

Installation and Configuration Guide for 7series Queue Management

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Chapter 1 Product Introduction

	Appearance	Model	Accessories (Optional)	Application
Box Camera		iDS-2CD70X660-AP/(F11) (C)	Wall mount: 302700585 DS-1292ZJ Pendant mount: 302701248 DS-1299ZJ	Indoor camera that are not waterproof Lens needs to be purchased separately
Box with Housing		iDS-2CD70X660/E-IHSY/(F11) (C)	Wall mount: 302702937 DS-1293ZJ-Y Horizontal Pole Mount: 302703076 DS-1214ZJ-L-Y2	Outdoor camera 3.8-16mm and 11-40mm focal length are selectable
Bullet Camera		iDS-2CD7AX660-IZHS(Y) (C) iDS-2CD7AX760-XZHS(Y)	Corner Mount: 302701861 DS-1476ZJ-SUS Vertical Pole Mount: 302701860 DS-1475ZJ-SUS	7AX6: Outdoor camera that support Motorized Variable focal Lens 2.8-12mm and 8-32mm focal length are selectable 7AX7: Outdoor camera that support Motorized Variable focal Lens, Focal length : 2.8-12mm Support IR and white lite hybrid illuminate
Dome Camera		iDS-2CD71X660-IZHS(Y) (D)	Pendant Mount: 302700357 DS-1271ZJ-160	Indoor Dome Camera that support Waterproof and Motorized Variable focal Lens. 2.8-12mm and 8-32mm focal length are selectable
PTRZ Dome Camera		iDS-2CD75X760-XZHS(Y)	Wall mount: 302700353 DS-1273ZJ-160 Junction box: 302703390 DS-2280ZJ-WA160 Weather shield: 190228064	Indoor Dome Camera that support PTRZ Focal length : 2.8-12mm

Chapter 2 Camera Pre Installation

2.1 Measure Tools

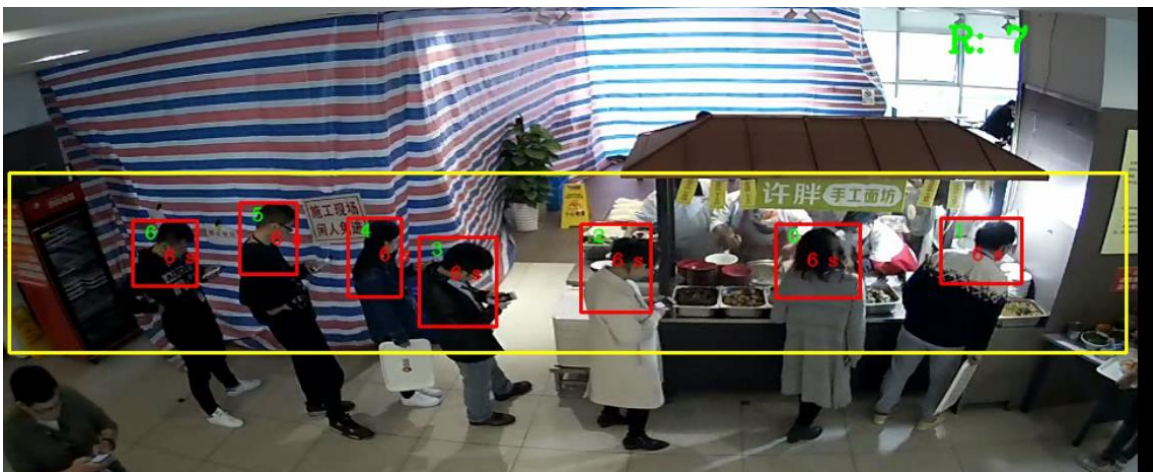
1. Range finder or steel tape measure: To measure installation height and depth.
2. Photographic equipment: To take photos of the environment.

2.2 Choosing Installation location

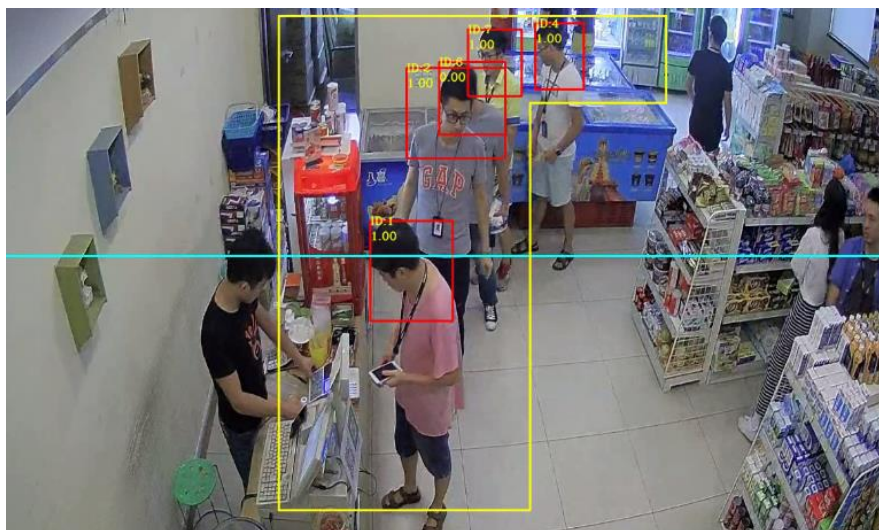
The detection accuracy of queue detection camera is greatly influenced by the camera installation position, site illumination (too dark or too bright) and other factors. In order to have a better effect, it's suggested to:

- 1) Install the camera in open area and try to avoid any obstacle which could be in front of it. Make sure the human head and shoulder are clearly to the camera.
- 2) Install the camera in a place with stable and plenty sunshine.
- 3) Install the camera with ceiling mounting style.
- 4) Do not install the camera in front of the queue otherwise the people in front/ back of each other may block themselves.
- 5) Make sure the detected head and shoulder are **64** pixels or higher.
- 6) Try to avoid any obstacle from the camera to the middle of the queue.

Example of standard scenario:



Example of unsuitable scenario:



Chapter 3 Installation specification

3.1 General Requirements

Different cameras, lens focal lengths and monitoring widths are key points for the different monitoring distance and installation. The conversion relation between them is as follows:

1) Installation height is H .

Assume A, B, C are the people in the left, middle and right, and the height of B is h .

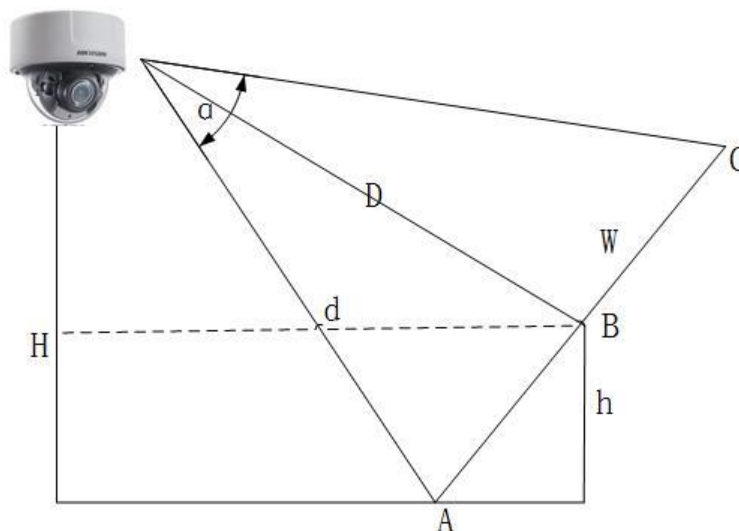
The horizontal distance from camera to B is d .

