Pro-X
LXPTZIP4C84WI-X25IR
180°Panoramic & PTZ Camera

User Manual

Foreword

General

This manual introduces the installation, functions and operations of the 180° Panoramic & PTZ Camera (hereinafter referred to as "the Camera"). Read carefully before using the device, and keep the manual safe for future reference.

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
TIPS	Provides methods to help you solve a problem or save time.
NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	June 2025

Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, audio, fingerprints, and license plate number. You need to be in compliance with your local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

Interface Declaration

This manual mainly introduces the relevant functions of the device. The interfaces used in its manufacture, the procedures for returning the device to the factory for inspection and for locating its faults are not described in this manual. Please contact technical support if you need information on these interfaces.

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.
- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Important Safeguards and Warnings

This section introduces content covering the proper handling of the device, hazard prevention, and prevention of property damage. Read carefully before using the device, and comply with the guidelines when using it.

Transportation Requirements

- Pack the device with packaging provided by its manufacturer or packaging of the same quality before transporting it.
- Avoid heavy stress, violent vibration, and immersion during transportation.
- Transport the device under allowed humidity and temperature conditions. Refer to the technical parameters for requirements on the transporting temperature and humidity of the device.

Storage Requirements

- Store the device under allowed humidity and temperature conditions. Refer to the technical parameters for requirements on the storing temperature and humidity of the device.
- Avoid heavy stress, violent vibration, and immersion during storage.

Installation Requirements

- Make sure that the power is off when you connect the cables, install or disassemble the device.
- For devices with earthing systems, make sure they are grounded to avoid being damaged by static electricity or induced voltage, and prevent electrocution from occurring.
- All installation and operations must conform to local electrical safety regulations.
- Use accessories suggested by the manufacturer, and installed by professionals.
- Do not block the ventilator of the device, and install the device in a well-ventilated place.
- Do not expose the device to heat sources or direct sunlight, such as radiator, heater, stove or other heating equipment, which is to avoid the risk of fire.
- Do not place the device in explosive, humid, dusty, extremely hot or cold sites with corrosive gas, strong electromagnetic radiation or unstable illumination.
- Avoid heavy stress, violent vibration, and immersion during installation.

Safe and stable power supply is a prerequisite for proper operation of the device.

- Make sure that the ambient voltage is stable and meet the power supply requirements of the device.

- Prevent the power cord from being trampled or pressed, especially the plug, power socket and the junction from the device.
- For devices that can be powered by multiple supplies, do not connect them to two or more kinds of power supplies; otherwise, the device might be damaged.
- Refer to the specific user's manual for the power requirements of single device.

It is recommended to use the device with a lightning protector for better lightning-proof effect.

Operation Requirements

A suitable operating environment is the foundation for the device to work properly. Confirm whether the following conditions have been met before use.

- Use the device under allowed humidity and temperature conditions. Refer to the technical parameters for requirements on the operating temperature and humidity of the device.
- Use the device on a stable base.
- Do not let any liquid flow into the device to avoid damage to internal components. When liquid flows into the device, immediately disconnect the power supply, unplug all cables connected to it, and contact after-sales service.
- Do not plug or unplug RS-232, RS-485 and other ports with the power on, otherwise, the ports will be easily damaged.
- Back up data in time during deployment and use, in an effort to avoid data loss caused by abnormal operation. The company is not liable for data security.
- The company is not responsible for damages to the device or other product problems caused by excessive use or other improper use.

Maintenance Requirements

- Contact professionals for regular inspection and maintenance of the device. Do not disassemble or dismantle the device without a professional present.
- Use accessories suggested by the manufacturer, and maintain the device by professionals.

Table of Contents

1 Overview

1.1 Introduction

The Camera is a combination of traditional camera and network technology. Users can remotely connect to the Camera through the network for configuration and management. Get the camera IP address before visiting PTZ Camera through network, which can be searched by X Portal.

Figure 1-1 Direct connection by using a network cable

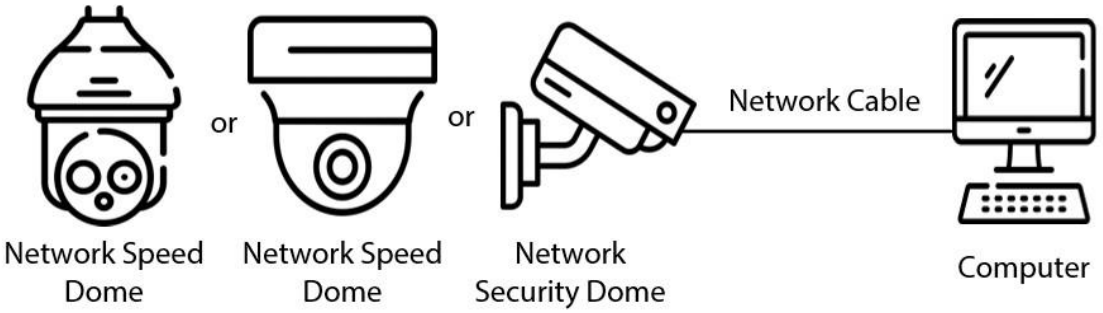
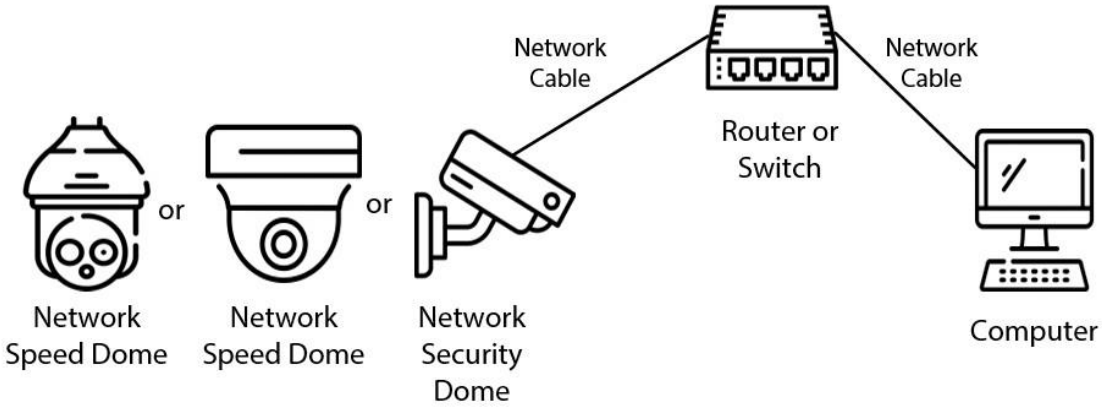


Figure 1-2 Connection by using a switch or router



1.2 Functions

Functions might be different depending on the model.

1.2.1 Basic Functions

Real-time Monitoring

- Live view.
- Displays human face, human body, non-motor vehicle, motor-vehicle and other metadata during live view.

- When watching the live view, you can enable audio, and talk to people in the monitoring area to quickly process exceptions.
- Adjust the image to the proper position by PTZ.
- Take a snapshot of the abnormal monitoring image for subsequent viewing and processing.
- Record the abnormal monitoring image for subsequent viewing and processing.
- Configure encoding parameters, and adjust live view.

Recording

- Auto recording as scheduled.
- Play back recorded videos and images.
- Download recorded videos and images.
- Record videos when an alarm is triggered.

Account Management

- Add, edit and delete user groups, and manage user authorities by user group.
- Add, edit and delete users, and configure user authorities.
- Change user password.

1.2.2 AI Functions

Alarm

- Set alarm prompt mode and tone by alarm type.
- View alarm messages.

Video Detection

- Supports motion detection, video tampering detection, and scene changing detection.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending, PTZ operation and snapshot taking.

Audio Detection

- Detects audio input exception and audio intensity change.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending, PTZ operation and snapshot taking.

Panorama Linkage

Panorama camera serves as the main camera to view panoramic images. Detail camera serves as the subordinate camera to view detailed images.

VCA

- Supports crossing virtual fence, line crossing, intrusion, abandoned object, parking detection, aggregate detection, missing object, loitering detection, and more.

- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending and snapshot taking.

Alarm Setting

- Alarms are triggered when an external alarm input device outputs alarms.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending, PTZ operation and snapshot taking.

Exception Processing

- Supports SD card error detection, network abnormality detection, illegal access detection, security exception detection.
- When SD card error, illegal access and security exception alarm is triggered, the system performs linkages such as alarm output and email delivery.
- When network abnormality alarm is triggered, the system performs linkages such as video recording and alarm output.

2 Device Initialization

Background Information

Device initialization is required for first-time use. This manual is focused on the operation on the webpage. You can also initialize the Camera through X Portal, NVR (Network Video Recorder), or platforms such as X Station.

- To ensure device safety, protect your password after initialization and regularly change it.
- When initializing the Camera, keep the IP of the computer and IP of the Camera on the same segment.
- We recommend using Google Chrome.

Procedure

Step 1 Open the browser, enter the IP address of the Camera in the address bar, and then press the Enter key.

The IP is 192.168.1.101 by default.

Step 2 Select the region, language, and video standard according to the actual situation, and then click .

Step 3 Configure the time parameters, and then click .

Step 4 Select the **I have read and agree to the terms of the Software License Agreement and Privacy Policy** check box, and then click .

Step 5 Set the password for the admin account, then click to complete the initialization.

Table 2-1 Description of password configuration

Parameter	Description
Username	The default username is admin.
New Password	The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' " ; : &). Set a high security level password according to the password security notice.
Confirm Password	

Parameter	Description
Email Address	Enter an email address for password reset. It is selected by default. When you need to reset the password of the admin account, a security code for password reset will be sent to the reserved email address.

3 Login

3.1 First-time Login

Background Information

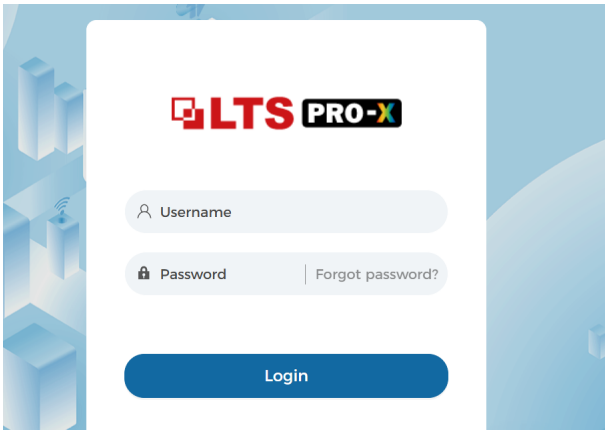
You need to download and install the plug-in for the first-time login.

Procedure

Step 1 Open the browser, enter the IP address of the Camera in the address bar, and then press Enter.

Step 2 Enter the username and password, and then click **Login**.

Figure 3-1 Login

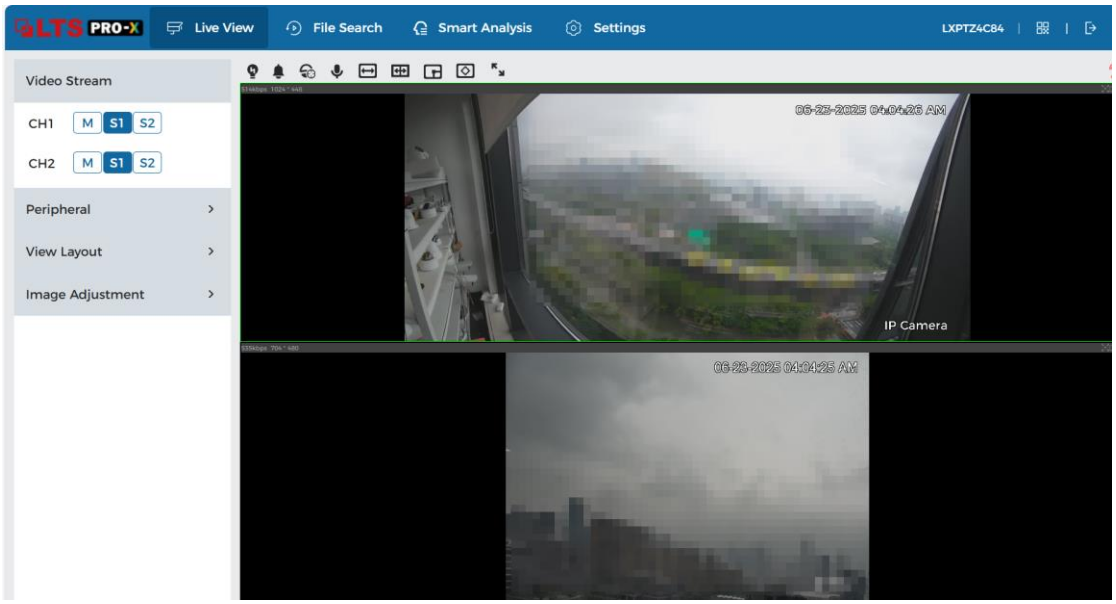


- If you enter the wrong password for 5 times, the account will be locked for 5 minutes. After the locked time, you can log in to the web page again.
- You can set the number of allowed password attempts and locked time in **Unauthorized Access**.

Step 3 Download and install the plug-in according to the on-screen instruction after logging in to the webpage.

Step 4 After the plug-in is installed, the web page will be refreshed automatically, and the video is displayed on the **Live View** page.

Figure 3-2 Live view page



The **Live View** page shown in the manual is for reference only, and functions might be different depending on the model.

3.2 Resetting Password

Background Information

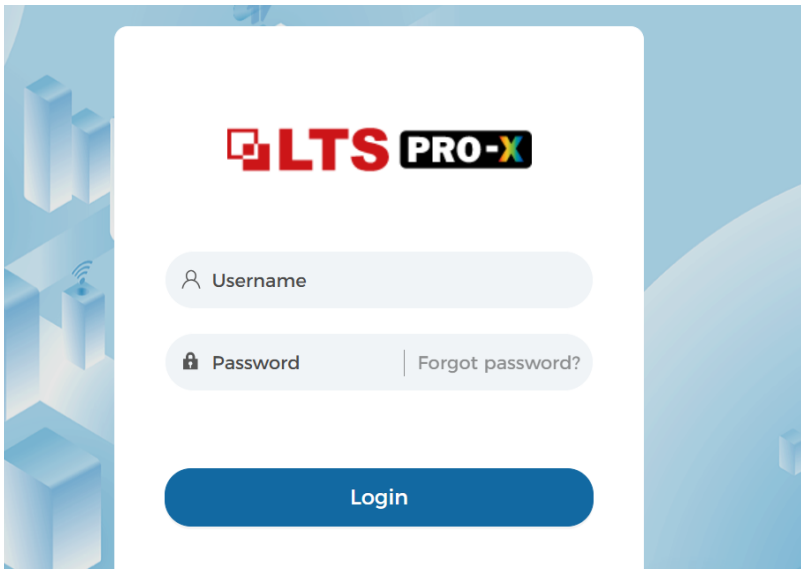
If you forget the password of the admin user, you can set the password through the provided email address.

Before resetting the password, you need to provide the email address in advance. For details, see "8.2.4.5 PW Resetting".

Procedure

Step 1 Open the browser, enter the IP address of the Camera in the address bar, and then press **Enter**.

Figure 3-3 Login



Step 2 Click **Forgot password?**, and then a prompt is displayed.

Figure 3-4 Prompt

Step 3 Click **OK** to reset the password.

The **Password Reset (1/2)** page is displayed.

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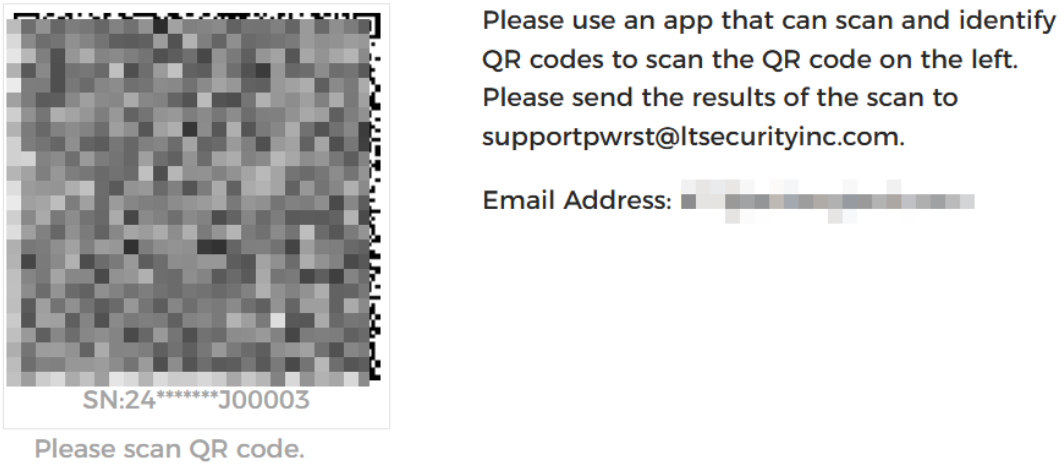
If you click **OK**, your email address, MAC address, device serial number, and other information might be collected.

Figure 3-5 Password reset (1)



Step 4 Scan the QR code on the actual page according to the instructions, and then enter the security code received in the mailbox.

Reset the password with the security code you received within 24 hours, otherwise the code will be invalid.

Step 5 Click **Next**.

The **Password Reset (2/2)** page is displayed.

Step 6 Set the password of the admin user again.

Set a high security password according to the prompt of password strength.

Step 7 Click **OK**.

4 Live

This chapter introduces the layout of the page and function configuration.

4.1 Live View Page

This section respectively describes the **Live View** page for single-channel and double-channel devices.

Click **Live View** on the main webpage to enter the **Live View** page.

Pages might vary with different models.

Figure 4-1 Live View

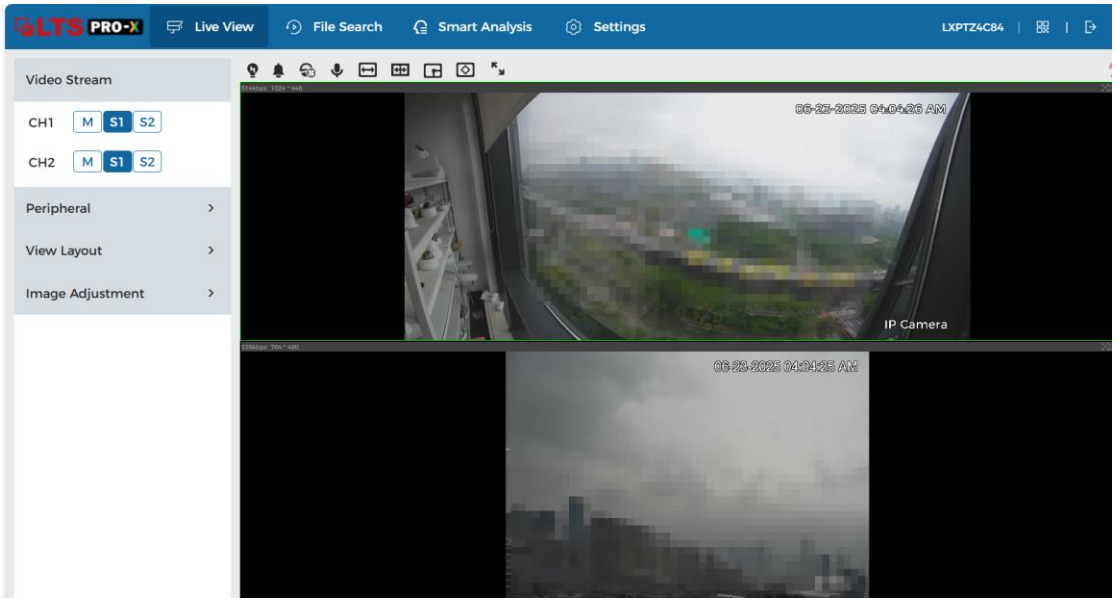


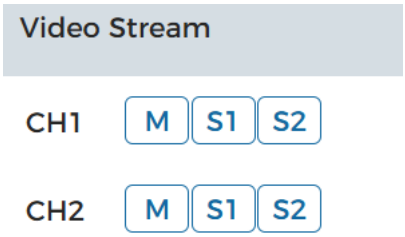
Table 4-1 The description of live page

Number	Function	Description
1	Video Stream	Displays the channel. You can select the channel and set the stream type. For details, see "4.2 Video Stream".
2	Window Adjustment	Adjust the images in the live viewing. For details, see "4.4 Window Adjustment".
3	Live View Function Bar	Displays the shortcut for available functions. For details, see "4.3 Live View Function Bar".
4	Live View	Displays the real-time monitoring image.

