Network Camera User Manual

Manual Version: V3.05

Thank you for your purchase. If you have any questions, please do not hesitate to contact your dealer.

Safety Instructions

CAUTION!
The default password is intended only for your first login. For security, we strongly recommend you set a strong password of at least 9 characters comprising digits, letters, and special characters.

Be sure to read this manual carefully before use and strictly comply with this manual during operation.

The illustrations in this manual are for reference only and may vary depending on the version or model. The screenshots in this manual may have been customized to meet specific requirements and user preferences. As a result, some of the examples and functions featured may differ from those displayed on your monitor.

- This manual is intended for multiple product models, and the photos, illustrations, descriptions, etc., in this manual may be different from the actual appearances, functions, features, etc., of the product.
- The mouse operations described in this manual are right-handed operations.
- We reserve the right to change any information in this manual without any prior notice or indication.
- Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual. The ultimate right to interpretation resides in our company.
- Users are fully responsible for the damages and losses that arise due to improper operations.

Environmental Protection

This product has been designed to comply with the requirements regarding environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

Safety Symbols

The symbols in the following table may be found in this manual. Carefully follow the instructions indicated by the symbols to avoid hazardous situations and use the product properly.

Symbol	Description
WARNING!	Indicates a hazardous situation which, if not avoided, could result in bodily injury or death.
CAUTION!	Indicates a situation which, if not avoided, could result in damage, data loss or malfunction to product.
NOTE!	Indicates useful or supplemental information about the use of product.

Contents

1 Login

1.1 Preparation

Refer to the camera's quick guide to complete installation, and then connect the camera to power to start it up. You can log in to the camera's web interface to perform management or maintenance operations.

Windows 7, 8 or later is installed on the PC. The following takes Windows 7 as an example.

Check before login

- The camera runs normally.
- The PC has a network connection to the camera.
- You have permission to operate the PC.
- Google Chrome 105 or later is recommended on the PC.
- A 32-bit or 64-bit Web browser is required if you are using a 64-bit operating system. It is recommended to use a monitor with the highest resolution for better display.

NOTE!
Recommended PC configurations for 32MP live view: Intel® Core™ i7 8700 processor; GTX 1080 graphics card; DDR4 8GB or higher.

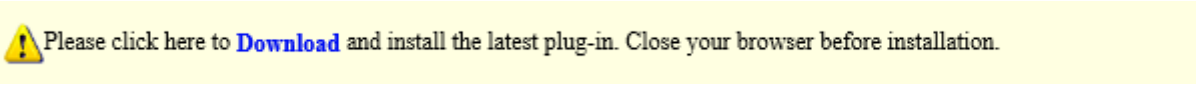
1.2 Login

The default static IP address of the camera is **192.168.1.13**, and the default subnet mask is **255.255.255.0**.

DHCP is enabled by default on the camera. If a DHCP server is deployed in the network, the camera may be assigned an IP address, and you need to use the assigned IP address to log in.

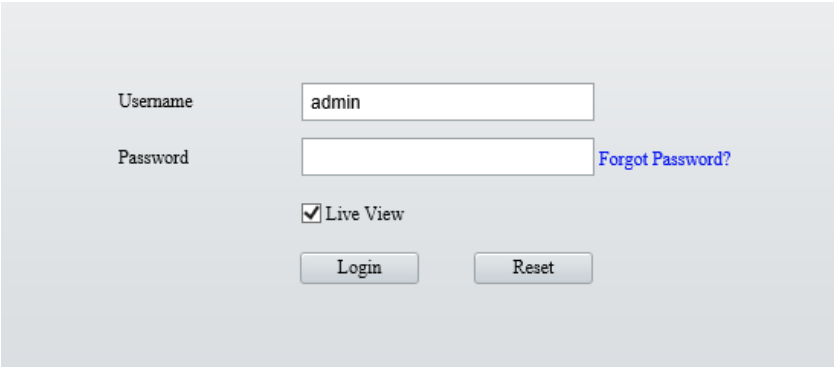
Follow the steps below to log in to the camera's web interface:

1. Open Chrome, enter the IP address of your camera in the address bar and press **Enter**.
2. At your first login, you need to follow the on-screen instructions to install a plug-in (close all browsers before installation), and then open the browser again to log in. To manually load the plug-in, type http://*IP address*/ActiveX/Setup.exe in the address bar and press **Enter**.

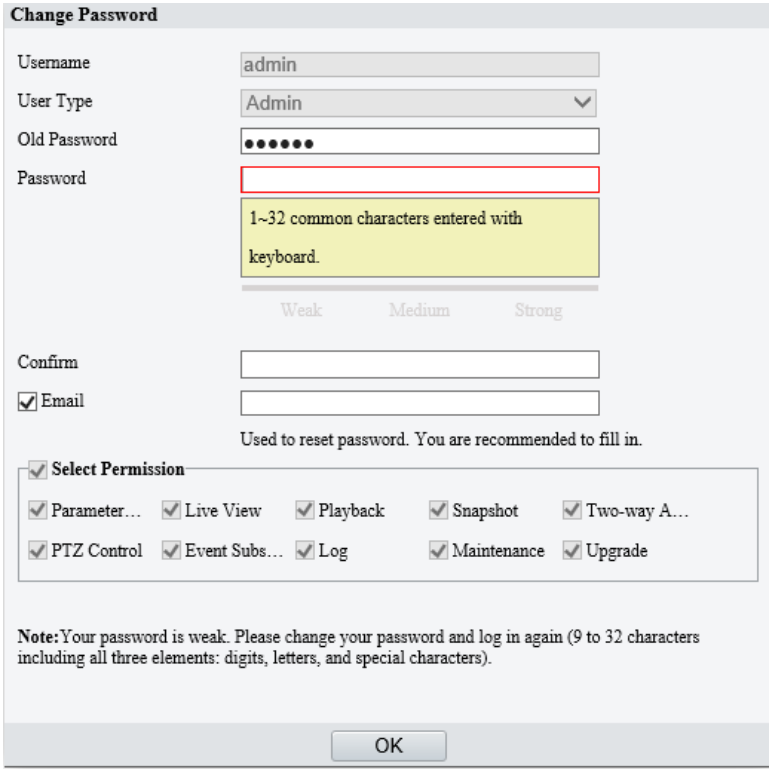


3. Set whether to start live view automatically after login.

- With **Live View** selected, live view will start automatically after login.
- With **Live View** not selected, you need to start live view manually.



4. Enter the username and password (**admin/123456** by default) and click **Login**. To clear the **Username** and **Password** text boxes, click **Reset**.
5. After first login, the **Change Password** dialog box appears, in which you must set a strong password and enter your email address in case of password retrieval.
   (1) Set a strong password of 9 to 32 characters including all three elements: digits, letters, and special characters.
   (2) Enter your email address in case of password retrieval.



See User for more information.

If you forgot your password, click **Forgot Password** in the login page, then follow the on-screen instructions to reset your password.

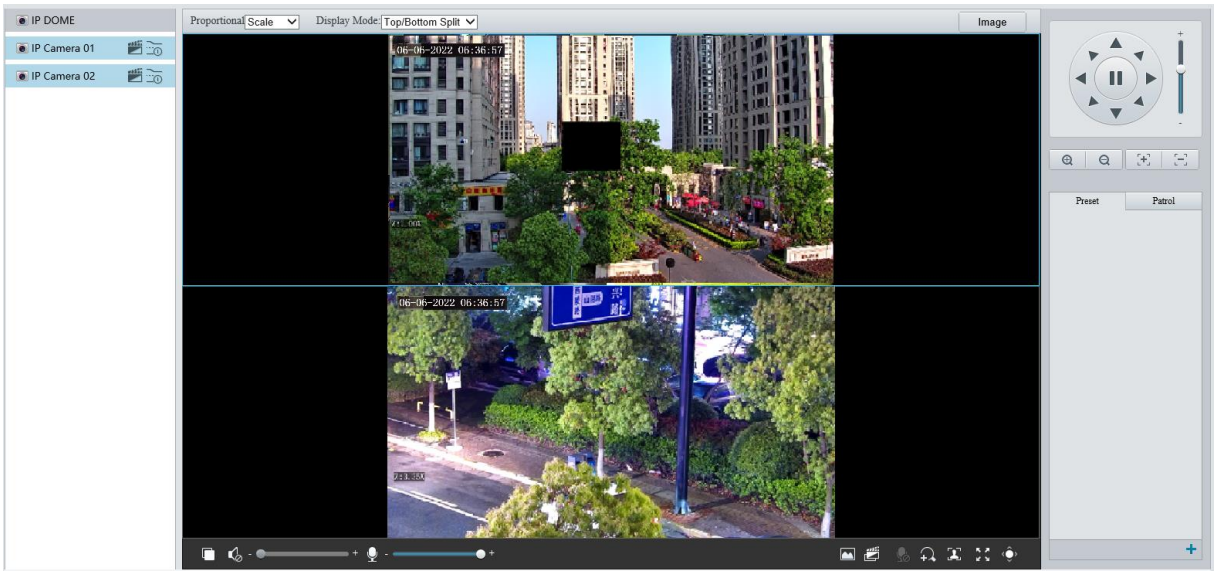
NOTE!
For certain devices, you may need to select the country/region and video standard and choose whether to enable the cloud service after your first login. Please refer to the actual interface.

2 Live View

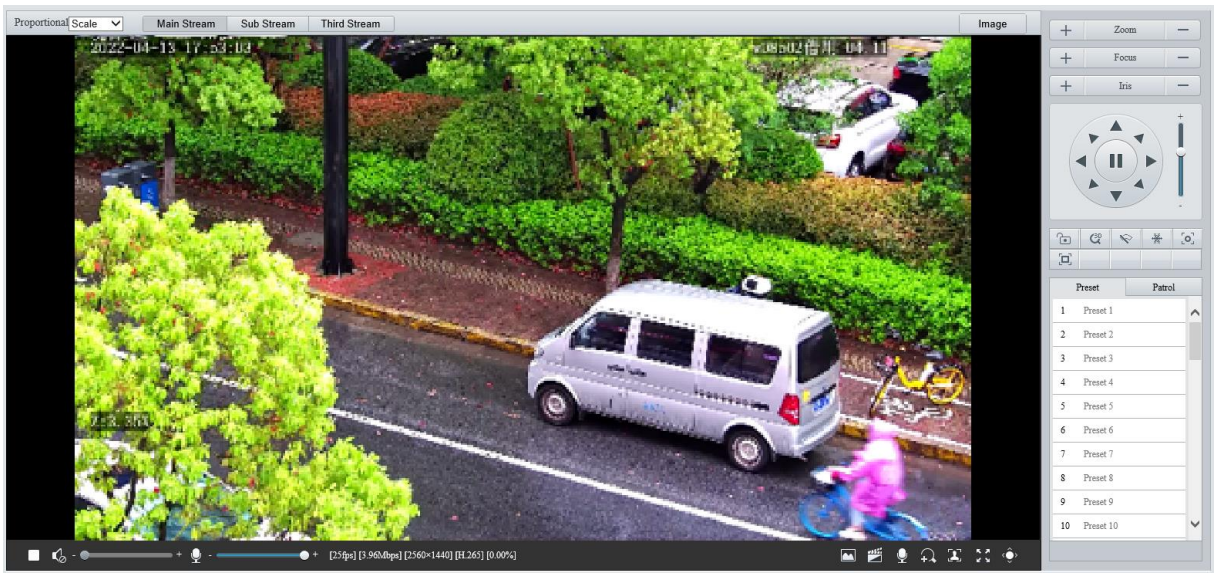
2.1 Live View

After login, the **Live View** page appears, showing the live video from the camera. You may double-click the window to enter or exit full screen mode.

Live view page of dual-channel camera

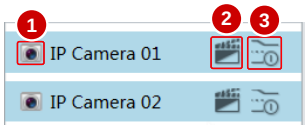
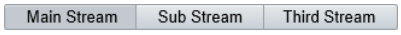


Live view page of single-channel camera



NOTE!
Live view operations supported may vary with device model.

Live View Toolbar

Item	Description
	Set the image display ratio in the window. • Scale: Displays 16:9 images. • Stretch: Displays images according to the window size (stretch images to fit the window). • Original: Displays images with original size.
	Set the image display mode in the window. • Single Channel: Displays live video of a single channel. • Left/Right Split: Displays live video in left/right split mode. • Top/Bottom Split: Displays live video in top/bottom split mode. • Picture in Picture: Opens a floating live view window on top of the current window. **NOTE!** This function is only available on dual-channel cameras.
	1: Stop/start live view of the selected channel. 2: Start local recording. 3: Switch streams.
	Select a live video stream according to your camera.
	Set image parameters.
	Start/stop live view.
	Turn off/on sound.
	Adjust the output volume for the media player on the PC. Range: 1 to 100.
	Adjust the microphone volume on the PC during audio communication between the PC and the camera. Range: 1 to 100.
	Frame rate/bit rate/resolution/packet loss rate.
	Enable/disable pixel calculation.
	Take a snapshot from the displayed live video. **NOTE!** See Local Parameters for the path of the saved snapshots.
	Start/stop local recording. **NOTE!** • See Local Parameters for the path of the saved local recordings. • VLC media player is recommended for playing local recordings of 4K cameras.
	Start/stop two-way audio.
	Start/stop digital zoom. See Digital Zoom for details.
	Start/stop capturing. See Capture for details.
	Full screen.
	Display/hide the **PTZ Control**, **General Parameters** tabs.

Distance for Optimum Multi-Sensor Splice(m) button, used to adjust the distance from the monitored object to the lens to get the optimal images. The value range is [2.0-100]m, the default is 10m.

Adjust the splicing distance to optimize the splicing effect of the left and right screens. Examples are shown below:

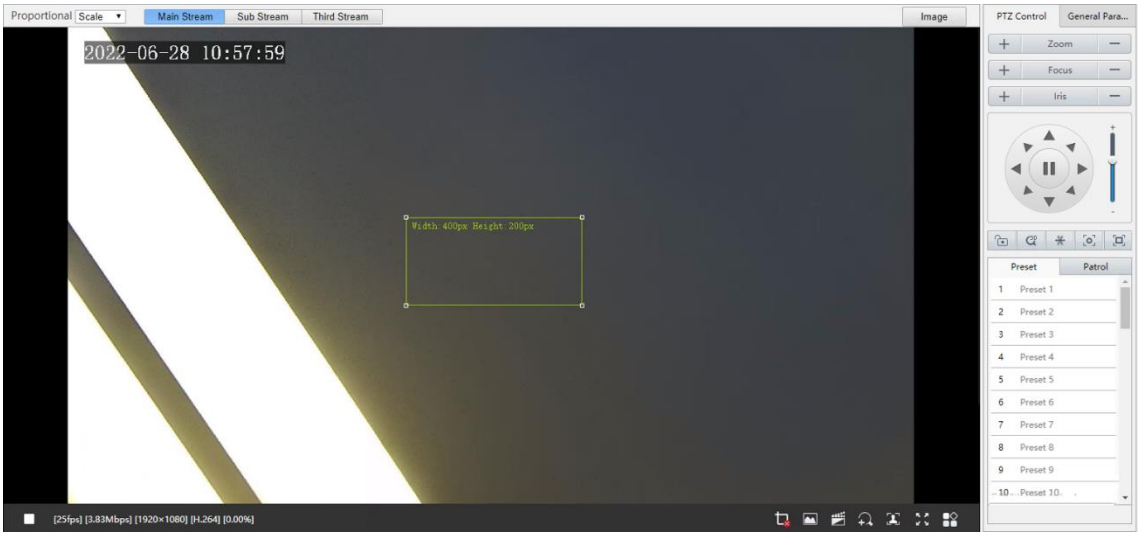
The distance is too small, causing double images.	• The distance is appropriate. The image is displayed correctly.	The distance is too large. The image looks smaller than normal.
		

NOTE!

- This function is available on certain multi-sensor cameras.
- You need to set the optimal splicing distance according to the actual scene.

2.1.1 Pixel Calculation

1. Click  on the live view toolbar to enable pixel calculation.



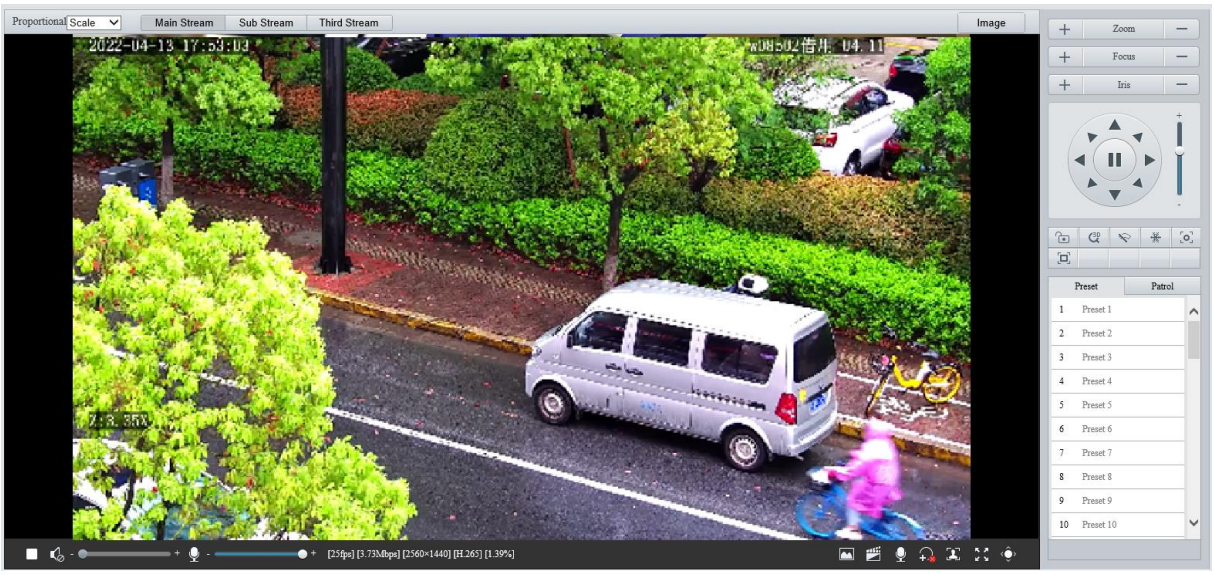
2. Adjust the position and size of the detection area. The pixel value changes with the size of the detection area.

- To adjust the position of the detection area, point to a border of the area and drag it to the desired position.
- To adjust the size of the detection area, point to a corner of the box and drag to resize it.
- To redraw the detection area, click on the image and drag to draw a new one.

3. To disable pixel calculation, click  .

2.1.2 Digital Zoom

1. Click  on the live view toolbar to enable digital zoom.



2. View the magnified area.

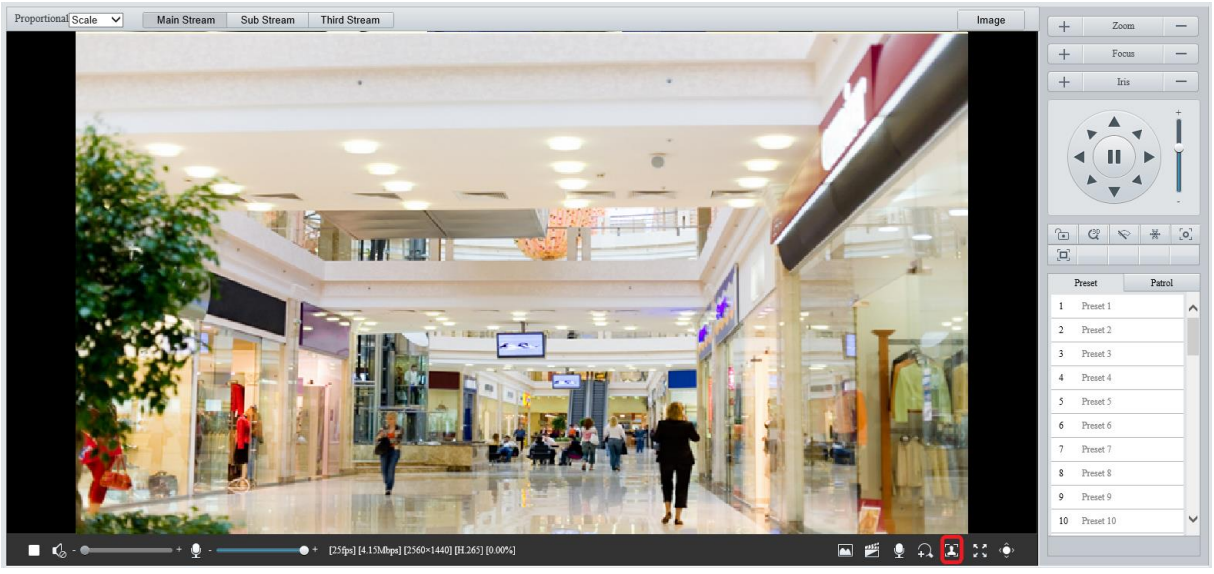
- Click in the live view window and roll the wheel to zoom in or out on the image. Drag your mouse to view all the magnified area. To restore, right-click on the window.
- Click in the live view window and drag your mouse to specify the area (rectangular area) to be magnified. Drag your mouse to view all the magnified area. To restore, right-click on the window.

3. To exit, click  .

2.1.3 Capture

NOTE!
This function is only available on certain models.

1. Click  on the live view toolbar to start capture.



2. View captured images.

- Click **Open Image Folder** to view the images captured from the live video on your PC. The images are saved in JPEG format.

  You can change the storage location in **Setup** > **Common** > **Local Parameters**. If the disk has less than 100MB free space, you will be prompted to clear up the auto snapshot folder, and new snapshots will not be displayed in the live view page until the disk space is freed.
- To delete all captured images, click **Clear All Records**.

3. To exit, click  .

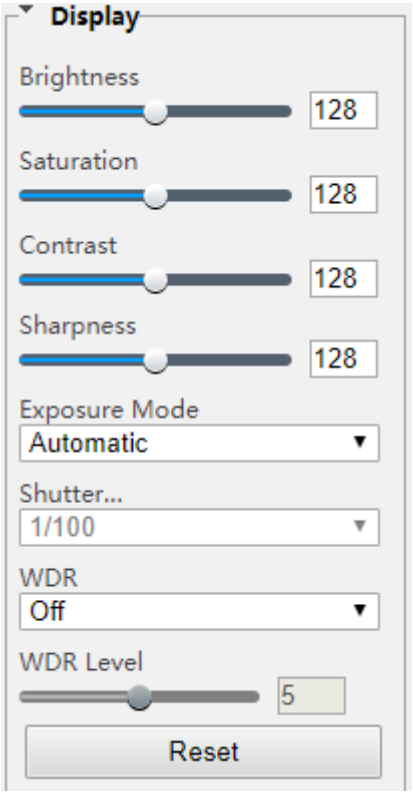
2.1.4 5ePTZ

1. Click  on the live view toolbar to enable 5ePTZ tracking.
2. Set the tracking area. In 5ePTZ tracking mode, the live view window is divided into 1 panoramic window and 5 small tracking windows. You may rest the cursor on a tracking box in the panoramic window or in a tracking window and use the scroll wheel to zoom in or out and drag the tracking windows to relocate them.
3. Enable perimeter protection (see Smart), then the camera can automatically detect moving objects in the detection area, and simultaneously track and zoom in on 5 objects that have triggered the alarm rules until the objects disappear.
4. To exit, click  .

2.2 General Parameters

Set general parameters to view image effects directly.

On the live view page, click **General Parameters**.

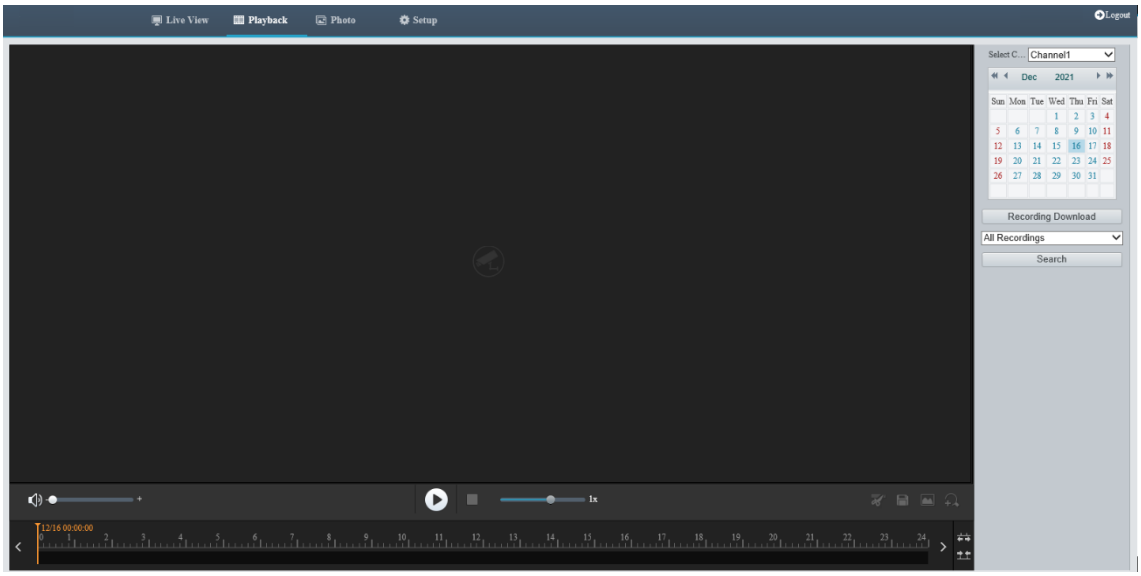


3 Playback

NOTE!

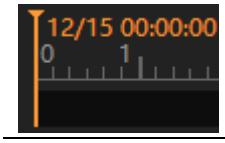
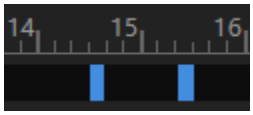
- Edge recordings refer to video recorded on storage media of cameras; local recordings refer to video recorded on a local PC.
- Before you search for edge recordings, make sure that the camera has storage resources such as memory card, and the storage parameters in Storage are properly configured.
- Recording playback and download functions are only available on certain models.
- For dual-channel devices, you can set playback parameters for the channels separately.

On the home page, click **Playback**.



3.1 Playback Toolbar

Button	Description
	Adjust sound volume. Range: 1 to 100.
	Start playback.
	Pause playback.
	Stop playback.
	Clip video.
	Save.
	Adjust playback speed. The default speed is 1x. 2x plays faster, and 1/2x plays slower. -2x rewinds fast.
	Take a snapshot. The snapshots are saved locally by default. You can change the storage location in Local Parameters.
	Digital zoom. See Digital Zoom for details.
	Zoom in/out on the time scale. You can also use the scroll wheel to zoom.
	When the time scale is zoomed in, you can click  or  to view the previous or next section of the video.

	Playhead. Drag the playhead to the desired point in the video.
	Playback timeline, including two colors: • Blue: Normal recording. • Red: Alarm recording. To view alarm recordings, you need to configure alarm-triggered recording. See Alarm-triggered Actions for details.

3.2 Search and Playback

NOTE!
Certain cameras support simultaneous playback on two clients.

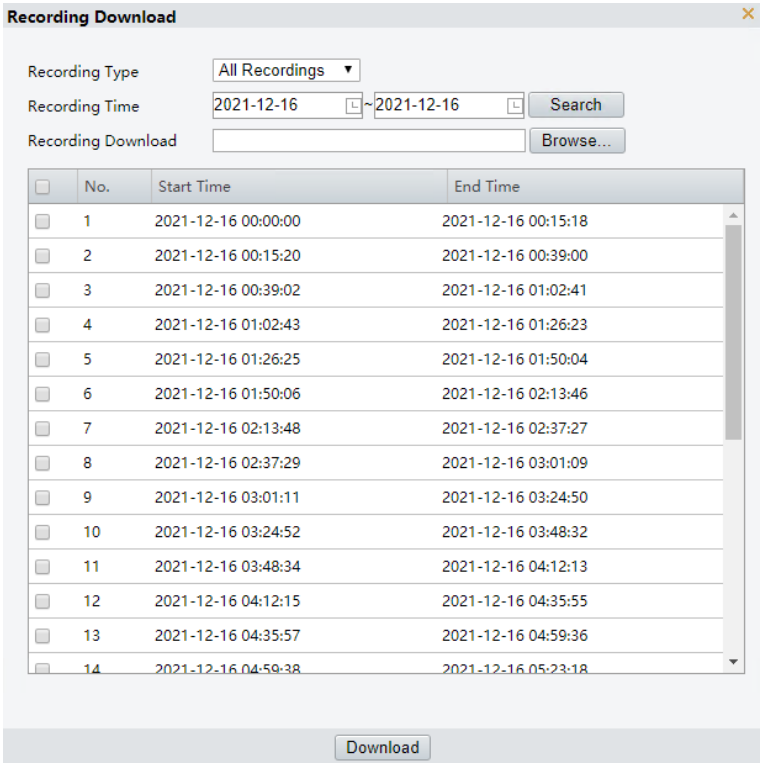
1. For a multi-channel camera, select the channel first.
2. Select the date on the calendar.
3. Click **All Recording** in the list and then choose the recording type you want to search.
4. Click **Search**. Search results are displayed.
5. Double-click an item in the list to play the recording. The playback stops till it reaches the end of the list or when you click to pause.

3.3 Recording Download

You can download videos or video clips in batches.

- Download recordings.

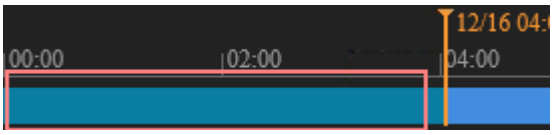
1. Click **Recording Download**.
2. Choose the recording type, set a time range, and then click **Search**. Search results are displayed.



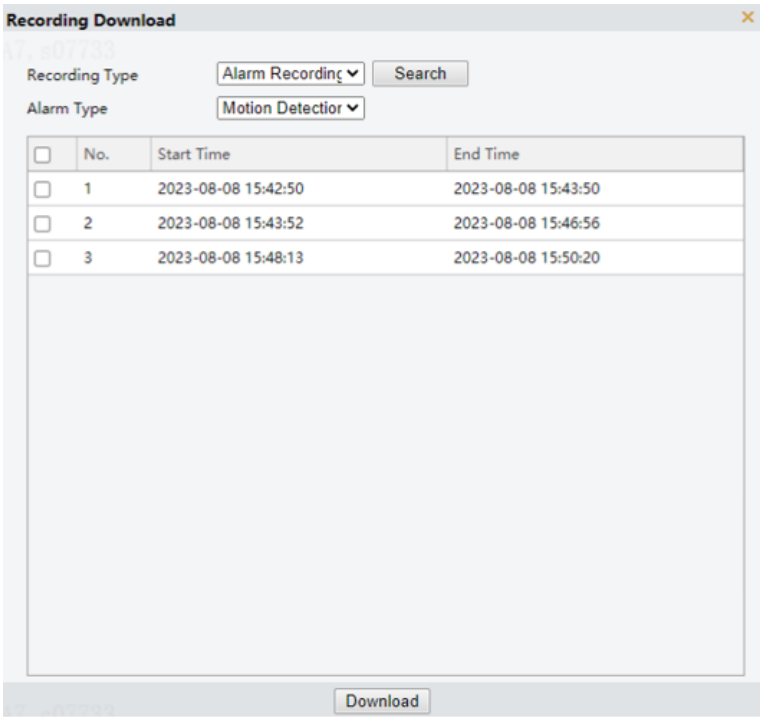
3. Click **Browse…** and set the download destination.
4. Select the checkboxes for the recordings you want to download and click **Download**.

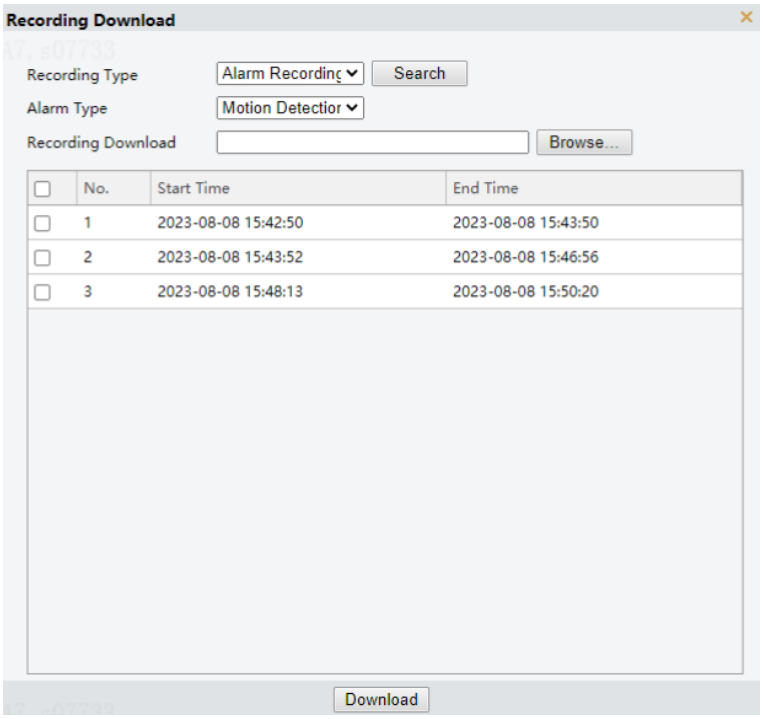
- Download video clips.

1. Search for the video you want to clip. See Search and Playback.
2. On the playback toolbar, click .
3. Click on the timeline to specify the clip by setting the start and end time.
4. Click . The clip turns cyan on the timeline.



5. Click . The **Recording Download** page appears.





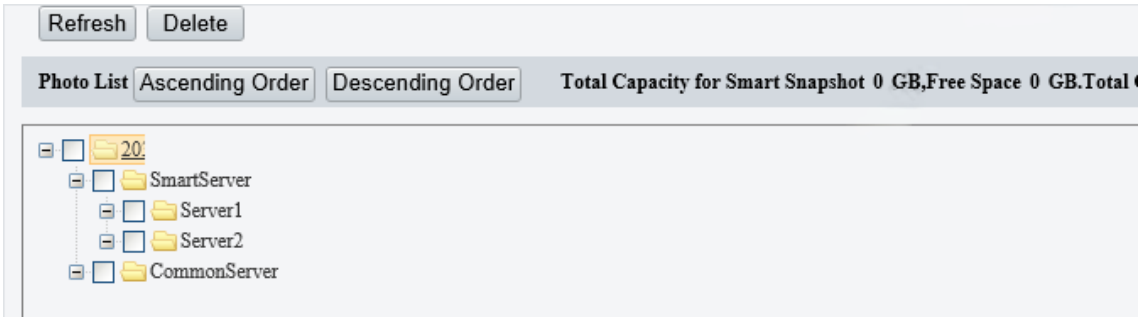
6. Click **Browse…** and set the download destination.
7. Select the checkbox for the clips you want to download and click **Download**.

4 Photo

View the photo storage status. See Storage for photo storage policy.

NOTE!
This function is only available on cameras with storage capabilities.

On the home page, click **Photo**.



Item	Description
Refresh	Refresh the displayed content.
Export	Export the selected photos.
Delete	Delete the selected photos.
Export & Delete	Export the selected photos and delete them on the server.
Ascending Order	Arrange the items in chronological order.
Descending Order	Arrange the items in reverse chronological order.
Smart Server	Used to store smart snapshots.
Common Server	Used to store common snapshots.

NOTE!
To allocate photo capacity, go to **Setup** > **Storage** > **Storage**.

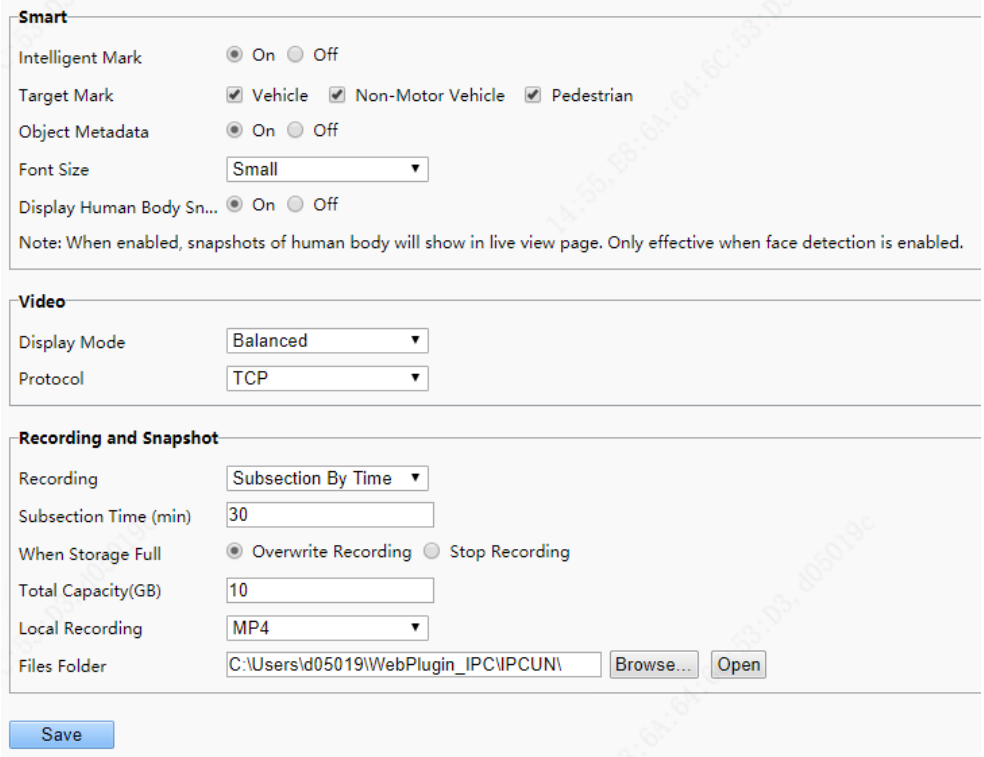
5 Setup

5.1 Local Parameters

Set local parameters for your PC, including smart, video, recording and snapshot.

NOTE!
The local parameters displayed may vary with camera model.

1. Go to **Setup** > **Common** > **Local Parameters**.



2. Set local parameters as needed.

Item		Description
Smart	Intelligent Mark	This function shall be used with Cross Line Detection, Intrusion Detection, Enter Area Detection, Leave Area Detection, Mixed-Traffic Detection, and Face Detection.
	Target Mark	When enabled, detection boxes will appear on the specified object type(s) on the live view page.
	Object Attributes	When this feature and snapshot are enabled (see Snapshot), snapshot thumbnails will show object attributes.
	Font Size	Set the font size of object attributes, including **Large**, **Medium**, and **Small**.
	Display Human Body Snapshot	When enabled, human body snapshots appear on the live view page. **NOTE!** Only effective when face detection is enabled.
Video	Display Mode	Set the display mode according to the network status, including **Min. Delay**, **Balanced**, and **Fluent** (from low delay to high delay). You may also customize the display mode as needed.
	Protocol	Set the protocol used to transmit media streams to be decoded by the PC, including **TCP** and **UDP**.
Recording and Snapshot	Recording	• Subsection By Time: Length of each local recording file. For example, 2 minutes. • Subsection By Size: Size of each local recording file. For example, 10MB.
	Subsection Time (min)/Subsection Size (MB)	• Subsection Time (min): Available when **Subsection By Time** is selected. 1 to 60 minutes allowed. • Subsection Size (MB): Available when **Subsection By Size** is selected. 10 to 1024MB allowed.
	When Storage Full	• Overwrite Recording: When the local recording capacity is full, older recordings are overwritten automatically. • Stop Recording: When the local recording capacity is full, recording stops automatically.
	Total Capacity (GB)	Allocate storage capacity for local recording. Range: 1 to 1024GB.
	Local Recording	Set the file format for saving local recordings, including **TS** and **MP4**.

	Files Folder	Set the location where snapshots and recordings are saved. • Click **Browse...** to select the storage location. • Click **Open** to quickly open the folder. **NOTE!** The maximum length of the directory is 260 bytes. If the limit is exceeded, recording or snapshot during live view will fail.

3. Click **Save**.

5.2 Network

5.2.1 Basic Config

Complete the basic network configuration so the camera can communicate with other devices on the network.

1. Ethernet

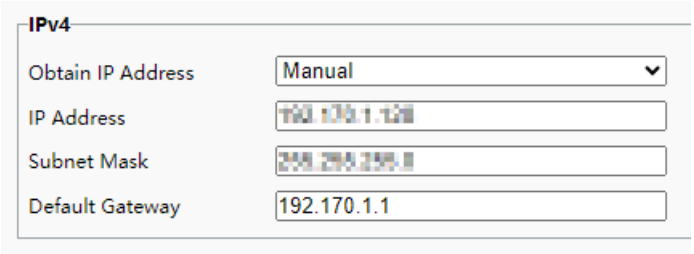
1. Go to **Setup** > **Network** > **Basic Config**.
2. Configure Ethernet parameters.

- IPv4
  - ➢ Manual

  (1) Select **Manual** from the **Obtain IP Address** drop-down list.

  (2) Enter the IP address, subnet mask, and default gateway address. Make sure that the IP address of the camera is unique in the network.

  (3) Click **Save**.



  - ➢ PPPoE

  Configure PPPoE to assign a dynamic IP address.

  (1) Select **PPPoE** from the **Obtain IP Address** drop-down list.

  (2) Enter the username and password provided by your ISP (Internet Service Provider).

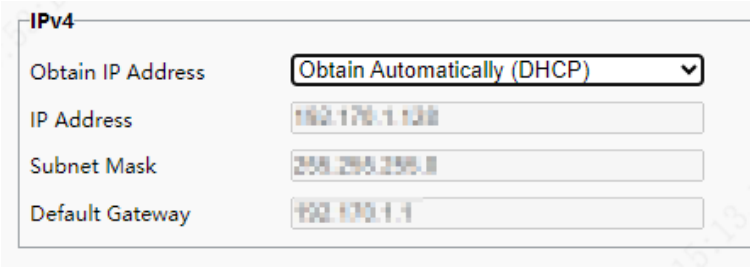
  (3) Click **Save**. The camera will be assigned an IP address.

  - ➢ Obtain Automatically(DHCP)

  DHCP (Dynamic Host Configuration Protocol) is enabled by default. If a DHCP server is deployed in the network, the camera can automatically obtain an IP address from the DHCP server.

  (1) Select **Obtain Automatically(DHCP)** from the **Obtain IP Address** drop-down list.

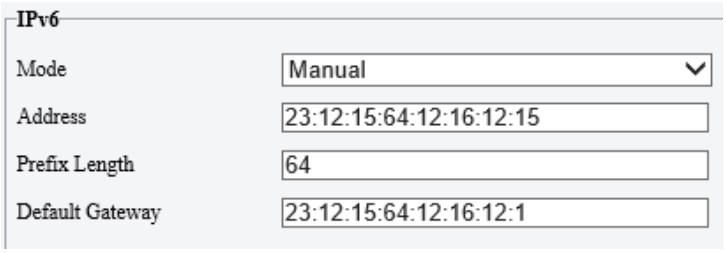
  (2) Complete the settings as shown below.



- IPv6
  - ➢ Obtain Automatically(DHCP)

The default mode is **Obtain Automatically(DHCP)**. In this mode, the IP address is assigned by the DHCP server.

  - ➢ Manual

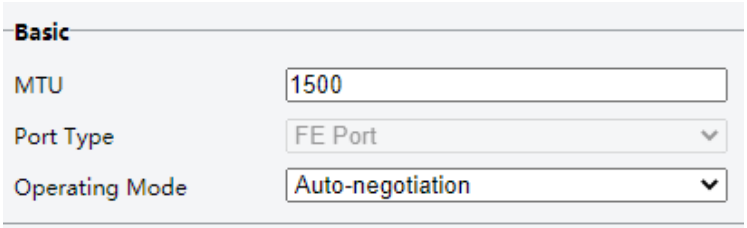


(1) Choose **Manual**.

(1) Enter the IPv6 address, prefix length and default gateway. Make sure that the IPv6 address is unique in the network.

3. Set the MTU value, port type and operating mode.

- MTU: Maximum transmission unit. Input an appropriate value. The greater the value, the higher the transmission efficiency, and the higher the delay.
- Port Type: The default type is **FE Port**.
- Operating Mode: The default is **Auto-negotiation**.

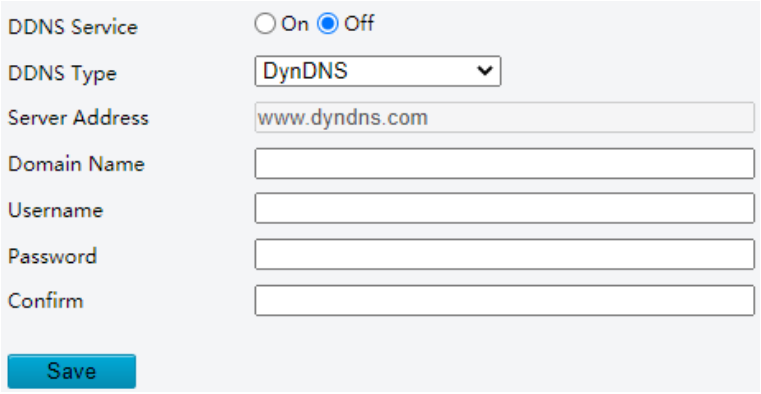


4. Click **Save**.

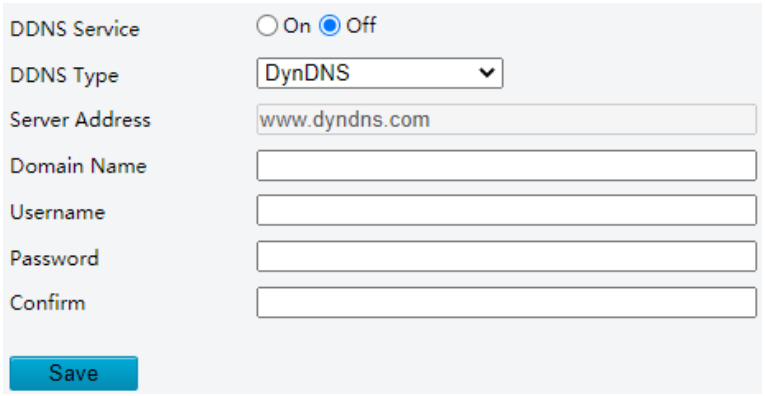
2. DDNS

DDNS (Dynamic Domain Name Server) can map the dynamic IP address of the camera to a fixed domain name and so users can access the camera using the easy-to-remember domain name.

