advidia

NETWORK CAMERAS
User Manual

M-44-V-V3, M-46-V-V2, M-49-V-V2

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

Disclaimer

> **CAUTION!**
> The default password is intended for your first login. For security, please set a strong password after your first login. A strong password shall include at least nine characters comprising digits, letters, and special characters.

To the maximum extent permitted by applicable law, the product described, with its hardware, software, firmware, and documents, is provided on an "as is" basis.

Best effort has been made to verify the integrity and correctness of the contents in this manual, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual. The contents of this manual are subject to change without prior notice. Update will be added to the new version of this manual.

Use of this manual and the subsequent result shall be entirely on the user's own responsibility. In no event shall we be reliable to you for any special, consequential, incidental, or indirect damages, including, among others, damages for loss of business profits, business interruption, or loss of data or documentation in connection with the use of this product.

Video and audio surveillance can be regulated by laws that vary from country to country. Check the law in your local region before using this product for surveillance purposes. We shall not be held responsible for any consequences resulting from illegal operations of the device.

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 a guide for multiple product models and so it is not intended for any specific product.

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.

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.

Contents

1 Login

1.1 Preparation

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

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

Check before login

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

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

1.2 Login

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

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

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

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

Please click here to **Download** and install the latest plug-in. Close your browser before installation.

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

4. Enter the username and password (**admin/123456** by default) and click **Login**. To clear the **Username** and **Password** text boxes, click **Reset**.

5. After first login, the **Change Password** dialog box appears, in which you must set a strong password and enter your email address in case of password retrieval.

   (1) Set a strong password of 9 to 32 characters including all three elements: digits, letters, and special characters.

   (2) Enter your email address in case of password retrieval.

See [User](#) for more information.

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

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

2 Live View

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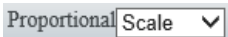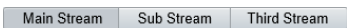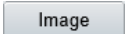
After login, the **Live View** page appears, showing the live video from the camera. You may double-click the window to enter or exit full screen mode.

Live view page of single-channel camera

![NOTE icon] **NOTE!**
Live view operations supported may vary with device model.

Live View toolbar	
Item	Description
Proportional [Scale ▼]	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.
Main Stream Sub Stream Third Stream	Select a live video stream according to your camera.
Image	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.** **NOTE!** This function is only available on certain models.
[25fps] [7.24Mbps] [3840×2160] [H.264] [0.00%]	Frame rate/bit rate/resolution/video compression/packet loss rate.
⬚ / ⬚ˣ	Enable/disable pixel calculation.
🖼	Take a snapshot from the displayed live video. **NOTE!** See Local Parameters for the path of the saved snapshots.
🎬 / 🎬ˣ	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. **NOTE!** This function is only available on certain models.
⊕ / ⊕ˣ	Start/stop digital zoom. See Digital Zoom for details.
⛶	Full screen.
⊞	Display/hide the **PTZ Control**, **General Parameters** tabs.

2.1.1 Pixel Calculation

1. Click ⬚ on the live view toolbar to enable pixel calculation.
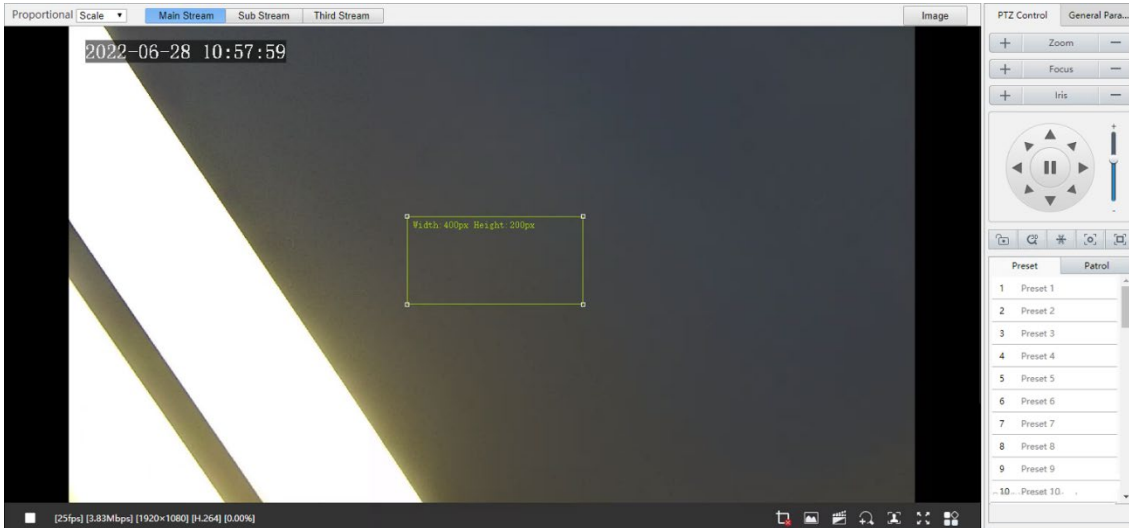
2. Adjust the position and size of the detection area. The pixel value changes with the size of the detection area.

- To adjust the position of the detection area, point to a border of the area and drag it to the desired position.

- To adjust the size of the detection area, point to a handle of the box and drag to resize it.

- To redraw the detection area, click on the image and drag to draw a new one.

3. To disable pixel calculation, click 🔲.

NOTE!

This function is only available in future upgrade.

2.1.2 Digital Zoom

1. Click 🔍 on the live view toolbar to enable digital zoom.
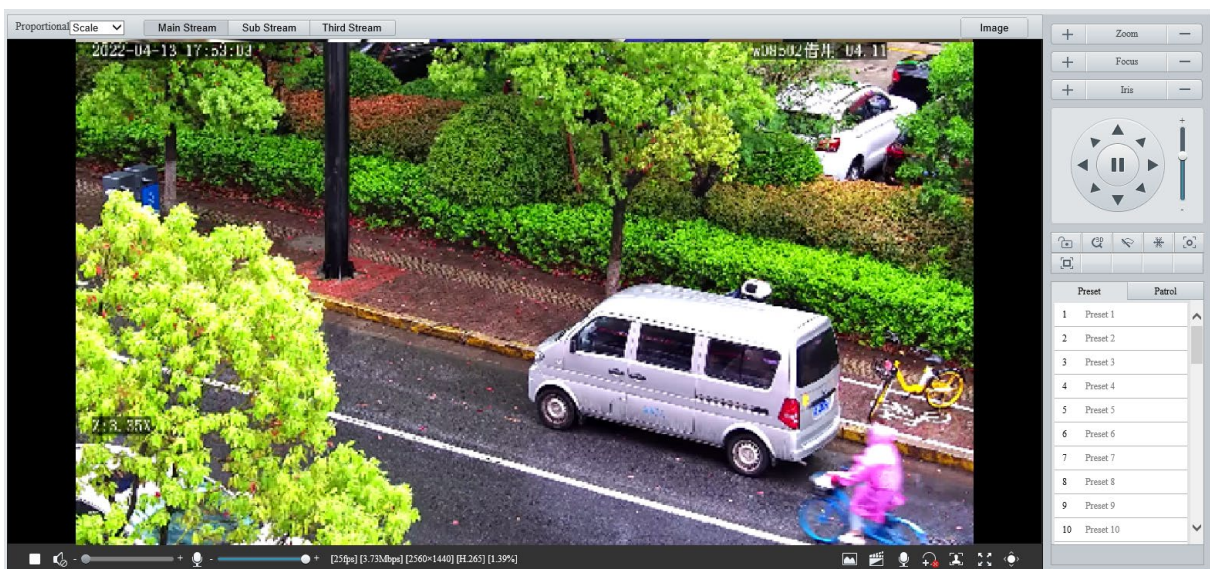
2. View the magnified area.

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

2.2 General Parameters

Set general parameters to view image effects directly.

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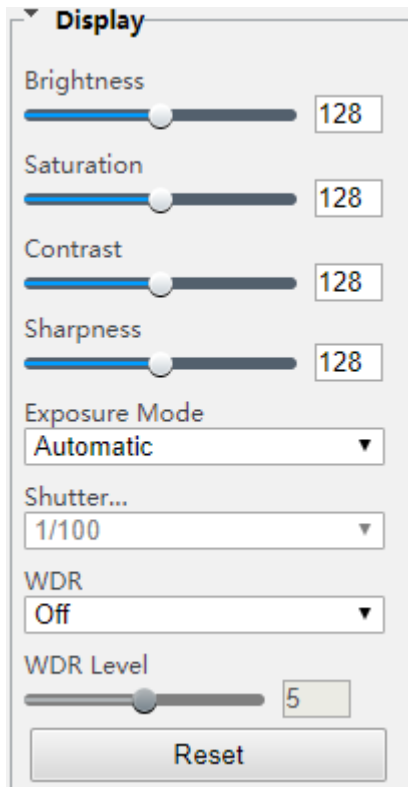
3 Playback