4.2 Video Stream

On the left side of the **Live View** page, you can select the video stream for the video channel.

Figure 4-2 Configure video stream



- **CH1**: Channel for panoramic camera.
- **CH2**: Channel for PTZ camera.
- **Main Stream**: It has large bit stream value and image with high resolution, but also requires large bandwidth. This option can be used for storage and monitoring.
- **Sub Stream**: It has small bit stream value and smooth image, and requires less bandwidth. This option is normally used to replace main stream when bandwidth is not enough.
- M means the current stream is main stream; S1 means the current stream is sub stream 1; S2 means the current stream is sub stream 2.

4.3 Live View Function Bar

This section introduces the shortcuts supported when viewing live video.

Table 4-2 Description of live view function bar

Icon	Function	Description
	Warning Light	Displays the status of alarm sound. Click this icon to forcibly turn on or off the alarm sound.
	Sound Alarm	Displays the status of alarm sound. Click the icon to enable or disable the alarm sound forcibly.
	Manual Position	Select the area in the panorama camera screen, and the detail camera screen will be automatically positioned to the selected area.
	Two-Way Talk	Enable or disable the audio talk.
	W:H	Click the icon to resume original ratio or change ratio. It supports **Original** and **Adaptive**.
	AI Rule	Click the icon, and then select **Enable** to display AI rules and detection box; select **Disable** to stop the display. It is enabled by default.
	Intelligence Area	Click the icon, and then select **Enable** to display intelligence area; select **Disable** to stop the display.
	Anti-aliasing	Click this icon to enable or disable anti-aliasing function.

Icon	Function	Description
	Full Screen	Click the icon to enter full screen mode; double-click or press Esc to exit.
	Alarm Output	Displays alarm output state of the corresponding channel. When the alarm output page is connected to the alarm output device, click the icon to force to enable or disable alarm output. • Red: Alarm output enabled. • Black: Alarm output disabled.
	Digital Zoom	Zoom in the selected area, drag the screen in the zoomed-in status to view other areas. You can zoom video image through two operations. • Click the icon, and then select an area in the live image to zoom in; right-click on the image to resume the original size. • Click the icon, and then scroll the mouse wheel in the video image to zoom in or out.
	Snapshot	Captures one image of the current screen, and it will be saved to the configured storage path.
	Record	Records video, and it will be saved to the configured storage path.
	Audio Output	Enable or disable audio output of corresponding channel.

4.4 Window Adjustment

4.4.1 PTZ Control

You can rotate device, zoom image, and adjust iris through PTZ control.

On the **Live View** page, click **PTZ control** on the left side to adjust the current video screen.

Figure 4-3 PTZ Control

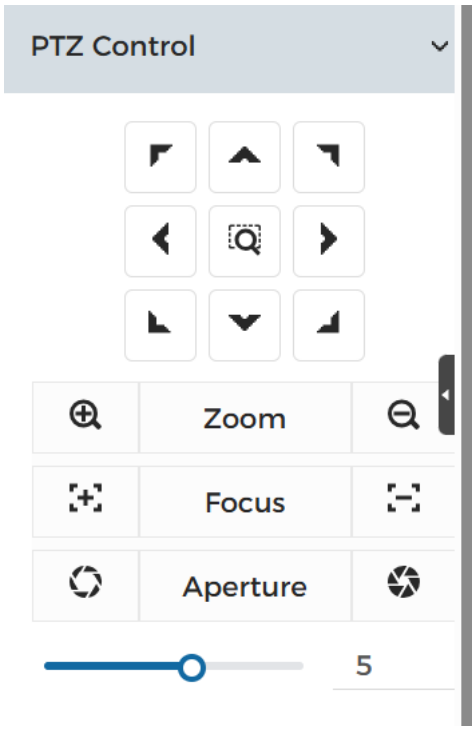


Table 4-3 Description of PTZ control functions

Function	Description
P/T	Control device toward eight directions, including up, down, left, right, upper left, upper right, lower left, and lower right. Click , and then select an area in the monitor frame, the PTZ will rotate and zoom quickly to the specified area.
Zoom	Zoom: Adjust the zooming of images.
Focus	Focus: Adjust the focal length of the Camera.
Aperture	Aperture: Adjust the brightness of images.
Speed	Speed: The speed value changes device rotate speed. The bigger the value is, the faster the device rotates. For example, the rotation with a speed of 8 is much faster than that of 1.
PTZ Menu	PTZ Menu: Click to enter PTZ menu. Configure the camera setting, PTZ setting, system management and other functions according to the actual interface.

4.4.2 PTZ Function

On the **Live View** page, click the **PTZ Function** on the left side of the page. Before using PTZ function, see "8.5.3 PTZ" to configure PTZ function.

The value range of the PTZ function (such as preset and tour) depends on the specific PTZ protocol.

Figure 4-4 PTZ function

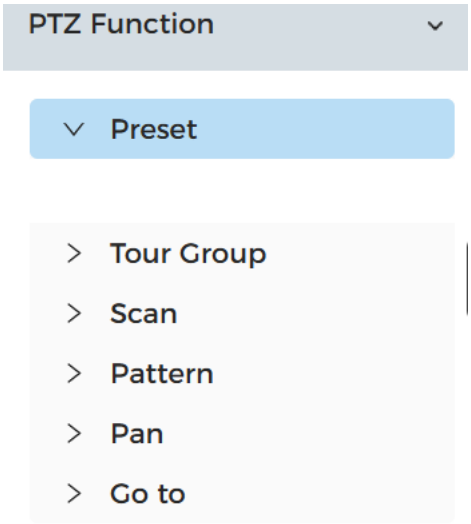


Table 4-4 Description of PTZ function

Parameters	Description
Preset	Configure preset number, and then click preset number to position the device to the corresponding point. The preset contains PTZ's horizontal angle, tilt angle, lens focal length and other parameters.
Tour Group	Configure tour number. Click **Start** and the device automatically rotates back and forth in the order of the set preset points. Click **Stop** to finish tour.
Scan	Configure the scan number. Click **Start**, and the device will scan back and forth at a certain speed according to the set boundary. Click **Stop** to finish scan.
Pattern	Configure pattern number. Click **Start** and the device automatically rotates back and forth according to the set operating record. Click **Stop** to finish pattern. The operation record includes the manual operations that the performed to the PTZ, and the changes in focus and zoom.
Pan	Click **Start**, and then the Camera starts continuous 360° rotation in a horizontal way at a certain speed.
Go to	Configure horizontal angle, vertical angel and zoom. Click **Go to** to pinpoint to a point.

4.4.3 Peripheral

Configure the peripheral devices of PTZ Camera.

Background Information

On the **Live View** page, click the **Peripheral** on the left side of the page.

Figure 4-5 Peripheral

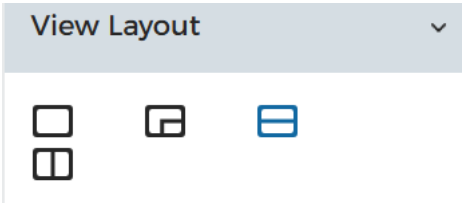
: Water removal. Click the icon, enter the max running time, and then click **Apply**.

4.4.4 View Layout

You can select view layout in this section.

On the **Live View** page, click the **Peripheral** on the left side of the page. You can select 4 different view layout as you need.

Figure 4-6 View Layout

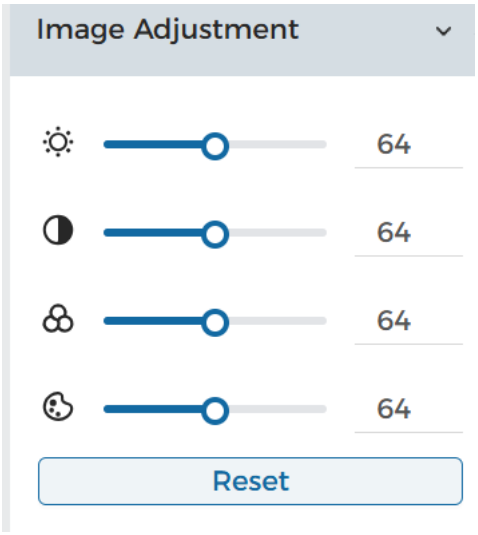


4.4.5 Image Adjustment

Click **Image Adjustment** on the left side of **Live View** page, and drag the slider to adjust image parameters, including brightness, contrast, hue and saturation.

The adjustment is only available on the webpage, and it does not adjust the camera parameters.

Figure 4-7 Image adjustment



- (Brightness adjustment): Adjusts the overall image brightness, and changes the value when the image is too bright or too dark. The bright and dark areas will have equal changes.
- (Contrast adjustment): Changes the value when the image brightness is proper but contrast is not enough.
- (Saturation adjustment): Adjusts the image saturation, this value does not change image brightness.
- (Hue adjustment): Makes the color deeper or lighter. The default value is made by the light sensor, and it is recommended.

Click **Reset** to restore focus to default value.

You can restore the zoom if the image has poor clarity or has been zoomed too frequently.

5 Record

This section introduces the functions and operations of video playback.

5.1 Video Archive Search

5.1.1 Playing Back Video

This section introduces the operation of video playback.

Prerequisites

- This function is available on the camera with SD card.
- Before playing back video, configure record storage method, record schedule and record control.

Procedure

Step 1 Select **File Search** > **Video** > **Video Archive Search**.

Step 2 Select the channel, the record type, and record time, and then click **Search**.

- Click **All**, and select the record type from the drop-down list, you can select from **All**, **General** and **Event**.
  When selecting **Event** as the record type, you can select the specific event types, such as **Motion Detection**, **Video Tampering** and **Scene Changing**.
- The dates with green dots indicate there are videos recorded on those days.

Step 3 Point to the searched video, and then click  to play back the selected video.
The video playback page is displayed.

Table 5-1 Description of video playback page

No	Function	Description
1	Recorded video list	Displays all searched recorded video files. Click any files to play back it. Click **Back** at the upper-left corner to go to the **Video Archive Search** page.
2	Digital Zoom	You can zoom video image of the selected area through two operations. • Click the icon, and then select an area in the video image to zoom in; right-click on the image to resume the original size. In zoom-in state, drag the image to check other areas. • Click the icon, and then scroll the mouse wheel in the video image to zoom in or out.

No	Function	Description
	Play control bar	Controls playback. • : Click the icon to play back the previous recorded video in the recorded video list. • : Click the icon to slow down the playback. • : Click the icon to stop playing back recorded videos. The icon changes to , click the icon to play back recorded videos. • : Click the icon to speed up the playback. • : Click the icon to play back the next recorded video in the recorded video list. • : Click the icon to play the next frame.
	Sound	Controls the sound during playback. • : Mute mode. • : Volume. You can adjust the sound.
	Snapshot	Click to capture one picture of the current image, and it will be saved to the configured storage path.
	Video clip	Click , and clip a certain recorded video and save it. For details, see "5.1.2 Clipping Video".
	Full Screen	Click , and the image is displayed in full-screen mode; double-click the image or press Esc button to exit full-screen mode.
3	Progress bar	Displays the record type and the corresponding period. • Click any point in the colored area, and the system will play back the recorded video from the selected moment. • Each record type has its own color, and you can see their relations in **Record Type** bar.

Related Operations

Download: Click it to download the selected videos. For details, see "5.1.3 Downloading Video".

5.1.2 Clipping Video

Procedure

Step 1 Click .

Step 2 Drag the clipping box on the progress bar to select the start time and end time of the

target video.

Figure 5-1 Clipping video

Step 3 Click **OK** to download the video.

Step 4 Select the download format and storage path.

Step 5 Click **Start Download**.

The playback stops and the clipped file is saved in the configured storage path.

5.1.3 Downloading Video

Download videos to a defined path. You can download a single video, or download them in batches.

- Playback with downloading at the same time is not supported.
- Operations might vary with different browsers.

Procedure

Step 1 Select **File Search** > **Video** > **Video Archive Search**.

Step 2 Select the channel, the record type, and record time, and the click **Search**.

Step 3 Select the videos to be downloaded.

- Select ■ at the upper-right corner of each video file to select one or multiple videos.
- Select ■ next to **All** to select all searched videos.

Step 4 Click **Download**.

Step 5 Select the download format and storage path.

Step 6 Click **Start Download**.

The downloaded files are saved in the configured storage path.

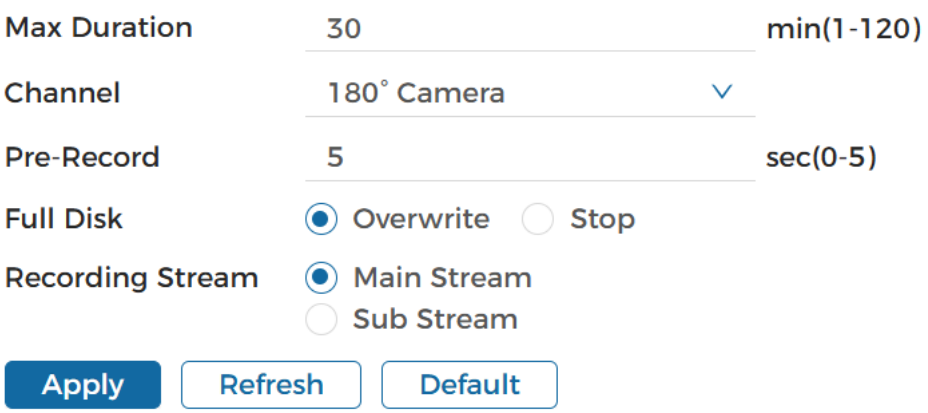
5.2 Setting Record Control

Set parameters such as max duration, pre-event record, disk full, and record stream.

Procedure

Step 1 Select **File Search** > **Video** > **Recording Settings**.

Figure 5-2 Record settings



Step 2 Set parameters.

Table 5-2 Description of record setting parameters

Parameter	Description
Max Duration	The time for packing each video file.
Channel	Select from **180° Camera** and **PTZ Camera**.
Pre-Record	The time to record the video in advance of a triggered alarm event. For example, if the pre-event record is set to be 5 seconds, the system saves the recorded video 5 seconds before the alarm is triggered. When an alarm or motion detection links recording, and the recording is not enabled, the system saves the video data within the pre-event record time to the video file.
Full Disk	• **Overwrite**: Cyclically overwrite the earliest video when the disk is full. • **Stop**: Stop recording when the disk is full.
Record Stream	Select record stream, including **Main Stream** and **Sub Stream**.

Step 3 Click **Apply**.

5.3 Storage

This section introduces the configuration of the storage method for the recorded videos.

5.3.1 Local Storage

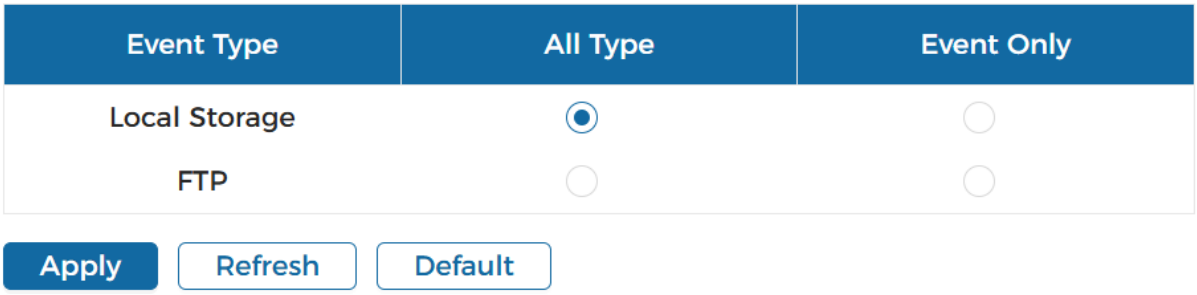
Procedure

Step 1 Select **File Search** > **Video** > **Storage**.

Step 2 Select **All Type** or **Event Only** for **Local Storage** to save the recorded videos in the

internal SD card.

Figure 5-3 Local storage



Step 3 Click **Apply**.

5.3.2 Network Storage

You can select from **FTP** and **NAS**.

5.3.2.1 FTP

Enable this function, and you can save all the files in the FTP server.

Procedure

Step 1 Select **File Search** > **Video** > **Storage**.

Step 2 Select **All Type** or **Event Only** for **FTP** to save the recorded videos in FTP server.

You select **FTP** or **SFTP** from the drop-down list. **SFTP** is recommended to enhance network security.

Step 3 Click  next to **Enable** to enable the FTP function.

Figure 5-4 FTP

Step 4 Configure FTP parameters.

Table 5-3 Description of FTP parameters

Parameter	Description
Server Address	The IP address of the FTP server.
Port	The port number of the FTP server.
Username	The username to log in to the FTP server.
Password	The password to log in to the FTP server.
Storage Directory	The destination path in the FTP server.

Step 5 Click **Apply**.

Step 6 Click **Test** to test whether FTP function works normally.

5.4 Setting Record Plan

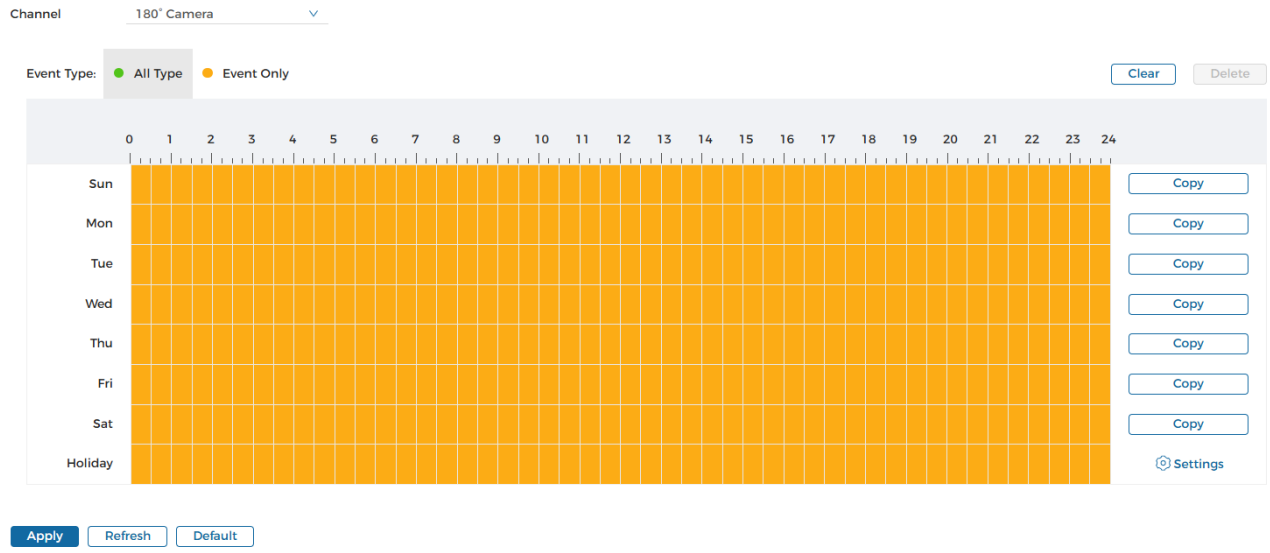
After the corresponding alarm type (**All Type** and **Event Only**) is enabled, the record channel links recording.