1. Go to **Setup** > **Network** > **Basic Config** > **DDNS**.
2. Enable **DDNS Service**.



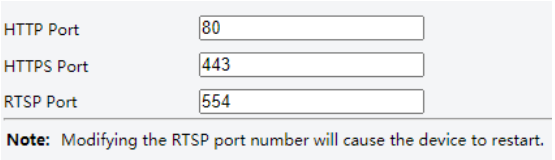
3. Select the DDNS type.
   - DynDNS/NO-IP: Third-party DDNS service provider. Enter the server address and domain name provided by your DDNS service provider.
   - MyDDNS: Enter a domain name and then click **Test** to check its availability.



4. Click **Save**.

3. Port

1. Go to **Setup** > **Network** > **Basic Config** > **Port**.



2. You can use the default ports. If a port entered has been used for other services, you need to change the port to avoid conflict.

CAUTION!

- If the HTTP port number you entered is being used by another service, a message indicating port conflict will appear. Ports 23, 81, 82, 85, 3260, and 49152 are reserved for other purposes and cannot be used.
- In addition to the above port numbers, the system can also dynamically detect other port numbers that are already in use.

- HTTP/HTTPS Port: If you change the HTTP/HTTPS port number, then you need to add the new port number after the IP address when logging in. For example, if the HTTP port number is set to 88, you need to use http://192.168.1.13:88 to log in to the camera.
- RTSP Port: Real-Time Streaming Protocol port, enter an available port number.

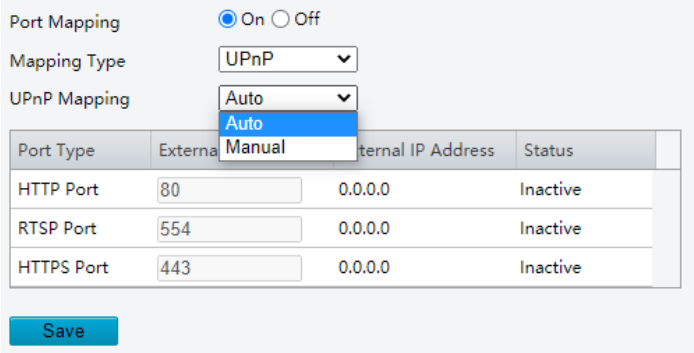
3. Click **Save**.

4. Port Mapping

Configure port mapping so users can access your camera on the LAN from the Internet.

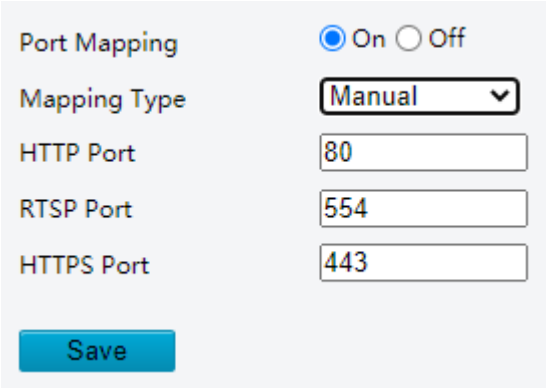
1. Go to **Setup** > **Network** > **Port** > **Port Mapping**.
2. Enable **Port Mapping**.
3. Select the mapping type.

- UPnP



  - Auto: When enabled, the camera will negotiate external ports with the router automatically. Make sure UPnP is enabled on the router.
  - Manual: In this mode, you need to enter external ports manually and make sure the ports entered are available; otherwise, port mapping does not take effect.

- Manual



  - If your router does not support UPnP, you need to set the external port numbers manually. Make sure the entered ports are available; otherwise, port mapping does not take effect.
  - **Inactive** will be displayed in the **Status** column if the port number entered is already in use by another service.

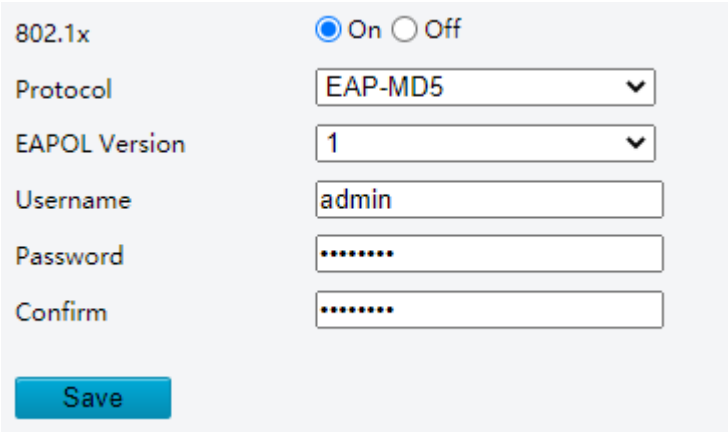
4. Click **Save**.

5. 802.1x

802.1x enhances network security for your intranet by performing port-based authentication before allowing the device to access the LAN. Only successfully authenticated devices are allowed to access the LAN.

5. Go to **Setup** > **Network** > **Basic Config** > **802.1x**.
6. Enable **802.1x**.
7. Choose a protocol type.

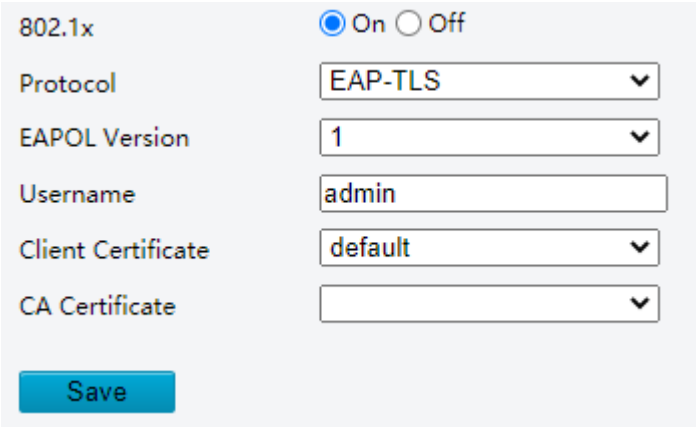
- EAP-MD5



(1) Choose the EAPOL version according to the protocol version on the network switch.

(2) Enter the device username and password, confirm the password.

- EAP-TLS



(1) Choose the EAPOL version according to the protocol version on the network switch.

(2) Enter the device username.

(3) Click ⌄ to choose a client certificate and a CA certificate (see Certificate Management for details)

NOTE!
You must use an imported client certificate and a CA certificate for the camera to pass authentication. The camera cannot pass authentication with a self-signed certificate and a default certificate.

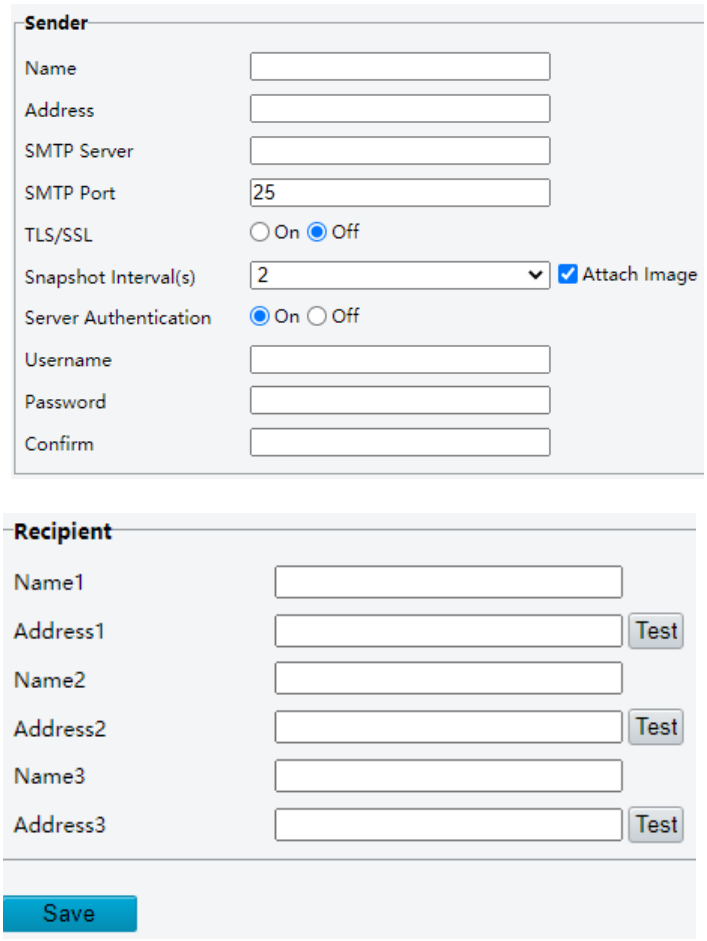
8. Click **Save**.

5.2.2 Service Configuration

1. Email

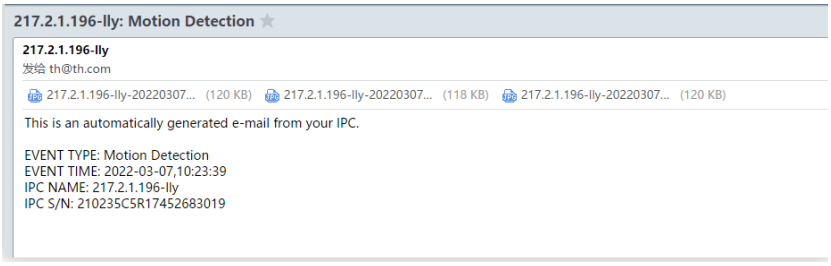
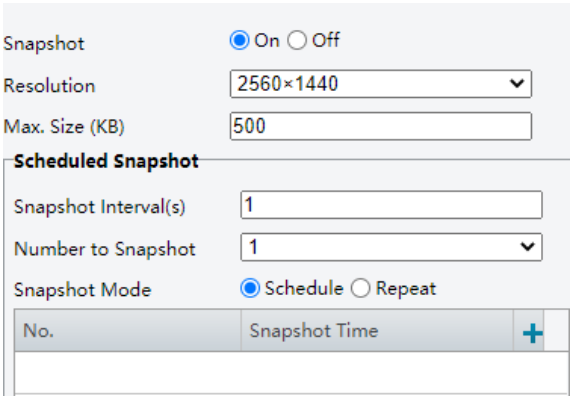
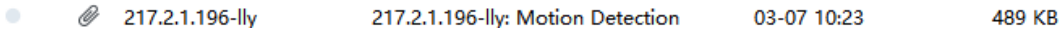
Configure E-mail so that the camera can e-mail an alarm message to the specified email addresses when an alarm occurs.

1. Go to **Setup** > **Network** > **Service Config > E-mail**.

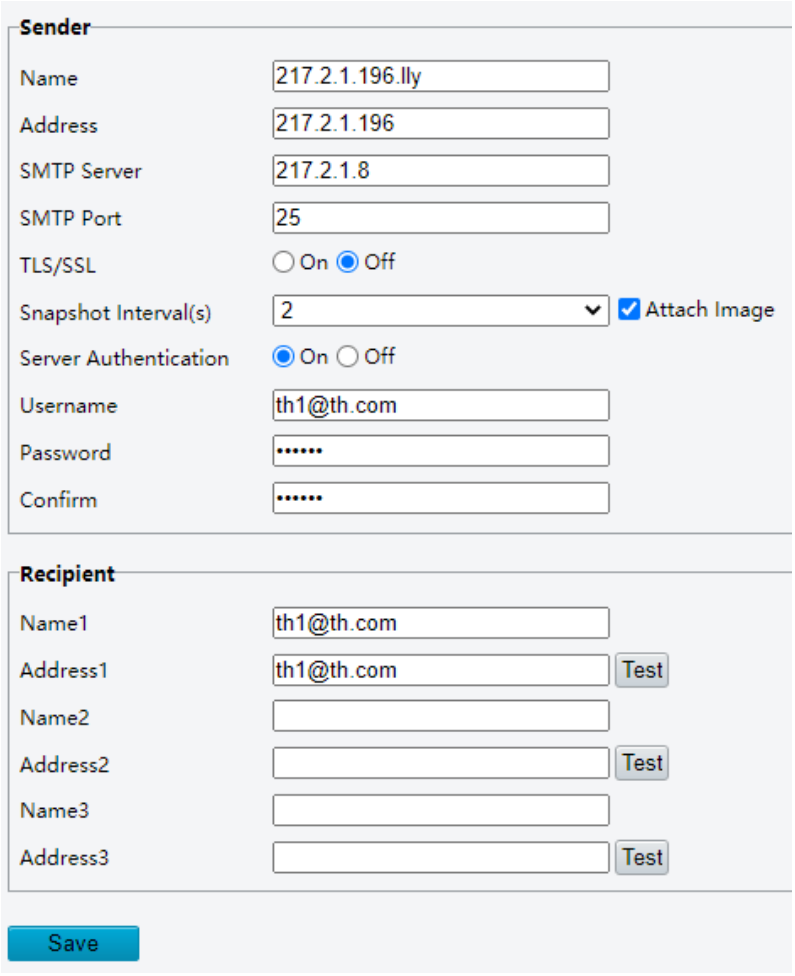


2. Set the sender and recipient information.

Item	Description
Sender Name	Enter the device name.
Sender Address	Enter the device IP.
SMTP Server/SMTP Port	Enter the IP address and port number of the sender's SMTP server. The default SMTP port number is 25.
TLS/SSL	When enabled, emails will be encrypted by TLS or SSL during transmission. **NOTE!** If SMTP supports TLS/SSL, it tries SSL first to establish a secure connection for email sending.
Snapshot Interval	Choose a snapshot interval: 2s, 3s, 4s, or 5s.

Item	Description
Attach Image	When enabled, an alarm e-mail with attached snapshots (3 by default) taken at set interval will be sent after an alarm occurs. For some alarm types, only one snapshot will be taken and there is no need to set snapshot interval.  1. Select the **Attach Image** checkbox. 2. Enable Snapshot and set the snapshot resolution as needed. There is no need to set a snapshot schedule. 
Server Authentication	Enable SMTP server authentication to secure e-mail transmission.
Username/Password	Enter the username and password of the SMTP server. **NOTE!** • The email only shows the sender name. Username will not be displayed.  • The password allows special characters.
Recipient Name/Address	1. Enter the recipient names and email addresses. 2. Click **Test** to test the email sending function.

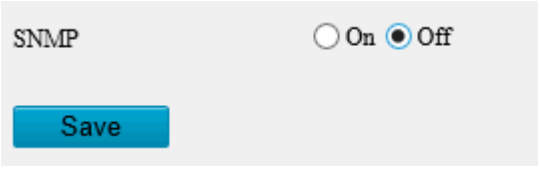
3. Click **Save**.



2. SNMP

The Simple Network Management Protocol (SNMP) allows the camera to be remotely managed by a management server. The camera can be configured to support SNMP and send messages to the management server for important events or status changes.

1. Go to **Setup** > **Network** > **Service Config** > **SNMP**.



2. Click **On** to enable **SNMP**.

NOTE!
On certain device models, SNMP is enabled after an upgrade to the latest version. It is normal.

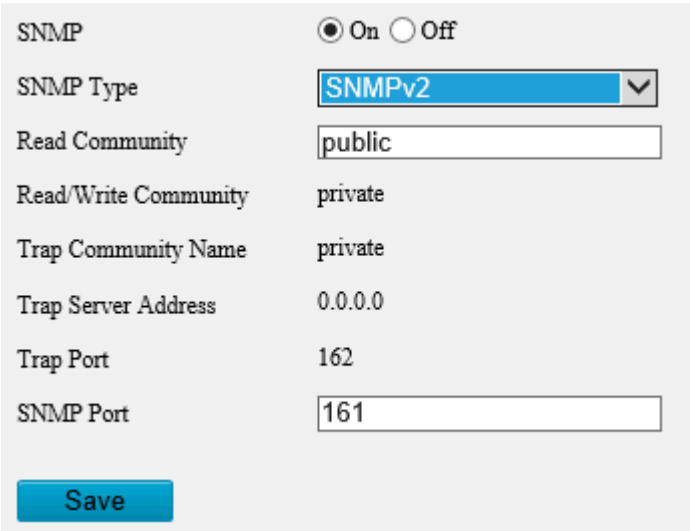
3. Set SNMP parameters.

- SNMPv3

NOTE!
Before you enable SNMPv3, make sure SNMPv3 is supported both on your camera and the server.

Item	Description
SNMP Type	The default is **SNMPv3**.
Password	Set an authentication password.
Confirm	Confirm the authentication password by entering it again.
Password	Set an encryption password.
Confirm	Confirm the encryption password by entering it again.
Trap Server Address	It is filled in automatically after you complete management server configuration.
SNMP Port	The default is 161. You may change it as needed.

- SNMPv2



Item	Description
SNMP Type	A message will appear to remind you of potential risks and prompt for your confirmation after you choose **SNMPv2**. To choose SNMPv2 anyway, click **OK** to ignore the reminder.

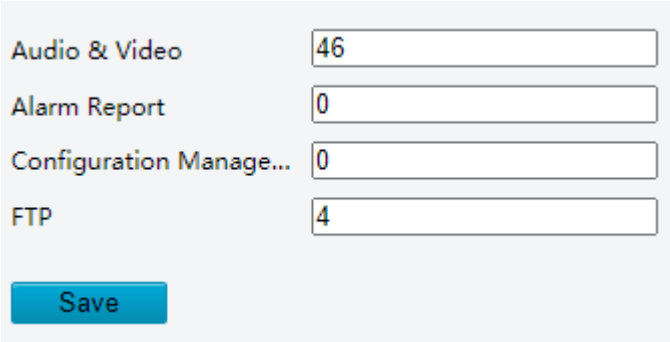
Item	Description
Read Community	The default is **public**. You may change it as needed, but make sure you also change it on the server; otherwise, authentication will fail.
Trap Server Address	Go to **Setup** > **Network** > **Platform Access** > **Management Server** to configure the server address.
SNMP Port	The default is **161**. You may change it as needed.

4. Click **Save**.

3. QoS

QoS (Quality of Service) can alleviate network delays and network congestion by prioritizing different services.

1. Go to Setup > Network > Service Configuration > QoS.



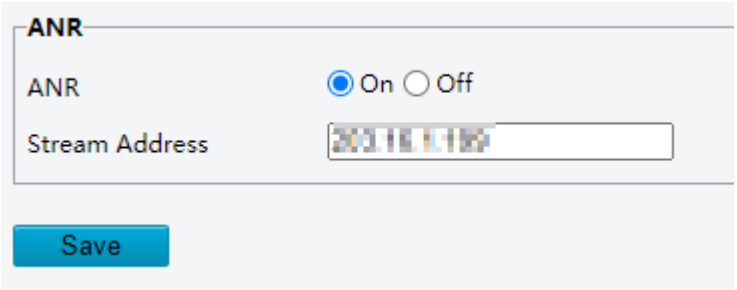
2. Assign a priority level (0 to 63) for each service. The greater the value, the higher the priority. For example, the camera first ensures smooth audio and video in the case of network congestion.

NOTE!
The same QoS rules must also be configured on the router or network switch.

3. Click **Save**.

4. ANR (ONVIF)

If the network connection between the camera and the peer (stream receiving address) is disconnected, the camera can store videos according to the configured recording schedule; and after the network connection is restored, the camera can retransfer the video stored during the interruption period to the stream receiving address on the request of the peer.



5.2.3 Platform Access

1. Intelligent Platform

Configure intelligent platform to receive smart snapshots from the camera. A camera can be managed by two intelligent servers.

Local snapshot cannot be enabled when the number of subscriptions has reached the upper limit.

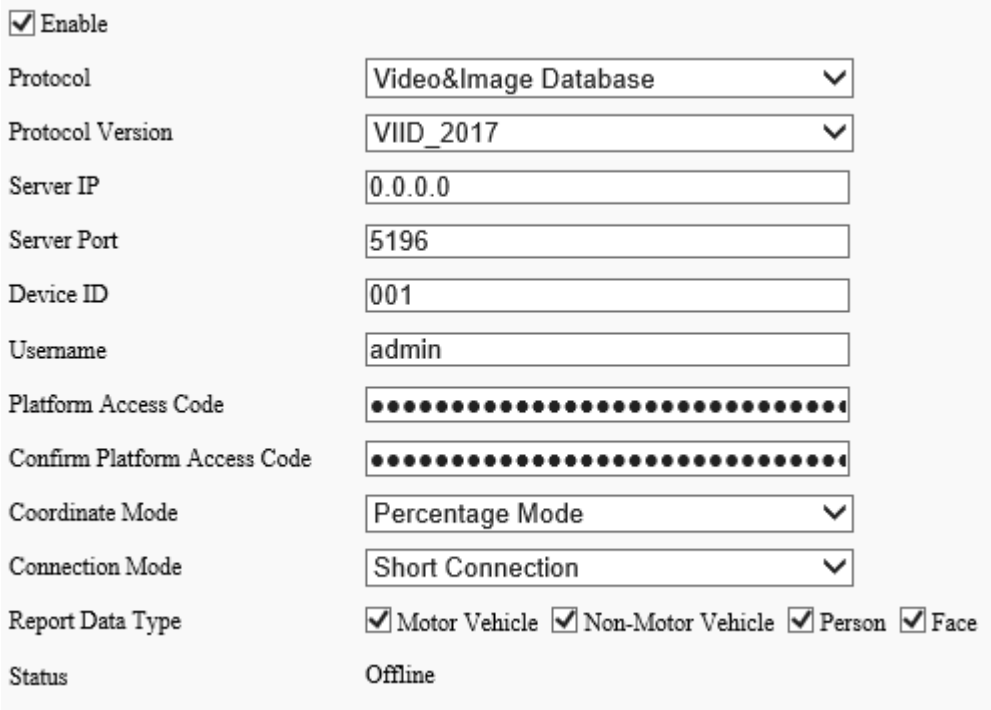
If local snapshot has been enabled, when the number of subscriptions reaches the upper limit, higher-priority subscriptions will take precedence, and local snapshot will be disabled.

NOTE!

- The number of subscriptions supported may vary with camera.
- Priority level of subscription from different platforms: Platform 1 > Platform 2 > LAPI subscription > WebSocket subscription.

- Video&Image Database

1. Go to **Setup** > **Network > Platform Access > Intelligent Platform**.
2. Select the **Enable** checkbox.
3. Choose **Video&Image Database** as the protocol.



4. Configure the parameters.

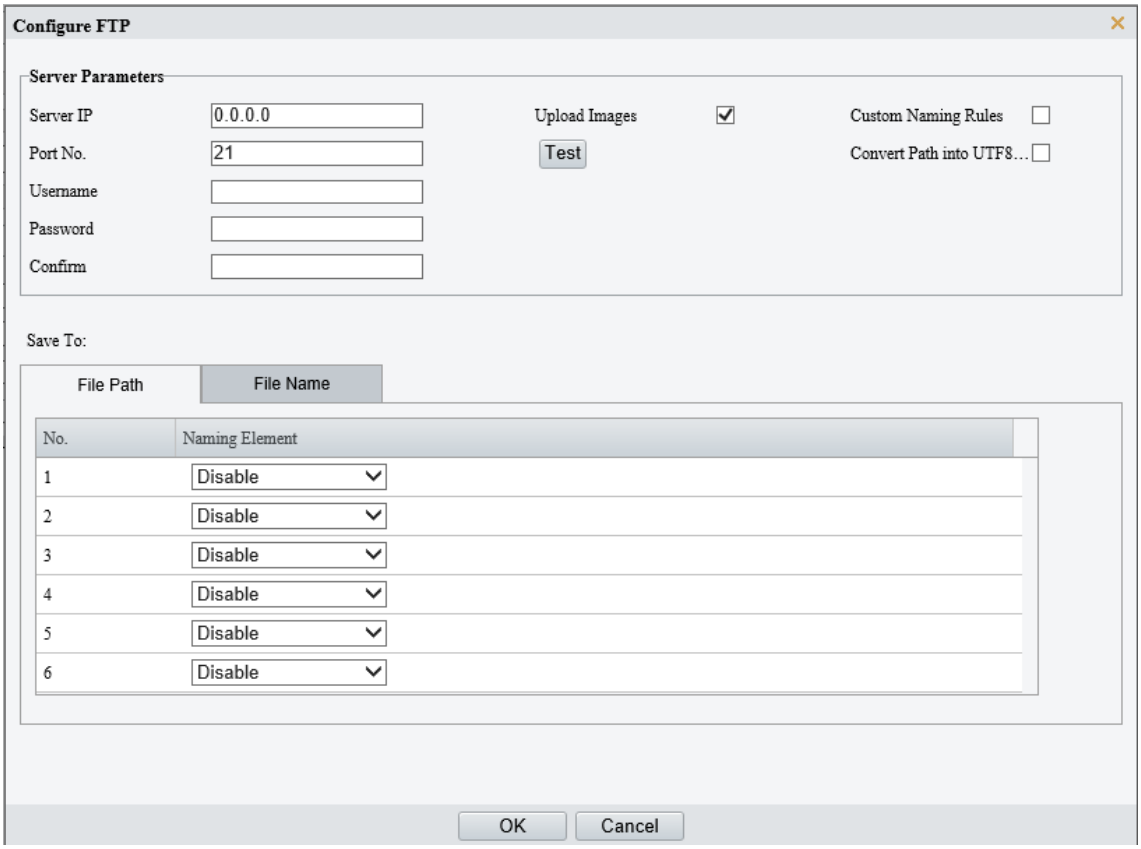
Item	Description
Protocol Version	Choose the protocol version: **VIID_2017**, **VIID_2018**, **VIID_2018 (multi-channel)**. **Note:** When choosing VIID_2018 (multi-channel), you need to enter the video channel ID for each channel.
Server IP	Enter the IP address of the platform.
Server Port	Use the default **5196**.
Device ID	Input a valid ID according to the instructions and keep it the same on the platform. The ID shall comply with VIID protocol.
Username	Enter the username for authentication, which must be the same as that configured on the platform.
Platform Access Code	Enter the password for authentication, which must be the same as that configured on the platform.
Confirm Platform Access Code	Input the password again for confirmation.

Item	Description
Coordinate Mode	Used to position structured information on the image, which must be in the same format as that on the platform, Percentage Mode, Pixel Mode, or Normalized Mode.
Connection Mode	Use the default: Short Connection.
Report Data Type	Choose the type(s) of data to be sent to the intelligent platform: Motor Vehicle, Non-Motor Vehicle, Person, and Face.
Status	• Offline: The camera is disconnected from the platform. • Online: The camera is connected to the platform.

- FTP

1. Go to **Setup** > **Network > Platform Access > Intelligent Platform**.
1. Select the **Enable** checkbox.
2. Choose **FTP** as the protocol.

3. Click **Configure FTP**. A page as shown below appears.



4. Set server parameters.

Item	Description
Server IP	Enter the IP address of the FTP server.
Port No.	Use the default 21.
Username	Enter the username used for accessing the FTP server.
Password	Enter the password used for accessing the FTP server.

Item	Description
Test	Click to test the connection to the FTP server.
Upload Images	Select the checkbox to enable uploading smart snapshots. Overwrite Storage: After the number of photos in the lowest-level folder reaches the set threshold, new photos will overwrite older photos in the folder. For example, the storage path is "\IP\date," the lowest-level folder is the level-2 folder named "date". When the number of photos unloaded on Jan. 4, 2022, reaches 1000 (default value), new photos overwrite old photos in the 20220104 folder. **NOTE!** • To choose **Overwrite Storage**, make sure the last naming element of the files is the image sequence number. • Overwrite At (image): The default is 1,000, up to 100,000 is allowed.
Custom Naming Rule	Select the checkbox, and then you can customize the file naming rules as needed. For the naming rules, see **File Path** in step 6.
Covert Path into UTF8	Select the checkbox, and the path will be converted into UTF8 format.

5. Configure the image storage path.

Item	Description
File Path	Six levels are allowed. If not set, the default path "\IP\Date\Intelligent" will be used, where "Intelligent" means smart snapshots.
File Name	Naming element: Up to 20 fields are allowed. If not set, sequence numbers will be used as file names, for example, "1, 2, 3", etc.
	Naming rule: Format string: prefix <(front string) front length % > suffix.

6. Click **Save**.

2. P2P

Add the camera to cloud so you can access the camera anytime, anywhere from your mobile phone for live view, playback, camera configuration, etc.

NOTE!

- You can add the camera to cloud using app or through the cloud website.
- Guard Viewer and Guard Live are free apps that can be downloaded from app stores, including iOS and Android versions. You need to download and install the app on your mobile phone in order to access your camera from your mobile phone. The following takes Guard Viewer as an example to describe the operations.
- You can add the camera to cloud with or without a cloud account. A cloud account is required if you want full functionalities on the app. Some functions, such as cloud upgrade, will not be available if the camera is added to cloud without a cloud account.

1. Go to **Setup** > **Network** > **Platform Access > P2P**.

2. Check that P2P is enabled.

- Add the camera to cloud with a cloud account.

Open the app, log in to your cloud account, and use the app to scan the QR code displayed on the **P2P** page to add the camera to cloud.

- Add the camera to cloud without a cloud account.

Open the app, use the Add Without Signup function to add the camera to cloud. The system will bind the camera to your mobile phone so you can view live and recorded video and receive alarm notifications on your mobile phone.

NOTE!
You must enable **Add Without Signup** on the **P2P** page on the camera's web interface first.

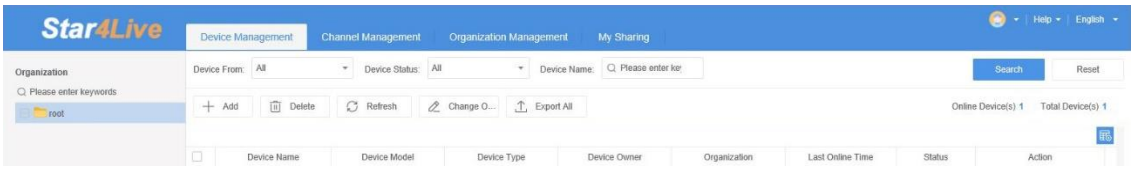
1. Open Guard Viewer and tap **Try Now**. The **Live View** page appears.

NOTE!
If you have already installed Guard Viewer on your phone, open it, and then go to > **Devices** > **Add** > **Add Without Signup**.

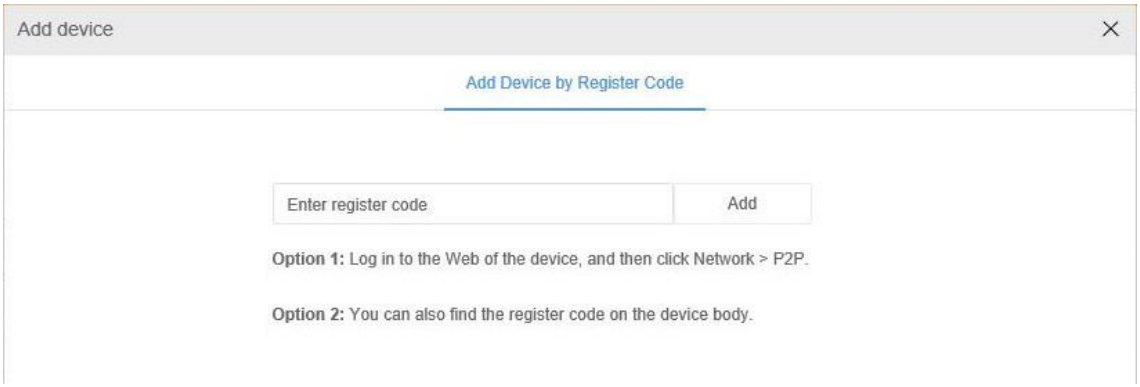
2. Tap **Add > Add Without Signup**.
3. Scan the QR code displayed on the **P2P** page of the camera's web interface.
4. Enter the device password and tap **Login** to add the camera to cloud.

- Add cameras on the P2P website.

1. Visit www.star4live.com using a web browser.
2. On the login page, click **Sign Up** and follow on-screen instructions to create an account.
3. Log in to the website.



4. Go to **Device Management** > **My Cloud Devices** and click **Add**.



Item	Description
Device Name	Enter the device name.
Register Code	Enter the register code.
Organization	Select an organization for your camera. By default, the root organization is selected. You may add or delete organizations under **Organization Management** > **My Cloud Organizations**.

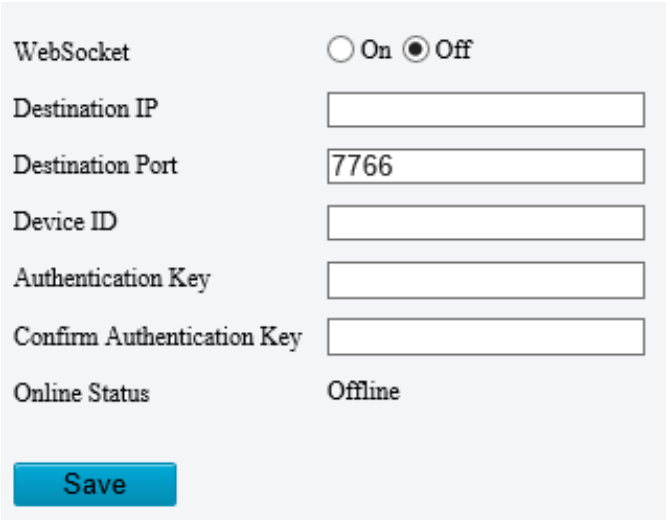
5. Click **OK**.
6. Click **Save**.
7. Check whether the camera is online.

- Cloud website: Go to **Device Management** > **My Cloud Devices**.
- Camera's web interface: Go to **Setup** > **Network** > **P2P**.

3. WebSocket

WebSocket can connect your camera to a third-party platform and enable remote management of the camera from the third-party platform, including viewing device version and capabilities, control PTZ, and receive alarms.

1. Go to **Setup** > **Network** > **Platform Access > WebSocket**.



2. Set the parameters.

Item	Description
WebSocket	Select to enable or disable WebSocket.

Destination IP	Enter the IP address of the third-party platform.
Destination Port	Enter the listener port of the third-party platform.
Device ID	The default device ID is the device's serial number. You can set a device ID as needed.
Authentication Key	Enter the authentication key used to connect the camera to the third-party platform. Make sure the authentication keys configured on the camera and the third-party platform are the same. **NOTE!** If you first choose not to enable Authentication Key and then enable it after the camera is connected to the platform, authentication does not take effect immediately; it will take effect when the next time the camera is successfully connected to the platform.
Confirm Authentication Key	Confirm the authentication key by entering it again.
Online Status	Check whether the device is successfully connected to the third-party platform.

3. Click **Save**.

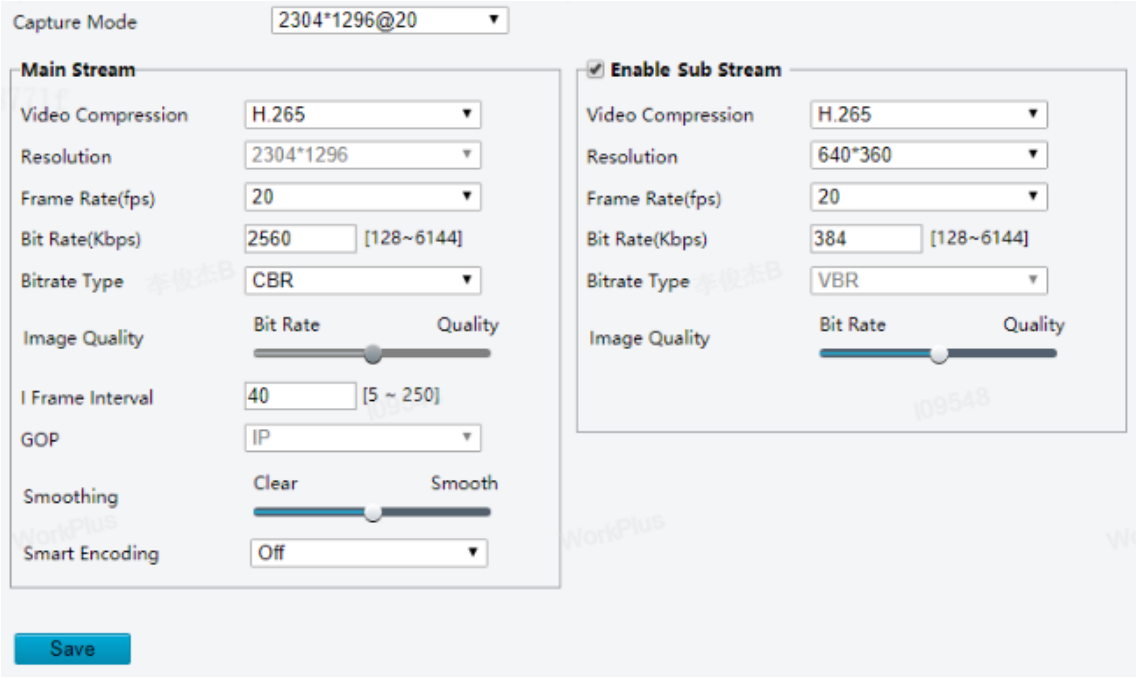
5.3 Video & Audio

For dual-channel devices, you can set video and audio parameters for the channels separately.

5.3.1 Video

1. Video

1. Go to **Setup** > **Video & Audio** > **Video**.



2. Select a capture mode for your camera.

The **Extended Encoding** function is available only when the capture mode is greater than 8MP.

After you change the capture mode, the encoding settings will be reset to defaults and some models of cameras will restart.

3. Set stream parameters.

The streams are independent of each other and can be set with different resolutions, frame rates, video compression formats, etc. Only the main stream supports full resolution.

NOTE!

- The fourth and fifth streams are only available on certain models.
- Before configuring the fifth stream, you need to enable the fourth stream first.

Item	Description
Video Compression	Select a video compression standard for your camera: **H.265**, **H.264** or **MJPEG**. **NOTE!** • When H.265 or H.264 is selected, **Image Quality** is not available; When MJPEG is selected, **Bit Rate**, **I Frame Interval**, **Smoothing**, **SVC** and **Smart Encoding** are not available. • The bit rate restores to the default when you switch between H.264 and H.265.
Resolution	Select a video resolution for your camera. The higher the resolution, the clearer the image.
Frame Rate(fps)	Select the frame rate. **NOTE!** To ensure image quality, the frame rate shall not be greater than the reciprocal of the shutter speed.
Bit Rate(Kbps)	Set the bit rate. Range: 128 to 16384. **NOTE!** The bit rate range may vary with device model.
Bitrate Type	Select the bitrate type. • CBR: The camera keeps a specific bit rate by varying the quality of video streams. • VBR: The camera keeps the quality of video streams as constant as possible by varying the bit rate.
Image Quality	Configurable when **Bitrate Type** is set to **VBR**. The closer the slider is to **Quality**, the higher the bit rate, and the higher the image quality. The closer the slider is to **Bit Rate**, the lower the bit rate, and the image quality will be affected.
I Frame Interval	Set the number of frames between I-frames. A shorter interval presents better image quality but consumes more bandwidth and storage.
GOP	Group of Pictures, defines the basic pattern of the video stream encoded with I and P frames.
Smoothing	Set the smoothness of the video stream. Drag the slider to choose whether smoothness or clarity takes precedence. **NOTE!** Smoothing is recommended for fluent video in a poor network environment.
SVC	SVC (Scalable Video Coding) enables a video stream to be broken into multiple layers of resolution, quality, and frame rate, reducing bandwidth consumption without compromising the image quality.
Smart Encoding	Select a mode. • Basic Mode: Reduces the bit rate by about 25%. • Advanced Mode: Reduces the bit rate by about 50%.

4. Set the BNC output format, **PAL,** or **NTSC**.
5. Click **Save**.

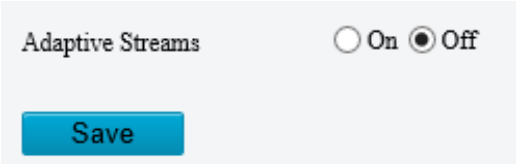
2. Adaptive Streams

The bit rate of the media stream is automatically adjusted according to the network conditions.

NOTE!

- This function is only available on certain models.
- This function is enabled by default on certain models.
- It is recommended to enable Adaptive Streams in a poor network environment.
- To enable adaptive streams, you need to choose the TCP protocol at **Setup** > **Commons** > **Local Parameters**; otherwise, adaptive streams cannot be enabled.

1. Go to **Setup** > **Video & Audio** > **Video** > **Adaptive Streams**.



2. Enable **Adaptive Streams**.
3. Click **Save**.

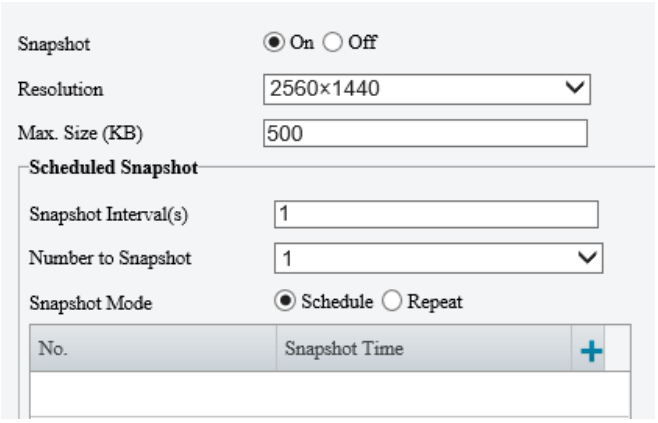
5.3.2 Snapshot

Configure basic snapshot parameters and scheduled snapshot.

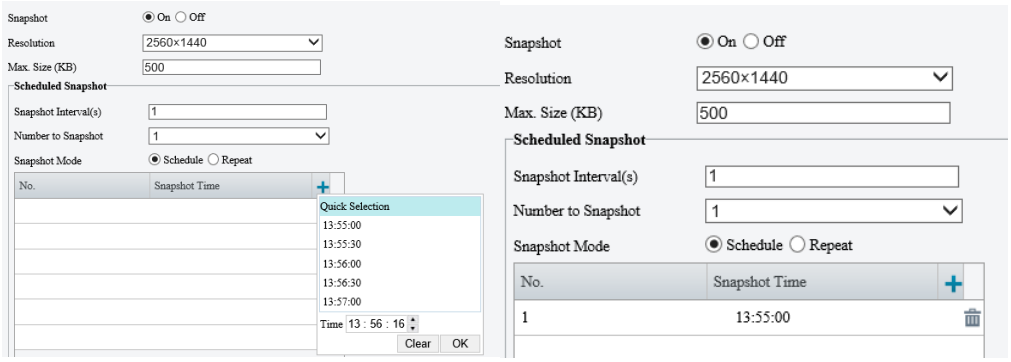
1. Go to **Setup** > **Video & Audio** > **Snapshot**.

NOTE!

- For dual-channel devices, you can set snapshot parameters for the channels separately.
- When you configure e-mail and FTP, you only need to enable Snapshot and set the resolution and maximum size; it is unnecessary to configure the scheduled snapshot.



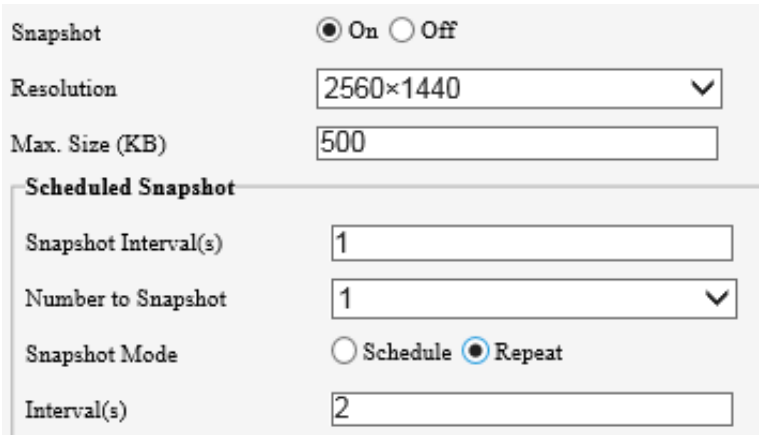
2. Enable **Snapshot**, set the resolution and maximum size of snapshots.
3. Set the snapshot mode.
   - Schedule: Set a snapshot time. For example, with **Snapshot Interval** set to 20s, **Number to Snapshot** set to 3, and snapshot time set to 16:00:00, the camera will take a snapshot at 16:00:00, 16:00:20 and 16:00:40. You can click + to add a snapshot time by choosing from the list or by adjusting based on a listed time.



To delete a snapshot time, click .

- Repeat: Set a snapshot interval. For example, with snapshot plan set to 16:00:00 to 20:00:00 on Monday, **Repeat Interval** set to 120s, **Snapshot Interval** set to 20s, and **Number to Snapshot** set to 2, the camera will take a snapshot at 16:00:00, 16:00:20, 16:02:00 and 16:02:20.

a Select **Repeat** and set the repeat interval. A valid repeat interval is an integer within the range of 1 to 86400. The snapshot interval * number of snapshots to take cannot be greater than the interval (**Snapshot Interval** * **Number of Snapshot** cannot be greater than **Interval**).



b Select the **Enable Snapshot Plan** checkbox and set the snapshot plan. See Arming Schedule for details. A 24/7 snapshot plan is enabled by default.

NOTE!

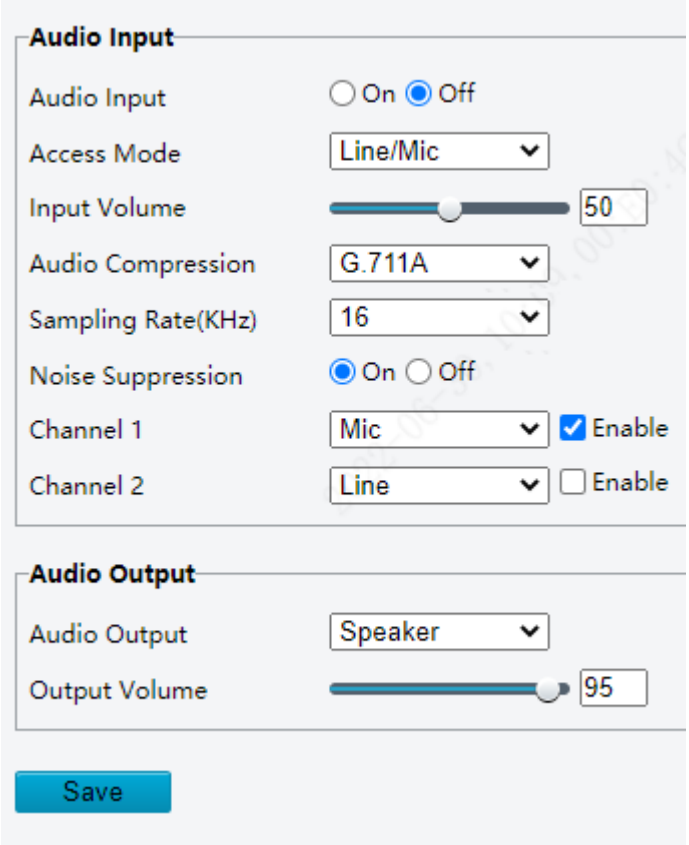
- The time periods cannot overlap.
- Up to 4 time periods are allowed.

