



Network Speed Dome PTZ Camera Web 5.0

User's Manual



Foreword

General

This manual introduces the functions and operations of the Network Speed Dome 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

Revision Version	Revision Content	Release Time
V1.0.0	First release.	November 2022

Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, fingerprints, and car 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 Camera, hazard prevention, and prevention of property damage. Read carefully before using the Device, comply with the guidelines when using it, and keep the manual safe for future reference.

Operation Requirements



- Make sure that the power supply of the device works properly before use.
- Do not pull out the power cable of the device while it is powered on.
- Only use the device within the rated power range.
- Transport, use and store the device under allowed humidity and temperature conditions.
- Prevent liquids from splashing or dripping on the device. Make sure that there are no objects filled with liquid on top of the device to avoid liquids flowing into it.
- Do not disassemble the device.

Installation Requirements



- Connect the device to the adapter before power on.
- Strictly abide by local electrical safety standards, and make sure that the voltage in the area is steady and conforms to the power requirements of the device.
- Do not connect the device to more than one power supply. Otherwise, the device might become damaged.



- Observe all safety procedures and wear required protective equipment provided for your use while working at heights.
- Do not expose the device to direct sunlight or heat sources.
- Do not install the device in humid, dusty or smoky places.
- Install the device in a well-ventilated place, and do not block the ventilator of the device.
- Use the power adapter or case power supply provided by the device manufacturer.
- The power supply must conform to the requirements of ES1 in IEC 62368-1 standard and be no higher than PS2. Note that the power supply requirements are subject to the device label.
- Connect class I electrical appliances to a power socket with protective earthing.

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1 Overview

1.1 Introduction

Network Speed Dome PTZ 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 ConfigTool.

Figure 1-1 Connected through network cable

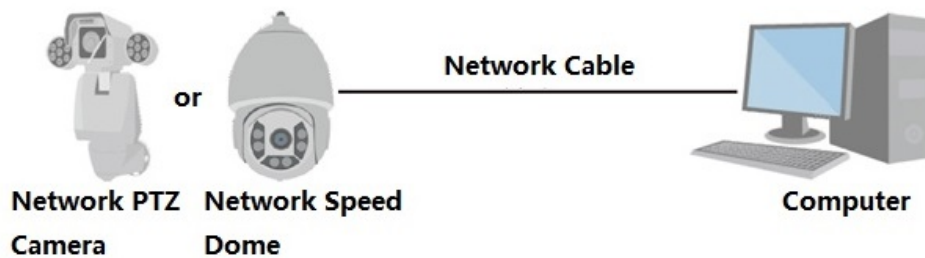
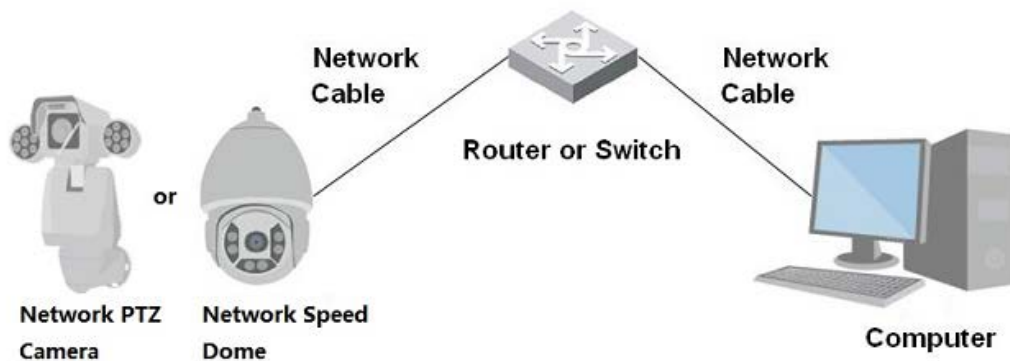


Figure 1-2 Connected through network router or switch



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 or three snapshots 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 defocus detection.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending, PTZ operation and snapshot taking.

Smart Motion Detection

- Supports smart motion detection and the movement range of people, non-motor vehicle and motor vehicle in the image.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending 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.

Smart Traffic Management

- Supports configuring the global plan for illegal parking manual capture and the preset plans for E-Police, illegal parking snapshot, road events, ANPR and littering.
- When an alarm is triggered, the system performs linkages such as alarm output, snapshot taking and audio playing.