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

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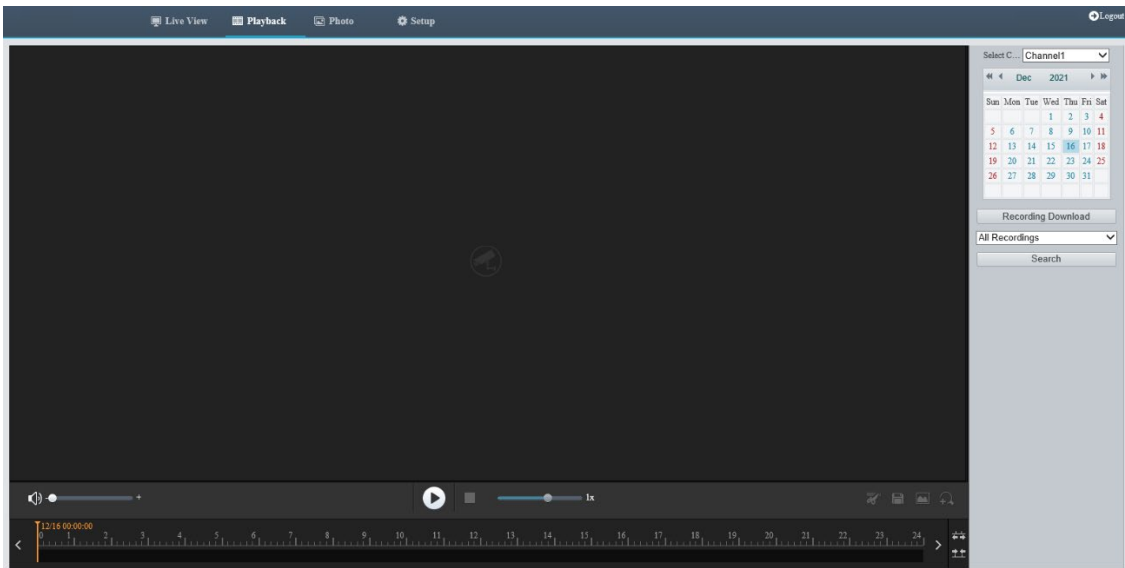
3.1 Playback Toolbar

Button	Description
🔊 - ——●—— +	Adjust sound volume. Range: 1 to 100.
▶	Start playback.
⏸	Pause playback.
⏹	Stop playback.
——————●——— 1x	Adjust playback speed. The default speed is 1x. 2x plays faster, and 1/2x plays slower. -2x rewinds fast.
🖼	Take a snapshot. The snapshots are saved locally by default. You can change the storage location in Local Parameters.
🔍	Digital zoom. See Digital Zoom for details.
12/15 00:00:00	Playhead. Drag the playhead to the desired point in the video.
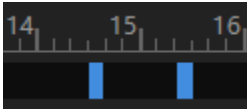
	Playback timeline, including two colors:
	● Blue: Normal recording.
	Red: Alarm recording. To view alarm recordings, you need to configure alarm-triggered recording. See Alarm-triggered Actions for details.

3.2 Search and Playback

 NOTE!
Certain cameras support simultaneous playback on two clients.

1. Select the date on the calendar.
2. Click **Search**. Search results are displayed.
3. Double-click an item in the list to play the recording. The playback stops till it reaches the end of the list or when you click to pause.

3.3 Recording Download

You can download videos or video clips in batches.
1. Click **Recording Download**.
2. Set a time range, and then click **Search**. Search results are displayed.

Recording Download

| Recording Time | 2024-09-18 | ~ 2024-09-18 | Search |
| Recording Download | | | Browse… |

	No.	Start Time	End Time
☐	1	2024-09-18 14:11:32	2024-09-18 14:16:13
☐	2	2024-09-18 14:16:56	2024-09-18 14:18:43
☐	3	2024-09-18 14:18:43	2024-09-18 14:21:14
☐	4	2024-09-18 14:21:14	2024-09-18 14:22:06
☐	5	2024-09-18 14:22:06	2024-09-18 14:23:06
☐	6	2024-09-18 14:23:06	2024-09-18 14:23:22
☐	7	2024-09-18 14:23:22	2024-09-18 14:24:36
☐	8	2024-09-18 14:24:36	2024-09-18 14:25:10

Download

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

13

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**.
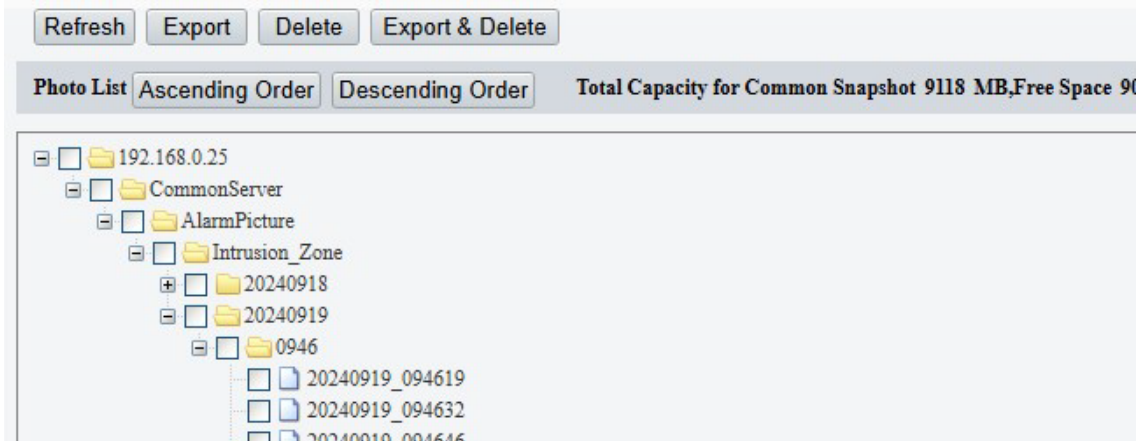
Item	Description
Refresh	Refresh the displayed content.
Export	Export the selected photos.
Delete	Delete the selected photos.
Export & Delete	Export the selected photos and delete them on the server.
Ascending Order	Arrange the items in chronological order.
Descending Order	Arrange the items in reverse chronological order.

📝 **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
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. (**TS**)

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

3. Click **Save**.

5.2 Network

5.2.1 Basic Config

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

1. Wired Network

1. Go to **Setup** > **Network** > **Basic Config**.
2. Configure Ethernet parameters.
• Obtain IP Address (IPv4)
   ➢ Manual
   (1) Select **Manual** from the **Obtain IP Address** drop-down list.
   (2) Enter the IP address, subnet mask, and default gateway address. Make sure that the IP address of the camera is unique in the network.
   (3) Click **Save**.

   ➢ Obtain Automatically (DHCP)

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

   (1) Select **Obtain Automatically (DHCP)** from the **Obtain IP Address** drop-down list.
   (2) Complete the settings as shown below.

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

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

Basic	
MTU	1500
Port Type	FE Port
Operating Mode	Auto-negotiation

4. Click **Save**.

2. DNS

The DNS service is a globally distributed service that translates human readable domain names into numeric IP addresses. To use the DNS service, you need to configure DNS server information.

1. Go to **Setup** > **Network** > **Basic Config** > **DNS**.
2. Set the preferred and alternate DNS server addresses. The default settings are as follows.

Preferred DNS Server	8.8.8.8
Alternate DNS Server	8.8.4.4

3. DDNS

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

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

DDNS Service	○ On ● Off
DDNS Type	DynDNS
Server Address	www.dyndns.com
Domain Name	
Username	
Password	
Confirm	

Save

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

DDNS Service	○ On ● Off
DDNS Type	DynDNS ▾
Server Address	www.dyndns.com
Domain Name	
Username	
Password	
Confirm	

Save

4. Click **Save**.

4. Port

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

HTTP Port	80
HTTPS Port	443
RTSP Port	554

Note: Modifying the RTSP port number will cause the device to restart.

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

CAUTION!

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

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

3. Click **Save**.

5. Port Mapping

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

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

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

- Manual

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

4. Click **Save**.

5.2.2 Service Configuration

1. **Email**

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

1. Go to **Setup** > **Network** > **Service Config > E-mail**.
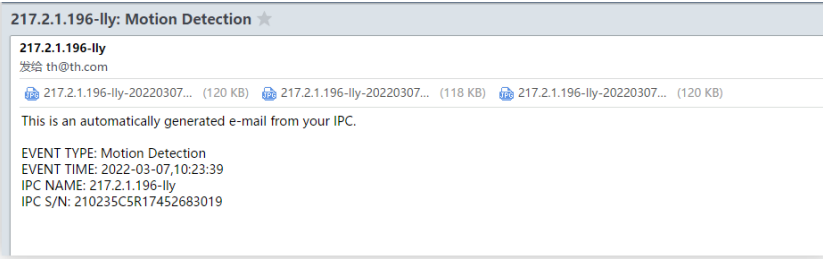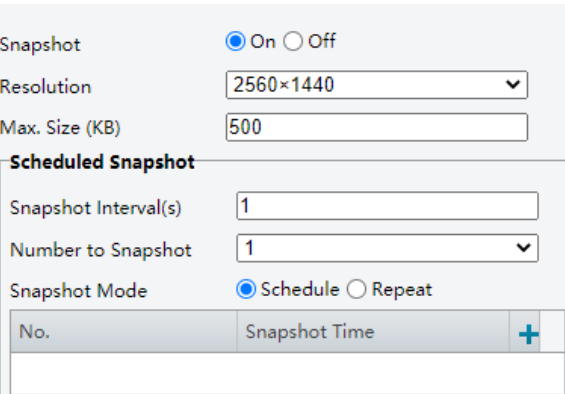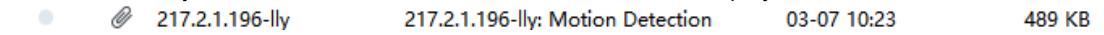
2. Set the sender and recipient information.