2) The horizontal FOV of camera is α

3) The distance from camera to B is D , $D = \sqrt{(H - h)^2 + d^2}$

4) The monitored queue width is W (which is from A to C), $W = 2D \times \tan(\alpha / 2)$

Note: this equation is for single queue. For multi queue situations, it's suggested to leave more than 0.7m between each line to prevent people from blocking each other. Meanwhile, make sure the detected head and shoulder are 64 pixels or higher for the farthest detected people.



3.2 Installation Position and Lens Query Table

For 7 series face capture camera:

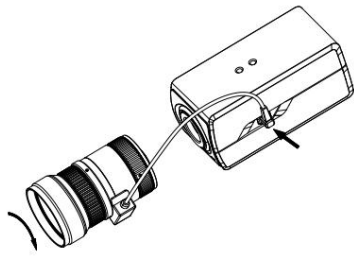
Lens (mm)	Camera Height (m)	Min Monitoring Distance (m)	Max Monitoring Distance (m)	Min Monitoring Width (m)	Max Monitoring Width (m)
2.8mm	2.5	0.169	2.3	2.7	6.3
	3	0.274	3.7	3.3	8.8
	3.5	0.87	4	4.31	8.94
	4	0.88	5.2	5.08	12.34
	4.5	0.88	6.33	6.25	11.64
	5	1.12	7.58	7.49	11.27
	5.5	1.18	8.58	8.46	6.84
	6	1.56	8.76	10.01	5.97
3.8mm	5.85	0.97	4	4.46	6.7
8mm	6	5.34	8.4	4.87	7.3
12mm	4.68	3.54	5.6	3.2	4.8

3.3 Installation Steps

3.3.1 Box Camera

1. Lens Installation

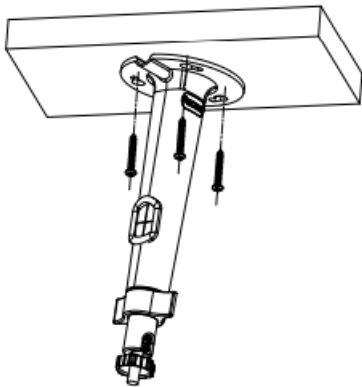
- 1) Remove the lens protection cover on the camera.
- 2) Align the lens with the camera lens mounting interface, rotate the lens clockwise, and put it firmly in place.
- 3) Plug the cable of the lens into the connector on the side of the camera body.



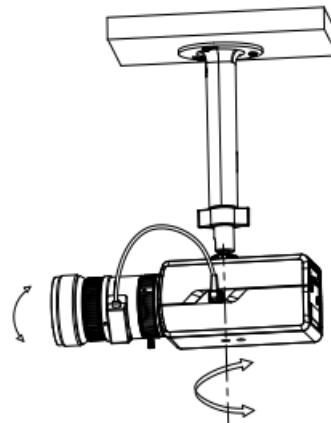
4) If it is varifocal lens, rotate the FAR/NEAR to adjust the focal, rotate TELE/WIDE to focus.



