package

The camera must be installed the VADP package then Device Center ability connect to the camera

The VADP package default will create the Device ID (By MAC Address) and Group ID (Fixed Name)

These IDs is for user naming, memory and management. It can only modify on camera site.

Device Center



Store A



Store B



Store C

- **Add Device**

Must install the Device Center Client in the camera site to add the camera to Device Center Server
Device Center Client can easy add the single and multiple devices

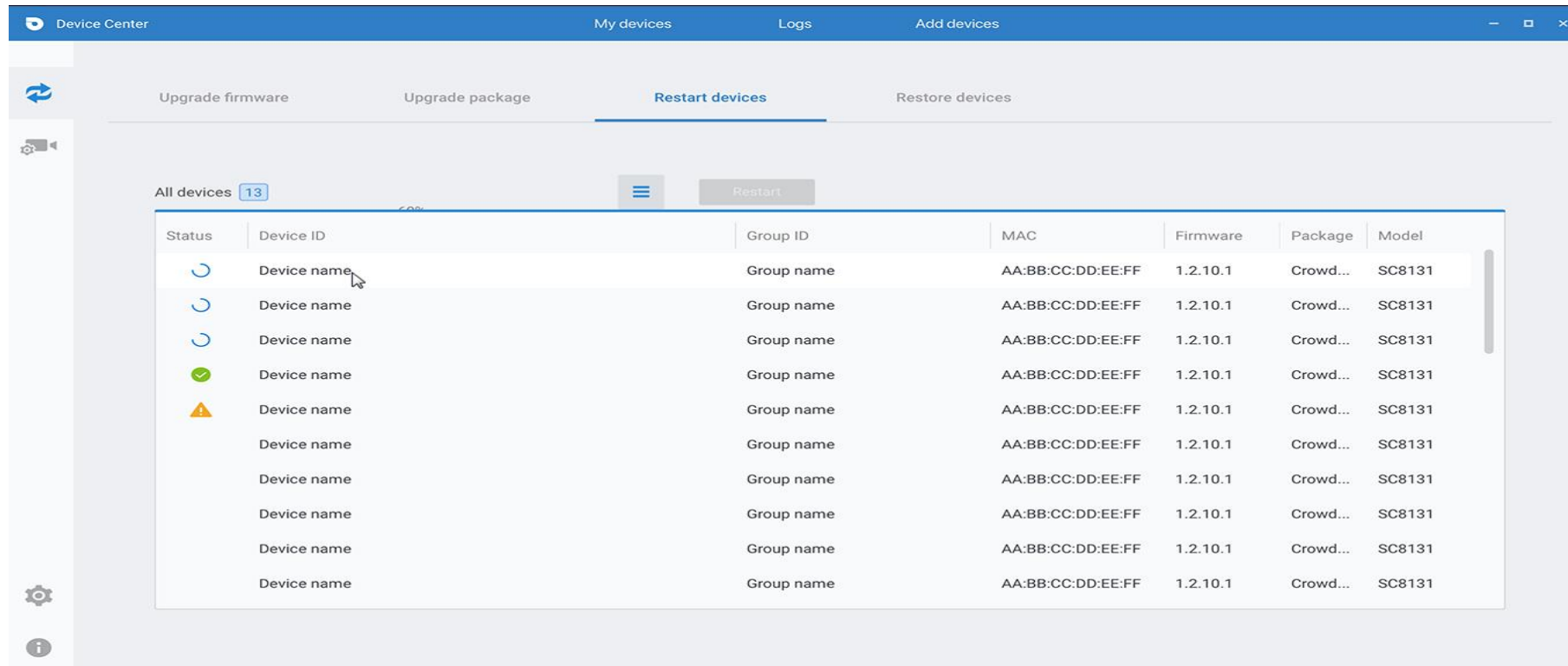
The screenshot displays the VIVOTEK Device Center interface. At the top, there are tabs for 'My devices', 'Logs', and 'Add devices'. Below this, a navigation bar shows 'ALL 78', 'ERROR 8', and 'OFFLINE 7'. The main area features a hierarchical tree structure on the left, with folders for 'Client A (234)', 'Client B (76)', and 'Client C (35)'. Under 'Client A', there are sub-folders for 'New York City (88)', '1234567890123456789012345678901234...(141)', and 'San Francisco (2)'. The 'San Francisco' folder is expanded to show a list of devices. A table below the tree lists device details:

Device ID	Group ID	MAC
City A-1	Group name	AA:BB:CC:DD:EE:FF
City A-2	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF
Device name	Group name	AA:BB:CC:DD:EE:FF

Each device entry includes a status icon (green for online, orange for error, grey for offline), a group name, a MAC address, an IP address (1.2.10.1), a list of capabilities (e.g., 'Crowd detection 5.1.1, ...'), and a device ID (SC8131). A tooltip is visible over one of the device entries, listing capabilities: 'Crowd detection 5.1.1', 'Heatmap 5.2.3', 'Smart motion 5.1.2', and 'Stereo tracker 5.1.0'. An inset window in the top right shows a live camera feed of a hallway with a 'FlowPathCounting' overlay and a 'Counting report' table. A physical camera device is shown in the foreground on the right.

● Device Management

Monitoring devices status via hierarchical structure. The hierarchical structure is like the logical tree design. User can create the folder to manage it. Double click the camera can open the camera webpage to set up directly.



● Devices Maintain

Support the feature of batch firmware upgrade, package upgrade, restore & restart.

1. Set up the one time validator job on camera.
2. Validate a video file.

