BLAUPUNKT

User Manual

4MP HD IR Fixed Eyeball Network Camera
BP-IPC-DF401-28

Enjoy it.

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.
- Uniview reserves 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 on 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.

1 Login

1.1 Preparation

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

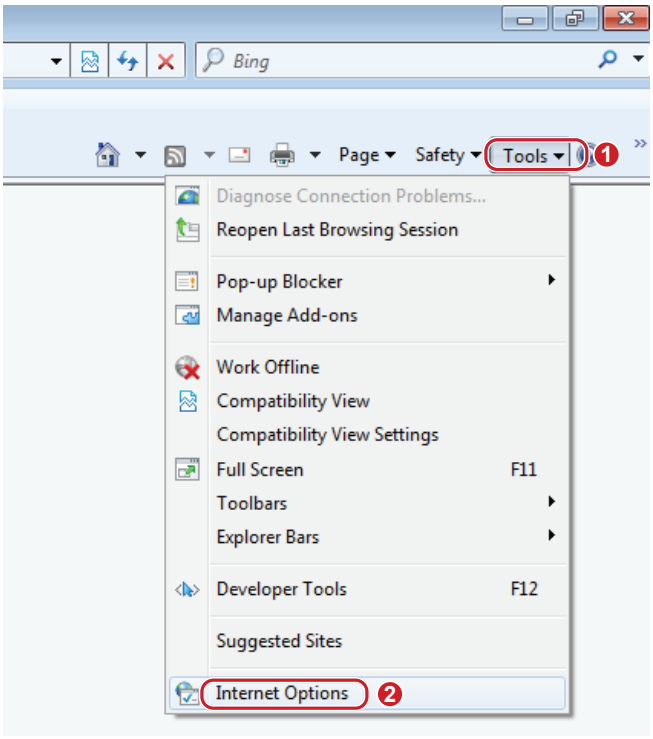
The following takes IE on a Windows 7.0 operating system as an example.

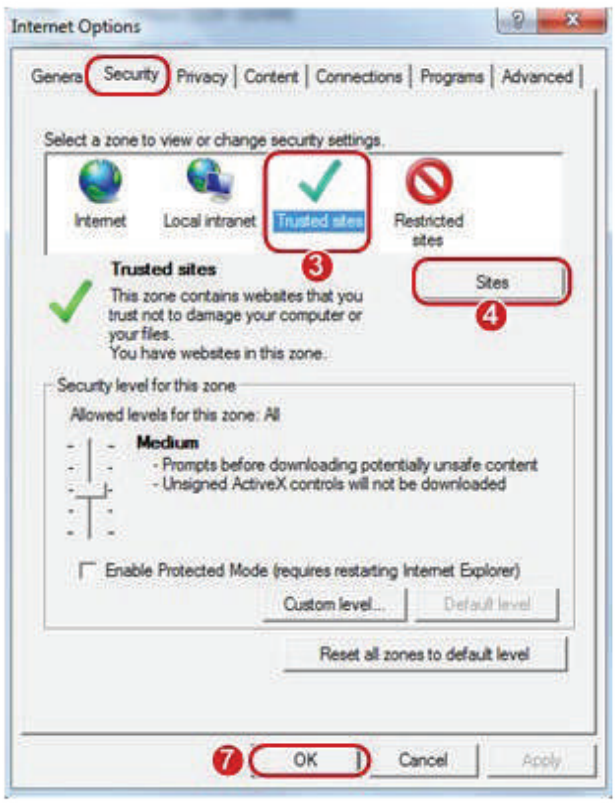
1. Check before login

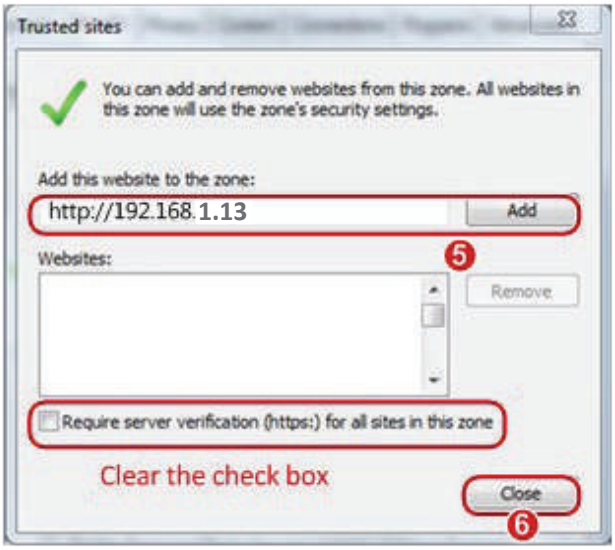
- The camera runs normally.
- The PC has a network connection to the camera.
- A web browser has been installed on the PC. Microsoft Internet Explorer 10.0 or later is recommended.
- For optimal display, it is recommended to choose a monitor with the highest resolution of the camera.

NOTE!

Recommended PC specifications for 32MP live view: CPU: Intel® Core™ i7 8700; Graphics card: GTX 1080; RAM: DDR4 8GB or higher.

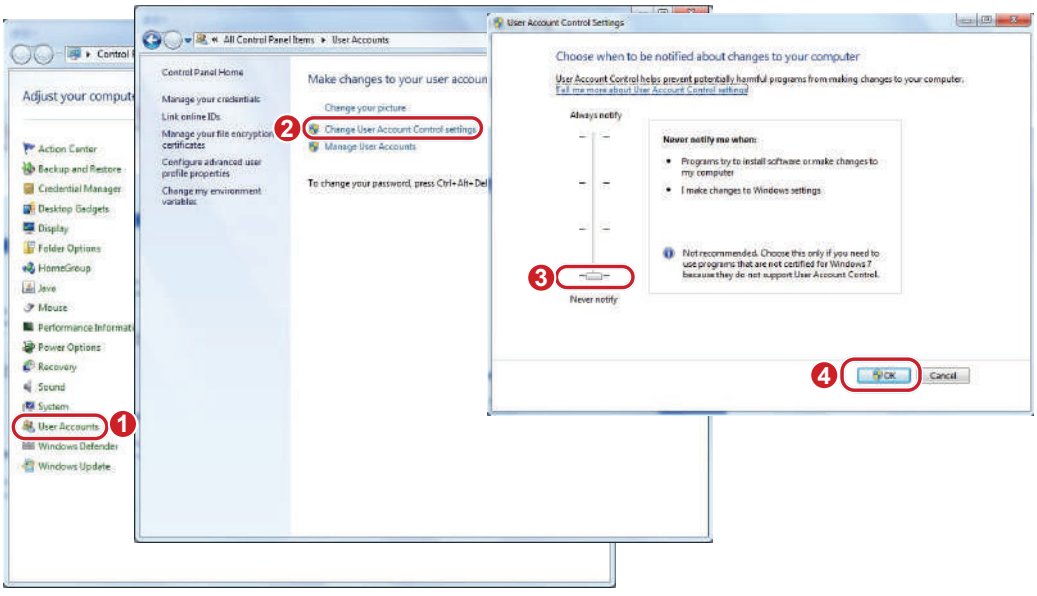






3. (Optional) Change user account control settings

Before you access the camera, it's recommended to set **User Account Control** to **Never notify** as shown below.



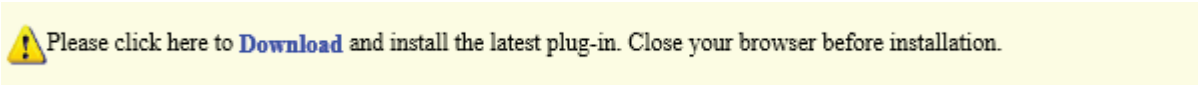
1.2 Login

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.

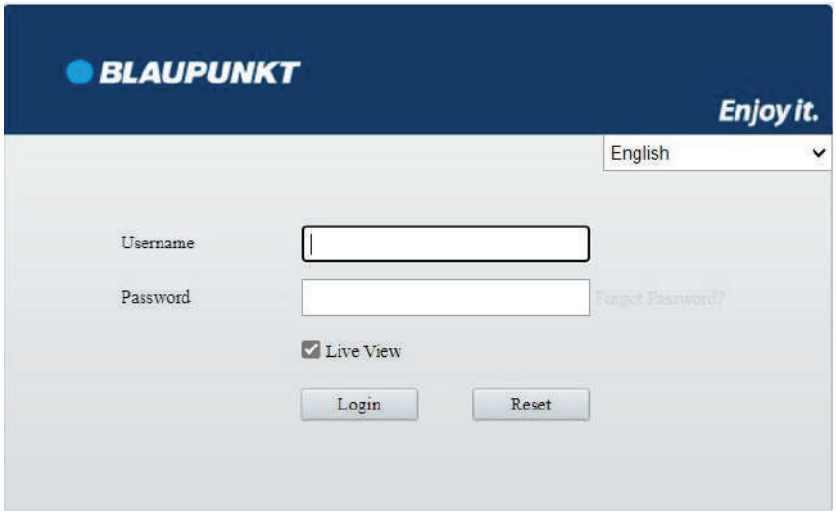
Follow the steps below to log in to the camera's web interface (take IE10 as an example):

1. Open IE, 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**.

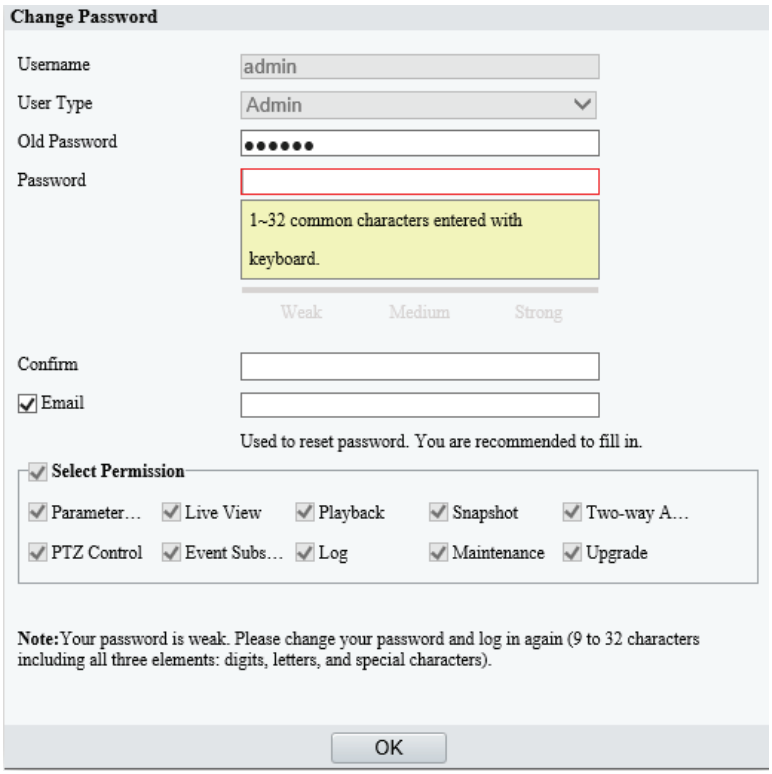


3. Set whether to start live view automatically after login.

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



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.

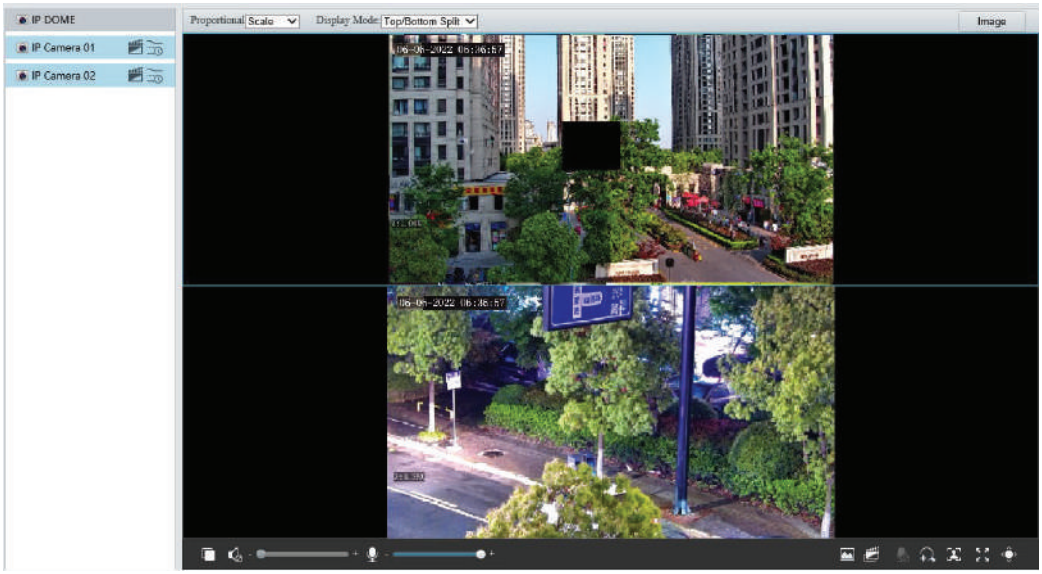
2 Live View

2.1 Live View

The page shows 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

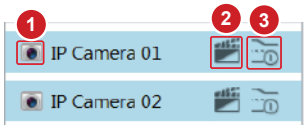
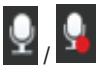


Live view page of single-channel camera

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.
	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 Snapshot for details.
	Full screen.
	Show/hide PTZ control panel.

2.1.1 Digital Zoom

1. Click  in 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 in 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 in the window.

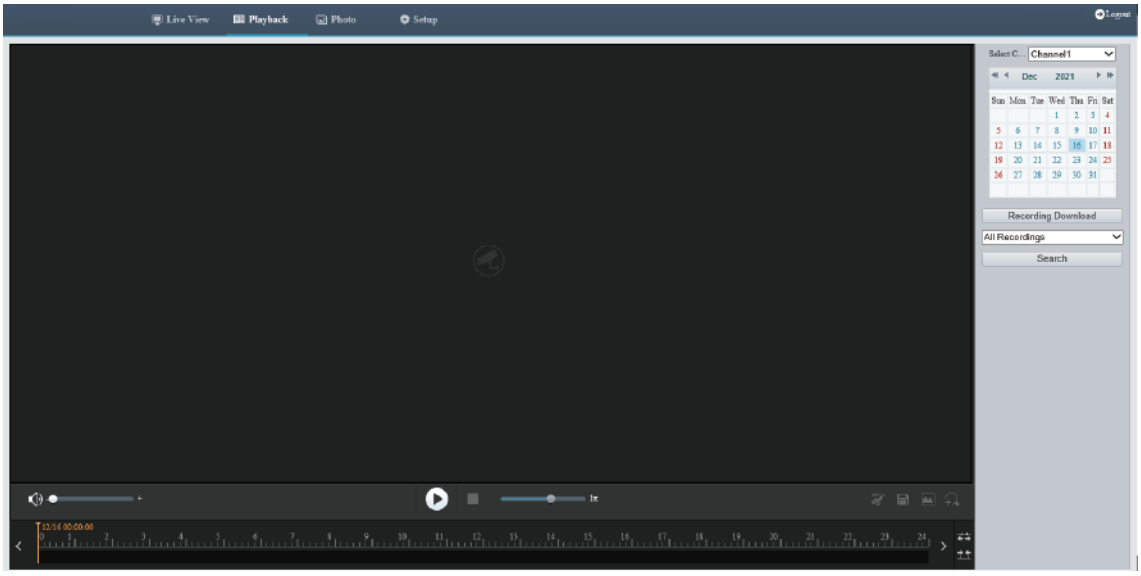
3. To exit, click  .

3 Playback

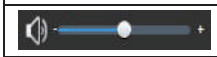
NOTE!

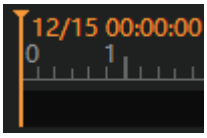
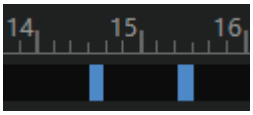
- Edge recordings refer to video recorded on storage media of cameras; local recordings refer to video recorded on a local PC.
- Before you search for edge recordings, make sure that the camera has storage resources such as memory card, and the storage parameters in Storage are properly configured.
- 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 playback speed is 1x. Both rewind and forward are supported.
	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 skip to any point in the video.
	Playback bar. 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 Play Recordings

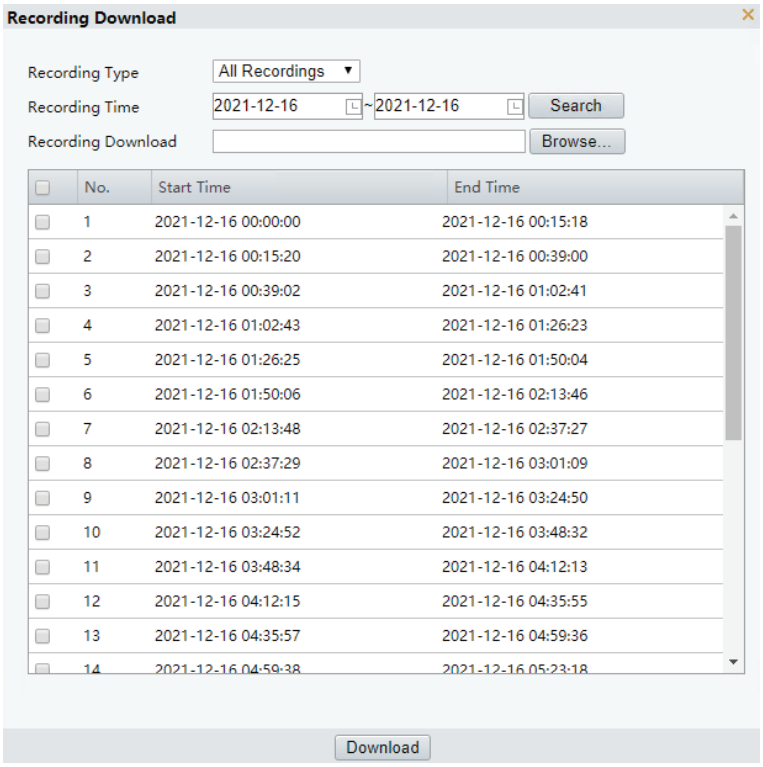
1. In case of a multi-channel camera, select the channel to search for recordings.
2. Select the date and recording type.
3. Click **Search**.
4. The search results are displayed. Double-click a result to play it back.

3.3 Download Recordings

You can download videos in batches or clip videos to download.

- Download in batches

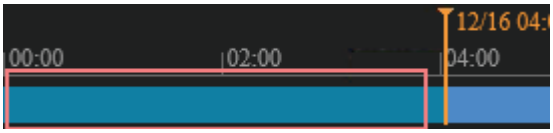
1. Click **Recording Download**.
2. Select the recording type, set the start time and end time, and then click **Search**.



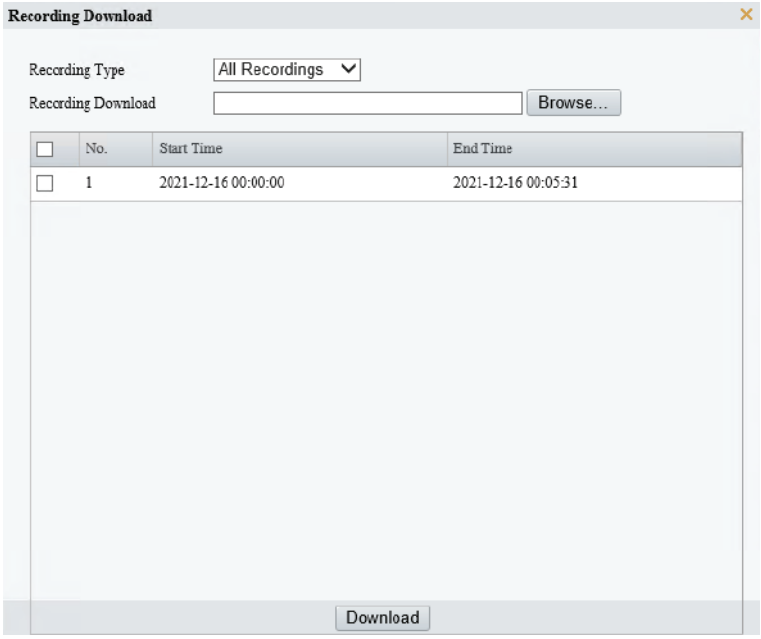
3. Click **Browse…** to set the path to the recordings.
4. Select the recordings to download and click **Download**.

- Download video clips

1. Search for the video to clip.
2. In the playback toolbar, click  .
3. Click in the time bar to determine the start time and end time.
4. Click  to finish. The time bar of the clip turns blue and green.



5. Click  .
6. Click **Recording Download**, select the video clip, 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.
SmartServer	Used to store smart snapshots.
CommonServer	Used to store common snapshots.

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

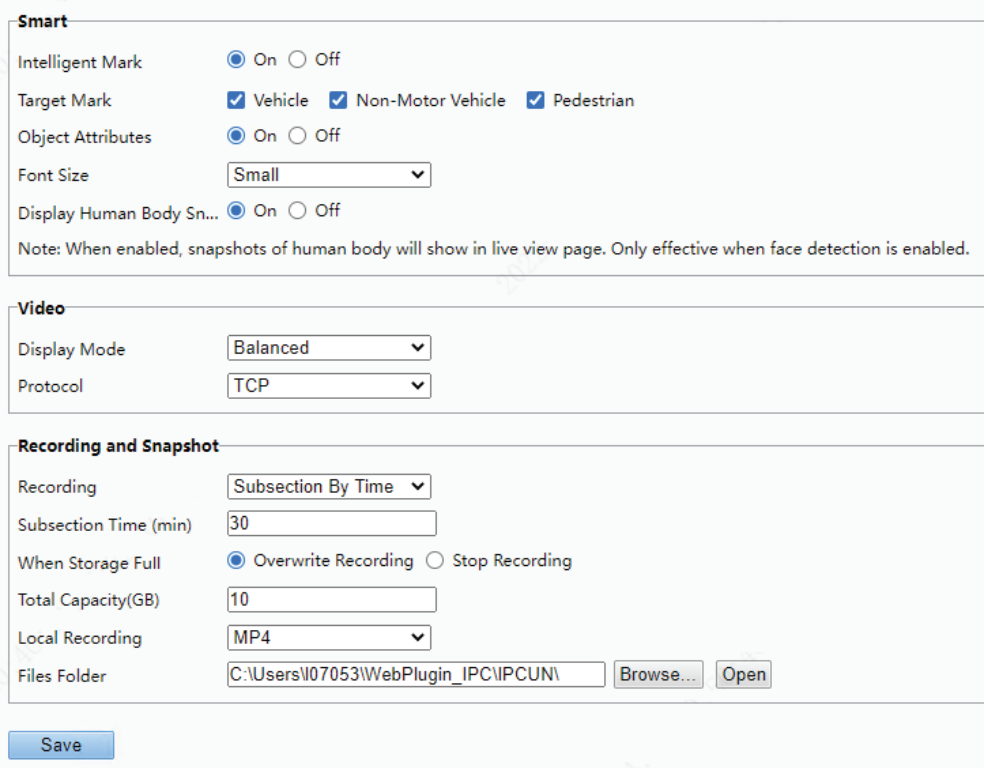
5 Setup

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, Leave Area, Mixed-Traffic Detection, and Face Detection.
	Object Attributes	When enabled, the attributes of detected objects appear on the live view page.
	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

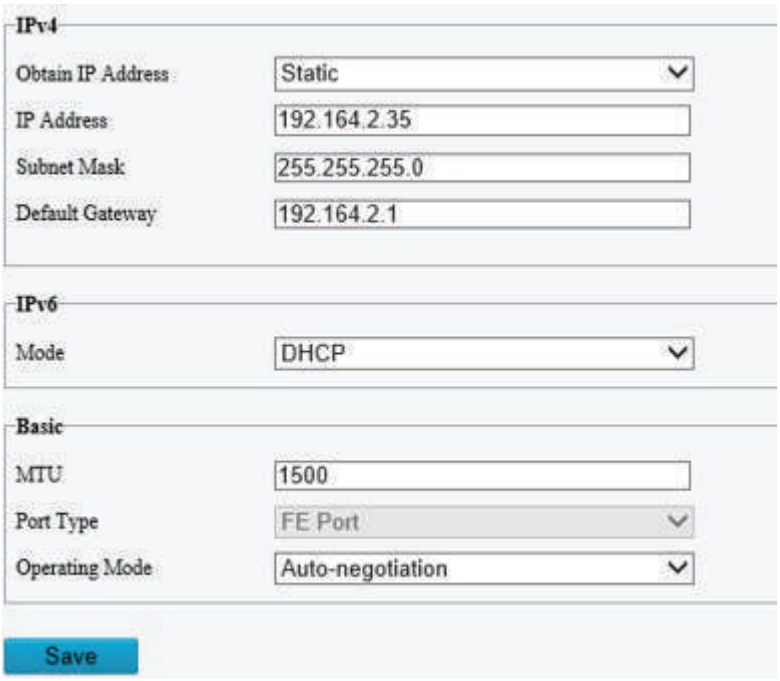
5.2.1 Ethernet

Connect the camera to the network so that it can communicate with other devices.

NOTE!
After you change the IP address, you need to log in again with the new IP address.

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

- IPv4
  - ➢ Static Address (obtain IP manually)
  - (1) Select **Static** 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**.



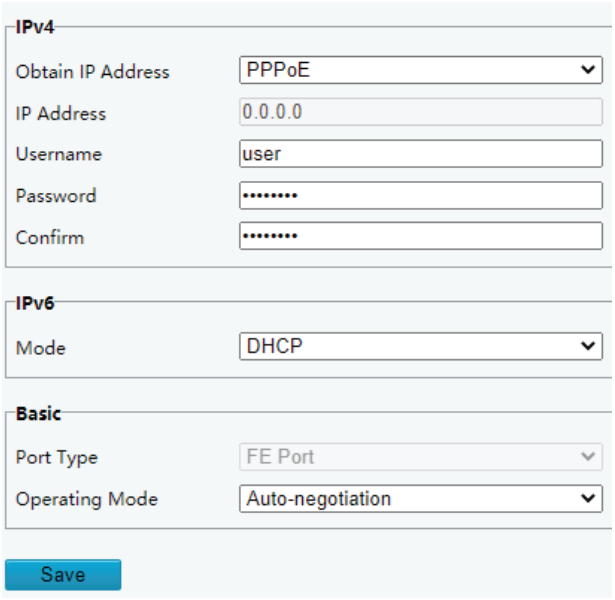
➢ PPPoE

Configure PPPoE to assign the camera a dynamic IP address to establish network connection.