4. Set the snapshot interval (unit: second) and number to snapshot (1, 2, or 3). For example, if the interval is set to 1s and the number to snapshot is set to 2, the camera will take 2 snapshots (take one first and then take another after 1 second).
5. Click **Save**.

5.3.3 Audio

1. Audio

1. Go to **Setup** > **Video & Audio** > **Audio**.



2. Set audio input parameters.

Item	Description
Audio Input	Enable/disable audio input. **NOTE!** If audio is not needed, it is recommended to turn it off to improve camera performance.
Access Mode	Choose the audio input mode; **Line/Mic** or **RS485**. **NOTE!** This function is not available on dual-channel cameras.
Input Volume	Drag the slider or input a value to set the input volume.
Audio Compression	Choose the audio compression format: **G.711U** or **G.711A**.
Sampling Rate(KHz)	Choose a sampling rate, 8KHz or 16KHz. The higher the sampling rate, the better the sound quality.
Noise Suppression	This function is enabled by default. It can reduce noises and improve audio output quality.
Channel 1/Channel 2	Select the **Enable** checkbox to enable audio input for Channel 1 or Channel 2 (if available). Only one channel can be enabled. Channel 1 supports **Mic** (default) and **Line**. Channel 2 is available on certain models only.

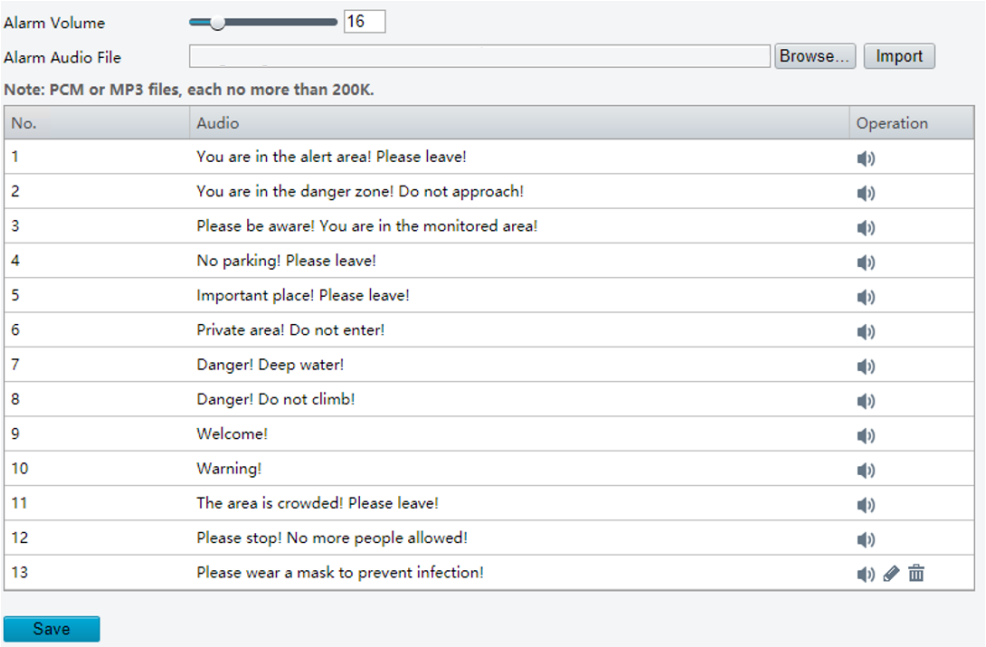
3. Set audio output parameters.

Item	Description
Audio Output	Choose an audio output mode, **Line** or **Speaker**. • Line: A speaker or an earphone needs to be connected. • Speaker: Default mode.
Output Volume	Set the output volume using the slider.

4. Click **Save**.

2. Audio File

1. Go to **Setup** > **Video & Audio** > **Audio**.



2. Set audio file parameters.

Item	Description
Alarm Volume	Drag the slider or input a value to set alarm volume.
Alarm Audio File	Click **Browse…** to import audio files. • To play an audio file, click . • To edit audio contents, click . • To delete an audio, click . **NOTE!** • This function is available only on certain models. Up to 5 audio files are allowed. • Built-in audio files may vary depending on the smart functions supported by the device. • Certain models without smart functions provide built-in alarm audios and support user-imported audios.

3. Click **Save**.

5.3.4 ROI

Region of Interest (ROI) ensures image quality of specified areas on the image at low bit rate.

1. Go to **Setup** > **Video & Audio** > **ROI**.

2. Set ROI areas.

(1) Click + to add a ROI area. The area is a rectangle by default. Up to 8 areas are allowed.

(2) Adjust the position and size of the area or draw an area as needed.

- Adjust the position and size of the area.
  - Point to a border of the area and drag it to the desired position.
  - Point to a corner of the area and drag to resize it.
- Draw an area.

  Click on the image and drag to draw an area.

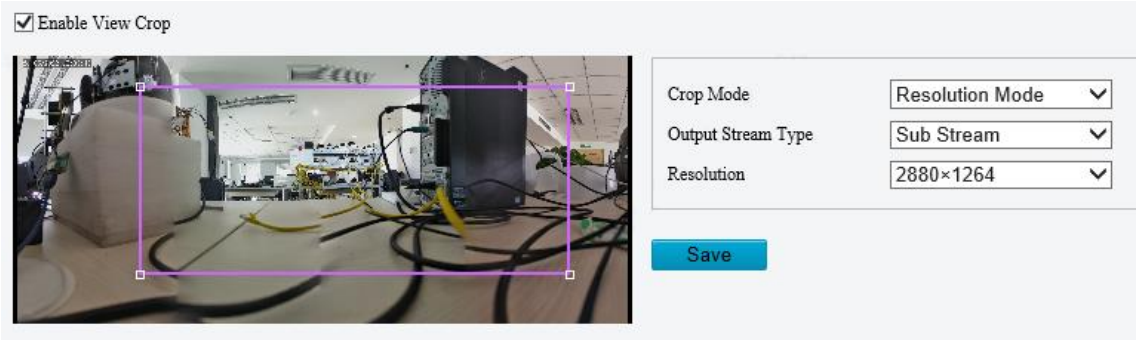
NOTE!

When setting the ROI, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after finishing setting the ROI.

5.3.5 View Cropping

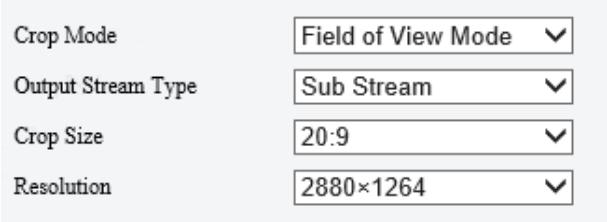
You can crop the live video to keep only the area of interest and transmit the cropped video by sub or third stream to save bandwidth and storage.

1. Go to **Setup** > **Video & Audio** > **View Crop**.
2. Select the **Enable View Crop** checkbox. A rectangular appears in the image. You may drag to resize or relocate the rectangular on the image.

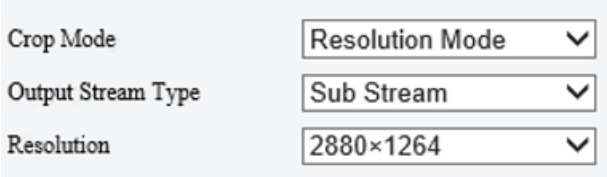


3. Choose a cropping mode.

- Field of View Mode: The camera ensures the size of the specified area. Choose a stream type, set the cropping size and resolution.



- Resolution Mode: The camera ensures the resolution of the specified area first. Choose a stream type, set the resolution.



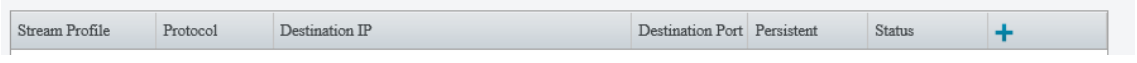
4. Click **Save**. The live and recorded video only shows the specified area (rectangular) of the image.

5.3.6 Media Stream

1. Media Stream

You can configure a media stream for your camera so that media contents from the camera such as audio and video can be transmitted over the network and played immediately on a third-party client rather than being downloaded first.

1. Go to **Setup** > **Video & Audio** > **Media Stream**.



2. Click  to add a media stream.
3. Complete the media stream settings.

Item	Description
Stream Profile	Select a stream type for the camera to transmit media contents to a third-party client.
Destination IP	Enter the IP address of the device receiving media streams.

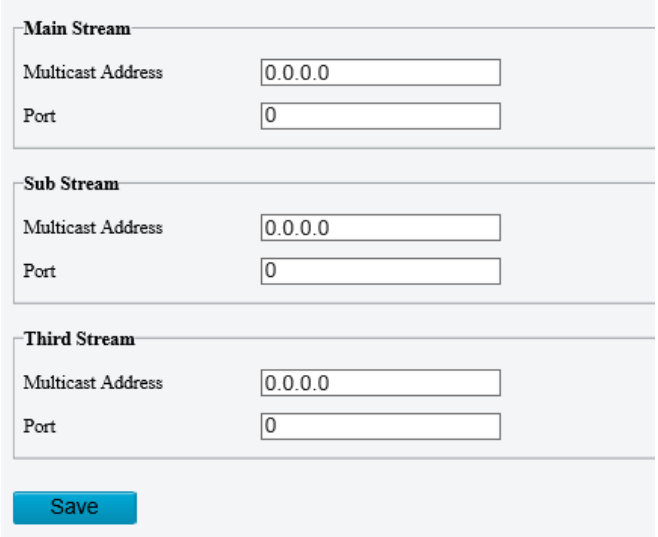
Item	Description
Protocol	The camera transmits data to a third-party client through the specific protocol. The default protocol is RTMP.
Persistent	Set whether to automatically establish the configured media stream after the camera restarts.

4. Click **OK**.

2. RTSP Multicast

RTSP multicast allows third-party players to request RTSP multicast media streams from the camera through the RTSP protocol.

1. Go to **Setup** > **Video & Audio** > **Media Stream** > **RTSP Multicast Address**.



2. Set the multicast address and port number (multicast address range: 224.0.1.0 to 239.255.255.255, port number range: 0 to 65535).
3. Click **Save**.

5.4 Image

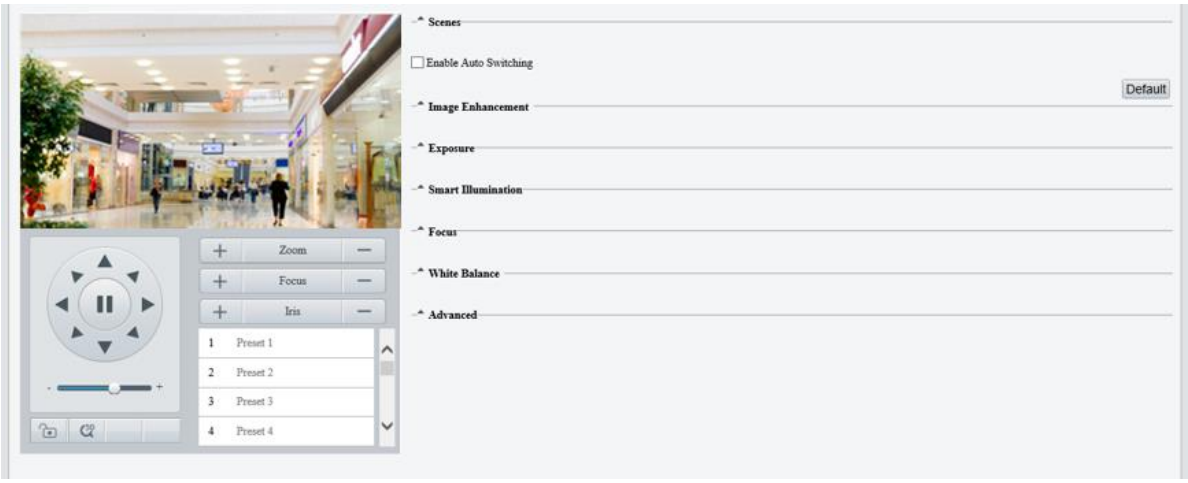
5.4.1 Image

For dual-channel devices, you can set image parameters for the two channels separately.

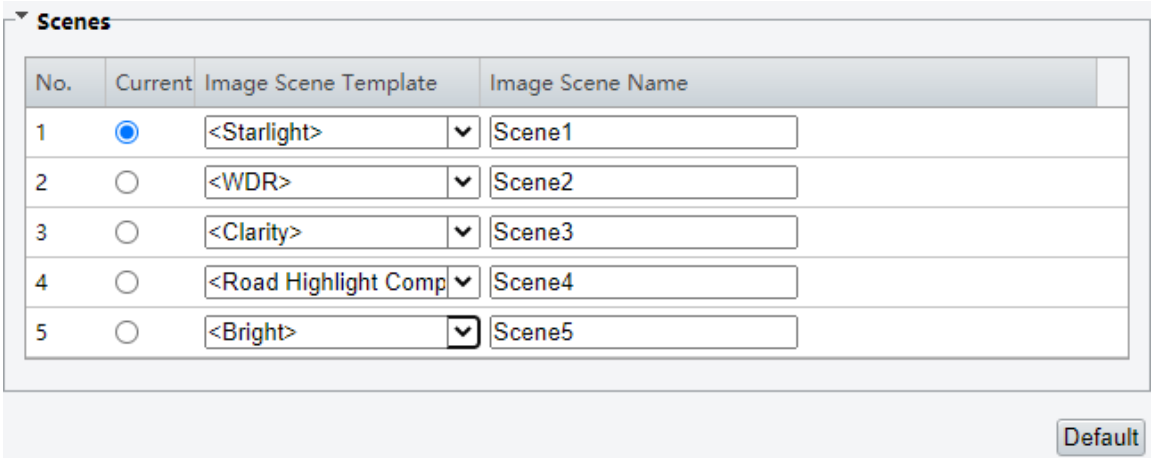
1. Scenes

A scene is a collection of image parameters preset in the camera for users to choose according to the actual scene.

1. Go to **Setup** > **Image** > **Image**.



2. Click **Scenes**.



3. Set the parameters.

Item	Description
Current	Shows the scene that is currently in use. **NOTE!** To apply a scene, click the corresponding radio button in the **Current** column. The scene is selected as the current scene, and the corresponding image parameters apply automatically.
Image Scene Template	The camera provides multiple scenes for you to choose according to the actual scene. After you select a scene, the corresponding image settings apply automatically (you may also fine-tune image settings as needed). ● Common: For outdoor scenes. ● Indoor: For indoor scenes. ● Road Highlight Compensation/Park Highlight Compensation: For capturing license plates in roads, parks, etc. ● WDR: For high-contrast situations. ● Custom: For customizing a scene. ● Test: For testing. ● Standard: For common scenes, indoor and outdoor. ● Vivid: Provides extra saturation based on the Standard scene. ● Bright: Provides extra brightness based on the Standard scene. ● Starlight: For lowlight environments. ● Face: For capturing faces in motion in complicated scenes. ● Person And Vehicle: For monitoring motor vehicles, non-motor vehicles, and pedestrians in road scenes. ● Intrusion Prevention: For perimeter protection scenes.
Image Scene Name	Choose scene names corresponding to the scene templates. The scene names will be used in image scene switching (see **Error! Reference source not found.**).

2. Image Enhancement

1. On the **Image** page, click **Image Enhancement**.

2. Set the image enhancement parameters.

Item	Description
Brightness	The overall lightness or darkness of the image.   Low brightness High brightness
Saturation	The intensity or vividness of colors in the image.   Low saturation High saturation
Contrast	The difference between the lightest and darkest tones in the image.   Low contrast High contrast

Item	Description
Sharpness	The definition of edges in the image.   Low sharpness High sharpness
2D Noise Reduction	Reduce noise by individually analyzing each frame, which may cause image blur.
3D Noise Reduction	Reduce noise by analyzing the difference between successive frames, which may cause image smearing or ghosting.
Image Rotation	The rotation of the image.   Normal Flip vertical   Flip horizontal 180°   90° clockwise 90° anti-clockwise

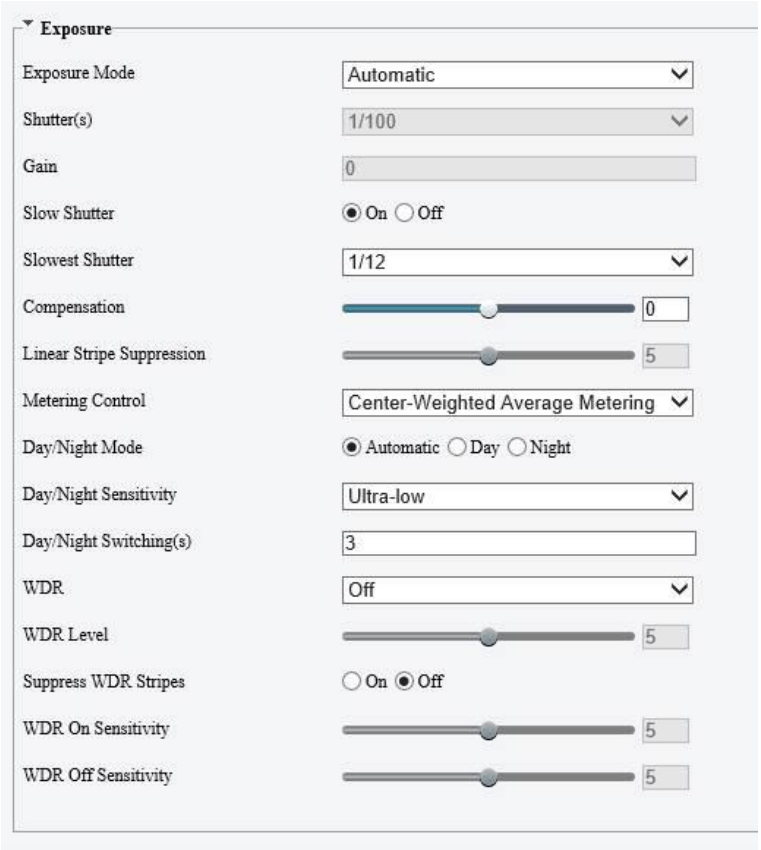
To restore defaults, click **Default**.

3. Exposure

NOTE!

- The exposure settings may vary with device model.
- The default settings are scene-adaptive. Use default settings unless modification is necessary.

1. On the **Image** page, click **Exposure**.



2. Set the exposure parameters.

Item	Description
Exposure Mode	Select the exposure mode. ● Automatic: The camera automatically sets the optimum shutter speed according to the scene. ● Custom: User can set exposure parameters as needed. ● Shutter Priority: The camera adjusts shutter as priority to adjust the image quality. ● Iris Priority: The camera adjusts iris as priority to adjust the image quality. ● Indoor 50Hz: Reduce stripes by adjusting the exposure time. **NOTE!** ➢ Stripe effect: The high-contrast condition in an image caused by uneven light energy received by the sensor. ➢ Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression. ● Indoor 60Hz: Reduce stripes by adjusting the exposure time. **NOTE!** Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression. ● Manual: Fine-tune image quality by setting shutter, gain and iris manually. ● Low Motion Blur: Control the minimum shutter to reduce motion blur in faces captured in motion.
Shutter(s)	Shutter is used to control the light that comes into the lens. A fast shutter speed is ideal for scenes in quick motion. A slow shutter speed is ideal for scenes that change slowly. **NOTE!** ● This parameter is configurable when **Exposure Mode** is set to **Manual**, **Shutter Priority**, or **Custom**. ● If **Slow Shutter** is disabled, the reciprocal of the shutter speed must be greater than the frame rate.

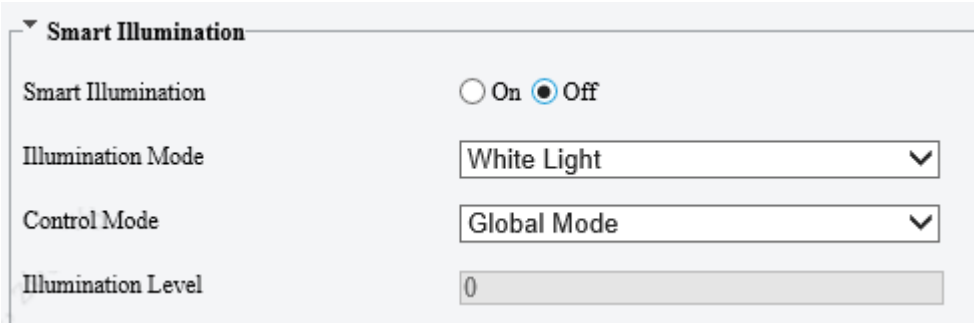
Item	Description
Gain	Control image signals so that the camera can output standard video signals in different light conditions. **NOTE!** This parameter is configurable when **Exposure Mode** is set to **Manual** or **Custom**.
Slow Shutter	Increase image brightness in low light conditions. **NOTE!** This parameter is configurable when **Exposure Mode** is not set to **Iris Priority** and **Image Stabilization** is disabled.
Slowest Shutter	Set the slowest shutter speed for exposure.
Compensation	Adjust the compensation value as required to achieve the desired image effect. **NOTE!** This parameter is configurable when **Exposure Mode** is not set to **Manual**.
Linear Stripe Suppression	Adjust the linear stripes in the image. Range: 1 to 9, the default is 5. The greater the value, the more obvious the linear stripe suppression effect is, but it may cause overexposure in the image. Please configure this according to the actual scene. **NOTE!** This parameter is configurable when **Exposure Mode** is set to **Indoor 50Hz** or **Indoor 60Hz**.
Restore Auto Exposure(min)	Set the duration for the camera to restore automatic exposure mode.
Metering Control	Perform luminance statistics on the images captured by the device, automatically adjust the exposure value, and output properly exposed images with optimal brightness. The default is the **Center-Weighted Average Metering**, you may configure this according to the actual scene. ● Center-Weighted Average Metering: Measures light primarily in the central part of the image. ● Evaluative Metering: Measures light in the specified area of the image, suitable for scenes where the target and the background contrast widely. ● Spot Metering: Measures light in a small spot, smaller than evaluative metering, with more accurate light control. If used in brighter areas, the metered area will be properly exposed but darken other areas. If used in darker areas, the metered area will be properly exposed (unable to increase the brightness of the spot) and brighten other areas. ● Face Metering: Adjusts image quality in poor lighting or back lighting conditions by controlling the brightness of captured faces in face scenes. **NOTE!** This parameter is configurable when **Exposure Mode** is not set to **Manual**.
Day/Night Mode	● Automatic: The camera automatically switches between day mode and night mode according to the ambient lighting condition to output optimum images. ● Day: The camera outputs high-quality images in daylight conditions. ● Night: The camera outputs high-quality images in low-light conditions. ● Input Boolean: The camera switches between day mode and night mode according to the Boolean value input from a connected third-party device. **NOTE!** The **Input Boolean** option is only available on certain models.
Day/Night Sensitivity	Light threshold for switching between day mode and night mode. A higher sensitivity value means that the camera is more sensitive to the change of light and is therefore more easily switched between day mode and night mode. **NOTE!** This parameter is configurable when **Day/Night Mode** is set to **Automatic**.
Day/Night Switching(s)	Set the length of time before the camera switches between day mode and night mode after the switching conditions are met. **NOTE!** This parameter is configurable when **Day/Night Mode** is set to **Automatic**.

Item	Description
WDR	Suitable for high-contrast scenes. WDR can balance the brightness in the bright area and dark area and provide clear image with more details. • On/Off: User needs to identify WDR scenes, and manually enable or disable WDR as needed. • Smart/Automatic: The device can automatically identify typical WDR scenes, and then enable or disable WDR. **Note:** When WDR is enabled, some other functions may not be supported. Please refer to the actual interface.
WDR Level	Adjust the WDR level. **NOTE!** Level 7 or higher is recommended if there is a high contrast between the bright and dark areas in the scene. In the case of low contrast, it is recommended to disable WDR or use level 1 to 6.
WDR On/Off Sensitivity	When **WDR** is set to **Automatic**, adjust the parameter to change the WDR switching sensitivity.
Suppress WDR Stripes	Suppress the stripes in the image caused by the flickering light in WDR mode. When enabled, the camera automatically adjusts the shutter and frequency to minimize stripes.

To restore defaults, click **Default**.

4. Smart Illumination

1. On the **Image** page, click **Smart Illumination**.



2. Enable **Smart Illumination**.
3. Set the smart illumination parameters.

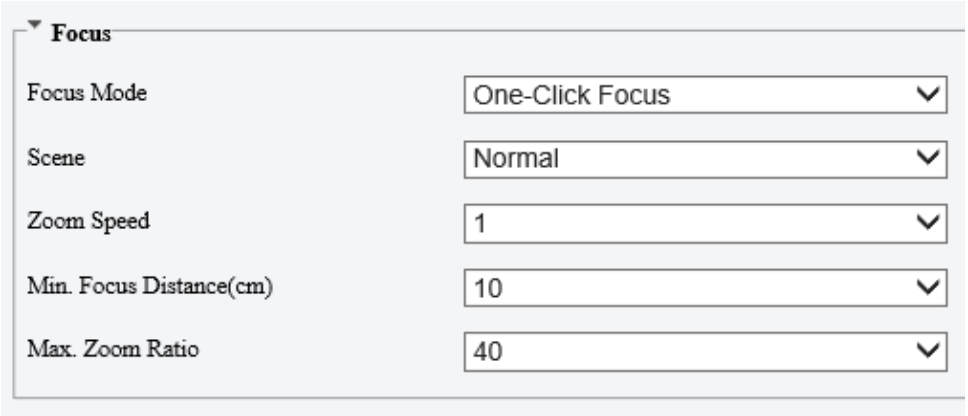
Item	Description
Illumination Mode	• Infrared: The camera uses infrared light illumination. • White Light /Smart White Light: The camera uses white light illumination. • Warm Light: The camera uses warm light illumination. • Laser: The camera uses laser light illumination. **NOTE!** • Before you select Warm **Light**, please set the **Port Mode** to **Illumination** (go to Setup > System > Ports & Devices > Serial Port). • This parameter is configurable when **Control Mode** is set to **Custom Level**. Range: 0 to 100. 0 is the weakest, 100 is the strongest. • When **Smart Illumination** is enabled and **illumination mode** is set to **Smart White Light**: ➢ Alarm-trigger enabled: when an alarm is triggered, during the daytime, the white light blinks; at night, the white light is on steadily, otherwise, the white light is on faintly. ➢ Alarm-trigger N/A or disabled: when an alarm is triggered, during the daytime, the white light is off; at night, the white light is on steadily, otherwise, the white light is on faintly.
Control Mode	• Global Mode: The camera automatically adjusts illumination and exposure to achieve a balanced image effect. Some areas might be overexposed if you select this option. This option is recommended if you focus on the monitoring range and image brightness.

Item	Description
	• Overexposure Restrain: The camera automatically adjusts illumination and exposure to avoid regional overexposure. Some areas might be dark if you select this option. This option is recommended if you focus on the clarity of the monitoring center area. • Road: This mode offers a strong overall illumination and is recommended for monitoring wide-range scenes, for example, road. • Park: This mode offers uniform illumination and is recommended for monitoring small-range scenes with many obstacles, for example, park. • Custom Level: This mode allows you to manually control the intensity of illumination. • Custom Level(Always On): In this mode, the illumination is always on.
Illumination Level	Set the intensity of the illuminator. The greater the value, the higher the intensity. 0 is off. • Near-illumination Level: Recommended for near focus scenes. • Mid-illumination Level: Recommended for medium distance focus scenes. • Far-illumination Level: Recommended for far focus scenes. **NOTE!** This parameter is configurable when **Control Mode** is set to **Custom Level**.

To restore defaults, click **Default**.

5. Focus

1. On the **Image** page, click **Focus**.



2. Set the focus parameters.

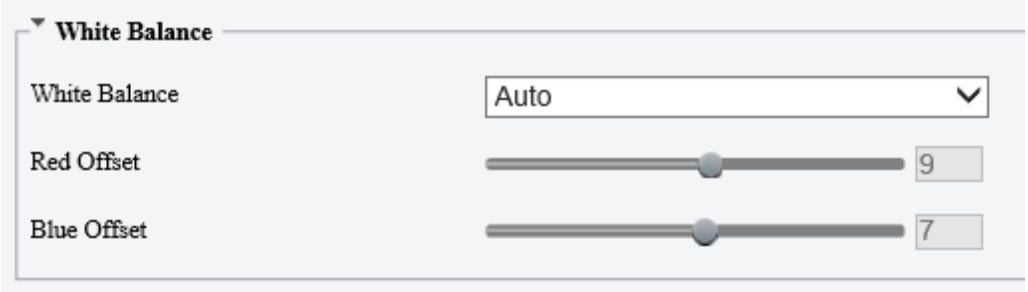
Item	Description
Focus Mode	• Auto Focus: Automatic focus control based on the current light conditions. • Manual Focus: Manual focus control. • One-Click Focus: Automatic focus in the event of rotation, zoom, and preset call. • One-Click Focus (IR): Recommended for low light scenes. • One-click Focus (Locked): Recommended for road highlight scenes.
Scene	• Normal: Common monitoring scenes such as road, park, etc. • Long Distance: Long-distance monitoring scenes
Zoom Speed	• 1: Low zoom speed. Recommended for common scenes. • 2: High zoom speed. Recommended when **Quick Focus** is enabled.
Min. Focus Distance	Select the minimum focus distance.
Max. Zoom Ratio	Choose an upper limit for digital zoom: **22**, **44**, **88**, **176**, or **352**.

3. To restore the default settings, click **Default**.

6. White Balance

White balance is used to eliminate unnatural color casts in images under different color temperatures for optimal color reproduction.

1. On the **Image** page, click **White Balance**.



2. Set the white balance parameters.

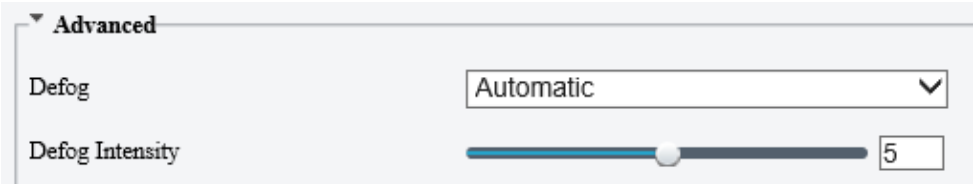
Item	Description
White Balance	Adjust the red and blue gains of the image to remove unrealistic color casts. • Auto/Auto 2: Automatically adjust the red and blue gains according to the lighting conditions. If there are still color casts in Auto mode, try Auto 2 mode. • Fine Tune: Manually adjust the red and blue offsets. • Sodium Lamp: Automatically adjust the red and blue gains for optimal color reproduction in sodium light sources. • Outdoor: Recommended for outdoor scenes where the color temperature varies widely. • Locked: Keep the current color temperature.
Red/Blue Offset	Set the red/blue offset. **NOTE!** This parameter is configurable when **White Balance** is set to **Fine Tune**.

To restore defaults, click **Default**.

7. Defog

Defog is used to improve image visibility in foggy, hazy, and other low-visibility scenes.

1. On the **Image** page, click **Advanced**.



NOTE!
This function is only available when WDR is disabled.

2. Set the defog parameters.

Item	Description
Defog	Select the defog mode, including **Automatic**, **On**, and **Off**. In **Automatic** mode, the camera automatically adjusts the defog intensity according to the fog concentration for clear images.
Defog Intensity	Adjust the defog intensity. In a heavy-fog environment, the higher the defog level, the clearer the image; in a fog-free or light-fog environment, there is not much difference between levels 1 to 9.

Item	Description
	NOTE! • Optical defog is available on certain models. • To enable optical defog, select **On** and set the defog intensity to 6 or higher, or select **Automatic**. Optical defog is automatically turned on in thick fog, and the image changes from color to black and white.

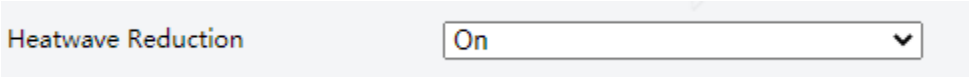
To restore defaults, click **Default**.

8. Heatwave Reduction

Heatwave reduction can detect heatwave caused by temperature differences in the air in hot weather and perform real-time correction to improve image clarity.

NOTE!

- Please set the heatwave reduction level according to the actual needs.
- For devices that support heatwave reduction, when in dual-channel mode, only channel 2 supports the heatwave reduction function.

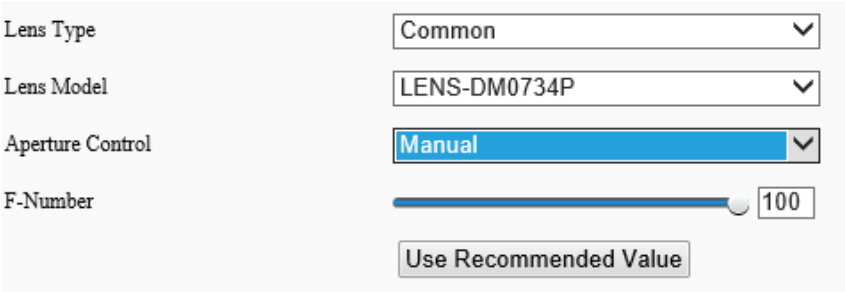


9. Lens Info

NOTE!

- This function is only available on cameras with external lenses.
- When using a P-IRIS lens with Z/F function, connect the iris control cable to the Z/F port of the camera.

1. On the **Image** page, click **Lens Info**.



2. Set the lens parameters.

Item	Description
Lens Type	Select the lens type, including **Common** and **IR**.
Lens Model	Select the lens model, including **LENS-DC-IRIS**, **LENS-DM0734P**, etc. **NOTE!** The lens models supported may vary with device model.
Aperture Control	Select automatic or manual iris control. **NOTE!** This parameter is configurable when **Lens Type** is **P-IRIS**.
F-Number	Set the f-number to adjust the iris opening manually.

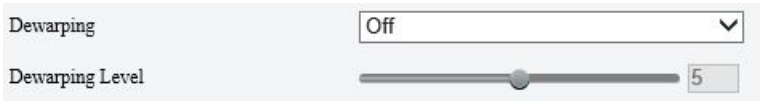
Item	Description
Use Recommended Value	The camera optimizes the iris opening based on the current lighting conditions.

To restore defaults, click **Default**.

10. Dewarping

Dewarping is used to correct distorted images caused by wide-angle lenses.

1. On the **Image** page, click **Advanced**.



2. Enable **Dewarping** and set the dewarping level as needed.

To restore defaults, click **Default**.

11. Image Stabilization

A camera mounted outdoors may be shaken by external forces (e.g., wind), causing image blur. In this case, you can enable image stabilization to ensure the image quality.

1. On the **Image** page, click **Advanced**.

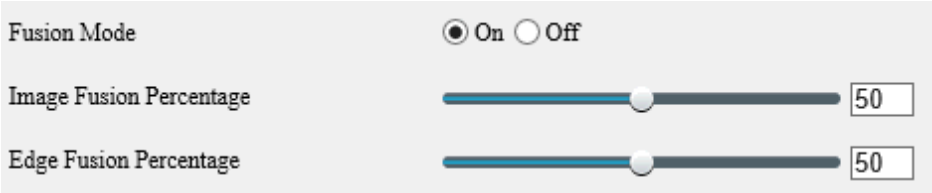
2. Select **On** or **Off** to enable or disable image stabilization.

To restore defaults, click **Default**.

12. Fusion Mode

In fusion mode, the object details on visible images will overlay on thermal images so thermal images can also show object details.

1. On the **Image** page, select **Channel 2** and click **Fusion Mode**.



2. Select **On** to enable fusion mode.
3. Set the fusion percentage.

Item	Description
Image Fusion Percentage	The greater the value, the closer the thermal image effect is to the visible image effect.  Image fusion percentage: 0 Edge fusion percentage: 50  Image fusion percentage: 100 Edge fusion percentage: 50

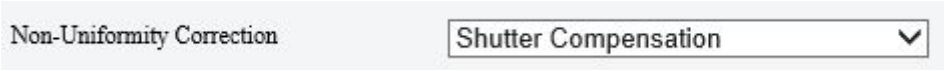
Item	Description
Edge Fusion Percentage	The greater the value, the sharper the object edges in the thermal image.  Image fusion percentage: 50 Edge fusion percentage: 0  Image fusion percentage: 50 Edge fusion percentage: 100

NOTE!
The frame rate of live video may be limited when the fusion mode is enabled on certain models.

13. Non-Uniformity Correction

Non-uniformity correction improves image quality by correcting the non-uniformity of pixels caused by different response rates of thermal units.

1. On the **Image** page, select **Channel 2** and click **Advanced**.



2. Select the non-uniformity correction mode.

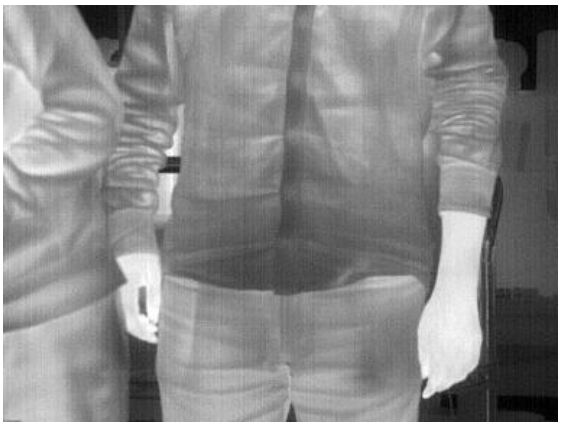
- Shutter Compensation: In this mode, the live video may be lost.
- Background Compensation: In this mode, scene changes may occur during image collection.

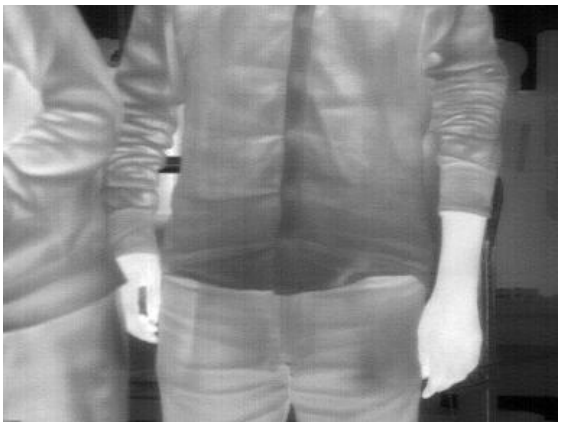
14. Reduce Vertical Stripe Noise

This function helps remove vertical stripes in images caused by the sensor or external temperature.

1. On the **Image** page, select **Channel 2** and click **Advanced**.

2. Drag the slider or enter a number to set the intensity. The greater the value, the blurrier the image.


Before


After

15. Thermal Imaging Palette

The camera offers a variety of color display options for thermal imaging. The rainbow palette has a strong contrast and a clear distinction between colors of different temperatures, ideal for pinpointing objects in environments with subtle temperature differences.

1. On the **Image** page, select **Channel 2** and click **Advanced**.

2. Select the appropriate thermal imaging palette for your camera.

Common Palette “Rainbow 3”

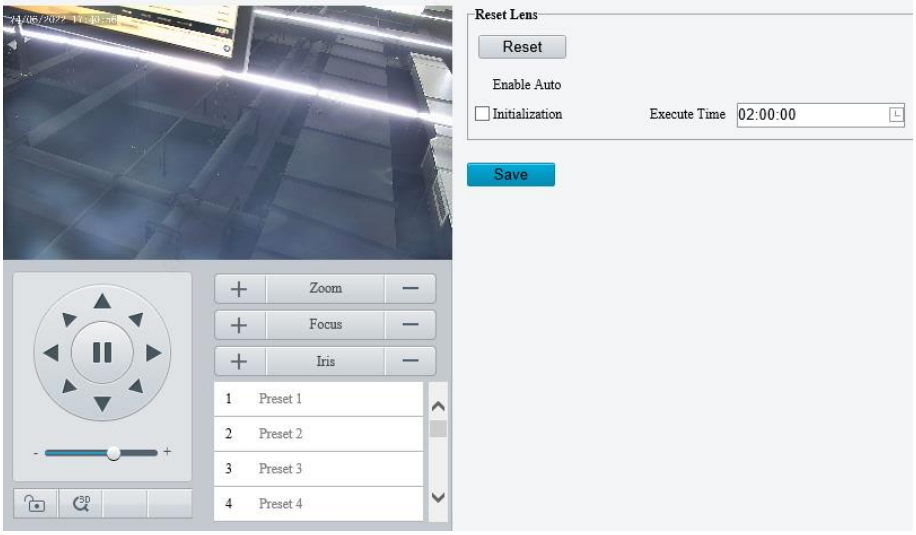
Common Palette “White Hot”

16. Engineering Parameters

During lens rotation, the camera may lose focus, causing unclear images. In this case, you can initialize the lens to refocus.

1. Go to **Setup** > **Image** > **Engineering**.
2. Reset lens.

- To reset manually, click **Reset**.
- To reset automatically, select the **Enable Auto Initialization** checkbox and set an execution time.

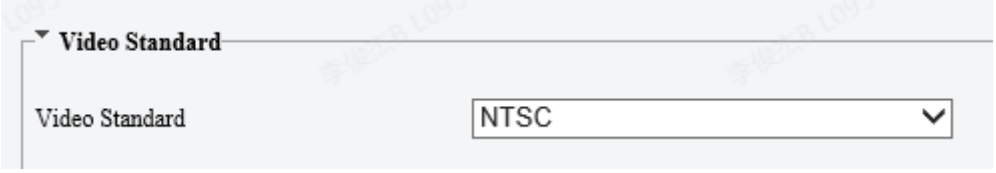


3. Click **Save**.

17. Video Standard

Select the P/N mode for video capture to suppress the stripes in the image.

1. Go to **Setup** > **Image** > **Image**.
2. Click **Video Standard**.



3. Select the P/N mode from the **Video Standard** drop-down list. Even if you switch the capture mode in Video, the P/N mode configured in this page still prevails.

5.4.2 OSD

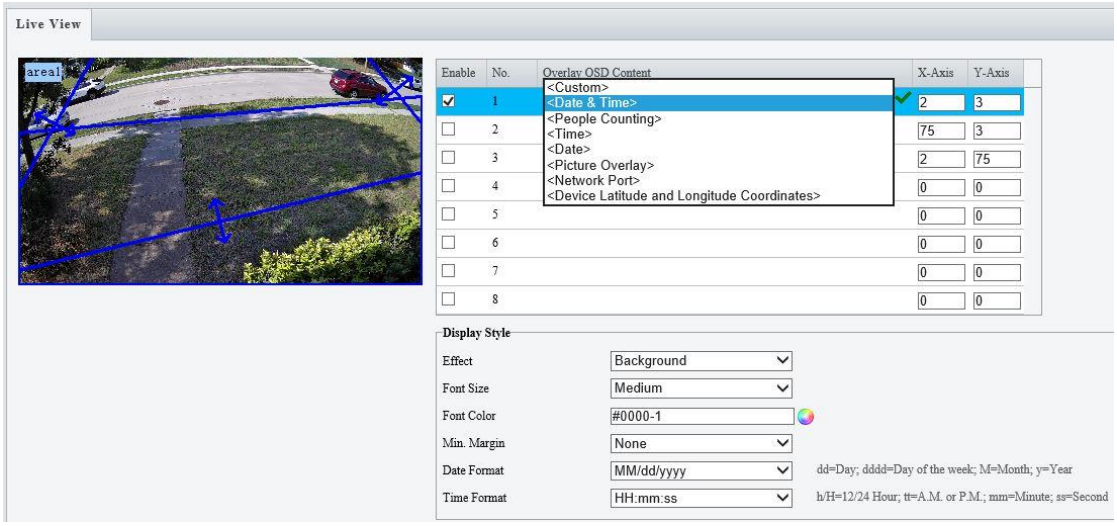
On Screen Display (OSD) are characters displayed with video images, for example, camera name, date, and time.

NOTE!

- This function may vary with device model.
- For dual-channel cameras, you can set OSD parameters for the channels separately.

Configure OSD displayed on the live video.

1. Go to **Setup** > **Image** > **OSD** .

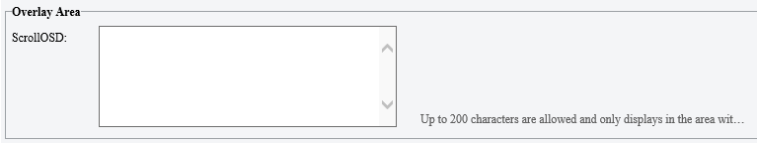


2. Configure parameters in the OSD Toolbar

NOTE!

OSD operations supported may vary with device model.

Item	Description
Enable	Select the checkboxes in the **Enable** column to overlay the corresponding OSD contents on live video. **NOTE!** Up to 10 OSDs are allowed.
Overlay OSD Content	Set OSD content you want to overlay. Point to the OSD content, click , select the OSD content from the drop-down list or customize it. **NOTE!** • An OSD content takes effect only when the **Enable** checkbox is selected. • Some models allow multiple OSD contents in one overlay area.
X-Axis/Y-Axis	Specify the exact position of the OSD by entering the X and Y coordinates. The top left corner of the image is the origin (0, 0), the horizontal axis is the X-axis, and the vertical axis is the Y-axis. **NOTE!** You can also drag an OSD to the desired position: point to the OSD box in the preview window and drag when the cursor shape changes.

Item	Description
Upload Picture	This parameter is available only when the **Overlay OSD Content** is set to **Picture Overlay**. 1. Click **Browse…** to select the picture you want to overlay. 2. Click **Upload**, then the picture is displayed on the live video. 
ScrollOSD	This parameter is available only when the **Overlay OSD Content** is set to **Picture Overlay**. 1. Enter the text you want to overlay. 2. The text appears on the live video and scrolls from right to left. 
Copy	After configuring the OSD for one channel, you can click **Copy** to copy the OSD content and style of the channel to other channels.

3. Overlay OSD Contents
   - Custom: Customizes the OSD contents.
   - Date & Time: Displays the current date and time of the camera according to the set format (content style), for example, Friday, 25 March, 2022 14:25.