2. Pendant Mounting

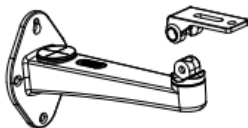


1



2

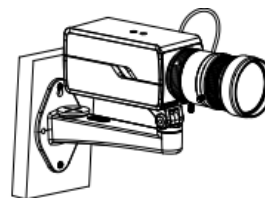
3. Wall Mounting



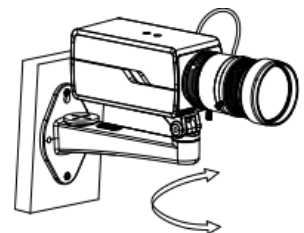
1



2



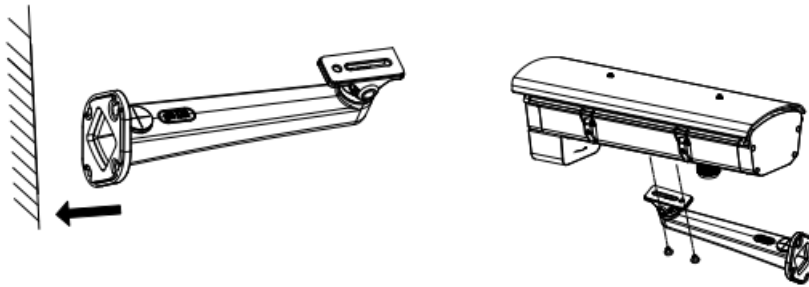
3



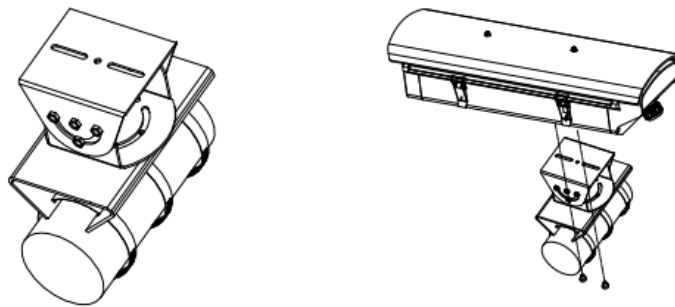
4

3.3.2 Box Camera with Housing

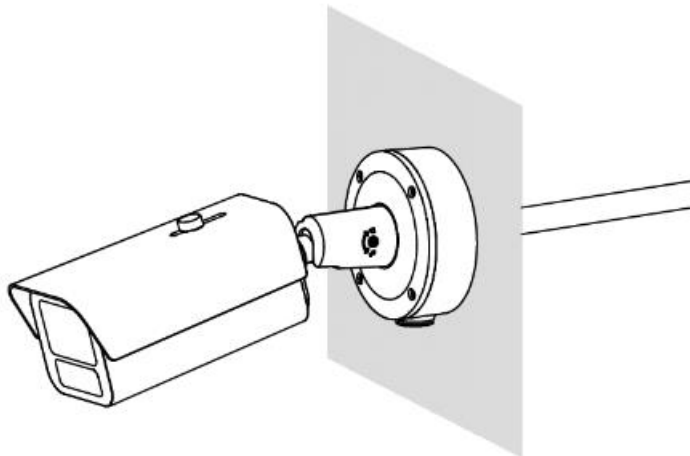
1. Wall Mounting



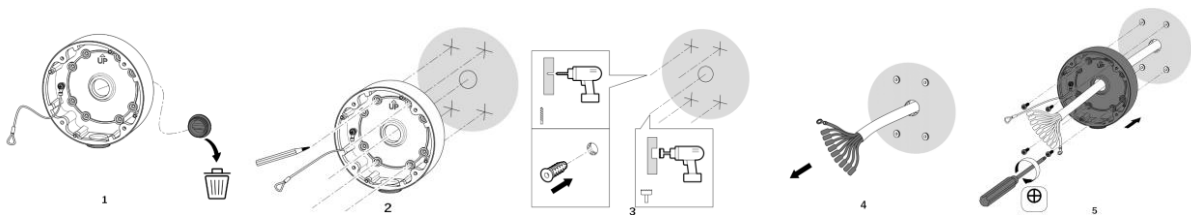
2. Horizontal Pole Mounting



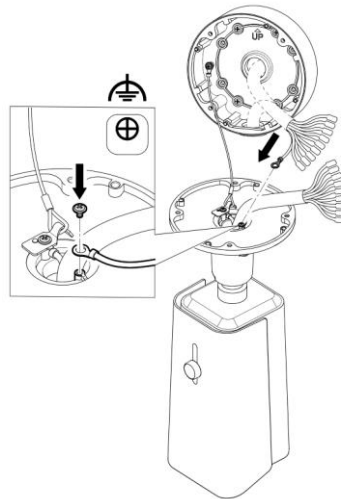
3.3.3 Bullet Camera



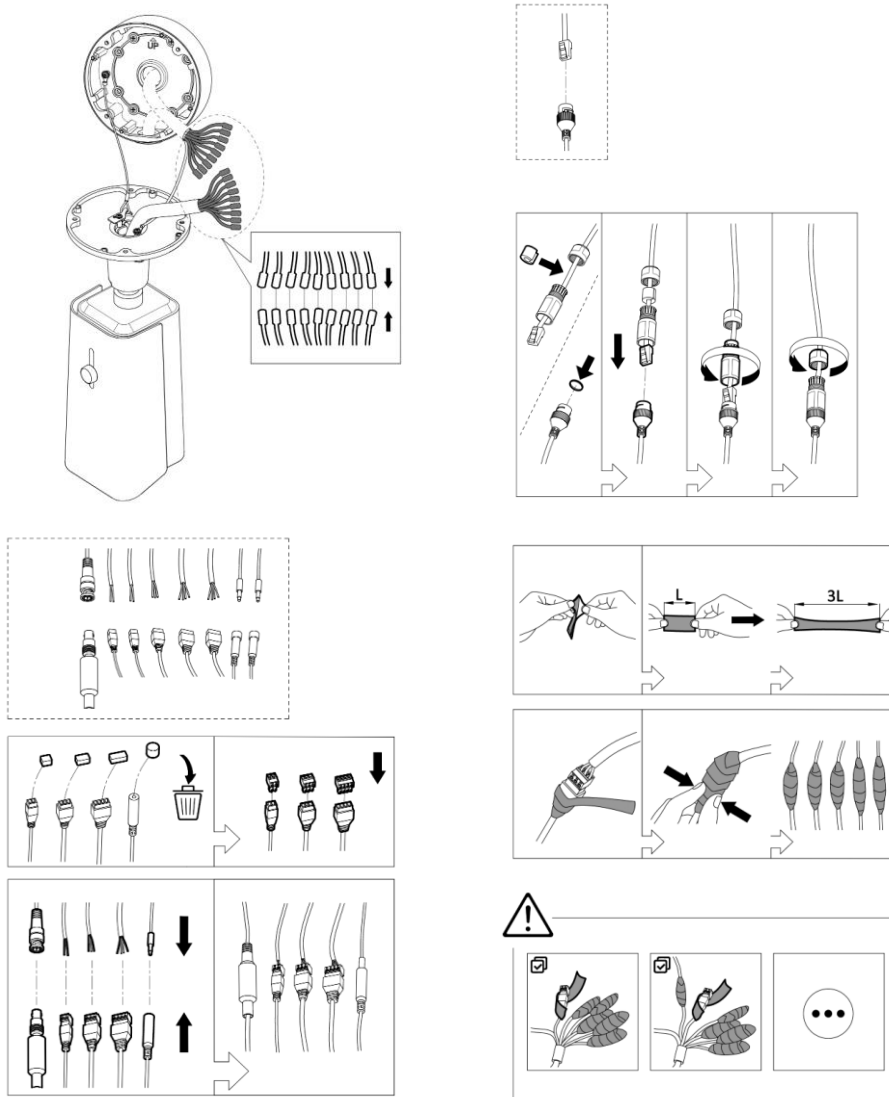
1. Install the junction box.



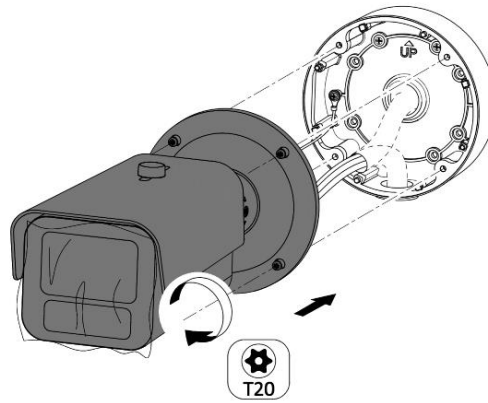
2. Connect safety rope.



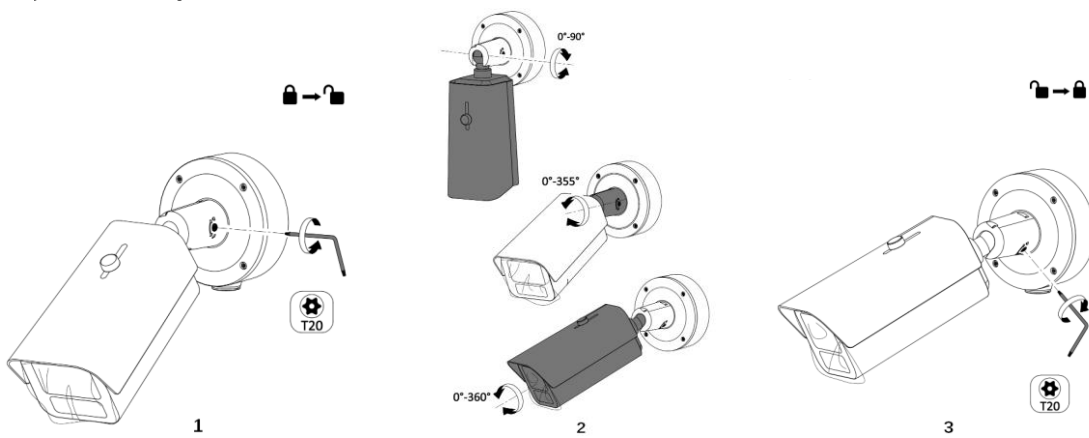
3. Connect cables. Install waterproof jack to network cable, wrap waterproof tape around other interfaces.



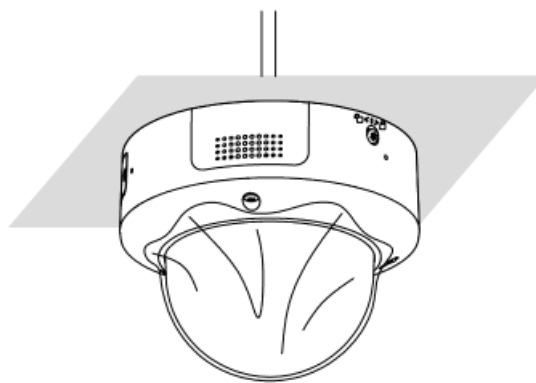
4. Install camera to junction box.