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

Item	Description
Attach Image	When enabled, an alarm e-mail with attached snapshots (3 by default) taken at set interval will be sent after an alarm occurs. For some alarm types, only one snapshot will be taken and there's no need to set snapshot interval. 217.2.1.196-lly: Motion Detection 217.2.1.196-lly 发给 th@th.com 217.2.1.196-lly-20220307... (120 KB) 217.2.1.196-lly-20220307... (118 KB) 217.2.1.196-lly-20220307... (120 KB) This is an automatically generated e-mail from your IPC. EVENT TYPE: Motion Detection EVENT TIME: 2022-03-07,10:23:39 IPC NAME: 217.2.1.196-lly IPC S/N: 210235C5R17452683019 1. Select the **Attach Image** checkbox. 2. Enable Snapshot and set the snapshot resolution as needed. There's no need to set snapshot schedule. Snapshot ● On ○ Off Resolution 2560×1440 Max. Size (KB) 500 **Scheduled Snapshot** Snapshot Interval(s) 1 Number to Snapshot 1 Snapshot Mode ● Schedule ○ Repeat No. Snapshot Time +
Server Authentication	Enable SMTP server authentication to secure e-mail transmission.
Username/Password	Enter the username and password of the SMTP server. **NOTE!** • The email only shows the sender name. Username will not be displayed. 📎 217.2.1.196-lly 217.2.1.196-lly: Motion Detection 03-07 10:23 489 KB • The password allows special characters.
Recipient Name/Address	1. Enter the recipient names and email addresses. 2. Click **Test** to test the email sending function.

3. Click **Save**.

2. SNMP

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

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

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

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

3. Set SNMP parameters.
- SNMPv3

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

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

- SNMPv2

Item	Description
SNMP Type	A message will appear to remind you of potential risks and prompt for your confirmation

Item	Description
	after you choose **SNMPv2**. To choose SNMPv2 anyway, click **OK** to ignore the reminder.
Read Community	The default is **public**. You may change it as needed, but make sure you also change it on the server; otherwise, authentication will fail.
Trap Server Address	Go to **Setup** > **Network** > **Service Config**> **SNMP** to configure the server address.
SNMP Port	The default is **161**. You may change it as needed.

4. Click **Save**.

3. **QoS**

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

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

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

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

3. Click **Save**.

5.3 Video & Audio

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

5.3.1 Video

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

2. Select a capture mode for your camera.

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.

Item	Description
Video Compression	Select a video compression standard for your camera: **H.265**, **H.264** or **MJPEG**. **NOTE!** • When MJPEG is selected, **Bit Rate**, **I Frame Interval**, **Smoothing**, **SVC** and **Smart Encoding** are not available. • The bit rate restores to the default when you switch between H.264 and H.265.
Resolution	Select a video resolution for your camera. The higher the resolution, the clearer the image.
Frame Rate(fps)	Select the frame rate. **NOTE!** To ensure image quality, the frame rate shall not be greater than the reciprocal of the shutter speed.
Bit Rate(Kbps)	Set the bit rate. Range: 128 to 6144. **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.

Item	Description
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.
Smoothing	Set the smoothness of the video stream. Drag the slider to choose whether smoothness or clarity takes precedence. **NOTE!** Smoothing is recommended for fluent video in a poor network environment.
SVC	SVC (Scalable Video Coding) enables a video stream to be broken into multiple layers of resolution, quality and frame rate, reducing bandwidth consumption without compromising the image quality.
Smart Encoding	Select a mode. ● Basic Mode: Reduces the bit rate by about 25%. ● Advanced Mode: Reduces the bit rate by about 50%.

4. Click **Save**.

5.3.2 Snapshot

Configure basic snapshot parameters and scheduled snapshot.

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

📝 **NOTE!**

- When you configure e-mail and FTP, you only need to enable Snapshot and set the resolution and maximum size; it's unnecessary to configure the scheduled snapshot.

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

To delete a snapshot time, click 🗑.

➢ Repeat: Set a snapshot interval. For example, with snapshot plan set to 16:00:00 to 20:00:00 on Monday, **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 interval is an integer within the range of 1 to 86400. The **(Snapshot Interval)** * (**Number of Snapshot)** cannot be greater than **Interval**.

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

📝 **NOTE!**
- The time periods cannot overlap.
- Up to 4 time periods are allowed.

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

5. Click **Save**.

5.3.3 **Audio**

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

2. Set audio input parameters.

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

3. Set audio output parameters

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

4. Click **Save**.

5.3.4 ROI

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

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

2. Set ROI areas.

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

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

➢ Adjust the position and size of the area.

– Point to a border of the area and drag it to the desired position.

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

➢ Draw an area.

Click on the image and drag to draw an area.

5.3.5 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**.

Stream Profile	Protocol	Destination IP	Destination Port	Persistent	Status	+

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

4. Click **OK**.

2. RTSP Multicast

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

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

Media Stream	RTSP Multicast Address

Main Stream

Multicast Address   0.0.0.0

Port   0

Sub Stream

Multicast Address   0.0.0.0

Port   0

Save

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

3. Click **Save**.

5.4 Image

5.4.1 Image

1. Scenes

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

1. Go to **Setup** > **Image** > **Image**.
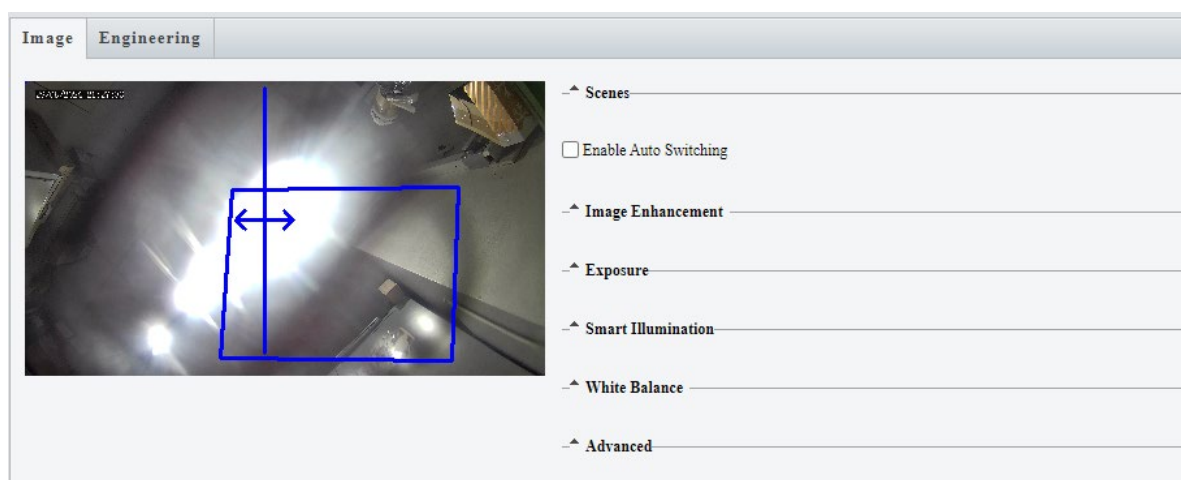
2. Click **Scenes**.
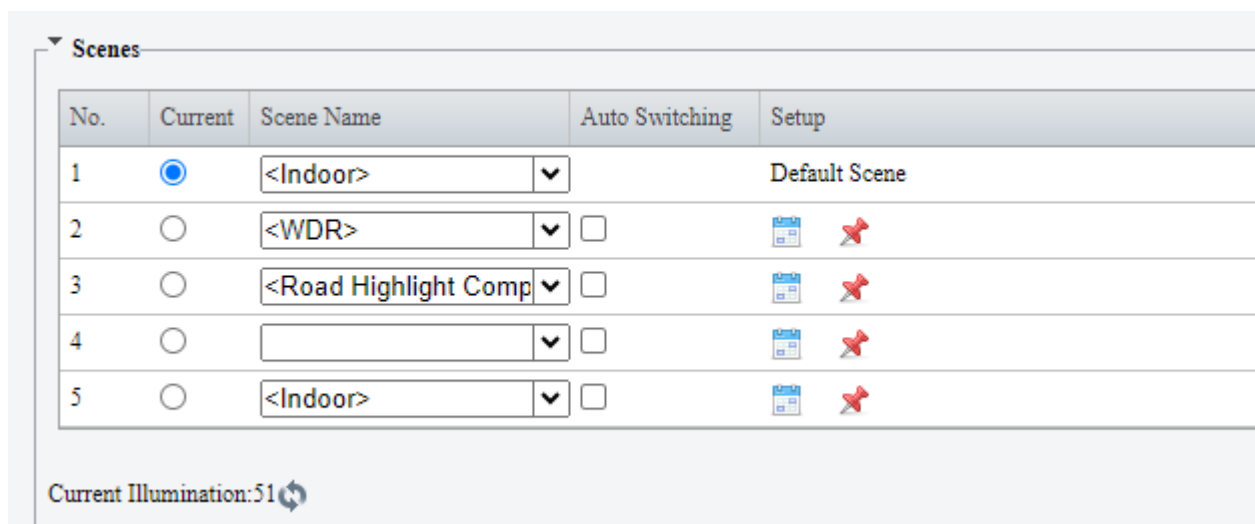
3. Set the parameters.

Item	Description
Current	Shows the scene that is currently in use. **NOTE!** To apply a scene, click the corresponding radio button in the **Current** column. The scene is selected as the current scene, and the corresponding image parameters apply automatically.