     PTZ Coordinates: Specify the exact position of the PTZ camera. For example, P: 165.42°, T: 1.49°. P stands for horizontal coordinates, T stands for vertical coordinates.
   - Zoom: Displays the zoom information of the PTZ, for example, Z: 1.00X.
   - Preset: Displays current preset ID on live video, for example, Preset 1.
   - Serial Port: The IPC will receive and parse the serial port information in correct format and display the information in the live view window. Only some models support this function.
   - Direction: Displays the coordinates of the 8 directions of the PTZ camera, including the basic directions: East, South, West, North, and the intermediate directions: Northeast, Southeast, Northwest, and Southwest.
   - People Counting: Displays people flow information (number of people entering/leaving), crowd density information (number of people present), or face detection information (number of people entering/leaving) on live video. You need to enable and configure People Flow Counting, Crowd Density Monitoring, or Face Detection.
   - Time: Displays the current time of the device.
   - Date: Displays the current date of the device.
   - Picture Overlay: Displays locally imported pictures. You may set the picture transparency according to your need.
   - ScrollOSD: The OSD text displays on the live video and scrolls from right to left.
   - Network Port: The IPC will receive and parse the network port information in correct format and display the information in the live view window.
   - Device Latitude and Longitude Coordinates: Displays the latitude and longitude coordinates of the device location.
   - Motor Vehicle&Non-Motor Vehicle&Pedestrian Count: Displays motor vehicle/non-motor vehicle/pedestrian counting information on live video. You need to enable Mixed-Traffic Detection and Motor Vehicle&Non-Motor Vehicle&Pedestrian Count first.

NOTE!

- To disable an OSD, clear the OSD content or clear the corresponding **Enable** checkbox.
- Some models allow multiple OSDs.

4. Set the OSD display style.

Item	Description
Effect	Choose a display effect: **Background**, **Stroke**, **Hollow**, or **Normal**.
Font Size	Choose a font size: **X-large**, **Large**, **Medium**, or **Small**.
Font Color	Click to choose a font color.
OSD Inverse	When enabled, the OSD content color is opposite to the live view color.
Min. Margin	Choose a minimum distance between the OSD area and the edge of image: • None: Zero margin. • Single: One-character margin. • Double: Two-character margin.
Date Format	Choose a date format: **dd/MM/yyyy**, **MM/dd/yyyy**, etc.
Time Format	Choose a time format: **HH:mm:ss**, **HH:mm:ss.aaa**, **hh:mm:ss tt**, or **hh:mm:ss.aaa tt**.

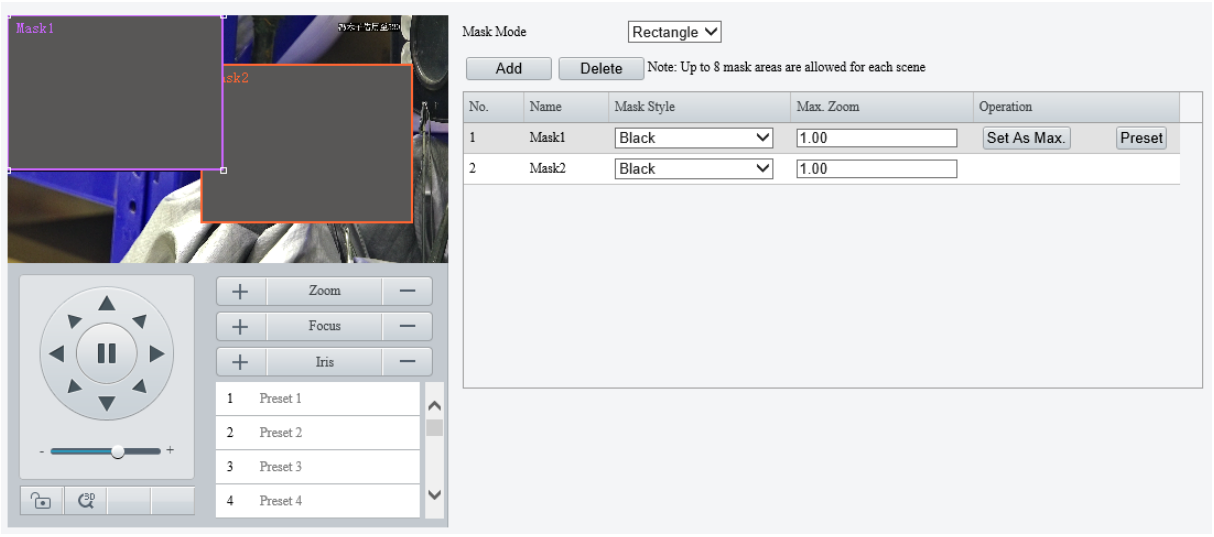
5.4.3 Privacy Mask

Privacy mask is used to cover certain areas on the image for privacy, for example, ATM keyboard.

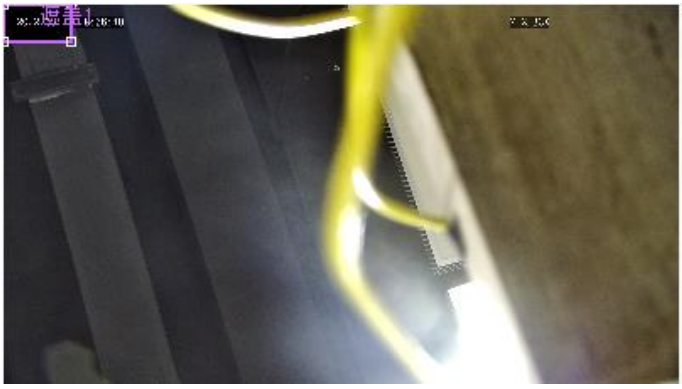
NOTE!

- This function may vary with device model.
- For dual-channel devices, you can set privacy mask parameters for the channels separately.

1. Go to **Setup** > **Image** > **Privacy Mask**.



2. Select the mask mode, **Rectangle** or **Polygon**.
3. Add a privacy mask.
   (1) Click **Add**. The privacy mask is a rectangle by default.



(2) Adjust the position and size of the mask or draw a mask as needed.

- Adjust the position and size of the mask.
  - Point to a border of the mask and drag it to the desired position.
  - Point to a corner of the mask and drag to resize it.
- Draw a mask.
  - Polygon: Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 4 lines are allowed.
  - Rectangle: Click on the image and drag to draw a rectangle.

4. Set the privacy mask.

Item	Description
Mask style	Select the mask style, **Black** or **Mosaic**. **NOTE!** • This parameter is configurable when **Mask Mode** is set to **Rectangle**. By default, the mask style of polygon mask is black and cannot be modified. • Mosaic is only available on certain models.
Max. Zoom (3D-mask camera)	Set the maximum zoom ratio to determine whether to show or hide the privacy mask. If the current lens zoom ratio is less than the maximum zoom ratio, the privacy mask is invalid.
Set As Max. (3D-mask camera)	Click to set the current lens zoom ratio as the maximum zoom ratio.
Preset (3D-mask camera)	Click to rotate the camera to the masked area (generally, the masked area is in the center of the live video).

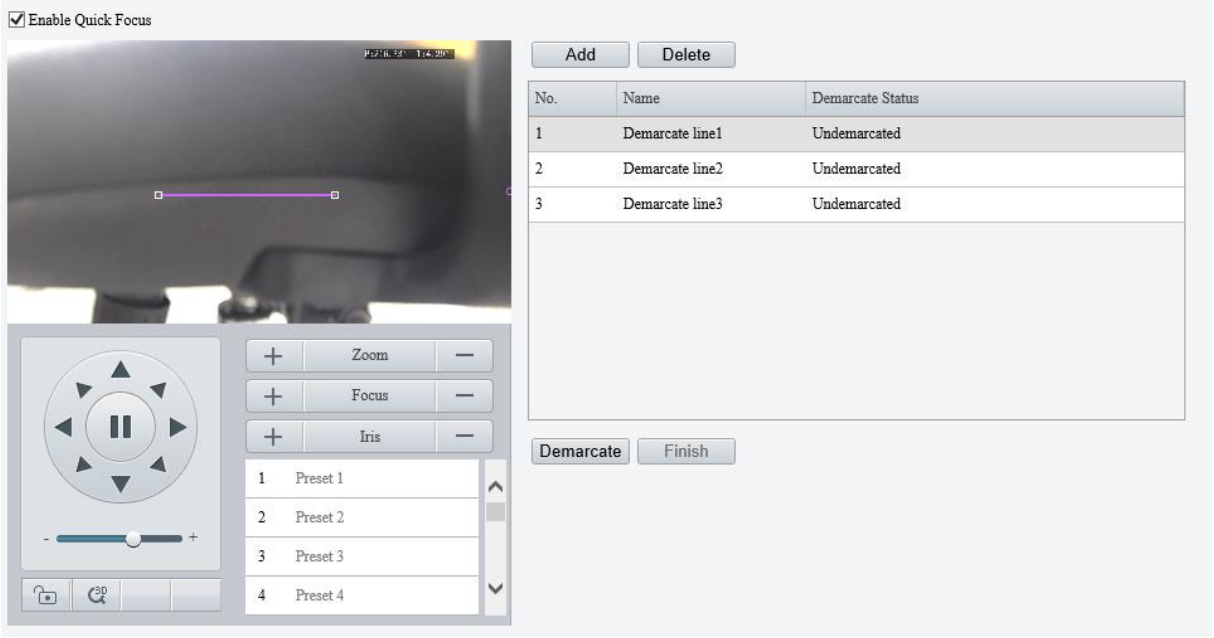
5.4.4 Quick Focus

Fast focus effectively saves focus time and avoids missing important information after the camera changes the scene, focus, and zoom.

NOTE!

- This function is only available on certain models.
- Set the zoom speed to 2 on the **Image** page when quick focus is enabled.

1. Go to **Setup** > **Image** > **Quick Focus**.
2. Select the **Enable Quick Focus** checkbox to enable it.

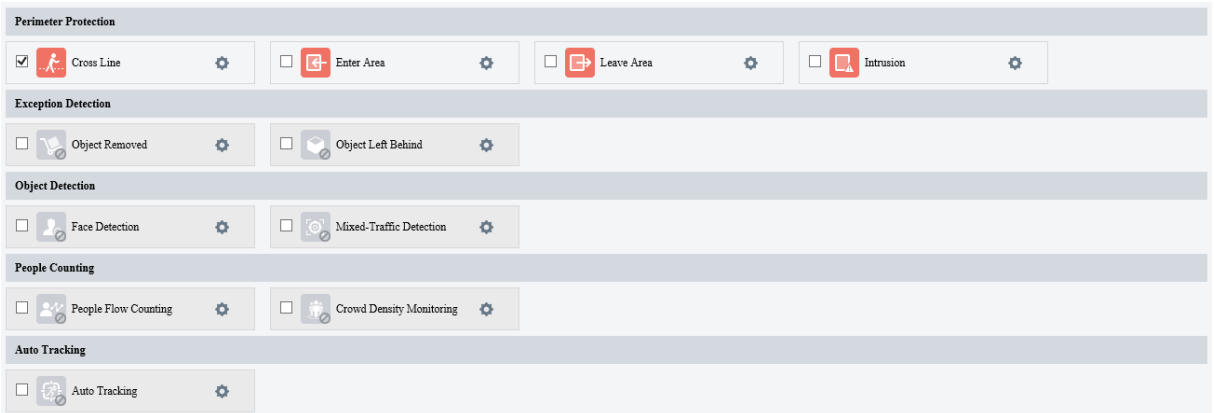


3. Add a calibration line for the desired scene.
   (1) Click **Add**. A line is displayed on the image.
   (2) Adjust the position and length of the line or draw a line as needed.
   - Adjust the position and length of the line.
     – Point to the line and drag it to the desired position.
     – Point to a corner of the line and drag to resize it.
   - Draw a line.
     Click on the image and drag to draw a line.
4. Click **Demarcate** to start automatic zoom. After the auto zoom is completed, click **Finish** to complete calibration. If you click **Finish** during calibration, the calibration line is considered invalid.
5. Repeat the above steps to calibrate more scenes. Up to 4 scenes are allowed.

5.5 Smart

On the **Smart** page, you can select the smart event to be monitored and click to configure relevant parameters.

The smart events supported by the device and the parameters supported by the events may vary with device model.



Common Button Description

Button	Description
	Create detection rules. Up to 4 detection rules are allowed for each smart event.
	Delete detection rules.

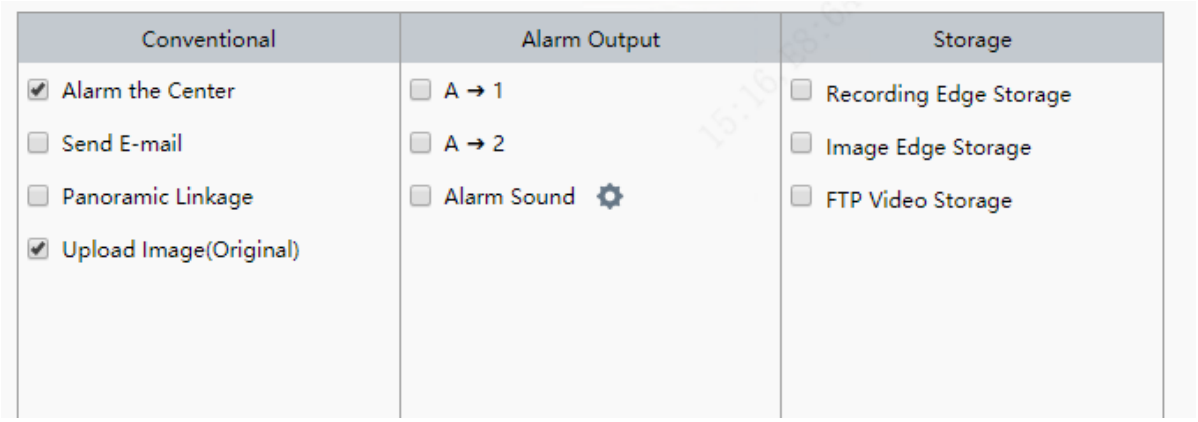
NOTE!

- For dual-channel devices, you can set smart parameters for the channels separately.
- Some smart functions are mutually exclusive. When a smart function is enabled, the functions that are mutually exclusive with it are grayed out.

5.5.1 Alarm-triggered Actions

Configure linkage actions to be triggered when an alarm occurs.

Perimeter protection, exception detection, object detection, people flow counting, and auto tracking support alarm-triggered actions (also known as linkage actions).

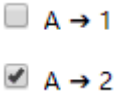
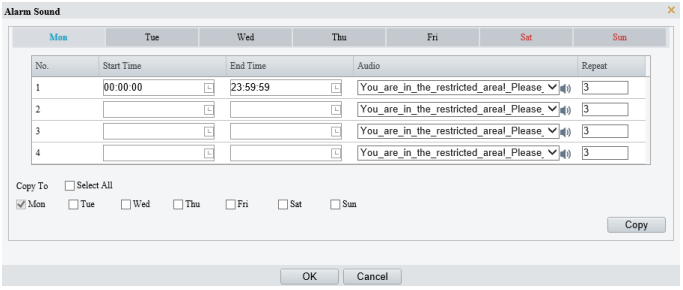


1. Conventional alarm-triggered actions

Item	Description
Upload to FTP	The camera uploads snapshots to the specified FTP server when an alarm occurs. 1. Configure FTP and Snapshot. 2. Select the **Upload to FTP** checkbox to enable this function.
Send E-mail	The camera sends snapshots to the specified email addresses when an alarm occurs. 1. Configure E-mail and Snapshot. 2. Select the **Send Email** checkbox to enable this function.
Alarm the Center	The camera uploads alarm information to the surveillance center when an alarm occurs. Select the **Alarm the Center** checkbox to enable this function.
Report Data to Center	The camera uploads data to the server when an alarm occurs. 1. Configure management platform. 2. Select the **Report Data to Center** checkbox to enable this function.
Attribute Collection	The camera uploads the attribute information collected from the captured object to the server when an alarm occurs. 1. Configure Attribute Collection, 2. Select the **Attribute Collection** checkbox to enable this function.

Upload Image(Original)	The camera uploads the original snapshot and the cutout image of the captured object to the server when an alarm occurs. Select the **Upload Image(Original)** checkbox to enable this function. For dual-channel cameras, when this function is configured for channel 2 (thermal channel), it will trigger channel 1 (visible light channel) to capture an image and upload the original image with the cutout image of the captured object to the server.
Upload Image(Target)	The camera uploads the cutout image of the captured object to the server. Select the **Upload Image(Target)** checkbox to enable this function.

2. Alarm output

Item	Description
Alarm Output	Connect the external alarm output devices, such as alarm lights and alarm bells, etc., to the camera's ALARM OUT interfaces. The camera triggers alarm output devices when an event occurs. A->1: **A** refers to the ALARM OUT interface on the device, 1 means the first ALARM OUT interface. **A->2** means the second ALARM OUT interface on the device, and so on. The number of ALARM OUT interfaces may vary with the device model. See the device datasheet for specifications.  1. Configure Alarm Output. 2. Select the **Alarm Output** checkbox to enable this function.
Alarm Sound	The camera plays warning sounds when an alarm occurs. 3. Select the **Alarm Sound** checkbox, and then click . 4. Set the arming schedule for audible alarms. See Arming Schedule for details. 5. Set the alarm audio content and alarm times. • Audio: Set the audio content to be played when an alarm occurs. See Audio File. • Repeat: Set the number of times the audio to be played when an alarm occurs.  **NOTE!** This function may vary with device model.
Flashing Light	The light flashes for a certain period of time when an alarm occurs. 1. Select the Flashing Light checkbox, and then click . 2. Set the flash duration. 3. Set the arming schedule. See Arming Schedule for details. **NOTE!** This function may vary with device model.

3. Alarm-triggered storage

Item	Description
Recording Edge Storage	The camera saves alarm recordings to its memory card or NAS when an alarm occurs. 1. Configure Memory Card or Network Disk. 2. Select the **Recording Edge Storage** checkbox.
Image Edge Storage	The camera saves alarm snapshots to its memory card or NAS when an alarm occurs. 1. Configure Memory Card or Network Disk. 2. Select the **Image Edge Storage** checkbox.
FTP Video Storage	The camera uploads alarm recordings to the specified FTP server when an alarm occurs. 1. Configure FTP. 2. Select the **FTP Video Storage** checkbox.

4. Alarm-triggered PTZ

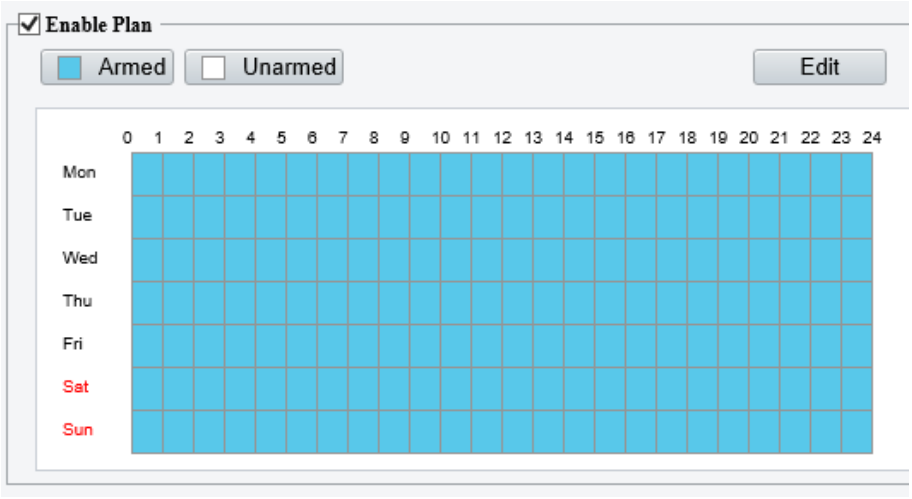
Item	Description
Trigger Tracking	The camera tracks and zooms on the object that triggered the alarm until the set tracking time is reached or the object disappears. 1. Select the **Trigger Tracking** checkbox. 2. Click **Tracking** to configure tracking parameters. See Tracking for details.
Panoramic Linkage	The camera automatically tracks the object that triggered the alarm. 1. Configure panoramic linkage. See **Error! Reference source not found.** for details. 2. Select the **Panoramic Linkage** checkbox.
Go to Preset	The camera automatically goes to a preset position when an alarm occurs. 1. Select the **Go to Preset** checkbox. 2. Choose the preset to be linked with motion detection alarm. See PTZ for details.

5.5.2 Arming Schedule

You can set an arming schedule to determine when the camera performs detection.

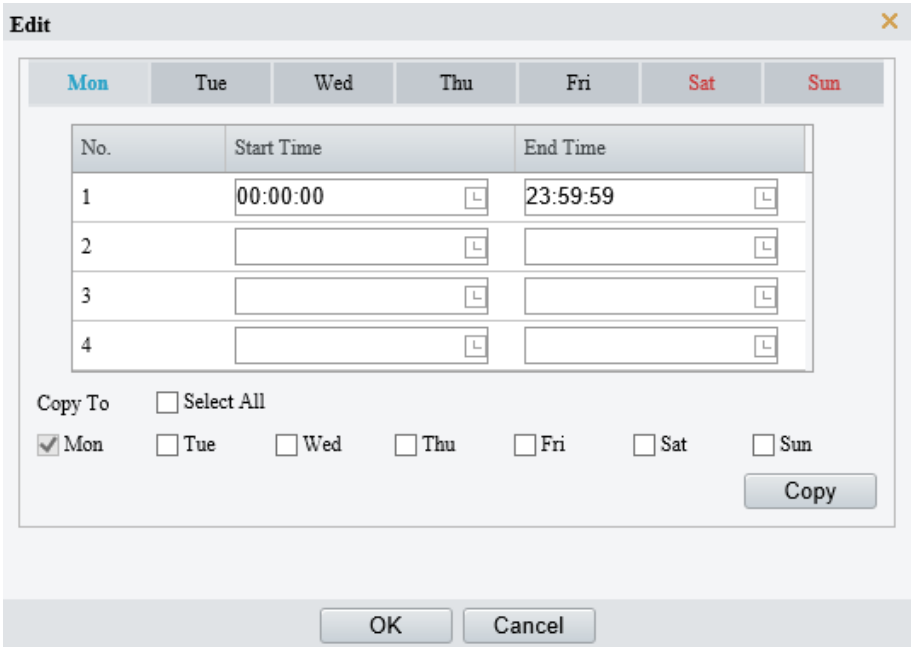
- Draw a schedule.

To set an armed period, click **Armed**, and then click or drag on the schedule to select the time cells you want to enable arming. To set a disarmed period, click **Unarmed**, and then click or drag on the schedule to select the time cells you want to disable arming.



- Edit a schedule.

Click **Edit**, set the arming time, and then click **OK**.



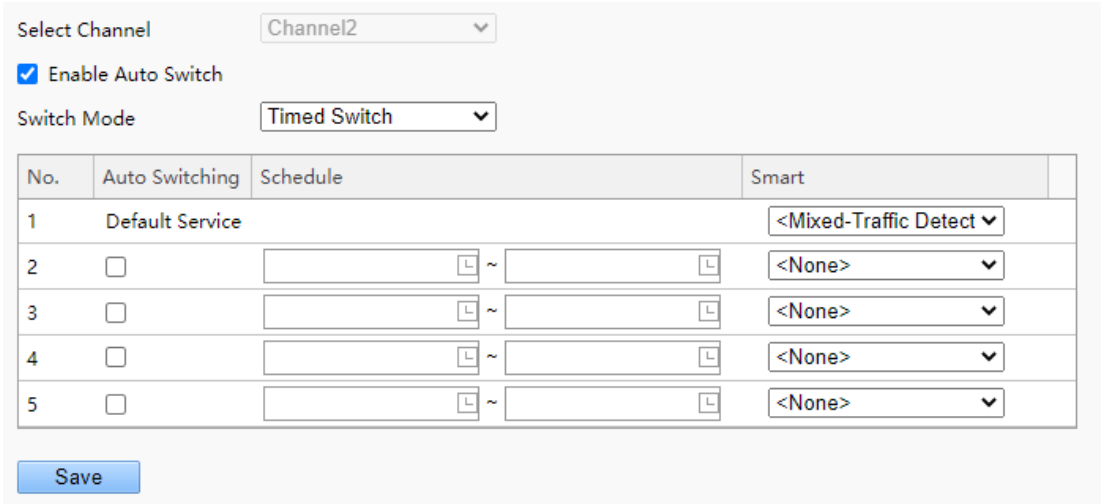
NOTE!

- Up to 4 time periods are allowed per day. The time periods cannot overlap.
- To apply the same time settings to other days, select the desired day(s), and then click **Copy**.

5.5.3 Smart Service Switch

Configure smart service switch so the camera can automatically switch smart services according to time schedules or linked presets.

1. Go to **Setup** > **Smart Service** > **Smart Service Switch**.

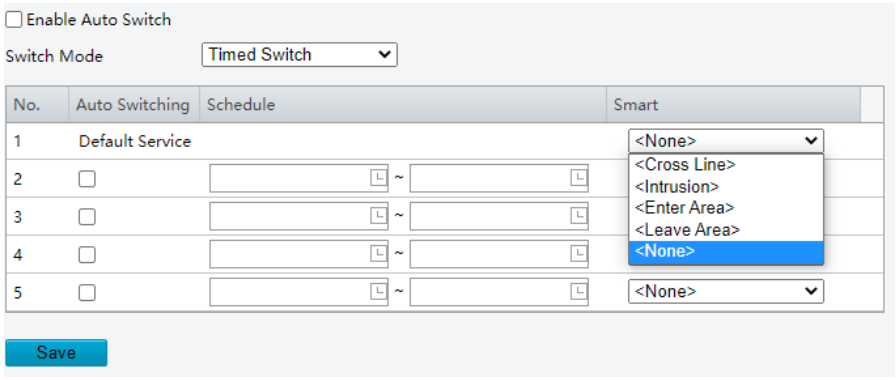


2. Click ˅ and choose a switch mode.

- Timed Switch: Switch to a specified smart service at a set time.
- Preset Switch: Switch to a specified smart service at a set time specified for a specified preset.

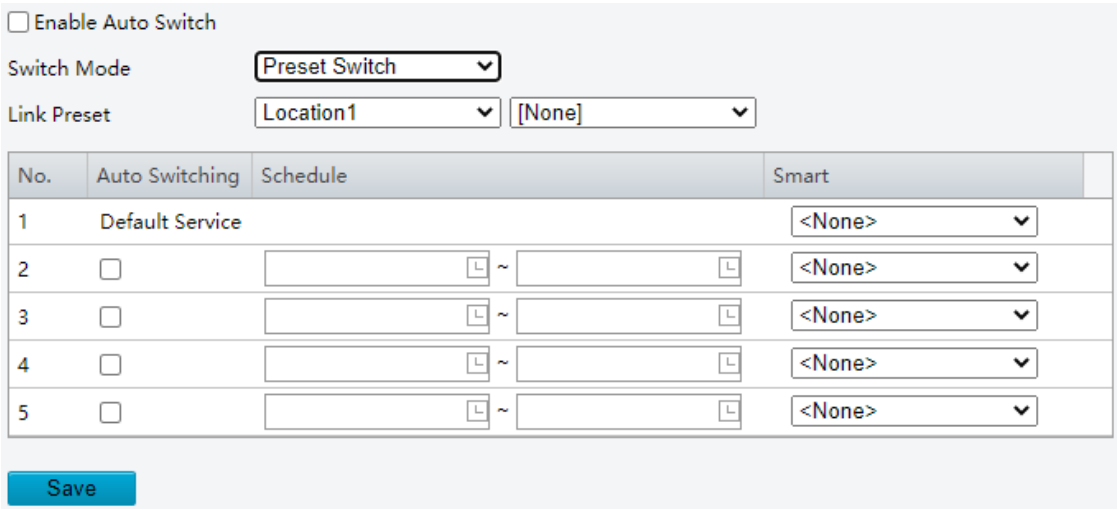
3. Configure the switch mode parameters.

- Timed Switch

Item	Description
Auto Switching	When auto switch is enabled and switching conditions are met, the system switches to the corresponding smart service automatically. The list includes the default service.
Schedule	The default service (No.1, by default, unspecified) takes effect when the current time is not within the listed periods. You can add up to 5 periods and assign a smart service for each period. Click to set time. • For certain perimeter protection functions, you can configure overlapping periods, which means, multiple smart services may be effective during the same period. • For mutually exclusively smart services which cannot be enabled at the same time, overlapping periods are not allowed, and on-screen messages will appear. • When panoramic linkage has been enabled and a specified smart service is mutually exclusive with panoramic linkage, an on-screen message will also appear.
Smart Service	Click to choose smart functions. All the functions on the **Smart Service** page except panoramic linkage are listed in the drop-down list. 

- Preset Switch

Click to choose a preset. You can set up to 4 locations and link a location to a preset (the linked presets must be configured in advance, see **Error! Reference source not found.**). The steps for c onfiguring a position are similar to that for configuring timed switch, that is, you can configure 4 locations and 4 corresponding schedules, each schedule includes periods and corresponding smart services.



4. (Optional) Select the **Enable Auto Switch** checkbox. After selecting the **Enable Auto Switch** checkbox, you may still configure or enable/disable smart services.

- Timed Switch
  - The camera switches to the linked smart service at the start time of a period.
  - The camera switches to the default service at the end time of a period, or switches to the corresponding smart service at the start time of the next period.

- The camera switches to the smart service at once when Auto Switch is enabled.

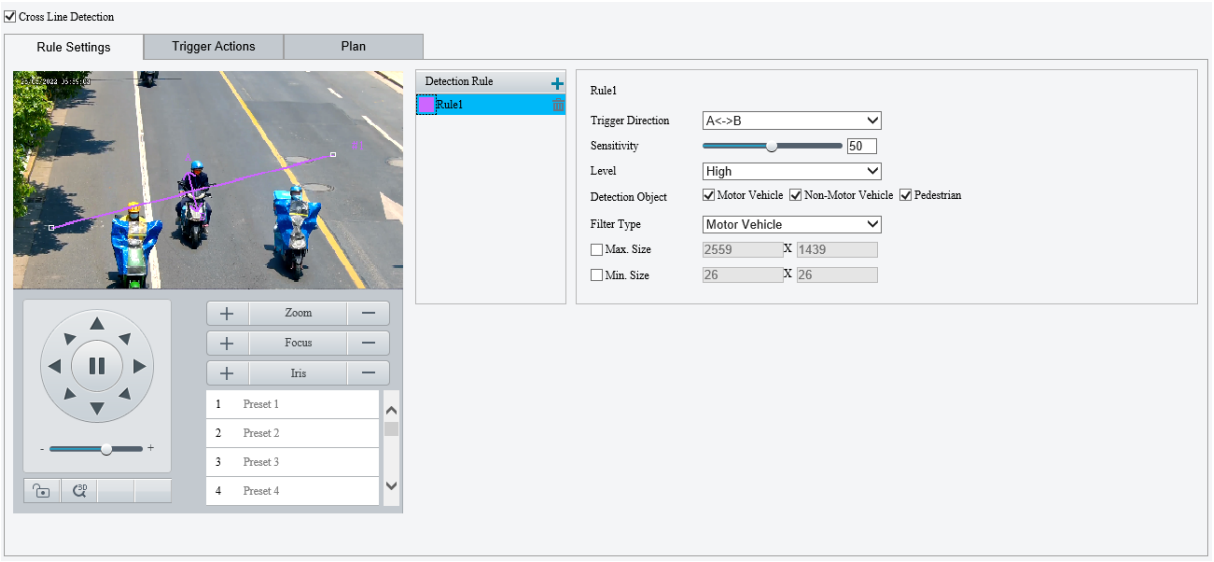
- Preset Switch
  - The camera switches smart service only when calling a linked preset.
  - The camera checks the time when calling a preset. If the current time is within a specified period, the camera switches to the smart service linked to the period.
  - The camera switches to the default smart service of the preset if the current time is not within any listed periods.

5. Click **Save**.

5.5.4 Cross Line Detection

Cross line detection detects objects crossing a user-specified virtual line in a specified direction. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Cross Line** and click to configure it.



3. Add a detection rule.

   (1) Click to add a detection line. Up to 4 detection rules are allowed.

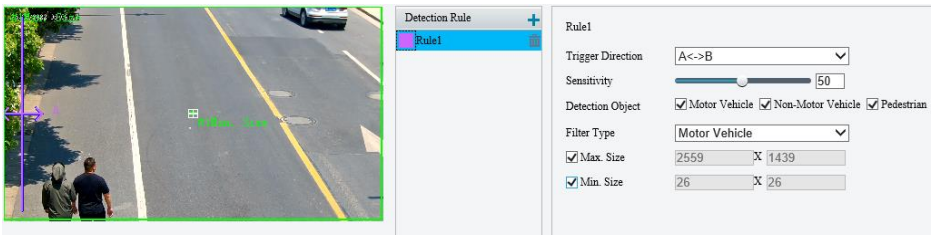
   (2) Adjust the position and length of the line or draw a line as needed.
   - Adjust the position and length of the line.
     - Point to the line and drag it to the desired position.
     - Point to a corner of the line and drag to resize it.
   - Draw a line.

Click on the image and drag to draw a line.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the detection rule.

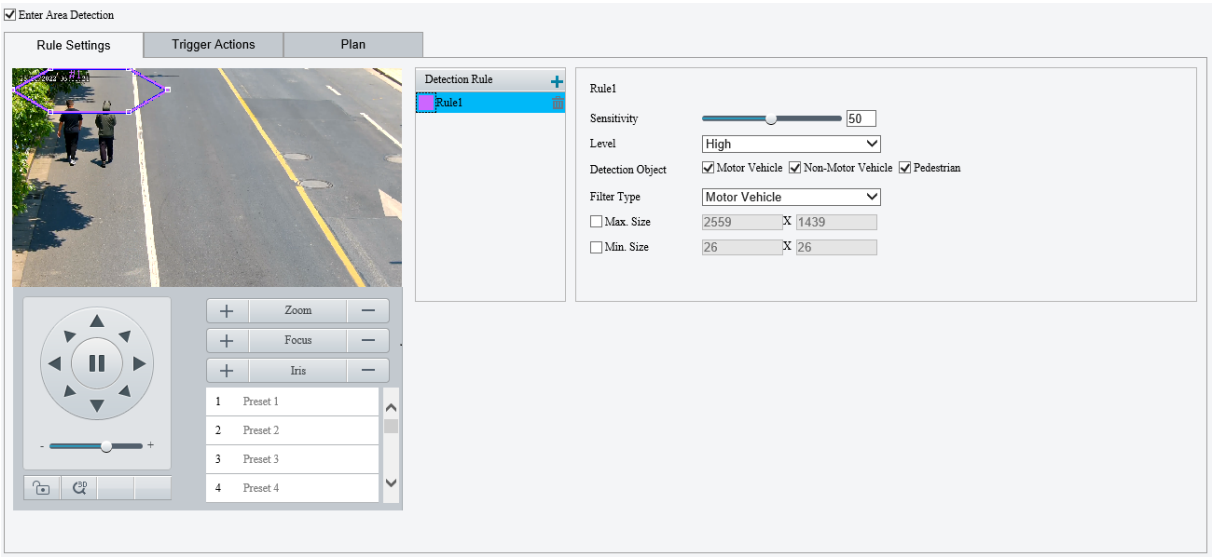
Item	Description
Trigger Direction	Select the direction from which the object crosses the line to trigger an alarm. • A->B: The camera reports a cross line alarm when it detects an object crossing the line from A to B. • B->A: The camera reports a cross line alarm when it detects an object crossing the line from B to A. • A<->B (default): The camera reports a cross line alarm when it detects an object crossing the line from A to B or from B to A.
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely cross line behaviors will be detected, and the more likely false alarms will occur.
Level	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The camera detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the camera detects the rule with higher priority.
Detection Object	Select the object to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger than the Max. Size or smaller than the Min. Size will not be detected.
Max. Size/Min. Size	When enabled, a box appears on the image, you can point to a corner of the box and drag to resize it. The camera filters objects larger than the Max. Size or smaller than the Min. Size. The width and height of the maximum filter area must be greater than that of the minimum filter area. 

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.5.5 Enter Area Detection

Enter area detection detects objects entering a user-specified area. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Enter Area** and click to configure it.



3. Add a detection rule.

(1) Click + to add a detection area. The detection area is a hexagon by default. Up to 4 detection rules are allowed.

(2) Adjust the position and size of the area or draw an area as needed.

- Adjust the position and size of the area.
  - Point to a border of the area and drag it to the desired position.
  - Point to a corner of the area and drag to resize it.
- Draw an area.

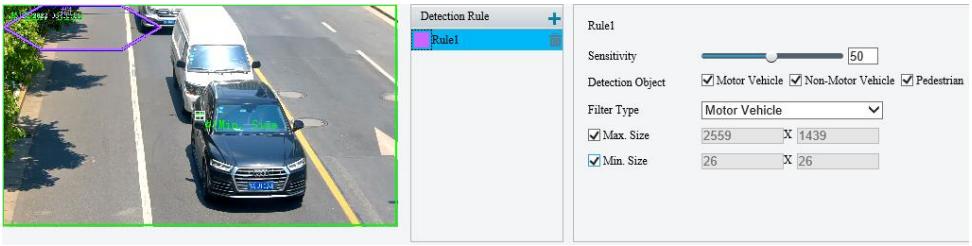
  Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the detection rule.

Item	Description
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely entry behaviors will be detected, and the more likely false alarms will occur.
Level	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The camera detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the camera detects the rule with higher priority.
Detection Object	Select the object to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.

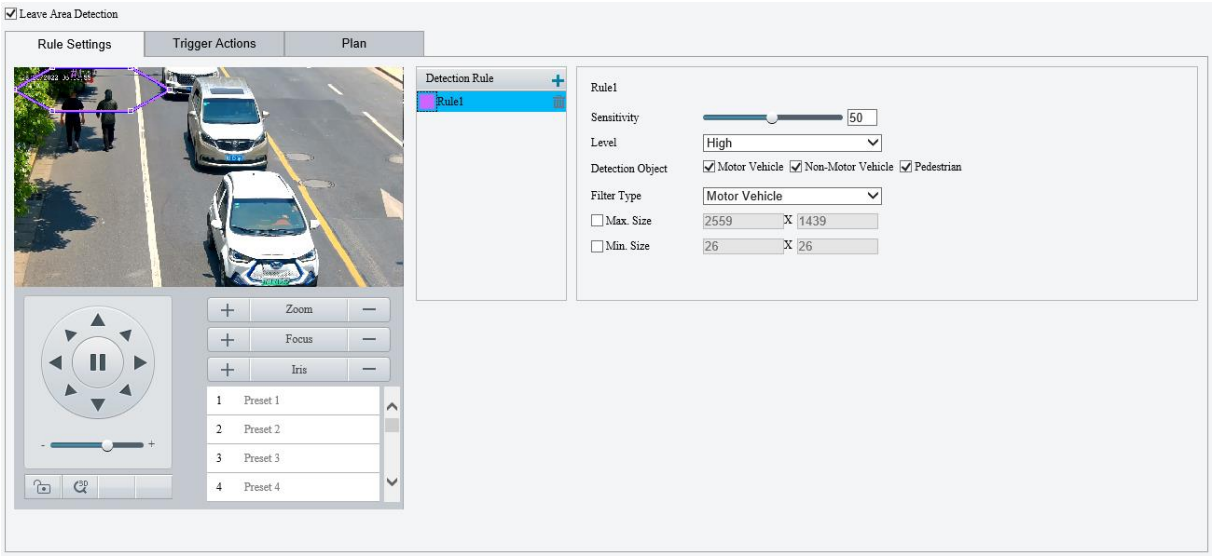
Item	Description
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger than the Max. Size or smaller than the Min. Size will not be detected.
Max. Size/Min. Size	When enabled, a box appears on the image, you can point to a corner of the box and drag to resize it. The camera filters objects larger than the Max. Size or smaller than the Min. Size. The width and height of the maximum filter area must be greater than that of the minimum filter area. 

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

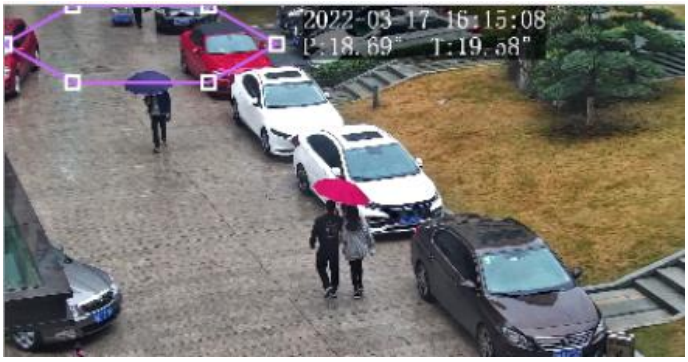
5.5.6 Leave Area Detection

Leave area detection detects objects leaving a user-specified area. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Leave Area** and click to configure it.



3. Add a detection rule.
   (1) Click to add a detection area. The detection area is a hexagon by default. Up to 4 detection rules are allowed.



(2) Adjust the position and size of the area or draw an area as needed.

- Adjust the position and size of the area.
  - Point to a border of the area and drag it to the desired position.
  - Point to a corner of the area and drag to resize it.
- Draw an area.

  Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the detection rule.

Item	Description
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely cross line behaviors will be detected, and the more likely false alarms will occur.
Level	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The camera detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the camera detects the rule with higher priority.
Detection Object	Select the object to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger than the Max. Size or smaller than the Min. Size will not be detected.
Max. Size/Min. Size	When enabled, a box appears on the image, you can point to a corner of the box and drag to resize it. The camera filters objects larger than the Max. Size or smaller than the Min. Size. The width and height of the maximum filter area must be greater than that of the minimum filter area. 

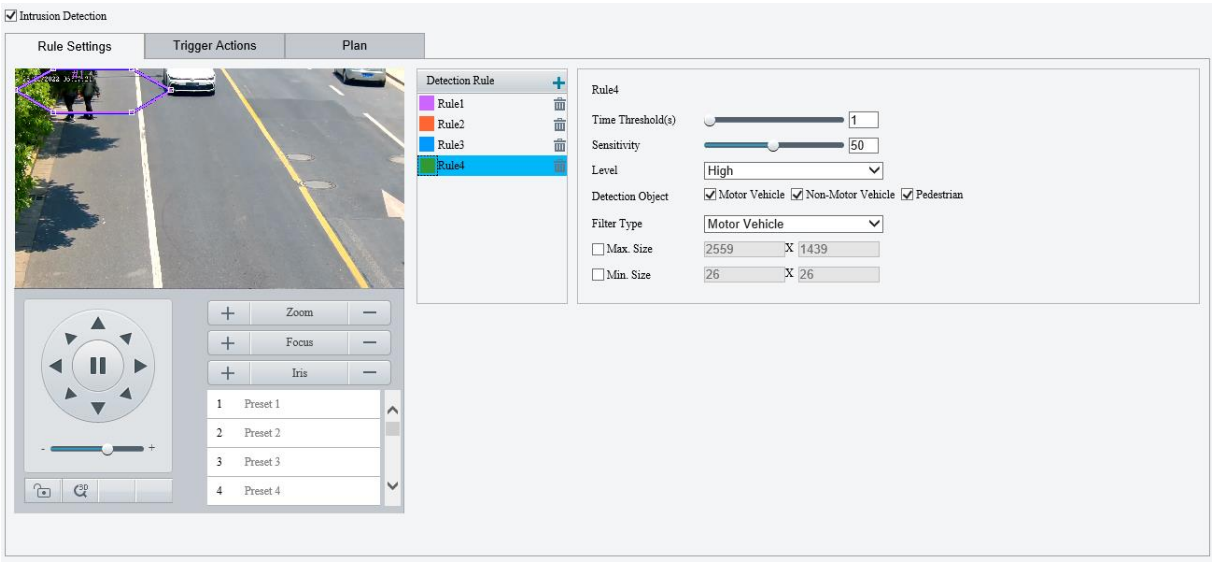
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.5.7 Intrusion Detection

Intrusion detection detects objects entering a user-specified area and staying for a preset time. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.

2. Select **Intrusion** and click ⚙ to configure it.



3. Add a detection rule.

   (1) Click ➕ to add a detection area. The detection area is a hexagon by default. Up to 4 detection rules are allowed.

   (2) Adjust the position and size of the area or draw an area as needed.

   - Adjust the position and size of the area.
     - Point to a border of the area and drag it to the desired position.
     - Point to a corner of the area and drag to resize it.
   - Draw an area.

     Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click 🔓 to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click 🔒 to unlock the scene after you finish editing detection rules.

4. Set the detection rule.

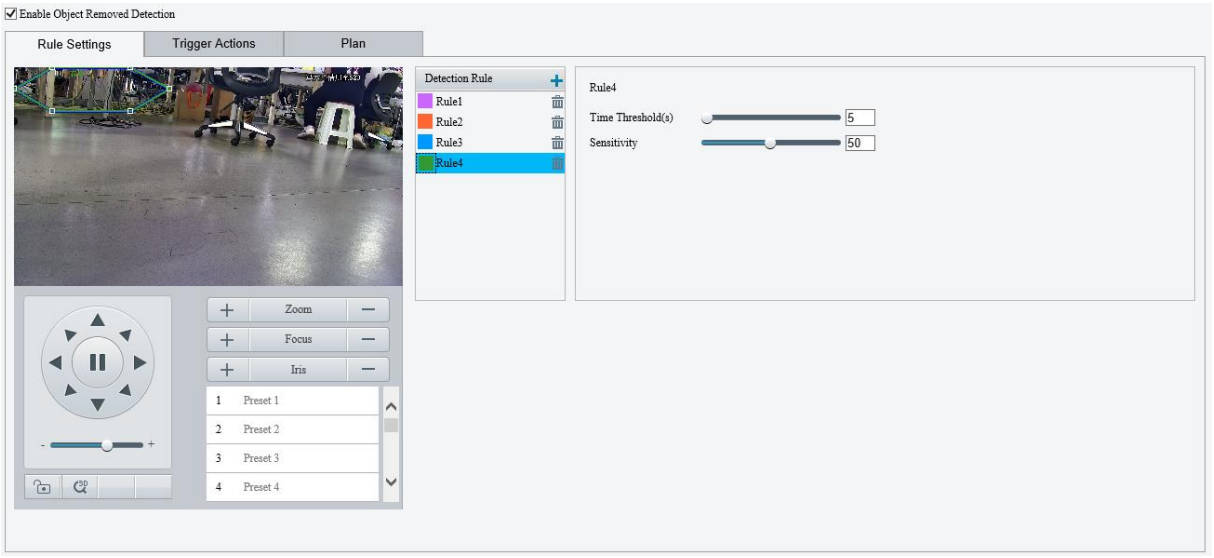
Item	Description
Time Threshold(s)	Set how long the object stays in the detection area to trigger an intrusion alarm. If an object stays in the detection area for the set time, an intrusion alarm will be triggered.
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely intrusion behaviors will be detected, and the more likely false alarms will occur.
Level	Select the priority of the detection rule. The camera detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the camera detects the rule with higher priority.
Detection Object	Select the object to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger than the Max. Size or smaller than the Min. Size will not be detected.
Max. Size/Min. Size	When enabled, a box appears on the image, you can point to a corner of the box and drag to resize it. The camera filters objects larger than the Max. Size or smaller than the Min. Size. The width and height of the maximum filter area must be greater than that of the minimum filter area. 