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, PTZ exception detection and battery 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.
- When PTZ abnormality alarm is triggered, the system performs linkages such as alarm output.
- When the battery is over-temperature, the system performs linkages such as alarm output, email sending and audio playing.

2 Configuration Flow

Configure the device as needed.

Figure 2-1 Configuration flow

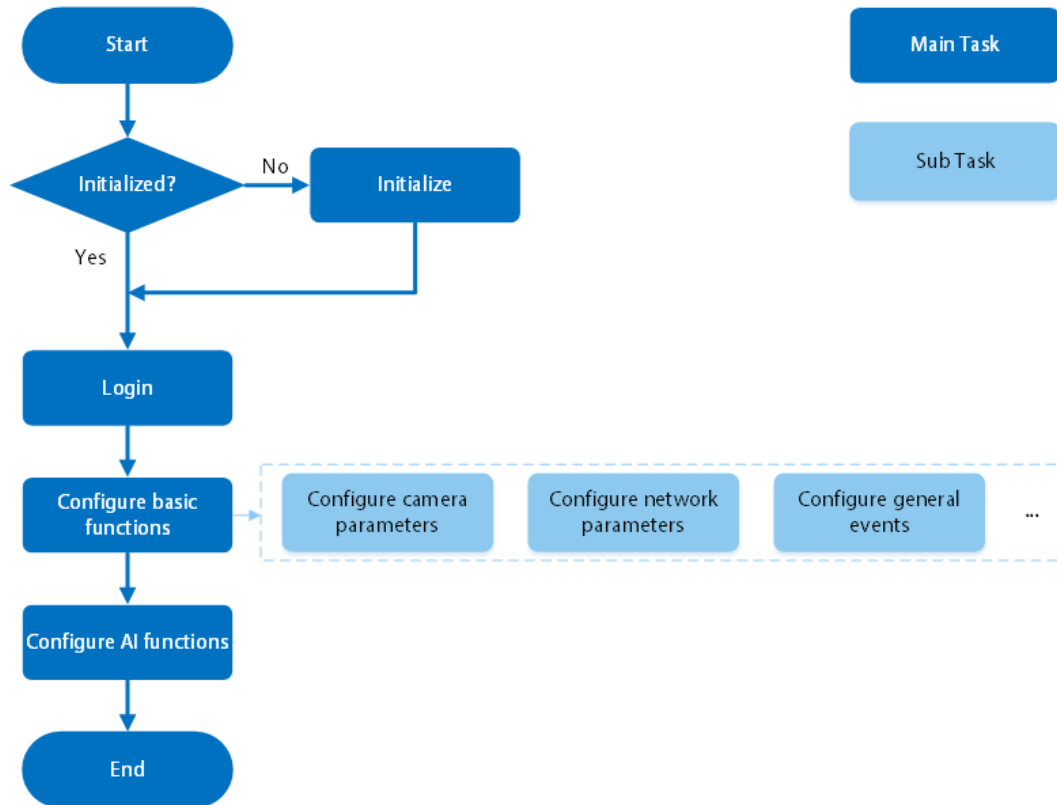


Table 2-1 Flow description

Configuration	Description	Reference
Initialization	Initialize the camera when you use it for the first time.	"3 Device Initialization"
Login	Open the browser and enter the IP address to log in to the web page. The camera IP address is 192.168.1.108 by default.	"4.1 Device Login"
Configure basic functions	Configure camera parameters, network parameters, general events and more.	"4 Setting"
Configure AI functions	Configure detection rules for AI events.	"9 Smart Traffic Management"

3 Device Initialization

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



- To ensure device safety, protect your password after initialization and regularly change it.
- When initializing the device, keep the PC IP and Camera IP on the same segment.
- We recommend you use Internet Explorer or Google Chrome.

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 192.168.1.108 by default.

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

Figure 3-1 Region setting

The screenshot displays the 'Region Setting' page of a device's web interface. At the top, there is a navigation bar with links: Region Setting (active), Disclaimer, Time Zone Setting, Password Setting, P2P, and Online Update. The main content area contains three dropdown menus labeled 'Area', 'Language', and 'Video Standard'. The 'Area' dropdown is set to 'Asia', 'Language' is set to 'English', and 'Video Standard' is set to 'PAL'. Below these menus is a 'Next' button.