Item	Description
Image Scene Template	The camera provides multiple scenes for you to choose according to the actual scene. After you select a scene, the corresponding image settings apply automatically (you may also fine-tune image settings as needed). ● Common: For outdoor scenes. ● Indoor: For indoor scenes. ● Road Highlight Compensation/Park Highlight Compensation: For capturing license plates in roads, parks, etc. ● WDR: For high-contrast situations. ● Custom: For customizing a scene.
Image Scene Name	Choose scene names corresponding to the scene templates. The scene names will be used in image scene switching (see Image Scene Switch).
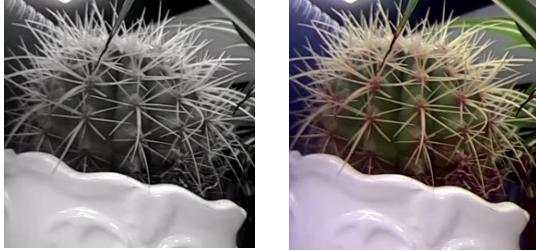
2. **Image Enhancement**

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

Item	Description
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 sets the optimum shutter speed according to the scene.
	• Custom: User can set exposure parameters as needed.
	• Indoor 50Hz/Indoor 60Hz: Reduce stripes by adjusting the exposure time.
	NOTE!
	  ➢ Stripe effect: The high-contrast condition in an image caused by uneven light energy received by the sensor.
	  ➢ Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression.
	• 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, Custom** or **Low Motion Blur**. • 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.
Slowest Shutter	Set the slowest shutter speed for exposure.

Item	Description
Compensation	Adjust the compensation value as required to achieve the desired image effect. **NOTE!** This parameter is configurable when **Exposure Mode** is not set to **Manual**.
Linear Stripe Suppression	Adjust the linear stripes in the image. Range: 1 to 9, the default is 5. The greater the value, the more obvious the linear stripe suppression effect is, but it may cause overexposure in the image. Please configure this according to the actual scene. **NOTE!** This parameter is configurable when **Exposure Mode** is set to **Indoor 50Hz** or **Indoor 60Hz**.
Metering Control	Perform luminance statistics on the images captured by the device, automatically adjust the exposure value, and output properly exposed images with optimal brightness. The default is the **Center-Weighted Average Metering**, you may configure this according to the actual scene. ● Center-Weighted Average Metering: Measure light mainly in the central part of the image. ● Evaluative Metering: Measure light in the specified area of the image, suitable for scenes where the target and the background contrast widely. ● Spot Metering: Measure light in a small spot, smaller than evaluative metering, with more accurate light control. If used in brighter areas, the metered area will be properly exposed but darken other areas. If used in darker areas, the metered area will be properly exposed (unable to increase the brightness of the spot) and brighten other areas. **NOTE!** - This parameter is configurable when **Exposure Mode** is not set to **Manual**. - This parameter is only available on certain models.
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: Ensure clear images in high contrast conditions. You may need to manually adjust the WDR level. ● Smart/Auto: In typical WDR scenes, the camera enables WDR automatically; in other scenes, the camera displays the original scene. **NOTE!** - Typical WDR scenes: high contrast situations (poorly lit halls), back lighting situation (toll booths), highlight scenes, etc. - This parameter is configurable when **Exposure Mode** is set to **Automatic**, **Custom**, **Indoor 50Hz** or **Indoor 60Hz** and when **Defog** is disabled. - This parameter is only available on certain models.

Item	Description
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. - This parameter is only available on certain models.
Suppress WDR Stripes	Suppress the stripes in the image caused by the flickering light in WDR mode. When enabled, the camera automatically adjusts the shutter and frequency to minimize stripes. **NOTE!** This parameter is only available on certain models.
WDR On/Off Sensitivity	When WDR is set to Automatic, adjust the parameter to change the WDR switching sensitivity. **NOTE!** This parameter is only available on certain models.
HLC Intensity	Adjust the HLC (High Light Compensation) level. **NOTE!** This parameter is only available on certain models.

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.
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. • Custom Level: This mode allows you to manually control the intensity of illumination.
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.

Item	Description
	NOTE!
	This parameter is configurable when **Control Mode** is set to **Custom Level**.
	Range: 0 to 1000. 0 is the weakest, 1000 is the strongest.

To restore defaults, click **Default**.

5. 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.
	• Outdoor: Recommended for outdoor scenes where the color temperature varies widely.
	• 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.
	• Locked: Keep the current color temperature.
	NOTE!
	To prevent the selected location in the bounding box from changing due to pan/tilt/zoom movement, please click ⌂ to enable scene lock before adjusting it. When finished, click 🔒 to disable scene lock.
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**.

6. Defog

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

1. On the **Image** page, click **Advanced**.
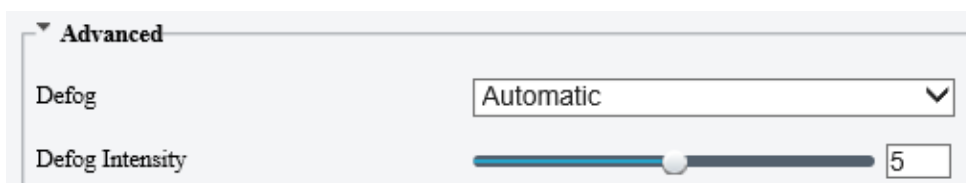
2. Set the defog parameters.

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**.

7. Video Standard

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

1. Go to **Setup** > **Image** > **Image**.
2. Click **Video Standard**.
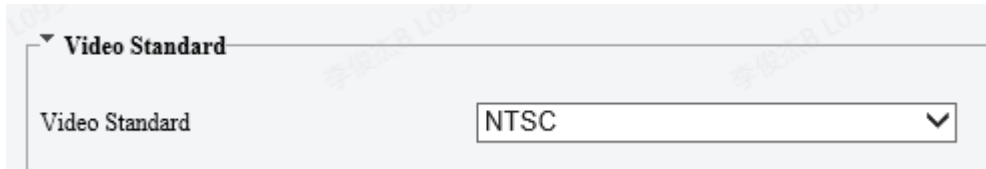
3. Select the P/N standard from the **Video Standard** drop-down list. Even if you switch the capture mode in Video, the P/N standard configured in this page still prevails.

8. Engineering Parameters

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

1. Go to **Setup** > **Image** > **Engineering**.
2. Reset lens.
• To reset manually, click **Reset**.
• To reset automatically, select the **Enable Auto Initialization** checkbox and set an execution time.
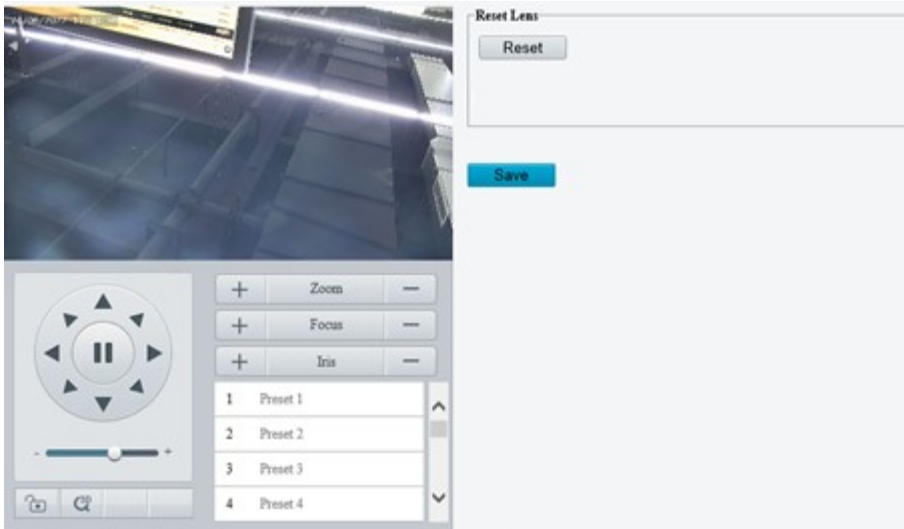
3. Click **Save**.

5.4.2 OSD

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

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

Configure OSD displayed on the live video.

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

2. Configure parameters in the OSD Toolbar

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

3. Overlay OSD Contents

   ➢ Custom: Customizes the OSD contents.

   ➢ Date & Time: Displays the current date and time of the camera according to the set format (content style), for example, Friday, 25 March, 2022 14:25.

   ➢ Time: Displays the current time of the device.

   ➢ Date: Displays the current date of the device.

   ➢ Device Latitude and Longitude Coordinates: Displays the current location of the camera set at **Setup > System > Device Info.**

   ➢ Network Port: The IPC will receive and parse the network port information in correct format and display the information in the live view window.

NOTE!

• To disable an OSD, clear the OSD content or clear the corresponding **Enable** checkbox.

• Some models allow multiple OSDs.