(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**.

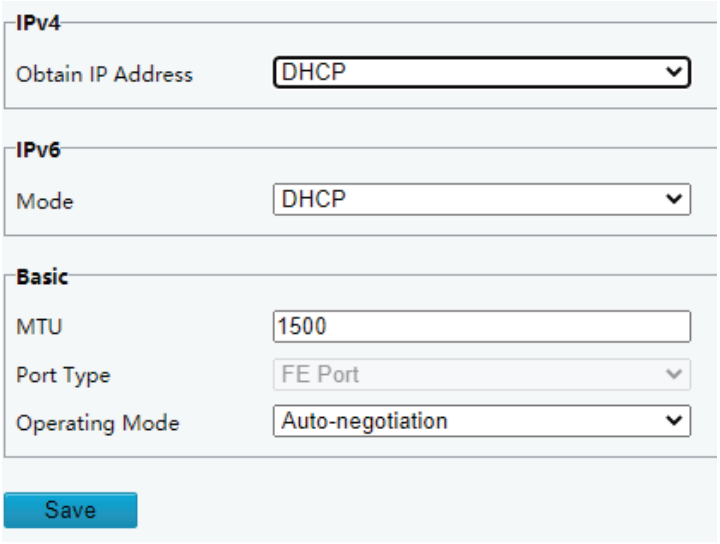


➢ DHCP

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 **DHCP** from the **Obtain IP Address** drop-down list.

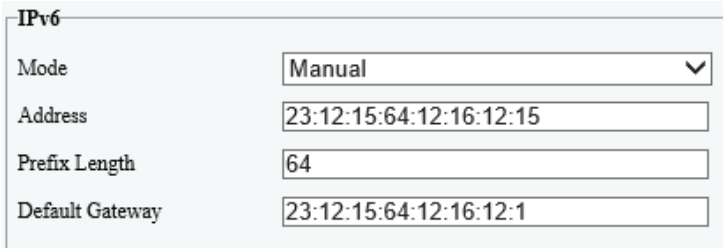
(2) Click **Save**.



- IPv6
  - ➢ DHCP

By default, the IPv6 mode is set to **DHCP**. The IP address is automatically obtained from the DHCP server.

  - ➢ Manual

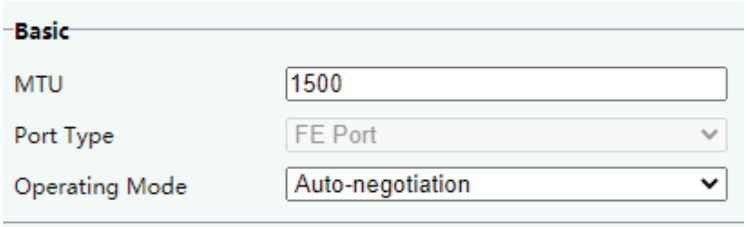


(1) Set the IPv6 mode to **Manual**.

(2) 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: Set the maximum packet size supported by the network in bytes. The greater the value, the higher the communication efficiency, the higher the transmission delay.
- Port Type: **FE Port** by default.
- Operating Mode: **Auto-negotiation** by default.

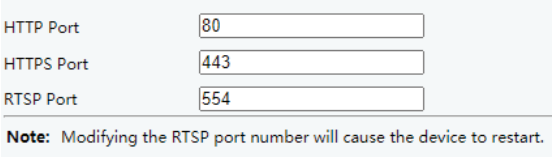


4. Click **Save**.

5.2.2 Port

1. Port

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



2. You can use the defaults or customize them in case of port conflicts.

CAUTION!

- If the HTTP port number you entered has been used, a message “Port conflicts. Please try again.” will appear. 23, 81, 82, 85, 3260, and 49152 have been assigned 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.

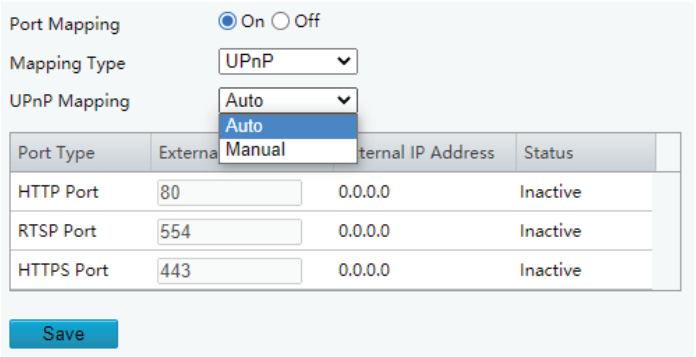
3. Click **Save**.

2. Port Mapping

Configure port mapping so computers on the WAN can access your camera on the LAN.

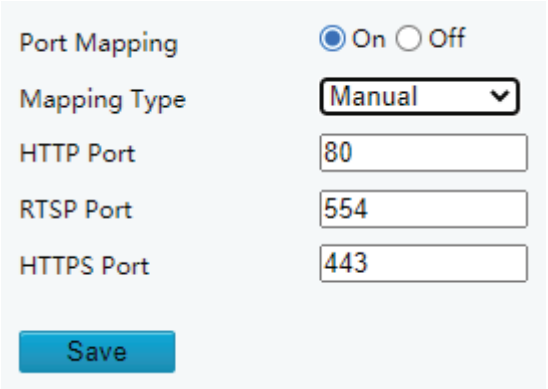
1. Go to **Setup** > **Network** > **Port** > **Port Mapping**.
2. Enable **Port Mapping**.
3. Select the mapping type.

- UPnP



  - Auto: Enable UPnP on the router, then the external port numbers are assigned automatically.
  - Manual: The external port numbers need to be set manually.

- Manual



  - If your router does not support UPnP, you need to set the external port numbers manually.

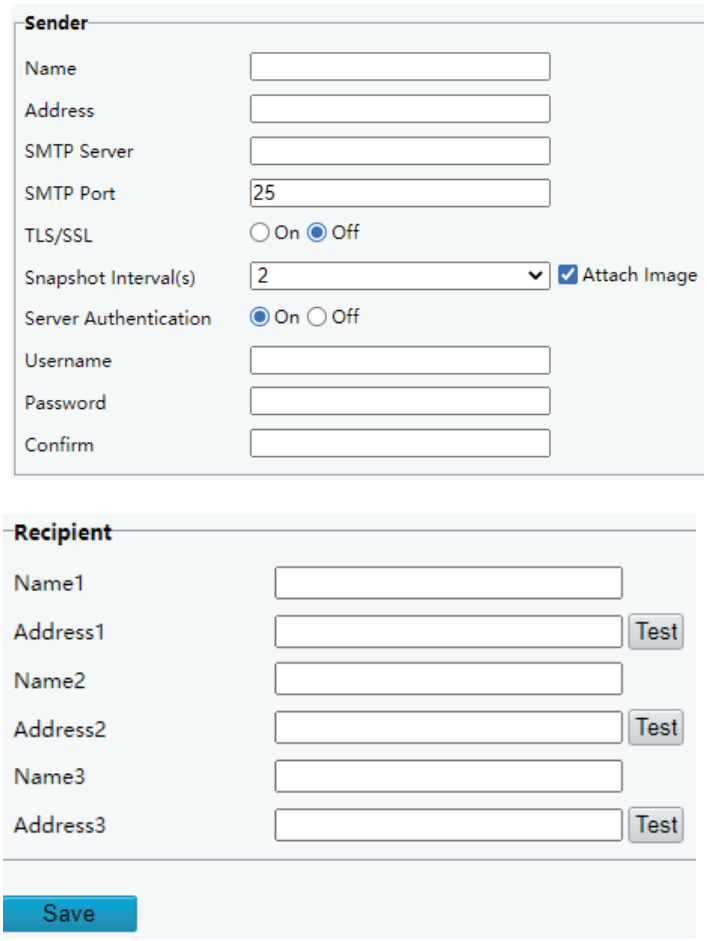
- “Inactive” displayed in the **Status** column indicates that the port number you entered is already in use.

4. Click **Save**.

5.2.3 E-mail

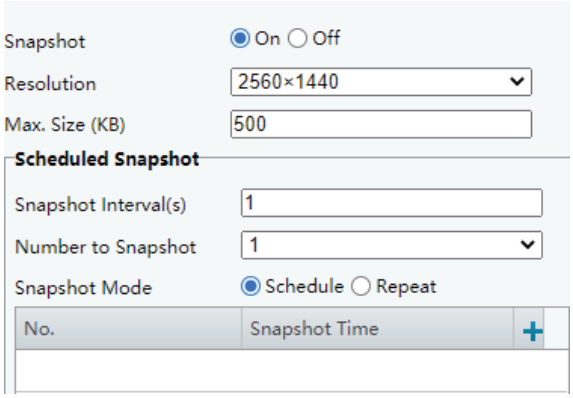
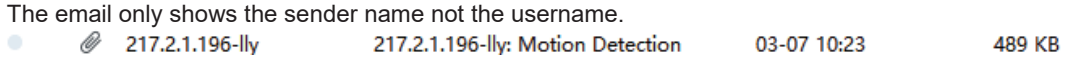
Configure E-mail so that the camera can e-mail an alarm message to the specified email addresses when an alarm occurs.

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

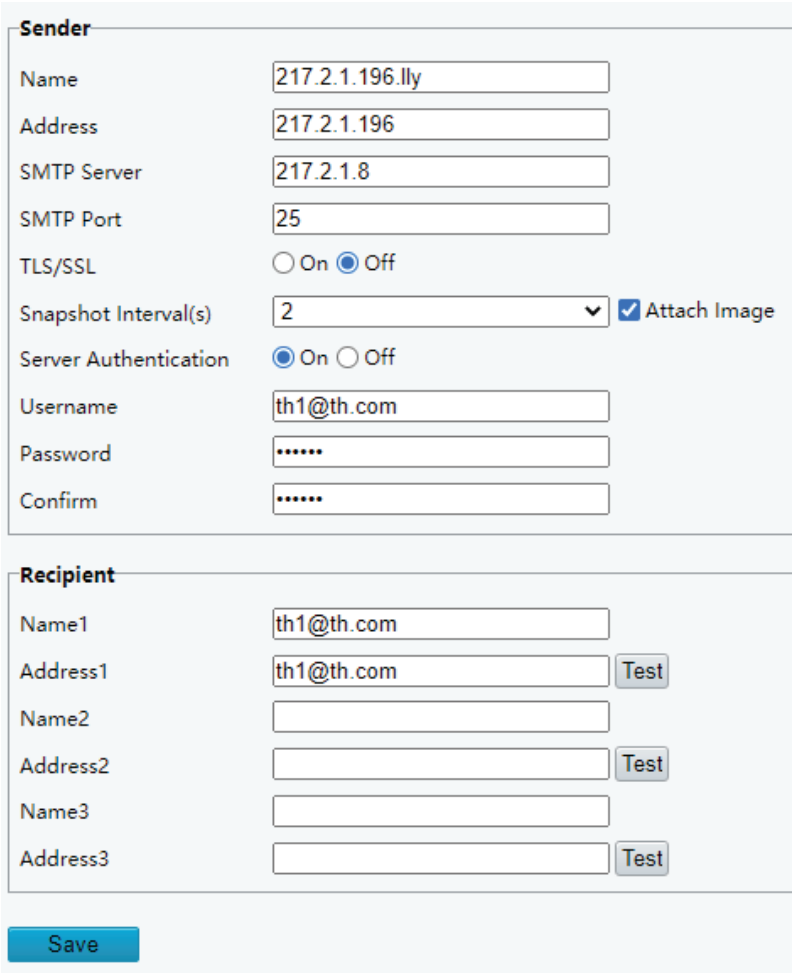


2. Set the sender and recipient information.

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 SMTP server of the sender’s e-mail. The default SMTP port number is 25.
TLS/SSL	Enable TLS/SSL to secure e-mail communication.
Snapshot Interval	Set the interval for taking snapshots to be attached to alarm e-mails. **NOTE!** • The interval for taking snapshots attached to alarm e-mails is subject to the settings on the **E-mail** page. • Deep-learning exception detection functions captures 1 snapshot by default, and you do not need to set the snapshot interval for them.

Attach Image	When enabled, the camera will automatically send an alarm e-mail with 3 attached snapshots taken at se intervals in the event of an alarm. 1. Select the **Attach Image** check box. 2. Enable Snapshot and set the snapshot resolution as needed. 
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 not the username.  • The password allows special characters.
Recipient Name/Address	1. Enter the e-mail name and address to receive e-mails. 2. After recipient configuration, you can click **Test** to test the email sending function.

3. Click **Save**.



5.2.4 BP-CONNECT

You can add the camera to Cloud via BP-CONNECT app (without registering an account) or Cloud website to remotely access the camera.

Go to **Setup** > **Network** > **Cloud**. Cloud is enabled by default.

1. Add cameras on BP-CONNECT app without signup

After you add the camera to Cloud on BP-CONNECT, you can view live or recorded video and receive alarm. Certain functions are not available to cameras added without signup in the app.

1. Enable **Add Without Signup**.
2. Search and download BP-CONNECT in the app store of your phone.
3. Open app and tap **Try Now**.

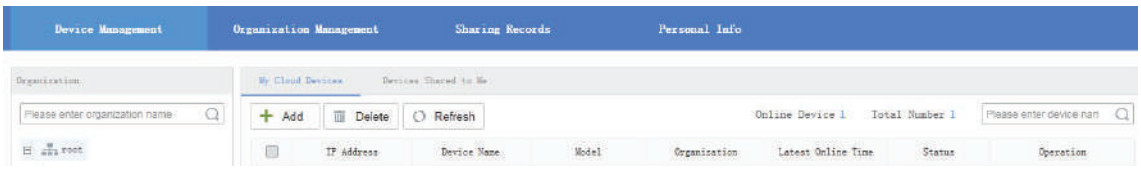
NOTE!

If your have app on your phone already, open it, and then select > **Devices** > **Add** > **Add Without Signup**.

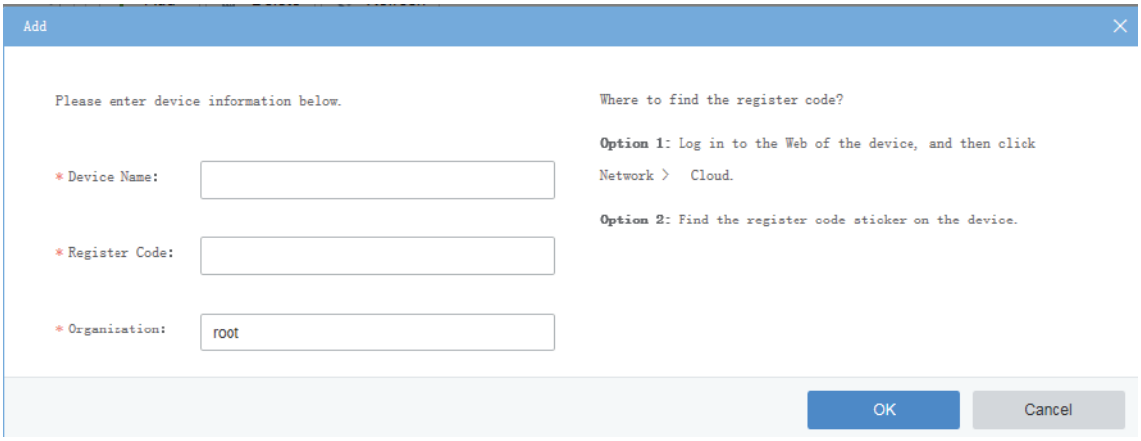
4. A message pops up to inform you that no devices have been added. Tap **Add**.
5. Tap **Add Without Signup**.
6. Scan the QR code on the **P2P** page using BP-CONNECT.
7. Enter the password and tap **Login** to add the camera to Cloud.

2. Add cameras on www.star4live.com website

1. Enter www.star4live.com in the address bar of a web browser.
2. Click **Sign Up** and follow the on-screen instructions to create an account.
3. Log in to the www.star4live.com



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**.

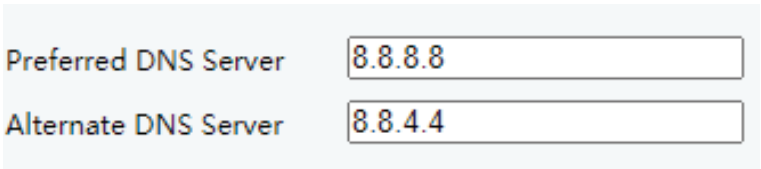
5. Click **OK**.
6. Click **Save**.
7. Check device status.

- Cloud website: Go to **Device Management** > **My Cloud Devices** to check whether the camera is online.
- Camera's web interface: Go to **Setup** > **Network** > **Cloud** to check whether the camera is online.

5.2.5 DNS

DNS (Domain Name System) is a distributed database system for translating human readable domain names to machine readable IP addresses, facilitating devices to access external servers or hosts through domain names.

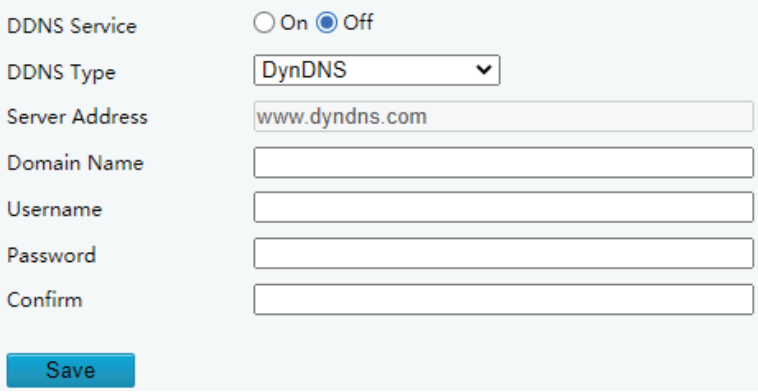
1. Go to **Setup** > **Network** > **DNS**.
2. The default DNS server addresses are as follows.



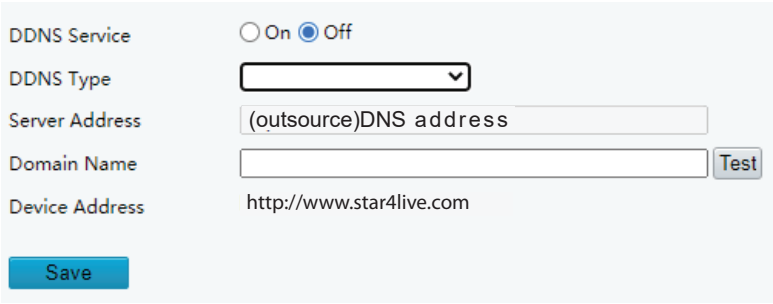
5.2.6 DDNS

DDNS (Dynamic Domain Name System) automatically updates the DNS server with the dynamic IP address of the device to enable remote Internet access to the device on the network.

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



3. Select the DDNS type.
   - DynDNS/NO-IP: Third-party DDNS service provider, enter the domain name registered with the DDNS provider.
   - (outsource)DNS: (outsource)DDNS service, enter a domain name for your camera and click **Test** to check if the domain name is available.

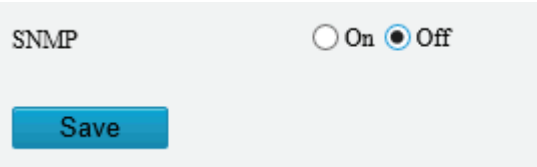


4. Click **Save**.

5.2.7 SNMP

SNMP is required for the camera to share configuration information to servers.

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



2. Enable **SNMP**.

NOTE!
This function is enabled by default on certain models.

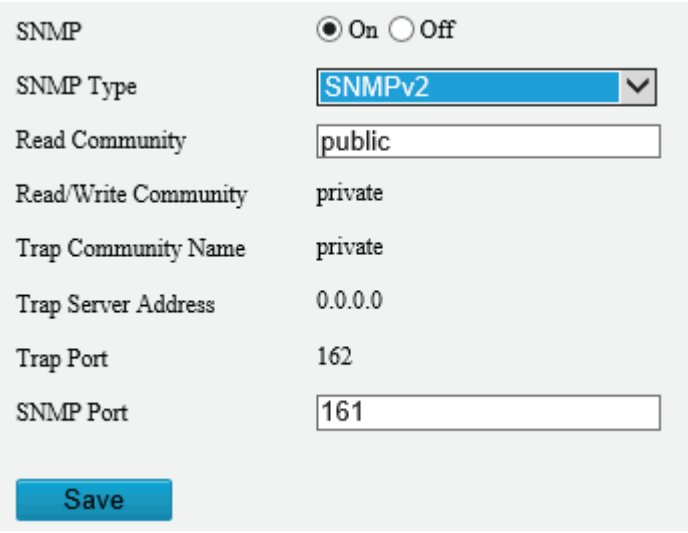
3. Set SNMP parameters.

- SNMPv3

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

Item	Description
SNMP Type	The default SNMP type is **SNMPv3**.
Password	Set a password for authentication.
Confirm	Confirm the password you entered by entering it again.
Password	Set a password for data
Confirm	Confirm the password you entered by entering it again.
Trap Server Address	Set the trap server address in Management Server.
SNMP Port	The default SNMP port number is 161. You may change it as needed.

- SNMPv2



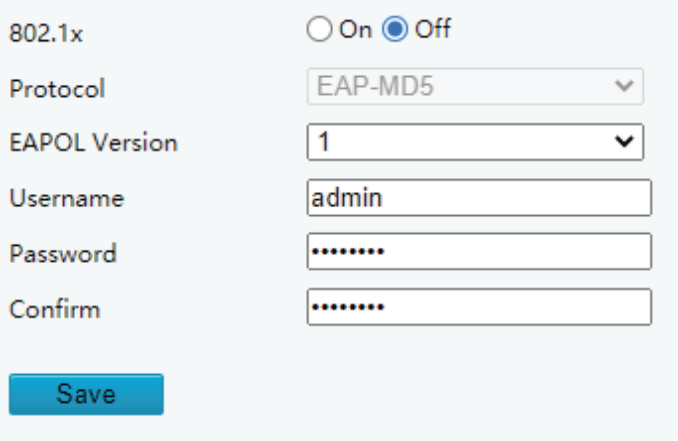
Item	Description
SNMP Type	Select **SNMPv2**. After you select SNMPv2, a message pops up to remind you of potential risks and ask if you want to continue. Click **OK**.
Read Community	The default read community name is public, and you may change it as needed. Make sure the read community names of the server and camera are the same, otherwise the two-way authentication will fail.
Trap Server Address	Set the trap server address in Management Server.
SNMP Port	The default SNMP port number is 161. You may change it as needed.

4. Click **Save**.

5.2.8 802.1x

802.1x provides authentication to devices for access to the network and enhances network security by allowing only authenticated devices to access.

1. Go to **Setup** > **Network** > **802.1x**.

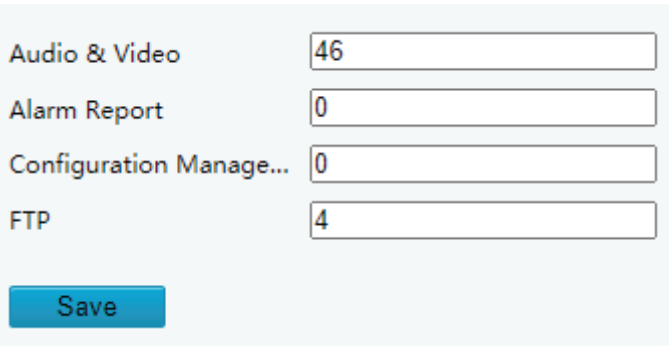


2. Enable **802.1x**.
3. By default, the protocol is set to EAP-MD5. Select the same EAPOL version as that of the router or the switch.
4. Enter the username and password for authentication.
5. Click **Save**.

5.2.9 QoS

QoS (Quality of Service) has the ability to guarantee the performance of high-priority services under limited network capacity.

1. Go to **Setup** > **Network** > **QoS**.



2. Set a priority level (0 to 63) for each service.

At present, QoS allows you to assign different priority to audio and video, alarm report, configuration management and FTP transmission. The greater the value, the higher the priority.

As shown in the figure above, the audio & video service takes priority over all other services in case of network congestion.

NOTE!

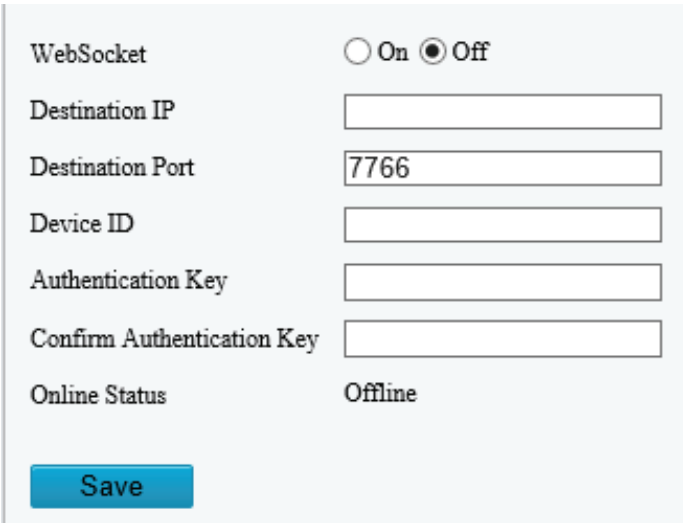
To use QoS, make sure that the router or switch is also configured with QoS.

3. Click **Save**.

5.2.10 WebSocket

WebSocket allows you to manage your camera on a third-party platform, such as device version and capability information acquisition, PTZ control, alarm reporting, etc.

1. Go to **Setup** > **Network** > **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 a third-party platform. Make sure the authentication key configured on the camera and the third-party platform is the same.
Confirm Authentication Key	Confirm the authentication key you entered by entering it again.
Online Status	Check whether the device is successfully connected to the third-party platform.