Set certain days as holiday, and when the **Record** is selected in the holiday schedule, the system records video as holiday schedule defined.

Procedure

Step 1 Select **File Search** > **Video** > **Schedule**.

Figure 5-5 Time schedule



Step 2 Select channel.

Step 3 Set record plan.

Green represents all type record plan; yellow represents motion record plan. Select a record type, and directly press and drag the left mouse button to set the period for normal record on the timeline.

- Click **Copy** next to a day, and select the days that you want to copy to in the prompt page, you can copy the configuration to the selected days. Select the **All** check box to select all day to copy the configuration.
- You can set 6 periods per day.

Step 4 Click **Apply**.

Step 5 Click **Settings** to set holidays.

Step 6 Click  to enable the holiday configuration, and select the days that you need to set as holiday.

Click **Clear** to cancel the selection.

When holiday schedule setting is not the same as the general setting, holiday schedule setting is prior to the general setting. For example, with holiday schedule enabled, if the day is holiday, the system snapshots or records as holiday schedule setting; otherwise, the system snapshots or records as general setting.

Step 7 Click **OK**.

6 Snapshot

This section introduces the related functions and operations of picture playback.

6.1 Snapshot Archive Search

6.1.1 Playing Back Snapshot

This section introduces the operation of picture playback.

Prerequisites

- This function is available on the camera with SD card.
- Before playing back snapshot, configure snapshot time range, snapshot storage method, snapshot plan.

Procedure

Step 1 Select **File Search** > **Snapshot** > **Snapshot Archive Search**.

Step 2 Select the channel, the snapshot type, and snapshot time, and then click **Search**.

- Click **All**, and select the record type from the drop-down list, you can select from **All**, **General** and **Event**.
  When selecting **Event** as the snapshot type, you can select the specific event types, such as **Motion Detection**, **Video Tampering** and **Scene Changing**.
- The dates with green dots indicate there are snapshots on those days.

Step 3 Point to the searched snapshot, and then click  to play back the selected snapshot.
The picture playback page is displayed.

Table 6-1 Description of playback page

No.	Function	Description
1	Snapshot list	Displays all searched snapshots. Click any files to play back it. Click **Back** at the upper-left corner to go to the **Snapshot Archive Search** page.
2	Manual display	• Click  to display the previous snapshot in the snapshot list. • Click  to display the next snapshot in the snapshot list.
3	Slide show	Click  to display the snapshots list one by one in slide show mode.

No.	Function	Description
4	Full screen	Click , and the snapshot is displayed in full-screen mode; double-click the image or press Esc button to exit full-screen mode.

Related Operations

Download: Click it to download the selected snapshots. For details, see "5.1.3 Downloading Video".

6.1.2 Downloading Snapshot

Download snapshots to a defined path. You can download a single picture, or download them in batches.

Operations might vary with different browsers.

Procedure

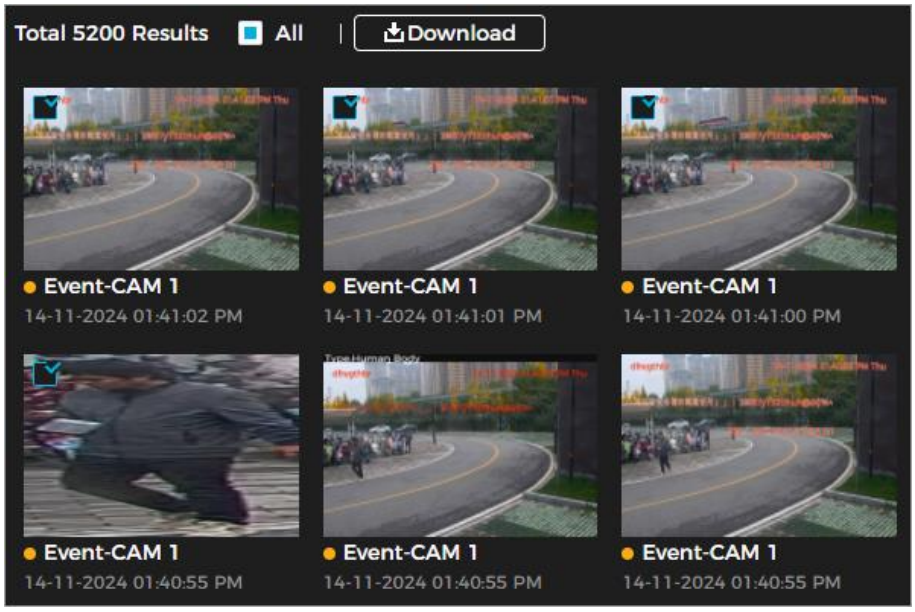
Step 1 Select **File Search** > **Snapshot** > **Snapshot Archive Search**.

Step 2 Select the channel, the snapshot type, and snapshot time, and then click **Search**.

Step 3 Select the snapshots to be downloaded.

- Select at the upper-right corner of each picture file to select one or multiple snapshots.
- Select next to **All** to select all searched snapshots.

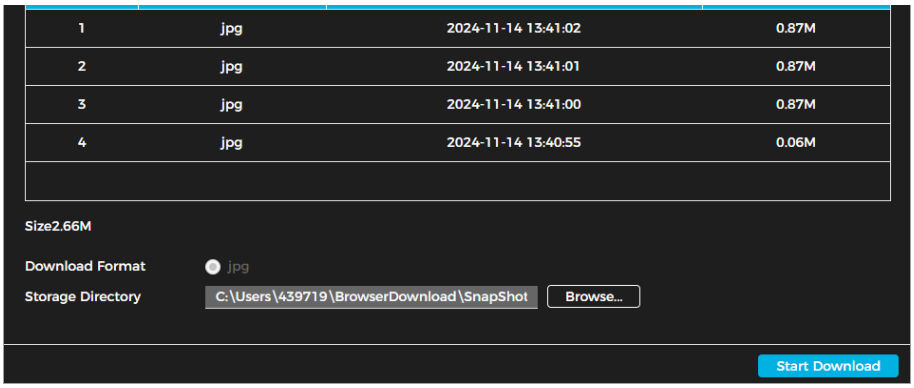
Figure 6-1 Selecting snapshots file



Step 4 Click **Download**.

Step 5 Select the download format and storage path.

Figure 6-2 Downloading picture



Step 6 Click **Start Download**.

The downloaded pictures are saved in the configured storage path.

6.2 Setting Snapshot Parameters

Set the snapshot parameters, including type, size, quality and interval.

Procedure

Step 1 Select **File Search** > **Snapshot** > **Snapshot Settings**.

Step 2 Set the parameters.

Figure 6-3 Snapshot

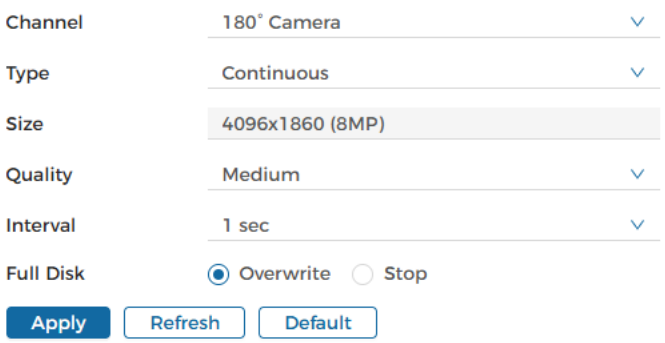


Table 6-2 Description of snapshot parameters

Parameter	Description
Channel	You can select from **180° Camera** and **PTZ Camera**.

Parameter	Description
Type	You can select from **Continuous** and **Event**. • **Continuous**: Capture images in configured period. • **Event**: Capture images when configured event is triggered, such as **Motion Detection**, **Video Tampering** and **Scene Changing**. Make sure that you have enabled the corresponding event detection and the snapshot function.
Size	It is the same with the resolution of the main stream.
Quality	Set the quality of the snapshot. The higher the value, the better the quality.
Interval	Set the frequency of snapshot. You can select **Automatic** to set the frequency as needed.
Full Disk	• **Overwrite**: Cyclically overwrite the earliest snapshot when the disk is full. • **Stop**: Stop recording when the disk is full.

Step 3 Click **Apply**.

6.3 Storage

Set the storage method for the snapshot. For detailed operation, see "5.3 Storage".

6.4 Setting Snapshot Plan

According to the configured snapshot plan, the system enables or disables snapshot at corresponding time. For detailed operation, see "5.4 Setting Record Plan".

6.5 Snapshot by Location

You can set snapshot by the preset locations which you already added.

Procedure

Step 1 Select **File Search** > **Snapshot** > **Snapshot by Location**.

Step 2 Click behind **Snapshot** to enable preset snapshot.

Step 3 Click **Apply**.

Related Operations

- Click **All Enabled** to enable all preset snapshot.

- Click **All Disabled** to disable all preset snapshot.

6.6 Setting Network Destination

Automatically upload images to the defined server through HTTP protocol, and configure parameters.

Background Information

You do not need to set upload period. When an alarm is triggered, images will be automatically uploaded to the defined server.

Procedure

Step 1 Select **File Search** > **Snapshot** > **Network Destination**.

Step 2 Enable the function.

Step 3 Click +, and then configure parameters of network destination.

You can add two server information at most.

Table 6-3 Description of network destination

Parameter	Description
IP/Domain name	The IP address and port number of the server which the report will be uploaded to.
Port	
Path	The storage path of the server for the report.
Event type	Select the event type form the drop-down list. You can select more than one types at the same time. The event types in the drop-down list are the same with that of snapshot playback.

Step 4 Click **Apply**.

7 Smart Analysis

7.1 Setting VCA in Intelligent Mode

The camera locates, recognizes and tracks the changes in the monitoring scene, and analyzes and judges the behavior of the target on this basis, which is called the smart analysis of video monitoring.

When the intelligent function is enabled, the configured rules and their effects can be displayed both on the live video and the intelligent rule configuration page. When a target triggers the intelligent function, the rule lines are displayed as red flashing.

For PTZ camera intelligent mode, make sure you already added presets, and then you can click + Preset to select presets to show their intelligent mode on webpage. For how to add presets, see **PTZ Operation**.

This section introduces scene selection requirements and rule configuration for VCA

7.1.1 Scene Selection Requirements

Basic requirements on scene selection are as follows.

- The target should occupy no more than 10% of the whole image.
- The target size in the image should be no less than 10 × 10 pixels. The size of abandoned object in the image should be no less than 15 × 15 pixels (CIF image). The target height and width should no more than a third of the image height and width. The recommended target height is 10% of the image height.
- The brightness difference of the target and the background should be no less than 10 gray levels.
- The target should be continuously present in the image for no less than two seconds, and the moving distance of the target should be larger than its width and no less than 15 pixels (CIF image) at the same time.
- Reduce the complexity of surveillance scene as much as you can. Intelligent analysis functions are not recommended to be used in scene with dense targets and frequent illumination change.
- Avoid areas such as glass, reflective ground, water surface, and areas interfered by branch, shadow and mosquito. Avoid backlight scene and direct light.

7.1.2 Rule Configuration

Set rules for VCA, including cross fence detection, line crossing, intrusion, abandoned object, missing object, parking detection, aggregate detection, and loitering detection. This section

chooses VCA configuration for PTZ camera channel as an example.

Background Information

For the functions and applications of the rules, see below table.

Some models only support some of the functions listed below.

Table 7-1 Description of VCA functions

Rule	Function	Applicable Scene
Crossing virtual fence	When a target crosses the fence toward the defined direction, the alarm is triggered and the linkage is executed.	Scenes such as roads, airports and other isolation zones.
Line crossing	When a target crosses the line toward the defined direction, the alarm is triggered and the linkage is executed.	Scenes with sparse targets and no occlusion among targets, such as the perimeter protection of unattended area.
Intrusion	When the target enters, leaves, or appears in the detection area, an alarm is triggered, and the system performs defined alarm linkages.	
Abandoned object	When an object is abandoned in the detection area over the defined time, an alarm is triggered, and then the system performs defined alarm linkages.	Scenes with sparse targets and without obvious and frequent light change. Simple scene in the detection area is recommended. • Missed alarm might increase in the scenes with dense targets, frequent occlusion, and people staying. • In scenes with complex foreground and background, false alarm might be triggered for abandoned or missing object.
Missing object	When an object is taken out of the detection area over the defined time, an alarm is triggered, and then the system performs defined alarm linkages.	
Parking detection	When the target stays over the defined time, an alarm is triggered, and then the system performs defined alarm linkages.	Road monitoring and traffic management.
Aggregate Detection	When the crowd gathers or the crowd density is large, an alarm is triggered, and then the system performs defined alarm linkages.	Scenes with medium or long distance, such as outdoor plaza, government entrance, station entrance and exit. It is not suitable for short-distance view analysis.

Rule	Function	Applicable Scene
Loitering detection	When the target loiters over the shortest alarm time, an alarm is triggered, and then the system performs defined alarm linkages. After alarm is triggered, if the target stays in the area within the time interval of alarm, then alarm will be triggered again.	Scenes such as park and hall.

Configure VCA rules. This section takes line crossing as an example.

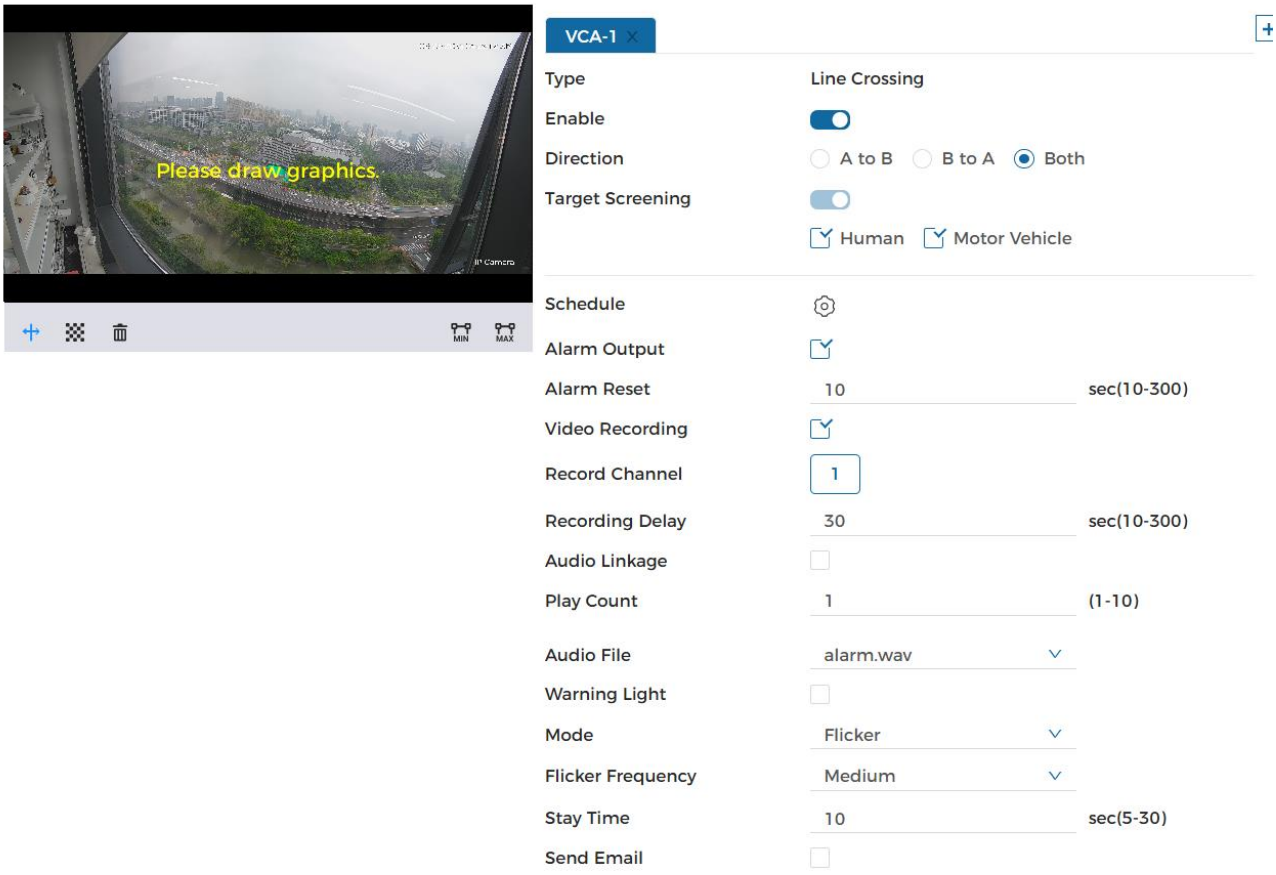
Procedure

Step 1 Select **Smart Analysis** > **Intelligent Mode**.

Step 2 Click next to **VCA** to enable VCA of the corresponding preset, and then click **Next**.

Step 3 Click on the **VCA Config** page, and then select **Line Crossing** from the drop-down list.

Figure 7-1 Line crossing



Step 4 Click to draw rule line in the image. Right-click to finish drawing.

For requirements of drawing rules, see below table. After drawing rules, drag corners of the detection area to adjust the area range.

Table 7-2 Description of VCA analysis

Rule	Description
Crossing virtual fence	Draw a detection line.
Line Crossing	
Intrusion	Draw a detection area. • During the detection of abandoned objects, the alarm is also triggered if pedestrian or vehicle stays for a long time. If the abandoned object is smaller than pedestrian and vehicle, set the target size to filter pedestrian and vehicle or properly extend duration to avoid false alarm triggered by transient staying of pedestrian. • During the detection of crowd gathering, false alarm might be triggered by low installation height, large percentage of single person in an image or obvious target occlusion, continuous shaking of the camera, shaking of leaves and tree shade, frequent opening or closing of retractable door, or dense traffic or people flow.
Abandoned object	
Missing object	
Parking detection	
Aggregate Detection	
Loitering detection	

Step 5 (Optional) Click other icons at the right side of the image to filter targets in the image.

- Click  to draw the minimum size of the target, and click  to draw the maximum size of the target. Only when the target size is between the maximum size and the minimum size, can the alarm be triggered.
- Click  , and then press and hold the left mouse button to draw a rectangle, the pixel size is displayed.
- Click  to delete the detection line.
- Click  to adjust the live page through the PTZ control panel, and then click **Apply**.
- Click  to lock the PTZ function when drawing the rule lines. The longest lock time is 180 seconds.

Step 6 Set rule parameters for VCA.

Table 7-3 Description of VCA parameters

Parameter	Description
Direction	Set the direction of rule detection. • When setting tripwire, select **A->B**, **B->A**, or **A<->B**. • When setting intrusion, select **Enter**, **Exit**, or **Both**.
Auto Tracking	According to the actual situation, click  to enable **Auto Tracking**,

Parameter	Description
Tracking Duration	and then configure **Tracking Duration**. After enabling the auto tracking function, the Camera will track and capture the target until reaching the tracking duration. Only some devices support the function.
Target Screening	After **Target filter** is enabled, effective targets are not detected and alarms will not be triggered. This function is currently supported by line crossing, intrusion and fast. Effective targets include **Human** and **Motor Vehicle**.
Duration	• For abandoned object, the duration is the shortest time for triggering an alarm after an object is abandoned. • For missing object, the duration is the shortest time for triggering an alarm after an object is missing. • For parking detection, crowd gathering, or loitering detection, the duration is the shortest time for triggering an alarm after an object appears in the area.
Sensitivity	For aggregate detection, sensitivity is related to the alarm triggering time. It is easier to trigger the alarm with higher sensitivity.