4. Set the OSD display style.

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

5.4.3 Privacy Mask

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

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

1. Go to **Setup** > **Image** > **Privacy Mask**.
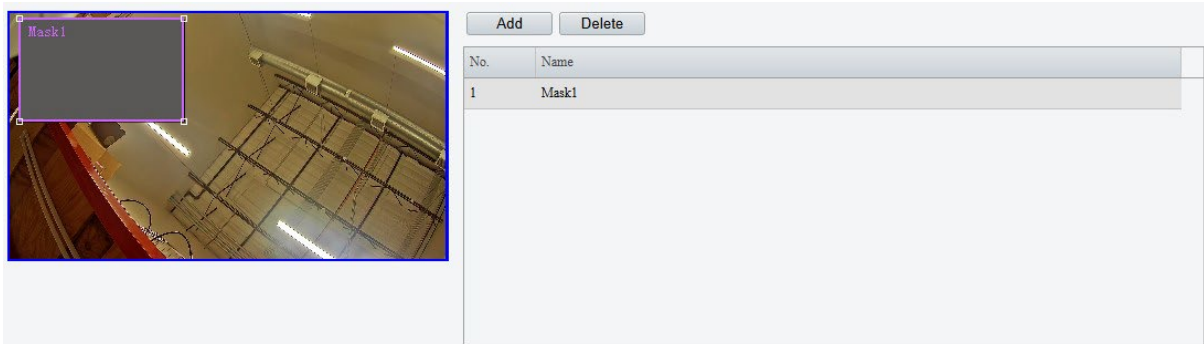
2. Add a privacy mask.

   (1) Click **Add**. The privacy mask is a rectangle by default.
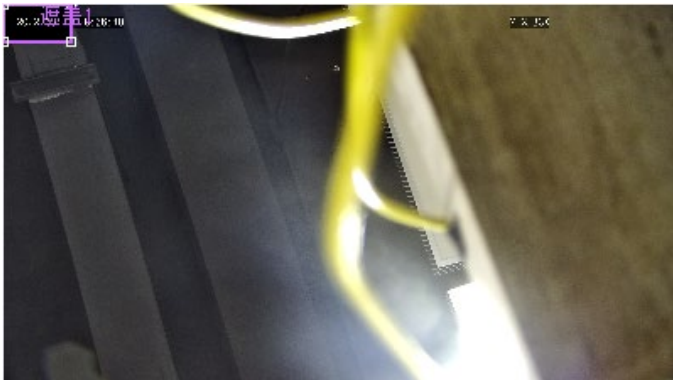
   (2) Adjust the position and size of the mask or draw a mask as needed.
   - ➢ Adjust the position and size of the mask.
     - – Point to a border of the mask and drag it to the desired position.
     - – Point to a handle of the mask and drag to resize it.
   - ➢ Draw a mask.

   Rectangle: Click on the image and drag to draw a rectangle.

5.5 Smart

On the **Intelligent > 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.
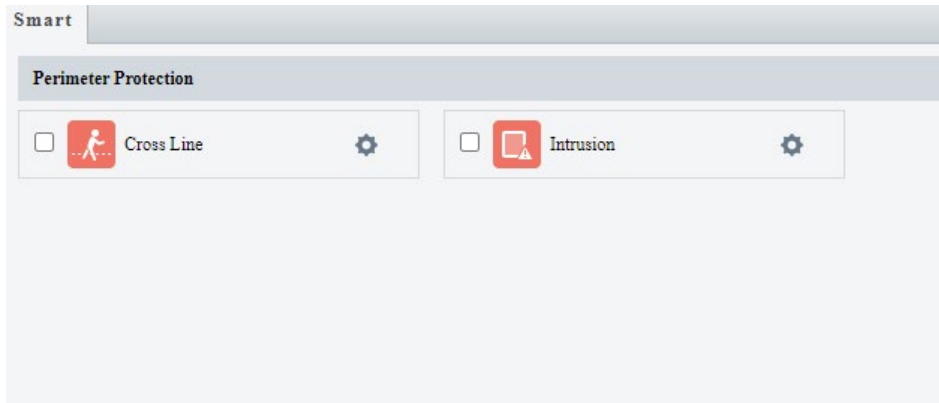
5.5.1 Alarm-triggered Actions

Configure linkage actions to be triggered when an alarm occurs.

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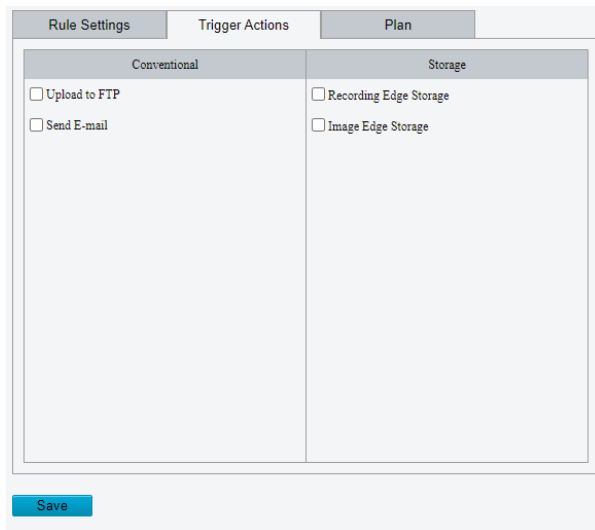
1. Conventional alarm-triggered actions

Item	Description
Upload to FTP	The camera uploads snapshots to the specified FTP server when an alarm occurs. 1. Configure FTP and Snapshot. 2. Select the **Upload to FTP** checkbox to enable this function.
Send E-mail	The camera sends snapshots to the specified email addresses when an alarm occurs. 1. Configure E-mail and Snapshot. 2. Select the **Send Email** checkbox to enable this function.

2. **Alarm-triggered storage**

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

5.5.2 Arming Schedule

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

- Draw a schedule

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

- Edit a schedule

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

5.5.3 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.
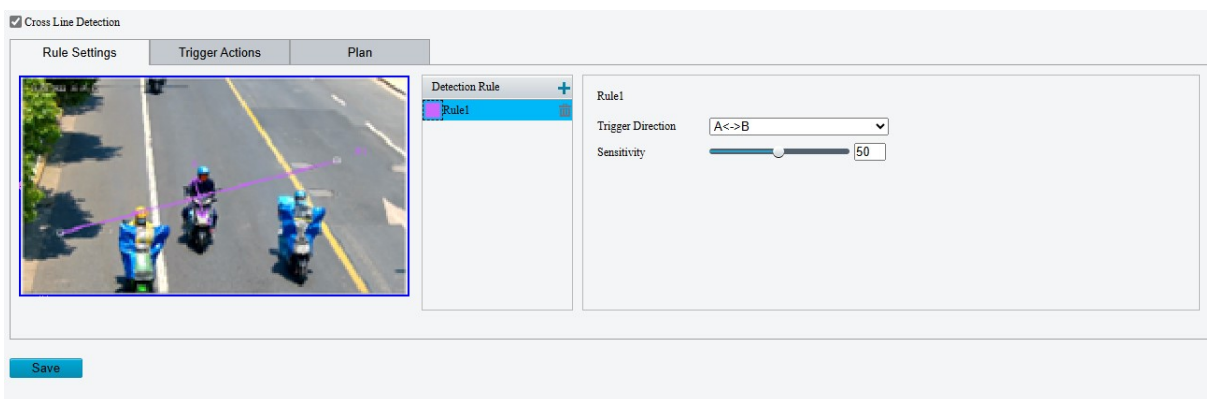
3. Add a detection rule.

    (1) Click ➕ to add a detection line. Up to 4 detection rules are allowed.
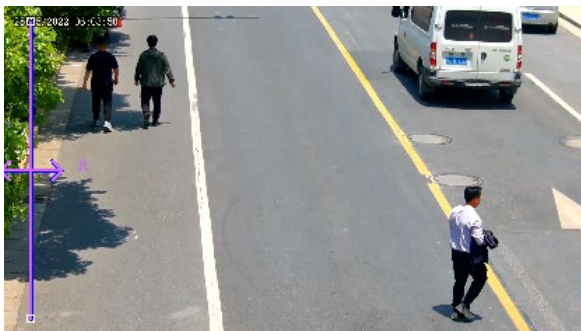
    (2) Adjust the position and length of the line or draw a line as needed.
    - ➤ Adjust the position and length of the line.
    - – Point to the line and drag it to the desired position.
    - – Point to a handle of the line and drag to resize it.
    - ➤ Draw a line.

        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.

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

6. Click **Save**.

5.5.4 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.
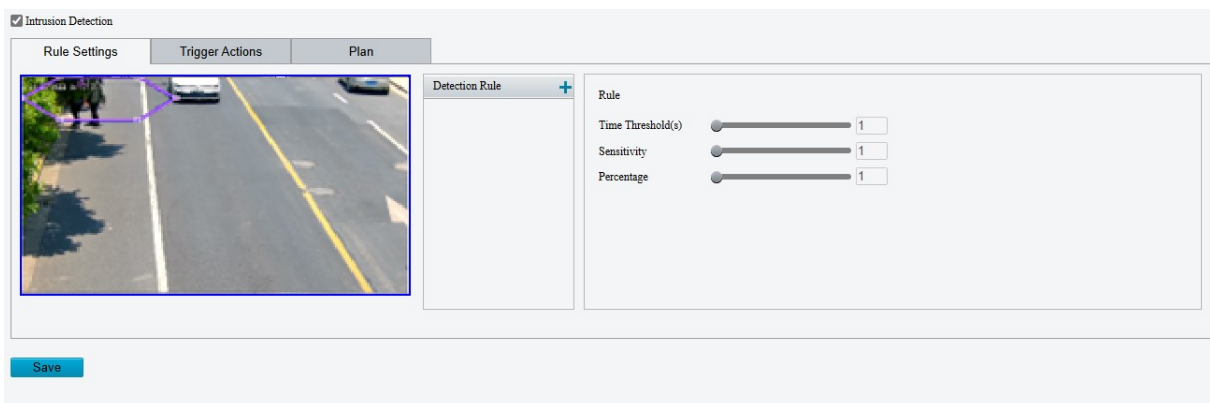
3. Add a detection rule.

   (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.