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.5.8 Object Removed Detection

Object removed detection detects objects removed from a user-specified area. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Object Removed** and click to configure it.



3. Add a detection rule.

(1) Click + to add a detection area. The detection area is a hexagon by default. Up to 4 detection rules are allowed.

(2) Adjust the position and size of the area or draw an area as needed.

- Adjust the position and size of the area.
  - Point to a border of the area and drag it to the desired position.
  - Point to a corner of the area and drag to resize it.
- Draw an area.

  Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the detection rule.

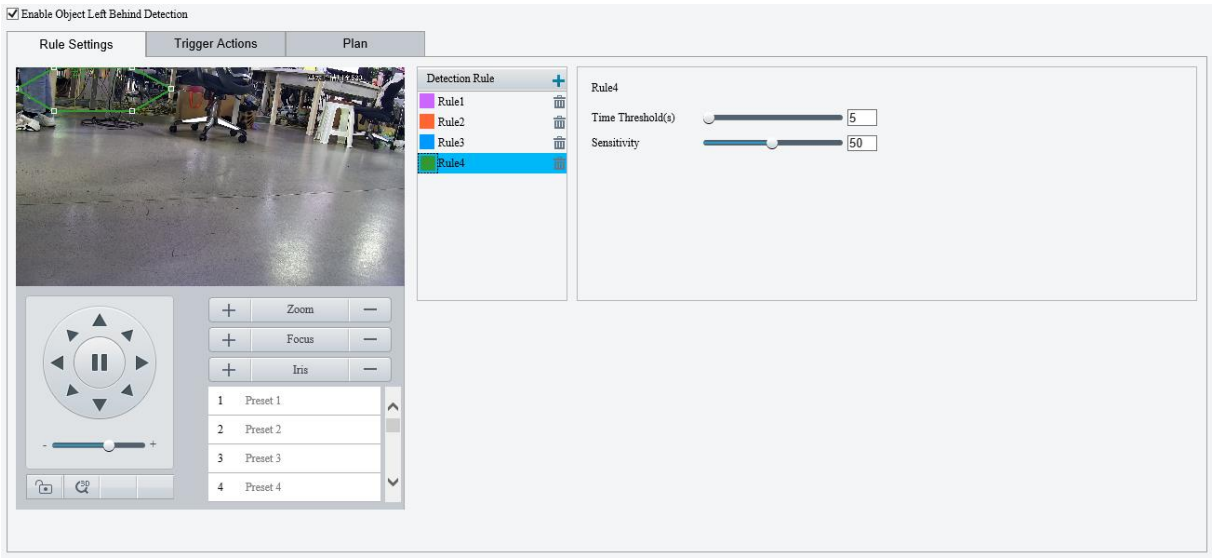
Item	Description
Time Threshold(s)	Set how long the object is removed from the detection area to trigger an alarm. If an object is removed from the detection area for the set time, an alarm will be triggered.
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely object removal behaviors will be detected, and the more likely false alarms will occur.

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.5.9 Object Left Behind Detection

Object left behind detection detects objects left behind in a user-specified area. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Object Left Behind** and click to configure it.



3. Add a detection rule.
   (1) Click to add a detection area. The detection area is a hexagon by default. Up to 4 detection rules are allowed.

   (2) Adjust the position and size of the area or draw an area as needed.
   - Adjust the position and size of the area.
     - Point to a border of the area and drag it to the desired position.
     - Point to a corner of the area and drag to resize it.
   - Draw an area.

     Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the detection rule.

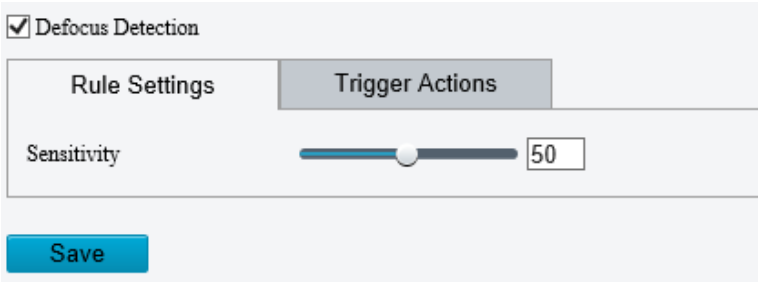
Item	Description
Time Threshold(s)	Set how long the object is left behind in the detection area to trigger an alarm. If an object is left behind in the detection area for the set time, an alarm will be triggered.
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely object left behind behaviors will be detected, and the more likely false alarms will occur.

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.5.10 Defocus Detection

Defocus detection detects lens defocus. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Defocus** and click to configure it.

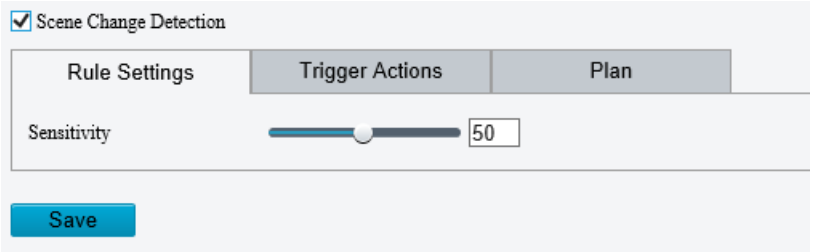


3. Set the detection sensitivity. The higher the sensitivity, the more likely defocus will be detected, and the more likely false alarms will occur.
4. Set the alarm-triggered actions. See Alarm-triggered Actions for details.
5. Click **Save**.

5.5.11 Scene Change Detection

Scene change detection detects the change of surveillance scene caused by external factors such as intentional camera movement. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Scene Change** and click to configure it.

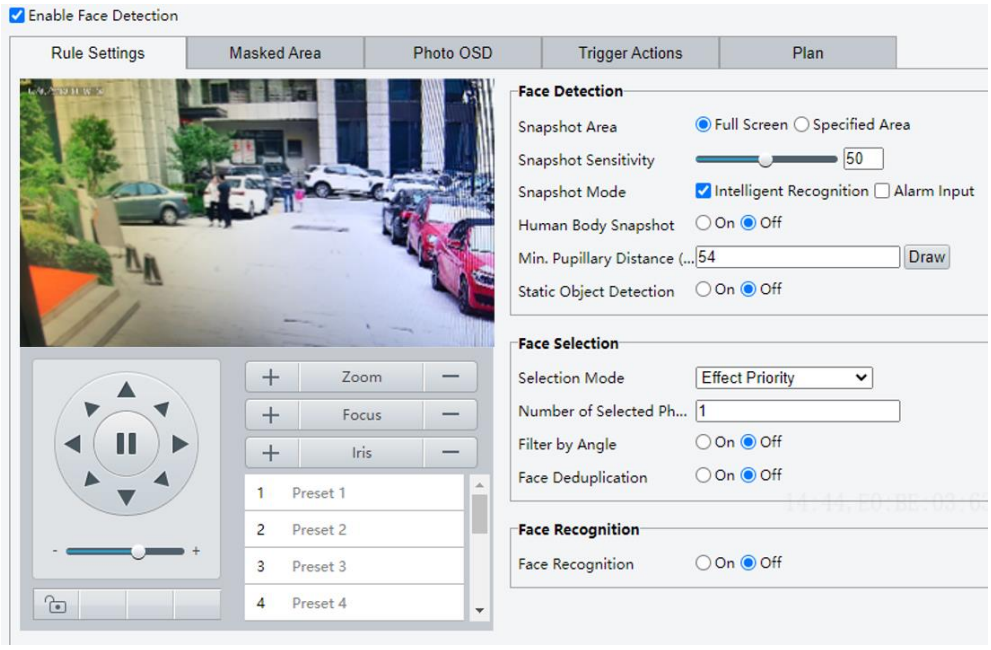


3. Set the detection sensitivity. The higher the sensitivity, the more likely scene change behaviors will be detected, and the more likely false alarms will occur.
4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

5.5.12 Face Detection

Face detection detects and captures faces in a specified detection area.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Face Detection** and click to configure it.

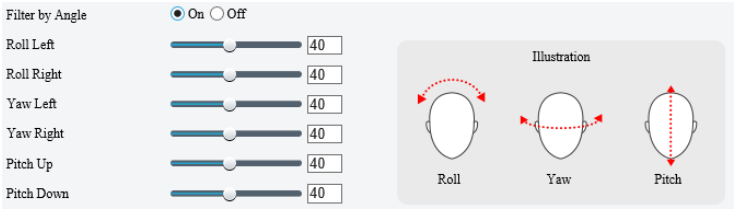
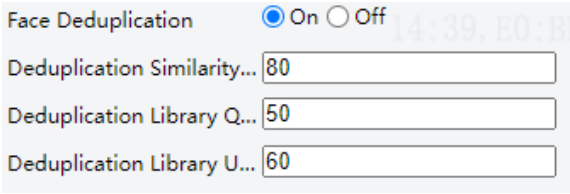


3. Set the face detection rule.

Item	Description
Snapshot Area	Select the snapshot area. ● Full Screen: The camera detects and captures all faces in the live video. ● Specified Area: The camera only detects and captures faces in a specified area of live video. ➢ Select **Specified Area** and a detection box appears in the left preview window.  ➢ Adjust the position and size of the area or draw an area as needed. – Adjust the position and size of the area. Point to a border of the area and drag it to the desired position. Point to a corner of the area and drag to resize it. – Draw an area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **NOTE!** When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules, and click to unlock the scene after you finish editing detection rules.
Snapshot Sensitivity	Set the snapshot sensitivity. The higher the sensitivity, the more likely a face will be detected.
Snapshot Mode	Set the snapshot mode. ● Intelligent Recognition: The camera continuously performs face detection. ● Alarm Input: The camera only performs face detection in the event of an alarm input. Before use, you need to enable alarm input and configure the arming schedule for it. See Alarm Input for details.
Human Body Snapshot	Select to enable or disable human body snapshot.
Min. Pupillary Distance (px)	The minimum distance (unit: pixel) between two pupils. Faces with a pupillary distance smaller than the value will not be captured. To set the minimum pupillary distance, click **Draw**, when the cursor shape changes, drag to change the distance; or type a value in the text box directly.
Static Object Detection	Choose whether to detect static objects.

4. Set the face selection rule.

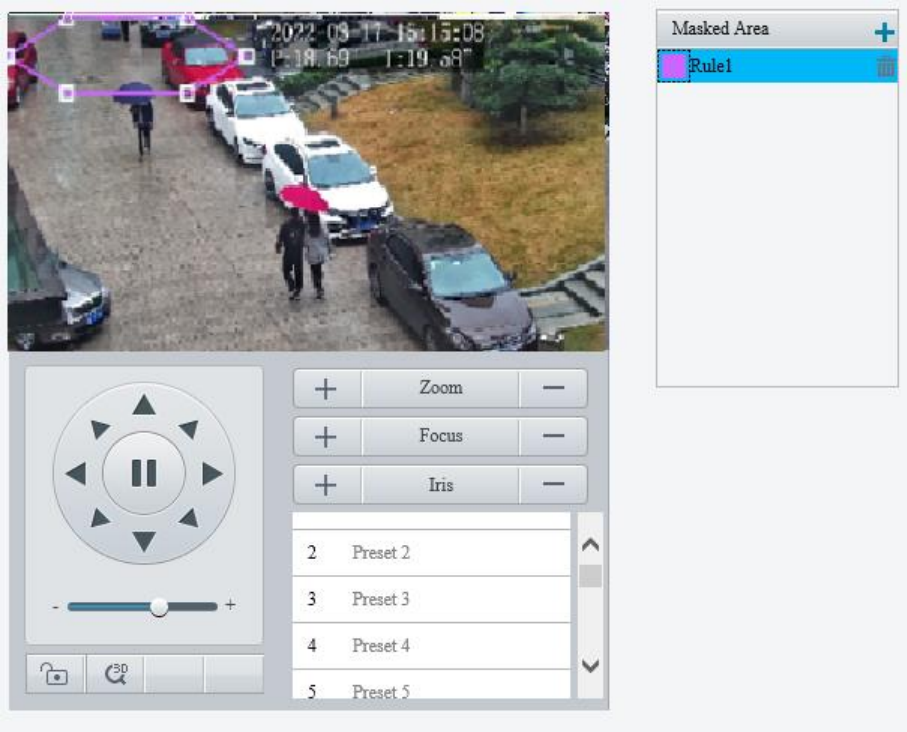
Item	Description
Selection Mode	Select the face selection mode. ● Effect Priority: The camera selects 1 to 3 snapshots with the best quality to report. You can specify the number of photos to select. ● Speed Priority: The camera selects a certain number of snapshots from the moment that the face is detected till **Selection Timeout** is up. You can specify the number of photos to select. ● Periodic Selection: The camera selects a snapshot in every selection period. For example, if **Selection Period** is set to 500ms, the camera selects a face snapshot every 500ms, and if **Upload Original Image** is enabled, both the original snapshot containing the face and the face cutout will be uploaded.
Number of Selected Photos	Set the number of snapshots to be selected in the range of 1 to 3. This parameter is set to 1 by default and cannot be modified on certain models.

Item	Description
Filter by Angle	After you enable **Filter by Angle** and set the filtering rule, faces with unqualified angles (larger than the set angles) will be filtered during face detection. 
Face Deduplication	For scenarios where the face appears several times within the detection rule in a short period of time. Click **On** to enable face deduplication. When enabled, the camera extracts and filters the features from the captured face images, then selects the best quality face image. ● Deduplication Similarity Threshold: Determine if there is a duplicate face in deduplication library. If the face similarity is higher than the set threshold, the camera will consider there is a duplicate face and will not perform capture. ● Deduplication Library Quality Threshold: Determine if the face can enter the deduplication library. ➢ If the face quality score is higher than the set value, the face can enter the deduplication library. – If there is a similar face in the deduplication library, and the face quality score is higher than the similar face quality score in the deduplication library, the similar face will be overwritten. – If there is no similar face in the deduplication library, the face automatically enters the deduplication library. – If the deduplication library is full, it deletes the earliest face. ➢ If the face quality score is equal to or lower than the set value, the face cannot enter the deduplication library. ● Deduplication Library Update Interval(s): Determines if the face(s) in the deduplication library need to be deleted. If the actual retention of the face is higher than the set value, it is deleted automatically. 

5. Set the face recognition rule. See Face Recognition for details.

NOTE!
Face recognition cannot be enabled with human body snapshot and face deduplication at the same time.

6. Mask undesired areas.
   (1) Click + to add a masked area. The masked area is a hexagon by default. Up to 4 masked areas are allowed.



(2) Adjust the position and size of the area or draw an area as needed.

- Adjust the position and size of the area.
  - Point to a border of the area and drag it to the desired position.
  - Point to a corner of the area and drag to resize it.
- Draw an area.

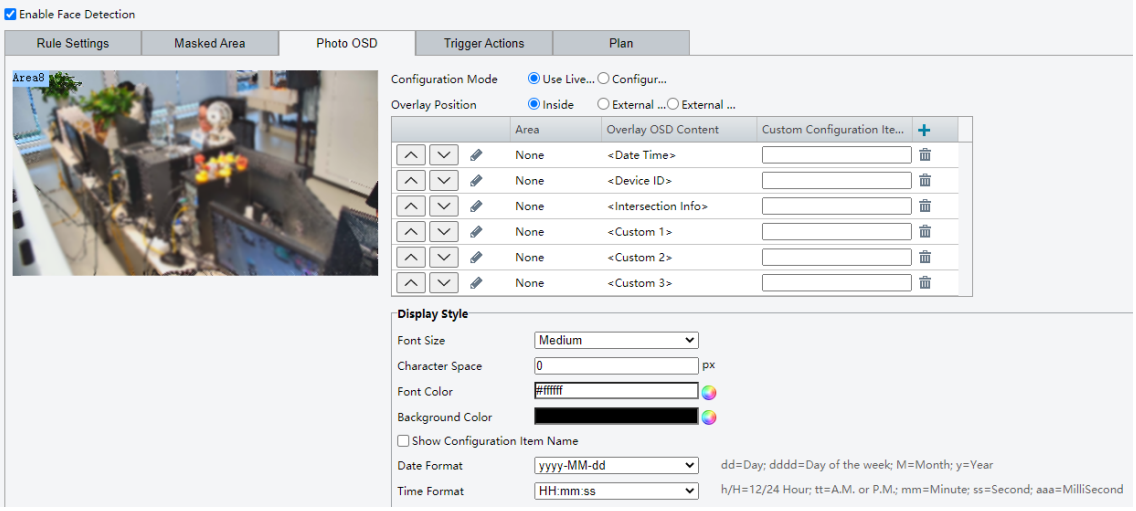
  Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

7. Set the photo OSD.

Configure OSD that will overlay on images captured from live video.



- Use Live View OSD: Use the OSD that overlays on live video.

- Configure Separately: Configure photo OSD separately (different from live video OSD).

  (1) Click  behind **Font Color** and **Background Color** to set the font color and background color of each image.

  (2) Set other parameters as needed.

Item	Description
Overlay Position	Select the position of OSD on the photo. ● Inside: Overlay inside the image. ● External Top: Overlay on the top of the image, and the image will be bigger. ● External Bottom: Overlay on the bottom of the image, and the image will be bigger.
Font Size	Choose a font size: X-large, Large, Medium, or Small. You can select the size of the text on the snapshot as needed. This size is relative and will be adjusted automatically depending on the size of the picture.
Character Space	Set the distance between the OSD area and the edge of image. Range: 0 to 10px.
Show Configuration Item Name	Choose whether to show the configuration item name, such as Date & Time, Device ID, etc.
Time Format	Choose a time format: HH:mm:ss, HH:mm:ss.aaa, hh:mm:ss tt, or hh:mm:ss.aaa tt.
Date Format	Choose a date format: dd/MM/yyyy, MM/dd/yyyy, etc.

  (3) Set overlay type.

Item	Description
Overlay Area	Customize the X and Y coordinates. Overlay information will be displayed in the corresponding position on the screen. ● The top left corner of the image is the origin (0, 0), the horizontal axis is the X-axis, and the vertical axis is the Y-axis. ● This parameter is available only when **Overlay Position** is set to **Inside**.
Overlay Type	Select the checkbox, the corresponding overlay information will be displayed on the photo. Up to 6 pieces of overlay information are allowed. ● Date&Time: Displays the current date of the device. ● Device ID: Displays device ID on the photo. The device ID can be set in **Setup** > **System** > **Device Information**. ● Intersection ID: Displays the intersection information of device's location. ● Custom 1/2/3: Displays customized contents on the photo. Up to 3 customized overlay information are allowed.
Customize Configuration Item Name	Customize the overlay type name. Up to 6 configuration item names can be customized.
Overlay Position	Click the drop-down list to select the position of OSD on photo. ● Select the overlay position, for example, Area 1. You may change the position of the area by entering X and Y coordinates. After saving, the overlay information of Area 1 will be displayed in the corresponding position. ● Change the overlay area. For example, when change Area 1 to Area 2, the display position of overlay information will also be changed from Area 1 to Area 2.
Space Count	Set the number of spaces after the OSD content. Range: 0 to 10.

Item	Description
Line Feed Count	Set whether and how to break line(s) for the subsequent configuration items. • 0: No line break. • 1: Display the subsequent contents in the second line in the same area. • 2/3: Display the subsequent contents in the third or fourth line in the same area. **NOTE!** • In **External Top** or **External Bottom** mode, if the **Line Feed Count** is set to 2 or 3, the subsequent configuration items move to the next line. • In **External Top** or **External Bottom** mode, up to 8 lines can be displayed. The larger the font size, the fewer lines are displayed; the smaller the font size, the more lines are displayed.
/	Use the two buttons to rearrange the order of configuration items.
	Delete an unneeded configuration item.

(4) Click **Save**.

8. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
9. Click **Save**.

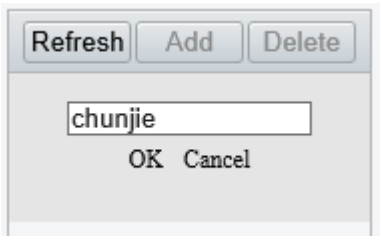
5.5.13 Face Recognition

Face recognition compares the faces captured in live view with the faces stored in face libraries and uploads the comparison results to the server.

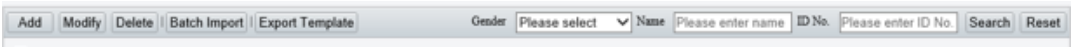
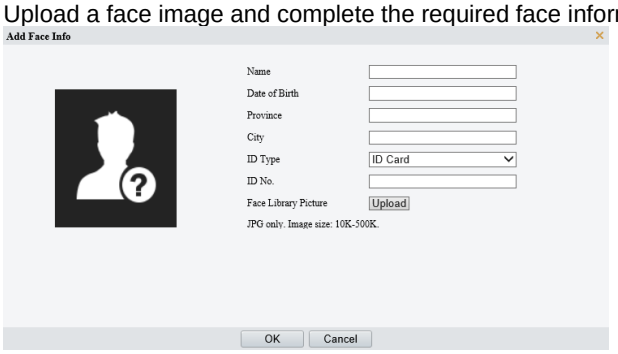
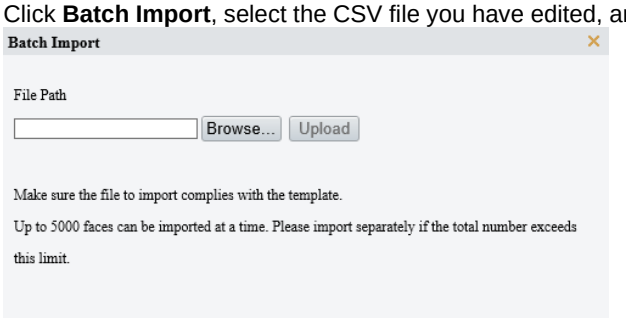
1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Face Detection** and click .
3. Click the **Face Library** tab.

4. Create face libraries.

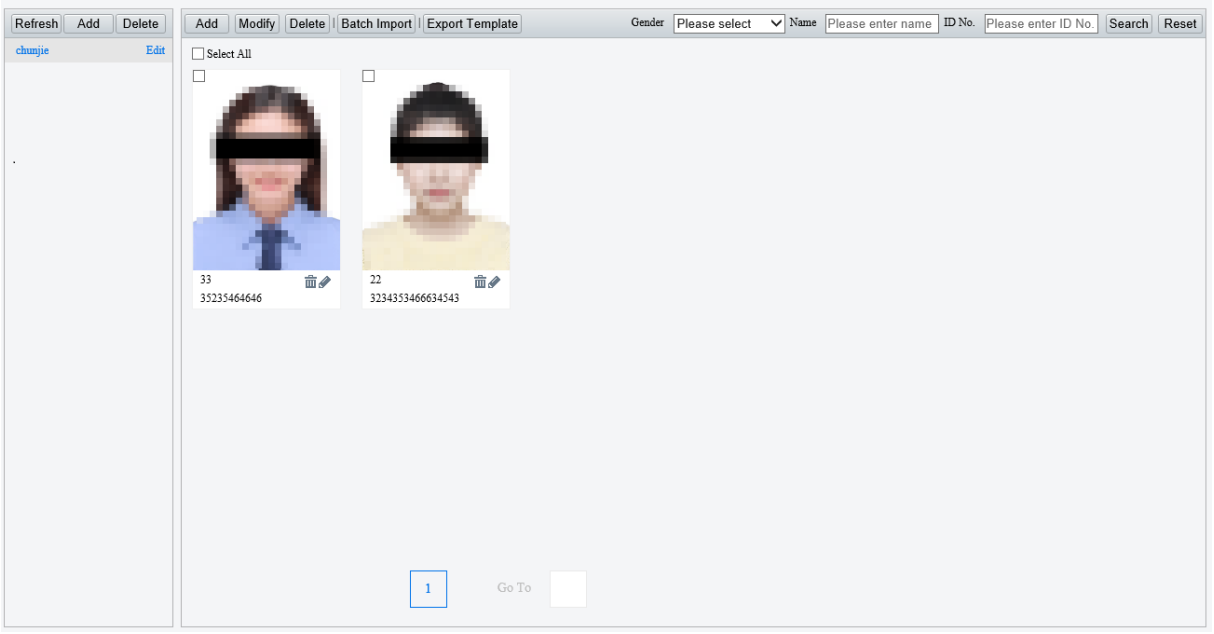
Click **Add** in the left area, enter the library name, and click **OK**.



5. Add face data.

Item	Description
Add one by one	1. Click **Add**.  2. Upload a face image and complete the required face information. 
Add in batches	1. Click **Export Template** to export the CSV face template file to the PC. 2. Complete the required face data in the template with reference to the import guide. Refer to the import guide to fill in the template with the required face data. 3. Click **Batch Import**, select the CSV file you have edited, and click **Upload**. 

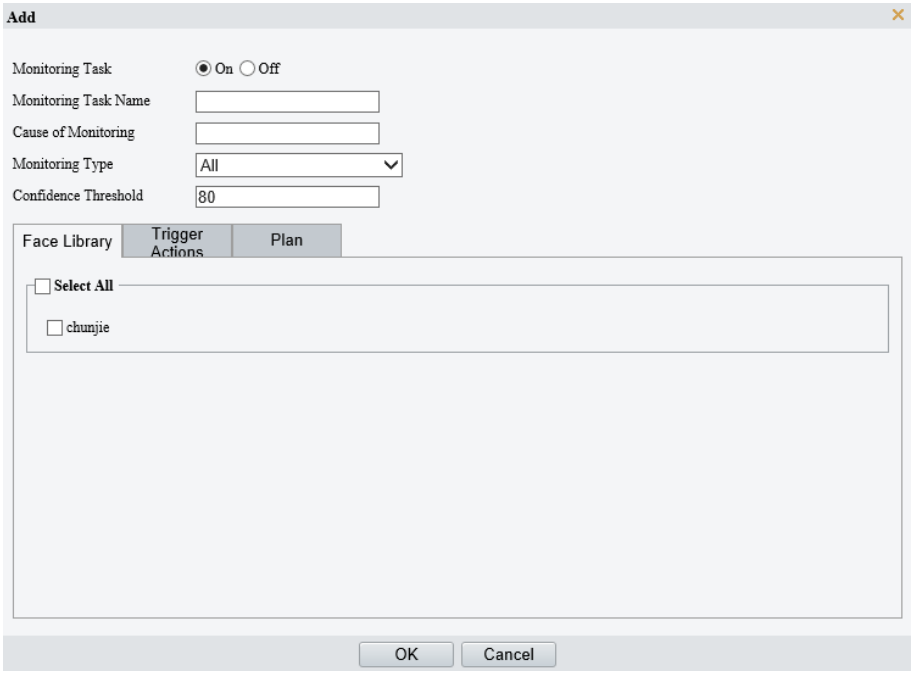
The imported face data are shown as below:



6. Add monitoring tasks.

Open the **Monitoring Task** tab.

(1) Click **Add**.



(2) Complete the monitoring task settings.

Monitoring Type	Description
Monitoring Task	Select to enable or disable the monitoring task.
Monitoring Task Name	Enter a name for the monitoring task.
Cause of Monitoring	Enter the cause of the monitoring task.
Monitoring Type	Select the monitoring type. • All: The camera reports an alarm and performs the set alarm-triggered actions once it detects a face. • Match Alarm: The camera reports a match alarm and performs the set alarm-triggered actions when the similarity between a captured face and a face in the monitored face library reaches the confidence threshold. • Not Match Alarm: The camera reports a not match alarm and performs the set alarm-triggered actions when the similarity between a captured face and a face in the monitored face library fails to reach the confidence threshold.
Confidence Threshold	By default, the confidence threshold is set to 80. A match alarm/not match alarm occurs when the similarity between a captured face and a face in the face library reaches/fails to reach the threshold. The higher the value, the more accurate the face recognition.

(3) Select the face library to be monitored.

(4) Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.

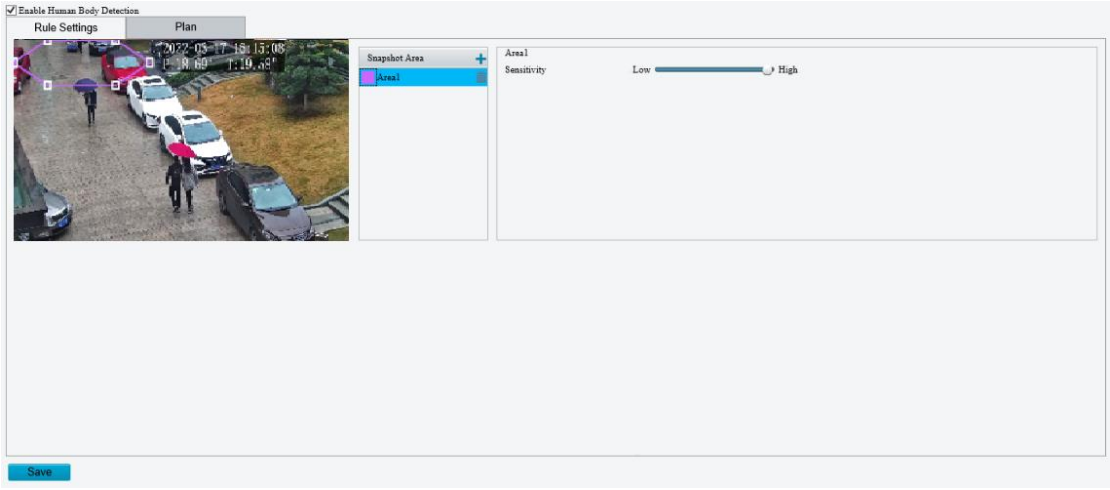
(5) Click **OK**.

7. Click **Save**.

5.5.14 Human Body Detection

Human body detection detects humans in a specified area. The camera reports an alarm when the detection rule is triggered.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Human Body Detection** and click to configure it.



3. Add a snapshot area.
   (1) Click . The snapshot area is a hexagon by default. Only one snapshot area is allowed.

   (2) Adjust the position and size of the area or draw an area as needed.
   - Adjust the position and size of the area.
     Point to the area and drag it to the desired position. Drag the corners of the area to resize it.
   - Draw an area.
     Click in the preview window to draw a polygonal area with up to 6 sides.

NOTE!

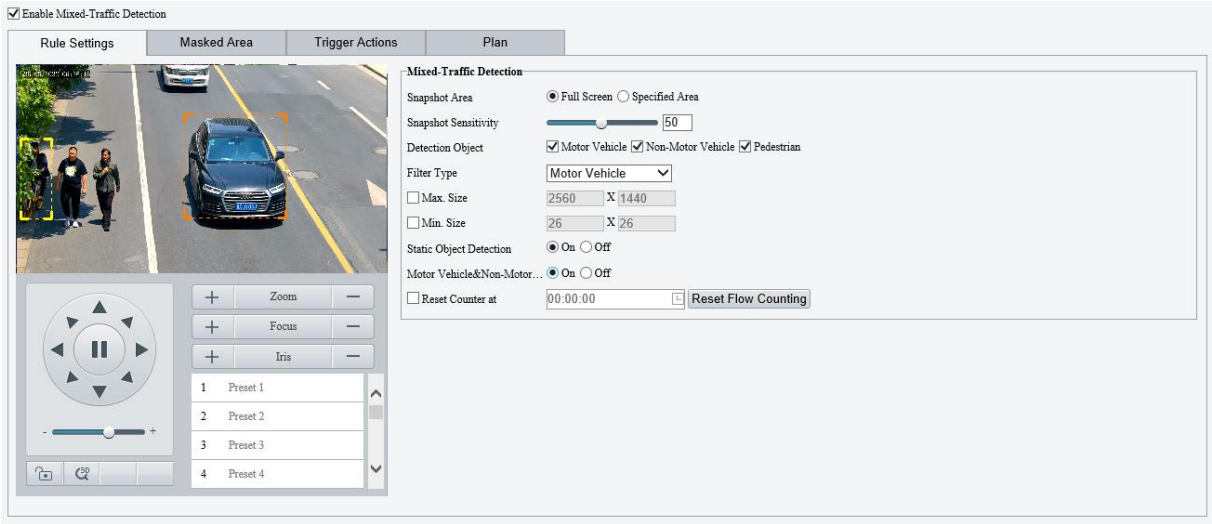
When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the detection sensitivity. The higher the sensitivity, the more likely humans will be detected, and the more likely false alarms will occur.
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.5.15 Mixed-Traffic Detection

Mixed-traffic detection detects and captures motor vehicles, non-motor vehicles, and pedestrians in a user-specified area. You can set a mixed-traffic counting OSD to view real-time motor vehicle, non-motor vehicle and pedestrian statistics on the live video. See Live View OSD for details.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Mixed-Traffic Detection** and click to configure it.



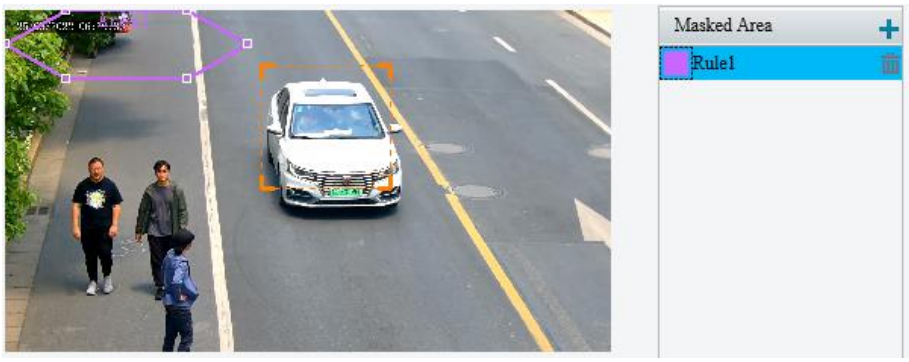
3. Set the detection rule.

Item	Description
Snapshot Area	Select the snapshot area. ● Full Screen: The camera detects and captures objects in the live video. ● Specified Area: The camera only detects and captures objects in a specified area of live video. ➢ Select **Specified Area** and a detection box appears in the left preview window.  ➢ Adjust the position and size of the area or draw an area as needed. – Adjust the position and size of the area. Point to the area and drag it to the desired position. Drag the corners of the area to resize it. – Draw an area. Click in the preview window to draw a polygonal area with up to 6 sides. Select the area you want to monitor. **NOTE!** When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules, and click to unlock the scene after you finish editing detection rules.
Snapshot Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely objects will be detected, and the more likely false alarms will occur.
Detection Object	Select the object to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.

Item	Description
Min. Pupillary Distance(px)	The minimum pupillary distance between two pupils. The device will detect faces in live view according to this value. Faces with pupillary distance smaller than the value will not be captured. Click **Draw**. Point to a corner of the line and drag it to adjust the length.
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger than the Max. Size or smaller than the Min. Size will not be detected.
Max. Size/Min. Size	When enabled, a box appears on the image, you can point to a corner of the box and drag to resize it. The camera filters objects larger than the Max. Size or smaller than the Min. Size. The width and height of the maximum filter area must be greater than that of the minimum filter area. 
Static Object Detection	Select whether to detect static objects.
Upload Vehicles Without License Plates	• On: Supports uploading snapshots without license plate information. • Off: Only snapshots with license plate information can be uploaded.
Motor Vehicle&Non-Motor Vehicle&Pedestrian Count	Select whether to count motor vehicles, non-motor vehicles and pedestrians.
Reset Counter at	You can set a time for the camera to clear the traffic statistics or click **Reset Flow Counting** to clear immediately.
OSD	Adjust the OSD position: Specify the exact position of the OSD by entering the X and Y coordinates. The top left corner of the image is the origin (0,0), the horizontal axis is the X-axis, and the vertical axis is the Y-axis. **Note:** Drag the overlay area on the live view window will change its X/Y value correspondingly.

4. Mask undesired areas.

(1) Click + to add a masked area. The masked area is a hexagon by default. Up to 4 masked areas are allowed.



(2) Adjust the position and size of the area or draw an area as needed.

➢ Adjust the position and size of the area.

Point to the area and drag it to the desired position. Drag the corners of the area to resize it.

➢ Draw an area.
Click in the preview window to draw a polygonal area with up to 6 sides.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

5. Set photo OSD.
6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. Click **Save**.

5.5.16 Traffic Monitoring

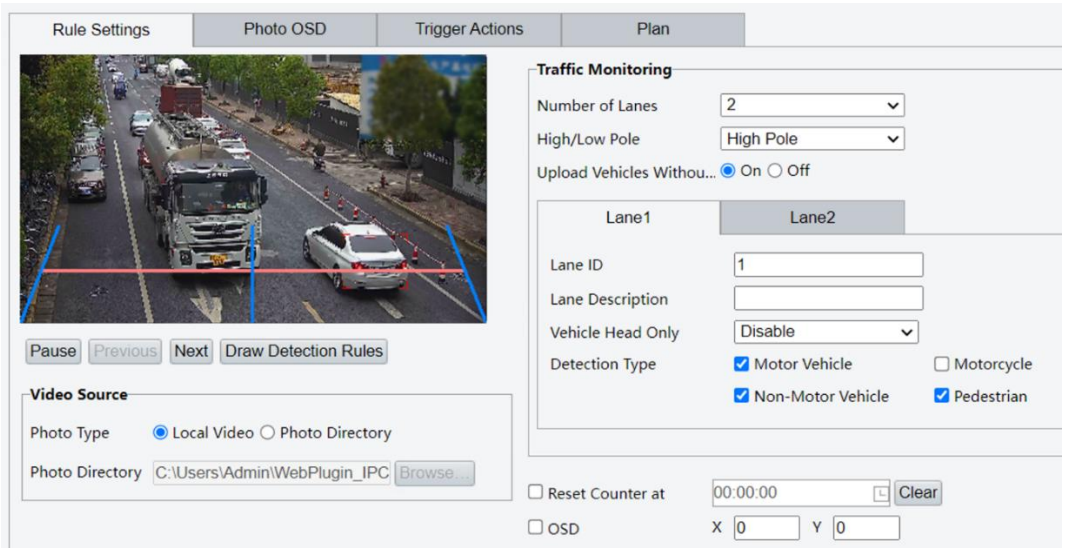
1. Traffic Monitoring

The traffic monitoring function can capture motor vehicles, motorcycles, non-motor vehicles, and pedestrians on the roads or in parks, and can identify and monitor specific vehicles, specific license plates, etc.

NOTE!

- Enabling or disabling the traffic monitoring function will restart the device.
- The actual rule settings, trigger actions, and monitoring plan may vary with device model. Please refer to the actual interface.

1. Go to **Setup** > **Smart** > **Smart**.
2. Select **Traffic Monitoring**, and the device will restart.
3. After the device restarts, re-enter the **Smart** page, and click to go to **Traffic Monitoring** page.

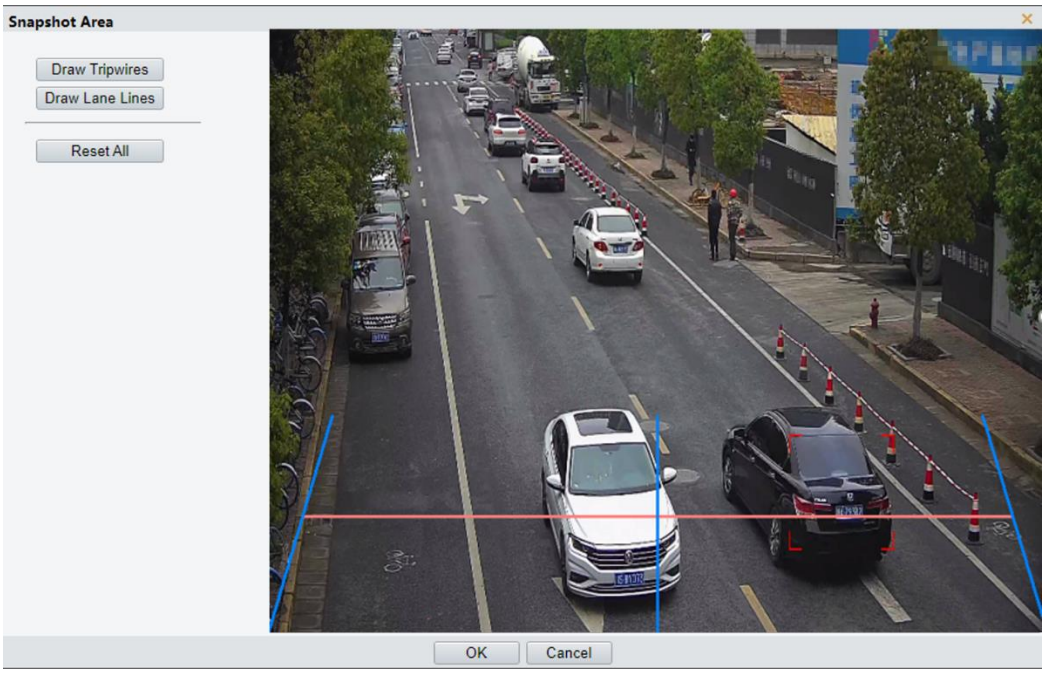


4. Select the number of lanes from the drop-down list. Up to 4 lanes are allowed.
5. Select the **Lane1/2/3/4** tab to draw the corresponding detection rules. Draw tripwires and lane lines as needed. The device takes a snapshot when the detected target crosses the tripwire.

(1) Click **Draw Detection Rules**.

(2) Click on the tripwire/lane line.

(3) Point to a corner of the tripwire/lane line and drag it to adjust the length and direction. Point to any position of the tripwire/lane line and drag it to the desired position.



(4) (Optional) Click **Reset All** to clear all and draw again.

(5) Click **OK** to save the detection rules.

6. Set the traffic monitoring rules.

Item	Description
High/Low Pole	Traffic monitoring function needs to choose to install the high/low pole according to the application scenarios. Select **High Pole**/**Low Pole** from the drop-down list as needed. • High Pole: Mainly used in 3-6m scenes. Supports capturing motor vehicles, non-motor vehicles, and pedestrians. • Low Pole: Mainly used in 1-3m scenes. Supports capturing vehicle license plates.
Upload Vehicles Without License Plates	• On: Supports uploading snapshots without license plate information. • Off: Only snapshots with license plate information can be uploaded.
Lane ID	Enter an integer in the range of 1 to 254.
Lane Description	Enter the lane description with 0-24 characters.
Vehicle Head Only	Set whether to capture vehicle head only.
Detection Type	Select the detection type(s) as needed: Motor Vehicle, Motorcycle, Non-Motor Vehicle, and Pedestrian.
Clear Flow Statistics	• Select the **Reset Counter at** checkbox and set a time for the camera to clear people counting statistics on the OSD. • To clear now, click **Clear**.
OSD	Adjust the OSD position: Specify the exact position of the OSD by entering the X and Y coordinates. The top left corner of the image is the origin (0,0), the horizontal axis is the X-axis, and the vertical axis is the Y-axis. **Note:** Drag the overlay area on the live view window will change its X/Y value correspondingly.

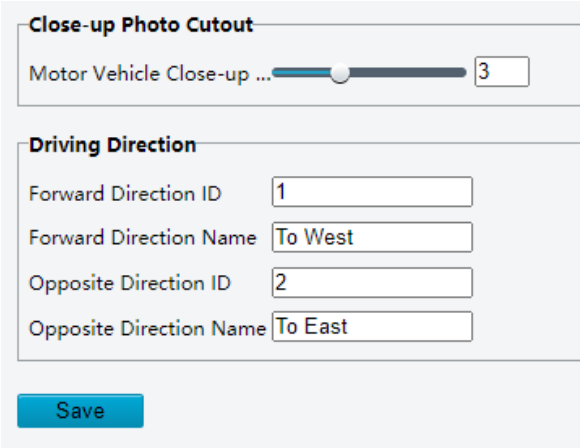
Item	Description
Video Source	View live videos and snapshots. • Local Video: Select **Local Video** to view the live videos. You may click **Pause** to pause the video as needed. • Photo Directory: Select **Photo Directory** to view the photo directory. Click **Browse** to select a path to view snapshots. • Click **Next** to view cached snapshots.

7. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
8. Click **Save**.

2. Snapshot Handling

Snapshot handling can process the captured snapshots, especially for motor vehicle close-up images.

1. Go to **Setup** > **Smart** > **Smart** > **Traffic Monitoring** > **Snapshot Handling**.



2. Drag the slider to set the motor vehicle close-up photo cutout range. Range: 1-7. The larger the range, the smaller the motor vehicle in the close-up image.
3. Set the driving direction, which can be displayed as a photo OSD on traffic monitoring snapshots.
4. (Optional) Devices support radar function can configure **Vehicle Track** to view the vehicle movement track in radar's Web interface.
5. Click **Save**.

3. Photo OSD

On Screen Display (OSD) is the characters displayed on live videos and snapshots, for example, date, time, people counting statistics, and zoom.

1. Go to **Setup** > **Smart** > **Smart** > **Traffic Monitoring** > **Photo OSD**.
2. Select the OSD configuration mode.

- Use Live View OSD: Use the OSD that overlays on live video.
- Configure Separately: Configure photo OSD separately (different from live view OSD).

3. Click next to **Font Color** and **Background Color** to set the font color and background color of the overlay information on image.
4. Set parameters for the single photo of passing.

Item	Description
Overlay Position	Select the position of OSD on the photo. ● Inside: Overlay inside the image. ● External Top: Overlay on the top of the image, and the image will be bigger. ● External Bottom: Overlay on the bottom of the image, and the image will be bigger.
Font Size	Choose a font size as needed: **X-large**, **Large**, **Medium**, or **Small**. The font size is relative and will be adjusted automatically depending on the size of the photo.
Character Space	Set the distance between the OSD area and the edge of image. Range: 0-10 px.
Show Configuration Item Name	Choose whether to show the configuration item name, such as Date & Time, Device ID, etc.
Passing Close-up OSD	When selecting **Passing Close-up OSD**, the snapshot will be zoomed in. You can select **Close-up Photo OSD** to configure the OSD to be overlayed on the close-up photo, e.g., Date & Time, Device ID, etc.
Close-up Photo OSD	Select the OSD overlay mode from the drop-down list. ● Selected OSD: Configure the close-up photo OSD separately. ● Copy Single Photo of Violation OSD: Use the OSD that overlays on the single photo of passing.
Time Format	Choose a time format from the drop-down list: **HH:mm:ss**, **HH:mm:ss.aaa**, **hh:mm:ss tt**, or **hh:mm:ss.aaa tt**.
Date Format	Choose a date format from the drop-down list: **yyyy-MM-dd**, **Mm-dd-yyyy**, **yyyy-MM-dd**, etc.