3. Click **Save**.

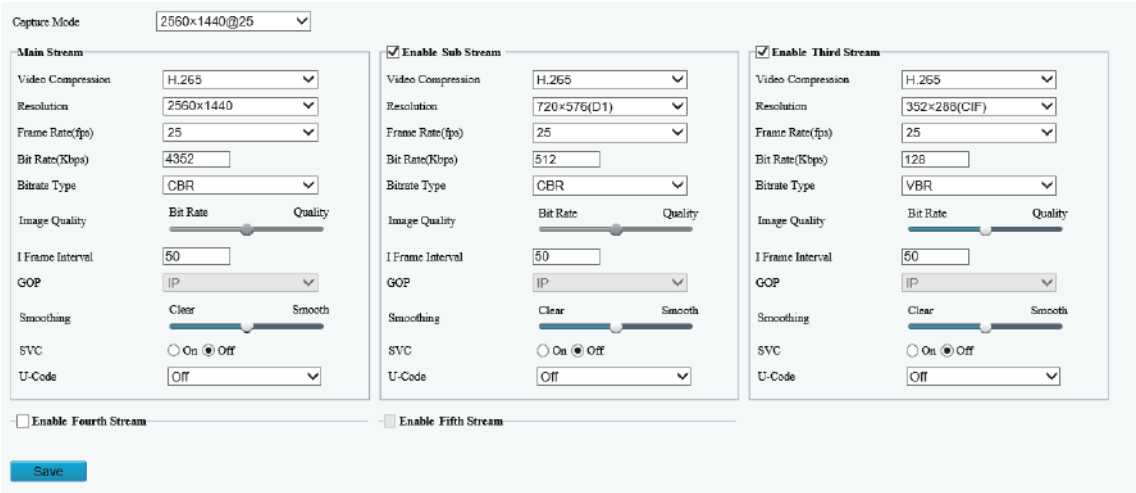
5.3 Video & Audio

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 **U-Code** 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.
U-Code	Select the U-code mode. • Basic Mode: The bit rate is reduced by about 25%. • Advanced Mode: The bit rate is reduced by about 50%.

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

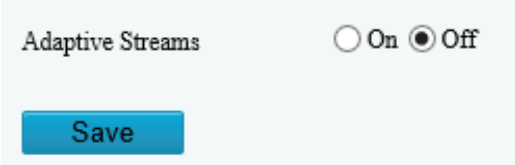
2. Adaptive Streams

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's recommended to enable Adaptive Streams in a poor network environment.

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



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

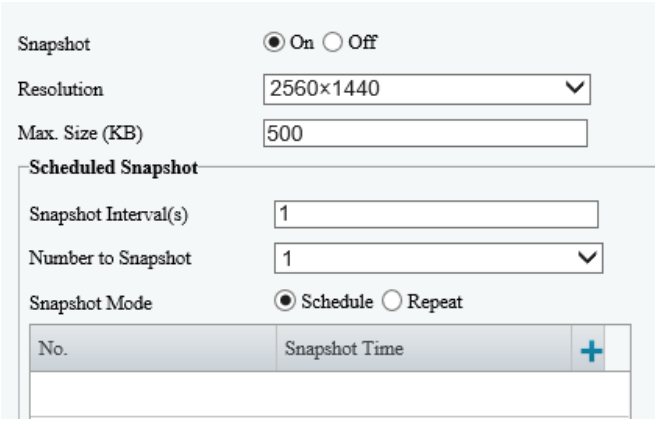
5.3.2 Snapshot

Configure basic snapshot parameters and scheduled snapshot.

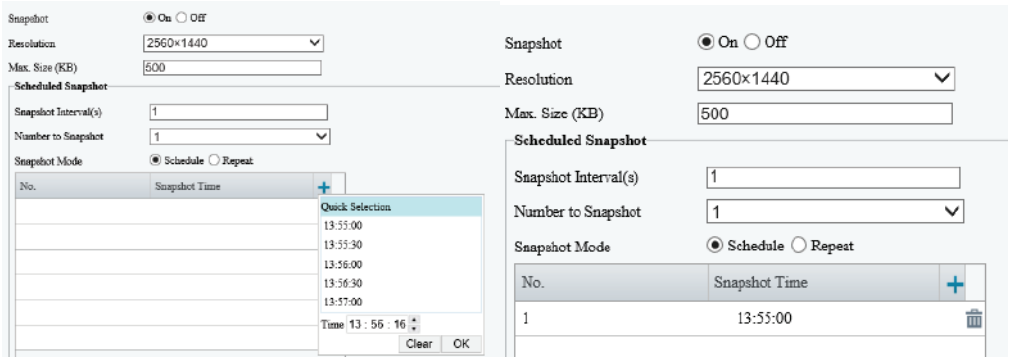
1. Go to **Setup** > **Video & Audio** > **Snapshot**.

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, and do not need to configure the scheduled snapshot.



2. Enable **Snapshot** and set the resolution and maximum size of snapshots to be saved.
3. Set the snapshot mode.
   - Schedule: Set a time for snapshot. 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.



To delete a snapshot time, click .

   - Repeat: Set an interval for snapshot. 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 ranges from 1 to 86400.

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

NOTE!

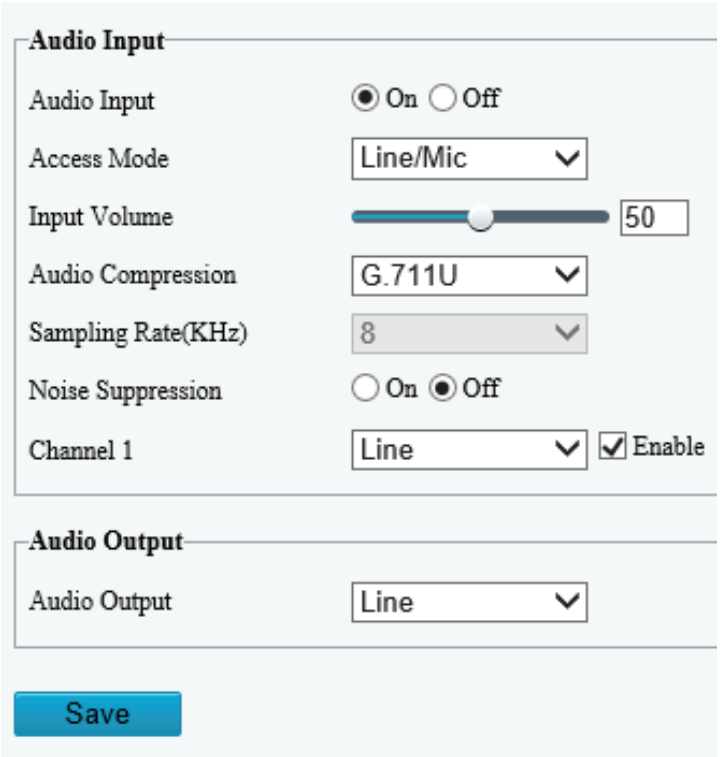
- The time periods cannot overlap.
- Up to 4 time periods are allowed.

4. Set the snapshot interval and number to snapshot. 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 data is not required, select **Off** to improve camera performance.
Access Mode	Select the audio input mode, including **Line/Mic** and **RS485**. **NOTE!** This function is not available on dual-channel cameras.
Input Volume	Set the input volume using the slider.
Audio Compression	Select the audio compression format, including **G.711U** and **G.711A**.
Sampling Rate(KHz)	Set the sampling rate according to your required audio compression. In G.711A or G.711U format, only 8KHz is available.
Noise Suppression	Reduce noise in audio to improve audio output quality. **NOTE!** This function is enabled by default.
Channel 1/Channel 2	Select the **Enable** check box to enable audio input for the channel. Channel 1 and Channel 2 (if available) cannot be enabled simultaneously. The default audio input mode of Channel 1 is Mic. You can change it to Line.

3. Set audio output parameters.

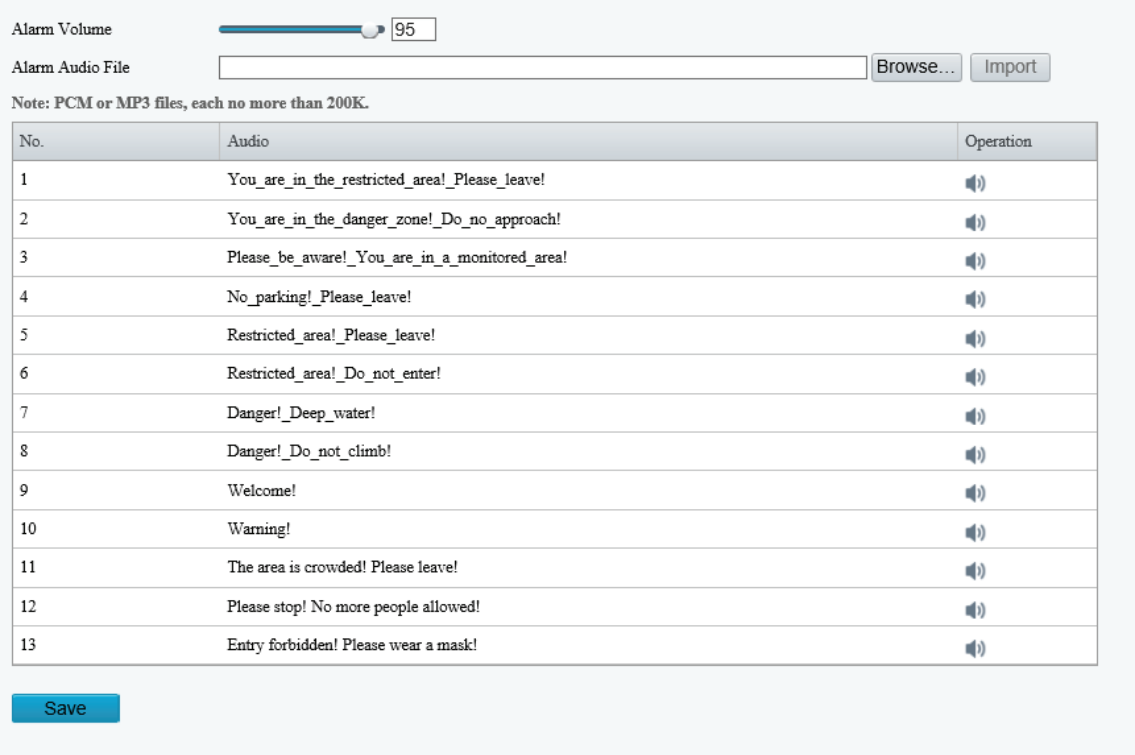
Item	Description
Audio Output	Select the audio output mode, including **Line** and **Speaker**.

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	Set the alarm volume using the slider.
Alarm Audio File	Click **Browse…** to import audio files. To play an audio file, 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.

3. Click **Save**.

5.3.4 ROI

ROI helps ensure image quality for the specified areas on the image first 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 handle of the area and drag to resize it.
- Draw an area.

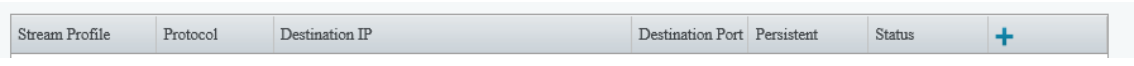
  Click on the image and drag to draw an area.

5.3.6 Media Stream

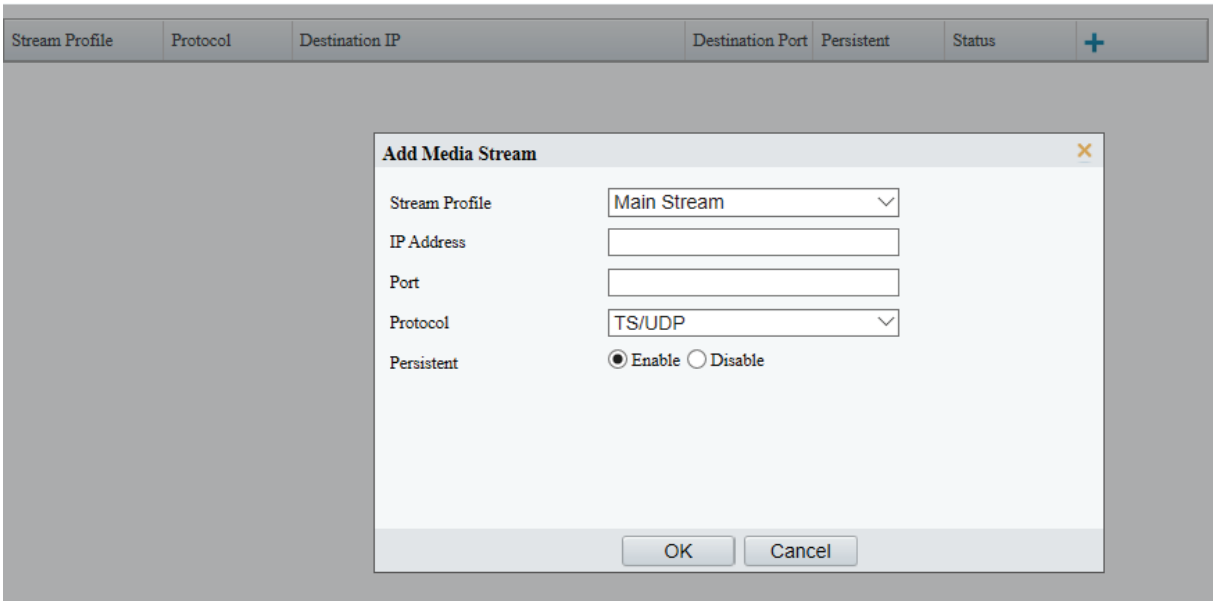
1. Media Stream

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.

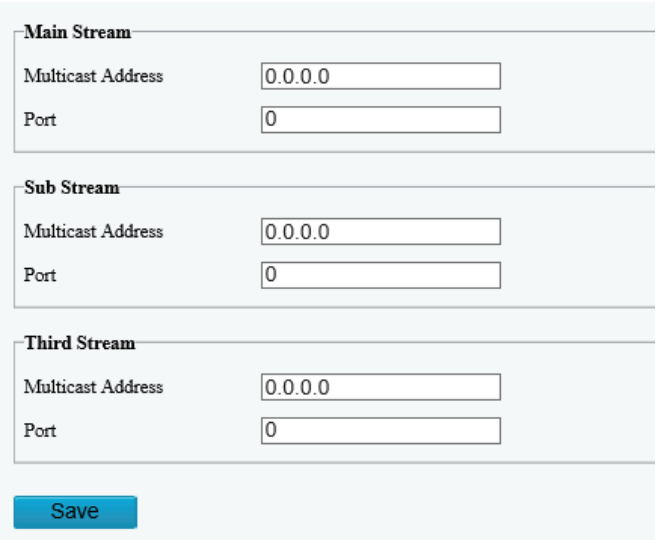
Item	Description
Stream Profile	Select a stream type for the camera to transmit media contents to a third-party client.
Destination IP	Enter the IP address of the device receiving media streams.
Destination Port	Enter the port number of the device receiving media streams.
Protocol	Select a protocol for streaming media data over the network, including **TS/UDP**, **ES/UDP**, **PS/UDP**, and **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.

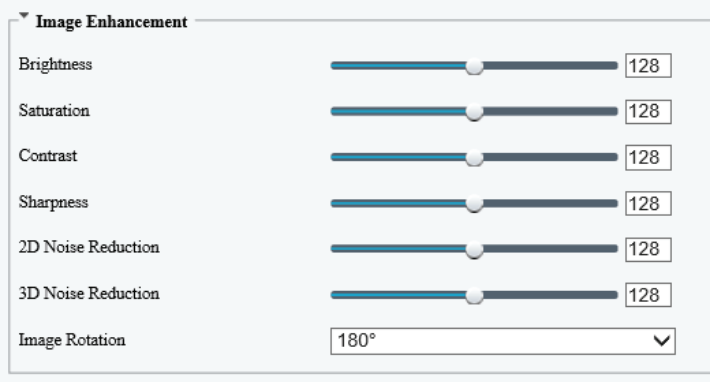
1. Go to **Setup** > **Video & Audio** > **Media Stream** > **RTSP Multicast Address**.



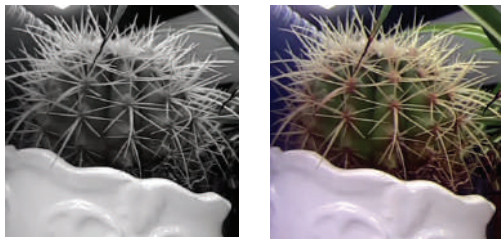
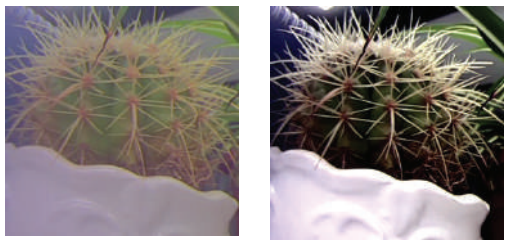
2. Set the multicast address and port number (multicast address range: 224.0.1.0 to 239.255.255.255, port number range: 0 to 65535).

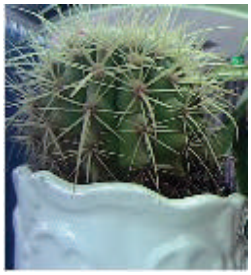
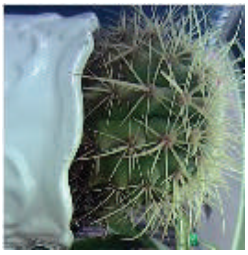
2. Image Enhancement

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
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.

Item	Description
Image Rotation	The rotation of the image.  Normal  Flip vertical  Flip horizontal  180°  90° clockwise  90° anti-clockwise

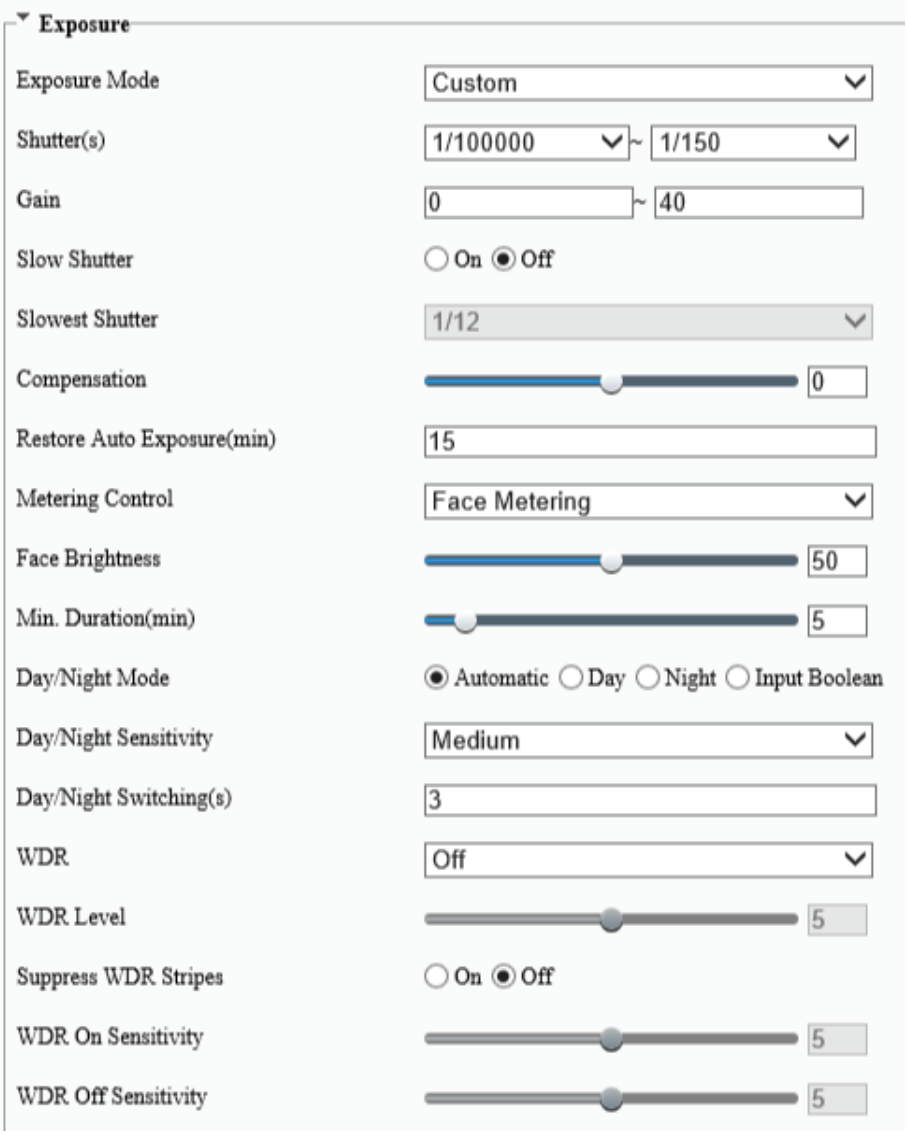
To restore defaults, click **Default**.

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.

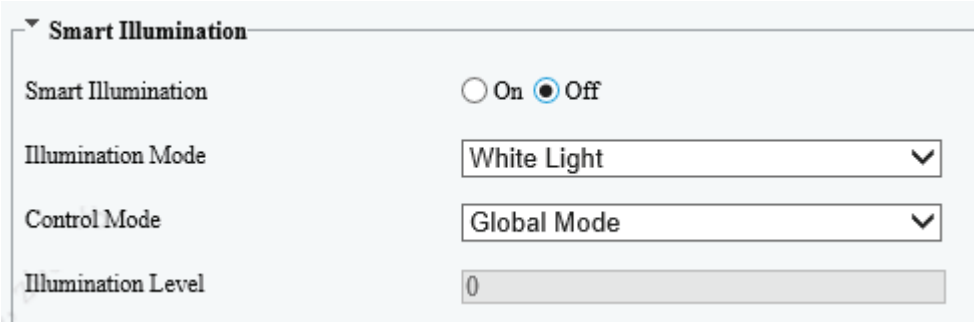
Item	Description
Exposure Mode	Select the exposure mode. • Automatic: The camera automatically set the optimum shutter speed according to the scene. • Custom: User can set exposure parameters as needed. • Shutter Priority: The camera adjusts shutter as priority to adjust the image quality. • Iris Priority: The camera adjusts iris as priority to adjust the image quality. • Indoor 50Hz: Reduce stripes by limiting shutter frequency. • Indoor 60Hz: Reduce stripes by limiting shutter frequency. • 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.
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**.
Restore Auto Exposure(min)	Set the duration for the camera to restore automatic exposure mode.
Metering Control	Set how the camera measures the intensity of light. • Center-Weighted Average Metering: Measure light mainly in the central part of the image. • Evaluative Metering: Measure light in the specified area of the image. • Spot Metering: Similar to evaluative metering. But it cannot increase the brightness of images. • Face Metering: Adjust image quality in poor 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 to switch 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**.
WDR	Enable WDR to ensure clear images in high contrast conditions. **NOTE!** This parameter is configurable when **Exposure Mode** is set to **Automatic**, **Custom**, **Shutter Priority**, **Indoor 50Hz** or **Indoor 60Hz** and when **Image Stabilization** and **Defog** are disabled.
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	When enabled, the camera automatically adjusts the slow shutter frequency according to the light frequency to minimize stripes in the image.

To restore defaults, click **Default**.

4. Smart Illumination

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



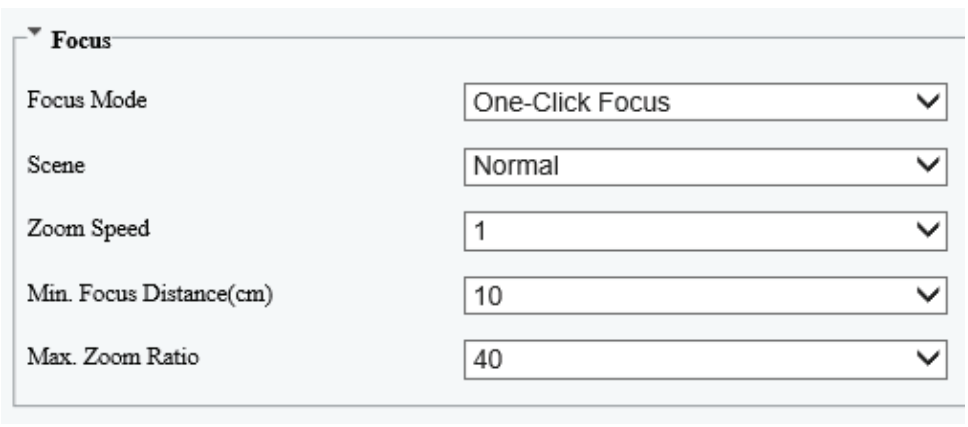
2. Enable **Smart Illumination**.
3. Set the smart illumination parameters.

Item	Description
Illumination Mode	• Infrared: The camera uses infrared light illumination. • White Light: 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).
Control Mode	• Global Mode: The camera automatically adjusts illumination and exposure to achieve the 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. • 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 a 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.

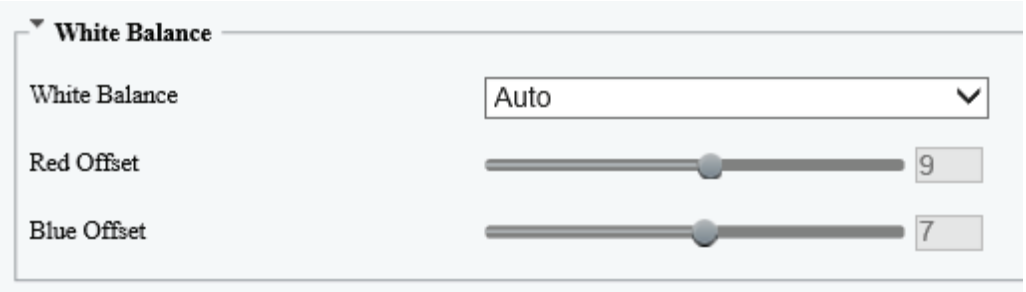
Item	Description
Focus Mode	• Auto Focus: Automatic focus control based on the current light conditions. • Manual Focus: Manual focus control. • One-Click Focus: Automatic focus in the event of rotation, zoom, and preset call. • One-Click Focus (IR): Recommended for low light scenes. • One-click Focus (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	Select the maximum digital zoom ratio, including **22**, **44**, **88**, **176**, and **352**.

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.

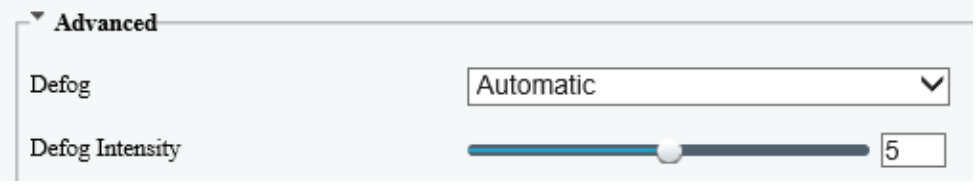
Item	Description
White Balance	Adjust the red and blue gains of the image to remove unrealistic color casts. • Auto/Auto 2: Automatically adjust the red and blue gains according to the lighting conditions. If there are still color casts in Auto mode, try Auto 2 mode. • Fine Tune: Manually adjust the 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.