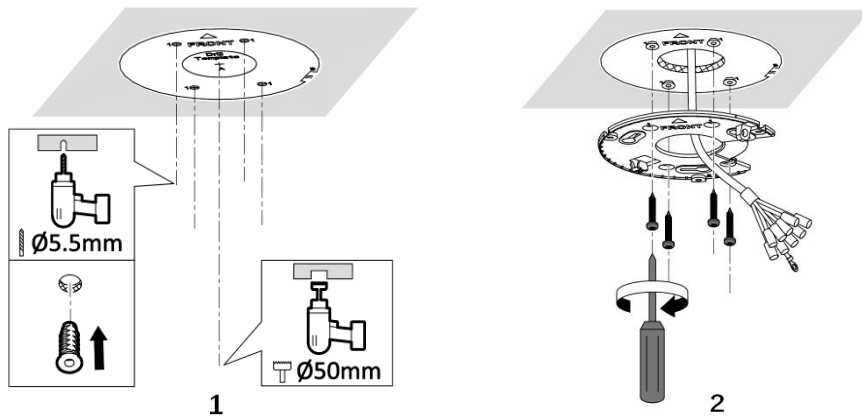
5. Adjust the angle.



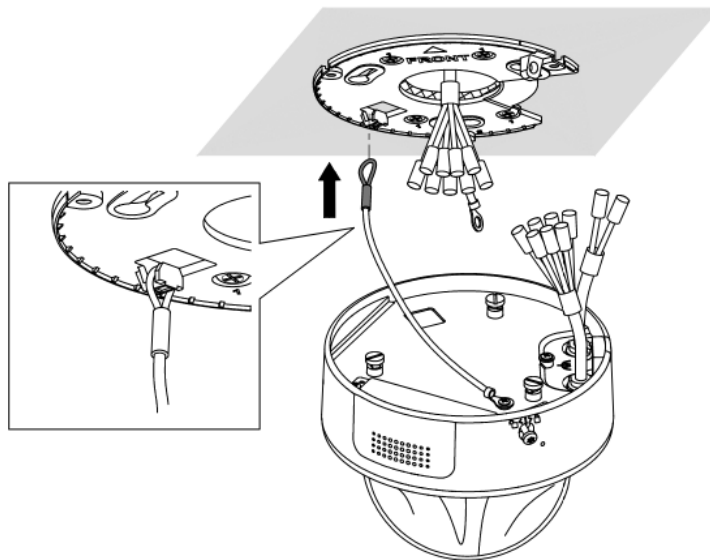
3.3.4 Dome Camera



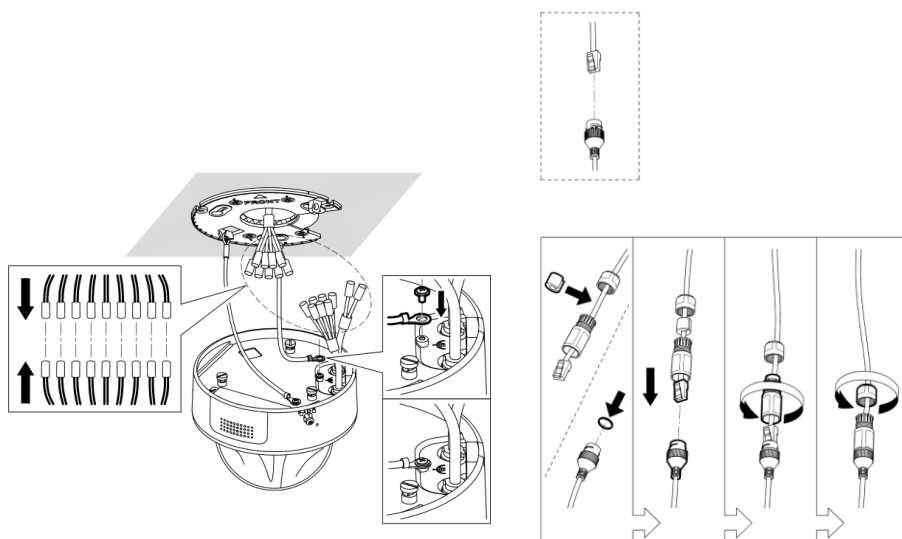
1. Mounting adapter

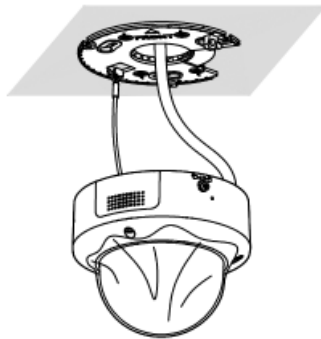
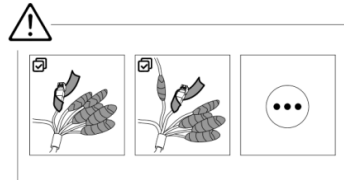
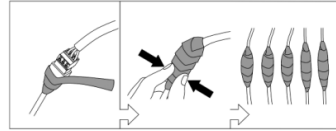
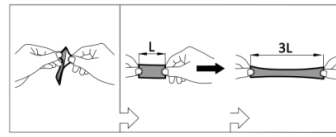
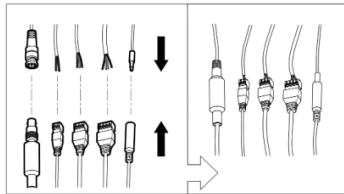
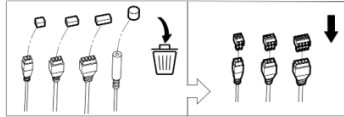
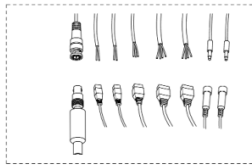


2. Connect safety rope.

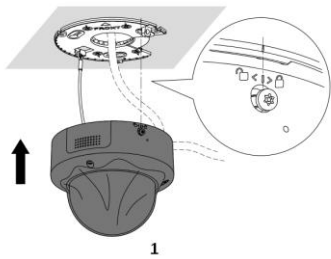


3. Connect cables. Install waterproof jack to network cable, wrap waterproof tape around other interfaces.

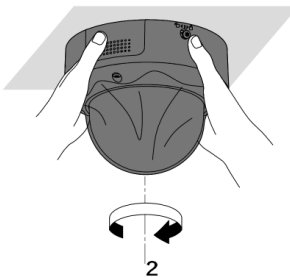




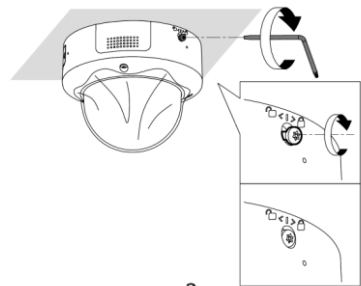
4. Install camera to adapter.