5. Set the overlay type(s). Overlay items should be configured with corresponding intelligent service snapshot handling or attribute collection.

Item	Description
Overlay Type	Select the checkbox, and the corresponding overlay information will be displayed on the photo. Up to 14 overlay information are allowed. ● Time: Displays the device time on the photo. ● Location: Displays the device location in the photo. ● Direction: Displays the lane direction in the photo. See details in Snapshot Handling ● Device No.: Displays device number on the photo. ● Lane: Displays the lane in the photo. ● Camera ID: Displays the camera ID on the photo. ● Plate Number: Displays the license plate number in the photo. ● Motor Vehicle/Non-Motor Vehicle/Pedestrian Flow: Displays the real-time motor vehicle/non-motor vehicle/pedestrian flow. ● Intersection Info: Displays the intersection information of device's location. ● Custom 1/2/3: Displays customized contents on the photo. Up to 3 customized overlay information are allowed. ● Plate Type: Displays the license plate type on the photo. **Note:** Location, camera ID, device number, and intersection information can be retrieved in **Setup** > **System** > **Device Info**. See details in Device Information.
Customize Configuration Item Name	Customize the overlay type name. Up to 14 configuration item names can be customized.
Overlay Position	Click the drop-down list to select the position of OSD. ● Select the overlay position, for example, Area 1. You may change the position of the area by entering X and Y coordinates. After saving, the overlay information of Area 1 will be displayed in the corresponding position. ● Change the overlay area. For example, when change Area 1 to Area 2, the display position of overlay information will also be changed from Area 1 to Area 2.
Space Count	Set the number of spaces after the OSD content. Range: 0 to 10.

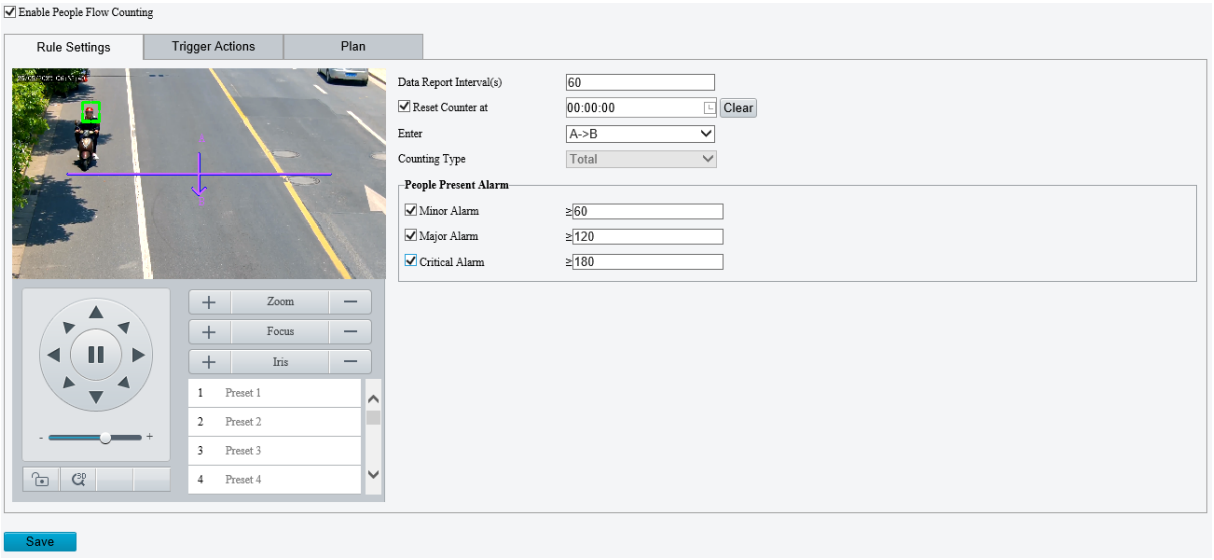
Line Feed Count	Set whether and how to break line(s) for the subsequent configuration items. Range: 0 to 3. • 0: No line break. • 1: Displays the subsequent contents in the second line in the same area. • 2/3: Displays the subsequent contents in the third or fourth line in the same area. **Note:** • In **External Top** or **External Bottom** mode, if the **Line Feed Count** is set to 2 or 3, the subsequent configuration items move to the next line. • In **External Top** or **External Bottom** mode, up to 8 lines can be displayed.
/	Use the two buttons to rearrange the order of configuration items.
	Delete an unneeded configuration item.

6. Click Save.

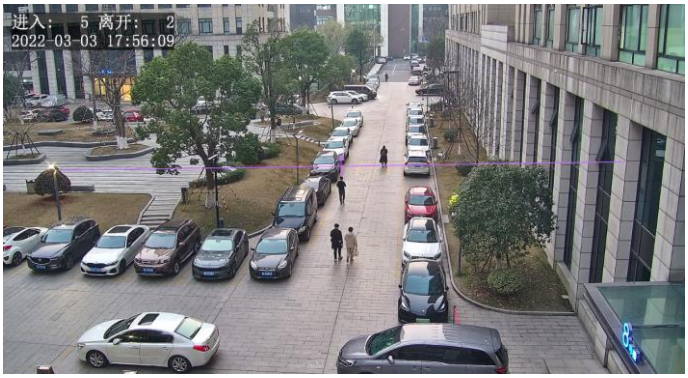
5.5.17 People Flow Counting

People flow counting counts people passing a tripwire, including the number of people that have entered, left, and the total.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select the **People Flow Counting** checkbox and click to configure it.



3. A tripwire is displayed in the left preview window. Adjust the position and size of the tripwire as needed or draw a new one. Only one tripwire is allowed.



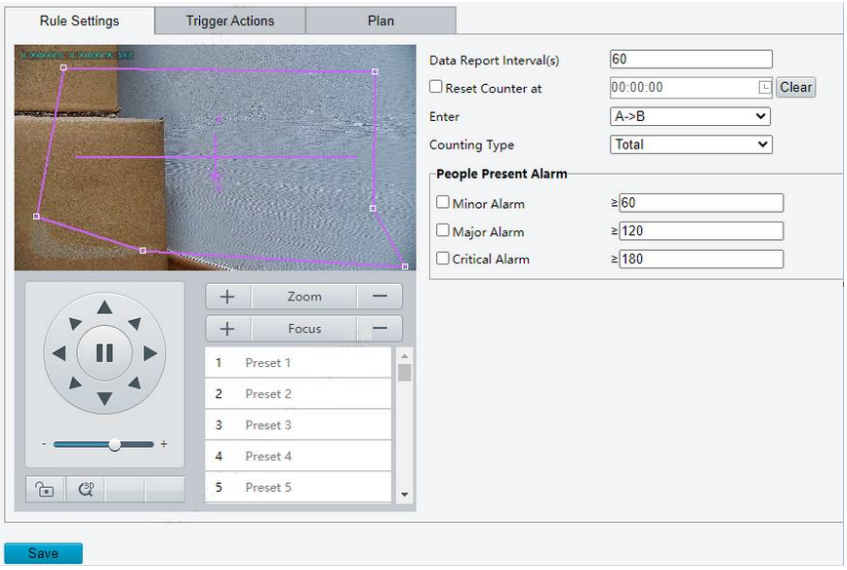
- Adjust the position and size of the tripwire, or draw a new tripwire:

- Click the tripwire, point to an endpoint, and drag to change the length and direction.
- Point to the tripwire and drag it to the desired position.
- Click on the image and drag to draw a new tripwire.

4. Draw a detection area on the image. The default detection area is the full screen. You can draw a polygon. Make sure the tripwire is inside the polygon; otherwise, counting will fail.
   - Point to a corner of the detection area and drag to change its size and direction.
   - Point to a border of the detection area and drag it to the desired position.
   - Click and drag on the image to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.

NOTE!

When editing detection rules, you can click  to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click  to unlock the scene after you finish editing detection rules.

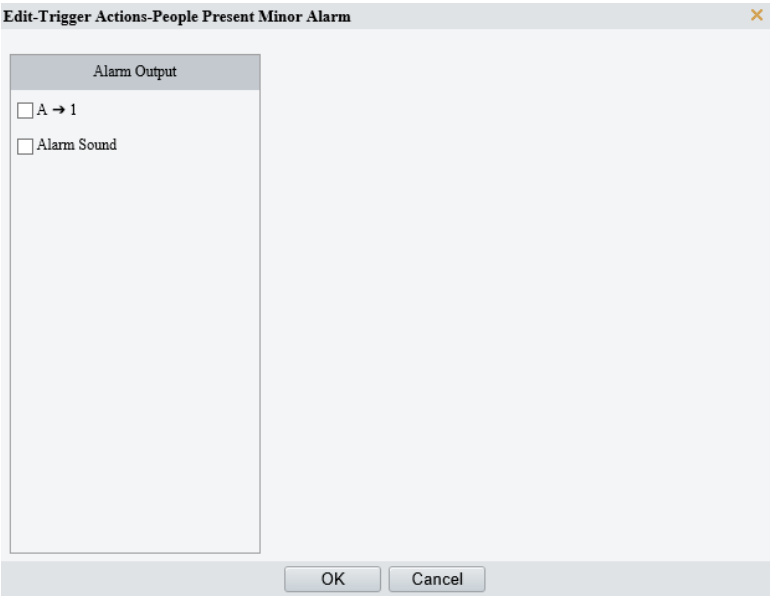


5. Set counting rules.

Item	Description
Data Report Interval(s)	Set a time interval for the camera to send people flow statistics to the server. You need to configure a server to receive the statistics. Default: 60. Range: 1 to 60.
Reset Counter at	• Select the **Reset Counter at** checkbox and set a time for the camera to clear people counting statistics on the OSD. • To clear now, click **Clear**. **NOTE!** Only OSD statistics will be reset; it does not reset people flow statistics reported to the server.
Enter	Choose an entry direction: • A- >B: From A to B. • B- >A: From B to A.
Counting Type	Choose a counting type to display real-time statistics on live video. You need to configure a people counting OSD first. See OSD for details. • Total: Displays the total number of people entering and leaving the area. • People Entered: Displays the number of people entering the area. • People Exited: Displays the number of people leaving the area.

People Alarm	Present	Set thresholds for triggering people present minor/major/critical alarm. An alarm is triggered when the number of people present reaches a set threshold. Range: 1 to 180. • Minor Alarm: Threshold for triggering a people present minor alarm. • Major Alarm: Threshold for triggering a people present major alarm. The value must be greater than that of minor alarm. • Critical Alarm: Threshold for triggering a people present critical alarm. The value must be greater than that of major alarm. **NOTE** The range supported may vary with camera model.

6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.

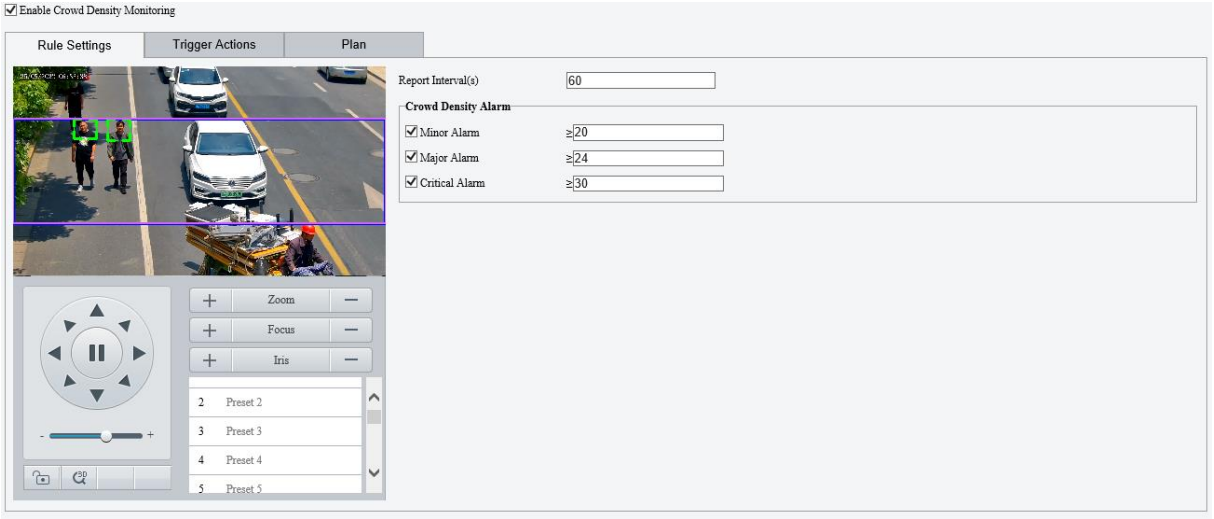


7. Click **Save**.

5.5.18 Crowd Density Monitoring

Crowd density monitoring monitors the number of people in a specified area and triggers an alarm if the number exceeds the set alarm threshold.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Crowd Density Monitoring** and click to configure it.



3. A detection box is displayed in the left preview window by default. You can adjust the position and size of it or draw an area as needed. Only one area is allowed.

- Adjust the position and size of the area.
  Point to the area and drag it to the desired position. Drag the corners of the area to resize it.
- Draw an area.
  Click in the preview window to draw a polygonal area with up to 6 sides.

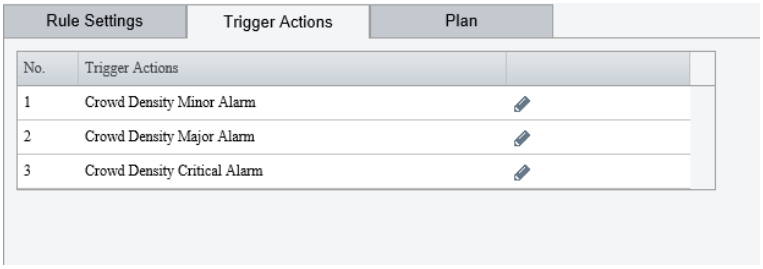
NOTE!

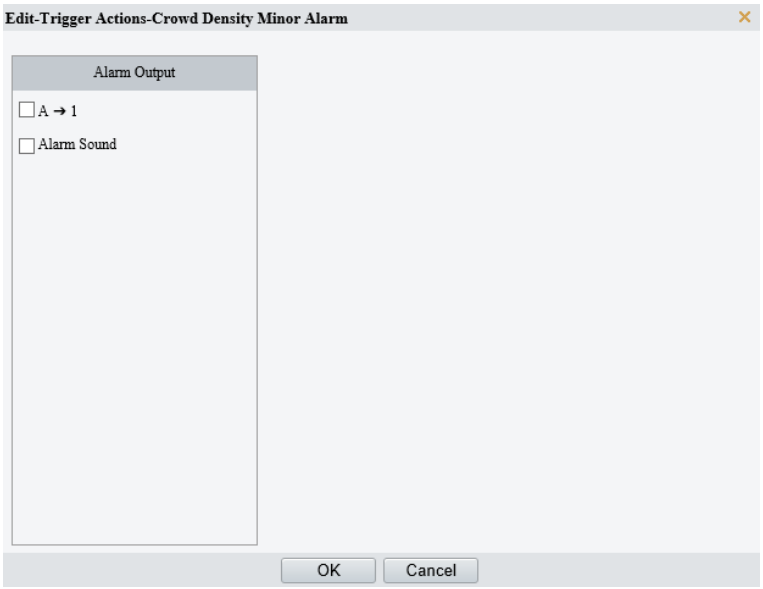
When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

4. Set the crowd density monitoring rule.

Item	Description
Report Interval(s)	Set the time interval for reporting crowd density statistics. Default: 60. Range: 1 to 60. For example, if the interval is set to 60, the camera will report crowd density statistics to the server every 60 seconds.
People Present Alarm	Set the crowd density alarm threshold. When the number of people in the specified area reaches a set threshold, an alarm is triggered. Range: 1 to 40. • Minor Alarm: A minor alarm is triggered when the number of people in the specified area reaches the set value. • Major Alarm: A major alarm is triggered when the number of people in the specified area reaches the set value. The value of major alarm must be greater than that of minor alarm. • Critical Alarm: A critical alarm is triggered when the number of people in the specified area reaches the set value. The value of critical alarm must be greater than that of major alarm.

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.



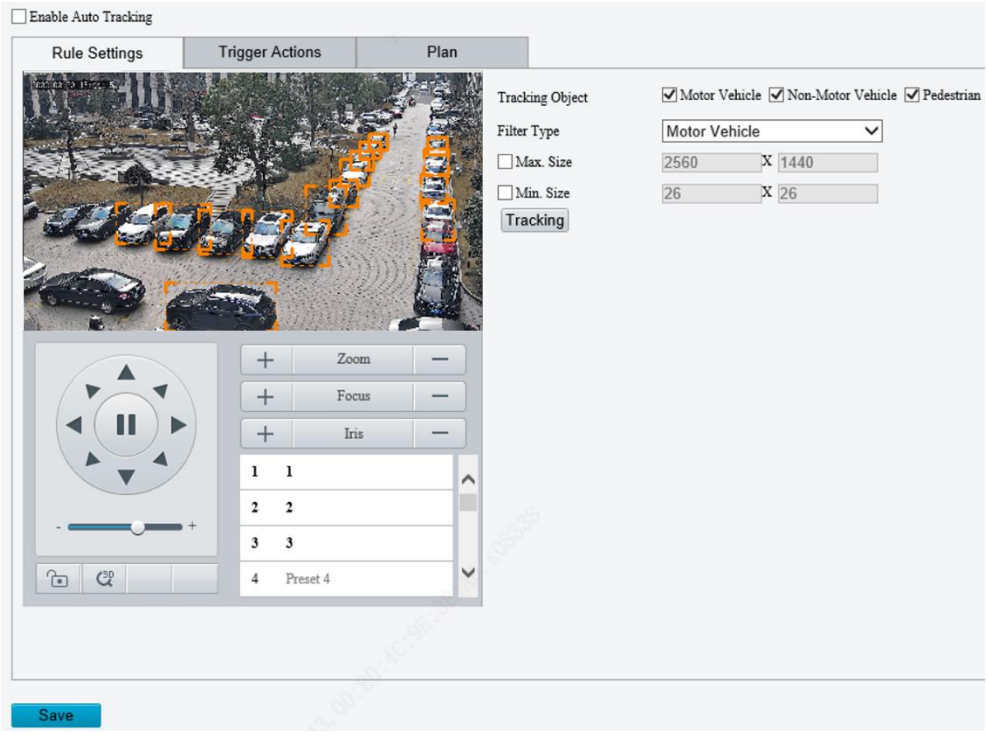


6. Click **Save**.

5.5.19 Auto Tracking

The camera can automatically track objects that trigger the predefined tracking rule.

1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Auto Tracking** and click to configure it.



3. Set the tracking rule.

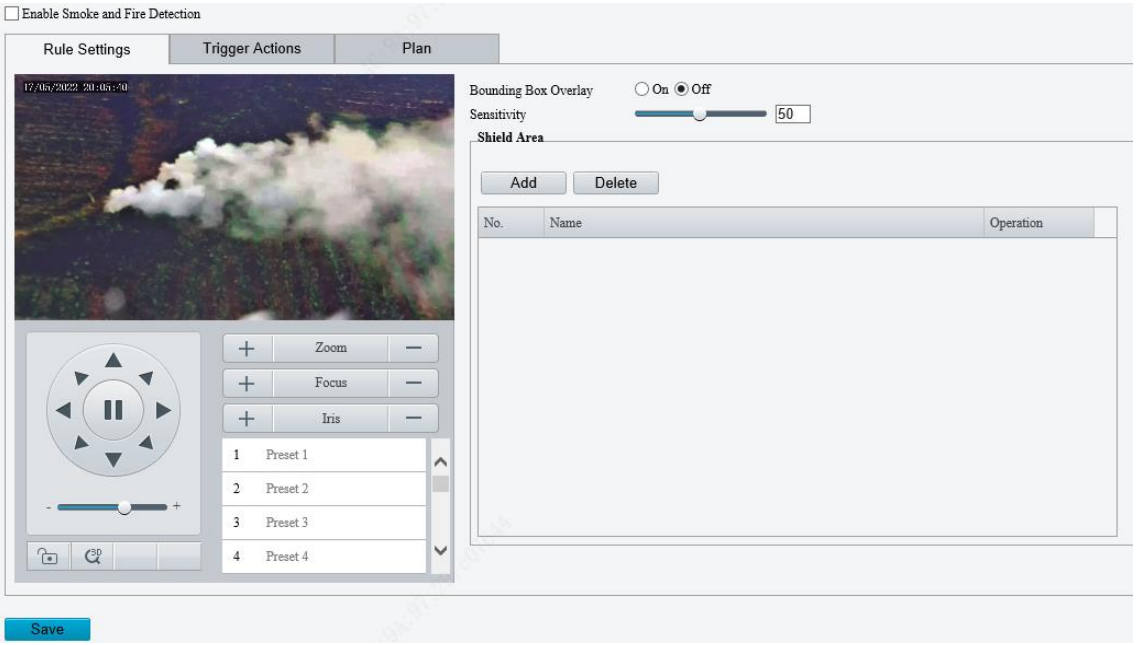
Item	Description
Tracking Object	Select the object to be tracked, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger than the Max. Size or smaller than the Min. Size will not be detected.
Max. Size/Min. Size	When enabled, a box appears on the image, you can point to a corner of the box and drag to resize it. The camera filters objects larger than the Max. Size or smaller than the Min. Size. The width and height of the maximum filter area must be greater than that of the minimum filter area.
Tracking	Click to set tracking parameters. See Tracking for details.

4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

5.5.20 Smoke and Fire Detection

Smoke and fire detection detects smoke and fire in the visible light channel and triggers an alarm. The camera uploads the original snapshots triggered by smoke and fire alarms by default.

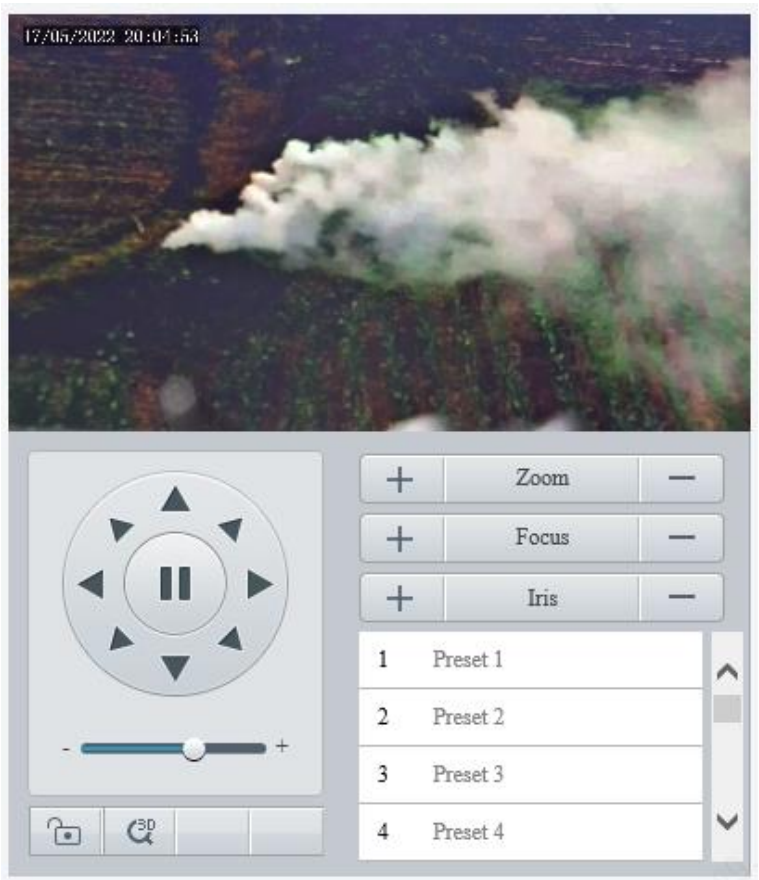
1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Smoke and Fire Detection** and click to configure it.



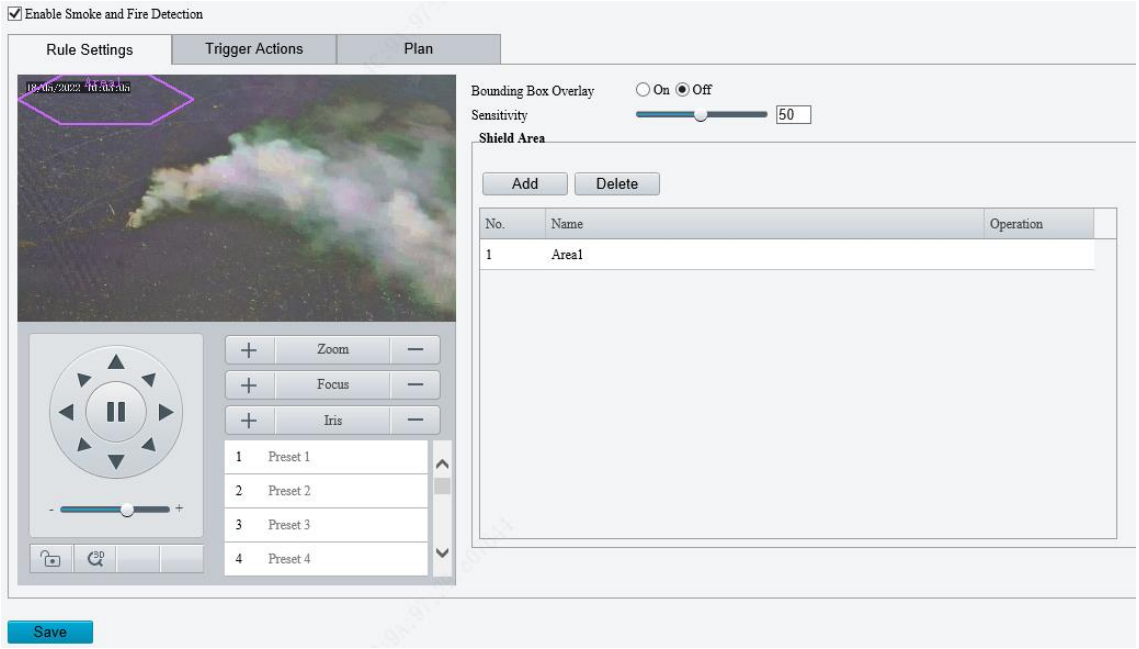
3. Set the detection rule.

- Bounding Box Overlay: A rectangular box is used to frame the object that triggers the detection rule for you to quickly locate it.
- Sensitivity: Set the detection sensitivity. The higher the sensitivity, the more likely smoke and fire will be detected, and the more likely false alarms will occur.
- Shield Area: Shield areas that may interfere with detection or trigger false alarms. A total of 64 shielding areas are allowed, with a maximum of 8 shielding areas per image.

  (1) Move the camera to the desired position manually or using presets.



(2) Click **Add**.

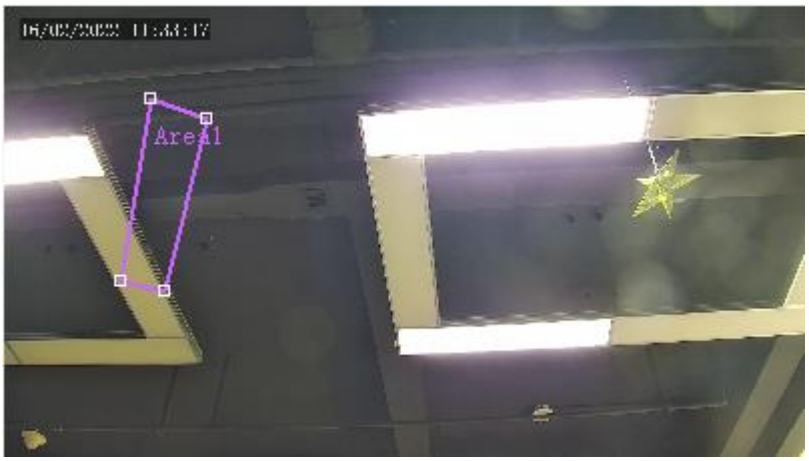


(3) Adjust the position and size of the area or draw an area as needed.

- Adjust the position and size of the area.
  Point to the area and drag it to the desired position. Drag the corners of the area to resize it.
- Draw an area.
  Click in the preview window to draw a polygonal area with up to 6 sides.

NOTE!

When editing detection rules, you can click to lock the scene to prevent pan/tilt movement caused by triggered detection rules and click to unlock the scene after you finish editing detection rules.

Item	Description
Preset	Click to move the shielding area to the center of the image. For example: Area 1 in the figure below is set as a shielding area.  After you click **Preset**, the shielding area is moved to the center of the image.  **NOTE!** The area box does not move with the shielding area.
Delete	Delete the shielding area.

4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

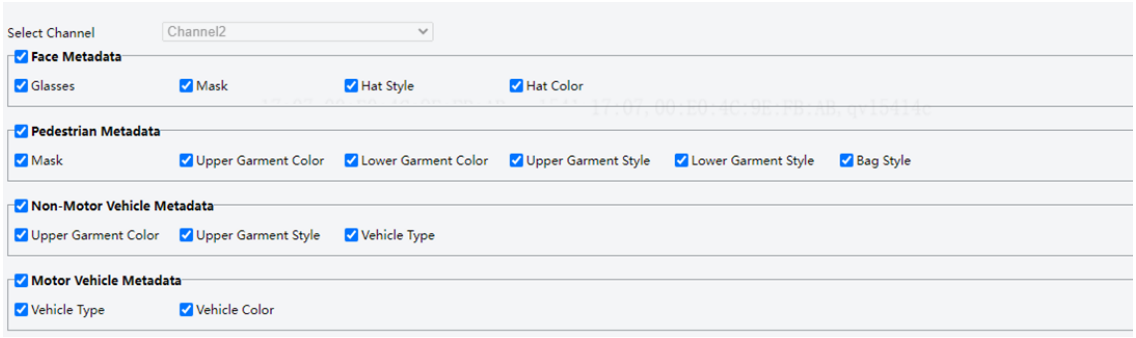
5.5.21 Metadata Collection

For dual-channel cameras, you can configure metadata collection parameters for the channels separately.

1. Collect Metadata

Configure metadata collection rules to collect desired metadata information of the monitored objects.

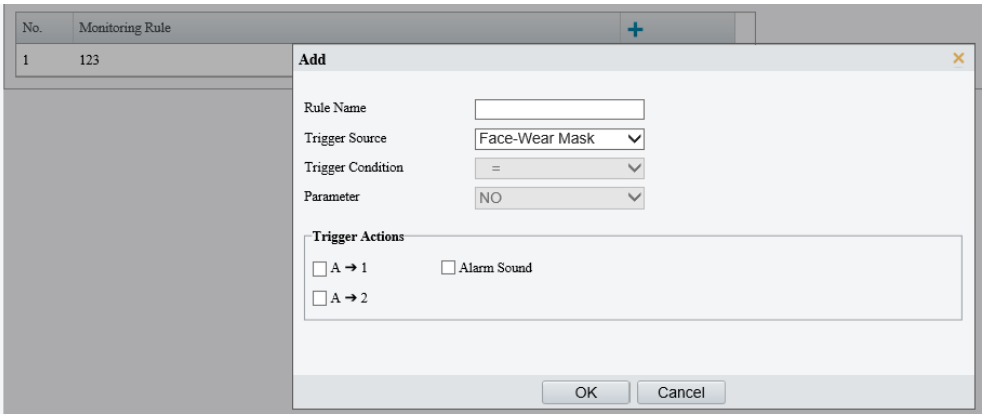
1. Go to **Setup** > **Intelligent** > **Metadata Collection**.



2. Select the metadata to be collected.
3. Click **Save**.

2. Monitor by Metadata

1. Go to **Setup** > **Intelligent** > **Metadata Collection** > **Monitor by Metadata**.



2. Click  to add a monitoring rule.
3. Set the monitoring rule.

Item	Description
Rule Name	Set a name for the rule.
Trigger Source	Choose the metadata to trigger monitoring: Face-Wear Mask or Face-Body Temperature.
Trigger Actions	See Alarm-triggered Actions for details.

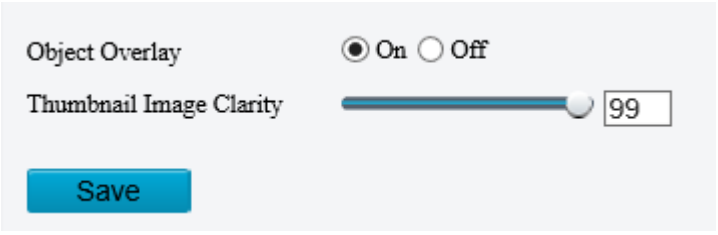
4. Click **OK**.

5.5.22 Advanced Settings

Advanced settings include snapshot clarity and detection mode for smart functions.

1. Photo

1. Go to **Setup** > **Intelligent** > **Advanced Settings** > **Photo Parameters**.



2. Select to enable or disable object overlay on the image. When enabled, a bounding box will overlay on the object in the original image.
3. Drag the slider or input a number to set the thumbnail image clarity. Please disable **Face Detection** before setting the photo parameters.
4. Click **Save**.

2. Detection

1. Go to **Setup** > **Intelligent** > **Advanced Settings** > **Detection Parameters**.
2. Set the detection parameters.

Item	Description
Detection Mode	Choose a detection mode. **Filter Repeated Motion Mode** is used to prevent repeated alarms caused by repeated motion of the object detected in the surveillance scene.
Sync Intelligent Mark with Video	When enabled, intelligent marks (bounding boxes) will follow the detected objects (motor vehicle/non-motor vehicle/pedestrian/face) on live video images. **NOTE!** Before you enable **Sync Intelligent Mark with Video**, you need to complete the configuration of **Attribute Collection** first (see **Error! Reference source not found.**)

3. Click **Save**.

5.6 Alarm

Configure the alarm function, so the camera can report alarms when an event occurs. Configure alarm linkage, so the camera can trigger other devices to perform specified actions when an event occurs.

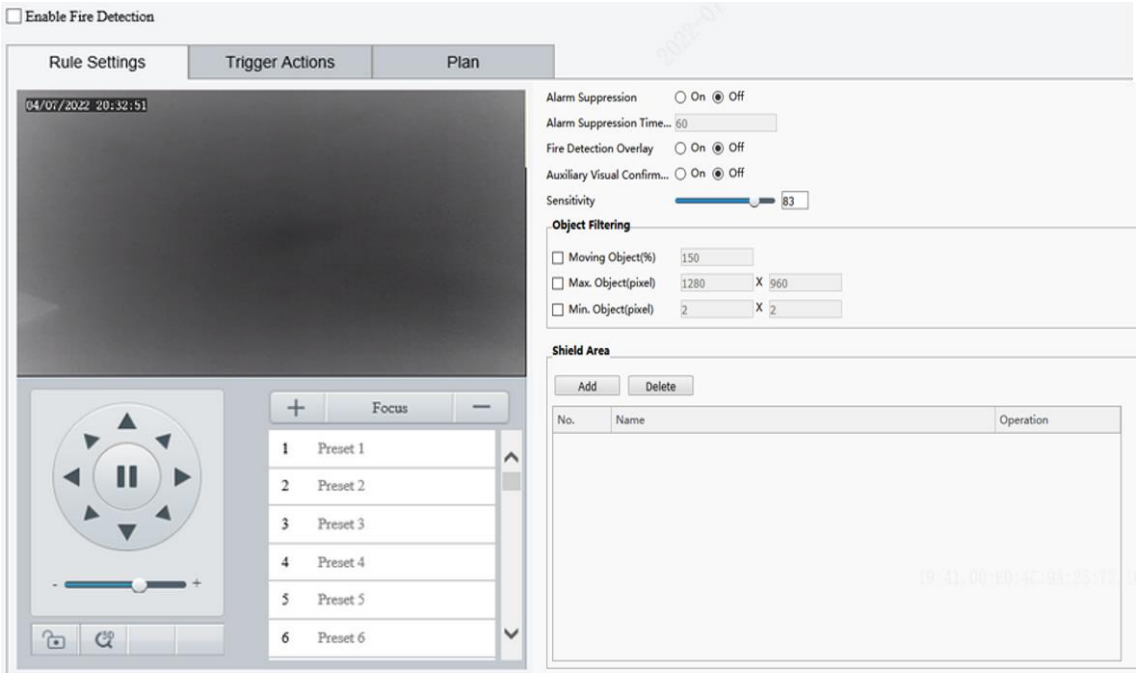
NOTE!
The supported alarms and linkage actions (or trigger actions) may vary with camera model.

5.6.1 Thermal Imaging Alarm

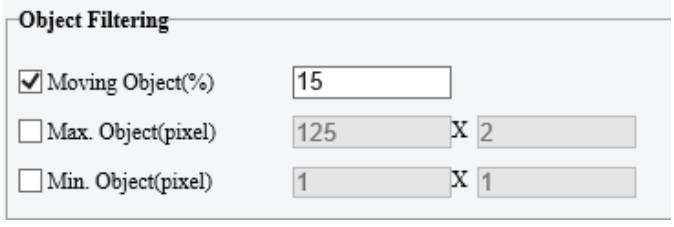
1. Fire Detection

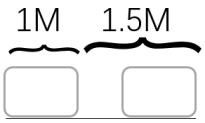
Fire detection detects fire or heat in the environment and triggers an alarm according to the configured policy.

1. Go to **Setup** > **Events** > **Thermal Alarm** > **Fire Detection**. The page displayed may vary with device model. The following shows two examples.



2. Set detection rules.

Item	Description
Detection Mode	Choose a detection mode: **Fire Detection** or **Smoking Detection**.
Fire Detection Overlay	When enabled, object bounding boxes will be added to video streams. This feature is applicable to viewing recorded videos showing object bounding boxes on a third-party platform.
Auxiliary Visual Confirmation	When enabled, smoke and fire detection will assist in fire detection to make detection results more accurate. After fire detection detects a fire point, smoke and fire detection will detect smoke around the fire point. A fire alarm will be reported if smoke is detected. **NOTE!** • When this feature is enabled, all other smart functions except smoke and fire detection will be unavailable. • This feature is effective only in daytime.
Sensitivity	Drag the slider to adjust detection sensitivity. The higher the sensitivity, the more likely fire and heat will be detected, and the more likely false alarms will occur. The specific value should be determined according to the actual scene or test.
Fire Alarm Suppression	When enabled, fire detection will not report the same fire point repeatedly within a certain length of time.
Fire Alarm Suppression Time (min)	Enter an integer in the range of 1-600. **NOTE!** Fire detection will not report the detected fire point again within the set time.
Object Filtering	Object filtering is intended to reduce false fire alarms by allowing the user to specify the movement speed and the maximum and minimum sizes of detected fire points. This feature is disabled by default. To use this feature, select the checkboxes and input appropriate values. 

Item	Description
	• Moving Object(%): Enter an integer in the range of 10-1000. The detected object will be filtered if the changed position of the object reaches the set value. • Max. Object(pixel): The default value is the maximum size to detect. Objects whose size exceeds the set value will be filtered. • Min. Object(pixel): The default is 2*2. Objects whose size is less than the set value will be filtered. **NOTE!** The camera may falsely detect car windows or static reflective objects as fire points due to their high temperatures caused by sunlight. For example, **Moving Object** is set to 150%, the object is a car that is 1m long. Fire detection detects fire once per second, totally 3 times. If the vehicle's movement distance is greater than or equal to 1.5 meters in any of the three detections, then the ratio of the car movement distance to the car length is greater than or equal to 150%, then the object will not be considered a fire point and will be filtered. See the diagram below. 

3. Set **Shield Area**.

Set shield areas to prevent false alarms caused by high-temperature objects in other areas on the image. Up to 8 shield areas are allowed on the current image, and in total 24 are allowed on different images.

(1) Rotate the camera to the shield area. You may use presets to quickly rotate the camera to the intended direction.

(2) Click **Add**. A shield area appears in the upper left corner of the image.

(3) Drag it to the intended position or draw a new one. Repeat the step if necessary.

Item	Description
Shield Area	Choose to display or hide shield areas.
Preset	Click the button, the camera will rotate to display the shield area at the center of the image.
Delete	Delete a shield area.

NOTE!

When editing detection rules, you can click  to lock the scene to prevent pan/tilt movement cause by triggered detection rules and click  to unlock the scene after you finish editing detection rules.

4. Set alarm linkage and an arming schedule.

Go to the **Trigger Actions** page to set alarm linkage. Go to the **Plan** page to set an arming schedule. See Alarm-triggered Actions and Arming Schedule for more information.

5. Click **Save**.

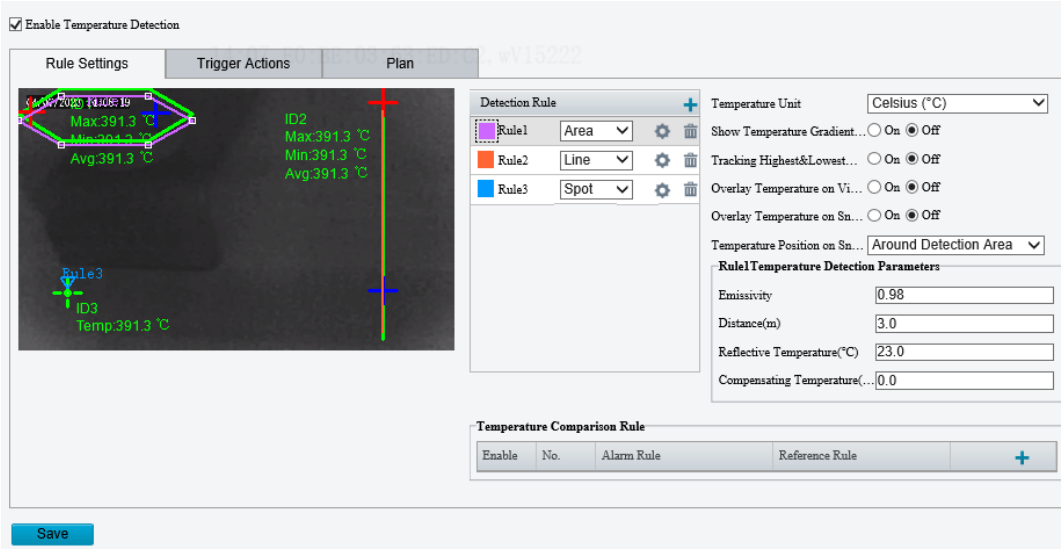
2. Temperature Detection

Temperature detection detects the temperature of objects in a specified area and triggers an alarm if the temperature exceeds the set alarm threshold. The camera reports an alarm according to the configured policy.

NOTE!

- This function is only available for thermal imaging cameras.
- The function may vary with camera models.

1. Go to **Setup** > **Alarm** > **Thermal Alarm** > **Temperature Detection**.



2. Select **Enable Temperature Detection.**
3. Set temperature parameters.

Parameter	Description
Temperature Unit	Select the temperature unit, including **Celsius(°C)** and **Fahrenheit(°F)**.
Show Temperature Gradient Bar	When enabled**,** the temperature gradient bar appears on right of the live video, and user can observe the temperature more intuitively.
Tracking Highest&Lowest Temperature	When enabled, the highest and lowest temperature will be shown as a red and blue spot respectively that moves with temperature changes.
Overlay Temperature on Video	When enabled, temperature information will overlay on the original video (including live videos and recordings).
Overlay Temperature on Snapshot	When enabled, temperature information will overlay on snapshots.
Temperature Position on Snapshot	Select the temperature position on snapshot, including **Around Detection Area** and **Upper Left Corner of Image**.

4. Set the detection rule. Up to 12 detection rules are allowed.

NOTE!
The detection rule type cannot be changed after it is set.

(1) Click +, add a temperature detection rule. A detection area is displayed in the left preview window by default. To draw a detection point or a detection line, select **Point** or **Line** from the drop-down box.

(2) Adjust the detection area, point or line as needed.

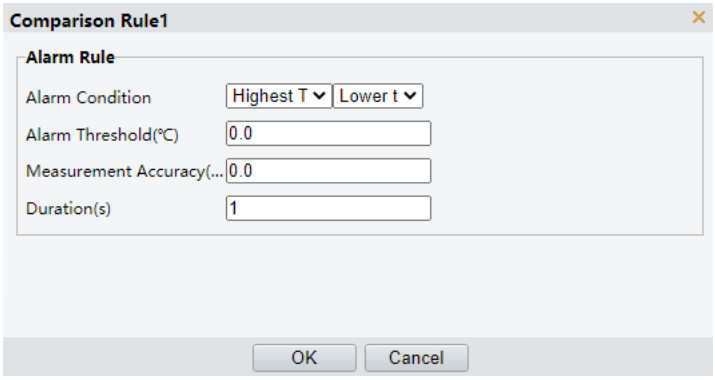
(3) Set temperature detection parameters.

5. Set the temperature comparison rule.

NOTE!

- Up to 6 temperature comparison rules are allowed.
- Hover over to view the details of the set rule.

(1) Click .



(2) Set the alarm rule.

Example: If the alarm threshold is set to 100℃, with the measurement accuracy of 2℃, and the duration of 3 seconds, the camera will take snapshots and report an alarm when the temperature exceeds 102℃ for 3 seconds.

(3) Click **OK**.

6. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. Click **Save.**

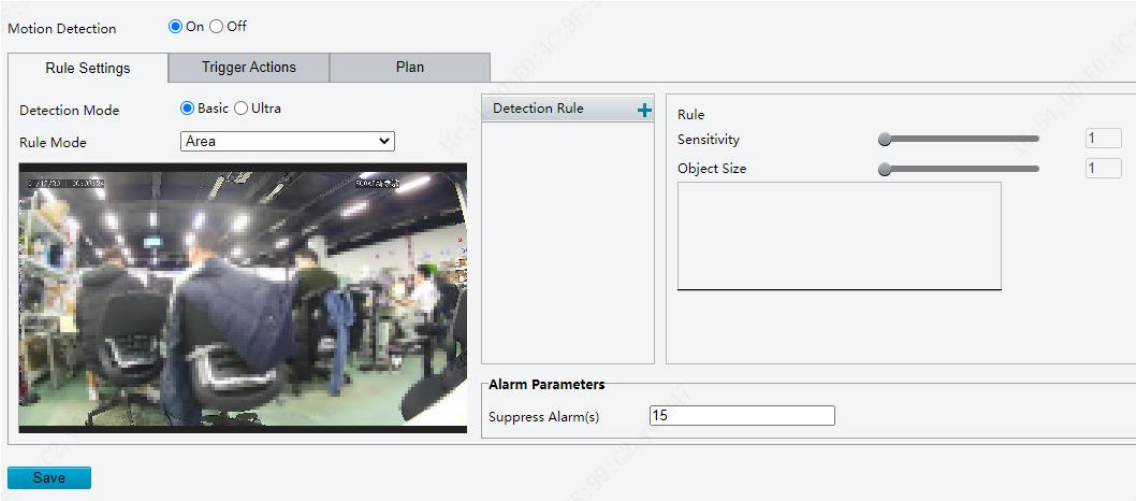
5.6.2 Common Alarm

1. Motion Detection

NOTE!