Step 7 Set arming schedule and alarm linkage action. For details, see "8.6.1.5 Alarm Linkage".

Step 8 Click **Apply**.

7.2 Panoramic Linkage

After the calibration of the panoramic camera and the detail camera, the panoramic camera can be used as the main camera to view panoramic images. and the detail camera can be used as a subordinate camera to view detailed images.

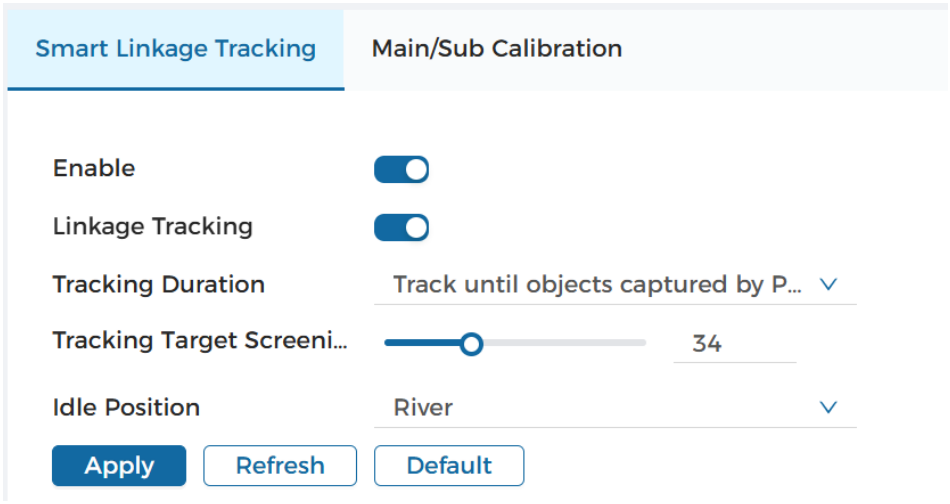
7.2.1 Smart linkage Tracking

After you set the main and sub calibration, when the panoramic camera's smart rules trigger an alarm, the detail camera will automatically link to the corresponding position and track the object until it goes out of the detection range or reaches the set tracking time.

Procedure

Step 1 Select **Smart Analysis** > **Panoramic Linkage** > **Smart linkage Tracking.**

Figure 7-2 Smart linkage Tracking



Step 2 Click beside **Enable** to enable linkage track.

Only linkage track is enabled can manual position and manual linkage take effect.

Step 3 Click beside Smart linkage Tracking to enable the auto tracking.

Step 4 Configure the parameters of linkage track.

Table 7-4 Parameter Description

Parameter	Description
Duration	You can configure the duration of linkage track. • **Continue till object disappears**: When the panoramic camera's smart rules trigger an alarm, the detail camera will automatically track the object until it goes out of the detection range in panoramic image. • **Automatic**: You can manually set the tracking period. • **Track until objects captured by detail camera disappear**: When the panoramic camera's smart rules trigger an alarm, the detail camera will automatically track the object until it goes out of the detection range by the detail camera.
Tracking Target Screening Ratio	Set the ratio of the tracked object's size in the detail camera's image. The ratio refers to the proportion of the tracked object to the camera image.

Parameter	Description
Idle Position	In the idle position, the detail camera remains stationary. • **None**: After the linkage track ends, the detail camera stops moving and remain fixed at the last tracked location. • **Preset**: After setting up the presets, the idle position will include the option of the corresponding presets. After the linkage track ends, the detail camera returns to the corresponding presets.

Step 5 Click **Apply**.

7.2.2 Main/sub Calibration

Main and sub calibration types include manual calibration and automatic calibration.

- Manual calibration: Select the same point for calibration in the panoramic camera channel and the detail camera channel. When there are multiple obvious static marks in the monitoring environment, the calibration can be completed accurately with the help of the marks. If the user has special requirements for the calibration results, manual calibration can be applied.
- Auto calibration: The camera selects the calibration point in the monitoring picture through the algorithm, which has high calibration speed and accuracy. Auto calibration can be applied when the user has no special requirements for calibration results.

7.2.2.1 Manual Calibration

Procedure

Step 1 Select **Smart Analysis** > **Panoramic Linkage** > **Main/Sub Calibration**.

Step 2 Select **Manual** from the type drop-down list.

Step 3 Select the calibration scene in turn, and then adjust the detail camera PTZ to the appropriate calibration position to calibrate the panoramic camera and the detail camera.

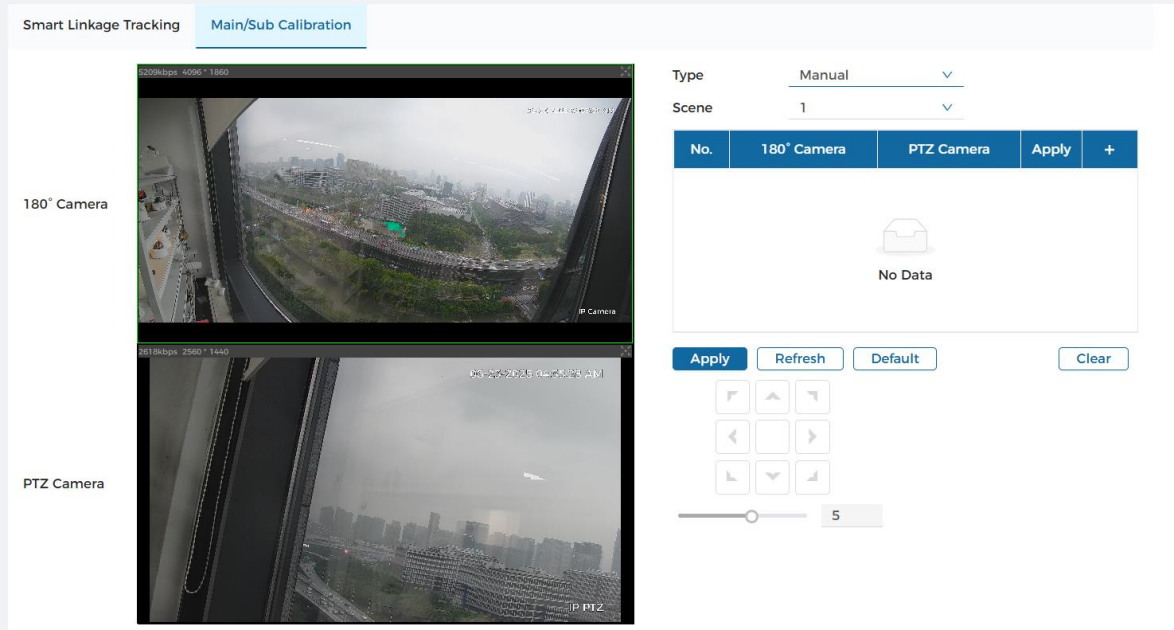
At least 4 pairs of calibration dots are needed to ensure the views of the detail camera and the panoramic camera as similar as possible, up to 10 groups.

1) Click  .
2) Move the point in the panoramic camera channel on the left and the detail camera channel on the right of the monitoring picture respectively, and the two points in the two channels serve as a group of calibration.

3) Click .

- We recommend you to calibrate from far to near, clockwise or counterclockwise, and the calibration points are evenly distributed.
- The calibration point is a corner point with obvious position characteristics, such as a clear point on an object or a boundary crossing point.

Figure 7-3 Main/sub calibration (manual)



Step 4 Click **Apply**.

7.2.2.2 Auto Calibration

Procedure

Step 1 Select **Smart Analysis** > **Panoramic Linkage** > **Main/Sub Calibration**.

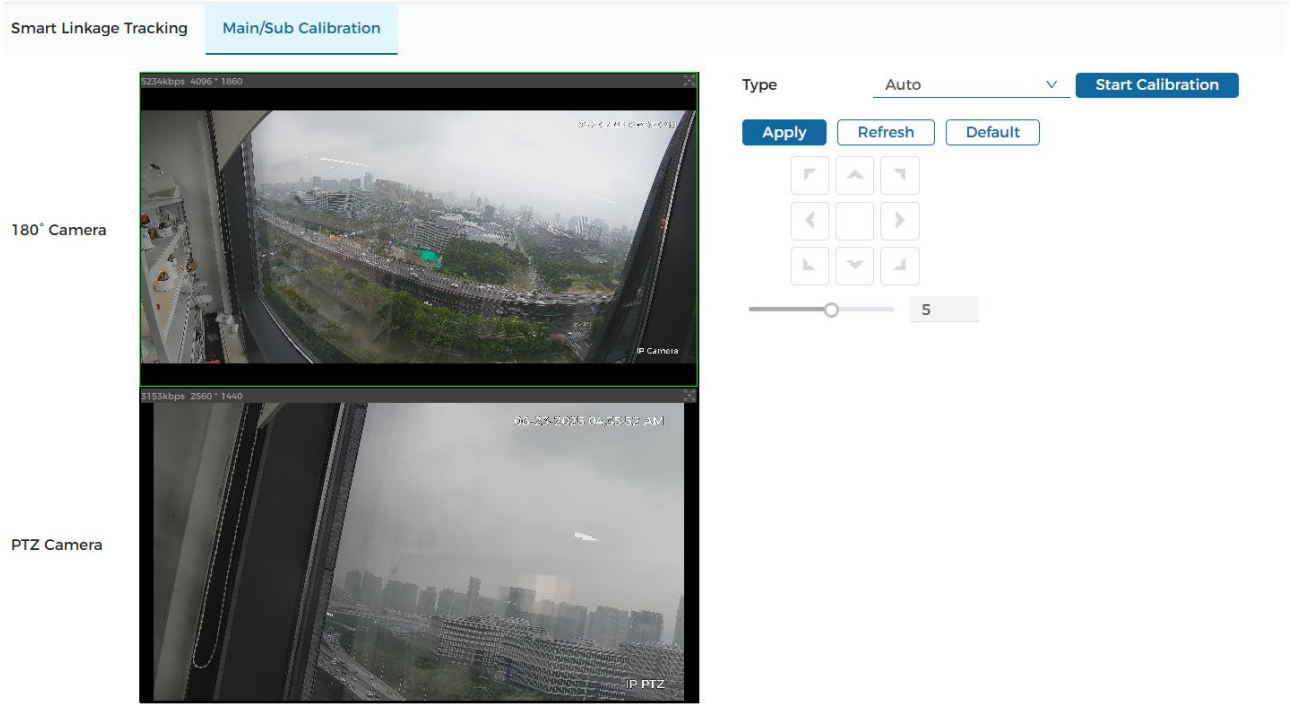
Step 2 Select **Auto** from the type drop-down list.

Step 3 Click **Start Calibration**.

Wait for the calibration progress to complete.

If you are not satisfied with the calibration results, you can carry out auto calibration again.

Figure 7-4 Main/Sub Calibration (auto)



Step 4 Click **Apply**.

8 Settings

This section introduces the basic setting of the camera, including the configuration of local, system, network, video/audio, image, event and storage.

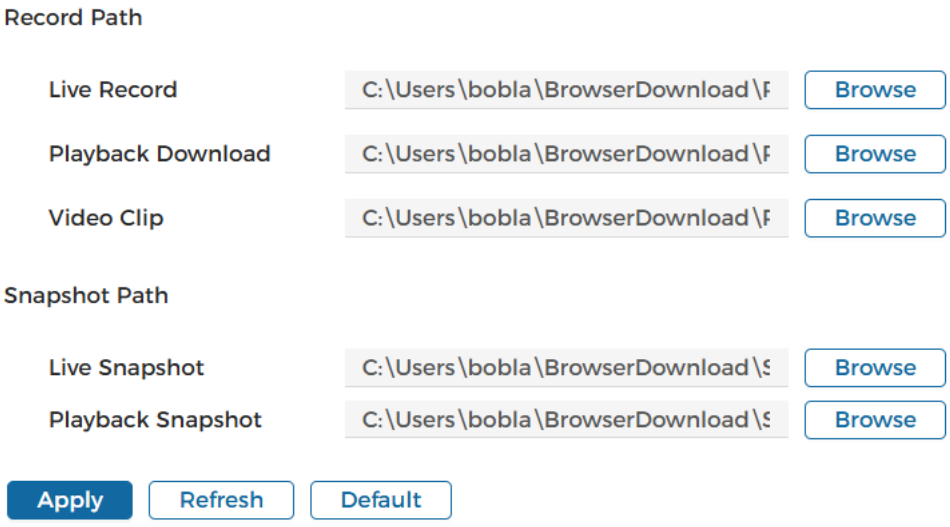
8.1 Local Settings

You can configure the storage path for live snapshot, live record, playback snapshot, playback download, and video clip.

Procedure

Step 1 Select **Settings** > **Local Settings**.

Figure 8-1 Local



Step 2 Click **Browse** to select the storage path for live snapshot, live record, playback snapshot, playback download, and video clip.

Table 8-1 Description of local parameters

Parameter	Description	
Live Record	The recorded video of live page. The default path is C:\Users\admin\BrowserDownload\Record\Live.	Admin in the path refers to the account being used.
Playback Download	The downloaded video of playback page. The default path is C:\Users\admin\BrowserDownload\Record\Playback.	

Parameter	Description	
Video Clip	The clipped video of playback page. The default path is C:\Users\admin\BrowserDownload\Record\Clips.	
Live Snapshot	The snapshot of live page. The default path is C:\Users\admin\BrowserDownload\Snapshot\Live.	
Playback Snapshot	The snapshot of playback page. The default path is C:\Users\admin\BrowserDownload\Snapshot\Playback.	

Step 3 Click **Apply**.

8.2 System

This section introduces system configurations, including system settings, maintenance, security, user management and legal information.

8.2.1 System Settings

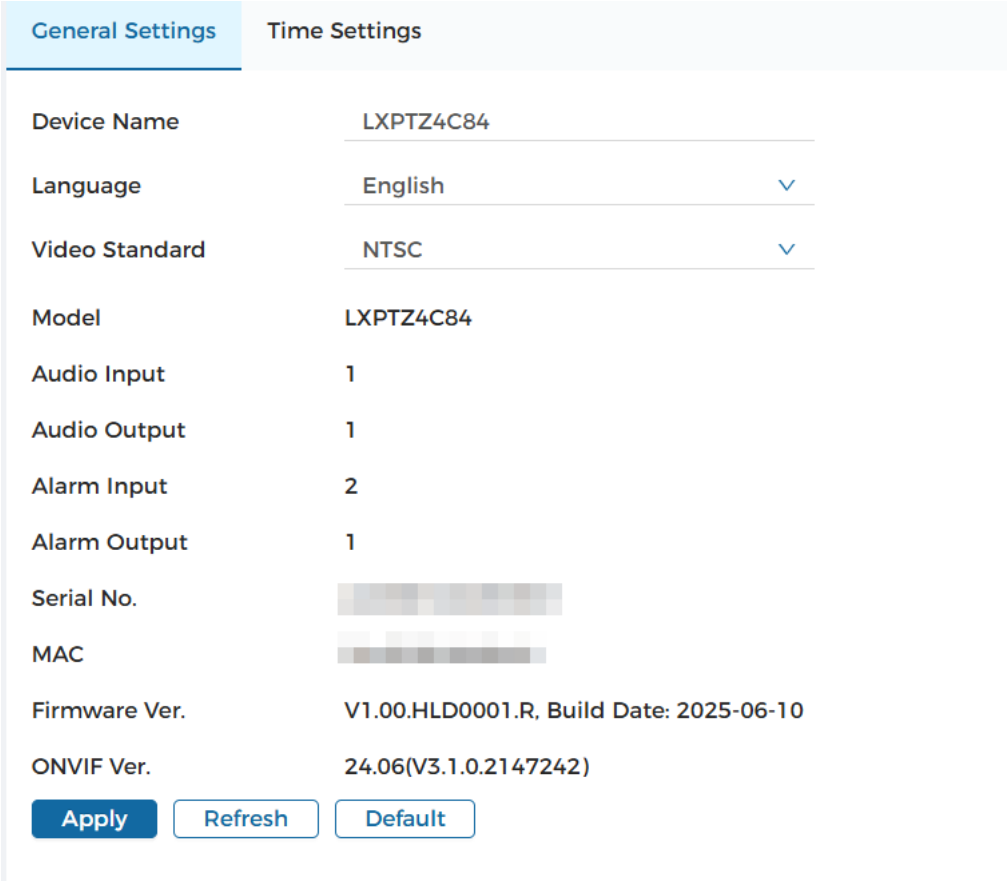
8.2.1.1 General Settings

You can configure the device name, language, video standard and view the device information such as model, serial number, MAC, firmware version and ONVIF version.

Procedure

Step 1 Select **Settings** > **System** > **System Settings** > **General Settings**.

Figure 8-2 General Settings



Step 2 Configure general parameters.

Table 8-2 Description of general parameters

Parameter	Description
Device Name	Enter the device name.
Language	Select system language. You can select English, Spanish and French.
Video Standard	Select video standard from **PAL** and **NTSC**.

Step 3 Click **Apply**.

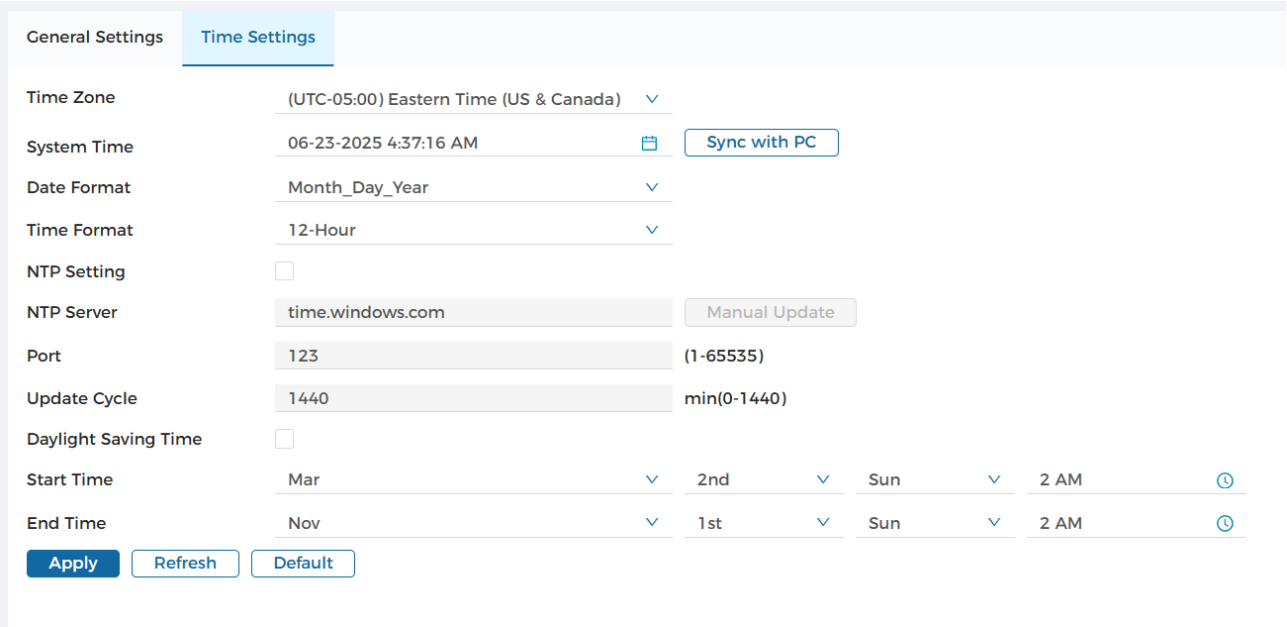
8.2.1.2 Time Settings

You can configure date and time format, time zone, system time, daylight saving time or NTP server.