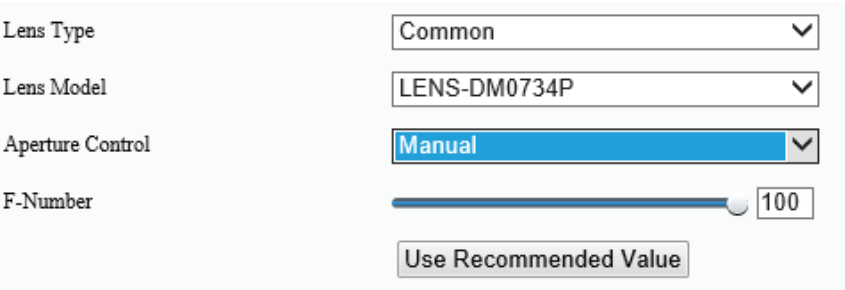
Item	Description
Defog	Select the defog mode, including **Automatic**, **On**, and **Off**. In **Automatic** mode, the camera automatically adjusts the defog intensity according to the fog concentration for clear images.
Defog Intensity	Adjust the defog intensity. In a heavy-fog environment, the higher 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. **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. 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.
Use Recommended Value	The camera optimizes the iris opening based on the current lighting conditions.

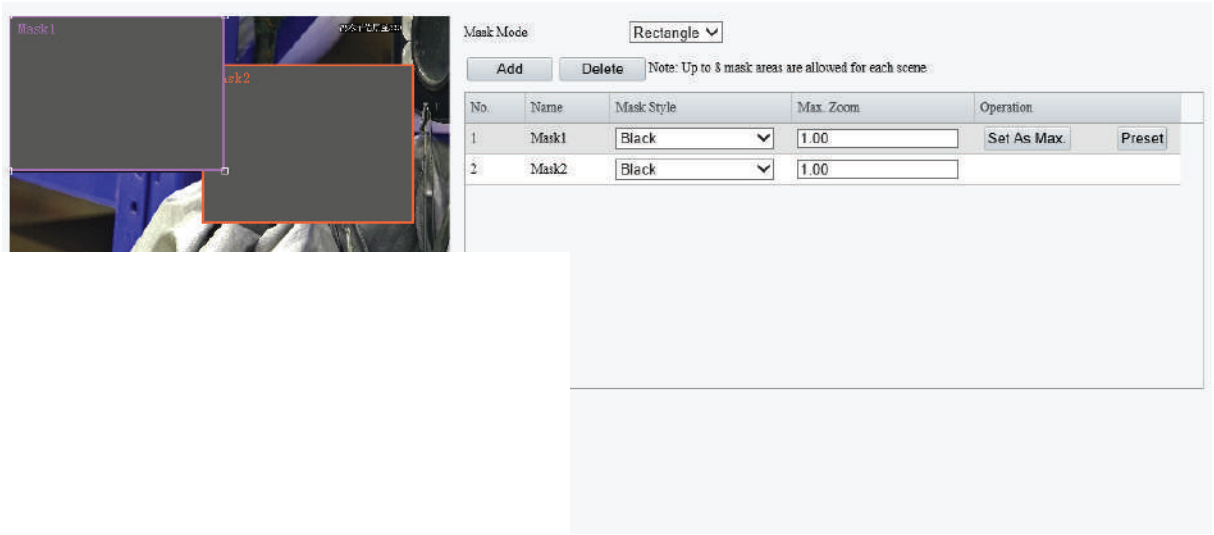
5.5.3 Privacy Mask

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**.

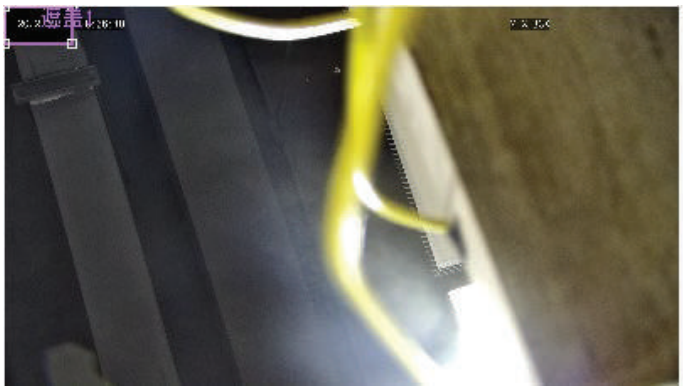


2. Select the mask mode, **Rectangle** or **Polygon**.

- 2D-mask camera: For a PTZ camera, the privacy mask does not move and zoom with the camera.
- 3D-mask camera: For a PTZ camera, the privacy mask moves and zooms with the camera and the masked area is always covered.

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 handle 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.

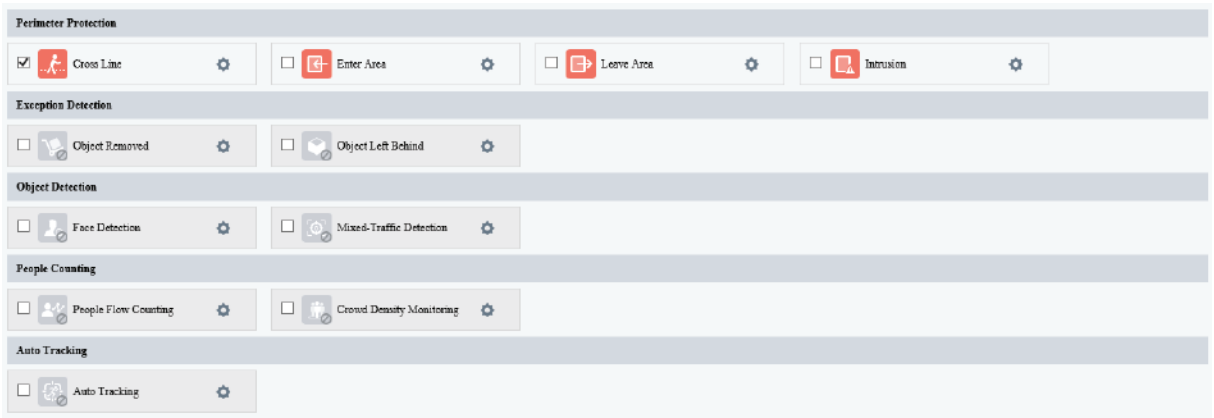
4. Set the privacy mask.

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).

5.6 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.

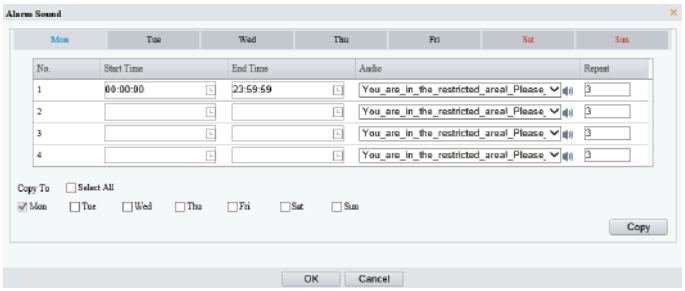
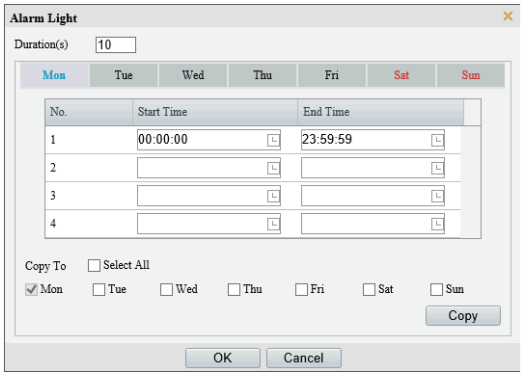
NOTE!

- 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.

5.6.1 Alarm-triggered Actions

You can set how the camera responds to an event to alert you to deal with it in time.

Item	Description
Upload to FTP	The camera uploads snapshots to the specified FTP server when an alarm occurs. Please configure FTP and Snapshot first before use.
Send E-mail	The camera sends snapshots to the specified email addresses when an alarm occurs. Please configure E-mail and Snapshot first before use.
Alarm the Center	The camera uploads alarm information to the surveillance center when an alarm occurs.
Attribute Collection	The camera uploads the attribute information of the object that triggers the alarm to the server when an alarm occurs. Please configure Attribute Collection first before use.
Upload Image(Original)	The camera uploads the original snapshots of the object that triggers the alarm to the server when an alarm occurs.
Upload Image(Target)	The camera uploads the object snapshots to the server.
Alarm Output	The camera outputs an alarm to trigger actions by an alarm output device when an alarm occurs. Please configure Alarm Output first before use.

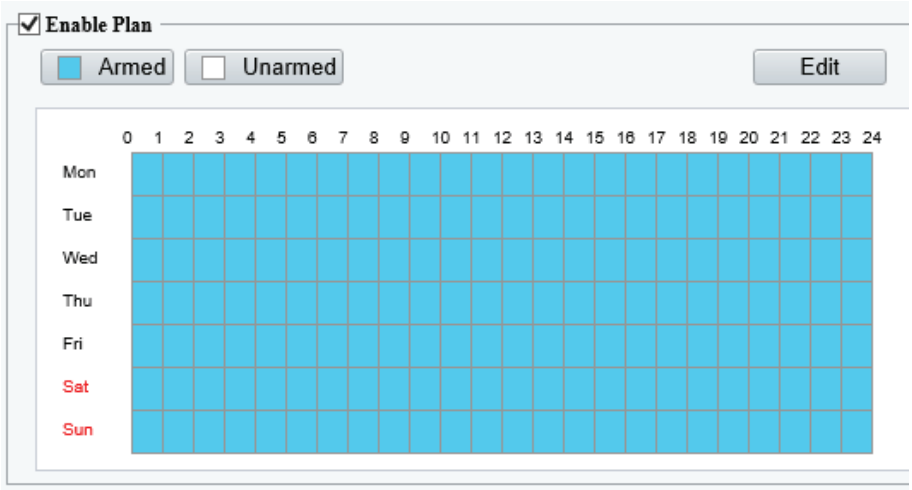
Alarm Sound	The camera plays warning sounds when an alarm occurs. 1. Select the **Alarm Sound** check box and click to configure relevant parameters. 2. Set the arming schedule for audible alarms. See Arming Schedule for details. 3. Set the alarm audio content and alarm times. ● Audio: Set the audio content to be played when an alarms occurs. See Audio File for details. ● Repeat: Set the number of times the audio to be played when an alarm occurs.  **NOTE!** This function may vary with device model.
Alarm Light	The illuminator of the camera flashes for a certain period of time when an alarm occurs. 1. Select the **Alarm Light** check box and click to configure relevant parameters. 2. Set the duration that the illuminator flashes when an alarm occurs. 3. Set the arming schedule for visible alarms. See Arming Schedule for details.  **NOTE!** This function may vary with device model.
Recording Edge Storage	The camera saves alarm recordings to its memory card or NAS when an alarm occurs. Please configure Memory Card or Network Disk first before use.
Image Edge Storage	The camera saves alarm snapshots to its memory card or NAS when an alarm occurs. Please configure Memory Card or Network Disk first before use.
FTP Video Storage	The camera uploads alarm recordings to the specified FTP server when an alarm occurs. Please configure FTP first before use.
Trigger Tracking	The camera starts tracking the object that triggers the alarm automatically until the set tracking time is reached or the object disappears when an alarm occurs. You can click **Tracking** to configure tracking parameters. See Tracking for details.
Go to Preset	The camera automatically goes to a preset position when an alarm occurs. Select the preset position you want the camera to go to. See PTZ for details.

5.6.2 Arming Schedule

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

- Draw a schedule

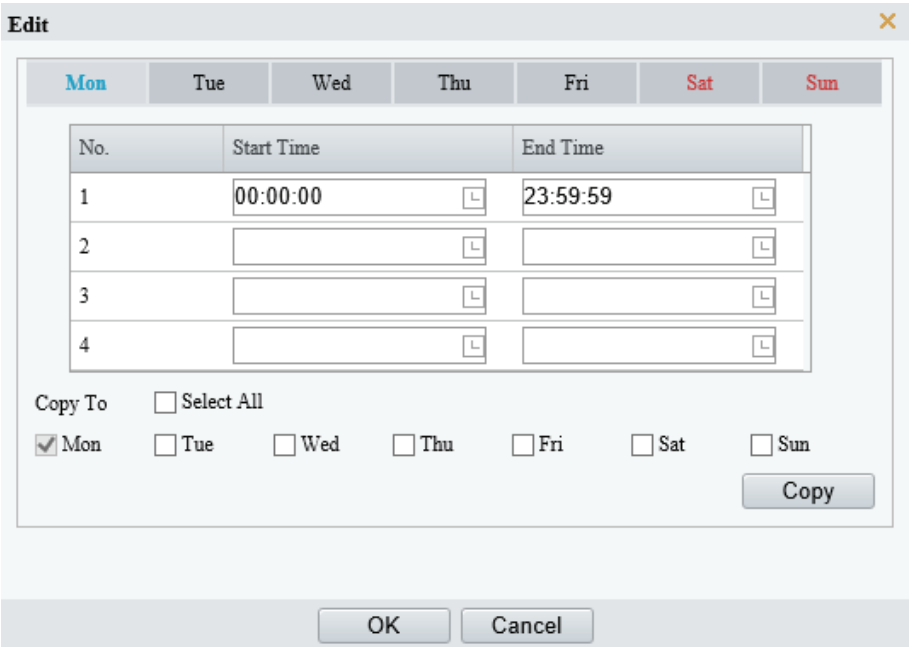
To set an armed period, click **Armed**, and then click or drag on the schedule to select the time cells you want to enable arming. To set a disarmed period, click **Unarmed**, and then click or drag on the schedule to select the time cells you want to disable arming.



NOTE!
Only browsers of IE 9 or higher allows schedule drawing.

- Edit a schedule

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



NOTE!

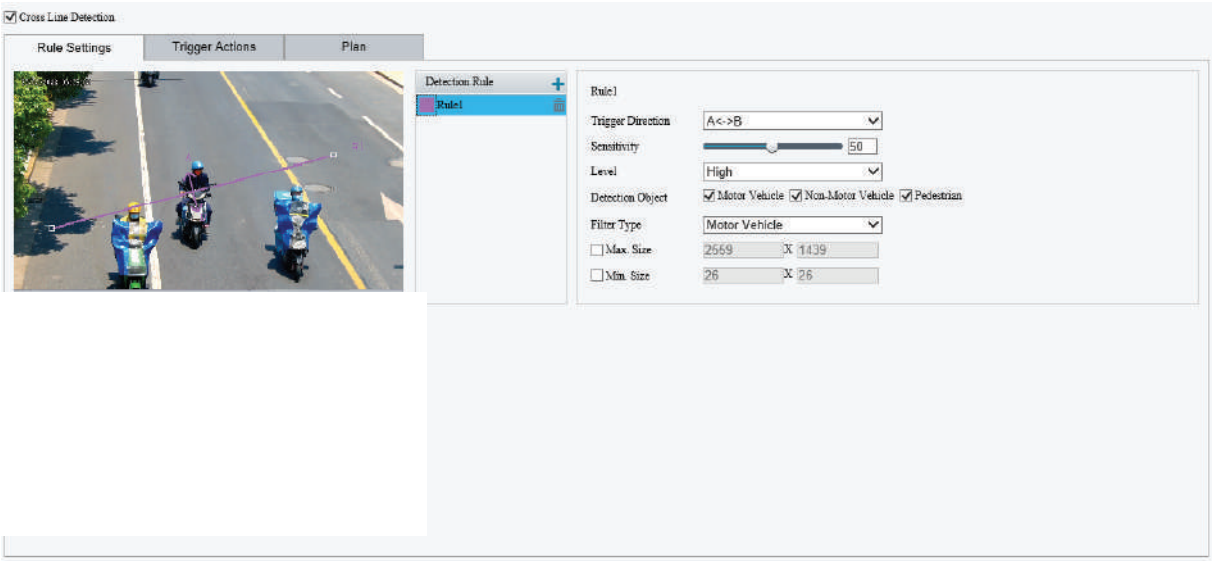
- Up to 4 time periods are allowed per day. The time periods cannot overlap.
- To apply the same time settings to other days, select the desired day(s), and then click **Copy**.

5.6.3 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.

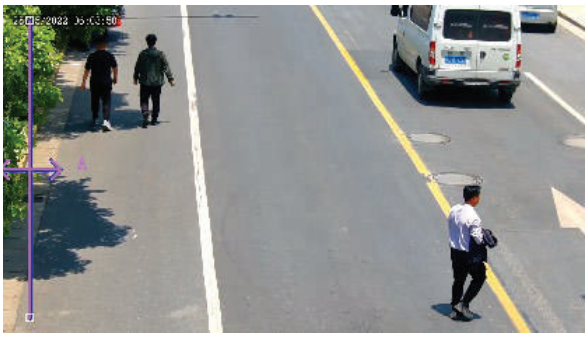
1. Go to **Setup** > **Intelligent** > **Smart**.

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.

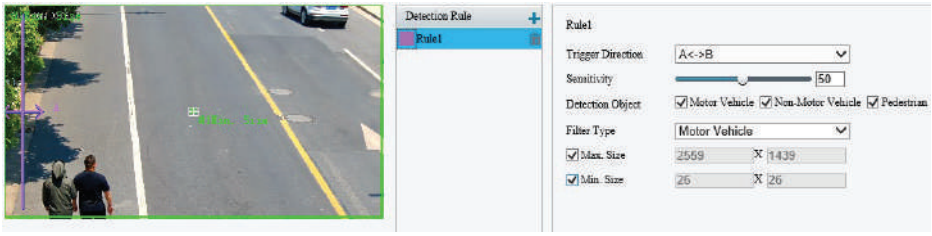
   – Point to a handle of the line and drag to resize it.

   ➢ Draw a line.

   Click on the image and drag to draw a line.

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.

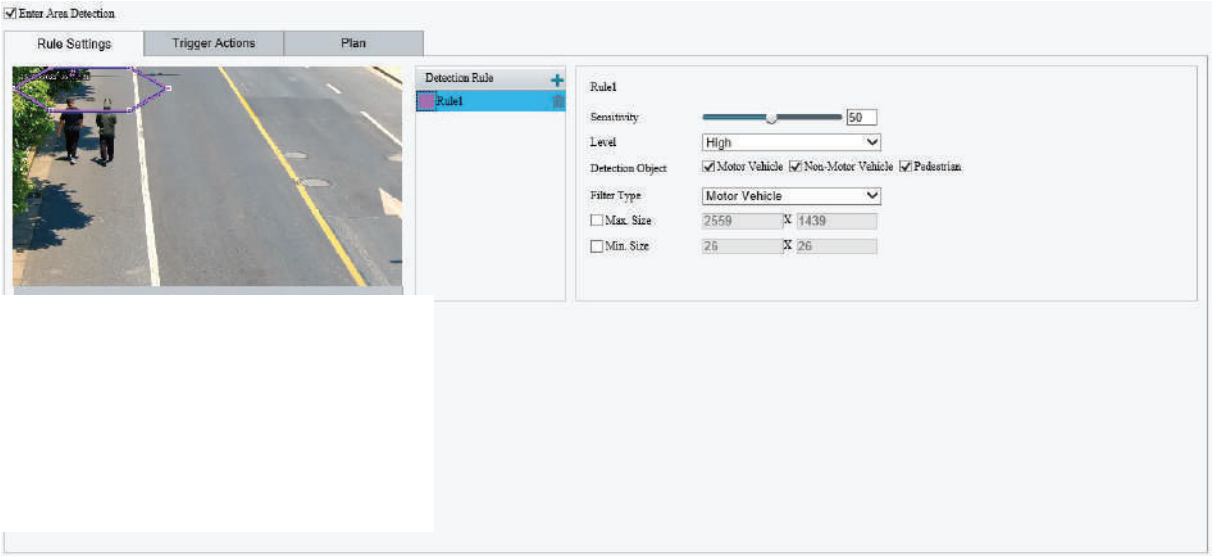
Detection Object	Select the object to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** 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 handle 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**.

5.6.4 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.



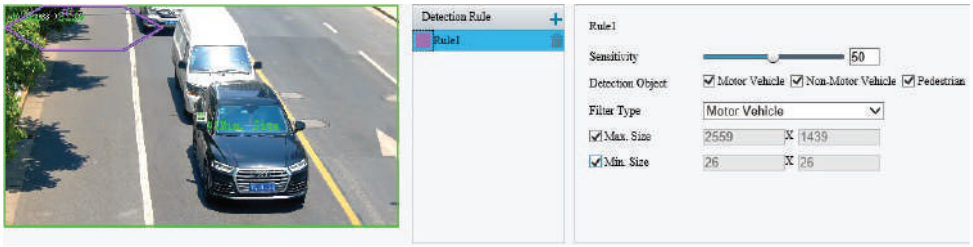
3. Add a detection rule.
   (1) Click ➕ to add a detection area. The detection area is a hexagon by default. Up to 4 detection rules are allowed.

(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 handle 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.

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**.
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 handle 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. 

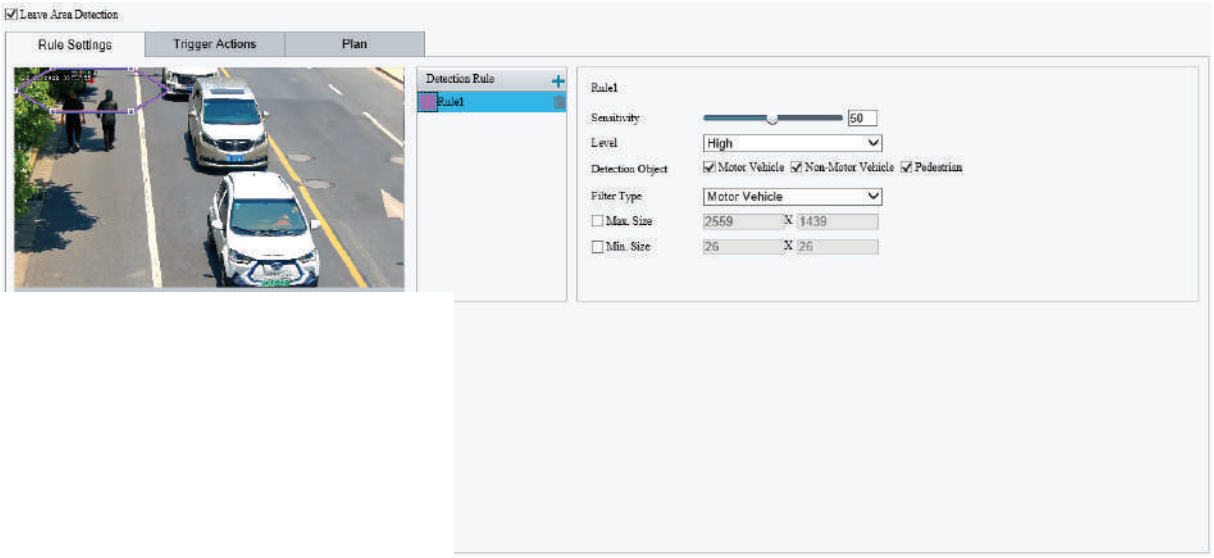
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.6.5 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.

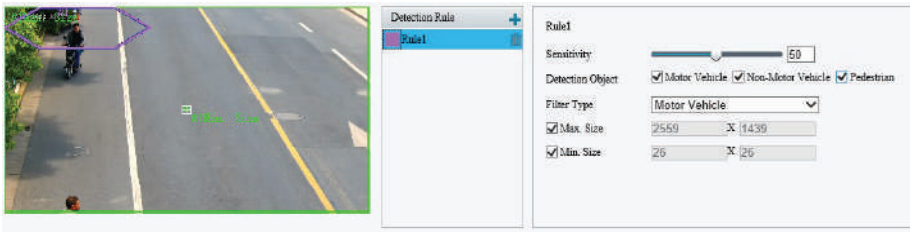
(2) Adjust the position and size of the area or draw an area as needed.

- 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 handle 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.

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**.

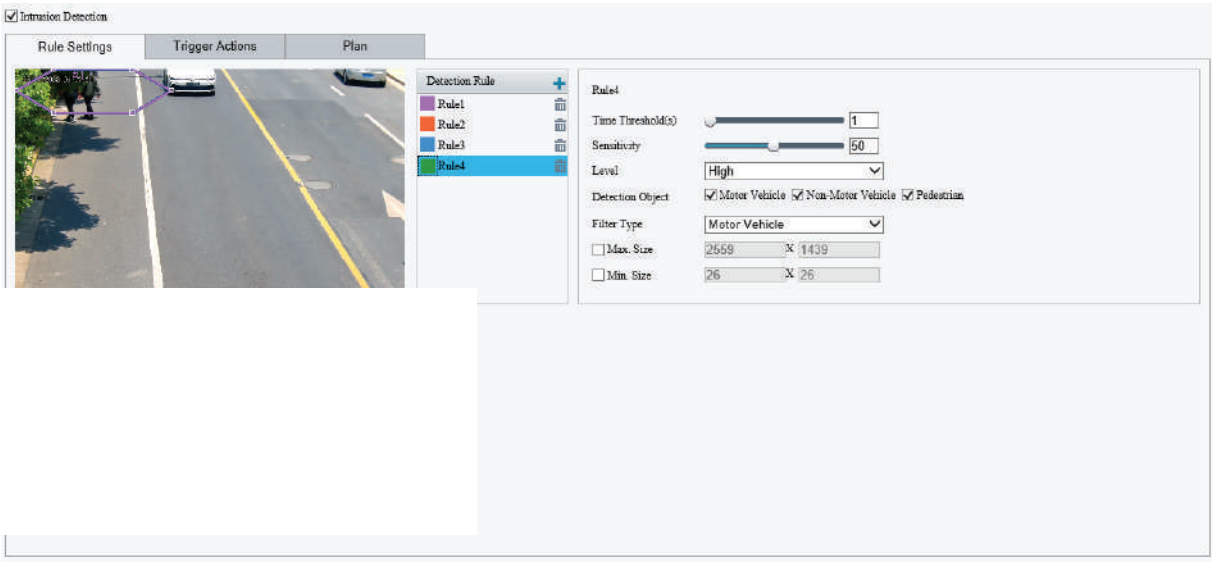
Filter Type	After you select a detection object, you can set a filter rule for it. For example, if you have selected **Motor Vehicle** as a detection object, select **Motor Vehicle** from the **Filter Type** drop-down list and set the **Max. Size** or **Min. Size** for it, then motor vehicles larger 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 handle 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**.