- The icon appears in the upper right corner of the image when a motion detection alarm occurs.
- The function may vary with device model.

1. Go to **Setup** > **Events** > **Common Alarm**.



2. Choose the detection mode, including basic mode and ultra mode.

Basic Mode

The camera detects motions in specified detection areas or grids on the image and will take snapshots and report an alarm when detection rules are triggered.

- Detection area

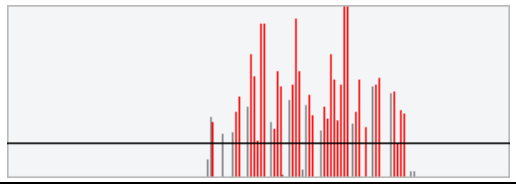
(1) To add a detection area, click +, then a rectangle appears on the image. Up to four detection areas are allowed.

(2) Adjust the position, size, and shape of the rectangle detection area, or draw a new one.

- Point to a border of the area and drag it to the desired position.
- Point to a corner of the area and drag to resize it.
- Click anywhere on the image, and then drag to draw a new area.

(3) Set detection rules.

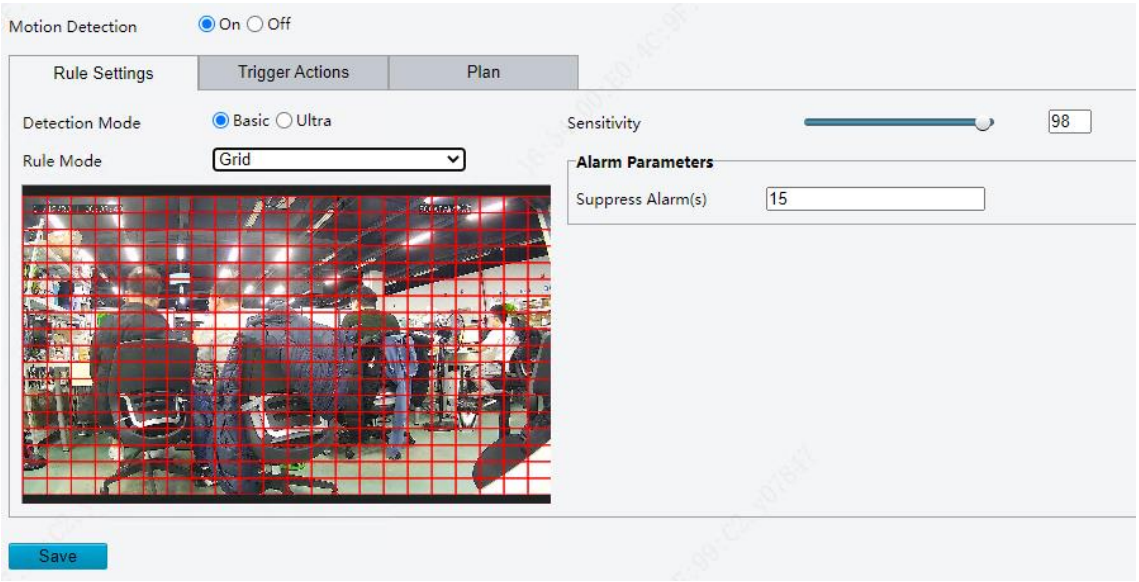
Item	• Description
Sensitivity	Drag the slider to adjust detection sensitivity. The higher the sensitivity level, the higher the detection rate of small motions, and the higher the false alarm rate. Set based on the scene and your actual needs.

Object size	Drag the slider to set object size. • Object size: The ratio of the size of the detected object to the size of the detection area. An alarm is triggered when the ratio reaches the set value. To detect motion of small objects, you need to draw a small detection area separately. • Motion detection results of the current detection area are shown below in real time. The red means motions that have triggered a motion detection alarm. The height of the lines indicates the extent of motion. The density of the lines indicates the frequency of motion. The higher the line, the greater the extent. The denser the lines, the higher the frequency. 

(4) Set **Suppress Alarm** to avoid receiving the same alarms within a certain length of time (alarm suppression time). For example, alarm suppression time is set to 5s, after an alarm is reported:

- If no motion is detected within the next 5s, new alarms can be reported after 5s when the alarm suppression time (5s) is over.
- If motion is detected within the next 5s, the alarm suppression time recounts from the time of the last alarm, and new alarms can be reported when the alarm suppressions time (5s) is over.

- Grid detection.



1. Set grid detection areas (covered by grid), which is by default the whole screen.

(1) Edit detection areas as needed.

- Click or drag on grid areas to erase grids.
- Click or drag on blank areas to draw grids.

(2) Drag the slider to adjust detection sensitivity.

The higher the sensitivity level, the higher the detection rate of small motions, and the higher the false alarm rate. Set based on the scene and your actual needs.

(3) Set **Suppress Alarm** to avoid receiving the same alarms within a certain length of time (alarm suppression time). For example, alarm suppression time is set to 5s, after an alarm is reported:

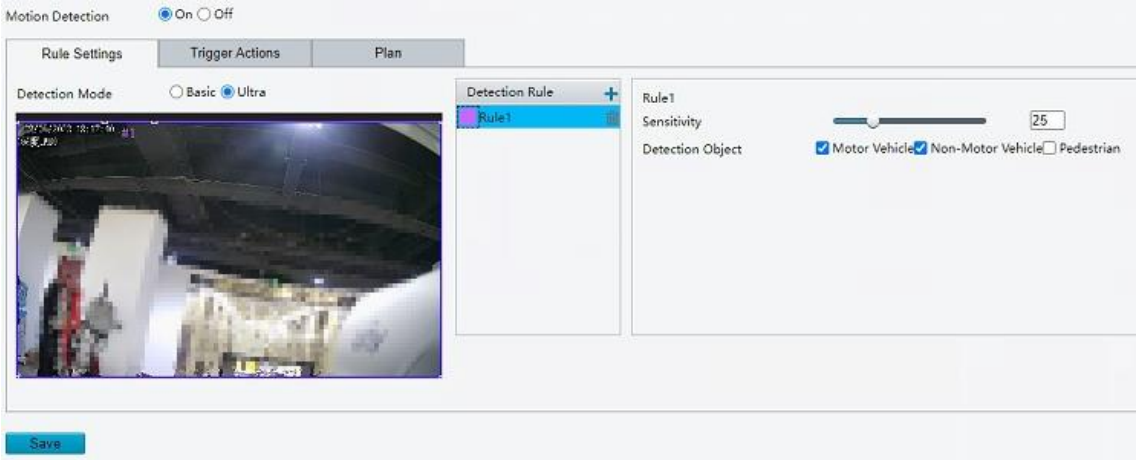
- If no motion is detected within the next 5s, new alarms can be reported after 5s when the alarm suppression time (5s) is over.

- If motion is detected within the next 5s, the alarm suppression time recounts from the time of the last alarm, and new alarms can be reported when the alarm suppression time (5s) is over.

3. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
4. Click **Save**.

Ultra Mode

The camera detects motions of motor vehicles, non-motor vehicles and pedestrians in specified detection areas and will take snapshots and report an alarm when detection rules are triggered.



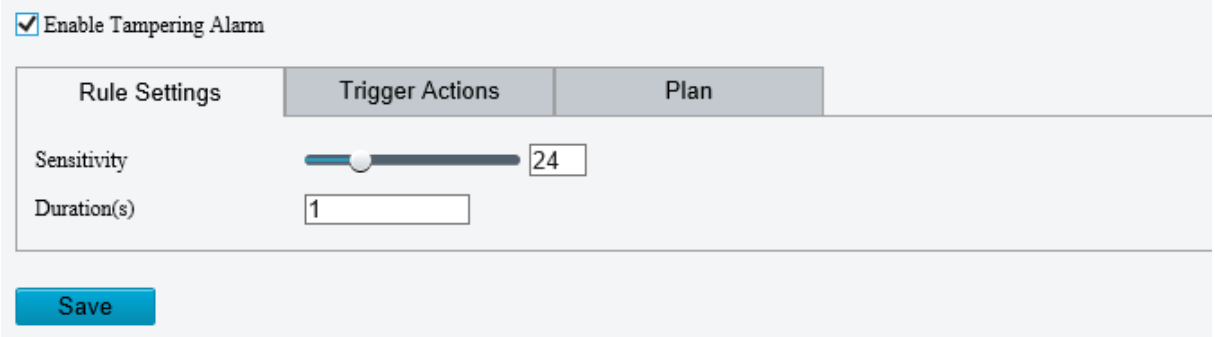
1. Set detection rules.
   (1) To add a detection area, click +, then a rectangle appears on the image. Up to four detection areas are allowed.
   (2) Adjust the position, size, and shape of the rectangle detection area, or draw a new one.
   - Point to a border of the area and drag it to the desired position.
   - Point to a corner of the area and drag to resize it.
   - Click anywhere on the image, and then drag to draw a new area.

   (3) Drag the slider to adjust detection sensitivity.
   The higher the sensitivity level, the higher the detection rate of small motions, and the higher the false alarm rate. Set based on the scene and your actual needs.
   (4) Select the detection object.
2. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
3. Click **Save**.

2. Tampering Detection

The camera triggers a tampering alarm after the lens is blocked for a certain length of time.

1. Go to **Setup** > **Events** > **Common Alarm** > **Tampering Detection**.



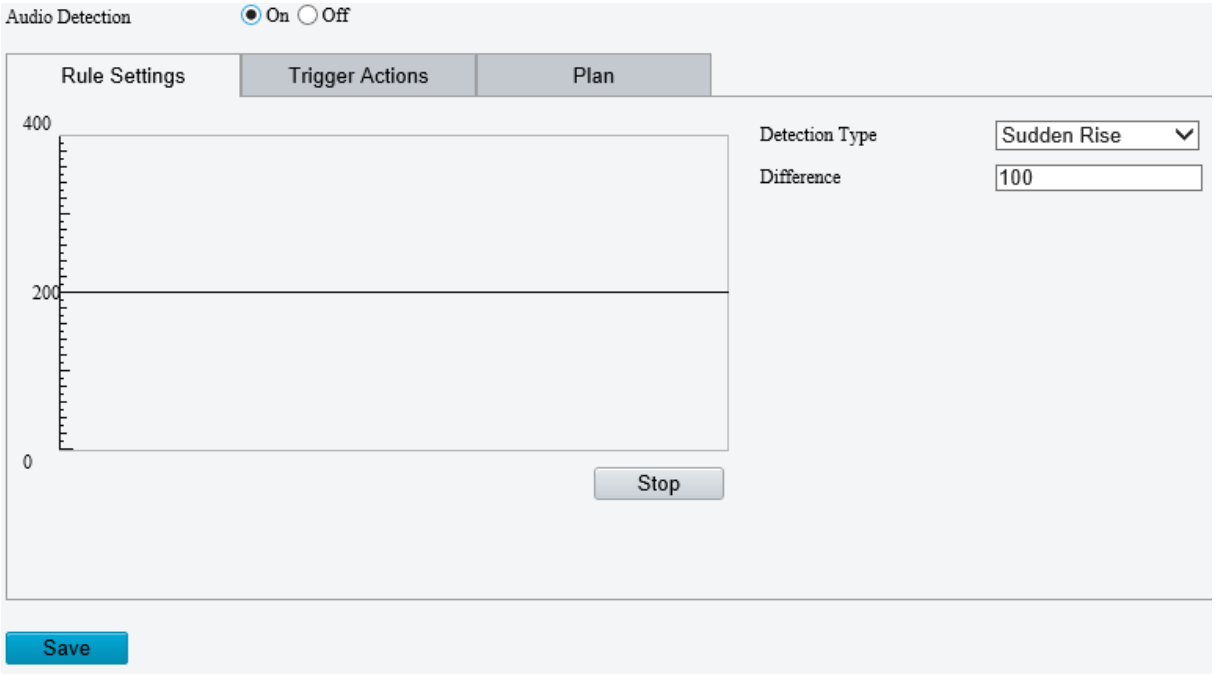
2. Select **Enable Tampering Detection**.
3. Set detection rules.
   (1) Drag the slider to adjust detection sensitivity. The higher the sensitivity level, the higher the detection rate, and the higher the false alarm rate. Set based on the scene and your actual needs.
   (2) Set the duration of lens blocking. The camera reports an alarm when the duration of lens blocking exceeds the set value. Set based on the scene and your actual needs.
4. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

3. Audio Detection

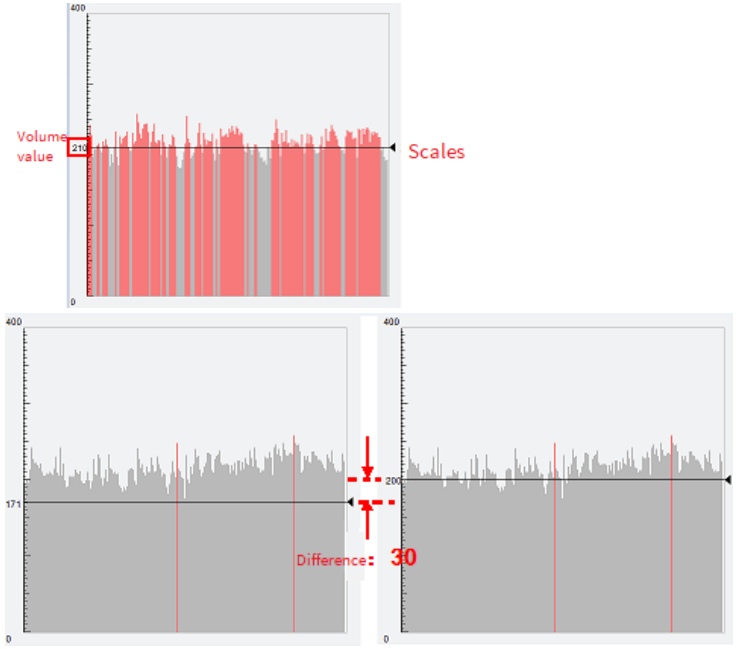
The camera monitors input audio signals and triggers an audio detection alarm when an exception is detected. Make sure an audio collection device (e.g., sound pickup) is connected, and audio detection is enabled (see Audio).

- When audio input mode is Line/Mic.

1. Go to **Setup** > **Events** > **Common Alarm** > **Audio Detection**.



2. Enable **Audio Detection**.
3. Set audio detection rules.

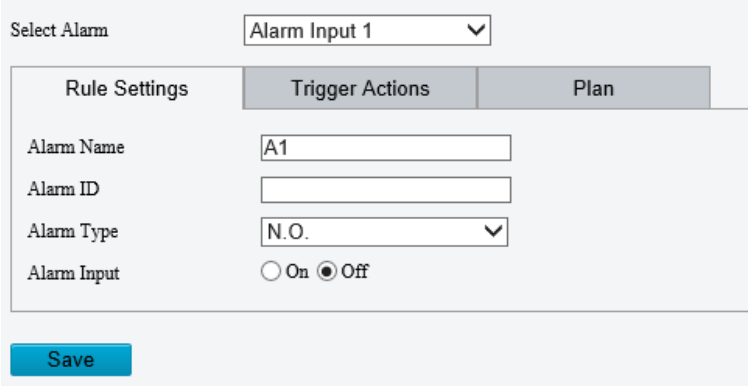
Item	Description
Detection Type	• Sudden Rise: Detects sudden rising sound volume and triggers an alarm when the rise of volume exceeds the difference. • Sudden Fall: Detects sudden falling sound volume and triggers an alarm when the fall of volume exceeds the difference. • Sudden Change: Detects sudden rising and falling sound volume and triggers an alarm when the rise or fall of volume exceeds the difference. • Threshold: Triggers an alarm when the volume exceeds the threshold.
Difference/Threshold	• Difference: The difference between two sound volumes. The camera triggers an alarm when the rise or fall of volume exceeds the difference (range: 0-400). This parameter is applicable when the detection type is **Sudden Rise**, **Sudden Fall**, or **Sudden Change**. • Threshold: The camera triggers an alarm when the sound volume exceeds the threshold (range: 0-400). This parameter is applicable when the detection type is **Threshold**.
Diagram of relative audio intensity	• Audio detection results are displayed and updated in real time. You can control the display progress by clicking the **Start/Stop** button. • The scales are used to measure sound volume. Gray indicates relative sound intensity. Red means sound volume that has triggered alarms. 

4. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

4. Alarm Input

The camera can receive alarms from external third-party devices such as infrared detectors, smoke detectors, etc. After alarm input is configured, the third-party device can send signals to the camera after an event occurs.

1. Go to **Setup** > **Events** > **Common Alarm** > **Alarm Input**.



2. Choose an alarm input from the drop-down list.

The number of alarm inputs available may vary with the camera model. For example, if the camera has two alarm inputs on the tail cable, you can configure alarm input 1 and alarm input 2 separately.

3. Configure alarm input.

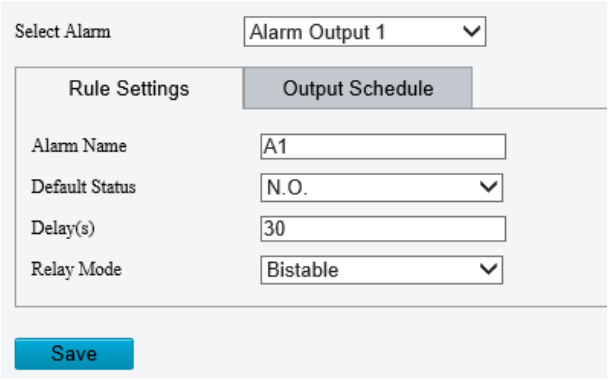
Item	Description
Alarm Name	The default name is the alarm input channel ID. You rename it as needed.
Alarm ID	Set an alarm ID as you need.
Alarm Type	Set the alarm type according to the alarm input device. ● If the alarm input device is normally open (N.O.), choose **N.C.** ● If the alarm input device is normally closed (N.C.), choose **N.O.**.
Alarm Input	Click **On** to enable **Alarm Input**.

4. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

5. Alarm Output

The camera can output alarms to external third-party devices such as an alarm bell, buzzer, etc. After the alarm output is configured, the camera can output alarm signals when an alarm (such as motion detection alarm, tampering alarm) occurs and trigger the third-party device to perform certain actions.

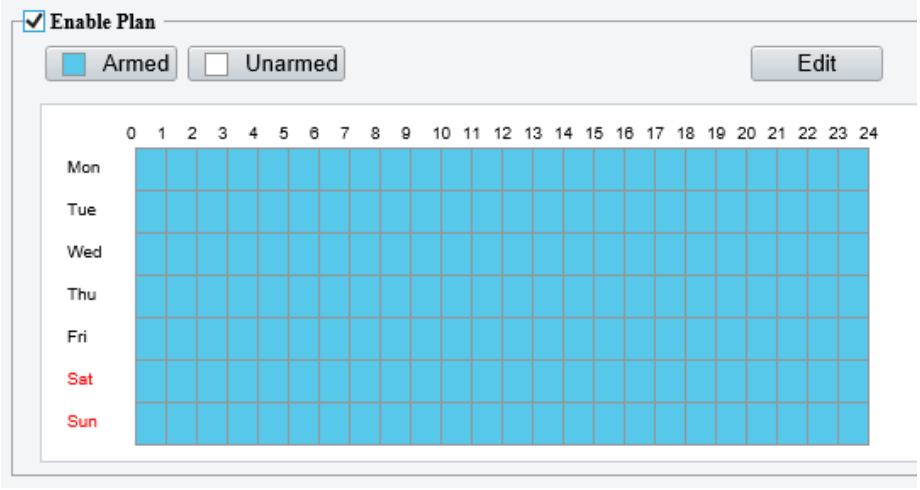
1. Go to **Setup** > **Events** > **Common Alarm** > **Alarm Output**.



2. Choose an alarm output from the drop-down list. The number of alarm outputs available may vary with the camera model.
3. Configure alarm output parameters.

Item	Description
Alarm Name	The default name is the alarm output channel ID. You can rename it as needed.
Default Status	Choose the default status. The default is **N.O.** ● If the external alarm device is normally open (N.O.), choose **N.O.** ● If the external alarm device is normally closed (N.C.), choose **N.C.**.
Delay(s)	The duration of alarm output after the alarm is triggered. Set it as needed.
Relay Mode	The default is **Monostable**. ● Monostable: The circuit can only remain in one stable state. When a trigger pulse is applied, the circuit switches to another state, and then automatically switches back to the original stable state. The circuit will repeat the same actions when the next trigger pulse arrives. ● Bistable: The circuit can remain in two stable states. When a trigger pulse is applied, the circuit switches to another state, and remains in this state after the trigger pulse is removed. When the next trigger pulse is applied, the circuit switches back to the other stable state and remains in that state. **NOTE!** Set relay mode to better adapt to third-party alarm devices such as alarm lights. Please set the relay mode according to the trigger mode of the third-party alarm device.

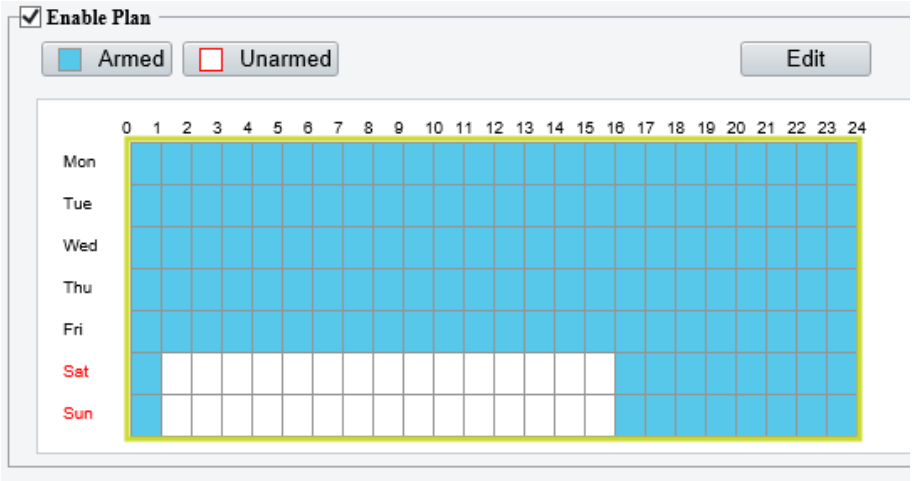
4. On the **Output Schedule** page, select **Enable Plan**, and then set when the camera can output alarms. By default, the schedule (plan) is disabled.



Two methods are available to make an arming schedule:

- Draw a schedule.

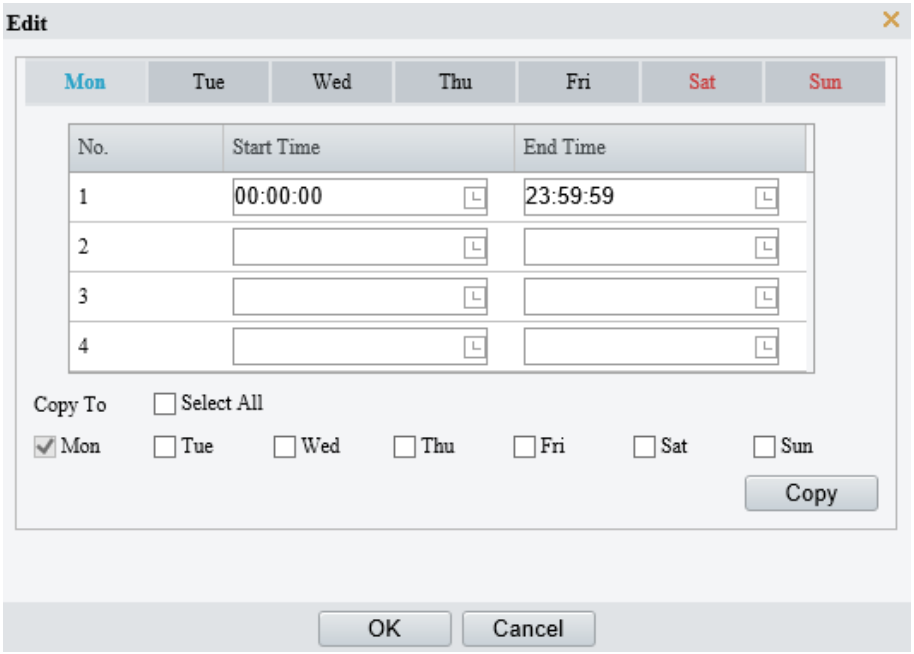
Click **Armed**, and then drag on the calendar to set when the camera can output alarms. Click **Unarmed**, and then drag on the calendar to set when the camera cannot output alarms.



NOTE!
You need Internet Explorer (higher than IE8) to draw on the calendar. IE10 is recommended.

- Edit the schedule.

Click **Edit**, set a refined schedule, click **OK**.



NOTE!

- Four periods are allowed each day. The periods must not overlap.
- To apply the current settings to other days, select the checkbox for the days one by one or select the **Select All** checkbox, and then click **Copy**.

5. Click **Save**.

CAUTION!

- Strictly follow the instructions below when powering on external alarm devices (e.g., alarm light) to avoid device damage.
- Check that **Alarm Type** is set to **Normally Open** (default) on the camera. Make sure the camera and the external alarm device are disconnected from power.
- After you connect the alarm device to the camera, connect the alarm device to power first, and then connect the camera to power.

5.6.3 One-key Disarming

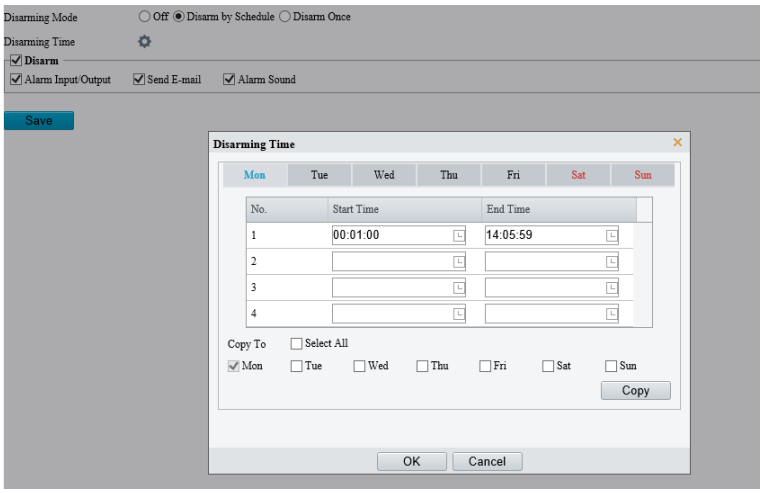
The camera cannot trigger linked actions when disarmed.

1. Go to **Setup** > **Events** > **One-key Disarming**.
2. Choose a disarming mode.

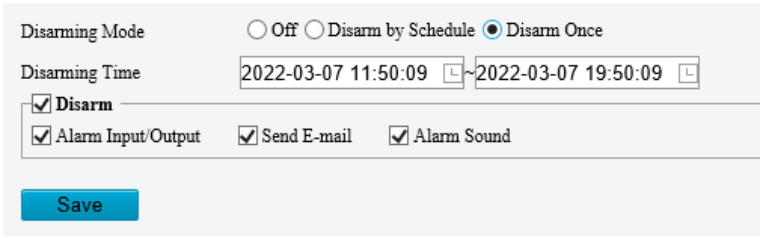
- Disarm by Schedule: Disarm according to a weekly schedule.
- Disarm Once: Disarm during a specified time period.

3. Configure disarming schedule or time according to the disarming mode you chose. The disarming schedule or time applies to all the actions selected.

- Disarm by schedule: Click to configure disarming time.



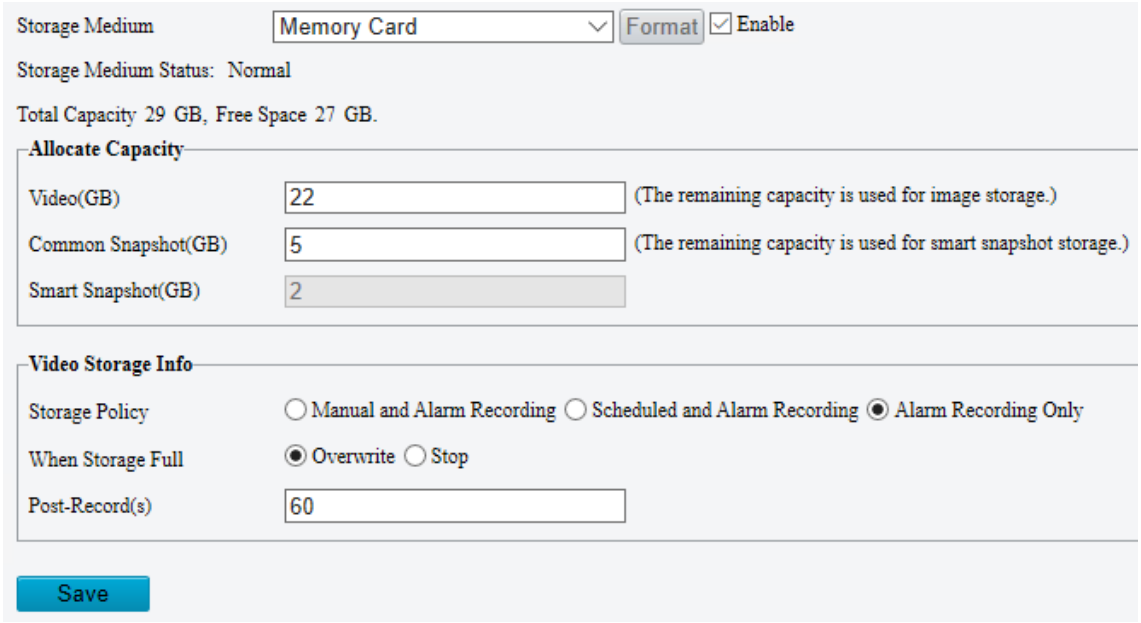
- Disarm Once: Set the disarming time.



4. Choose actions to be disarmed. The actual actions available, for example, alarm light, alarm sound, email, alarm output, may vary with camera model and version.
5. Click **Save**.

5.7 Storage

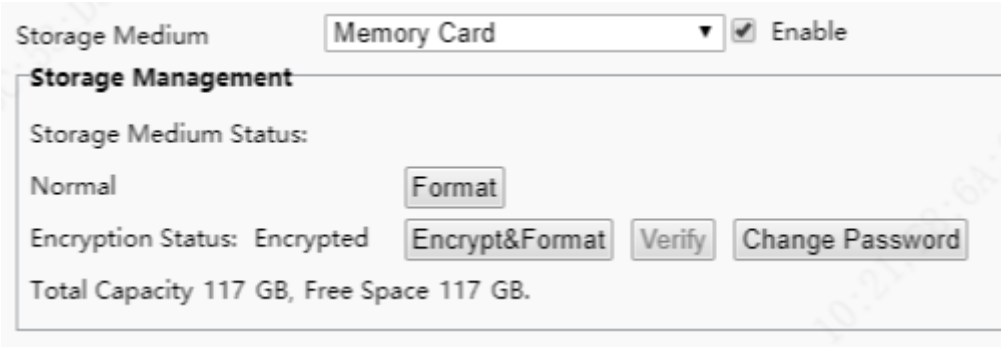
Go to **Setup** > **Storage** > **Storage**.



5.7.1 Memory Card

NOTE!
Before you use this function, make sure a memory card has been mounted on the camera.

1. Set **Storage Media** to **Memory Card** and select **Enable**.

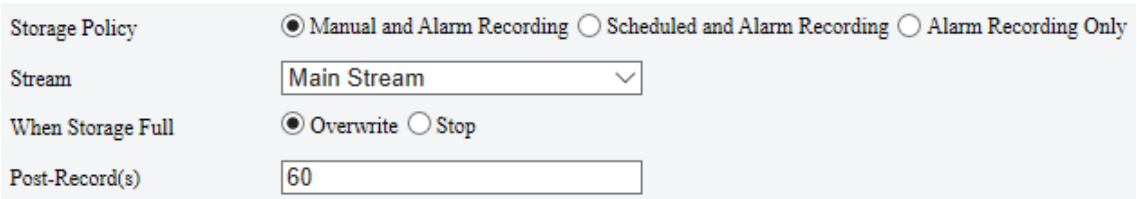


Item	Description
Storage Medium	Includes **Memory Card** and **NAS**.
Storage Management	To format a storage medium such as a memory card, stop using it first. • Format: Format the storage medium without encryption. • Encrypt&Format: Set an encryption password for the memory card, and then format it. Example: When inserting an unencrypted memory card, to use the memory card encryption function, you must perform **Encrypt&Format** operation to encrypt the memory card. After encryption, insert the card into other device, if no encryption password is obtained or the password stored in the device is not consistent with the password of the memory card, then storage services such as recording storage, download, and search will not be available. • Verify: Insert an encrypted memory card, if the password of the memory card is not consistent with the encryption password stored in the device, you can click Verify. When succeeded, you can normally use storage services, such as recording storage, download, and search. • Change Password: You can change the encryption password if the memory card is encrypted. • Storage Medium Status: Displays the health status of the memory card. **Note:** • This feature is only available to certain devices. Please refer to the actual interface. To monitor the memory card's health status, use a TF card that supports the health status monitoring function.
When Storage Full	• Overwrite: When space is used up on the memory card, new data overwrites old data. • Stop: When space is used up on the memory card, the camera stops saving new data.
Post-Record(s)	Sets the duration of alarm-triggered recording after the alarm ended.

2. Allocate storage space as needed.
3. Configure storage information.

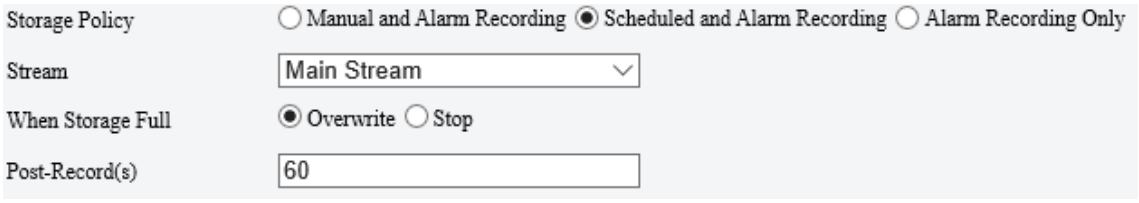
- To store manual recordings and alarm recordings

Choose **Manual and Alarm Recording**. By default, the main stream is stored.

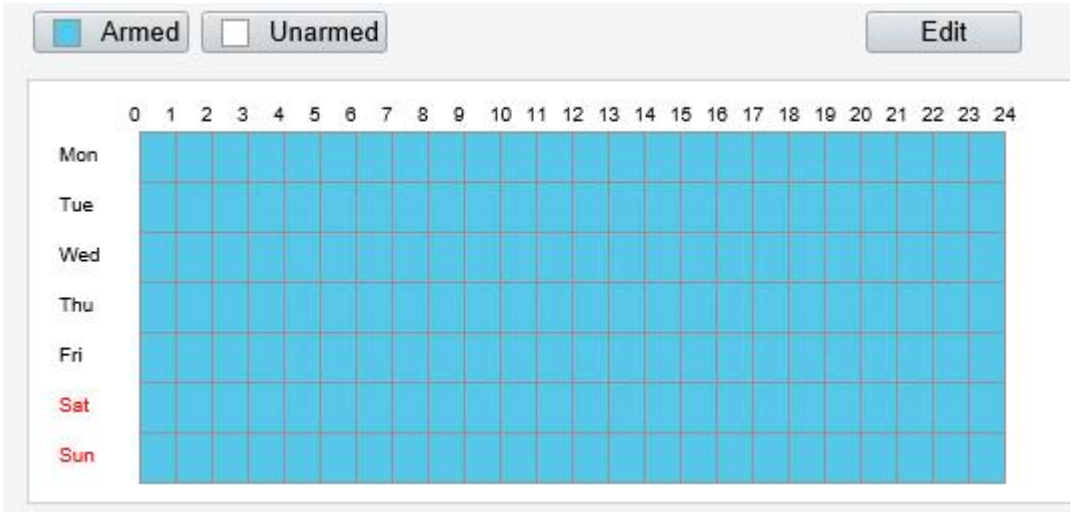


- To store scheduled recordings and alarm recordings

  (1) Choose **Scheduled and Alarm Recording**.

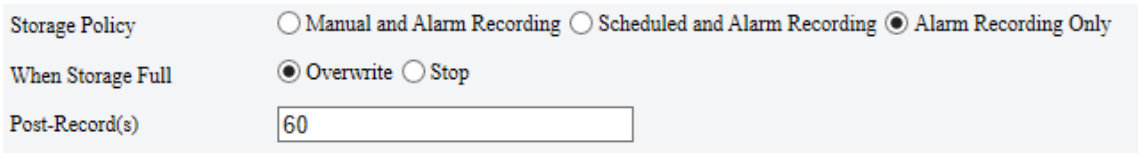


(2) The default recording schedule is 24/7. To change the schedule, drag on the calendar or click **Edit**.



- To store alarm recordings only

Choose **Alarm Recording Only**.

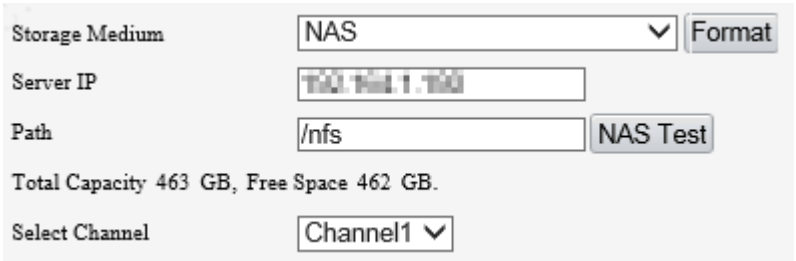


5.7.2 Network Disk

Use a Network Attached Storage (NAS) server to store camera videos and snapshots.

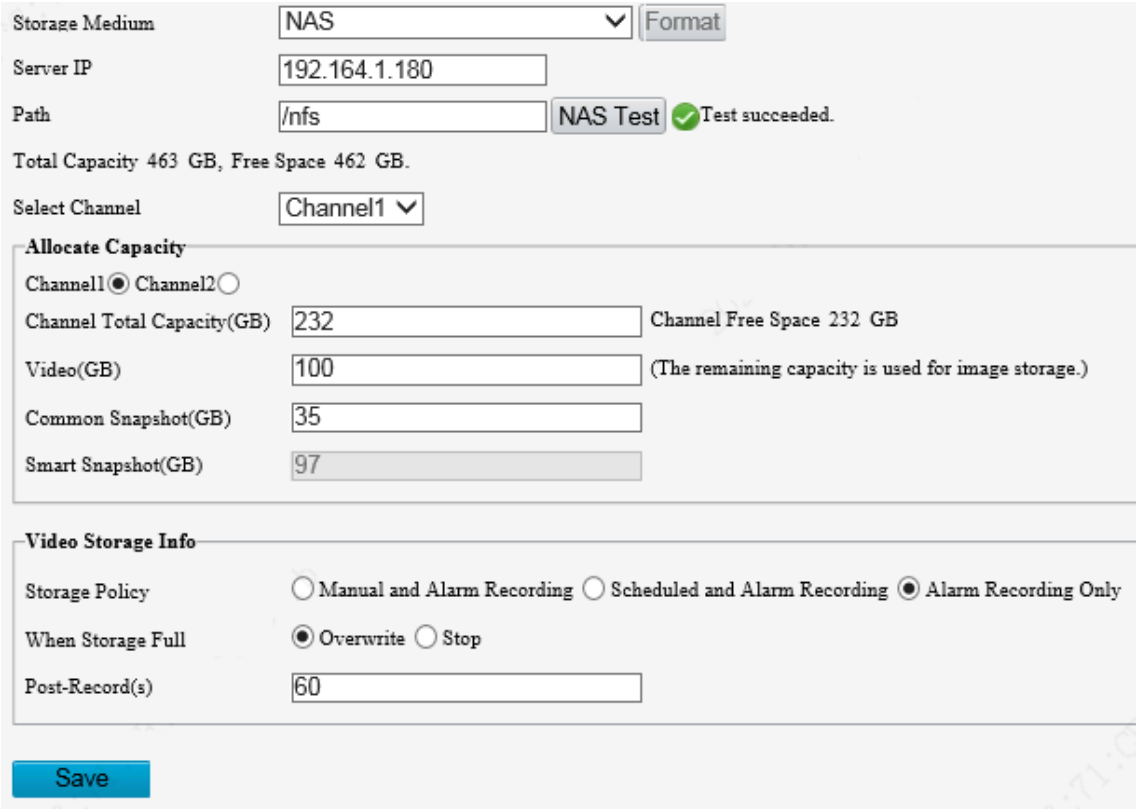
1. Set **Storage Medium** to **NAS**.
2. Enter the server address.
3. Enter the path to the destination folder on the NAS server. You can find the path by viewing the folder properties.

NOTE!
For dual-channel cameras, the server address and folder path are the same for the two channels. By default, the folder space is evenly shared by the two channels, among which, 85% space is used to store videos, and 15% is used to store common snapshots. You may change the Channel Total Capacity, video space, and common snapshot space as needed.



NOTE!
The path name may include the following: letters, digits, dots, spaces, and symbols / : , - _ @ =
Other characters are not allowed and will cause failed NAS test.

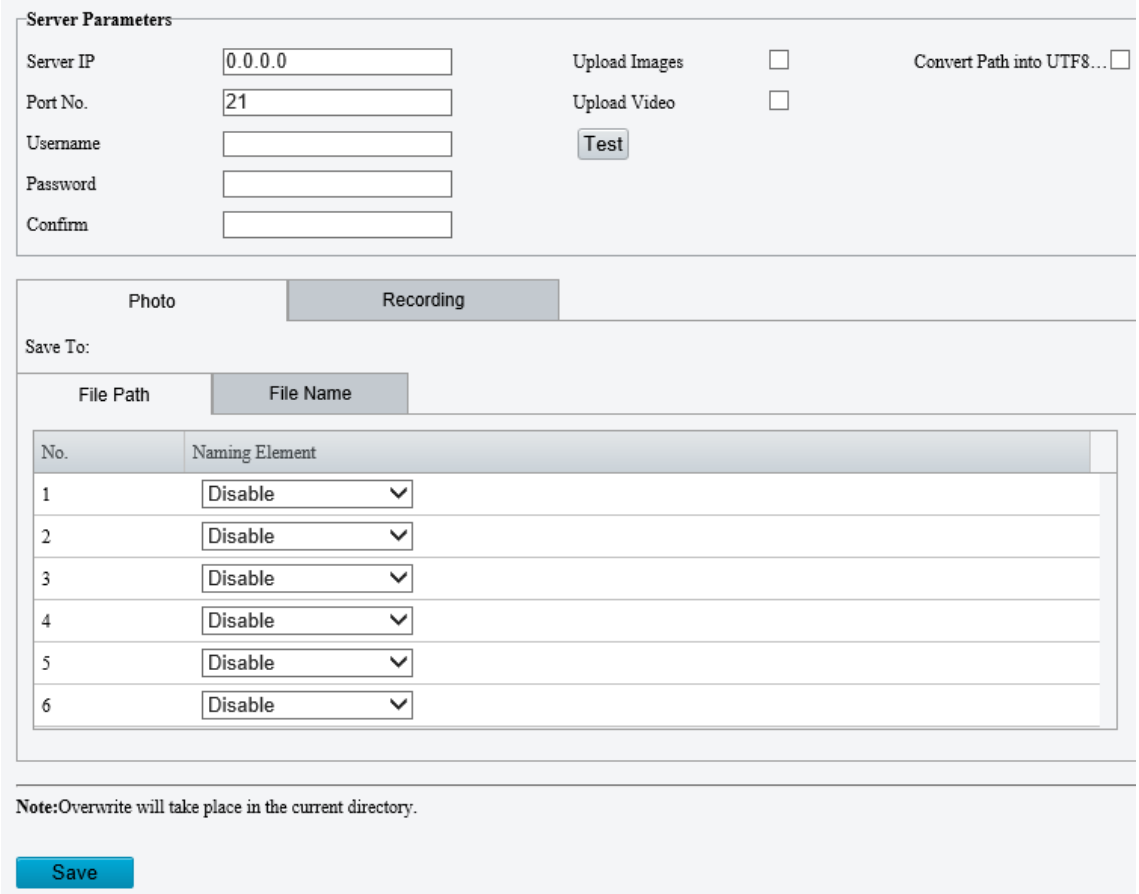
4. After the test succeeded, click **Save**.



5.7.3 FTP

Upload images and videos to an FTP server for storage.

1. Go to **Setup** > **Storage** > **FTP**.



2. Configure server parameters.

Item	Description
Server IP	IP address of the FTP server.
Port No.	The default is 21. You can set a different port as needed.
Username	Username used to log in to the FTP server.
Password	Password used to log in to the FTP server.
Test	Test the connection to the FTP server.
Upload Images	Select the checkbox if you want to upload common (non-smart) snapshots. To configure an FTP server for smart snapshots, go to **Setup** > **System** > **Server** > **Intelligent Server**. Overwrite Storage: When the number of images in the folder of the lowest level reaches the threshold, the server continues to save new images by overwriting the existing images. For example, if the folder path is \IP\date, the level-2 folder “date” is the lowest. When the images uploaded on Jan. 4, 2022, exceeds 1,000, existing images in the 20220104 folder will be overwritten by new images. **NOTE!** If you select **Overwrite Storage**, make sure the last naming element of filename is **Photo No.**. The default overwrite storage threshold is 1000 images, and the maximum is 100,000 images.
Upload Video	Select if you want to upload alarm-triggered recordings.
Convert Path into UTF8 Format	Select if you want to convert the path into UTF8 format.
Post-Record(s)	Fill in the number of seconds, which is the duration of the alarm-triggered recording after the alarm has ended.

3. Configure the storage path.

Item	Description
Photo	File path, up to 6 levels. If not specified, the default path “\IP\Date\Common” will be used. Common means common snapshots.
	Filename, up to 20 fields are allowed. If not specified, the sequence number such as 1, 2, 3, … will be used as the filename.
Recording	File path, up to 6 levels. If no path is specified, the default path “\IP\Date\Common” will be used.
	The default filename is “S+recording start time+E+recording end time.” For example, S20220104174903E20220104175002.