Procedure

Step 1 Select **Settings** > **System** > **System Settings** > **Time Settings**.

Figure 8-3 Time Settings



Step 2 Configure time parameters.

Table 8-3 Description of time parameters

Parameter	Description
Time Zone	Configure the time zone that the camera is at.
System Time	Configure system time. Click **Sync with PC**, and the system time changes to the PC time.
Date Format	Configure the date format.
Time Format	Configure the time format. You can select from **12-Hour** or **24-Hour**.
NTP Setting	When selecting NTP, the system then syncs time with the internet server in real time. You can also enter the NTP server port, and update cycle of a PC which installed NTP server to use NTP.
Daylight Saving Time	Enable DST as needed. Select to enable this function and configure start time and end time of DST.

Step 3 Click **Apply**.

8.2.2 Maintenance

You can configure upgrade and maintenance, backup captured packet, system log in this section.

8.2.2.1 Upgrade and Maintenance

You can set the time of auto reboot, device restore, device default, back up the configuration

file and upgrade system version.

8.2.2.1.1 Requirements

To make sure the system runs normally, maintain it as the following requirements:

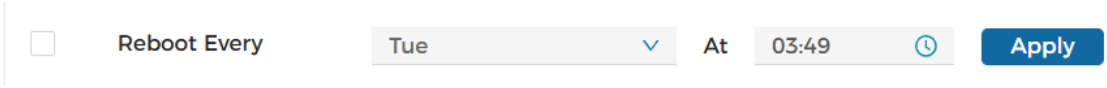
- Check surveillance images regularly.
- Clear regularly user and user group information that are not frequently used.
- Change the password every three months.
- View and analyze system logs, and process the abnormity in time.
- Back up the system configuration regularly.
- Upgrade firmware in time.

8.2.2.1.2 Auto Reboot

Procedure

Step 1 Select **Settings** > **System** > **Maintenance** > **Upgrade and Maintenance**.

Figure 8-4 Auto reboot



Step 2 Click ■ next to **Reboot Every**, and then set the reboot time. The system will automatically restart at the set time.

Step 3 Click **Apply**.

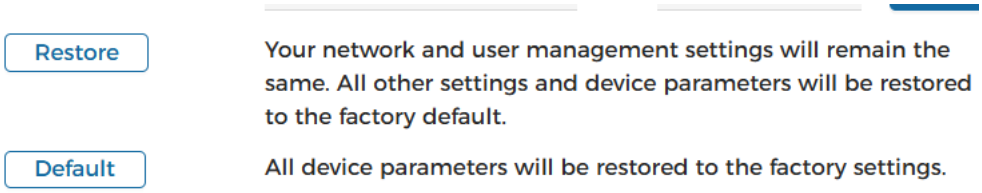
8.2.2.1.3 Restore and Default

Restore the device to default configuration or factory settings.

Select **Settings** > **System** > **Maintenance** > **Upgrade and Maintenance**.

- Click **Restore**, and then all the configurations except your network and user management settings are reset to default.
- Click **Default**, and all the configurations are reset to factory settings.

Figure 8-5 Restore and default



8.2.2.1.4 Import/Export

- Export the system configuration file to back up the system configuration.
- Import system configuration file to make quick configuration or recover system configuration.

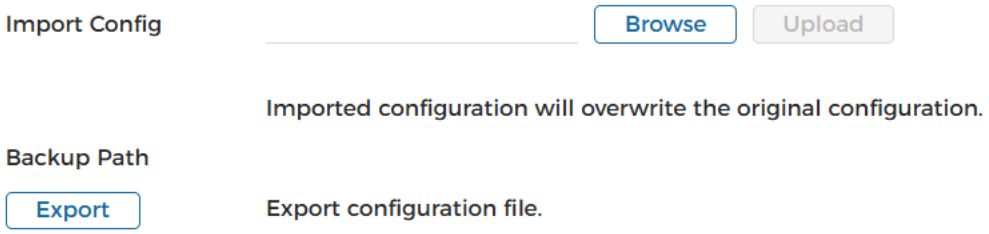
⚠

Importing an incompatible configuration file might damage the device.

Procedure

Step 1 Select **Settings** > **System** > **Maintenance** > **Upgrade and Maintenance**.

Figure 8-6 Import/Export



Step 2 Import or export the file.

- Import: Click **Browse** to select a local configuration file, and then click **Upload** to import the local system configuration file to the system.
- Export: Click **Export** to export the system configuration file to local storage.

8.2.2.1.5 Upgrade

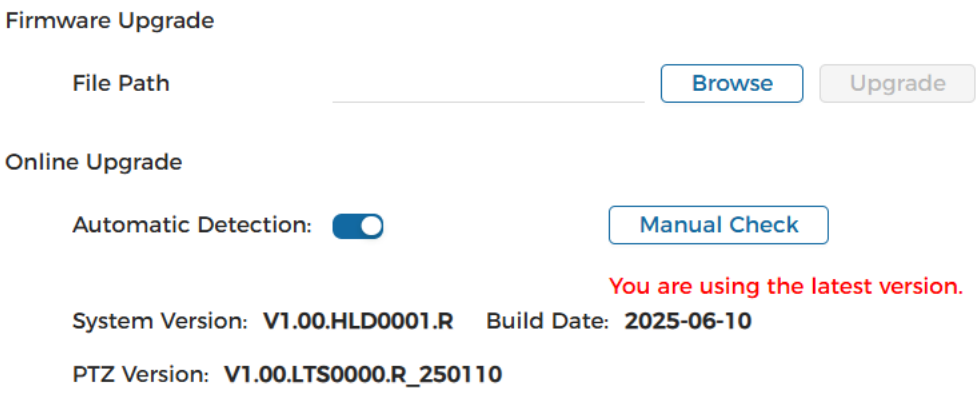
Upgrading to the latest system can refine camera functions and improve stability.

If wrong upgrade file has been used, restart the device; otherwise some functions might not work properly.

Procedure

Step 1 Select **Settings** > **System** > **Maintenance** > **Upgrade and Maintenance**.

Figure 8-7 Upgrade



Step 2 Select upgrade method as needed.

- Firmware Upgrade
  1. Click **Browse**, and then upload upgrade file. The upgrade file should be a .bin file.
  2. Click **Upgrade**.

- Online Upgrade
  1. Click  to enable automatic upgrade detection.
  2. Click **Manual Check**. If there is any upgrade available, click **Upgrade**, and then the system starts upgrading.

8.2.2.2 Backup Captured Packet

Retrieve network interaction data between the camera and a specified network card on the client, and store it on the computer.

Procedure

Step 1 Select **Settings** > **System** > **Maintenance** > **Backup Captured Packet**.

Step 2 Capture.

Click  to start capturing. **Captured Packet Data Size** will display the size of the packet.

Click  to end capturing. The capture file will be saved locally.

8.2.2.3 System Log

You can view and back up logs.

Procedure

Step 1 Select **Settings** > **System** > **Maintenance** > **System Log**.

Step 2 Configure **Start Time** and **End Time**, and then select the log type.

The log type includes **All**, **System**, **Config**, **Storage**, **Alarm Event**, **Record**, **User Management**, **Security**, **PTZ Operation** and **Clear Log**.

- **System**: Includes program start, abnormal close, close, program reboot, device closedown, device reboot, system reboot, and system upgrade.
- **Config**: Includes saving configuration and deleting configuration file.
- **Storage**: Includes configuring disk type, clearing data, hot swap, FTP state, and record mode.
- **Alarm Event** (records events such as video detection, smart plan, alarm and abnormality): Includes event start and event end.
- **Record**: Includes file access, file access error, and file search.
- **User Management**: Includes login, logout, adding user, deleting user, editing user, adding group, deleting group, and editing group.
- **Security**: Includes password resetting and IP filter.

Step 3 Click **Search**.

- Click  or click a certain log, and then you can view the detailed information in **Details** area.
- Click **Backup**, and then you can back up all found logs to local PC.

8.2.3 Security

8.2.3.1 System Service

Configure the IP hosts (devices with IP address) that are allowed to visit the device. Only the hosts in the trusted sites list can log in to the webpage. This is to enhance network and data security.

Procedure

Step 1 Select **Settings** > **System** > **Security** > **System Service**.

Step 2 Enable the system service as needed.

Table 8-4 Description of system service parameters

Function	Description
Mobile Push Notifications	Enable this function, and then the system would send the snapshot that was taken when alarm is triggered to your phone. This is enabled by default.
Retrieve by Multicast/Broadcast	Enable this function, and then when multiple users are viewing the device video image simultaneously through network, they can find your device with multicast/broadcast protocol.
SSH	You can enable SSH authentication to perform safety management.
TLSv1.1	Enable this function to encrypt the code transmitted through standard protocols. • Make sure that the matched devices or software support video decryption function. • We recommend you to enable the function. Otherwise, there might be risk of data leakage.
CGI	Enable the function, and then other devices can access through this service. The function is enabled by default.
RTSP Login Mode	Compatible with the old platform login mode. The default is digest mode.

Step 3 Click **Apply**.

8.2.3.2 Unauthorized Access

If you consecutively enter a wrong password more than the configured value, the account will be locked.

Procedure

Step 1 Select **Settings** > **System** > **Security** > **Unauthorized Access**.

Step 2 Configure the login attempt and lock time for device account, ONVIF user and SNMP

user.

- Login attempt: Upper limit of login attempts. If you consecutively enter a wrong password more than the configured value, the account will be locked.
- Lock time: The period during which you cannot login after the login attempts reaches upper limit.

Step 3 Click **Apply**.

8.2.3.3 Security Exception

When security exception event is detected, the camera sends a warning to remind you to process it timely, to avoid security risk.

Procedure

Step 1 Select **Settings** > **System** > **Security** > **Security Exception**.

Step 2 Click  next to **Enable** to enable security exception.

Step 3 Configure the parameters.

Step 4 Set alarm linkage action.

Step 5 Click **Apply**.

8.2.4 User Management

You can manage users, such as add, delete, or edit them. Users include admin, added users, ONVIF users and online users.

Managing users and editing permissions are only available for administrator users.

- The max length of the user or group name is 31 characters which consists of number, letter, underline, dash, dot and @.
- The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' " ; : &).
- You can have 18 users and 8 groups at most.
- You can manage users through single user or group, and duplicate usernames or group names are not allowed. A user can only be in one group at a time, and the group users can own authorities within group authority range.
- Online users cannot edit their own authority.
- There is one admin by default which has highest authority.

8.2.4.1 Adding User

You are admin user by default. You can add users, and configure different permissions.

Procedure

Step 1 Select **Settings** > **System** > **User Management** > **User**.

Step 2 Click **Add**.

Step 3 Configure user parameters.

Table 8-5 Description of user parameters

Parameter	Description
Username	User's unique identification. You cannot use existed username.
Password	Enter password and confirm it again. The password must consist of 8 to 32 non-blank characters and contain at least 2 types of characters among upper case, lower case, number, and special character (excluding ' " ; : &).
Confirm Password	
Permission	The group that users belong to. Each group has different authorities.
System	Select authorities as needed. We recommend you give fewer permissions to normal users than premium users.
Live View	Select the live view authority for the user to be added.
Playback	Select the playback authority for the user to be added.
Restricted Login	Set the PC address that allows the defined user to log in to the camera and the validity period and time range. You can log in to the webpage with the defined IP in the defined time range of validity period. • IP address: You can log in to the webpage through the PC with the set IP. • Validity period: You can log in to the webpage in the set validity period. • Time period: You can log in to the webpage in the set time range. Set as follows 1. Select the type, and then set the IP address. ◇ IP address: Enter the IP address of the host to be added. ◇ IP segment: Enter the start address and end address of the host to be added. 2. Select **Validity Period**, and then configure the start time and end time. 3. Click **Time Period** to set time plan to configure the allowed login time.

Step 4 Click **Apply**.

The newly added user is displayed in the username list.

Related Operations

- Click to edit password, permission, or authorities.

  For admin account, you can only edit the password.

- Click to delete the added users. Admin user cannot be deleted.

8.2.4.2 Editing Permission

You have two permission groups named admin and user by default, and you can add new group, delete added group or edit group authority.

Procedure

Step 1 Select **Settings** > **System** > **User Management** > **Edit Permission**.

Step 2 Click **Add**.

Step 3 Enter the permission group name, and then select group authorities.

Step 4 Click **Apply** to finish configuration.

The newly added group displays in the group name list.

Related Operations

- Click to edit password, permission or authorities.
- Click to delete the added users. Admin user cannot be deleted.

  The admin group and user group cannot be deleted.

8.2.4.3 Adding ONVIF User

You can add, delete ONVIF user, and change their passwords.

Procedure

Step 1 Select **Settings** > **System** > **User Management** > **ONVIF User**.

Step 2 Click **Add**.

Step 3 Configure user parameters.

Table 8-6 Description of ONVIF user parameters

Parameter	Description
Username	User's unique identification. You cannot use existed username.
Password	Enter password and confirm it again. The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' " ; : &).
Confirm Password	
Edit Permission	The permission group that users belong to. Each group has different authorities.

Step 4 Click **Apply**.

The newly added user displays in the username list.

Related Operations

- Click to edit password, permission group or authorities.

  For admin account, you can only change the password.

- Click to delete the added users.

  The admin account cannot be deleted.

8.2.4.4 Viewing Online Users

Select **Settings** > **System** > **User Management** > **Online User**. You can view information on users who logged in to the camera.

8.2.4.5 PW Resetting

Enable the function, and you can reset password by clicking **Forget password?** on the login page.

Procedure

Step 1 Select **Settings** > **System** > **User Management** > **PW Reset**.

Figure 8-20 PW Reset

Step 2 Click next to **Enable**.

If the function is not enabled, you can only reset the password by resetting the camera.

Step 3 Enter the reserved email address.

Step 4 Click **Apply**.

8.2.5 Peripheral-Heater

Procedure

Step 1 Select **Settings** > **System** > **Peripheral** > **Heater**.

Step 2 Select the channel, click to enable **Remove ice and fog**, and then click **Apply**.

8.2.6 Viewing Legal Information

Select **Settings** > **System** > **Legal Information**. You can view the corresponding information under different tabs, including open source software statement, software license agreement

and privacy policy.

8.3 Network

This section introduces network configuration.

8.3.1 Basic

8.3.1.1 TCP/IP

You can configure IP address and DNS (Domain Name System) server and so on according to network planning.

Prerequisites

The camera has connected to the network.

Procedure

Step 1 Select **Settings** > **Network** > **Basic** > **TCP/IP**.

Step 2 Configure TCP/IP parameters.

Table 8-7 Description of TCP/IP parameters

Parameter	Description
IP Version	Select **IPv4** or **IPv6**.
Name	Select the Ethernet card that need to be configured, and the default one is **Wired**.
MAC	Displays host MAC address.
DHCP	Click  to enable DHCP. When there is DHCP server in the network, select **DHCP**, and the camera acquires IP address automatically.
IP Address	When you select **Static** in **Mode**, enter the IP address and subnet mask that you need. - IPv6 does not have subnet mask. - The default gateway must be on the same network segment with the IP address.
Subnet Mask	
Default Gateway	
Preferred DNS Server	IP address of the preferred DNS.
Backup DNS Server	IP address of the alternate DNS.

Step 3 Click **Apply**.

8.3.1.2 Port

Configure the port numbers and the maximum number of users (includes web, platform client, and mobile phone client) that can connect to the device simultaneously.

Procedure

Step 1 Select **Settings** > **Network** > **Basic** > **Port**.

Step 2 Configure port parameters.

- 0–1024, 1900, 3800, 5000, 5050, 9999, 37776, 37780–37880, 39999, 42323 are occupied for specific uses.
- Do not use the same value of any other port during port configuration.

Table 8-8 Description of port parameters

Parameter	Description
HTTP Port	Hyper text transfer protocol port. The value is 80 by default.

Parameter	Description
RTSP Port	• Real time streaming protocol port, and the value is 554 by default. If you play live view with QuickTime, VLC or Blackberry smart phone, the following URL format is available. • When the URL format requiring RTSP, you need to specify channel number and bit stream type in the URL, and also username and password if needed. • When playing live view with Blackberry smart phone, you need to turn off the audio, and then set the codec mode to H.264 and resolution to CIF. URL format example: rtsp://username:password@ip:port/video/livemedia?Ch=1&Streamtype=0 Among that: • Username: The username, such as admin. • Password: The password, sunch as admin123. • IP: The device IP, such as 192.168.1.101. • Port: Leave it if the value is 554 by default. • Ch: The channel number, which starts from 1. For example, if you are using channel 2, then the channel=2. • Streamtype: The bit stream type; 0 means main stream (Streamtype=0) and 1 means sub stream (Streamtype=1). Example: If you require the sub stream of channel 2 from a certain device, then the URL should be: rtsp://admin:admin123@192.168.1.101:554/video/livemedia?Ch=2&Streamtype=1 If username and password are not needed, then the URL can be: rtsp://ip:port/video/livemedia?Ch=1&Streamtype=0
HTTPS Port	HTTPS communication port. It is 443 by default.

Step 3 Click **Apply**.

8.3.1.3 DDNS

Properly configure DDNS, and then the domain name on the DNS server matches your IP address and the matching relation refreshes in real time. You can always visit the camera with the same domain name no matter how the IP address changes.

Prerequisites

Check the type of DNS server supported by the camera.

Procedure

Step 1 Select **Settings** > **Network** > **Basic** > **DDNS&P2P**.

- Third party server might collect your device information after DDNS is enabled.
- Register and log in to the DDNS website, and then you can view the information of all the connected devices in your account.

Step 2 Click to enable the function.

Step 3 Configure DDNS parameters.

Table 8-9 Description of DDNS parameters

Parameter	Description
Type	The name and web address of the DDNS service provider, see the matching relationship below: • NO-IP DDNS web address: dynupdate.no-ip.com • Dyndns DDNS web address: members.dyndns.org
Server Address	
Domain Name	The domain name you registered on the DDNS website.
Test	Only when selecting **NO-IP DDNS** type, you can click **Test** to check whether the domain name registration is successful.
Username	Enter the username and password that you got from the DDNS server provider. You need to register an account (includes username and password) on the DDNS server provider's website.
Password	

Step 4 Click **Apply**.

Result

Open the browser on PC, then enter domain name at the address bar and press **Enter**, the login page is displayed.

8.3.1.4 P2P

P2P (peer-to-peer) technology enables users to manage devices easily without requiring DDNS, port mapping or transit server.

Background Information

Scan the QR code with your smartphone, and then you can add and manage more devices on the mobile phone client.

Procedure

Step 1 Select **Settings** > **Network** > **Basic** > **DDNS&P2P**.

- When P2P is enabled, remote management on device is supported.
- When P2P is enabled and the device accesses to the network, the status shows online. The information of the IP address, MAC address, device name, and device SN will be collected. The collected information is for remote access only. You can cancel **Enable** selection to reject the collection.

Step 2 Log in to mobile phone client and tap **Device management**.

Step 3 Tap **+** at the upper-right corner.

Step 4 Scan the QR code on the **P2P** page.

Step 5 Follow the instructions to finish the settings.

8.3.1.5 Email

Configure email parameter and enable email linkage. The system sends email to the defined address when the corresponding alarm is triggered.

Procedure

Step 1 Select **Settings** > **Network** > **Basic** > **Email**.

Step 2 Click  to enable the function.

Step 3 Configure email parameters.