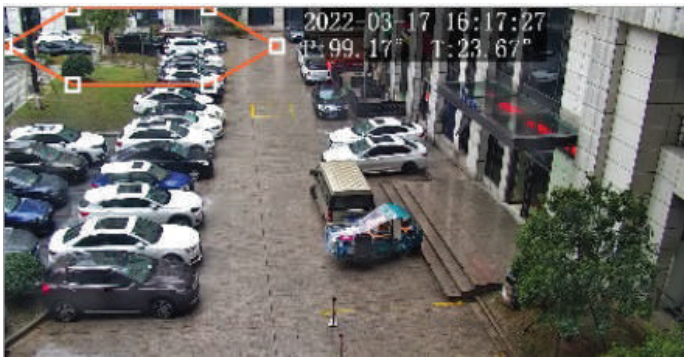
5.6.6 Intrusion Detection

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 handle 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.

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 handle 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. 

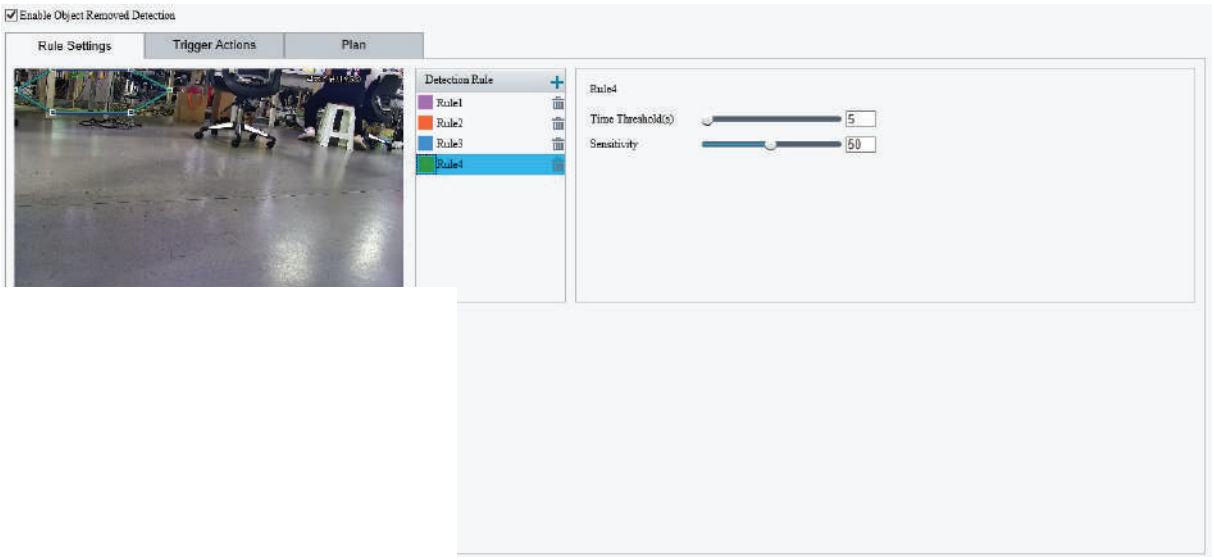
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Save**.

5.6.7 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.

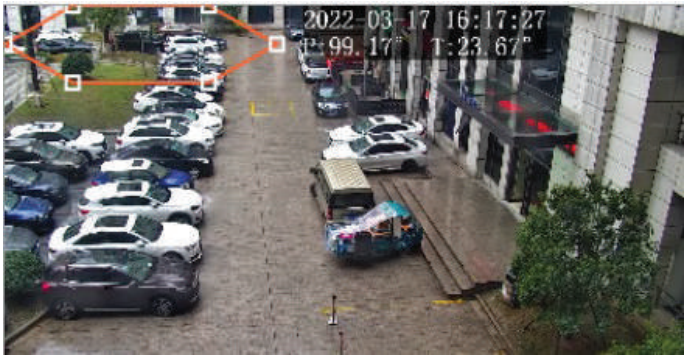
1. Go to **Setup** > **Intelligent** > **Smart**.

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 handle 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.

4. Set the detection rule.

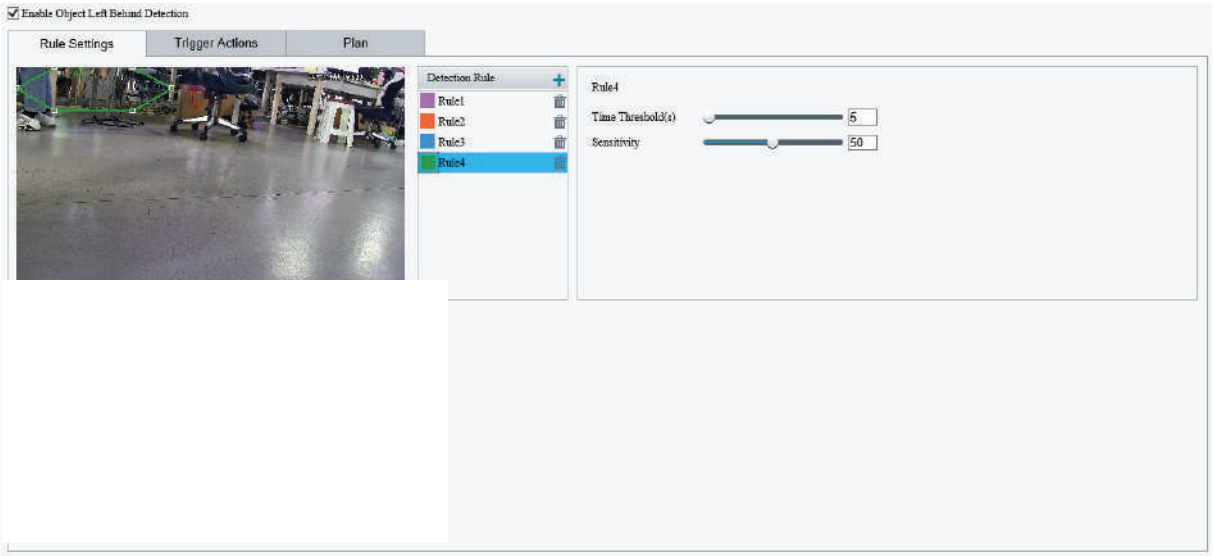
Item	Description
Time Threshold(s)	Set how long the object is removed from the detection area to trigger an alarm. If an object is removed from the detection area for the set time, an alarm will be triggered.
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely object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

5.6.8 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 handle 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.

4. Set the detection rule.

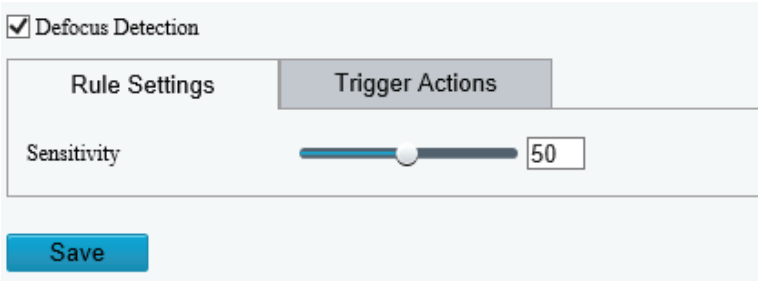
Item	Description
Time Threshold(s)	Set how long the object is left behind in the detection area to trigger an alarm. If an object is left behind in the detection area for the set time, an alarm will be triggered.
Sensitivity	Set the detection sensitivity. The higher the sensitivity, the more likely object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

5.6.9 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.

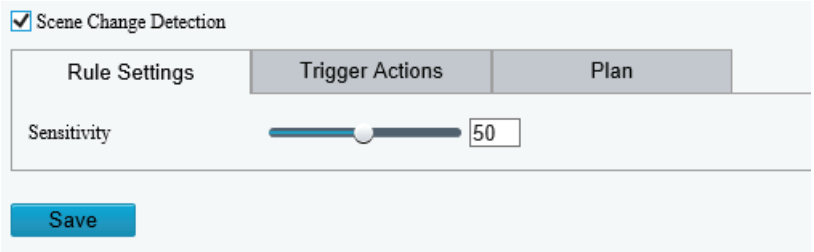


3. Set the detection sensitivity. The higher the sensitivity, the more likely defocus will be detected, and the more likely false alarms will occur.
4. Set the alarm-triggered actions. See Alarm-triggered Actions for details.
5. Click **Save**.

5.6.10 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.

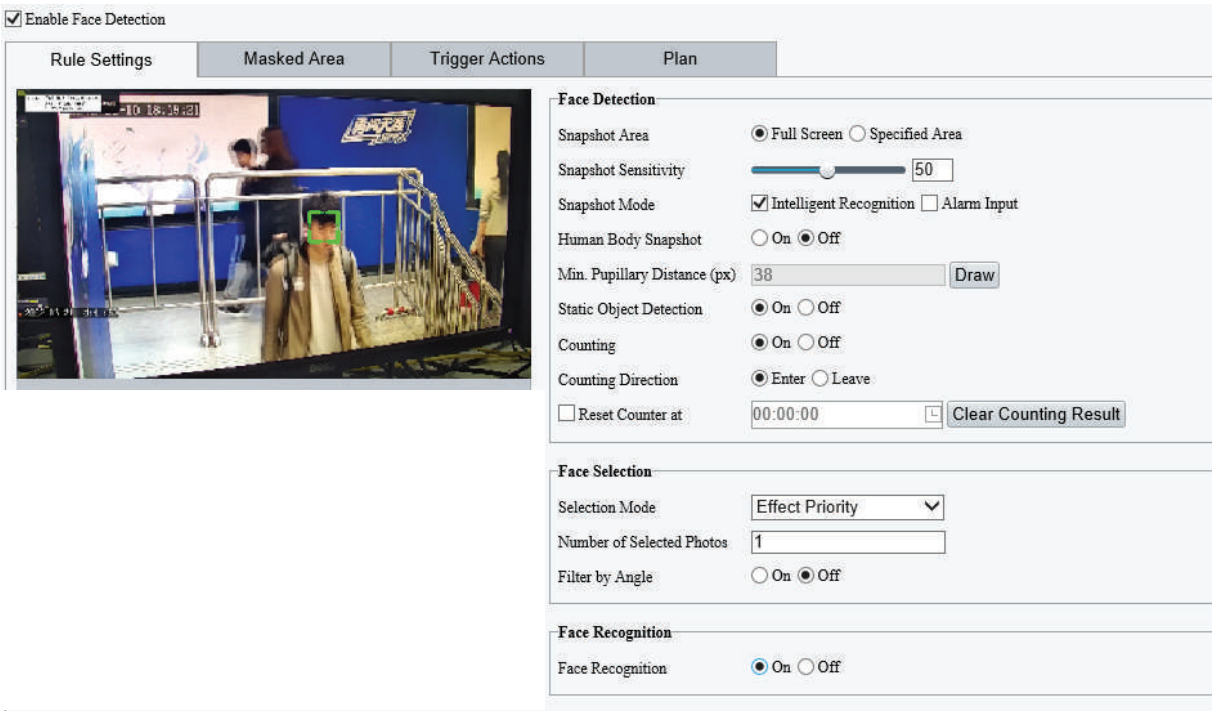


3. Set the detection sensitivity. The higher the sensitivity, the more likely scene change behaviors will be detected, and the more likely false alarms will occur.
4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

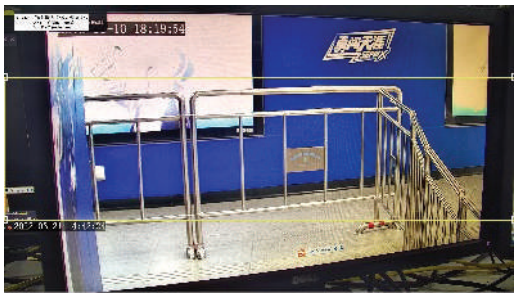
5.6.11 Face Detection

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.

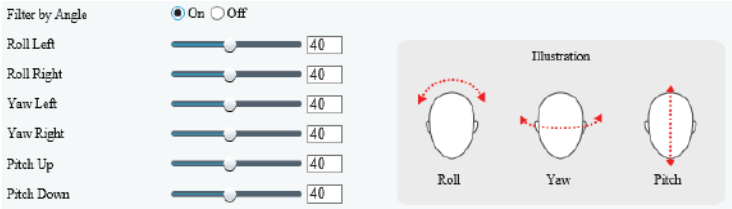


3. Set the face detection rule.

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 handle 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.
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 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 (measured in pixels) between two pupils. The face with pupillary distance smaller than the value will not be captured. To set the minimum pupillary distance, you can click **Draw** and drag the corners of the box in the preview window to resize it, or type the pupillary distance value in the text box.
Static Object Detection	Select whether to detect static objects.
Counting	After you enable **Counting** and select the people counting direction, the statistics of people entering or leaving are displayed on the live image. Before use, please configure a people counting OSD overlay on the **OSD** page. See OSD for details.
Reset Counter at	● Select the **Reset Counter at** check box and set a time for the camera to clear people counting statistics. ● To clear people counting statistics immediately, click **Clear Counting Result**. This operation only clears the people statistics displayed on the OSD, and does not affect the reported data.

4. Set the face selection rule.

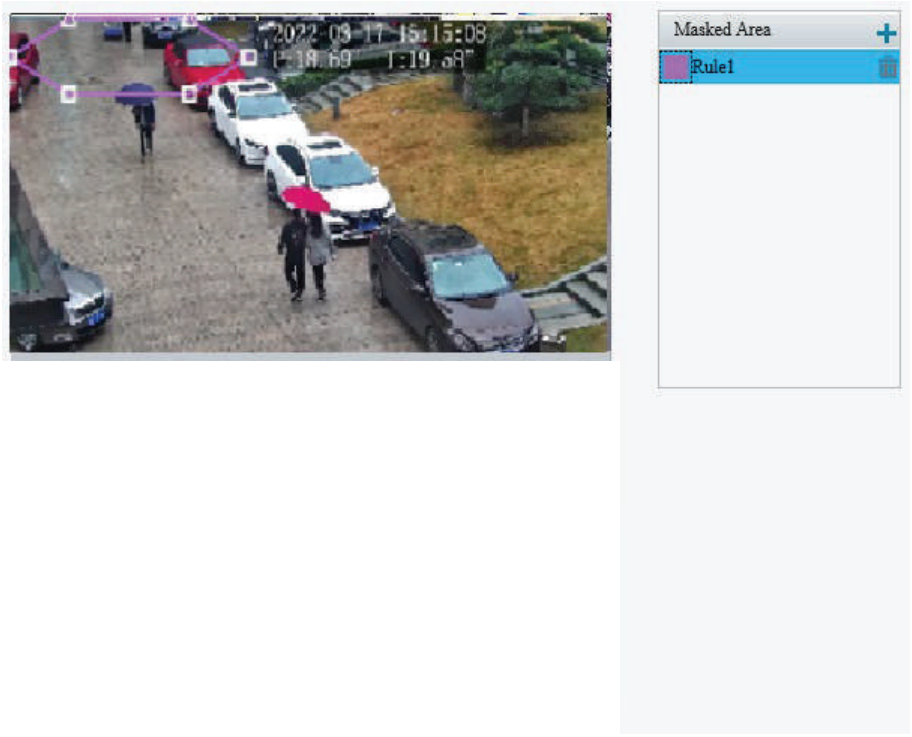
Item	Description
Selection Mode	Select the face selection mode. ● Effect Priority: The camera selects 1 to 3 snapshots with the best quality to report. You can specify the number of photos to select. ● Speed Priority: The camera selects certain number of snapshots from the moment that the face is detected 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.
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. 

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

NOTE!
Face recognition and human body snapshot cannot be enabled 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 handle 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.
7. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
8. Click **Save**.

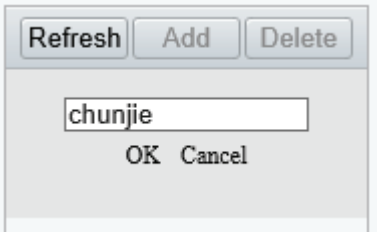
5.6.12 Face Recognition

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

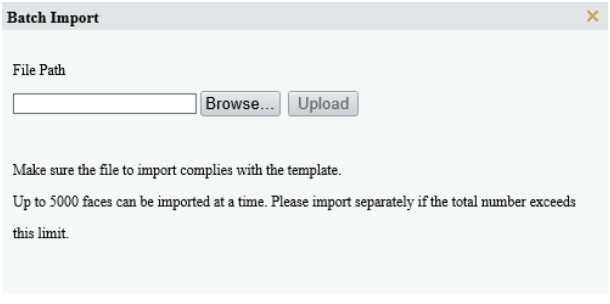
1. Go to **Setup** > **Intelligent** > **Smart**.
2. Select **Face Detection** and click .
3. Click the **Face Library** tab.

4. Create face libraries.

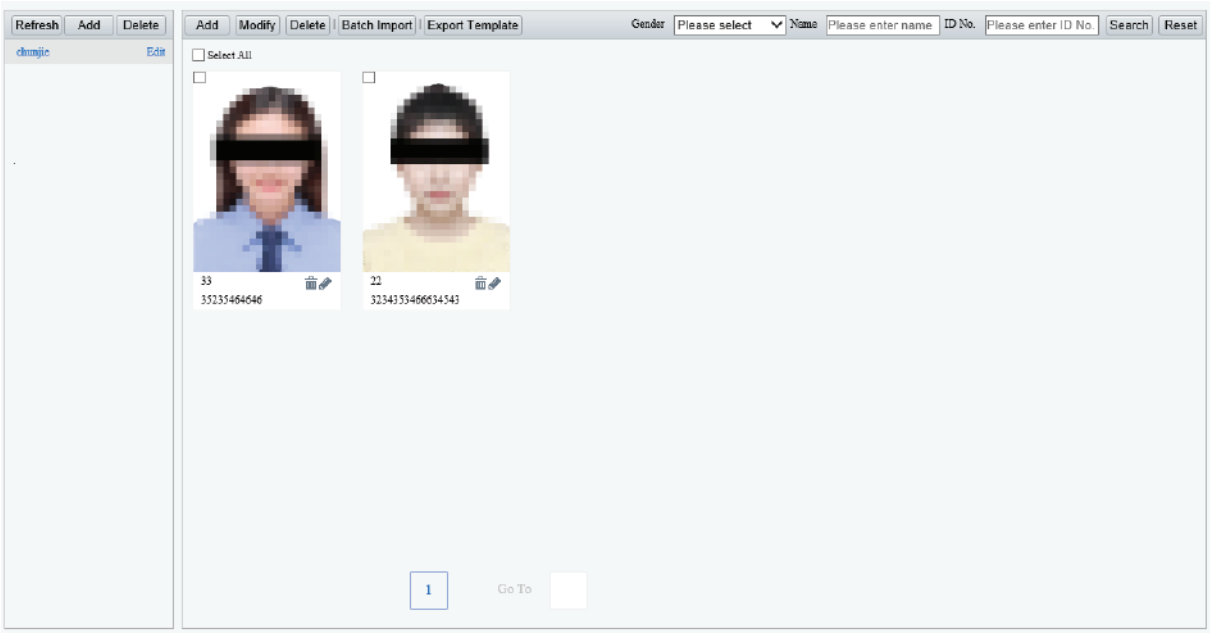
Click **Add** in the left area, enter the library name, and click **OK**.



5. Add face data.

Item	Description
Add one by one	4. Click **Add**.  5. 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**. 

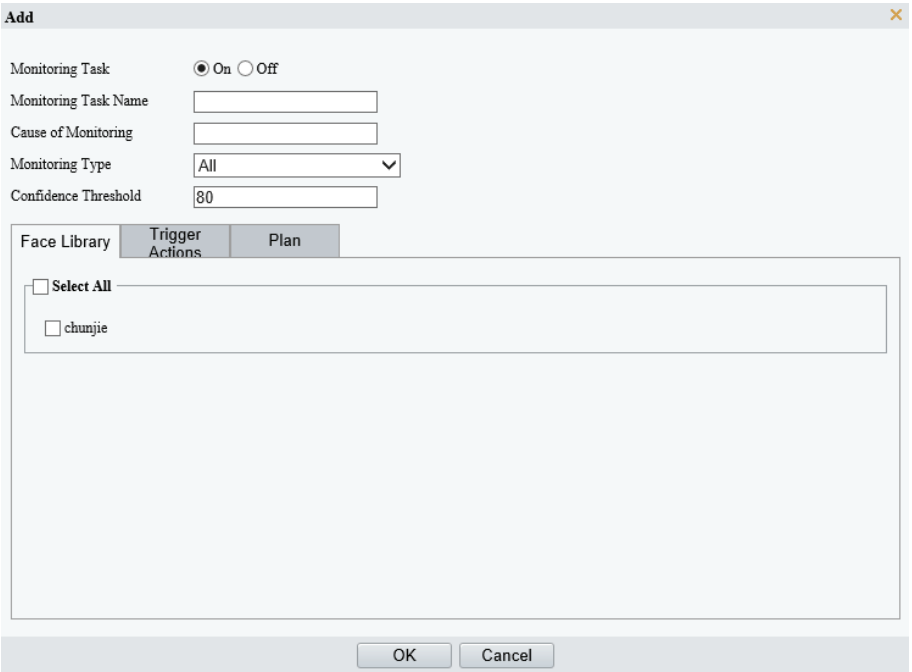
The imported face data are shown as below:



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.

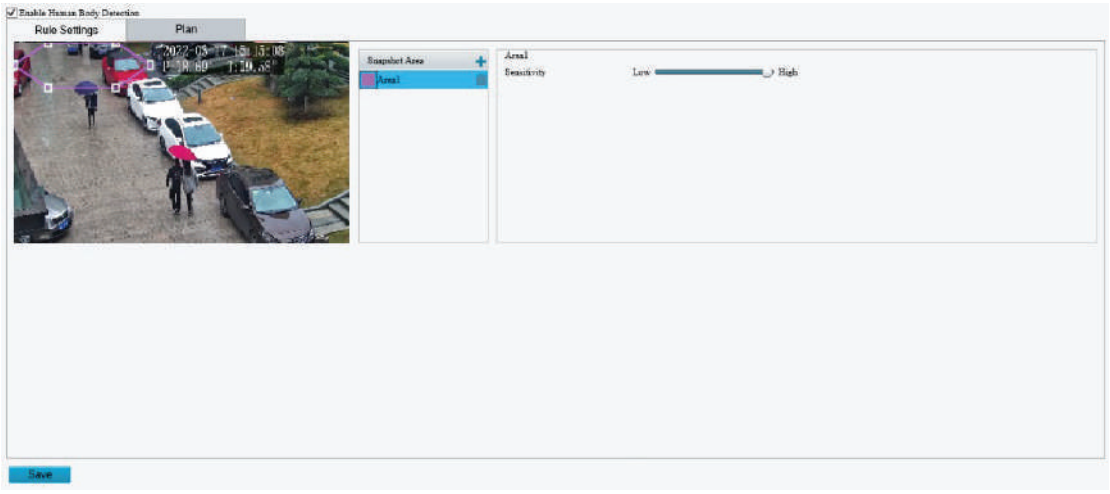
(5) Click **OK**.

7. Click **Save**.

5.6.13 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.

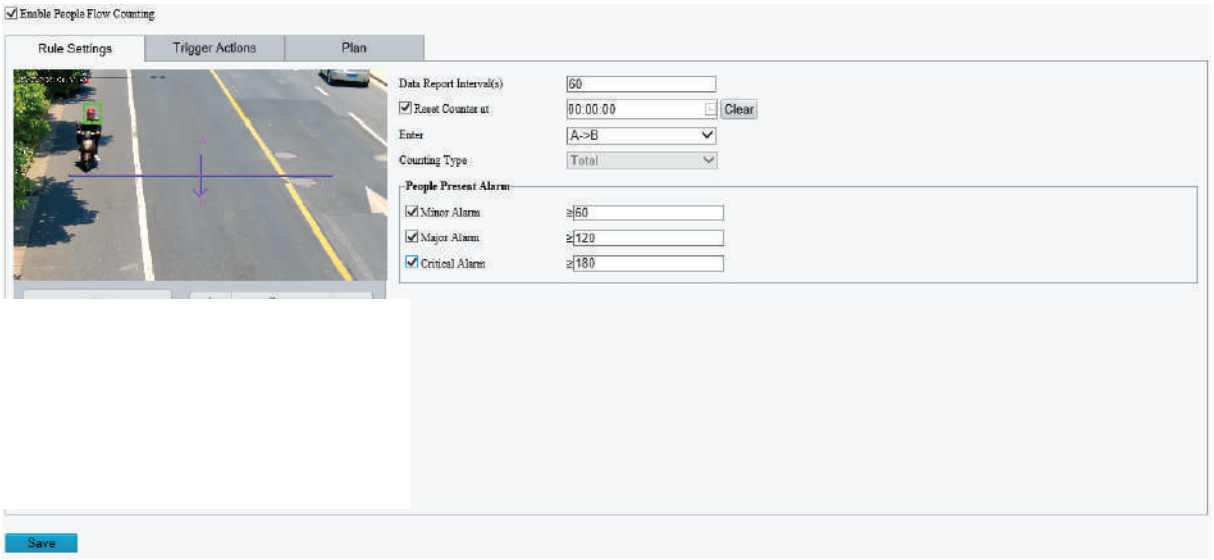
- Adjust the position and size of the area.
  Point to the area and drag it to the desired position. Drag the corners of the area to resize it.
- Draw an area.
  Click in the preview window to draw a polygonal area with up to 6 sides.

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**.

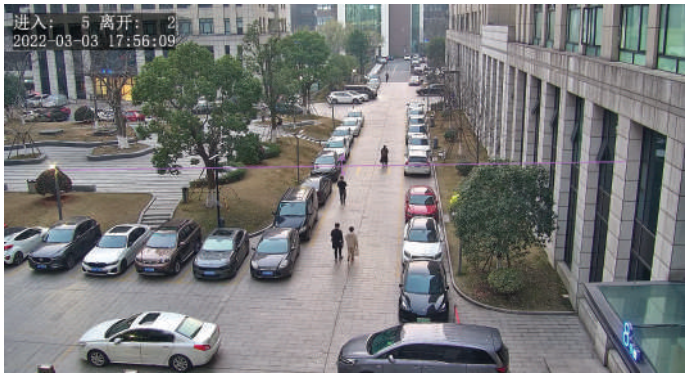
5.6.15 People Flow Counting

People flow counting counts people passing a specified tripwire and triggers an alarm if the number of people exceeds the set alarm threshold.