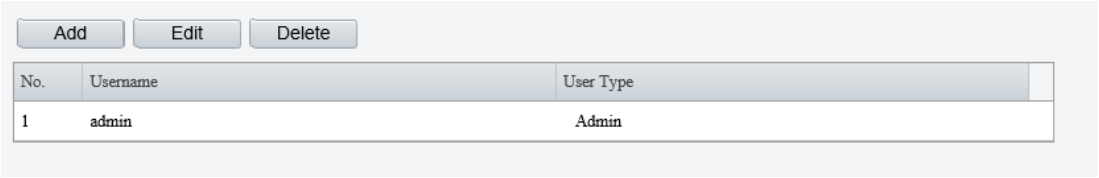
4. Click **Save**.

5.8 Security

The security functions available may vary with camera model and version.

5.8.1 User

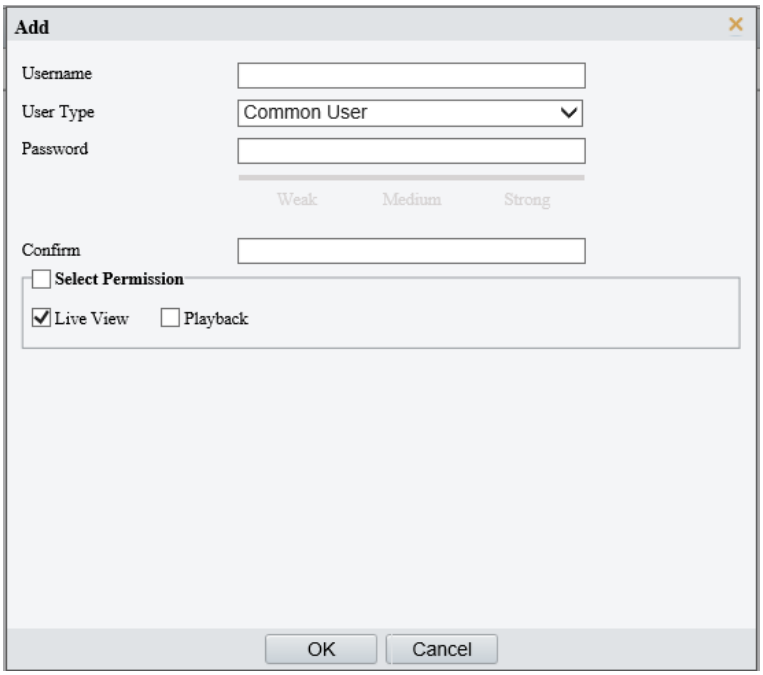
Go to **Setup** > **Security** > **User** to add, edit, or delete users.



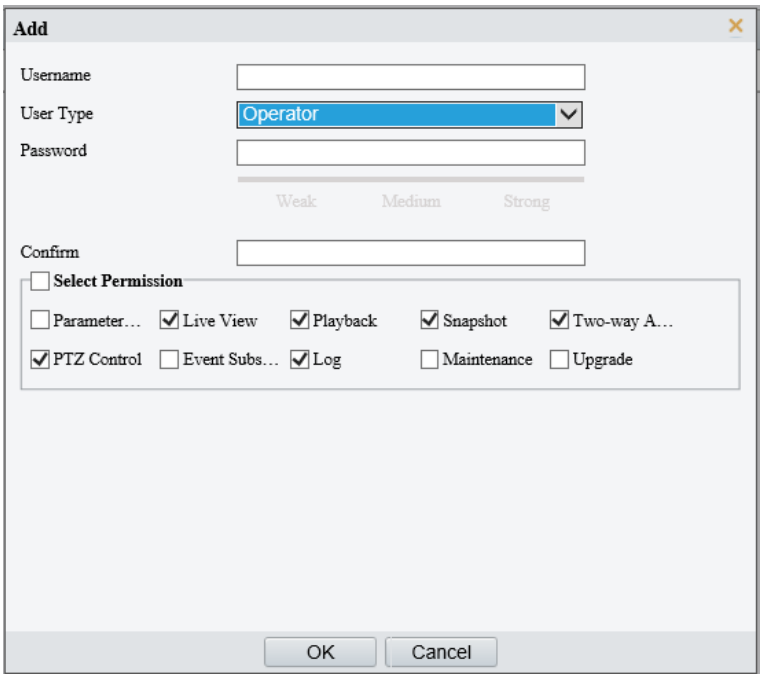
- Add user.

1. Click **Add**.

Common User



Operator



2. Configure the parameters.

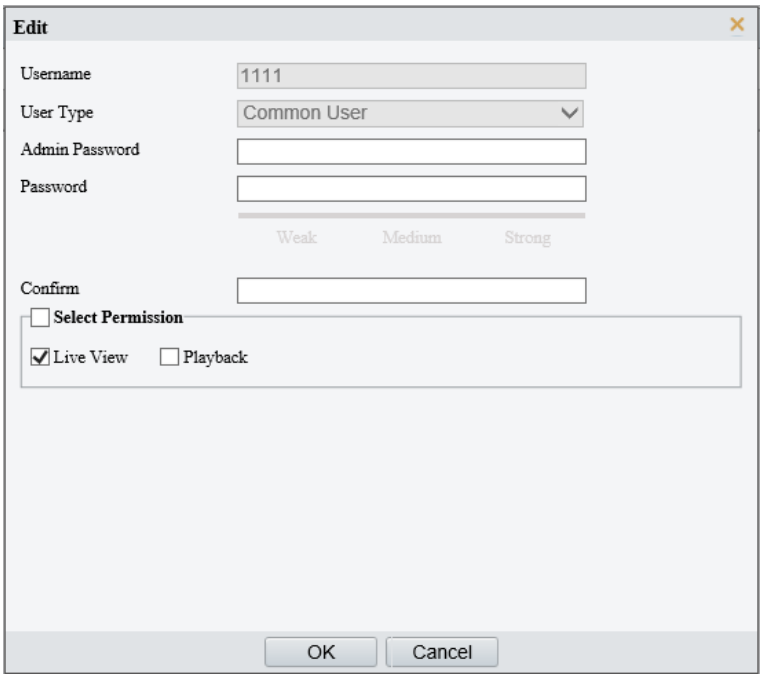
Item	Description
Username	Set the username that you prefer.
User Type	Choose **Common User** or **Operator**. **NOTE!** • Up to 32 users are allowed, including admin (at least one), common users and operators (up to 31). • Admin has all permissions in the system, including device operation and user management. • Operator has higher privilege than common user and can configure in the web interface.
Password	Enter a password. **NOTE!** A strong password is required for new user. A strong password shall include 9-32 characters consisting of letters, digits, and special characters.
Confirm Password	Enter the password again.
Select Permission	Different user types have different permissions. Select permissions you want to assign to the new user. **NOTE!** You can select the **Select Permission** checkbox to select/deselect all permissions.

3. Click **OK**.

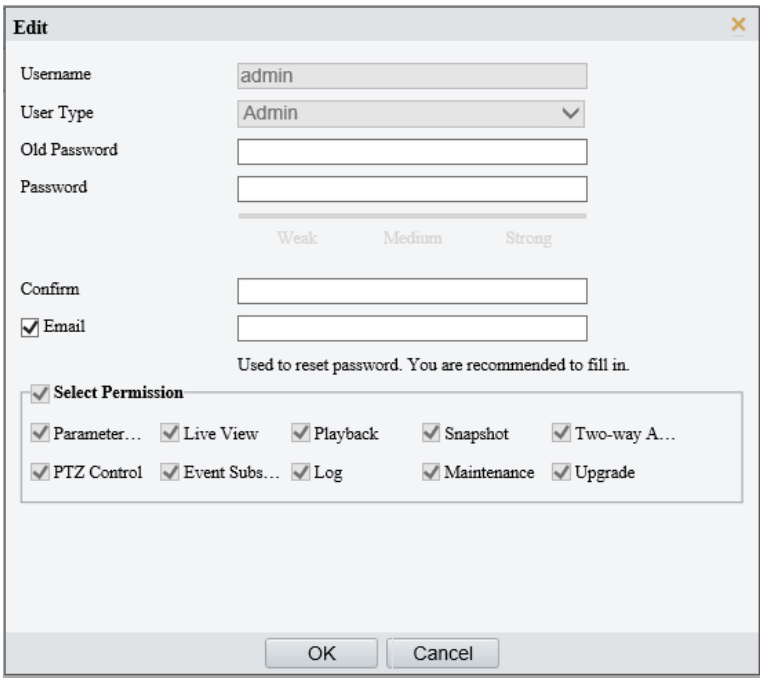
- Edit user information.

1. Click the user.
2. Click **Edit**.

Common User



Admin



3. Configure the parameters.

Item	Description
Admin Password	Password of administrator, not the user being editing.
Password	Enter a password that you prefer.
Confirm Password	Enter the password again.
Select Permission	Different user types have different permissions. Select permissions you want to assign to the new user. **Note** You can select the **Select Permission** checkbox to select/deselect all permissions.

4. Click **OK**.

NOTE!

- Only admin can change the device password. The new password must be different from the old.
- Only admin can change the username and password of a new user. If the user is logged in, the user will log out automatically and must use the new username and password to log in.

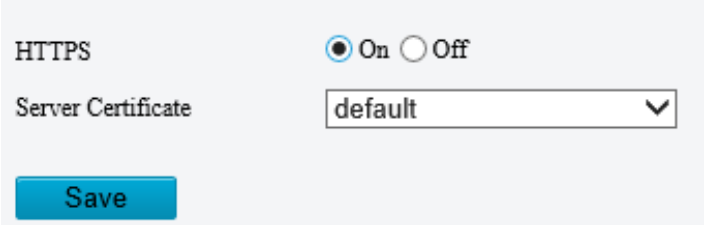
- Delete a user.

Click the user, click **Delete**, and then click **OK** to confirm.

5.8.2 HTTPS

Enable HTTPS to securely transmit video data of the camera.

1. Go to **Setup** > **Security** > **Network Security** > **HTTPS**.



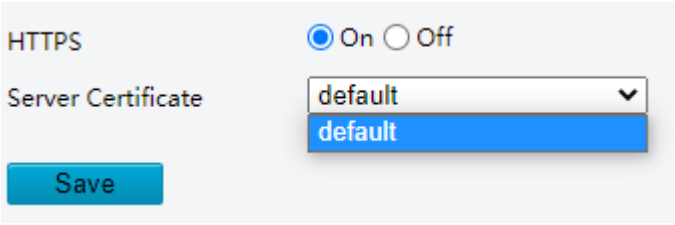
NOTE!

The default HTTPS port is 443. To use a different port, go to **Setup** > **Network** > **Port**.

2. Click **On** to enable HTTPS.
3. Log in to the account.

The login page is displayed when HTTPS is enabled. After you log in, a secure transmission channel is established.

4. Click ⌄ to choose a server certificate.



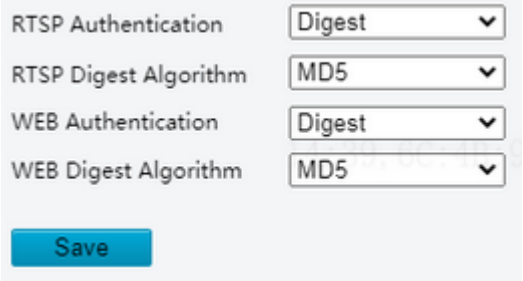
- Use the default certificate.
- A created certificate. See Certificate Management.

5. Click **Save**.

5.8.3 Authentication

Configure RTSP authentication and HTTP authentication to improve the security of network transmission. Only after successful authentication can data such as videos, audios, text, and images be transferred on the network.

1. Go to **Setup** > **Security** > **Network Security** > **Authentication**.



2. Choose an authentication mode.

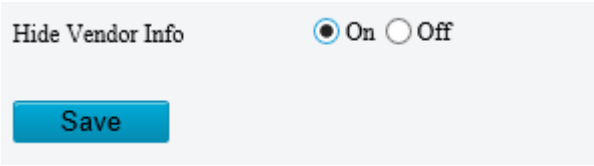
Item	Description
RTSP Authentication	Choose an authentication mode from the drop-down list. The default is **Digest**. ● Basic: Basic authentication. The username and password are encrypted by base 64, which imposes serious security risks. ● Digest：Digest authentication. Displays RTSP digest algorithm configuration. The default is **MD5**. ➢ Digest MD5: Digest authentication, which uses MD5 to protect the username, password, and domain of the requester, not transferred on network in plaintext and provides higher security. ➢ Digest SHA256: Digest authentication, which uses SHA256 for authentication and provides higher security than Digest MD5. ➢ Digest MD5/ SHA256: Supports MD5 or SHA256 algorithm adaptation. ● None: Transmit message without authenticating the RTSP address.
Web Authentication	Choose an authentication mode from the drop-down list. The default is **Digest**. ● Digest：Digest authentication. Displays Web digest algorithm configuration. The default is **MD5**. ➢ Digest MD5: Digest authentication, which uses MD5 to protect the username, password, and domain of the requester, not transferred on network in plaintext and provides higher security. ➢ Digest SHA256: Digest authentication, which uses SHA256 for authentication and provides higher security than Digest MD5. ➢ Digest MD5/ SHA256: Supports MD5 or SHA256 algorithm adaptation. ● None: Transmit message without authenticating the Web address.

3. Click **Save**.

5.8.4 Registration Information

You can set to hide vendor information of the camera from the server.

1. Go to **Setup** > **Security** > **Registration Information**.
2. Enable **Hide Vendor Info**. Vendor information will not be displayed on the management platform.

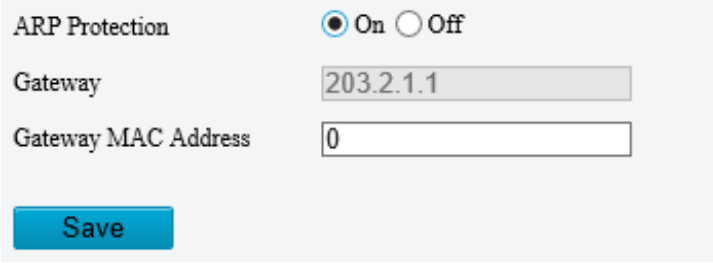


3. Click **Save**.

5.8.5 ARP Protection

Configure ARP protection by binding the gateway's IP address with its MAC address to prevent ARP spoofing attacks.

1. Go to **Setup** > **Security** > **Network Security** > **ARP Protection**.

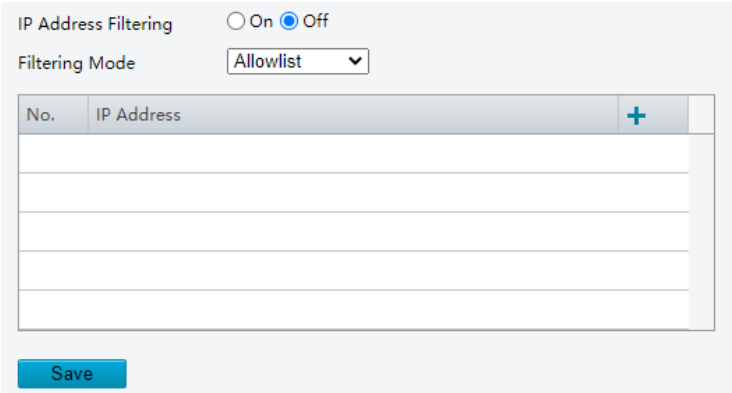


2. Enable **ARP Protection**.
3. Enter the gateway's MAC address.
4. Click **Save**.

5.8.6 IP Address Filtering

Use IP address filtering to allow or forbid access from specified IP addresses.

1. Go to **Setup** > **Security** > **Network Security** > **IP Address Filtering**.



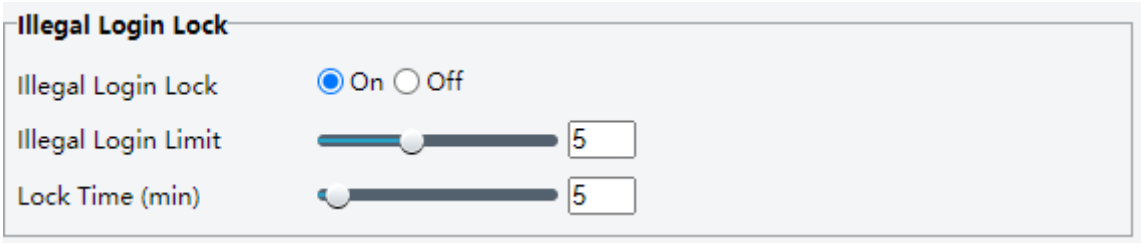
2. Enable **IP Address Filtering**.
3. Choose **Allow** or **Forbid** to filter IP addresses. When **Allow** is selected, access is allowed only from the added IP addresses. If **Forbid** is selected, access is forbidden from the added IP addresses.
4. Click +, enter IP addresses.
   - Up to 32 IP addresses can be added. Duplicate addresses are not allowed.
   - The first byte of the IP must be 1-233, and the fourth byte cannot be 0. Invalid IP addresses such as 0.0.0.0, 127.0.0.1, 255.255.255.255, and 224.0.0.1 are not allowed.
5. Click **Save**.

5.8.7 Access Policy

Access policies are used to prevent unauthorized access and operation from the network.

1. Go to **Setup** > **Security** > **Network Security** > **Access Policy**.

- Illegal Login Lock



NOTE!
By default, illegal login lock is enabled, and the account will be locked for 5 minutes after 5 consecutive failed login attempts due to a wrong password. If illegal login lock is disabled, the camera will not lock the account no matter how many times an incorrect password is input.

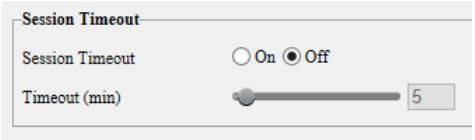
Item	Description
Illegal Login Lock	If the client IP address is not on the blocklist, the input username is correct, but the input password is wrong, it is an illegal login attempt. **NOTE!** • When an account is locked, information including the username, IP address, etc, is logged by the system. • The user can unlock the account by disconnecting power and rebooting the camera.
Illegal Login Limit	The maximum number of illegal login attempts allowed. Range: 2-10. The account is locked when the limit is reached.
Lock Time (min)	Integer within the range of 1-120.

Example: User A tries to log in from the client IP address 192.168.1.33 and is locked. Then user A cannot log in within the lock time, but user B is not affected and can still log in from the same IP address.

- Session timeout

A session is the connection established between the client (Web browser) and the server (camera). When session timeout is enabled, if the client cannot obtain or save configurations within the set time, the user will automatically log out and go to the login page.

NOTE!
Only admin can enable or disable this feature.



Item	Description
Session Timeout	Sessions are counted as follows. Take one device as an example. • If the session is established using one web browser from one client IP, there is one session. • If sessions are established using one web browser from one client IP, there are two sessions. • If sessions are established using two web browsers from two client IPs (two browsers from each IP), there are four sessions. **NOTE!** Up to 36 sessions are allowed at the same time.
Timeout (min)	Enter an integer within the range of 1-120. **NOTE!** The timer restarts when the session is re-established after a reboot.

2. Click **Save**.

- Friendly password

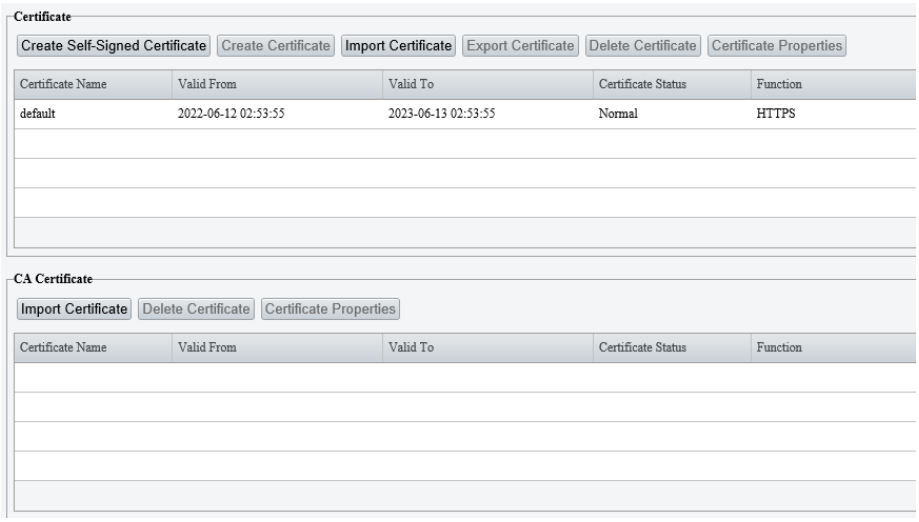
Users are not affected when friendly password is enabled. When friendly password is disabled, users who are already logged in with a weak password will be forced to set a strong password before the user can proceed with other actions in the web interface.

NOTE!
Friendly password is not available to all cameras.

5.8.8 Certificate Management

On the **Certificate Management** page, you can create and manage certificates, view certificate properties, etc.

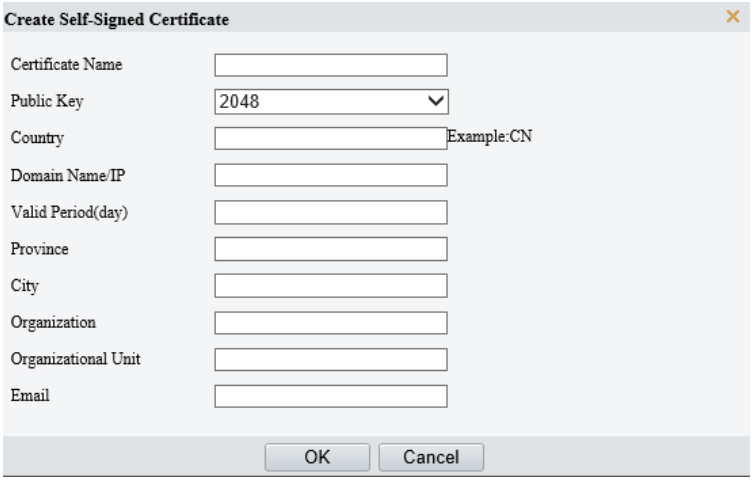
1. Go to **Setup** > **Security** > **Network Security** > **Certificate Management**.



1. Certificate

1. Create a self-signed certificate or import a certificate.

- Create a self-signed certificate for application scenarios with low-security requirements.



(1) Click **Create Self-Signed Certificate**.

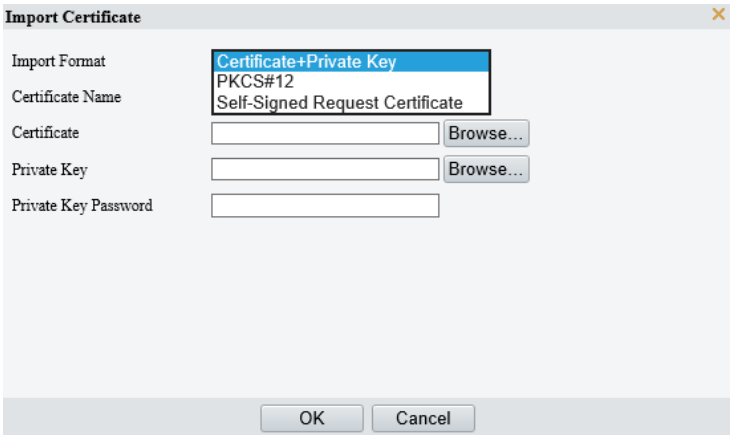
(2) Complete the settings.

Item	Description
Certificate Name	Set a name as needed.
Public Key	Choose a length for the public key: 2048 or 1024. Default: 2048.
Country	Enter the two-character country code, for example, CN for China.

Item	Description
Domain Name/IP	Enter the device's IP address or domain name.
Valid Period(day)	Enter the validity period of the certificate.
Province	Enter the complete province name.
City	Enter the complete city name.
Organization	Enter the organization name.
Organizational Unit	Enter the organizational unit name.
Email	Enter a valid email address of the contact.

(3) Click **OK**.

- Import a non-CA certificate.



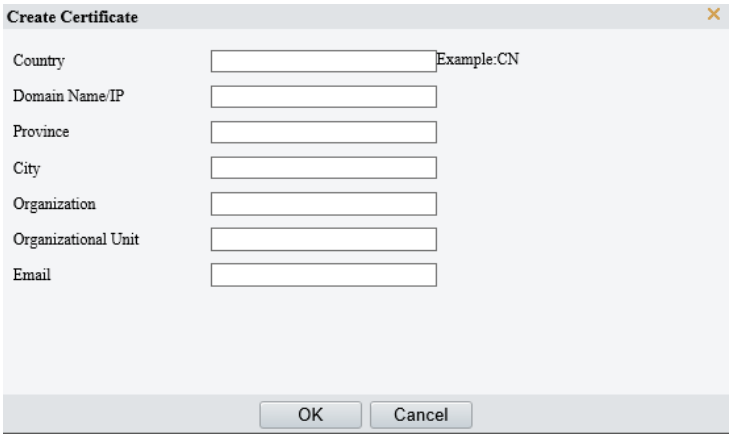
(1) Click **Import Certificate**.

(2) Complete the settings.

Item	Description
Import Format	You may choose **Certificate+Private Key**, **PKCS#12**, or **Self-Signed Request Certificate**.
Certificate Name	Enter the certificate name.
Certificate	Click **Browse** and locate the certificate.
Private Key	Click **Browse** and locate the private key.
Private Key Password	Enter the private key password.

(3) Click **OK**.

2. (Optional) Create a certificate request to obtain a trusted signed certificate for application scenarios with high-security requirements.



(1) After creating or importing a certificate, select the certificate, click **Create Certificate Request**.

(2) Complete the settings.

(3) Click **OK**.

NOTE!

After the certificate request is created, export the certificate request file. After the certificate authority (CA) signs and issues a certificate in accordance with the request, import the certificate into the device.

- Export certificate.

  Click **Export Certificate** to save the certificate to your computer.
- Delete certificate.

  Select a certificate and delete it. A certificate that is in use cannot be deleted.
- View certificate properties.

  Select a certificate to view its properties.

2. CA Certificate

A CA certificate is a certificate issued by a trusted certificate authority (CA) and thus is more secure and reliable.

1. Click **Import Certificate**.
2. Enter the certificate name, select the certificate.

3. Click **OK**.

- Delete certificate.

  Select a certificate and delete it. A certificate that is in use cannot be deleted.
- View certificate properties.

  Select the certificate to view its properties.

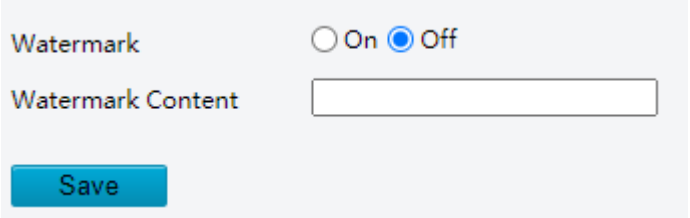
5.8.9 Watermark

Use watermark to encrypt custom information in videos to prevent tampering.

NOTE!

- Watermarks can be verified using Guard Player.
- For devices with two video channels, watermark parameters need to be configured for the channels separately.

1. Go to **Setup** > **Security** > **Watermark**.



2. Enable **Watermark**.
3. Set watermark contents, which may include uppercase letters, lowercase letters, and digits. Up to 16 characters are allowed.
4. Click **Save**.

5.9 System

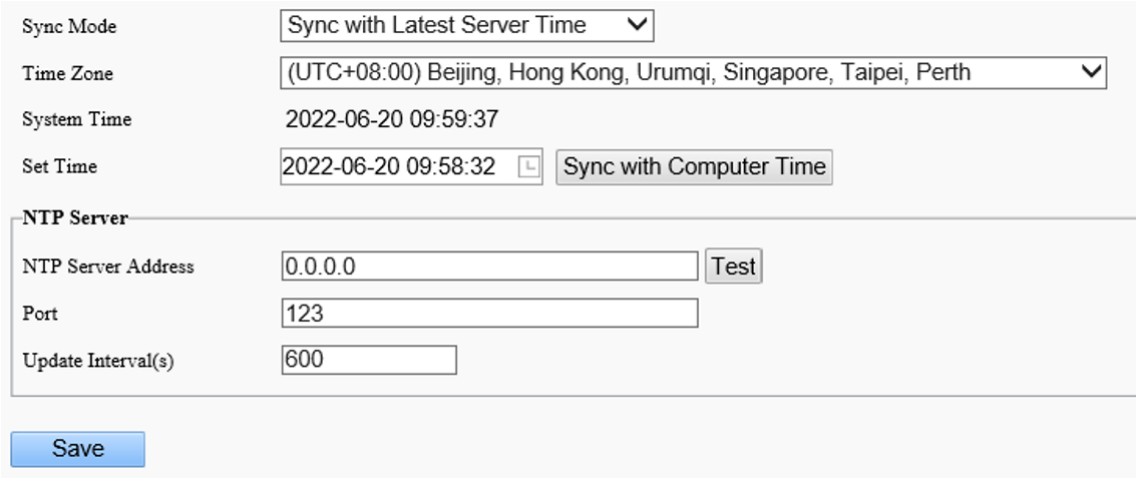
NOTE!

User operations in this module may vary with camera model.

5.9.1 Time

Set the device's system time manually or sync it with a server.

1. Go to **Setup** > **System** > **Time**.



2. Set the system time.

- Set manually in the **Set Time** field.

NOTE!

When setting the system time manually, you need to set **Sync Mode** to **Sync with System Configuration**; otherwise, the camera will still sync with other time sources after you set it manually.

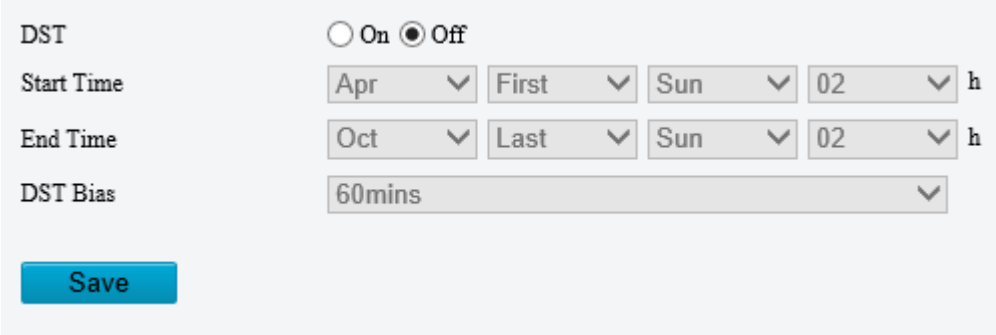
- Sync time.

Item	Description
Sync with System Configuration	Default. Time provided by the system's built-in time module.
Sync with Latest Server Time	The camera regularly syncs time with all the connected servers.
Sync with Management Server(Non-ONVIF)	The camera regularly syncs time with the server that is not connected via Onvif.
Sync with Management Server(ONVIF)	The camera regularly syncs time with the server that is connected via Onvif.
Sync with NTP Server	The camera syncs time with the NTP server. You need to configure the server address, port, and update interval (range: 30s-86400s). You can click **Test** to test it.
Sync with Cloud Server	The camera syncs time with the cloud server once it gets online. The camera does not sync again until it gets offline and online again.
BeiDou Module Auto Sync	The camera syncs time with BeiDou satellites through the BeiDou module (if equipped).
Sync with Computer Time	The camera syncs time with the client computer from which you log in to the camera.

3. Click **Save**.

5.9.2 DST

1. Go to **Setup** > **System** > **Time** > **DST**.



2. Enable DST, and set the start time, end time, and DST bias.
3. Click **Save**.

5.9.3 Alarm Server

The camera can automatically report alarms to a specified third-party server. You need to configure the server IP, port, and protocol, then the camera can report alarms to the server.

1. Go to **Setup** > **System** > **Server** > **Alarm Server**.

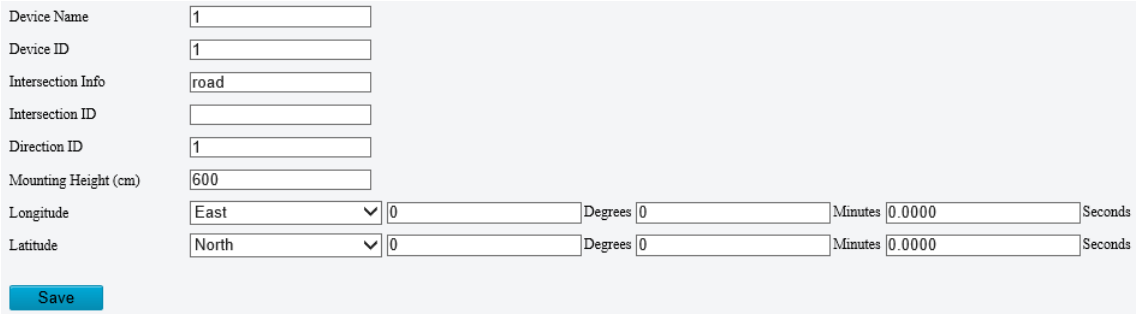
2. Select **Enable Alarm Server**.

3. Set the server IP and port, then click **Test** to check if the server is available.
4. Choose a protocol: **HTTP** or **HTTPS**.
5. Click **Save**.

5.9.4 Device Information

Set device information including device name, location, mounting height, etc., which can be used in smart FTP, OSD, etc.

1. Go to **Setup** > **System** > **Device Info**.



2. Complete the information as needed.
3. Click **Save**.

5.9.5 Maintenance

1. Maintenance

System maintenance includes software upgrade, system configuration, diagnosis information, power output, and heater settings.

Go to **Setup** > **System** > **Maintenance**.

- Software upgrade

NOTE!

- Make sure the version to be used matches the device; otherwise, exceptions may occur.
- The version file is a .zip file that includes all the upgrade files.
- Power must be connected throughout the upgrade.

➢ Local upgrade

(1) Click **Browse**, locate the version. (If applicable) select **Upgrade Boot Program** to upgrade the boot program.

(2) Click **Upgrade** to start. The device will restart automatically after the upgrade is completed.

➢ Peripheral upgrade

Check for upgradable peripherals such as pan/tilt unit, illuminator, etc., and available versions.

➢ Cloud upgrade

Click **Detect** to check for new versions. You can perform a cloud upgrade if a new version is available on the cloud server.

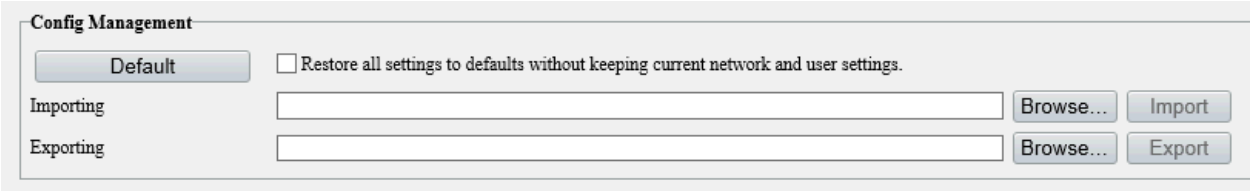
- System configuration

You can export the current configurations of the camera to the client computer or an external storage device for backup, so, when necessary, you can restore camera configurations by importing the backup file.

CAUTION!

- Restoring defaults will restore all settings to factory defaults except the administrator password, network interface settings, and system time.
- Before you import a configuration file, make sure the file matches the camera model; otherwise, unexpected results may occur.
- The camera will restart after importing the configuration file.

➢ Import configurations.



(1) Click **Browse** beside the **Import** button.

(2) Locate the configuration file, click **Import**. A dialog box appears.

(3) Enter the password and confirm.

(4) Click **OK**.

➢ Export configurations.

(1) Click **Browse** beside the **Export** button.

(2) Choose the destination folder, click **Export**. The **File Encryption** dialog box appears.

(3) Enter the password and confirm.

(4) Click **OK**.

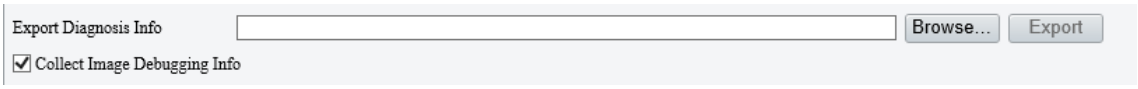
➢ Restore defaults.

Click **Default**. The system will restore default settings except network settings and user settings.

To restore all settings, select **Restore all settings to defaults without keeping current network and user settings**.

- Diagnosis information

Diagnosis information includes logs and system configurations and can be exported to your client computer. Select **Collect Image Debugging Info** to collect diagnosis information with accompanying video images to facilitate troubleshooting.



(1) Click **Browse** and choose the destination.

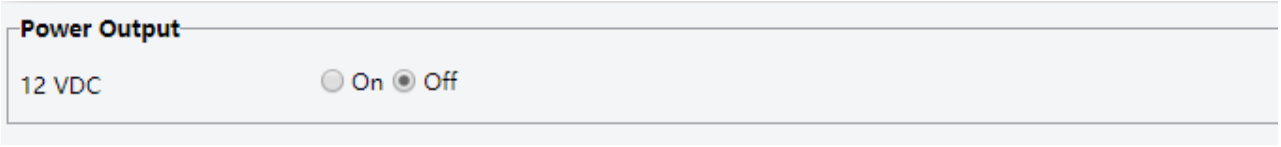
(2) Click **Export**.

NOTE!

Diagnosis information is exported as a compressed file. You need to decompress it first (using decompression tools like WinRAR) and then open the file using a text editor (like Notepad).

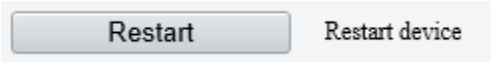
- Power output

The camera can supply power to external devices with lower power consumption such as a sound pickup.



- Restart device.

CAUTION!
Restarting the camera will interrupt the ongoing service.



Click **Restart** and then confirm to restart the device. You may set a schedule to reboot the camera automatically at the set time.

- Heater

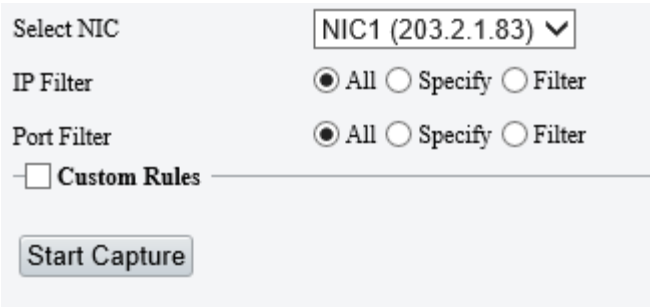
Use the heater to eliminate water droplets on the lens in a high humidity environment.

(1) Enable Heater.

(2) Set **Remaining Heating Time**.

2. Network Diagnosis

Go to **Setup** > **System** > **Maintenance** > **Network Diagnosis**.



- Select NIC

NIC1 is the camera's IP address.

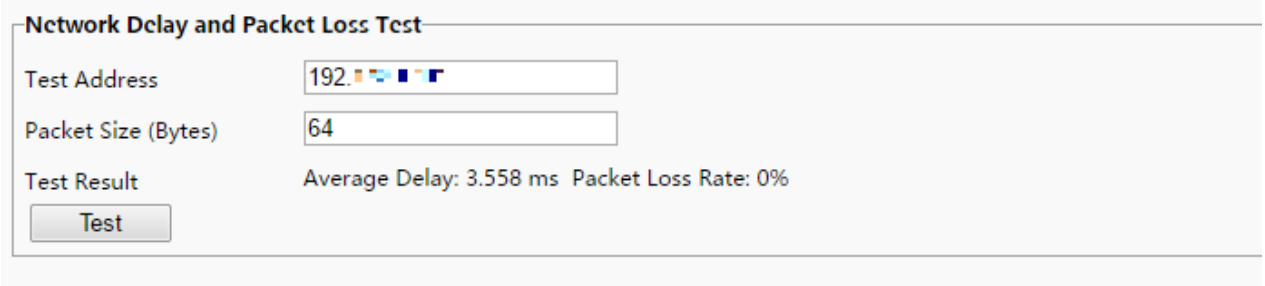
- IP/port filter
  - All: Capture all packets of the camera.
  - Specify: Capture packets of the specified port or IP.
  - Filter: Filter packets of the specified port or IP and capture other packets.
- Custom Rules

Select **Custom Rules** and set the rules.

Click **Start Capture** to start capturing packets. After packet capture is finished, save data, and view the diagnosis.

- Test network delay and packet loss rate.

Test network connectivity by sending test packets to a test address.

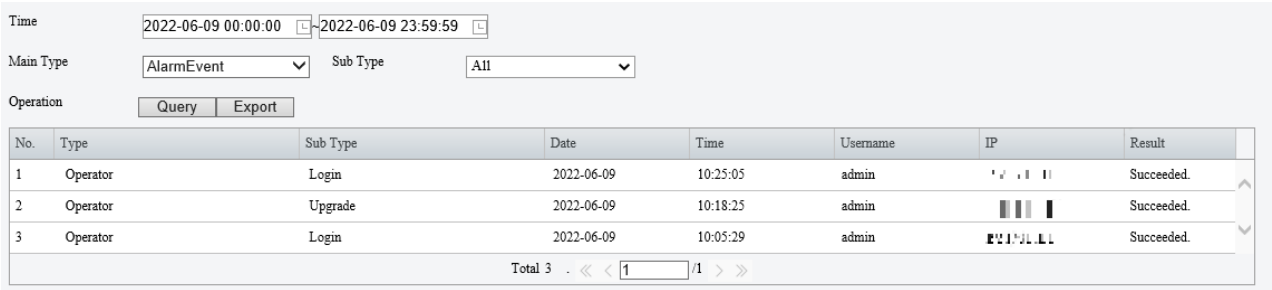


- Test Address: Must be a valid IP address or domain name.
- Packet Size (Bytes): Size of test packets to be sent. Range: [64-65507]. Sometimes a high delay may be caused by a large packet size. If the test failed, set a smaller packet size, and then try again.
- Test results include average delay and packet loss rate.
  - Average delay: Average length of time from test packets are sent till responses are received.
  - Packet loss rate: Ratio of lost packets to the sent packets.

5.9.6 Logs

Search camera operation logs and download them to your computer.

Go to **Setup** > **System** > **Log**.



4. Set a time range and choose main and sub log types.

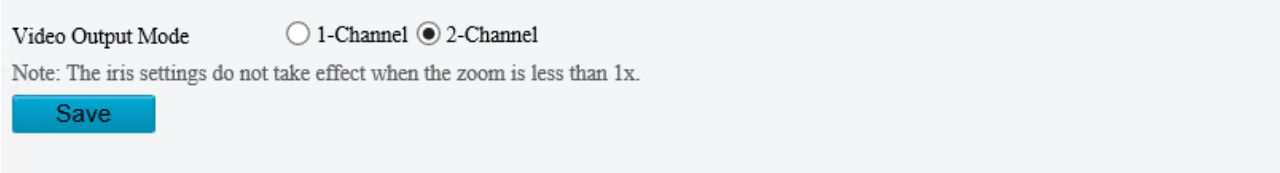
- Main type: Including system operation, alarm parameter configuration, network configuration, audio, and video configuration, PTZ configuration, image configuration, smart configuration, system configuration, storage configuration, and alarm events.
- Sub type: You can choose up to 5 types or choose All.

5. Click **Search**. Up to 100 logs can be displayed. The latest logs are displayed on the top.
6. Click **Export** to save search results as a .csv file to the client computer.

5.9.7 System

For certain dual-channel cameras, you can switch between 1-channel and 2-channel output mode on the **Live View** page.

1. Go to **Setup** > **System** > **System**.



2. Choose a video output mode.

- 2-Channel: Default mode. In this mode, two channels of live video are displayed, with channel 1 (upper) showing the fixed focal image, and channel 2 (lower) showing the varifocal image.
- 1-Channel: In this mode, two channels of live video are merged into one panoramic image by splicing images with adjusted zoom ratios.

CAUTION!
If you need to adjust iris in 1-channel mode, make sure the zoom ratio is greater than or equal to 1X; otherwise, the iris adjustment does not take effect.

3. Click **Save**. A message appears, prompting you to switch the output mode and restart the camera.
4. Click **OK**. The new settings take effect after the camera restarts automatically.

5.10 Other Configurations

Fisheye

NOTE!
This function is available to fisheye cameras only.

Choose to decode live videos by hardware decoding or software decoding.

1. Hardware Decoding

Hardware decoding is to decode the obtained live videos by the camera itself. On the **Hardware** tab, you can set the mount method and display mode, and configure the stream type for each channel.

Table 5-1 Mount Method

Icon	Description
	Ceiling Mount
	Wall Mount
	Desktop Placement

Table 5-2 Display Mode

Icon	Description
	Fisheye. Displays the original image, fisheye stream, the raw image captured by the sensor. This mode uses a wide-angle view, close to the convex eye view of a fish, to produce a large, curved image while distorting the perspective and angle of objects in the image. 

Icon	Description
	Fisheye+4PTZ. For PTZ streams, you can use the direction button on the screen to adjust the PTZ direction. 
	Panoramic. Displays the panoramic view, converting the original image to a rectangular image by certain calibration methods. When the mount method is **Ceiling Mount** () and the display mode is **Panoramic**, you can choose to split the image horizontally or vertically. Additionally, you can set the dewarping angle. Range: 0-90°. 0°: Closest to the center of the fisheye, with the least distortion. 90°: Furthest from the center of the fisheye, with the largest distortion. 

2. Software Decoding

Software decoding is to decode live videos using the PC where the browser is located. Its performance depends on the decoding capability of the PC.

Click  on the live view image to open/close the software decoding panel.

- When the mount method is **Ceiling Mount**, you can choose the following display methods: Original Image, 360°Panoramic+1PTZ, 180°Panoramic, Fisheye+3/4/8PTZ, and 360°Panoramic+6PTZ.
- When the mount method is **Wall Mount**, you can choose the following display methods: Original Image, Panoramic, and Panoramic+3/4/8PTZ.

NOTE!
When using the hardware decoding, you can switch to software decoding only when the display method is the original image.

Table 5-3 Display Method

Icon	Description
	Original image.
	360° pamoramic+1PTZ. Each block can be dragged to view and interact with each other. 
	180°panoramic view. Split the fisheye view into two windows. You can drag to view the image horizontally. 
 /  / 	Fisheye+3/4/8PTZ. Every block can be dragged to view, making it easy to locate locally and globally. 
	360°panoramic view+6PTZ. 

Icon	Description
	Panoramic view+3/4/8PTZ.

CAUTION!

When the mount method of fisheye camera is **Ceiling Mount** or **Desktop Placement**, the panoramic image (double 180° image) is the dewarping image of the fisheye image (360° image). Please select the appropriate mounting angle according to the actual monitoring view requirements.

Example: If the device is mounted on the ceiling of a hall, and the angle between the tail cable hole (LOGO) on the bottom of the device and the target is approximately 135° clockwise, the detected target can be displayed on the center top of the panoramic view.