📝 **NOTE!**

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

4. Set the detection rule.

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

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

6. Click **Save**.

5.6 Common Alarm

5.6.1 Motion Detection

1. Go to **Setup** > **Events** > **Common Alarm**.
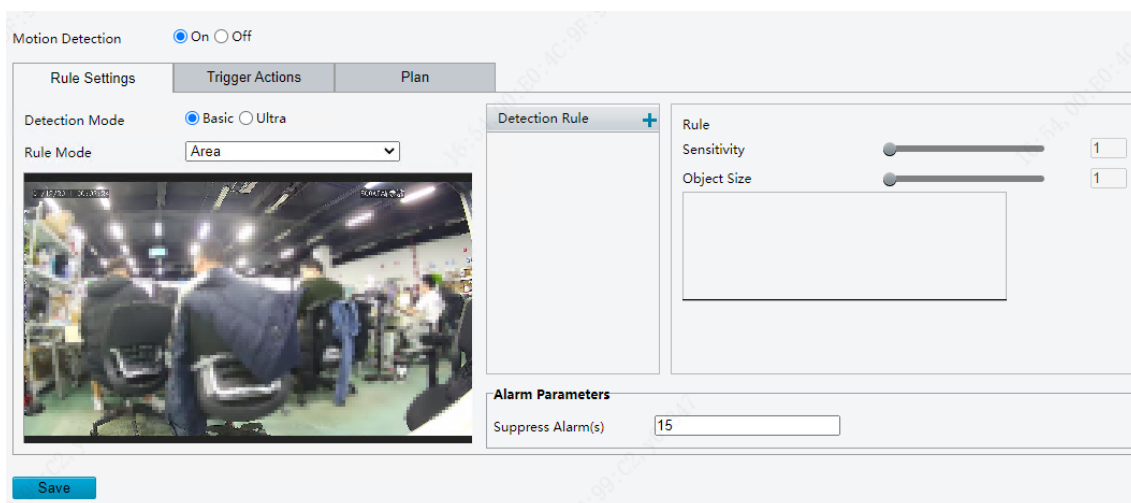
2. Choose the detection mode, including basic mode and ultra mode.

● Basic: Only moving objects in the specified areas or grids will be detected.

● Ultra: Objects (motor vehicle, non-motor vehicle, and pedestrian) in the specified areas in the ultra mode and moving objects in the basic mode will both be detected.
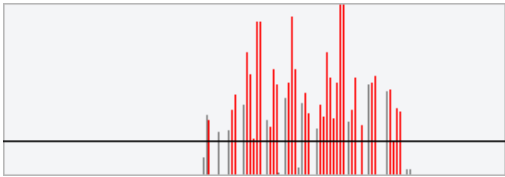
Basic Mode

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

● Area detection

(1) Set Rule Mode to **Area**.

(2) To add a detection area, click ➕, then a rectangle appears on the image. Up to four detection areas are allowed.
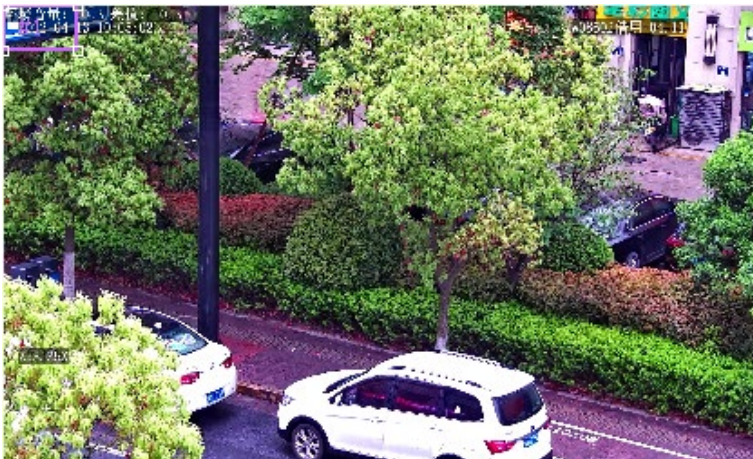
(3) Adjust the position, size and shape of the rectangle detection area, or draw a new one.

➢ 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.

(4) 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.

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

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

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

- Grid detection
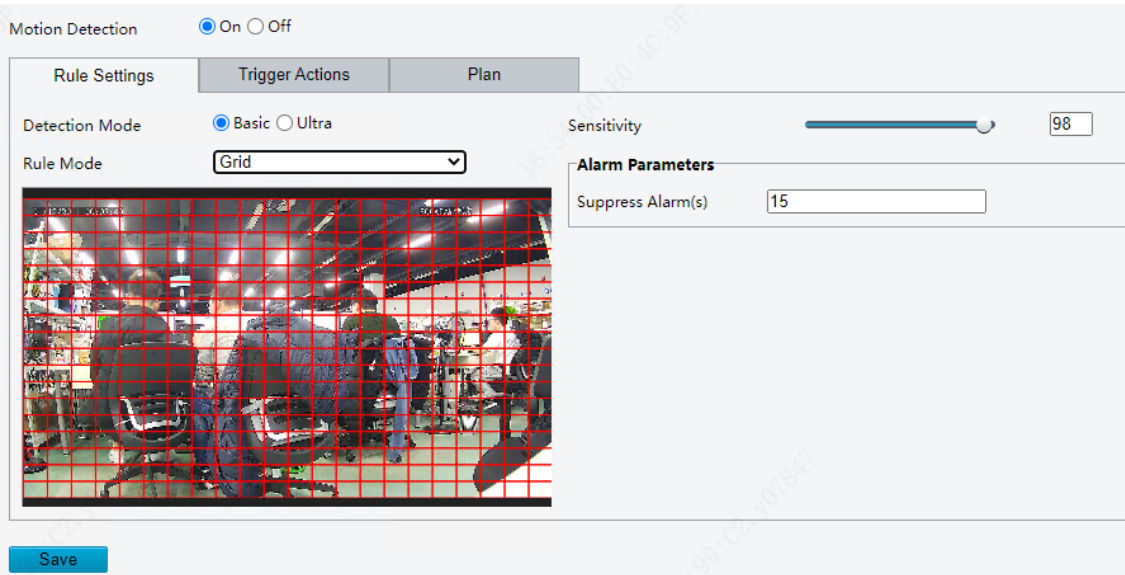
(1) Set Rule Mode to **Grid**.

(2) Set grid detection areas (covered by grid).

(3) Edit detection areas as needed.

➢ Click or drag on grid areas to erase grids.

➢ Click or drag on blank areas to draw grids.

(4) 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.

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

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

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

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

4. Click **Save**.

Ultra Mode

The camera detects motions of motor vehicles, non-motor vehicles and pedestrians in specified detection areas and will take snapshots and report an alarm when detection rules are triggered.
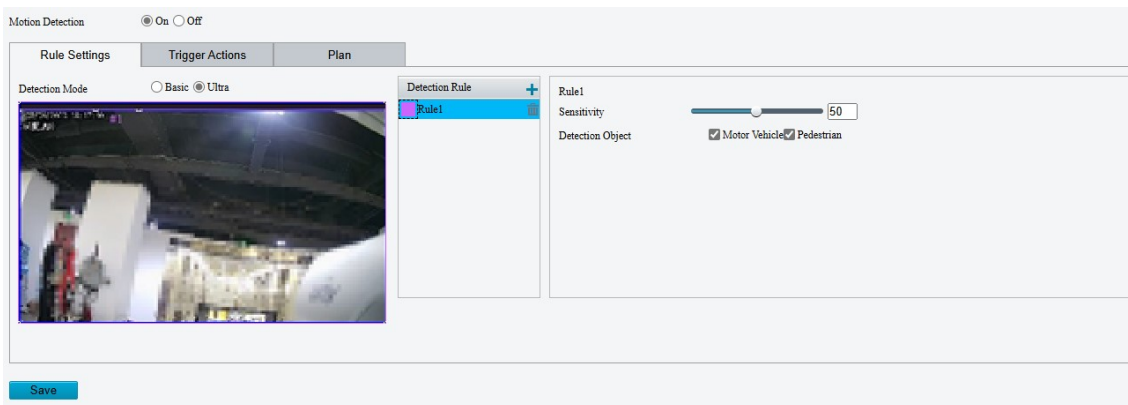
1. Set detection rules.
   (1) To add a detection area, click ➕, then a rectangle appears on the image. Up to four detection areas are allowed.
   (2) Adjust the position, size and shape of the rectangle detection area, or draw a new one.
   ➢ Point to a border of the area and drag it to the desired position.
   ➢ Point to a handle of the area and drag to resize it.
   ➢ Click anywhere on the image, and then drag to draw a new area.
   (3) Drag the slider to adjust detection sensitivity.
   The higher the sensitivity level, the higher the detection rate of small motions, and the higher the false alarm rate. Set based on the scene and your actual needs.
   (4) Select the detection object.
2. Set alarm linkage and an arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
3. Click **Save**.

5.6.2 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**.
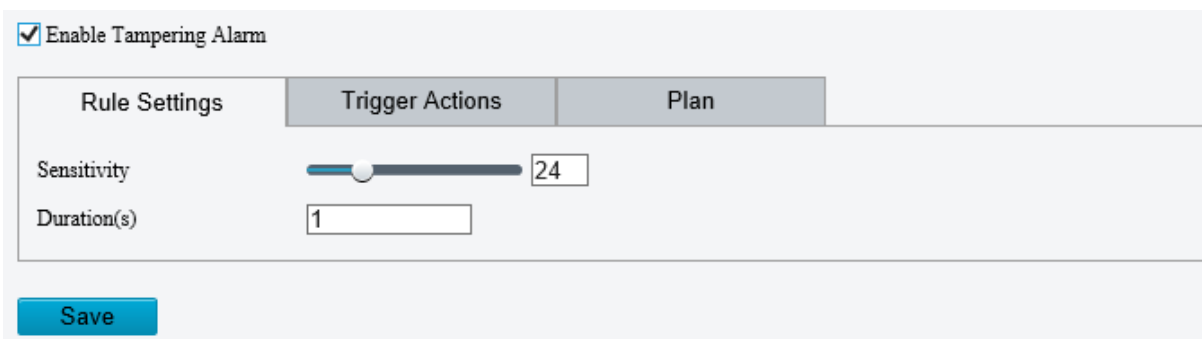
2. Select **Enable Tampering Detection**.
3. Set detection rules.