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



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

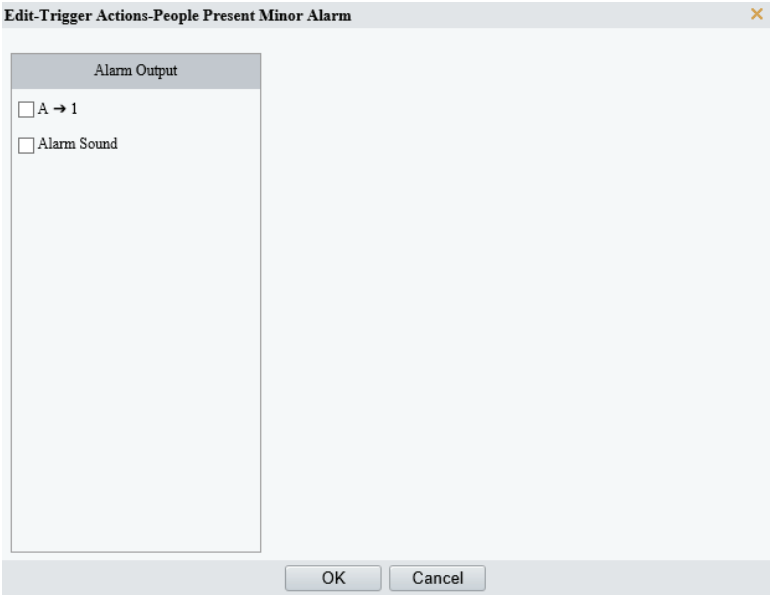


- Adjust the position and size of the tripwire.
  Point to the tripwire and drag it to the desired position. Drag the endpoints of the tripwire to resize it.
- Draw a tripwire.
  Click in the preview window to draw a tripwire.

4. Set the people flow counting rule.

Item	Description
Data Report Interval(s)	Set the time interval for the camera to report people flow statistics. Default: 60. Range: 1 to 60. For example, if the interval is set to 60, the camera will report people flow statistics to the server every 60 seconds.
Reset Counter at	• Select the **Reset Counter at** check box and set a time for the camera to clear people counting statistics on the OSD. • To clear now, click **Clear**.
Enter	Set the entry direction.
Counting Type	Select the counting type. Before use, configure a people counting OSD first. See OSD for details. • Total: The number of people entering and leaving the area is displayed in real time on the video image. • People Entered: The number of people entering the area is displayed in real time on the video image. • People Exited: The number of people leaving the area is displayed in real time on the video image.
People Present Alarm	Set the people present alarm threshold. When the number of people present reaches a set threshold, an alarm is triggered. Range: 1 to 180. • Minor Alarm: A minor alarm is triggered when the number of people present reaches the set value. • Major Alarm: A major alarm is triggered when the number of people present 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 present 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.

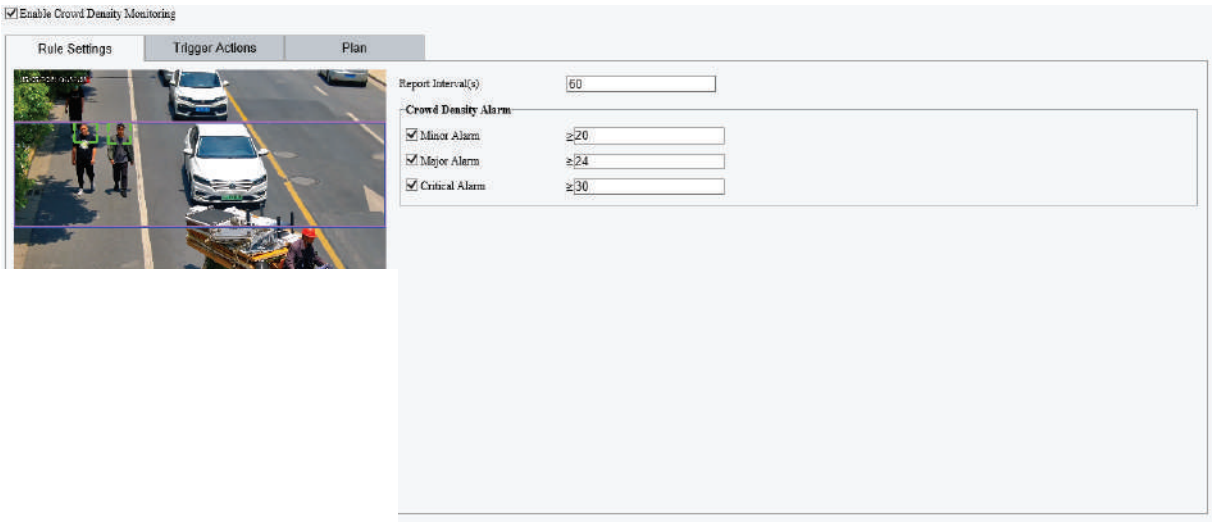


6. Click **Save**.

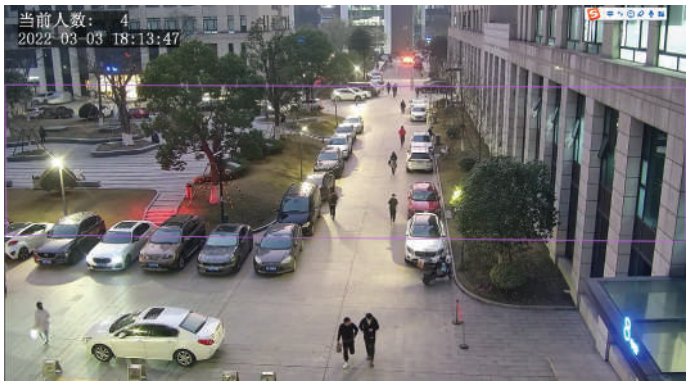
5.6.16 Crowd Density Monitoring

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.

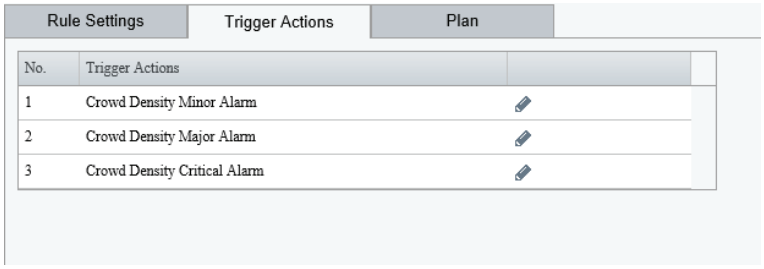


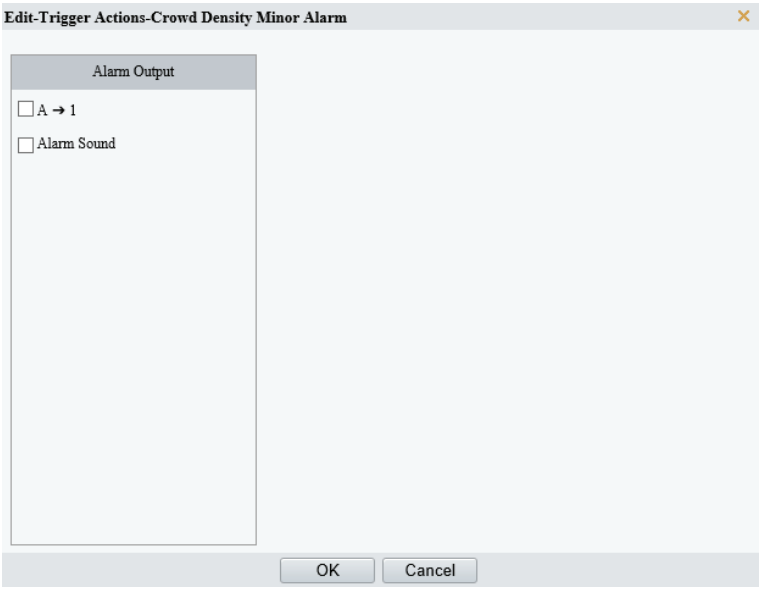
- Adjust the position and size of the area.
  Point to the area and drag it to the desired position. Drag the corners of the area to resize it.
- Draw an area.
  Click in the preview window to draw a polygonal area with up to 6 sides.

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**.

5.7 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.

5.7.1 Common Alarm

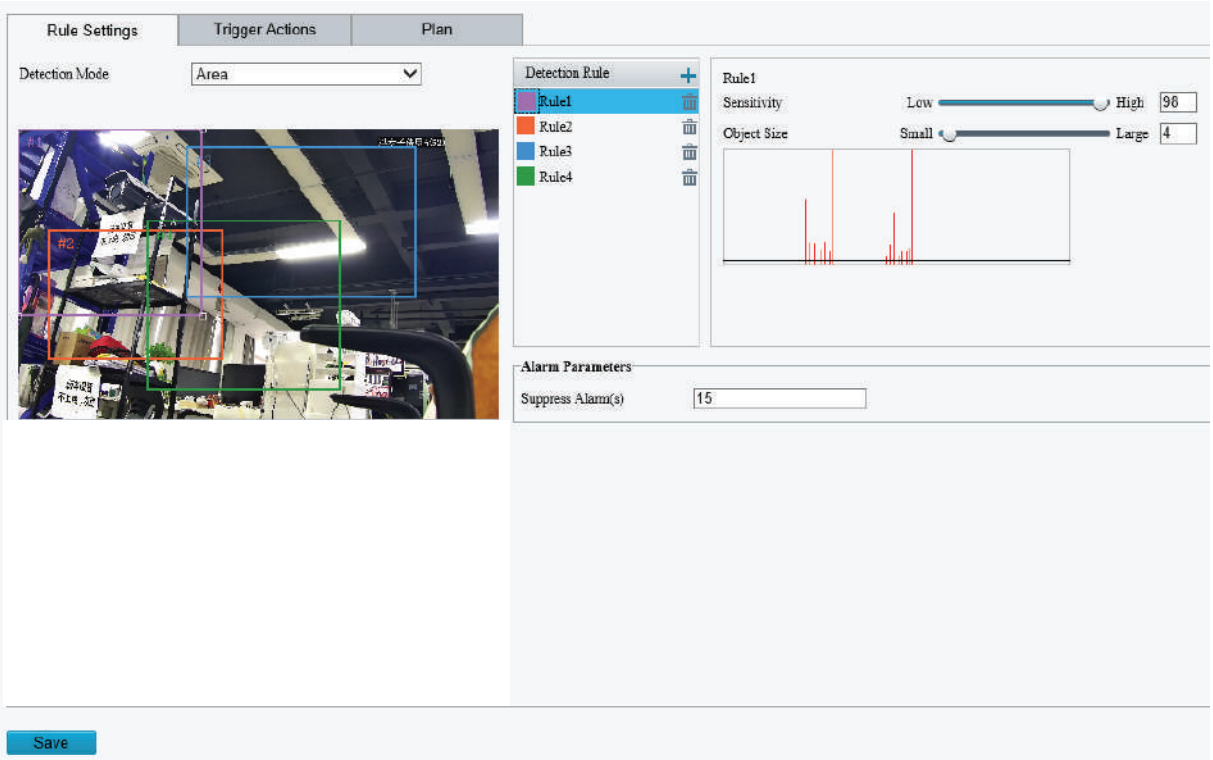
1. Motion Detection

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

NOTE!

The  icon appears in the upper right corner of the image when a motion detection alarm occurs.

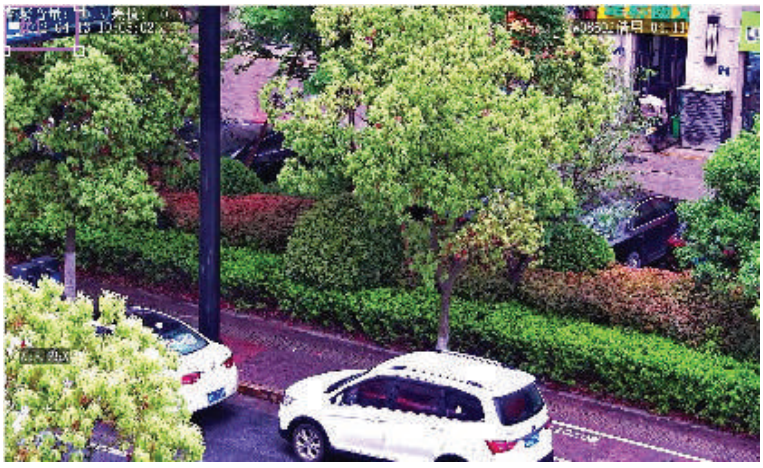
1. Go to **Setup** > **Events** > **Common Alarm** > **Motion Detection**.



2. Choose a detection mode from the drop-down list.

- Detection area

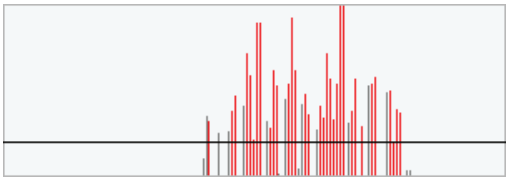
(1) Up to four detection rules are allowed. To add one, click +. A rectangle appears on the image.



(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 handle of the area and drag to resize it.
- Click anywhere on the image, and then drag to draw a new area.

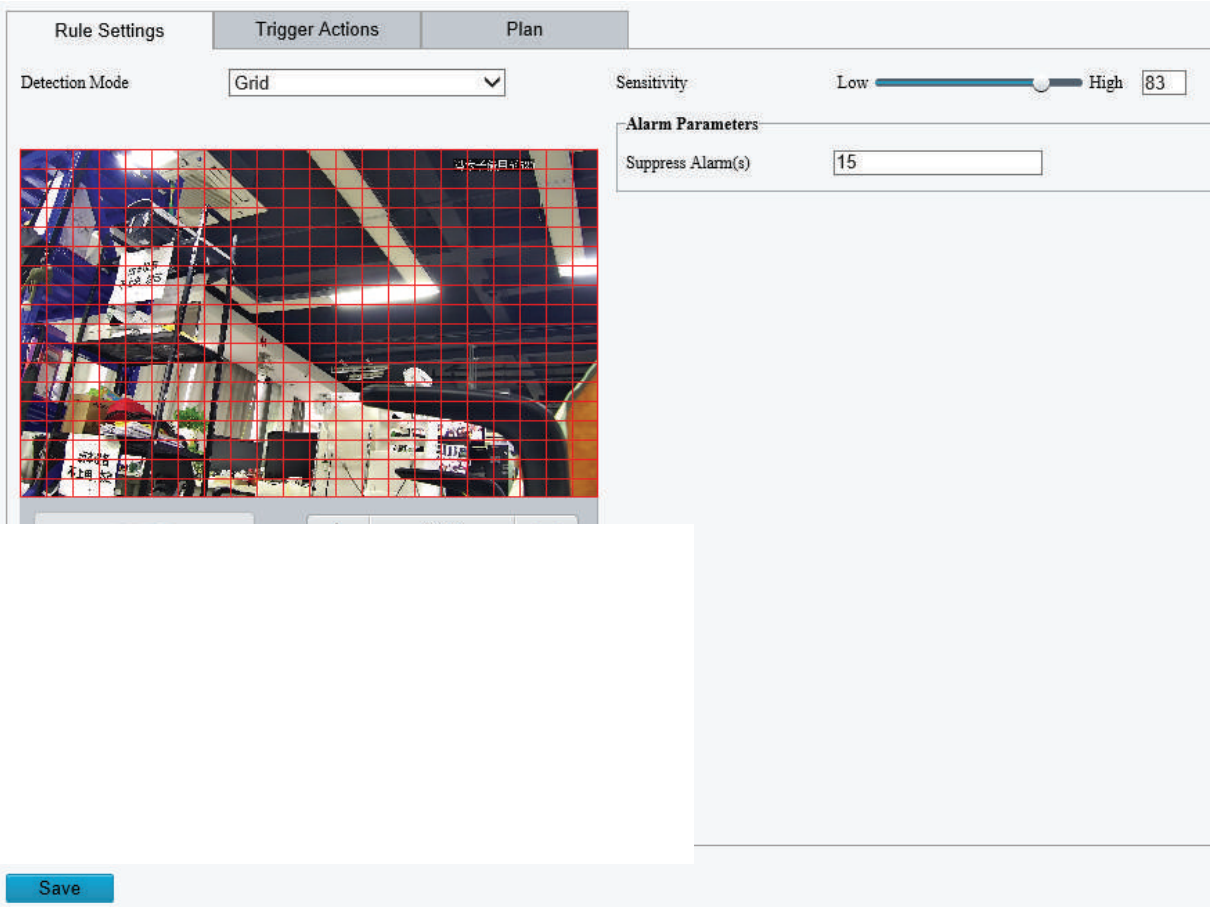
(3) Set detection rules.

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 a line, the greater the extent. The denser the lines, the higher the frequency. 

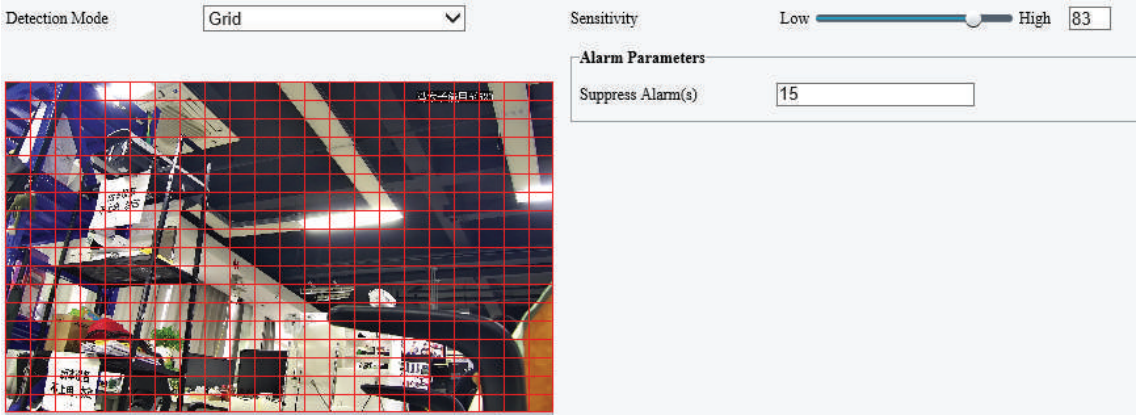
(4) Set **Suppress Alarm** to avoid receiving the same alarms within a certain length of time (alarm suppression time). For example, alarm suppression time is set to 5s, after an alarm is reported:

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



(2) Edit detection areas as needed.

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

(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) 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:

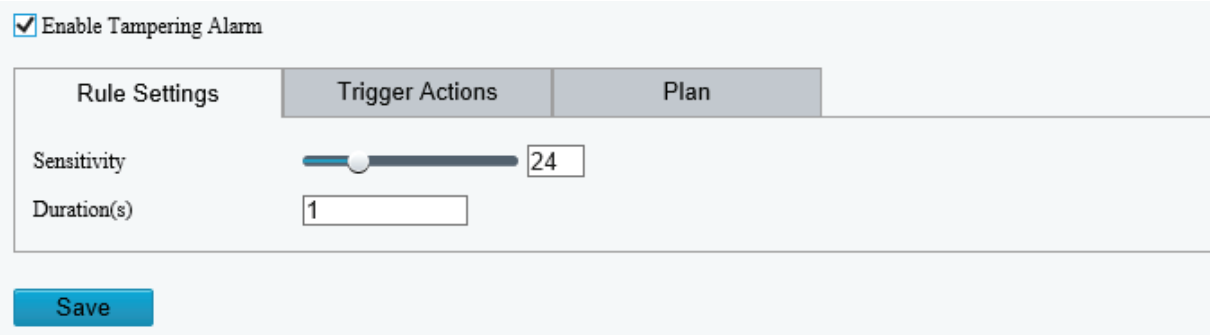
- If no motion is detected within the next 5s, new alarms can be reported after 5s when the alarm suppression time is over.
- If motion is detected within the next 5s, the alarm suppression time recounts from the time of the last alarm, and new alarms can be reported when the alarm suppression time (5s)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

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

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.

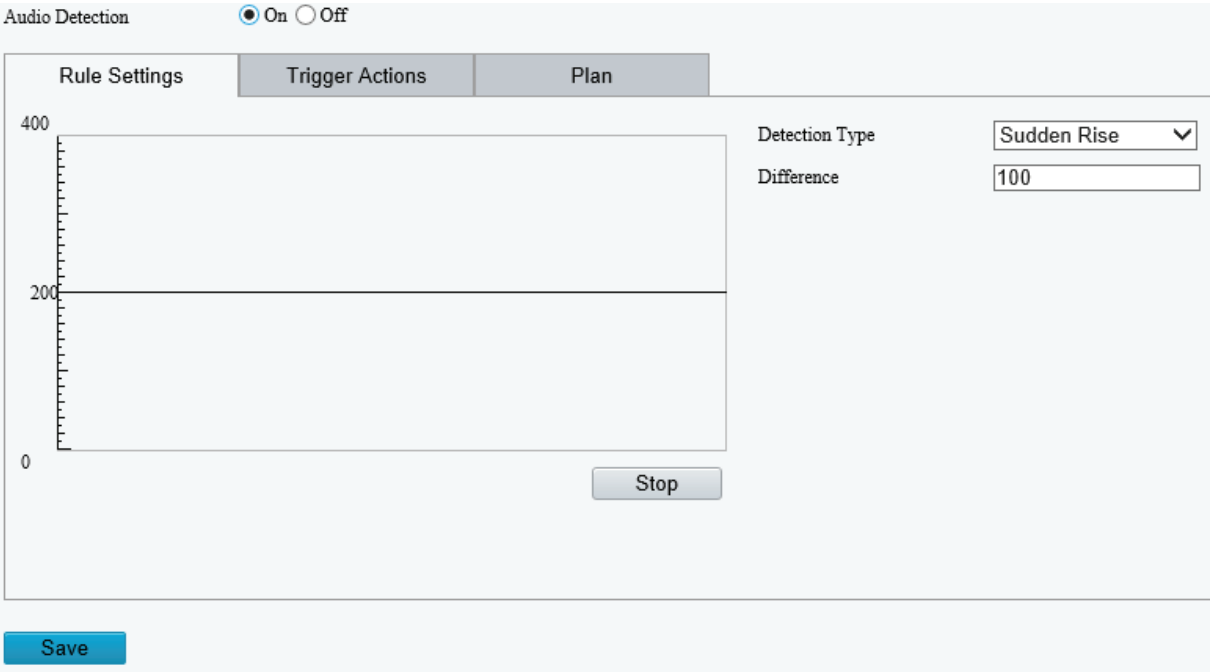
4. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Click **Save**.

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).

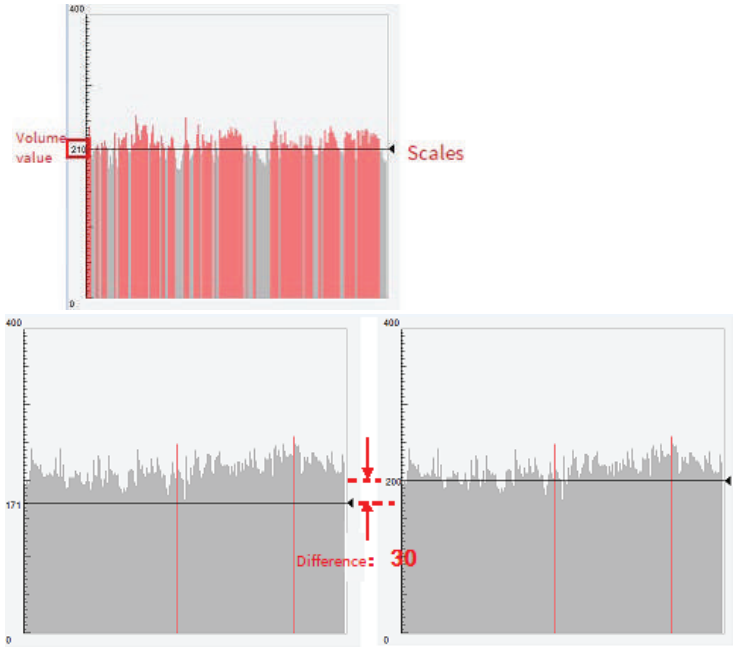
- When audio input mode is Line/Mic.

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



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

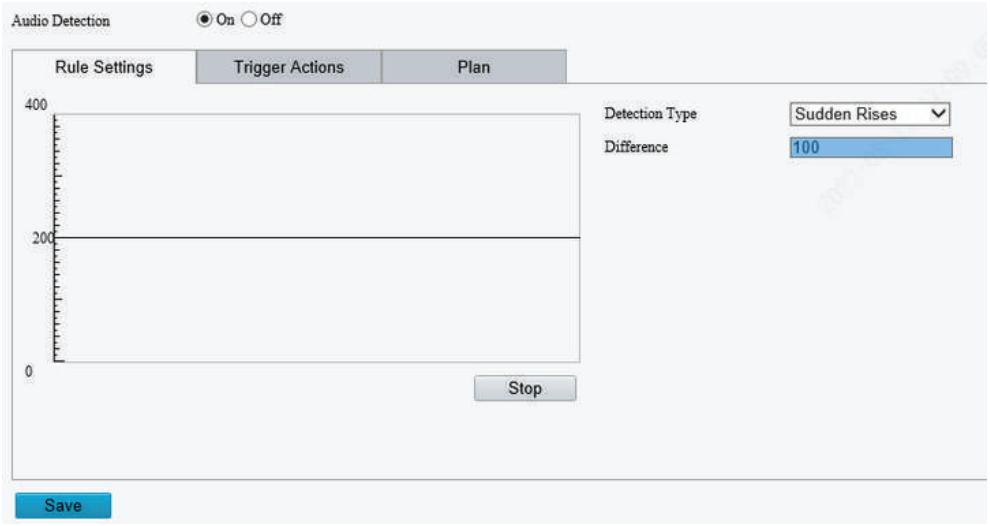
Item	Description
Detection Type	• Sudden Rise: Detects sudden rising sound volume, and triggers an alarm when the rise of volume exceeds the difference. • Sudden Fall: Detects sudden falling sound volume, and triggers an alarm when the fall of volume exceeds the difference. • Sudden Change: Detects sudden 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**.