Table 8-10 Description of email parameters

Parameter	Description
SMTP Server	SMTP server address.
Port	The port number of the SMTP server.
Attachment	Select the check box to support attachment in the email.
Username	The account of SMTP server.
Password	The password of SMTP server.
Sender	Sender's email address.
Encryption Type	Select from **None**, **SSL** and **TLS**.
Subject	Enter maximum 63 characters in Chinese, English, and Arabic numerals. • Select **Attachment**, the system sends 1 image to the configured Email by default. You can select **3 Images**, and then configure the interval. The system sends 3 images according to the configured interval after the alarm is triggered.
Name and Address	Receiver's name and email address. Supports 3 addresses at most.

Table 8-11 Description of major mailbox configuration

Mailbox	SMTP server	Authentication	Port	Description
Gmail	smtp.gmail.com	SSL	465	You need to enable SMTP service in your mailbox.
		TLS	587	

Step 4 Click **Apply**.

8.3.2 Network Access

8.3.2.1 HTTPS

Create a certificate or upload an authenticated certificate, and then you can log in through HTTPS with your PC. The HTTPS can protect page authenticity on all types of websites, secure accounts, and keep user communications, identity, and web browsing private.

Procedure

Step 1 Select **Settings** > **Network** > **Network Access** > **HTTPS**.

Step 2 Click to enable it.

Step 3 Select the certificate.

If there is no certificate in the list, click **Certificate Mana.** at the right navigation bar.

Step 4 Click **Apply**.

8.3.2.2 802.1x

Cameras can connect to LAN after passing 802.1x authentication.

Procedure

Step 1 Select **Settings** > **Network** > **Network Access** > **802.1x**.

Step 2 Click to enable it.

Step 3 Select the authentication mode, and then configure parameters.

- PEAP: Protected EAP protocol.
  1. Select PEAP as the authentication mode.
  2. Enter the username and password that has been authenticated on the server.
  3. Click next to CA certificate, and select the trusted CA certificate in list.

     If there is no certificate in the list, click **Certificate Mana.** at the right navigation bar.

- TLS: Transport Layer Security. It is applied in two communication application programs to guarantee the security and integrity of the data.
  1. Select TLS as the authentication mode.
  2. Enter the username.
  3. Click next to CA certificate, and select the CA certificate in list.

     If there is no certificate in the list, click **Certificate Mana.** at the right navigation bar.

Step 4 Click **Apply**.

8.3.2.3 Certificate Mana.

8.3.2.3.1 Installing Device Certificate

Create a certificate, and then you can log in through HTTPS with your PC.

Procedure

Step 1 Select **Settings** > **Network** > **Network Access** > **Certificate Mana.**.

Step 2 Select **Device Certificate**

Step 3 Click **Install Device Certificate**.

Step 4 Enter the certificate information.

Step 5 Click **Create and install certificate**.

After the certificate is created successfully, you can view the created certificate on the **Device Certificate** page.

Related Operations

- Click  to download the certificate.
- Click  to delete the certificate.

8.3.2.3.2 Installing Trusted CA Certificate

CA certificate is a digital certificate for the legal identity of the camera. For example, when the camera accesses the LAN through 802.1x, the CA certificate is required.

Procedure

Step 1 Select **Settings** > **Network** > **Network Access** > **Certificate Mana.**.

Step 2 Select **Trusted CA Certificates**

Step 3 Click **Installing Trusted Certificate**.

Step 4 Click **Browse** to select the certificate.

Step 5 Click **Create**.

After the certificate is created successfully, you can view the created certificate on the **Trusted CA Certificate** page.

Related Operations

- Click  to download the certificate.
- Click  to delete the certificate.

8.3.3 Advanced

8.3.3.1 Firewall

Configure firewall to limit access to the camera.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **Firewall**.

Step 2 Click to enable the firewall function.

Step 3 Select the mode: **Allowlist** and **Blocklist**.

- **Allowlist**: Only when the IP/MAC of your PC in the allow list, can you access the camera. Ports are the same.
- **Blocklist**: When the IP/MAC of your PC is in the block list, you cannot access the camera. Ports are the same.

Step 4 Click to add the host IP/MAC address to **Allowlist** or **Blocklist**, and then click **OK**.

Step 5 Click **Apply**.

Related Operations

- Click to edit the host information.
- Click to delete the host information.

8.3.3.2 Onvif

The Onvif service enabled by default, which allows the network video products (including video recording device and other recording devices) from other manufacturers to connect to your device.

ONVIF is enabled by default.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **Onvif**.

Step 2 Click next to **Login Verification**.

Step 3 Click next to **ONVIF Service**.

Step 4 Click **Apply**.

8.3.3.3 RTMP

Through RTMP, you can access a third-party platform (such as Ali and YouTube) to realize video live view.

- RTMP can be configured by admin only.
- RTMP supports the H.264 video formats, and the AAC audio format only.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **RTMP**.

Step 2 Click .

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Make sure that the IP address is trustable when enabling RTMP.

Step 3 Configure RTMP parameters.

Table 8-12 Description of RTMP parameters

Parameter	Description
Channel	You can select from **180° Camera** and **PTZ Camera**.
Stream Type	The stream for live view. Make sure that the video format is H.264 and the audio format is AAC.
Address Type	• **Non-custom**: Enter the server IP and domain name. • **Automatic**: Enter the path allocated by the server.
Encryption	When selecting **Non-custom**, click to enable encryption.
IP Address	When selecting **Non-custom**, you need to enter server IP address and port. • **IP address**: Support IPv4 or domain name. • **Port**: Keep the default value.
Port	
Custom Address	When selecting **Automatic**, you need to enter the path allocated by the server.

Step 4 Click **Apply**.

8.3.3.4 PPPoE

Point-to-Point Protocol over Ethernet, is one of the protocols that device uses to connect to the internet. Get the PPPoE username and password from the internet service provider, and then set up network connection through PPPoE, the camera will acquire a WAN dynamic IP address.

Prerequisites

- The camera has connected to the network.
- You have gotten the account and password from Internet Service Provider.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **PPPoE Settings**.

Step 2 Click , and then enter username and password.

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- Disable UPnP while using PPPoE to avoid possible influence.
- After making PPPoE connection, the device IP address cannot be modified through web page.

Step 3 Click **Apply**.

The success prompt box is displayed, and then the real-time WAN IP address is displayed. You can access camera through the IP address.

8.3.3.5 UPnP

UPnP (Universal Plug and Play) is a protocol that establishes mapping relation between local area and wide area networks. This function enables you to access local area device through wide area IP address.

Prerequisites

- Make sure the UPnP service is installed in the system.
- Log in the router, and configure WAN IP address to set up internet connection.
- Enable UPnP in the router.
- Connect your device to the LAN port of the router.
- Select **Settings** > **Network** > **Basic** > **TCP/IP**, in **IP Address**, enter the local area IP address of the router or select **DHCP** and acquires IP address automatically.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **UPnP**.

Step 2 Click  next to **Enable**, and there are two mapping modes: **Automatic** and **Default**.

- Select **Automatic**, click  and then you can change external port as needed.
- Select **Default**, and then the system finishes mapping with unoccupied port automatically, and you cannot edit mapping relation.

Step 3 Click **Apply**.

Open web browser on PC, enter http:// *wide area IP address: external port number*, and then you can visit the local area device with corresponding port.

8.3.3.6 SNMP

SNMP (Simple Network Management Protocol), which can be used to enable software such as MIB Builder and MG-SOFT MIB Browser to connect to the camera and manage and monitor the camera.

Prerequisites

- Install SNMP monitoring and managing tools such as MIB Builder and MG-SOFT MIB Browser.
- Get the MIB file of the matched version from technical support.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **SNMP**.

Step 2 Select SNMP version to enable SNMP.

- Select **V1**, and the system can only process information of V1 version.
- Select **V2**, and the system can only process information of V2 version.
- Select **V3**, and then **V1** and **V2** become unavailable. You can configure username, password and authentication type. It requires corresponding username, password and authentication type to visit your device from the server.

Using **V1** and **V2** might cause data leakage, and **V3** is recommended.

Step 3 In **Trap Address**, enter the IP address of the PC that has MIB Builder and MG-SOFT MIB Browser installed, and leave other parameters to the default.

Table 8-13 Description of SNMP parameters

Parameter	Description
SNMP Port	The listening port of the software agent in the device.
Read Community, Write Community	The read and write community string that the software agent supports. You can enter number, letter, underline and dash to form the name.
Trap Address	The target address of the Trap information sent by the software agent in the device.
Trap Port	The target port of the Trap information sent by the software agent in the device.
Read-only Username	Set the read-only username accessing device, and it is **public** by default. You can enter number, letter, and underline to form the name.
Read/Write Username	Set the read/write username access device, and it is **private** by default. You can enter number, letter, and underline to form the name.
Authentication Type	You can select from **MD5** and **SHA**. The default type is **MD5**.
Authentication Password	Password must be 8 to 32 characters.
Encryption Type	The default is CBC-DES.
Encryption Password	Password must be 8 to 32 characters.

Step 4 Click **Apply**.

Result

View device configuration through MIB Builder or MG-SOFT MIB Browser.

1. Run MIB Builder and MG-SOFT MIB Browser.
2. Compile the two MIB files with MIB Builder.
3. Load the generated modules with MG-SOFT MIB Browser.

4. Enter the IP address of the device you need to manage in the MG-SOFT MIB Browser, and then select version to search.
5. Unfold all the tree lists displayed in the MG-SOFT MIB Browser, and then you can view the configuration information, video channel amount, audio channel amount, and software version.

Use PC with Windows and disable SNMP Trap service. The MG-SOFT MIB Browser will display prompt when alarm is triggered.

8.3.3.7 Bonjour

Enable this function, and the OS and clients that support Bonjour would find the camera automatically. You can have quick visit to the camera with Safari browser.

Background Information

Bonjour is enabled by default.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **Bonjour**.

Step 2 Click , and then configure server name.

Step 3 Click **Apply**.

Result

In the OS and clients that support Bonjour, follow the steps below to visit the network camera with Safari browser.

1. Click **Show All Bookmarks** in Safari.
2. Enable **Bonjour**. The OS or client automatically detects the network cameras with Bonjour enabled in the LAN.
3. Click the camera to visit the corresponding web page.

8.3.3.8 Multicast

Background Information

When multiple users are viewing the device video image simultaneously through the network, it might fail due to the limited bandwidth. You can solve this problem by setting up a multicast IP (224.0.0.0–239.255.255.255) for the Camera and adopt the multicast protocol.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **Multicast**.

Step 2 Click , and then enter IP address and port number.

Table 8-14 Description of multicast parameters

Parameter	Description
Channel	You can select from **180° Camera** and **PTZ Camera**.
IP Version	You can select **IPv4** or **IPv6**.
IP Address	The multicast IP address of **Main Stream**/**Sub Stream** is 224.1.2.4 by default, and the range is 224.0.0.0–239.255.255.255.
Port	The range of multicast port is 1025–65500. Single-channel device: The multicast port of corresponding stream: **Main Stream**: 40000; **Sub Stream1**: 40008; **Sub Stream2**: 40016.

Step 3 Click **Apply**.

Result

Click **Live View** on the main page of the webpage, and then monitor the video image of corresponding stream in a multicast form on the **Live View** page.

8.3.3.9 QoS

You can solve problems such as network delay and congestion with this function. It helps to assure bandwidth, reduce transmission delay, packet loss rate, and delay jitter to improve experience.

0–63 means 64 degrees of priority; 0 for the lowest and 63 the highest.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **QoS**.

Step 2 Configure QoS parameters.

Table 8-15 Description of QoS parameters

Parameter	Description
Real-time Monitor	Configure the priority of the data packets that used for network surveillance. 0 for the lowest and 63 the highest.
Operation Command	Configure the priority of the data packets that used for configure or checking.

Step 3 Click **Apply**.

8.3.3.10 Remote Log Records

Configure remote logs to receive logs by accessing the set address.

Procedure

Step 1 Select **Settings** > **Network** > **Advanced** > **Remote Log Records**.

Step 2 Click  to enable remote log function.

Step 3 Configure address, port and device number.

Step 4 Click **Apply**.

8.3.4 Auto Registration

After you enable this function, when the camera is connected into Internet, it will report the current location to the specified server which acts as the transit to make it easier for the client software to access the camera.

Procedure

Step 1 Select **Settings** > **Network** > **Auto Registration**.

Step 2 You can select communication mode from Private or CGI, click  to enable the function.

Table 8-16 Description of register parameters

Parameter	Description
Server Address	The IP address or domain name of the server to be registered.
Address	
Domain Name	
Port	The port for registration.
Sub-Device ID	The custom ID for the camera.
Device ID	
Type	Select from **IP** or **Domain**.
Port	Enter from 1025 to 65535.
HTTPS	Click  to enable HTTPS.
Username	The username and password of the device.
Password	

Step 3 Click **Apply**.

8.4 Video/Audio

This section introduces the camera setting, including video parameters and audio parameters.

Camera parameters of different devices might vary.

8.4.1 Setting Video Parameters

This section introduces video parameters, including video stream and region of interest.

Click **Default**, and the device is restored to default configuration. Click **Refresh** to view the latest configuration.

8.4.1.1 Video Stream

Configure video stream parameters, such as compression, resolution, frame rate, bit rate type, bit rate, I frame interval and watermark.

Procedure

Step 1 Select **Settings** > **Video/Audio** > **Video** > **Video Stream**.

Step 2 Configure video stream parameters.

Table 8-17 Description of video stream parameters

Parameter	Description
Channel	You can select from **180° Camera** and **PTZ Camera**.
Sub Stream	Click to enable sub stream, it is enabled by default. You can enable multiple sub streams simultaneously.
Encoding Strategy	You can select **General**, **Smart Encoding** or **AI Codec**.
Compression	Select encode mode. • **H.264**: Main profile encode mode. Compared with H.264B, it requires smaller bandwidth. • **H.265**: Main profile encode mode. Compared with H.264H, it requires smaller bandwidth.
Resolution	The resolution of the video. The higher the value is, the clearer the image will be, but the bigger the required bandwidth will be.
Frame Rate (FPS)	The number of frames in one second of video. The higher the value is, the clearer and smoother the video will be.
Bit Rate Type	The bit rate control type during video data transmission. You can select bit rate type from: • **CBR** (Constant Bit Rate): The bit rate changes a little and keeps close to the defined bit rate value. • **VBR** (Variable Bit Rate): The bit rate changes as monitoring scene changes. The **Bit Rate Type** can be set as **CBR** only when **Encoding Strategy** is set as **AI Codec**.

Parameter	Description
Quality	This parameter can be configured only when the **Bit Rate Type** is set as **VBR**. The better the quality is, but the bigger the required bandwidth will be.
Bit Rate	Supports for automatic bit rate. You can select bit rate value according to actual condition.
I Frame Interval	The number of P frames between two I frames, and the **I Frame Interval** range changes as **FPS** changes. It is recommended to set **I Frame Interval** twice as big as **FPS**.
Watermark	You can verify the watermark to check if the video has been tampered.
Watermark String	

Step 3 Click **Apply**.

8.4.1.2 Region of Interest

Select region of interest on the image and configure the image quality of ROI, and then the selected image is display at defined quality.

Procedure

Step 1 Select **Settings** > **Video/Audio** > **Video** > **Region of Interest**.

Step 2 Click  next to **Enable**, draw an area on the image, and then configure the image quality of ROI.

- The higher the image quality value is, the better the quality will be.
- Select one box, and then click  to delete it.

Step 3 Click **Apply**.

Step 4 Click  to add more ROI. You can draw 8 area boxes at most.

8.4.2 Setting Audio Parameters

You can configure audio parameters and alarm audio.

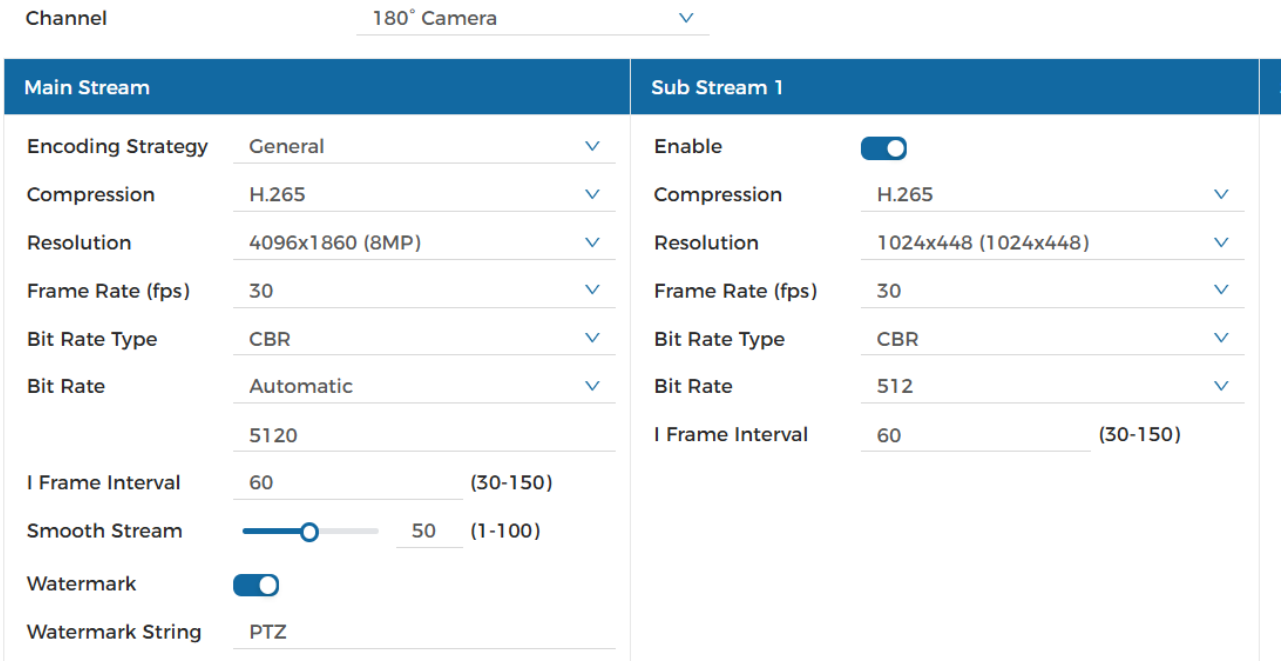
8.4.2.1 Audio

This section introduces audio parameters, including encode mode, sampling rate, audio input type, and noise filter.

Procedure

Step 1 Select **Settings** > **Video/Audio** > **Audio** > **Audio**.

Figure 8-48 Audio



Step 2 Click next to **Enable** in **Main Stream** or **Sub Stream**.

For the camera with multiple channels, select the channel number.

Please activate or deactivate the audio acquisition function based on the requirements of the scene.

Step 3 Configure audio parameters.

Table 8-18 Description of audio parameters

Parameter	Description
Encoding Mode	You can select audio **Encoding Mode** from **PCM**, **G.711A**, **G.711Mu**, **AAC**. The configured audio encode mode applies to both audio and intercom. The default value is recommended.
Sampling Rate	Sampling number per second. The higher the sampling frequency is, the more the sample in a second will be, and the more accuracy the restored signal will be. You can select audio **Sampling Rate** from **8000**, **16000**, **32000**, **48000**, **64000**.
Audio Input Type	You can select audio input type from: • **LineIn**: Requires external audio device. • **Mic**: Not require external audio device.
Filter Ambient Noise	Enable this function, and the system auto filters ambient noise.
Microphone Volume	Adjusts microphone volume.
Speaker Volume	Adjusts speaker volume.

Step 4 Click **Apply**.

8.4.2.2 Alarm Audio Files

You can record or upload alarm audio file. The audio file will be played when the alarm is triggered.