1

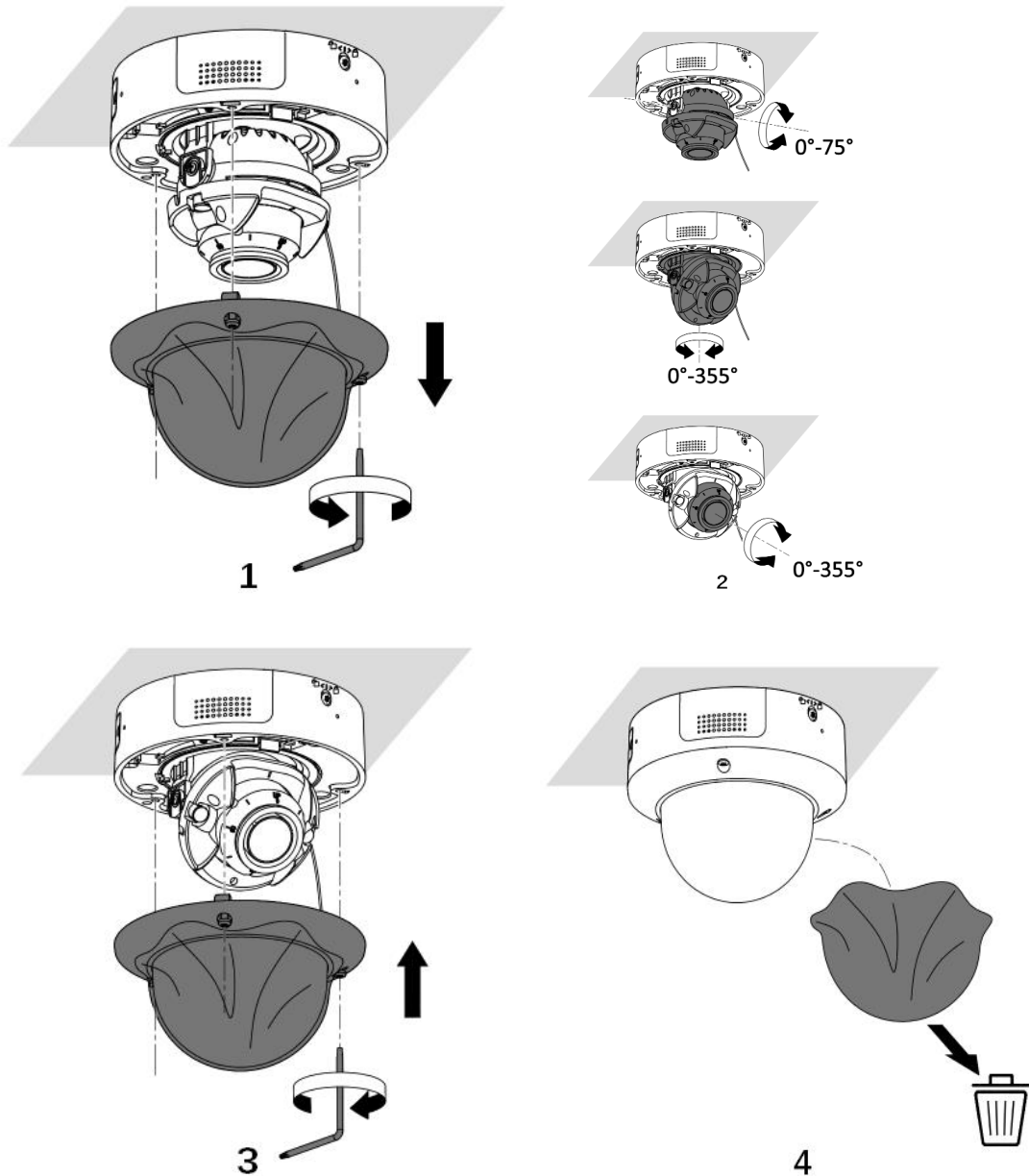


2



3

5. Adjust the lens angle.



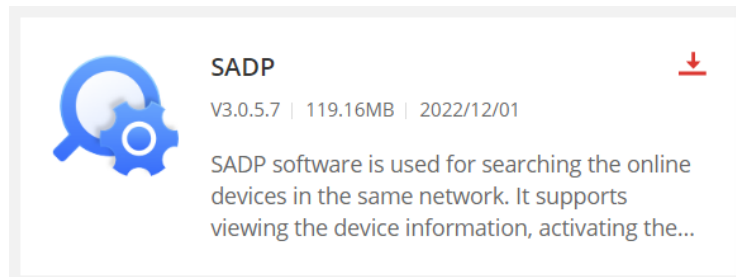
3.4 Checklist

1. Camera works properly after power on.
2. The tail line of the device shall be waterproofed according to the requirements.
3. The elevation Angle and horizontal Angle of camera are within the standard range.

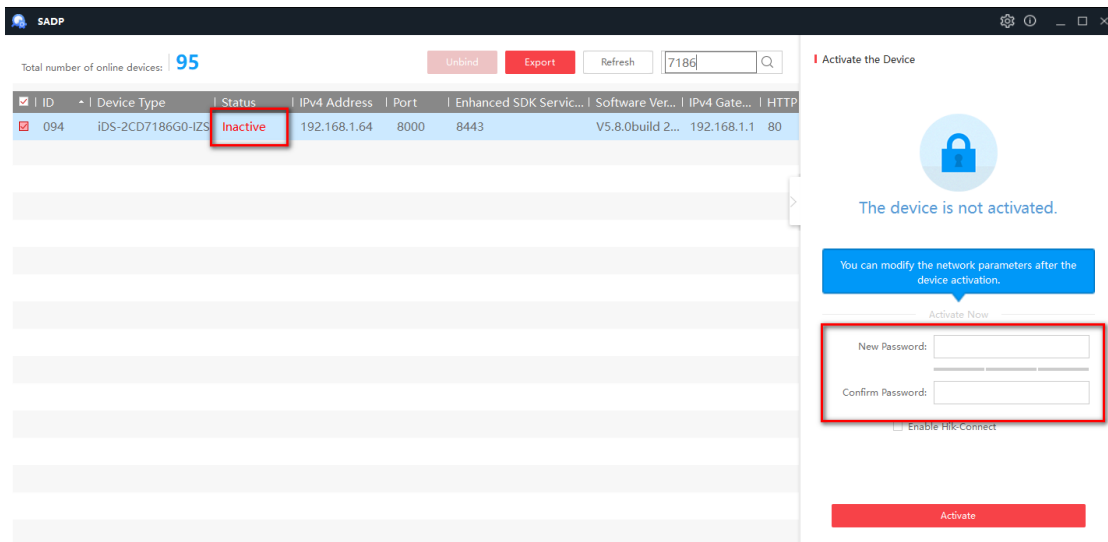
Chapter 4 Camera Configuration

4.1 Camera Activation and accessing

1. Access <https://www.hikvision.com/en/support/tools/hitools/> to download and install SADP software.

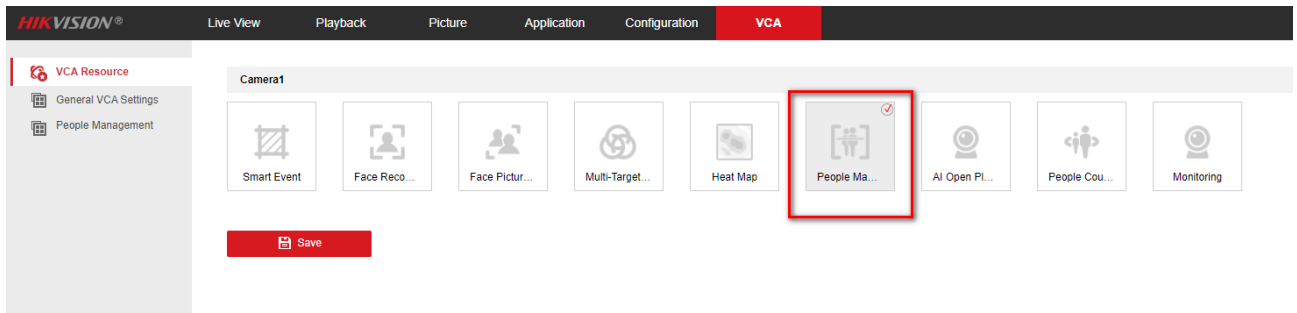


2. Connect the camera to the same network as computer using the network cable.
3. Run SADP software to search the camera.
4. Check Device Status from the device list, and select **Inactive** device.
5. Create and enter the new password in the password field, and confirm the password.