(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**.
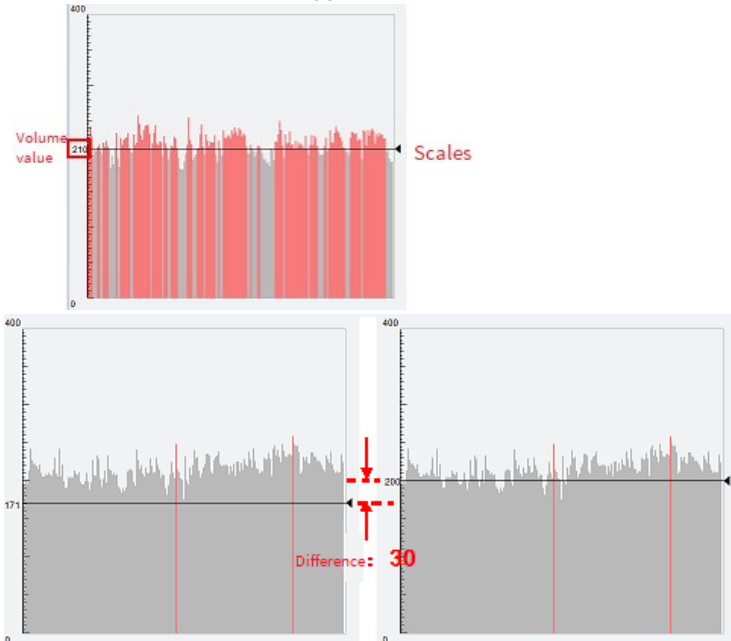
5.6.3 Audio Detection

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** and click **Save**.

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/T hreshold	- 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 for details.

5. Click **Save**.

5.6.4 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.

> **NOTE!**
> This function is only available on certain models.

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**.

5.6.5 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) occurs and trigger the third-party device to perform certain actions.

> **NOTE!**
> This function is only available on certain models.

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.

Item	Description
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.
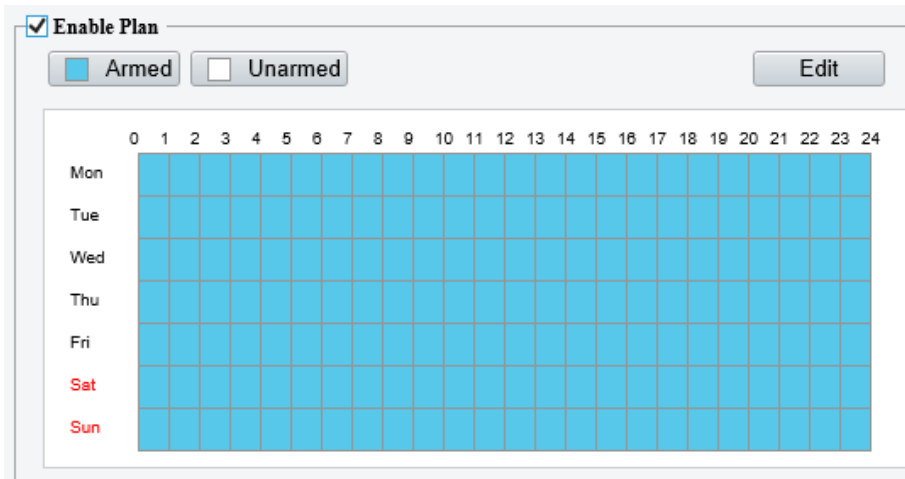
Two methods are available to make an arming schedule:

● 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.
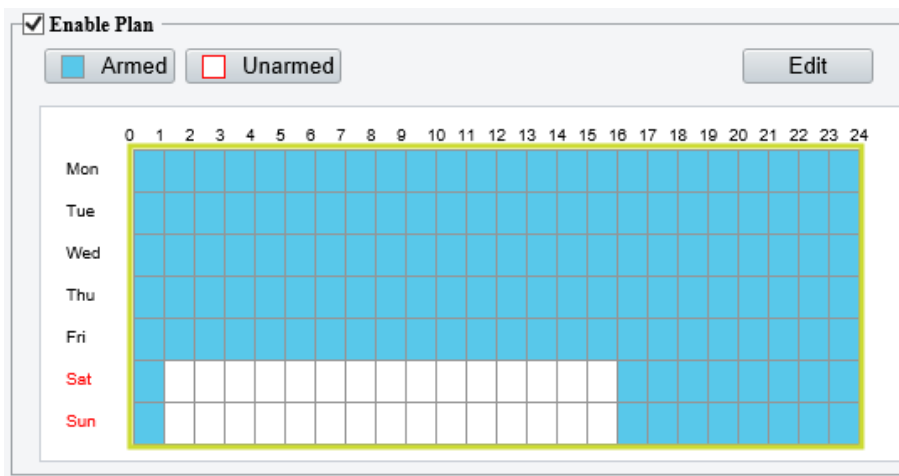
● Edit the schedule

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

Edit

No.	Start Time	End Time
1	00:00:00	23:59:59
2		
3		
4		

Copy To ☐ Select All
☑ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat ☐ Sun

[Copy]

[OK] [Cancel]

NOTE!

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

---

5. Click **Save**.

CAUTION!

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

5.7 Storage

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

Storage Medium	Memory Card ▼	Format ☑ Enable

Storage Medium Status: Normal

Total Capacity 60791 MB, Free Space 60791 MB.

Allocate Capacity

Video(MB) `51673` (The remaining capacity is used for image storage.)

Common Snapshot(MB) `9118`

Video Storage Info

Storage Policy ○ Manual and Alarm Recording ○ Scheduled and Alarm Recording ⦿ Alarm Recording Only

When Storage Full ⦿ Overwrite ○ Stop

Post-Record(s) `60`

Save

5.7.1 Memory Card

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

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

1. **Storage Management**

ⓘ **Caution!**
To format a storage medium such as a memory card, stop using it first.

- Format: Format the storage medium without encryption.
- Storage Medium Status: Displays the health status of the memory card.

📝 **NOTE!**
- To monitor the memory card's health status, use a TF card that supports the health status monitoring function.

2. **Allocate Capacity**

Allocate storage space as needed.

3. **Video Storage Info**

- To store manual recordings and alarm recordings

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

Item	Description
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.

- To store scheduled recordings and alarm recordings

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

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

- To store alarm recordings only

  Choose **Alarm Recording Only**.

5.7.2 Network Disk

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

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

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

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

Storage Medium	NAS ▾ Format
Server IP	[redacted]
Path	/nfs NAS Test

Total Capacity 463 GB, Free Space 462 GB.

Select Channel	Channel1 ▾

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

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

Storage Medium	NAS ▾ Format
Server IP	192.164.1.180
Path	/nfs NAS Test ✓ Test succeeded.

Total Capacity 463 GB, Free Space 462 GB.

Select Channel	Channel1 ▾

Allocate Capacity

Channel1 ● Channel2 ○

Channel Total Capacity(GB)	232	Channel Free Space 232 GB
Video(GB)	100	(The remaining capacity is used for image storage.)
Common Snapshot(GB)	35	
Smart Snapshot(GB)	97	

Video Storage Info

Storage Policy	○ Manual and Alarm Recording ○ Scheduled and Alarm Recording ● Alarm Recording Only
When Storage Full	● Overwrite ○ Stop
Post-Record(s)	60

Save

5.7.3 FTP

Upload images and videos to an FTP server for storage.

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

2. Configure server parameters.

Item	Description
Server IP	IP address of the FTP server.
Port No.	The default is 21. You can set a different port as needed.
Username	Username used to log in to the FTP server.
Password	Password used to log in to the FTP server.
Test	Test the connection to the FTP server.
Upload Images	Select the checkbox if you want to upload common (non-smart) snapshots. 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.

3. Configure the storage path.

Item	Description
Snapshot Image	File path, up to 4 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.
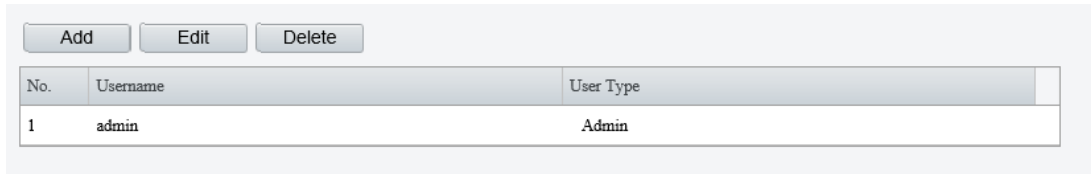
4. Click **Save**.