Procedure

Step 1 Select **Settings** > **Video/Audio** > **Audio** > **Alarm Audio Files**.

Step 2 Click **Add**.

Step 3 Configure the audio file.

- Select **Record**, enter the audio name in the input box, and then click **Record**.
- Select **Upload**, click **Browse** to select the audio file to be uploaded, and then click **Upload**.

- The camera supports recording audio file in .pcm format only. Recording is only supported by select models.
- You can upload audio files in .pcm, .wav2, .mp3, or .aac format.

Step 4 Select the file that you need.

Related Operations

- Edit audio file
  Click  to edit the file name.
- Delete audio file
  Click  to delete the file.
- Play audio file
  Click  to play the file.
- Download audio file
  Click  to download the file.

8.5 Image

This section introduces the camera settings for image parameters.

Camera parameters of different devices might vary.

8.5.1 Display Setting

8.5.1.1 Display Settings

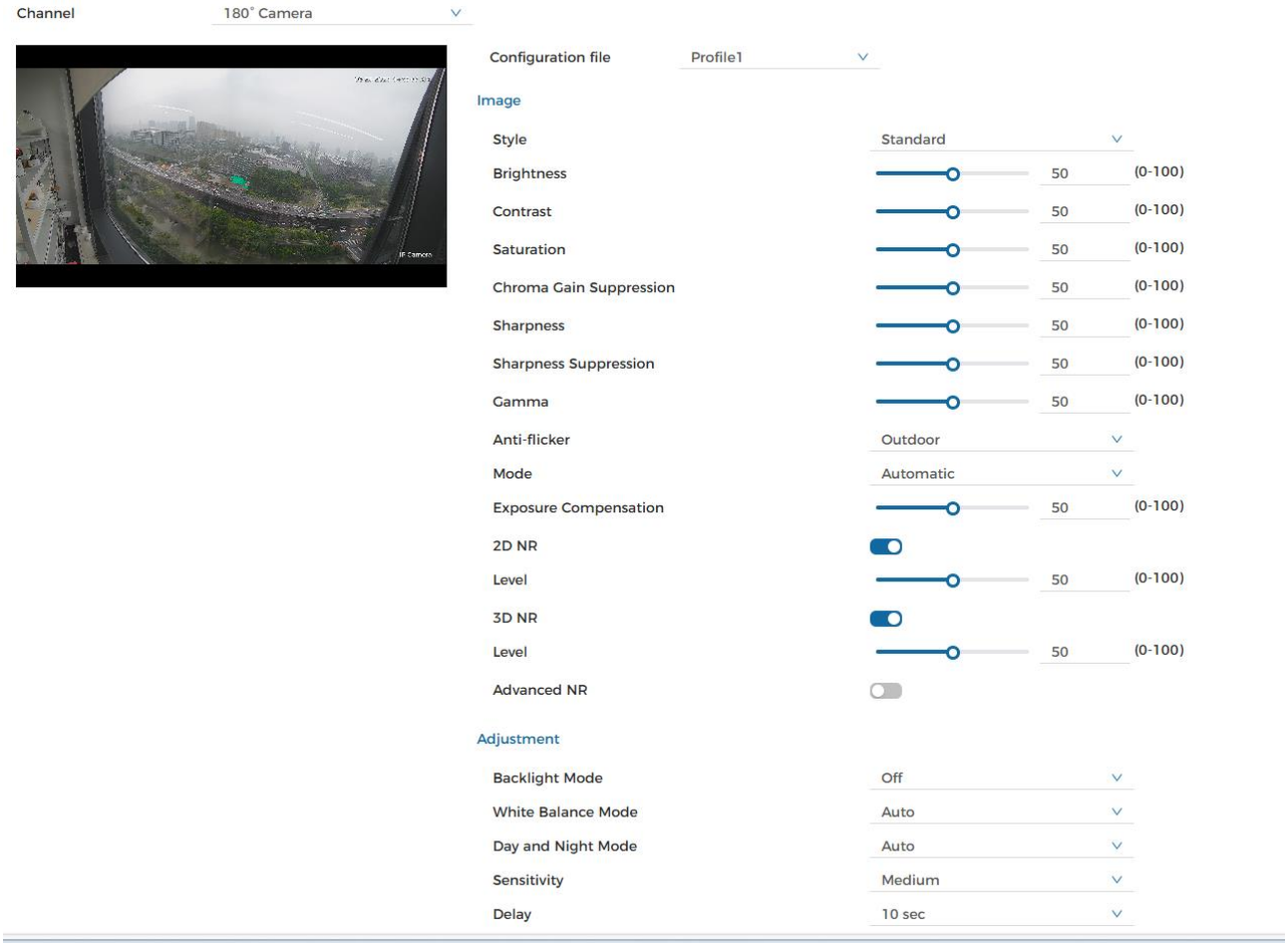
Configure image parameters according to the actual situation, including image, exposure,

backlight, white balance, Day/Night, and illuminator.

Procedure

Step 1 Select **Settings** > **Image** > **Display Settings** > **Display Settings**.

Figure 8-9 Display settings



Step 2 Select Channel from **180° Camera** and **PTZ Camera**. This section takes **PTZ Camera** as an example.

Step 3 Select Configuration file as **Profile1** or **Profile2**

Profile 1 means daytime; **Profile 2** means night.

Step 4 Configure the settings for **Profile 1** and **Profile 2**.

Table 8-19 Description of display settings

Parameter	Description
Style	Select the picture style from soft, standard and vivid. • **Standard**: Default image style, displays the actual color of the image. • **Soft**: The hue of the image is weaker than the actual one, and contrast is smaller. • **Vivid**: The image is more vivid than the actual one.

Parameter	Description
Brightness	Changes the value to adjust the picture brightness. The higher the value is, the brighter the picture will be, and the smaller the darker. The picture might be hazy if the value is configured too big.
Contrast	Changes the contrast of the picture. The higher the value is, the more the contrast will be between bright and dark areas, and the smaller the less. If the value is set too big, the dark area would be too dark and bright area easier to get overexposed. The picture might be hazy if the value is set too small.
Saturation	Makes the color deeper or lighter. The higher the value is, the deeper the color will be, and the lower the lighter. Saturation value does not change image brightness.
Chroma Gain Suppression	Reduce the image color and prevents it from being too strong. The higher the value, the stronger the effect.  This parameter takes effect only when the Camera is in an environment with low luminance.
Sharpness	Changes the sharpness of picture edges. The higher the value is, the clearer the picture edges will be, and if the value is set too big, picture noises are more likely to appear.
Sharpness Suppression	Change the sharpness NCT level of the Camera. The higher the value, the stronger the sharpness CNT.  This parameter takes effect only when the Camera is in an environment with low luminance.
Gamma	Changes the picture brightness and improves the picture dynamic range in a non-linear way. The higher the value is, the brighter the picture will be, and the smaller the darker.
Anti-flicker	You can select from 50 Hz, 60 Hz and Outdoor. • **50 Hz**: When the electric supply is 50 Hz, the system adjusts the exposure according to ambient light automatically to ensure that there is no stripe appears. • **60 Hz**: When the electric supply is 60 Hz, the system adjusts the exposure according to ambient light automatically to ensure that there is no stripe appears. • **Outdoor**: If you select **Outdoor**, the exposure mode can be set to **Gain Priority**, **Shutter Priority** and **Iris Priority**. Different devices support different exposure modes.

Parameter	Description
Mode	Set the exposure modes. You can select **Automatic**, **Manual**, **Iris Priority**, **Shutter Priority** and **Gain Priority**. The **Automatic** mode is selected by default. • **Automatic**: Exposure is automatically adjusted according to scene brightness if the overall brightness of images is in the normal exposure range. • **Manual**: You can adjust the **Gain**, **Shutter**, and **Iris** value manually. • **Iris Priority**: You can set the iris to a fixed value, and the Camera will adjust the shutter value. If the image brightness is not high enough and the shutter value has reached its upper or lower limit, the system adjusts gain value automatically to ensure the image is at an ideal brightness. • **Shutter Priority**: You can customize the shutter range. The Camera automatically adjusts the aperture and gain according to the scene brightness. • **Gain Priority**: Gain value and exposure compensation value can be adjusted manually.
Shutter	Set the effective exposure time. The smaller the value, the shorter the exposure time will be.
Gain	If you select **Gain Priority** or **Manual**, you can set gain range to automatically increase the gain of the Camera when the illumination is low, thus obtaining a clear image.
Iris	You can set the camera luminous flux. The larger the Iris value, the brighter the image.
Exposure Compensation	You can set the exposure compensation value. The value ranges from 0 to 100. The higher the value is, the brighter the image will be.
AE Recovery	Automatic exposure is an automated digital camera system that adjusts the aperture and/or shutter speed, based on the external lighting conditions for images and videos. If you have selected an **AE Recovery** time, the exposure mode will be restored to the previous mode after you adjust the Iris value. There are five options: Off, 5 min, 15 min, 1 hour, and 2 hour.
2D NR	Average the pixel of a single frame image with other pixels to reduce image noise. The higher the level is, the lower the noise will be, and images appear to be blurrier.
3D NR	Reduce the noise of multiple-frame (at least two frames) images by using inter-frame information between two adjacent frames in a video. The higher the level is, the lower the noise will be, and the larger the trailing smear will be
Level	Noise reduction grade. The value ranges from 0 to 100. The larger the value is, the less the noise will be.

Parameter	Description
Visual Angle	Change the display direction of the image.
Electronic Image Stabilization	Electronic image stabilization (EIS) is used to effectively solve the problem of image shaking during use, thus presenting clearer images. It is **Off** by default. • This parameter takes effect only when the Device is in an environment with low luminance. • This function is available on select models. • Optical image stabilization and electronic image stabilization cannot be enabled at the same time.
Image Freeze	After this function is enabled, the image at the called preset is displayed directly if you call a preset or tour, and no images during the rotation of the camera are displayed.
Backlight Mode	Adjust the backlight compensation mode of the monitoring screen. • **Off**: Backlight is disabled. • **BLC**: Backlight compensation corrects regions with extremely high or low levels of light to maintain a normal and usable level of light for the object in focus. • **HLC**: Highlight compensation dims strong light, so that the camera can capture details of faces and license plates in extreme light conditions. It is applicable to the entrance and exit of toll stations or parking lots. • **WDR**: When in WDR (Wide Dynamic Range) mode, the camera constrains over bright areas and compensates dark areas to improve the image clarity.

Parameter	Description
White Balance Mode	White balance function makes the image color display precisely as it is. When in White Balance mode, white objects will always display white color in different environments. • **Auto**: The system compensates white balance according to color temperature to ensure color precision. • **Indoor**: The system compensates white balance for the general situation of indoor lighting to ensure color precision. • **Outdoor**: The system auto compensates white balance to most outdoor environments with natural or artificial light to ensure color precision. • **ATW**: When the device is tracked, the system auto compensates white balance to ensure color precision. • **Manual**: Configure red gain and blue gain manually. The system auto compensates white balance according to color temperature. • **Sodium Lamp**: The system compensates white balance to sodium lamp to ensure color precision. • **Natural**: The system auto compensates white balance to environments without artificial light to ensure color precision. • **Street Lamp**: The system compensates white balance to ensure color precision in outdoor scenes at night.
Day and Night Mode	Configure the display mode of the image. The system switches between color and black-and-white modes according to the actual condition. • **Auto**: The system switches between color and black-and-white display according to the actual condition. • **Color**: The system displays color image. • **B/W**: The system displays black-and-white image.
Sensitivity	This configuration is available only when you set **Auto** in **Day and Night Mode**. You can configure camera sensitivity when switching between color and black-and-white mode. The higher the sensitivity, the easier it is for the switch to be triggered.
Delay	This configuration is available only when you set **Auto** in **Day and Night Mode**. You can configure the delay when camera switching between color and black-and-white mode. The lower the value is, the faster the camera switches between color and black-and-white mode.
Digital Zoom	Click  to enable the digital zoom function. You can use the digital zoom to continue zooming operation even if the optical zoom is at its maximum value.
Zoom Speed	Adjust the zoom speed of the Camera. The larger the value, the faster the zoom speed.

Parameter	Description
Focus Mode	Set focus mode. • **Auto**: Once there is any movement or change of an object on the video image and the image turns blurry, the Camera will focus again automatically. • **Semi-Auto**: The Camera will focus automatically when you click **Focus** or **Zoom** or when a preset change or PTZ switch is detected. • **Manual**: The Camera cannot focus automatically. You need to adjust the focus manually.
Near Focus Limit	Set the near focus limit of the Camera. If the focus limit is too small, the Camera might get the camera focus on its dome. By changing the focus limit, the focus speed can be changed.
Sensitivity	Trigger the focusing sensitivity of the Camera. The higher the sensitivity, the easier to trigger focus.
Progressive Focus	Enable **Focus**. When moving the image, the Camera automatically focuses for a clear image.
Expert Mode	Enable **Expert mode**. Train the Camera to rotate and focus on the specified route.
Lens Initialization	Click this button, and the lens will be initialized automatically. The lens will be extended to calibrate the zoom and focus.
Illumination Light	When the Camera is equipped with illuminator, it supports setting illumination mode for illuminator, including **IR Mode**, **White Light**, and **Smart dual light**. Smart dual light • **IR Mode**: Enable the IR illuminator, and the white light is disabled. You can only capture black and white images after enabling this function. • **White Light**: Enable the white light, and the IR illuminator is disabled. You can capture clear scene image after enabling this function. • **Smart dual light**: This function is mainly used at night. Smart dual light applies IR mode in most situations. When an event occurs (perimeter, motion detection and human detection), the camera automatically switches to white light mode to link image capturing and video recording under the full color mode. The white light turns off when the event stops, and then the mode switches to IR mode according to the ambient brightness.  The status of the illuminator mainly depends on time and environment. If the Smart dual light is triggered at night and the event continues during the day, the illuminator configured for the daytime will be turned off.

Parameter	Description
Light Setting Mode	• **Manual**: Adjust the brightness of illuminator manually, and then the system will illuminate the image accordingly. • **Auto**: The system adjusts the inator intensity according to the ambient lighting condition. Some devices support setting the brightness upper limit and sensitivity of the illuminator. ◇ Sensitivity: The higher the sensitivity setting, the higher the brightness can turn on the illuminator when the actual scene darkens. When the actual scene becomes bright, a higher brightness is required to turn off the illuminator. ◇ Brightness upper limit: If the illuminator is too bright, the center of the image may be overexposed. We recommend adjusting the brightness upper limit according to the actual scene. The value range is 0–100, and the default is 100. • **Zoom Priority**: The system adjusts the illuminator intensity automatically according to the change of the ambient light. You can configure light **Compensation** manually to fine-tune the brightness of the illuminator. ◇ When the ambient light turns darker, the system turns on the low beam lights first, if the brightness is still not enough, it turns on the high beam lights. ◇ When the ambient light turns brighter, the system dims high beam lights until they are off, and then the low beam lights. ◇ When the focus reaches certain wide angle, the system will not turn on high beam light in order to avoid over-exposure in short distance. • **Off**: Illuminator is off.
Defog Mode	The image quality is compromised in foggy or hazy environment, and defog can be used to improve image clarity. • **Manual**: Configure function intensity and atmospheric light mode manually, and then the system adjusts image clarity accordingly. • **Auto**: The system adjusts image clarity according to the actual condition. • **Off**: Defog function is disabled.

Step 5 Configure the **Schedule**. Click **Schedule**, the profile schedule setting will appeared. Slide the bar to configure the period for daytime and night correspondingly.

Step 6 Click **Apply**

8.5.1.2 Setting Splicing Parameters

If the splicing effect of the panoramic image is not desirable, you can use this function to

automatically optimize it.

Procedure

Step 1 Select **Settings** > **Image** > **Display Settings** > **Splicing**.

Step 2 Click **Start**, and then the Camera starts splicing lenses.

Please wait patiently. After the splicing completes, the image is displayed.

Repeat this step until the image meets your requirements.

Step 3 Click **Apply** to save the configuration.

8.5.2 OSD

Configure OSD information, and it will be displayed on the **Live View** page.

Procedure

Step 1 Select **Settings** > **Image** > **OSD**.

Step 2 Set the OSD information as needed.

OSD parameters of different devices might vary, please refer to the actual interface information.

Table 8-20 Setting OSD information

Parameters	Description
OSD Font Color	Set OSD front properties. you can set the front color, size and line spacing.
OSD Font Size	
Line Spacing	
Min Distance to Video Boundary	Set the min distance to the video boundary. Select the value from 0, 1 and 2.
Display Channel Name	Enter the channel name, and the click ■ to display it on video image.
Display Time	Click ■ to display time information on video image.
Display Week	Click ■ to display the day of week information on video image.
Display Custom Overlay	Enter the custom text, and the click ■ to display it on video image.

Parameters	Description
OSD Info Display	• **Presets**: Select **Enable**, and the preset name is displayed on the image when the camera turns to the preset, and it will disappear 3 seconds later. • **PTZ Coordinate**: Select **Enable**, and the PTZ coordinates information is displayed on the image. • **Zoom**: Select **Enable** and the zoom information is displayed on the image. • **Pattern**: Select **Enable**, and the pattern information is displayed on the image. • **Temperature**: Select **Enable**, and the temperature information is displayed on the image. • **North**: Select **Enable**, and the north direction is displayed on the image. When you enable the due north orientation function, the system will prompt you to restart the PTZ.

Step 3 Click **Apply**.

8.5.3 PTZ

This section introduces the configuration of PTZ parameters, such as basic settings, PTZ operation and schedule task.

- The panorama camera channel and the detail camera channel support different functions, and might differ from the actual page.
- Some models of panorama camera channel do not support focus, zoom and iris adjustment functions, and might differ from the actual page.

8.5.3.1 Basic Settings

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **Basic Settings**.

Step 2 Configure the basic settings for PTZ.

Parameter	Description
PTZ Speed	Configure the speed of the PTZ. You can select from **Low**, **Medium** and **High**.

Parameter	Description
PowerON Action	Click to enable this function, and then select PowerON type. After configuring PowerON, the Camera will automatically perform the defined motion after being powered on. Select **Auto** and the system will implement the last action performed for more than 20 seconds before the Camera is shut down
Idle Motion	Click to enable this function. Configure **Idle Interval** time, and then select idle motion type.
Idle Interval	
PTZ Restart	Click **PTZ Restart** to restart the PTZ.
PTZ Default	Click **PTZ Default** to restore PTZ to default.

Step 3 Click **Apply**.

8.5.3.2 PTZ Operation

8.5.3.2.1 Configuring Presets

The Camera saves parameters (such as current status of PTZ pan/tilt, focus) to the memory, so that you can quickly call these parameters and adjust the PTZ to the correct position.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **PTZ Operation**.

Step 2 Set step length and click the direction buttons to adjust PTZ Direction.

Step 3 Adjust zoom, focus and iris to adjust the Camera to the proper position.

Step 4 Click + to add the preset.

Add the current position to be a preset, and the preset is displayed in preset list.

Step 5 Click preset name to change the name of the corresponding preset.

Step 6 Click to save the preset.

Related Operations

Delete preset: Click to delete corresponding preset.

8.5.3.2.2 Configuring Tour Group

Configure Tour and the PTZ camera repeats performing tours among the configured presets after configuration.

Prerequisites

You need to setup several preset points in advance.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **PTZ Operation** > **Tour Group**.

Step 2 Click , and then click **Name** to change the name of tour group.

Step 3 Select tour group, click **Add Preset** to add presets, and then select the presets from the **Preset Point** drop-down list on the left.

Repeat this step to add several presets for the tour group.

Step 4 Configure **Stay Time(S)** and **Speed** to set the stay time of the Camera at the preset point and its rotating speed.