4.2 Switch VCA Resource

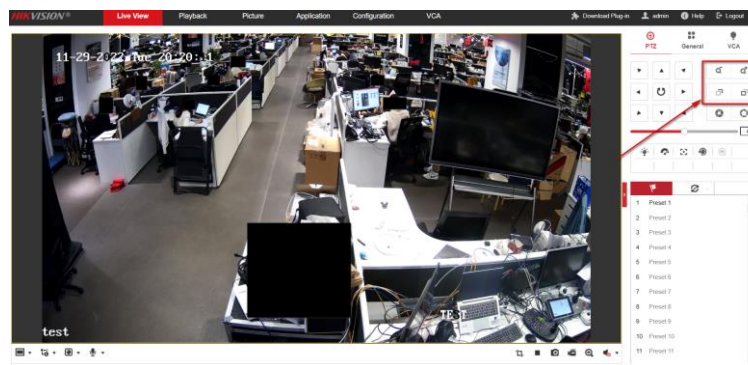
Enter [VCA]-[VCA Resource], select the VCA Resource to People Management, Then Click "Save", switch the to people management mode.



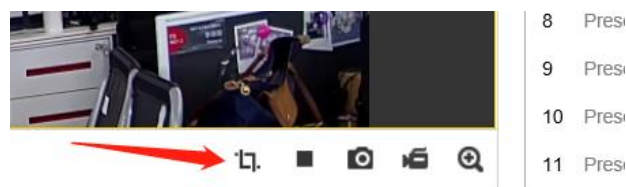
4.3 Adjust Camera Image

7 series except the box camera supports Motorized Variable focal Lens, we can zoom and focus on camera web interface.

1. Enter Live View page, click zoom + and zoom - on PTZ control interface, to ensure that can see the whole body (from head to toe) and their movements path in the video, the target head shoulder size shall not be less than 64×64 pixels.



2. The pixel value of target height can be measured through the pixel calculator in the web interface.



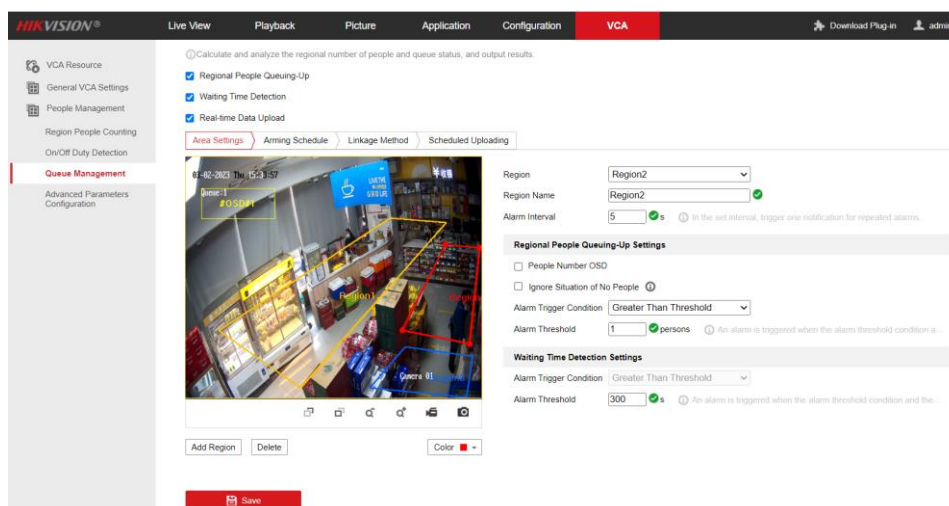


4.4 Rule Configuration

1. Enter [VCA]- [People Management] -[Queue Management] interface, check the checkbox of Regional People Queuing-Up, Waiting Time Detection or Real-time Data Upload according to your need.

Note: Enable Real-Time Data Upload and the queue management data will be uploaded in real-time

2. Click Add Region and draw detection area on live image. You can draw one or more detection regions (decagon is supported for one single region & at most 8 regions are supported). The colors you can select are yellow, red and blue.



3. Set the region name, set the alarm interval.

Alarm Interval: It's set to avoid multiple repeated alarm. For instance, if this value is set to 300s, the second alarm will not be triggered unless it's 300s or longer after the first alarm.

Region ▼

Region Name ✓

Alarm Interval ✓ s ⓘ In the set interval, trigger one notification for repeated alarms.

4. **Regional People Queuing-Up Settings:** Enable Regional People Queuing-Up before settings.

- 1) People Number OSD: It displays people number in the live view window.
- 2) Ignore Situation of No People: The device will not trigger an alarm when there is no people in the scene. This function can filter the potential alarm condition under which the value is less than the set alarm threshold and no people is in the scene.
- 3) Set Alarm Triggering Condition and Alarm Threshold. When the people number in the set region reaches alarm threshold and triggering condition, an alarm will be triggered.
Alarm Threshold: Alarm will be triggered when the people in the detection region is equal to or higher than the set value.

Regional People Queuing-Up Settings

People Number OSD

Ignore Situation of No People ⓘ

Alarm Trigger Condition ▼

Alarm Threshold ✓ persons ⓘ An alarm is triggered when the alarm threshold condition a...

5. **Waiting Time Detection:** Set Alarm Trigger Condition. When the waiting time of the people in the set region meet the alarm triggering condition and is longer than the threshold, an alarm will be triggered.

Waiting Time Detection Settings

Alarm Trigger Condition ▼

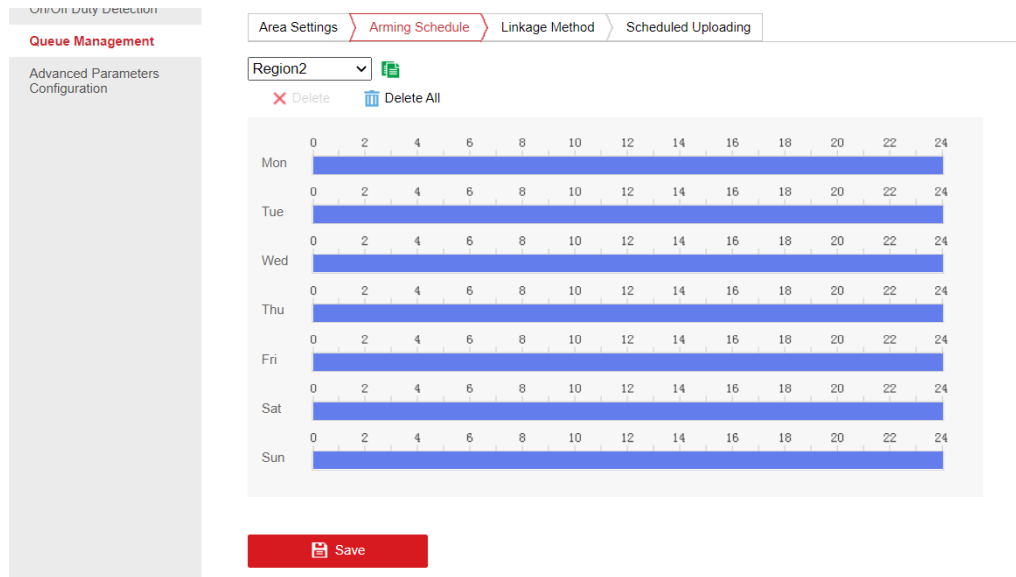
Alarm Threshold ✓ s ⓘ An alarm is triggered when the alarm threshold condition and the...