Item	Description
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**.

- When audio input mode is RS485.

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



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

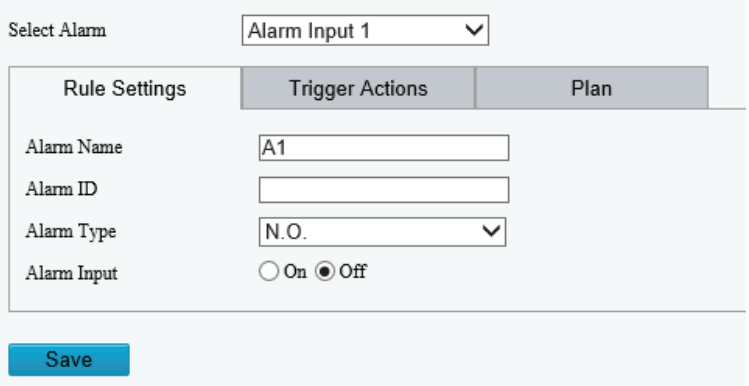
Item	Description
Detection Type	Volume Difference: Compare the difference between the actual ambient volume and the reference value.
Reference Volume	Standard value of ambient volume. Range: 0-90.

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 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.

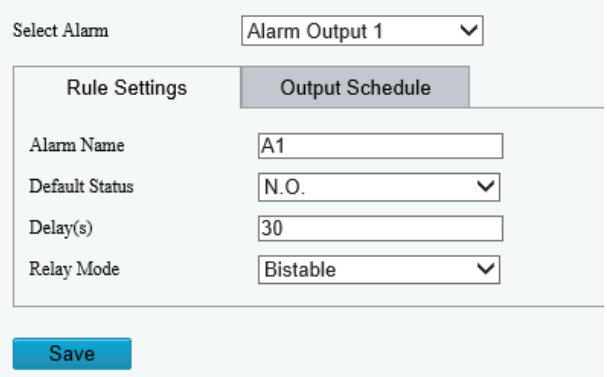
Item	Description
Alarm Name	The default name is the alarm input channel ID. You rename it as needed.
Alarm ID	Set an alarm ID as you need.
Alarm Type	Set the alarm type according to the alarm input device. ● If the alarm input device is normally open (N.O.), choose **N.C.**. ● If the alarm input device 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 alarm bell, buzzer, etc. After alarm output is configured, the camera can output alarm signals when an alarm (such as motion detection alarm, tamping alarm) occurred and trigger the third-party device to perform certain actions.

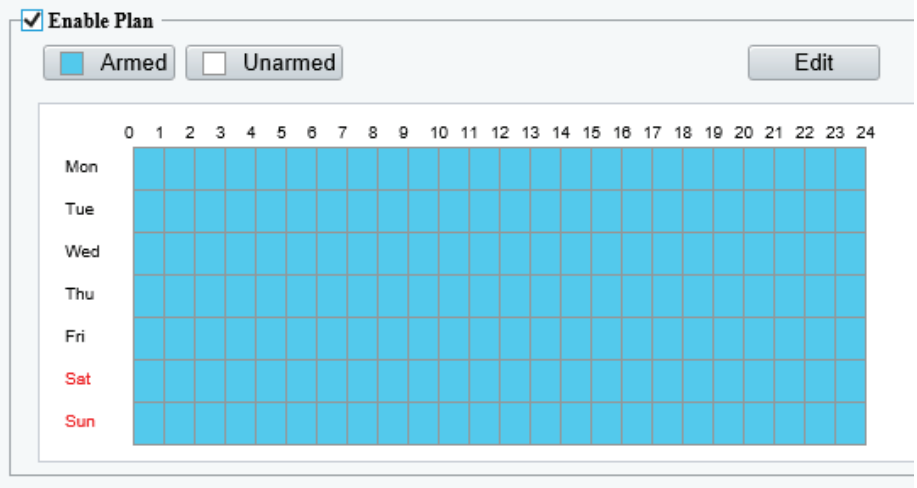
1. Go to **Setup** > **Events** > **Common Alarm** > **Alarm Output**.



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

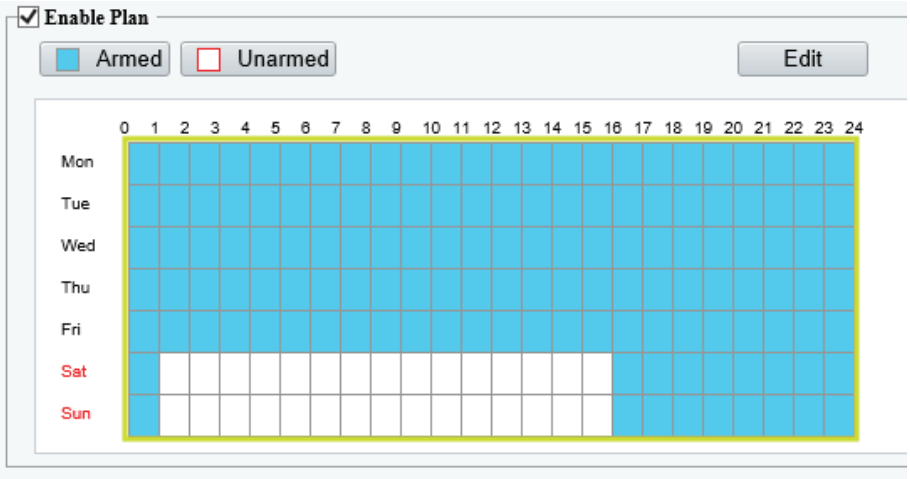
4. On the **Output Schedule** page, select **Enable Plan**, and then set when the camera can output alarms. By default, the schedule (plan) is disabled.



Two methods are available to make an arming schedule:

- Draw a schedule

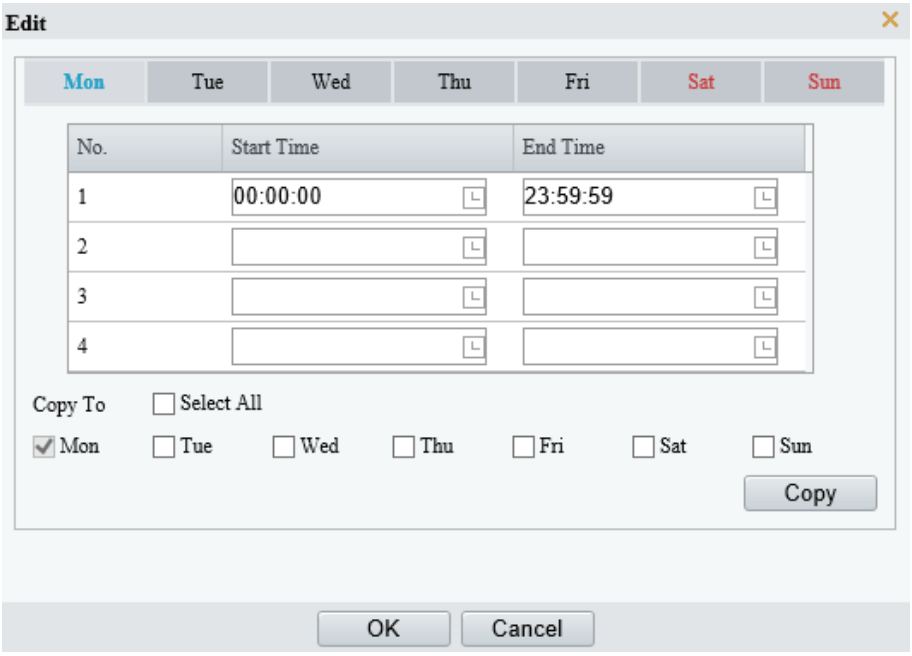
Click **Armed**, and then drag on the calendar to set when the camera can output alarms. Click **Unarmed**, and then drag on the calendar to set when the camera cannot output alarms.



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 check box for the days one by one or select the **Select All** check box, 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.

5.7.2 One-key Disarming

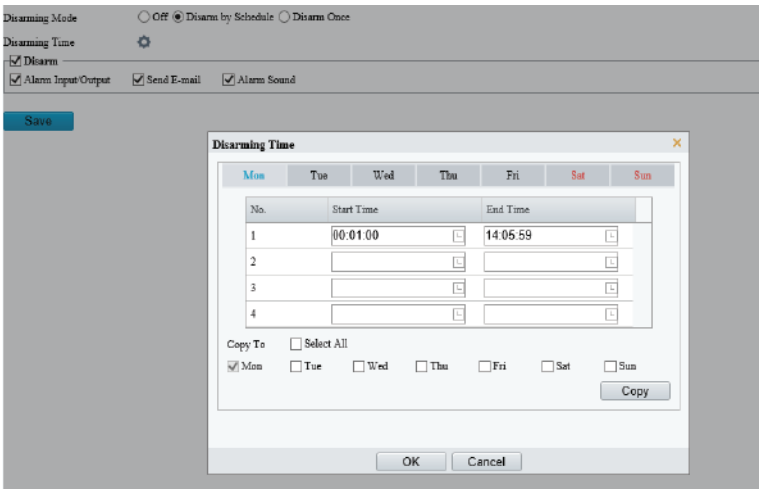
The camera cannot trigger linked actions when disarmed.

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

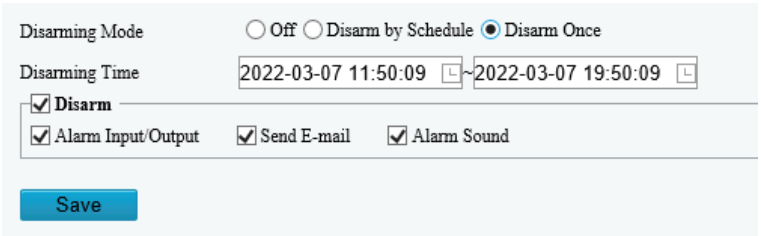
- Disarm by Schedule: Disarm according to a weekly schedule.
- Disarm Once: Disarm during a specified time period.

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.



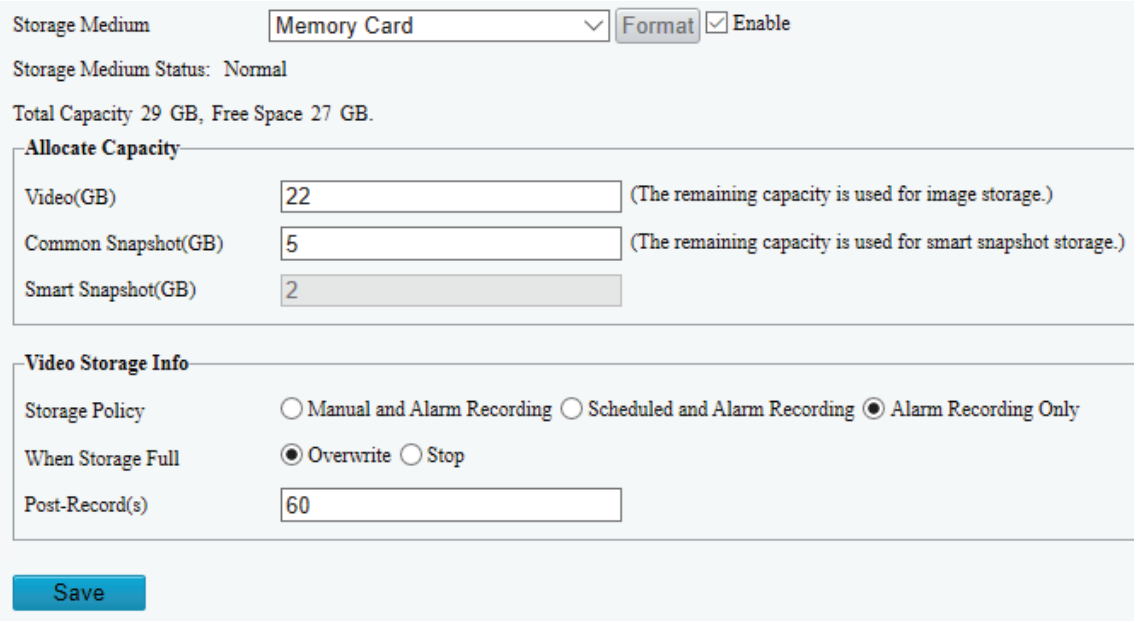
- Disarm Once: Set the disarming time.



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

5.8 Storage

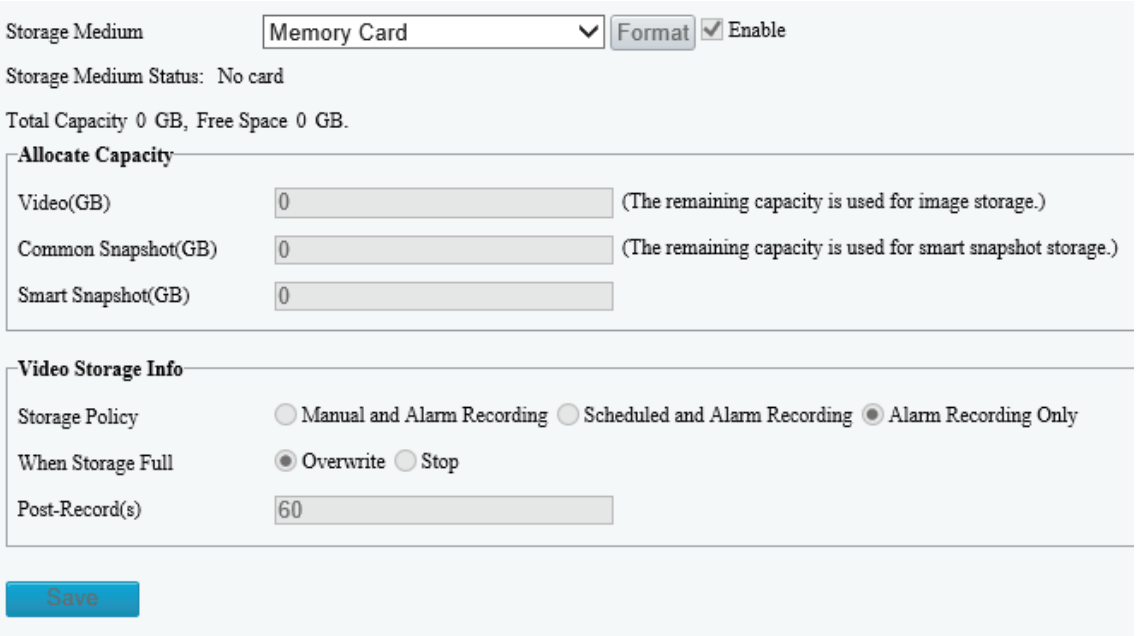
Go to **Setup** > **Storage** > **Storage**.



5.8.1 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**.

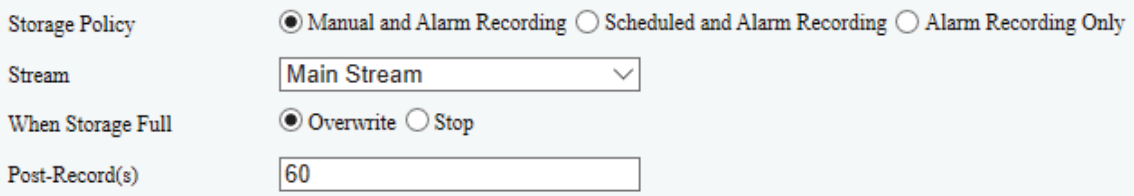


Item	Description
Storage Media	Includes **Memory Card** and **NAS**.
Format	Stop using the storage resource and then click **Format**. The camera will restart after completing the formatting.
Memory Card Health Index	Show the health status of the memory card. **NOTE!** • This feature is not available to all devices. • This feature is available to TF cards only.
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.

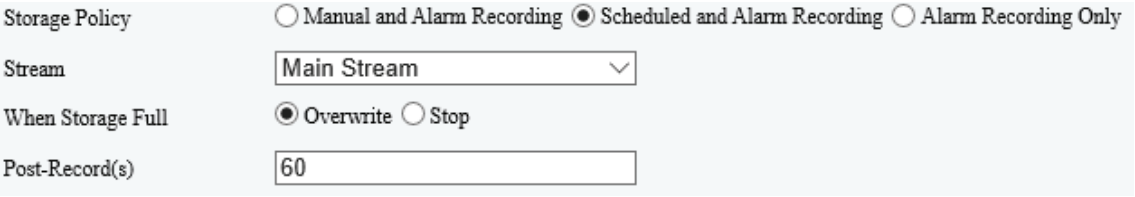
- To store manual recordings and alarm recordings

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

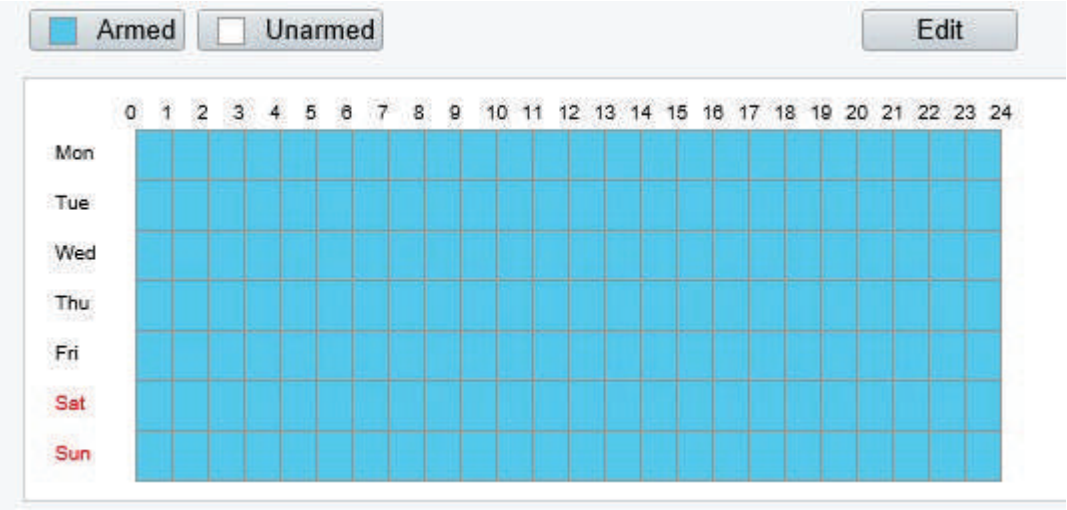


- To store scheduled recordings and alarm recordings

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

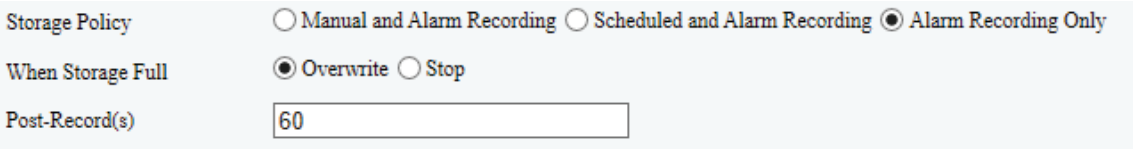


(2) The default recording schedule is 24/7. To change the schedule, drag on the calendar or click **Edit**.



- To store alarm recordings only

Choose **Alarm Recording Only**.

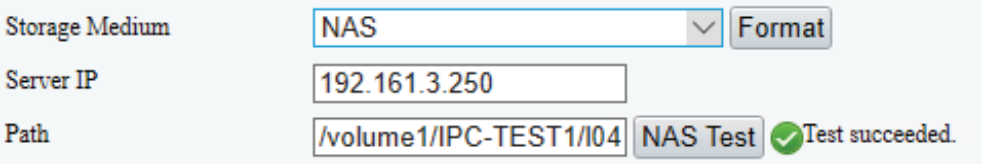


5.8.2 Network Disk

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

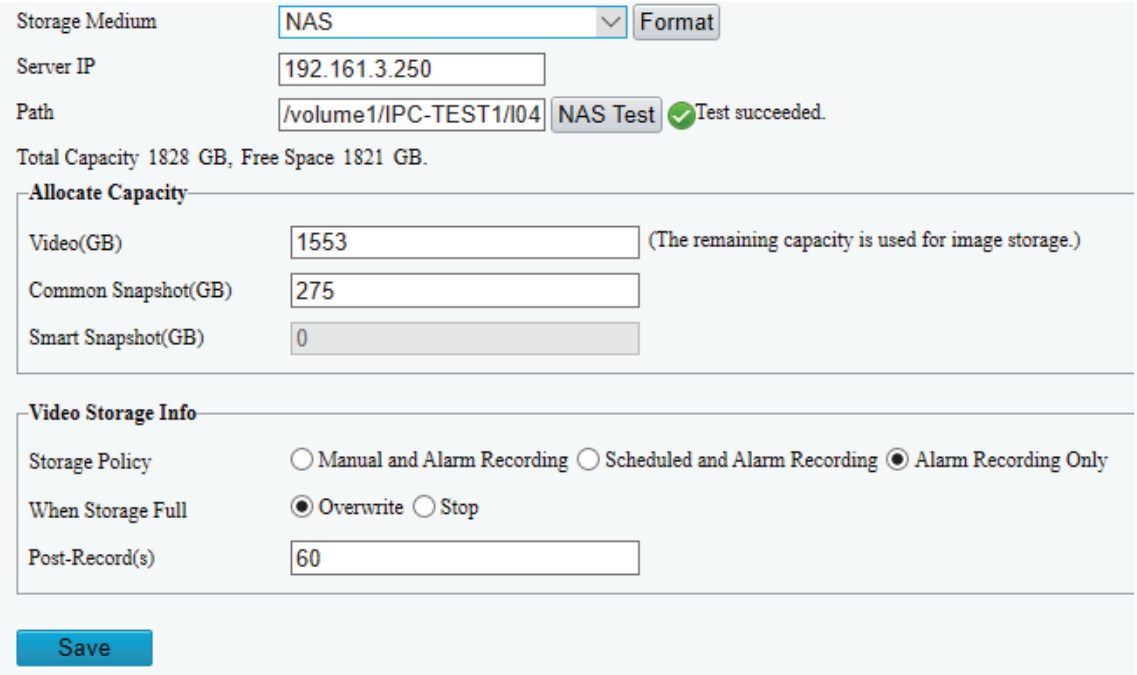
1. Set **Storage Medium** to **NAS**.
2. Enter the server address.

- Enter the path to the destination folder on the NAS server. You can find the path by viewing the folder properties.



NOTE!
Letters, digits, dots, spaces, and symbols / : , - _ @ = are allowed in the path.
Other characters are not allowed and will cause failed NAS test.

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

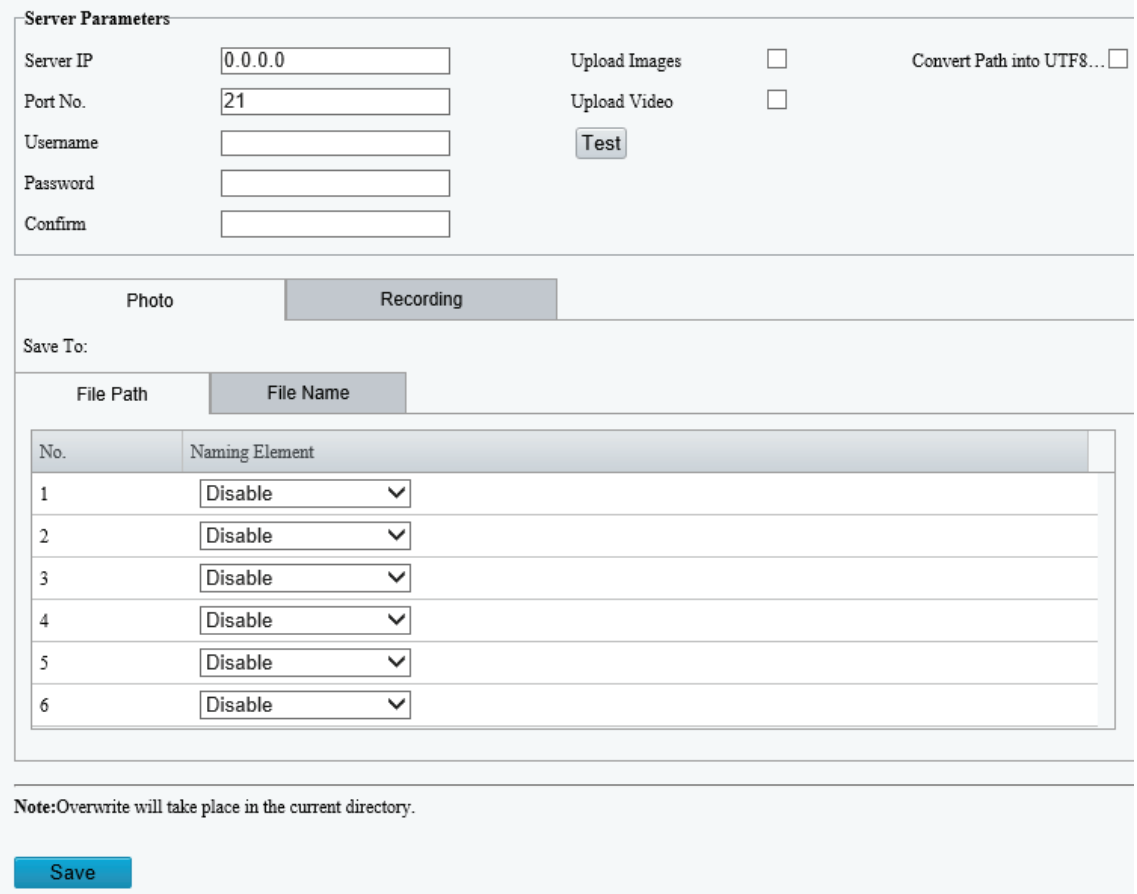


NOTE!
- The capacity status appears after you click **Save**. So to change the settings, click **Save** first.
- By default, 85% of the folder space is used to store videos, and the remaining 15% is used to store common snapshots. To allocate space for smart snapshots, you need to reduce space for videos and common snapshots.

5.8.3 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 check box 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.