5.8 Security

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

5.8.1 User

Go to **Setup** > **Security** > **User** to add, edit, or delete users.
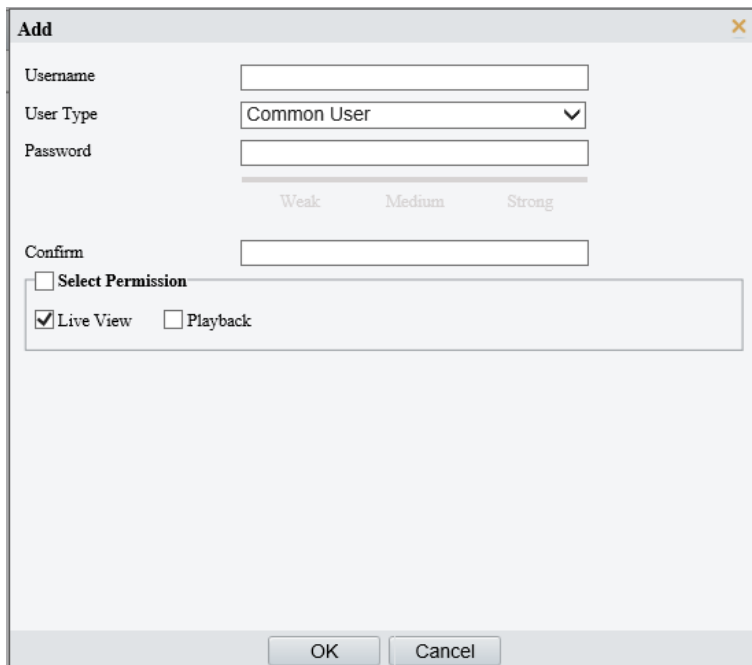
No.	Username	User Type
1	admin	Admin

Add Edit Delete

- Add user

1. Click **Add**.

Common User

Add	×

Username

User Type   Common User ∨

Password

Weak   Medium   Strong

Confirm

☐ **Select Permission**

☑ Live View   ☐ Playback

OK   Cancel

Operator

2. Configure the parameters.

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

3. Click **OK**.

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

Common User

Edit   ✕

Username   1111
User Type   Common User   ▽
Admin Password   [   ]
Password   [   ]
                    Weak   Medium   Strong

Confirm   [   ]
┌─ ☐ Select Permission ──────────────────────┐
│ ☑ Live View   ☐ Playback   │
└───┘

                    [OK]   [Cancel]

Admin

Edit   ✕

Username   admin
User Type   Admin   ▽
Old Password   [   ]
Password   [   ]
                    Weak   Medium   Strong

Confirm   [   ]
☑ Email   [   ]
                    Used to reset password. You are recommended to fill in.
┌─ ☑ Select Permission ──────────────────────────────────────┐
│ ☑ Parameter... ☑ Live View ☑ Playback ☑ Snapshot ☑ Two-way A... │
│ ☑ PTZ Control   ☑ Event Subs... ☑ Log   ☑ Maintenance ☑ Upgrade   │
└───┘

                    [OK]   [Cancel]

3. Configure the parameters.

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

4. Click **OK**.

- Delete a user

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

5.8.2 HTTPS

Enable HTTPS to securely transmit video data of the camera.

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

HTTPS	Authentication	ARP Protection	IP Address Filtering	Access Policy

HTTPS   ⦿ On ○ Off
Auto Redirect to HTTPS   ○ On ⦿ Off
SSL Certificate   [_____] [Browse...] [Upload]
[Save]

2. Click **On** to enable HTTPS.
3. Click **Save**.

5.8.3 Authentication

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

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

RTSP Authentication   [Digest MD5 ▾]
HTTP Authentication   [Digest MD5 ▾]

[Save]

2. Choose an authentication mode.

Item	Description
RTSP Authentication	Choose an authentication mode from the drop-down list. The default is **Digest**. - Basic: Basic authentication. The username and password are encrypted by base 64, which imposes serious security risks.

Item	Description
	• Digest: Digest authentication. Displays RTSP digest algorithm configuration. The default is **MD5**. ➢ Digest MD5: Digest authentication, which uses MD5 to protect the username, password, and domain of the requester, not transferred on network in plaintext and provides higher security. ➢ Digest SHA256: Digest authentication, which uses SHA256 for authentication and provides higher security than Digest MD5. • None: Transmit message without authenticating the RTSP address.
HTTP Authentica tion	Choose an authentication mode from the drop-down list. The default is **Digest**. • Digest: Digest authentication. Displays Web digest algorithm configuration. The default is **MD5**. ➢ Digest MD5: Digest authentication, which uses MD5 to protect the username, password, and domain of the requester, not transferred on network in plaintext and provides higher security. ➢ Digest SHA256: Digest authentication, which uses SHA256 for authentication and provides higher security than Digest MD5. • None: Transmit message without authenticating the Web address.

3. Click **Save**.

5.8.4 ARP Protection

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

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

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

5.8.5 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 **Allowlist** or **Deny Access** to filter IP addresses. When **Allowlist** is selected, access is allowed only from the added IP addresses. If **Deny Access** is selected, access is forbidden from the added IP addresses.

4. Click ➕, enter IP addresses.

    ➢ Up to 32 IP addresses can be added. Duplicate addresses are not allowed.

    ➢ The first byte of the IP must be 1-233, and the fourth byte cannot be 0. Invalid IP addresses such as 0.0.0.0, 127.0.0.1, 255.255.255.255, and 224.0.0.1 are not allowed.

5. Click **Save**.

5.8.6 Access Policy

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

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

MAC Authentication	⦿ On ○ Off
Illegal Login Lock	⦿ On ○ Off

Session Timeout

Session Timeout	○ On ⦿ Off
Timeout (min)	●————————— 5

Save

● Illegal Login Lock

📝 **NOTE!**
If illegal access 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.

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**.

5.8.7 Registration Information

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

1. Go to **Setup** > **Security** > **Registration Info**.

2. Enable **Hide Vendor Info**. Vendor information will not be displayed on the management platform.

Click **Save**.

5.8.8 Watermark

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

NOTE!

• Watermarks can be verified using Guard Player.

• For devices with two video channels, watermark parameters need to be configured for the channels separately.

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

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

5.9 System

<div style="border:1px solid">

NOTE!

User operations in this module may vary with camera model.

</div>

5.9.1 Time

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

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

Sync Mode	Sync with Latest Server Time ⌄
Time Zone	(UTC+08:00) Beijing, Hong Kong, Urumqi, Singapore, Taipei, Perth ⌄
System Time	2022-06-20 09:59:37
Set Time	2022-06-20 09:58:32 ⌴ Sync with Computer Time

NTP Server

NTP Server Address	0.0.0.0 Test
Port	123
Update Interval(s)	600

Save

2. Set the system time.

- Sync Mode

Item	Description
Sync with System Configuration	Default. Time provided by the system's built-in time module.
Sync with NTP Server	The camera syncs time with the NTP server. You need to configure the server address, port, and update interval (range: 30s-86400s). You can click Test to test it.
Sync with ONVIF Access Time	The camera regularly syncs time with the server that is connected via Onvif.
Sync with Latest Server Time	The camera regularly syncs time with all the connected servers.

- Select **Time Zone**.

- Set manually in the **Set Time** field, if needed. If you click **Sync with Computer Time**, The camera syncs time with the client computer from which you log in to the camera.

<div style="border:1px solid">

NOTE!

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

</div>

3. Click **Save**.

5.9.2 DST

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

2. Enable DST, and set the start time, end time, and DST bias.

3. Click **Save**.

5.9.3 Device Information

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

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

2. Complete the information as needed.

3. Click **Save**.

5.9.4 Maintenance

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

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

● Software Upgrade

📝 **NOTE!**

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

    ➢ Local upgrade

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

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

● Config Management

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.

```
Config Management
  ┌─────────────┐  ☐ Restore all settings to defaults without keeping current network and user settings.
  │   Default   │
  └─────────────┘
  Importing  [                                              ]  [ Browse... ]  [ Import ]
  Exporting  [                                              ]  [ Browse... ]  [ Export ]
```

➤ 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**.

➤ 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**.

> **NOTE!**
> Some devices support modifying the name of the exported configuration file. After modifying its name, you can also import the modified configuration file to the device again.

- 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.

```
Export Diagnosis Info  [                                    ]  [ Browse... ]  [ Export ]
☑ Collect Image Debugging Info
```

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

(2) Click **Export**.

5.9.5 Logs

Search camera operation logs and download them to your computer.

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

Time	2022-06-09 00:00:00 ~2022-06-09 23:59:59						
Main Type	AlarmEvent	Sub Type	All				
Operation	Query	Export					

No.	Type	Sub Type	Date	Time	Username	IP	Result
1	Operator	Login	2022-06-09	10:25:05	admin		Succeeded.
2	Operator	Upgrade	2022-06-09	10:18:25	admin		Succeeded.
3	Operator	Login	2022-06-09	10:05:29	admin		Succeeded.

Total 3 . « < 1 /1 > »

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

- Main type: Including Operator, Alarm Setting, Network, Video & Audio, Image Setting, Smart, Config Management, Storage, and Alarm Events.

- Sub type: You can choose up to 5 types or choose All.

2. Click **Query**. 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.

Appendix A Glossary

Acronym	Description
ARP	Address Resolution Protocol
CBR	Constant Bit Rate
DNS	Domain Name Service
DDNS	Dynamic Domain Name Service
DHCP	Dynamic Host Configuration Protocol
DST	Daylight Saving Time
FTP	File Transfer Protocol
GOP	Group Of Pictures
HTTPS	Hyper Text Transfer Protocol over SSL
IE	Internet Explorer
IP	Internet Protocol
IPC	IP Camera
MTU	Maximum Transmission Unit
NTP	Network Time Protocol
OSD	On Screen Display
PoE	Power over Ethernet
PPPoE	Point-to-Point Protocol over Ethernet
PTZ	Pan, Tilt, Zoom
ROI	Region of Interest
SMTP	Simple Mail Transfer Protocol
SSL	Secure Socket Layer
USB	Universal Serial Bus
VBR	Variable Bit Rate
WDR	Wide Dynamic Range