6. Enter [Alarm Schedule] interface to set arming schedule. Default arming schedule is 7 × 24 hours, you can configure according to the actual requirements.

- 1) Select Region number.
- 2) Click on the time bar and drag the mouse to select the time period. Click **Delete** or **Delete All** to delete the configured schedule.

- 3) Move the mouse to the end of each day, a copy dialogue box pops up, and you can copy the current settings to other days.

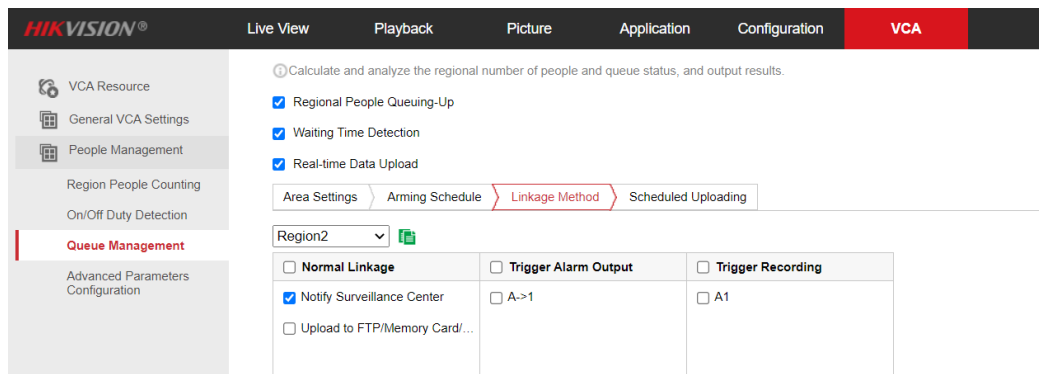
Note: The time of each period can't overlap. Up to 8 periods can be configured for each day.



7. Enter [Linkage Method] interface to set linkage method. Notify surveillance center, upload to FTP/Memory Card/NAS and trigger alarm output are selectable. You can specify the linkage method when an event occurs.

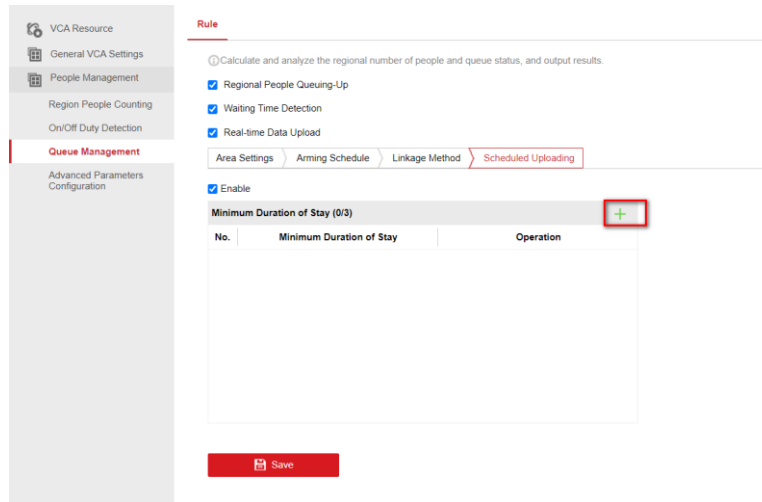
- 1) **Notify Surveillance Center:** Send an exception or alarm signal to remote management software when an event occurs.
- 2) **Upload to FTP/Memory Card/NAS:** Capture the image when an alarm is triggered and upload the picture to a FTP server, local memory card, or network attached storage (NAS).
- 3) **Trigger Alarm Output:** Trigger one or more external alarm outputs when an event occurs.

Note: Go to Configuration > Event > Basic Event > Alarm Output > Alarm Schedule page, set the arming schedule of the alarm output.



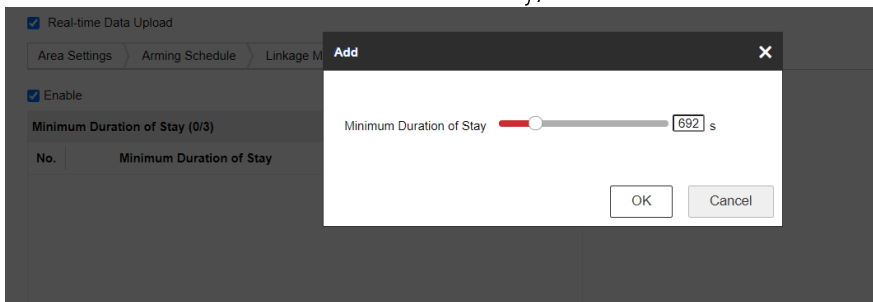
8. **Scheduled Uploading**

If scheduled upload is enabled, the total number of people whose waiting time is greater than the Minimum Duration of Stay every hour of all regions will be uploaded.



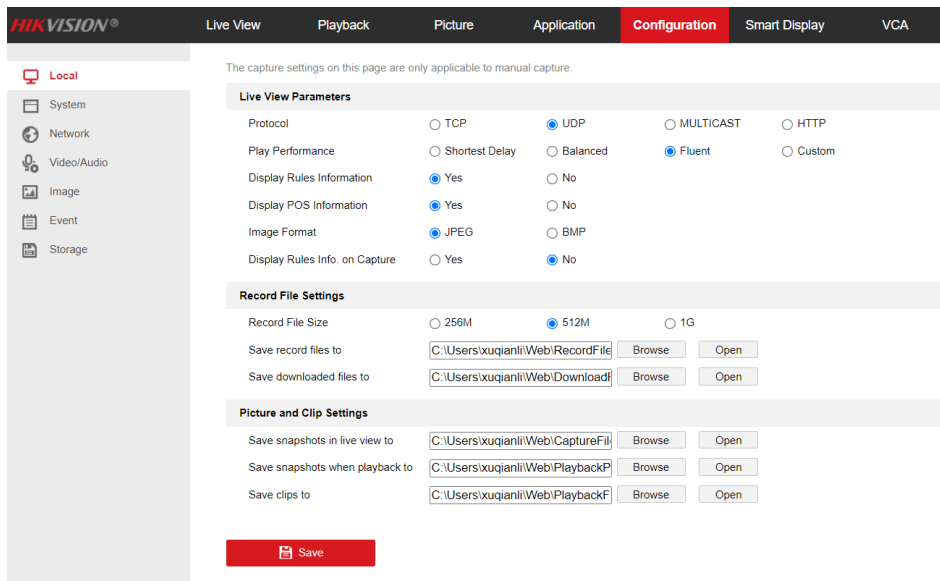
- 1) Scheduled uploading is disable in default.
- 2) Support shortest dwell time configuration, you can choose to configure 1-3 values.

Click **+** to set Minimum Duration of Stay, 1-3600s can be set.