Stay time is measured in seconds. The value ranges from 15 seconds to 3600 seconds.

Step 5 Select Tour mode.

- Original Path: The Camera rotates in the order of selected preset points.
- Shortest path: The Camera rearranges the preset points according to distance, and then rotates them according to the shortest path.

This function is available on select models.

Step 6 Click **Apply** to complete settings.

Step 7 Click to start tour.

- The ongoing tour stops if any operation is made to the PTZ.
- Click to stop the tour.

Related Operations

- Delete tour group: Click to delete corresponding tour group.
- Clear all tour groups: Click **Clear** to delete all added tour groups.

8.5.3.2.3 Configuring Scan

Scan means the Camera moves horizontally at a certain speed between the defined left and right boundaries.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **PTZ Operation** > **Scan**.

Step 2 Click , and then click **Name** to change the name of scan.

Step 3 Configure the left and right boundaries of the scan.

1) Adjust the direction of the Camera to the left edge of the scan and click on the **Left Limit** to set the current position to the **Left Limit** of the Camera.
2) Adjust the direction of the Camera to the right edge of the scan and click on the **Right Limit** to set the current position to the **Right Limit** of the Camera.

Figure 8-59 Scan

Step 4 Click to start scanning.

Click to stop scanning.

Related Operations

Delete scan: Click to delete corresponding scan.

8.5.3.2.4 Configuring Pattern

Pattern records a series of operations that makes to the Camera. The operations include horizontal and vertical movements, zoom and preset calling. After recording and saving the operations, you can call the pattern path directly.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **PTZ Operation** > **Pattern**.

Step 2 Click +, and then click **Name** to change the name of pattern.

Step 3 Click Start Record to adjust the direction, focus, zoom and other parameters according to actual needs.

Step 4 Click Stop Record to complete records.

Step 5 Click to start the pattern.

Click to stop the pattern.

Related Operations

Delete pattern: Click to delete the corresponding pattern.

8.5.3.2.5 Configuring Pan

Pan refers to the continuous 360° rotation of the Camera in a horizontal way at a certain speed.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **PTZ Operation** > **Pan**.

Step 2 Configure the rotation speed.

- Click **Start** and PTZ starts horizontal rotation.
- Click **Stop** to stop the pan.

8.5.3.2.6 Configuring PTZ Rotation Limit

Configure PTZ rotation limit to enable the Camera to move only within the defined PTZ area, and to rotate only within the limit range when calling functions such as tour and pan.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **PTZ Operation** > **PTZ Rotation**.

Step 2 Adjust the device direction to the **Up Limit**, and then click up limit **Setting** to set the current position to the up limit.

Step 3 Adjust the device direction to the **Down Limit**, and then click down limit **Setting** to set the current position to the down limit.

Step 4 Click **Go to** to preview the defined up/down limit.

Step 5 Select the elevation value from the drop-down list of **Max Elevation Angle**.

This function is available on select models.

Step 6 Click  to enable **PTZ Rotation Limit**.

8.5.3.3 Schedule Task

After setting scheduled task, the Camera performs the relevant motions during the set period.

Prerequisites

You have set PTZ motions such as preset, tour, scan and pattern in advance.

Procedure

Step 1 Select **Settings** > **Image** > **PTZ** > **Schedule Task**.

Step 2 Select **Timing Task No.**. You can configure 4 timing task at most.

Step 3 Select **Task Action**.

Some task actions need to select corresponding action number.

Step 4 Set the time for **Auto Home**.

Auto Home: When the scheduled task is interrupted by an artificial call to the PTZ, the device will automatically resume the scheduled task after the auto home time.

Step 5 Configure schedule for the task.

To configure arming/disarming period, see "8.6.1.5.2 Adding Schedule".

Step 6 Click  to enable the schedule task.

Step 7 Click **Apply**.

8.6 Event

8.6.1 General Settings

Check whether there are considerable changes on the video by analyzing video images. In case of any considerable change on the video (such as moving object and fuzzy image), the system performs an alarm linkage.

8.6.1.1 Setting Motion Detection

The system performs an alarm linkage when a moving object appears in the image and its

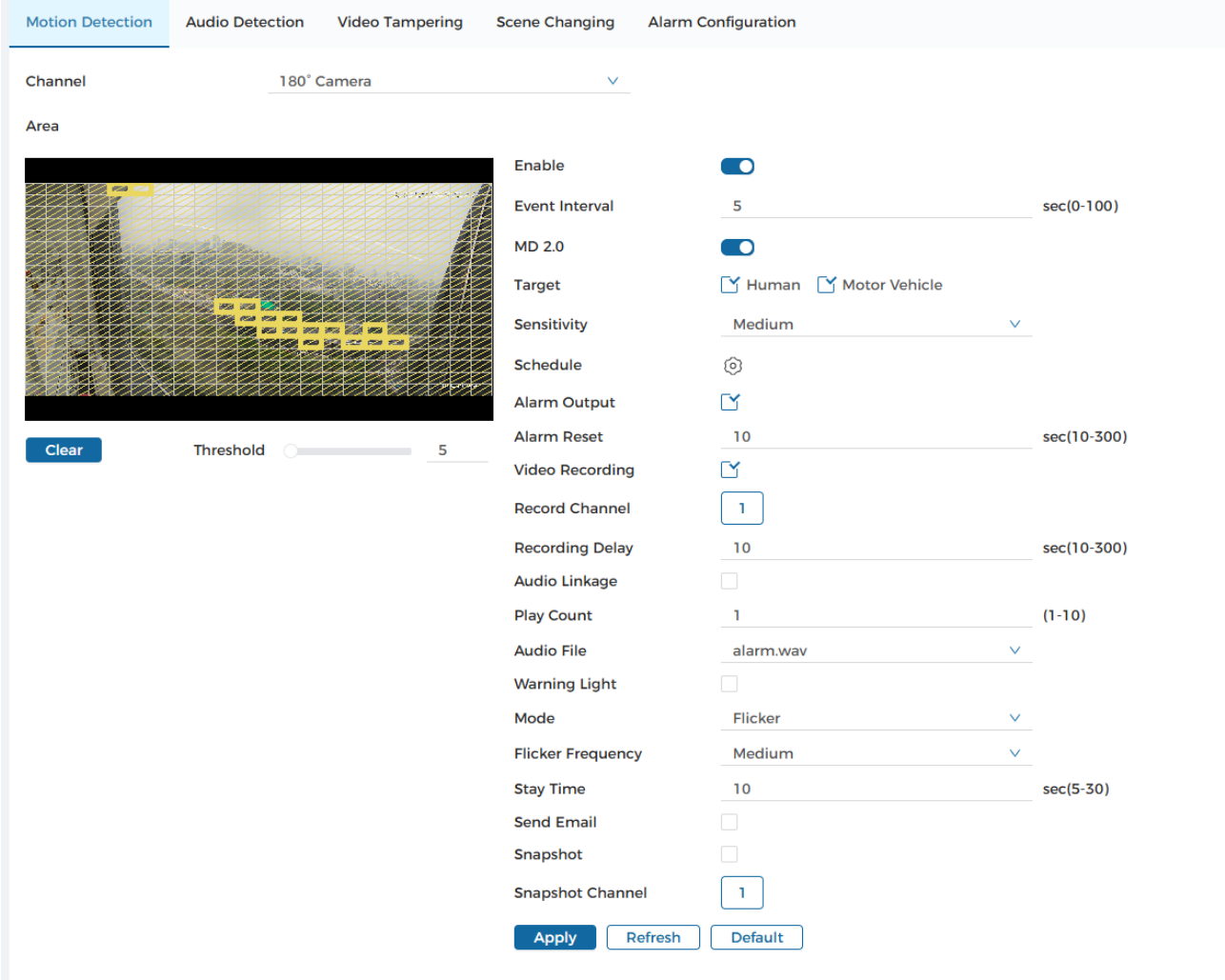
moving speed reaches the configured sensitivity.

- If you enable motion detection and smart motion detection simultaneously, and configure the linked activities, the linked activities take effect as follows:
  - ◇ When motion detection is triggered, the camera will record and take snapshots, but other configured linkages such as sending emails, PTZ operation will not take effect.
  - ◇ When smart motion detection is triggered, all the configured linkages take effect.
- If you only enable motion detection, all the configured linkages take effect when motion detection is triggered.

Procedure

Step 1 Select **Settings** > **Event** > **General Settings** > **Motion Detection**.

Figure 8-10 Motion detection



Step 2 Select channel from **180° Camera** and **PTZ Camera**. This section takes **PTZ Camera** as an example.

Step 3 Click to enable the motion detection function.

Step 4 (Optional) Click next to **PTZ movement triggers motion detection** to enable the function.

Step 5 Set the area for motion detection.

Click and drag the mouse to select the area. The detection region can be irregular and discontinuous.

- Threshold: Effective area threshold for motion detection. The smaller the threshold is, the easier the alarm is triggered.
- The whole video image is the effective area for motion detection by default.
- Click **Clear** to clear all motion detection area.

Step 6 (Optional) Click next to **MD2.0** to enable MD2.0 function, and then configure the target and sensitivity. The device can detect human, motor vehicle or both as needed.

Step 7 Set arming schedule and alarm linkage action. For details, see "8.6.1.5 Alarm Linkage".

Step 8 Click **Apply**.

8.6.1.2 Setting Audio Detection

The system performs alarm linkage when vague voice, tone change, or rapid change of sound intensity is detected.

Procedure

Step 1 Select **Settings** > **Event** > **General Settings** > **Audio Detection**.

Step 2 Set parameters.

- Abnormal input: Click next to **Abnormal Input**, and the alarm is triggered when the system detects abnormal sound input.
- Intensity change: Click next to **Intensity Change**, and then set **Sensitivity** and **Threshold**. The alarm is triggered when the system detects that the sound intensity exceeds the configured threshold.
  - ◇ It is easier to trigger the alarm with higher sensitivity or smaller threshold. Set a high threshold for noisy environment.
  - ◇ The red line in the waveform indicates audio detection is triggered, and the green one indicates no audio detection. Adjust sensitivity and threshold according to the waveform.

Step 3 Select the schedule and alarm linkage action. For details, see "8.6.1.5 Alarm Linkage".

Step 4 Click **Apply**.

8.6.1.3 Setting Video Tampering

The system performs alarm linkage when the lens is covered or video output is mono-color screen caused by light and other reasons.

Procedure

Step 1 Select **Settings** > **Event** > **General Settings** > **Video Tampering**.

Step 2 Select channel from **180° Camera** and **PTZ Camera**. This section takes **PTZ Camera**

as an example.

Step 3 Click  to enable **Video Tampering**.

Step 4 Set arming schedule and alarm linkage action. For details, see "8.6.1.5 Alarm Linkage".

Step 5 Click **Apply**.

8.6.1.4 Setting Scene Changing

The system performs alarm linkage when the image switches from the current scene to another one.

Procedure

Step 1 Select **Settings** > **Event** > **Video Detection** > **Scene Changing**.

Step 2 Select channel from **180° Camera** and **PTZ Camera**. This section takes **PTZ Camera** as an example.

Step 3 Select the schedule and alarm linkage action. For details, see "8.6.1.5 Alarm Linkage".

Step 4 Click **Apply**.

8.6.1.5 Alarm Linkage

When configuring alarm events, select alarm linkages (such as record, snapshot). When the corresponding alarm is triggered in the configured arming period, the system will alarm.

8.6.1.5.1 Setting Alarm Input

Procedure

Step 1 Select **Settings** > **Event** > **General Settings** > **Alarm Configuration**.

Step 2 Click  next to **Enable** to enable alarm linkage.

Step 3 Select the alarm input. When an alarm is triggered by the device connected to the alarm-in port, the system performs the defined alarm linkage.

Step 4 Click **Apply**.

8.6.1.5.2 Adding Schedule

Set arming schedule. The system only performs corresponding linkage action in the configured period.

Procedure

Step 1 Click  next to **Schedule**.

Step 2 Press and drag the left mouse button on the timeline to set arming periods. Alarms will be triggered in the period in blue on the timeline.

- Click **Copy** next to a day, and select the days that you want to copy to in the prompt page, you can copy the configuration to the selected days. Select the **Select All** check box to select all days to copy the configuration.
- You can set 6 periods per day.

Step 3 Click **Apply**.

Step 4 (Optional) Click  and then click **+ Schedule** to add a new time plan table.

Step 5 (Optional) Click  to delete the table as needed.

8.6.1.5.3 Alarm Output Linkage

When an alarm is triggered, the system can automatically link with alarm-out device.

On the **Alarm Linkage** page, click  to enable alarm output linkage, select the channel as needed, and then configure **Alarm Reset**.

When alarm reset is configured, alarm continues for an extended period after the alarm ends.

8.6.1.5.4 Record Linkage

The system can link record channel when an alarm event occurs. After alarm, the system stops recording after an extended period according to the **Recording Delay** setting.

Setting Record Linkage

Click  to enable record linkage, and set **Recording Delay** to set alarm linkage and record delay.

After **Recording Delay** is configured, alarm recording continues for an extended period after the alarm ends.

8.6.1.5.5 Audio Linkage

The system can link audio channel when an alarm event occurs

On the **Alarm Linkage** page, click  to enable audio linkage, select the play count, and then select audio file.

8.6.1.5.6 Email Linkage

When an alarm is triggered, the system will automatically send an email to users.

Email linkage takes effect only when SMTP is configured. For details, see "8.3.1.5 Email".

8.6.1.5.7 Snapshot Linkage

After snapshot linkage is configured, the system can automatically alarm and take snapshots when an alarm is triggered.

Procedure

On the **Alarm Linkage** page, click  to enable snapshot linkage.

8.6.2 Setting Exception

Abnormality includes SD card, network exception.

Only the device with SD card has the abnormality functions, including **No SD Card**, **SD Card Error**, and **Insufficient SD Card Space**.

8.6.2.1 Setting SD Card Exception

In case of SD card exception, the system performs alarm linkage. The event types include **No SD Card**, **Insufficient SD Card Space**, and **SD Card Error**. Functions might vary with different models.

Procedure

Step 1 Select **Settings** > **Event** > **Exception**.

Step 2 Click to enable the SD card detection functions.

When enabling **Insufficient SD Card Space**, set **Free Space**. When the remaining space of SD card is less than this value, the alarm is triggered.

Step 3 Set alarm linkage actions. For details, see "8.6.1.5 Alarm Linkage".

Step 4 Click **Apply**.

8.6.2.2 Setting Network Exception

In case of network abnormality, the system performs alarm linkage. The event types include **Offline** and **IP Conflict**.

Procedure

Step 1 Select **Settings** > **Event** > **Exception**.

Step 2 Click to enable the network detection function.

Step 3 Set alarm linkage actions. For details, see "8.6.1.5 Alarm Linkage".

Step 4 Click **Apply**.

8.6.3 Subscribing Alarm

8.6.3.1 Alarm Types

Table 8-21 Description of alarm types

Alarm Type	Description	Preparation
Motion Detection	The alarm is triggered when moving object is detected.	Motion detection is enabled.

Alarm Type	Description	Preparation
Disk Full	The alarm is triggered when the free space of SD card is less than the configured value.	The SD card no space function is enabled.
Disk Error	The alarm is triggered when there is failure or malfunction in the SD card.	SD card failure detection is enabled.
Video Tampering	The alarm is triggered when the camera lens is covered or there is defocus in video images.	Video tampering is enabled.
External Alarm	The alarm is triggered when there is external alarm input.	The device has alarm input port and external alarm function is enabled.
Security Warning	The alarm is triggered when there is a security warning.	Security warning is enabled.
Audio Detection	The alarm is triggered when there is audio connection problem.	Abnormal audio detection is enabled.
AI Event	The alarm is triggered when intelligent rule is triggered.	Enable AI Event, crowd map, face detection or people counting, and other intelligent functions.
Scene Changing	The alarm is triggered when the device monitoring scene changes.	Scene changing detection is enabled.

8.6.3.2 Subscribing Alarm Information

You can subscribe alarm event. When a subscribed alarm event is triggered, the system records detailed alarm information at the right side of the page.

Functions of different devices might vary.

Procedure

Step 1 Select **Settings** > **Event** > **Alarm** > **Subscribe Alarm**.

Step 2 Select alarm type according to the actual need. For details, see "8.6.3.1 Alarm Types".

The system prompts and records alarm information according to actual conditions.

Step 3 Click next to **Play Alarm Tone**, and select the tone path.

The system will play the selected audio file when the selected alarm is triggered.

8.6.4 Setting Network Destination

Select the network destination, enable it, and then configure the parameters. The camera will

upload reports of AI functions to a defined server periodically.

Procedure

Step 1 Select **Settings** > **Event** > **Network Destination**.

Step 2 Enable the function.

Step 3 Click +, and then configure parameters of network destination.

You can add 2 server information at most.

Table 8-22 Description of network destination parameters

Parameter	Description
Event type	Select the event type form the drop-down list. You can select more than one types at the same time. The event types in the drop-down list are the same with that of picture playback.
IP/Domain name	The IP address and port number of the server which the report will be uploaded to.
Port	
Path	The storage path of the server for the report.

Step 4 Click **Apply**.

Related Operations

- Click to configure the authentication for the server information. Click to enable **Authentication**, enter username and password, and then click **OK**.
- Click to delete the server information.

8.7 Storage

Displays the information of the local SD card. You can also format SD card.

Functions might vary with different models.

Select **Settings** > **Storage** > **Local Storage**.

Click **Format**, and you can format the SD card.

Click **Hot swapping**, and you can hot swap the SD card.

Appendix 1 Security Recommendation

Account Management

1. **Use complex passwords**
   Please refer to the following suggestions to set passwords:
   - The length should not be less than 8 characters;
   - Include at least two types of characters: upper and lower case letters, numbers and symbols;
   - Do not contain the account name or the account name in reverse order;
   - Do not use continuous characters, such as 123, abc, etc.;
   - Do not use repeating characters, such as 111, aaa, etc.
2. **Change passwords periodically**
   It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.
3. **Allocate accounts and permissions appropriately**
   Appropriately add users based on service and management requirements and assign minimum permission sets to users.
4. **Enable account lockout function**
   The account lockout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.
5. **Set and update password reset information in a timely manner**
   The device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

Service Configuration

1. **Enable HTTPS**
   It is recommended that you enable HTTPS to access web services through secure channels.
2. **Encrypted transmission of audio and video**
   If your audio and video data contents are very important or sensitive, it is recommended to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.
3. **Turn off non-essential services and use safe mode**
   If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.
   If necessary, it is highly recommended to choose safe modes, including but not limited to the following services:
   - SNMP: Choose SNMP v3, and set up strong encryption and authentication passwords.
   - SMTP: Choose TLS to access mailbox server.

- FTP: Choose SFTP, and set up complex passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up complex passwords.

4. **Change HTTP and other default service ports**
   It is recommended that you change the default port of HTTP and other services to any port between 1024 and 65535 to reduce the risk of being guessed by threat actors.

Network Configuration

1. **Enable Allow list**
   It is recommended that you turn on the allow list function, and only allow IP in the allow list to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allow list.
2. **MAC address binding**
   It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.
3. **Build a secure network environment**
   In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:
   - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
   - According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
   - Stablish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

Security Auditing

1. **Check online users**
   It is recommended to check online users regularly to identify illegal users.
2. **Check device log**
   By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.
3. **Configure network log**
   Due to the limited storage capacity of devices, the stored log is limited. If you need to save the log for a long time, it is recommended to enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

Software Security

1. **Update firmware in time**
   According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended

to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

2. **Update client software in time**

   It is recommended to download and use the latest client software.

Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such as placing the device in a dedicated machine room and cabinet, and having access control and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).