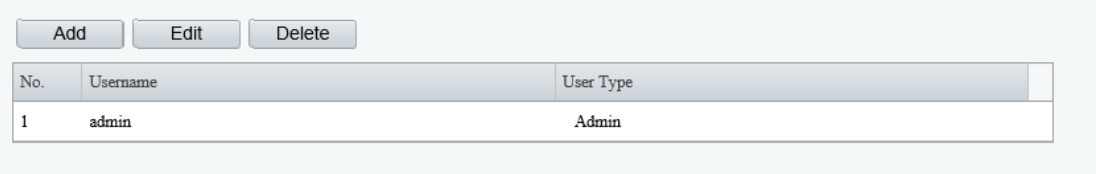
4. Click **Save**.

5.9 Security

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

5.9.1 User

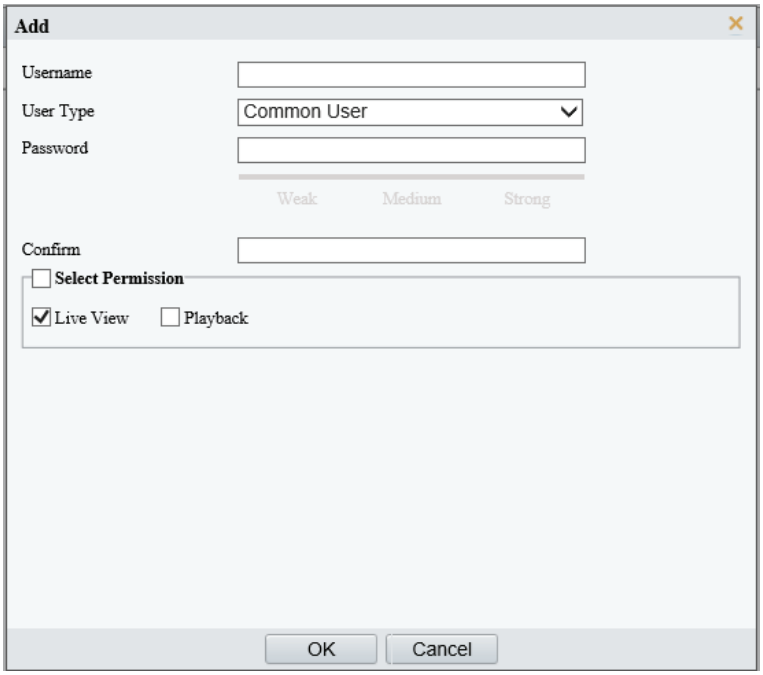
Go to **Setup** > **Security** > **User**. You can add, edit, and delete users.



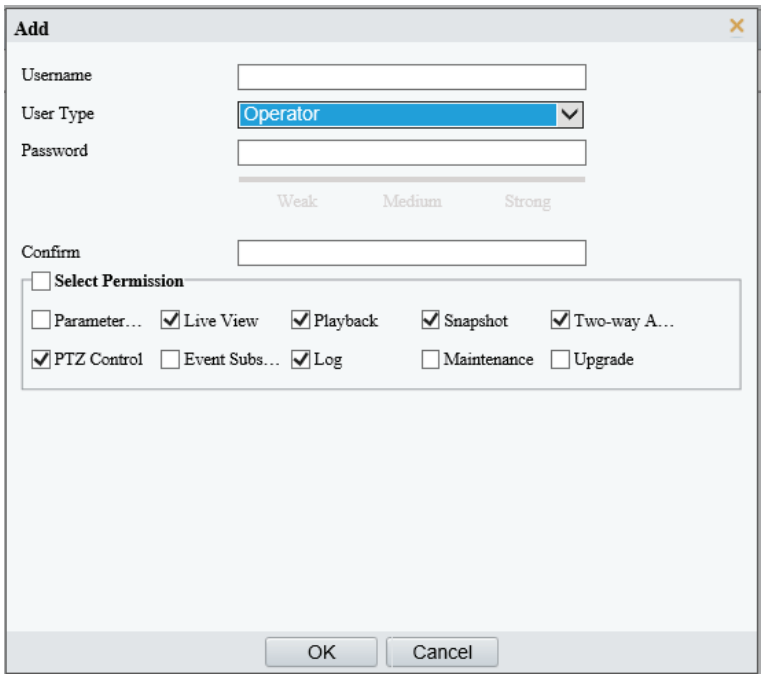
- Add user

1. Click **Add**.

Common User



Operator



2. Configure the parameters.

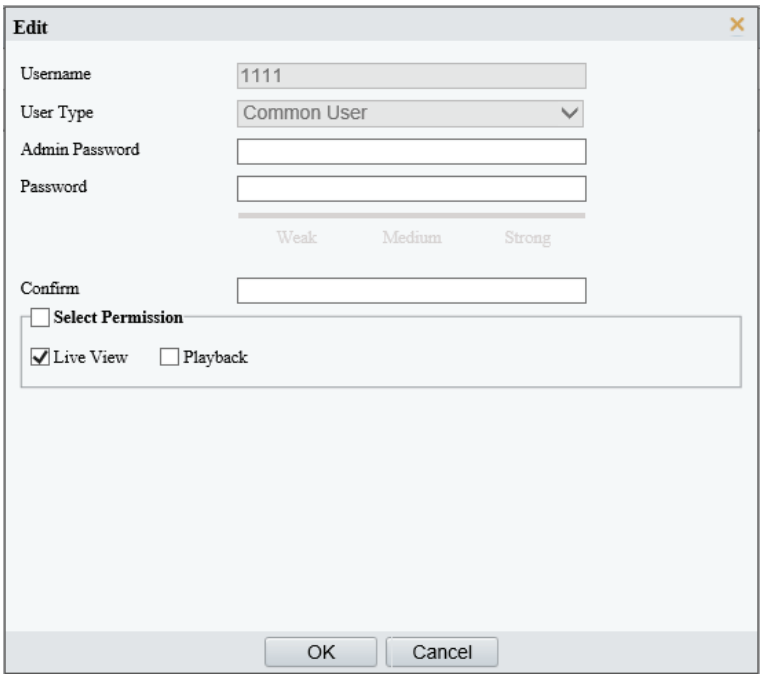
Item	Description
Username	Set the username that you prefer.
User Type	Choose **Common User** or **Operator**. **NOTE!** • Up to 32 users are allowed, including admin (at least one), common users and operators (up to 31). • Admin has all permissions in the system, including device operation and user management. • 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 the new user.
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** check box to select/deselect all permissions.

3. Click **OK**.

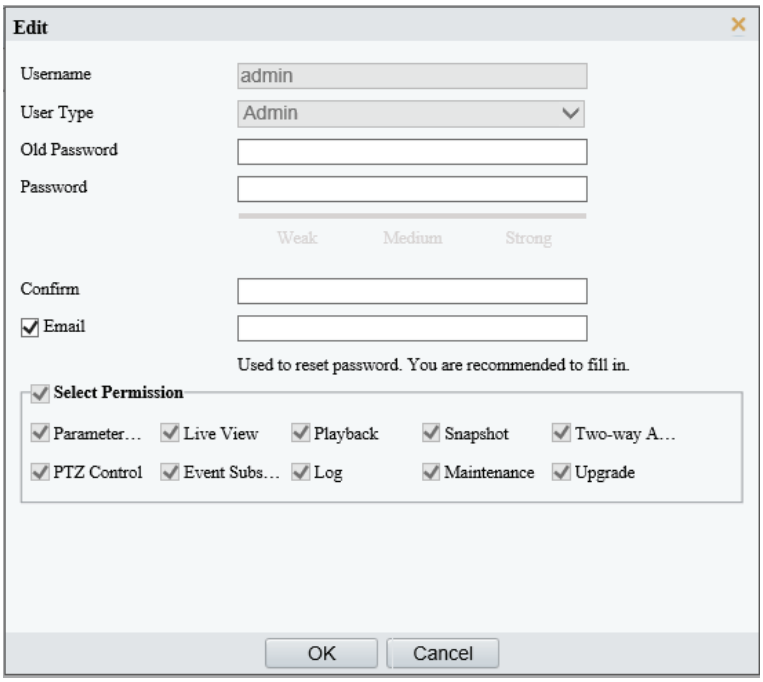
- Edit user information

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** check box to select/deselect all permissions.

4. Click **OK**.

NOTE!

- When editing admin information, you can change the registered mobile phone number. The phone number can be used to reset the device password if you forgot it.
- 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.

5.9.2 HTTPS

You can choose to enable HTTPS to enhance data security during network transmission.

1. Enable **HTTPS**.

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

NOTE!

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

The camera automatically generates a default certificate. To edit certificate contents (such as expiration date), you can delete the installed certificate and re-create one.

- Use the default certificate

(1) Enable **HTTPS**.

(2) Click **Save**.

- Create a certificate

(1) Click **Delete** to delete the current certificate.

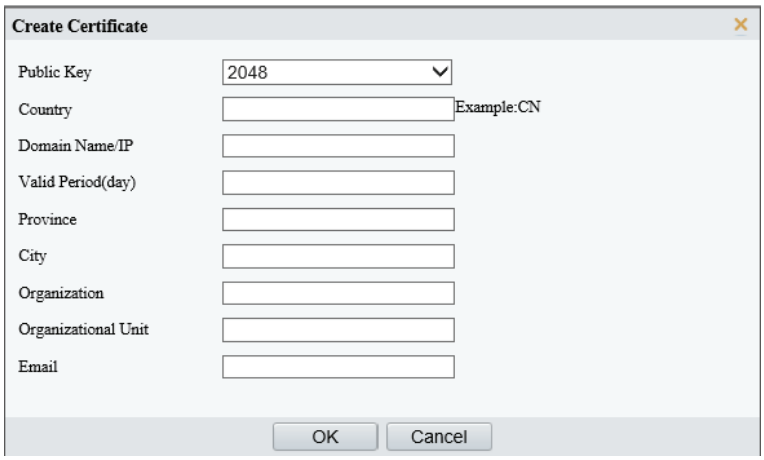
(2) Choose a certificate type: private certificate or certificate request.

➢ Private certificate: Suitable for low-security application scenarios without any signature from a third-party certificate authority.

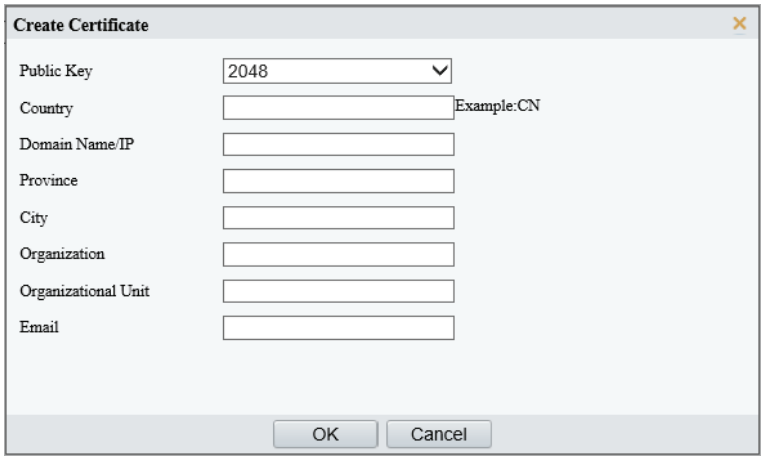
- Certificate request: Suitable for high-security application scenarios and with a third-party certificate.

(3) Click **Create**, and fill in the required information.

Create a private certificate



Create a certificate request



Item	Description
Public Key	Length of the public key: 2048 or 1024. Default: 2048.
Country	Two-character country code, for example, CN for China.
Domain Name/IP	Device's IP address or domain name.
Valid Period(day)	Validity period of the certificate.
Province	Complete province name.
City	Complete city name.
Organization	Organization name.
Organizational Unit	Organizational unit name.
Email	Email address of the contact.

(4) Click **OK**.

NOTE!

After the certificate request is created, click **Export** to export the certificate request file. After the third-party certificate authority (CA) signs and issues the certificate request, import the acquired CA certificate into the device.

(5) Enable **HTTPS**.

(6) Click **Save**.

2. Log in

The login page appears when HTTPS is enabled. A secure data transmission channel is established after you log in.

5.9.3 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.

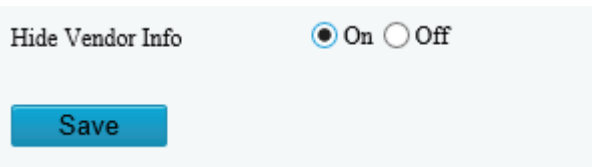
Item	Description
RTSP Authentication	Choose an authentication mode from the drop-down list. • Basic: Basic authentication. The username and password are transferred on network in plaintext, which imposes serious security risks. • Digest MD5: Digest authentication, which uses MD5 to protect the username, password, and domain of the requester, and provides higher security. • Digest SHA256: Digest authentication, which uses SHA256 for authentication and provides higher security than Digest MD5. • None: Transmit message without authenticating the RTSP address.
HTTP Authentication	Choose an authentication mode from the drop-down list. • Digest MD5: Digest authentication, which uses MD5 to protect the username, password, and domain of the requester, and provides higher security. • Digest SHA256: Digest authentication, which uses SHA256 for authentication and provides higher security than Digest MD5. • None: Transmit message without authenticating the RTSP address.

3. Click **Save**.

5.9.4 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.

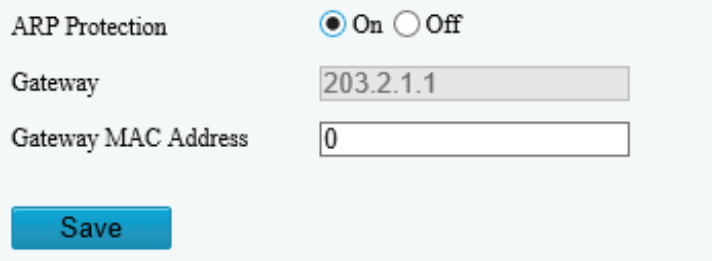


3. Click **Save**.

5.9.5 ARP Protection

Protect the camera from ARP spoofing attacks by binding the gateway's IP address and MAC address.

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

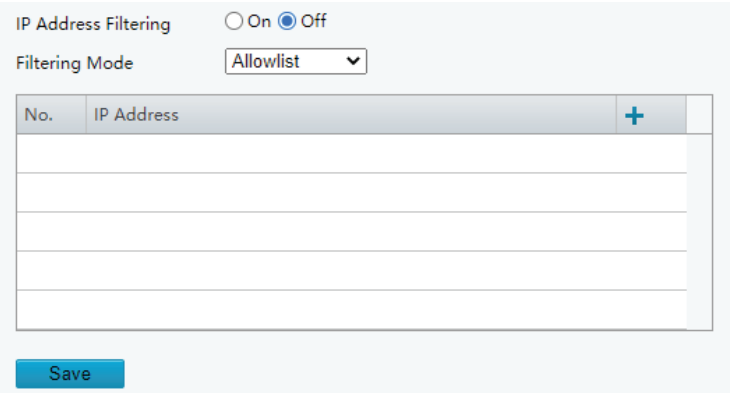


2. Enable **ARP Protection**.
3. Enter the gateway's MAC address.
4. Click **Save**.

5.9.6 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**.



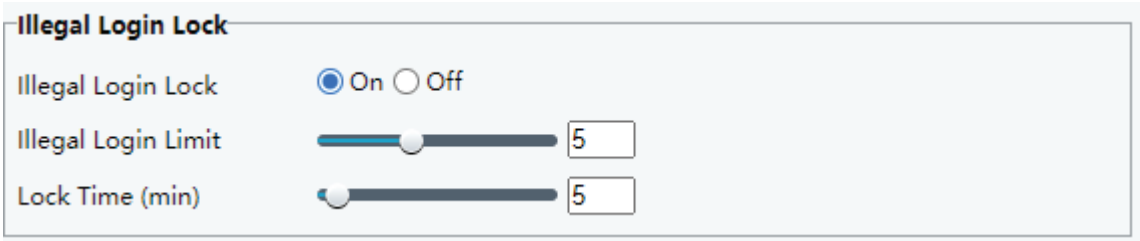
2. Enable **IP Address Filtering**.
3. Choose **Allow** or **Forbid** to filter IP addresses. When **Allow** is selected, access is allowed only from the added IP addresses. If **Forbid** is selected, access is forbidden from the added IP addresses.
4. Click +, enter IP addresses.
   - Up to 32 IP addresses 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**.

5.9.7 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.

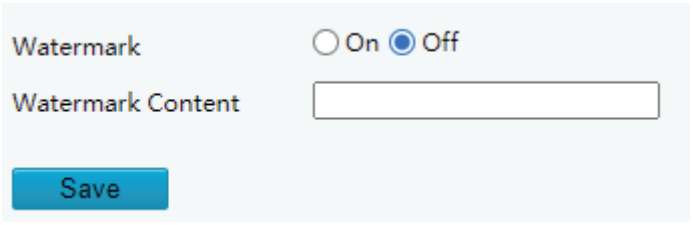
NOTE!
Friendly password is not available to all cameras.

5.9.8 Watermark

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

NOTE!
- Watermarks can be verified using EZPlayer (available for download from Uniview website).
- 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**.

5.9.9 WebSockets

WebSockets encrypts data based on SSL. You can enable WebSockets to enhance the security of data transmission.

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

2. Enable **WebSockets**.
3. Click **Save**.

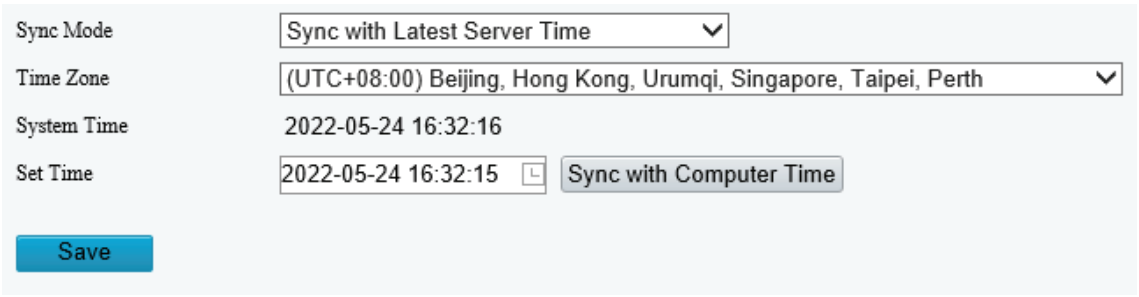
5.10 System

NOTE!
User operations in this module may vary with camera model.

5.10.1 Time

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

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



2. Set system time.

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

NOTE!
Make sure **Sync Mode** is set to **Sync with System Configuration**; otherwise, the device time will still sync with other sources after you set it manually.

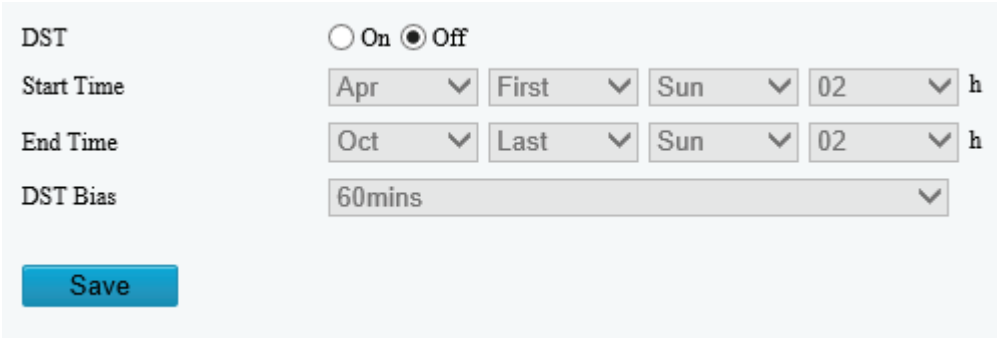
- Sync time

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, for which you need to configure the server address, port, and update interval.
Sync with Cloud Server	The camera syncs time with the cloud server once when it gets online, and does not sync again until it gets offline.
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**.

5.10.2 DST

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

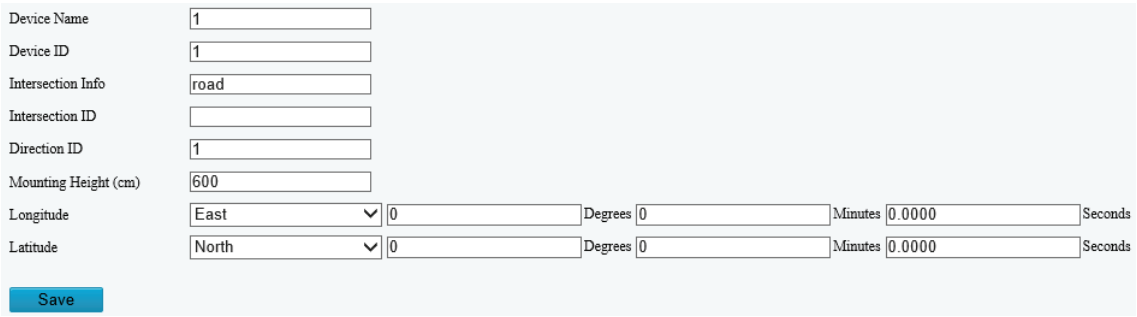


2. Enable DST, and set the start time, end time, and DST bias.
3. Click **Save**.

5.10.4 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**.

5.10.5 Ports & External Devices

The RS485 port is used for data transmission between the camera and external third-party devices for PTZ control, OSD, audio collection, illumination control, etc. The serial port parameters configured on the camera must match that of the connected external device.

NOTE!
Serial ports may not be available to all camera models.

1. Go to **Setup** > **System** > **Ports & Devices** > **Serial Port**.
2. Set **Port Mode** and configure the parameters.

Item	Description
Baud Rate	Data transmission speed (unit: bits per second). The greater the value, the faster the transmission speed, and the shorter the transmission distance. Usually the default value is applicable.
Data Bit	The actual number of data bits in a group of data packets. Usually the default value is applicable.
Stop Bit	Indicates the end of transmission of a group of data. Usually the default value is applicable.
Parity Bit	Used to check whether the received data bits are erroneous. You can choose **Odd-Parity Check** or **Even-Parity Check**.
Flow Control	Used to control data transmission to prevent data loss.

5.10.6 Maintenance

1. Maintenance

System maintenance include 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.

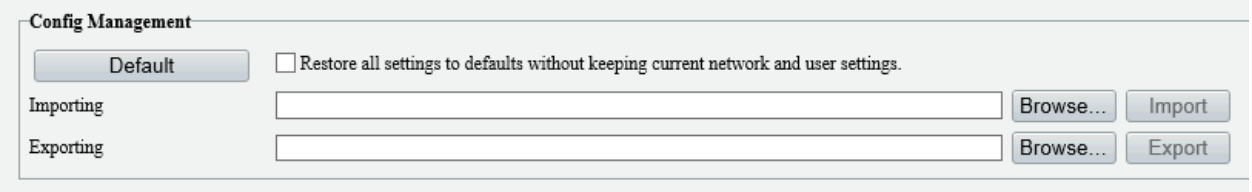
- System configuration

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

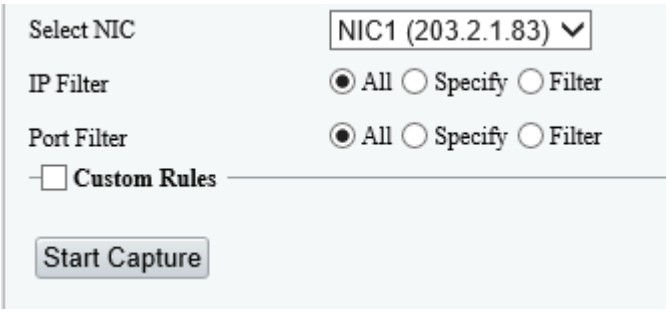
Use the heater to eliminate water droplets on the lens in a high humidity environment.

(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.

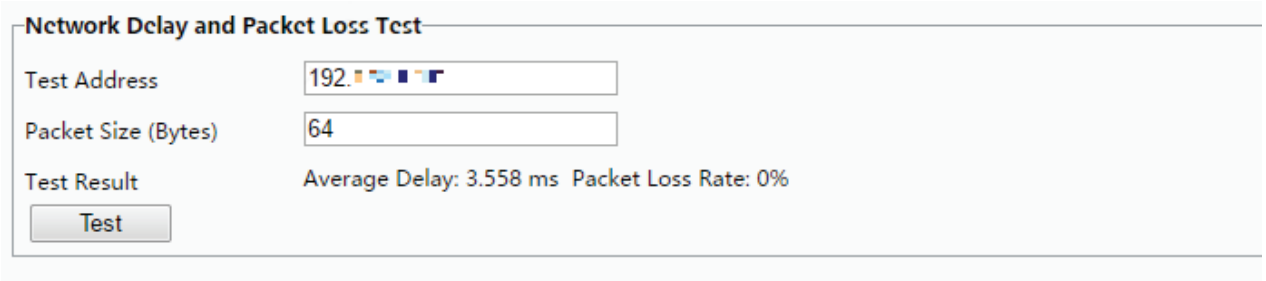
- IP/port filter
  - All: Capture all packets of the camera.
  - Specify: Capture packets of the specified port or IP.
  - Filter: Filter packets of the specified port or IP and capture other packets.
- Custom Rules

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.

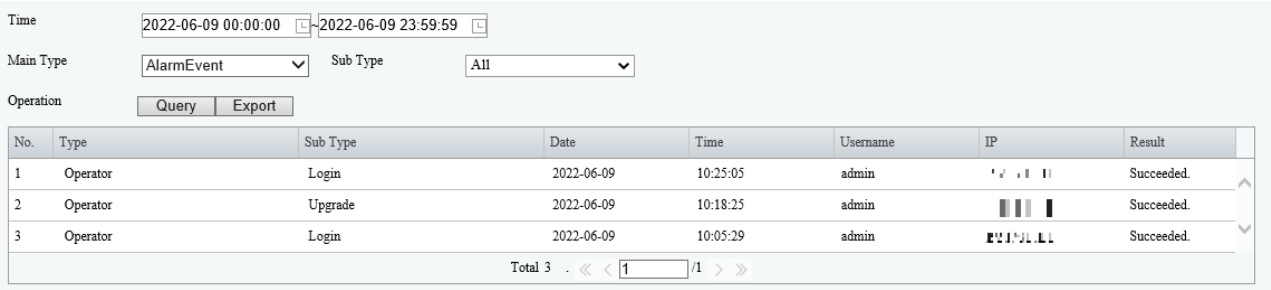
– Average delay: Average length of time from test packets are sent till responses are received.

– Packet loss rate: Ratio of lost packets to the sent packets.

5.10.7 Logs

Search camera operation logs and download to your computer.

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



1. 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.

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