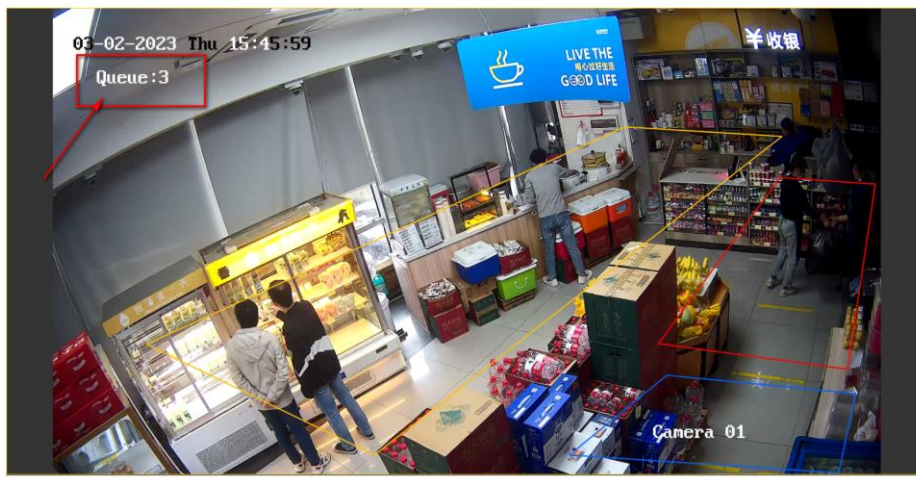


4.5 Queue Management Function Demonstration

Enter [configuration]-[local], set the [play performance] as fluent, Enable [Rules]. Then Click "Save" when finishing the configuration, as shown in the below picture. Then you will find face capture detect region displayed on live view image.



1. We can get real time persons' number of each region from OSD information.



2. Queue Statistics from web

Queuing-Up Time Analysis calculates people number of different waiting time level. Regional comparison and multiple waiting time level comparison are supported.

Steps:

1) Select **Statistic Type**.

Regional Comparison: Compares queuing-up people number of different regions.

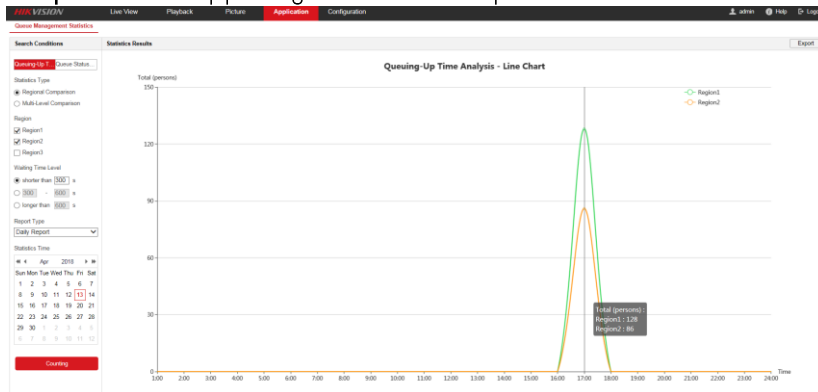
- Check one or more regions.
- Set waiting time level. Check desired time range radio button and input value.

For example, if you want to see the people number who wait longer than 10 minutes, check the third radio button and input 600 in correspondent text field.

Multi-Level Comparison: Compares queuing-up people number of different waiting time levels.

- c. Check one or more regions.
- d. Set waiting time level. Check one or more desired time range checkboxes and input values.
For example, if you want to compare the people number who wait longer than 10 minutes and who wait shorter than 3 minutes, check the first and the third radio button and input 600 and 180 in correspondent text field.

- 2) Select **Report Type**. Daily report, weekly report, and monthly report are supported.
- 3) Select **Statistics Time**.
- 4) Click **Counting** to generate report.
- 5) [Optional] Click **Export** in the upper right corner to export data in desired format.



	00:00-01:00	01:00-02:00	02:00-03:00	03:00-04:00	04:00-05:00	05:00-06:00	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00
Camera_L_Q1_Region 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	0
Camera_L_Q1_Region 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	0

Regional Comparison of Queuing-Up Time Analysis example



Multi-level comparison of Queuing-Up Time Analysis example

Queue Status Analysis calculates the time and duration that a queue stays a certain length. Regional comparison and multiple queue length level comparison are supported.

Steps:

- 1) Select **Statistic Type**.

Regional Comparison: Compares the time and duration that a queue stays at a certain length in different regions.

- a. Check one or more regions.
- b. Set queue length level.

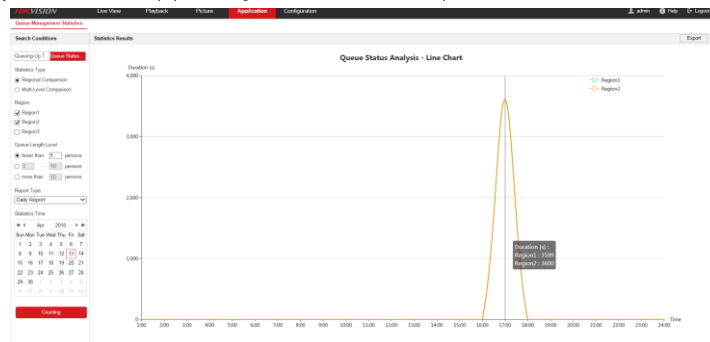
Queue length here means the people number in the region.

For example, if you want to see how long time the queue keeps more than 10 persons in a region, check the third radio button and input 10 in correspondent text field.

Multi-Level Comparison: Compares the time and duration of a queue at different queue length levels.

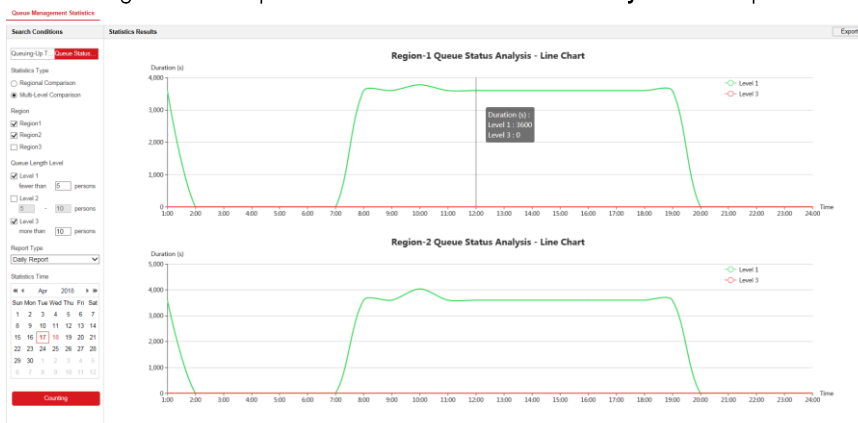
- c. Check one or more regions.
- d. Set the queue length level. Check one or more desired range checkboxes and input values.

- 2) Select **Report Type**. Daily report, weekly report, and monthly report are supported.
- 3) Select **Statistics Time**.
- 4) Click **Counting** to generate the report.
- 5) (Optional) Click **Export** in the upper right corner to export data in desired format.



	00:00-01:00	01:00-02:00	02:00-03:00	03:00-04:00	04:00-05:00	05:00-06:00	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	
Camera_Q1_Region 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3599	0
Camera_Q1_Region 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3600	0

Regional Comparison of Queue Status Analysis example



Multi-level comparison of Queue Status Analysis example