Step 3 Select the **I have read and agree to the terms of the Software License Agreement and Privacy Policy** check box, and then click **Next**.

Figure 3-2 Disclaimer

Region Setting — Disclaimer — Time Zone Setting — Password Setting — P2P — Online Update

SOFTWARE LICENSE AGREEMENT

Last modified: Jun 15, 2020

1. PREAMBLE
IMPORTANT NOTICE, PLEASE READ CAREFULLY:

1.1 This Agreement is a Software License Agreement between you and Zhejiang Dahua Technology Co., Ltd. ("Company" or "We"). Please read this software license agreement (hereinafter referred to as "Agreement") carefully before using the Software. By using Company Software, you are deemed to agree to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement, please do not install or use the Software, and click the "Disagree" button (if there is any provision for "agree" or "disagree"). If the Software you get is purchased as part of Company device, and you do not agree to the terms of this Agreement, you may return this device/Software within the return period to Company or authorized distributor where you purchased from for a refund, but it should be subject to the Company's return policy.

1.2 Consent to use of data
Your personal information, including phone number, product SN and MAC address of the user, may be required in order to provide certain functions, such as on-line updates, and resetting password. When dealing with such information, Company will act in accordance with the data processing principles provided by law and using proper technological measures and management system to make sure that your personal information is securely used and your legal rights are well protected. Company stick on to personal information protection and has made the Product Privacy Policy to disclose the important information about the collection, usage, share, storage, and deletion of personal information. In all circumstance, your personal information will be handled according to the Product Privacy Policy. For

☒ I have read and agree to the terms of the Software License Agreement and Privacy Policy.

Next

Step 4 Configure the time parameters, and then click **Next**.

Figure 3-3 Time zone setting

Region Setting — Disclaimer — Time Zone Setting — Password Setting — P2P — Online Update

Date Format: YYYY-MM-DD

Time Zone: (UTC+11:00) Coordinated Universal Time+11

System Time: 2021-07-14 17:23:07 Sync with PC

Will be modified as: 2021-07-13 22:23:07

Next

Step 5 Set the password for admin account.

Figure 3-4 Password setting

Region Setting — Disclaimer — Time Zone Setting — Password Setting — P2P — Online Update

Username: admin

New Password:

Confirm Password:

☒ Email Address: For password reset. Recommended or improved in time.

Next

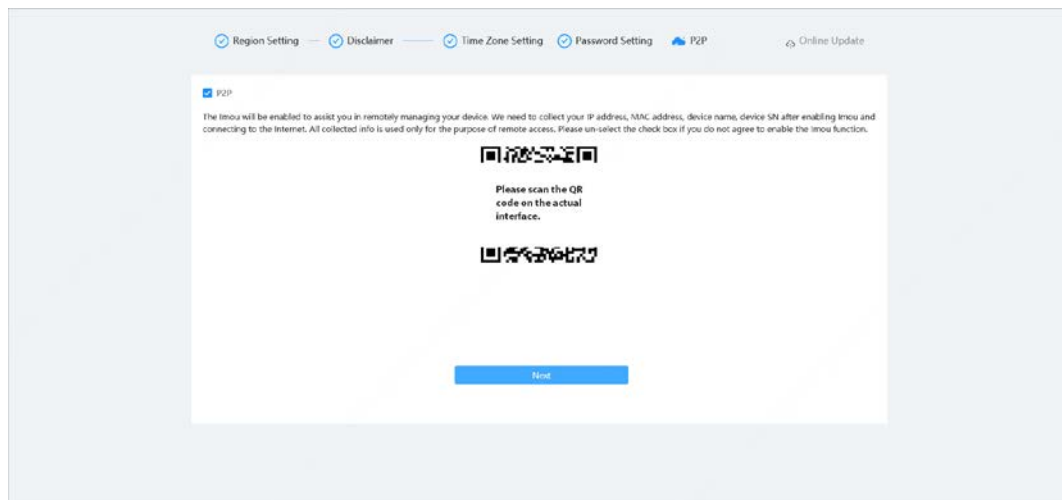
Table 3-1 Description of password configuration

Parameter	Description
Username	The default username is admin.

Parameter	Description
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	
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.

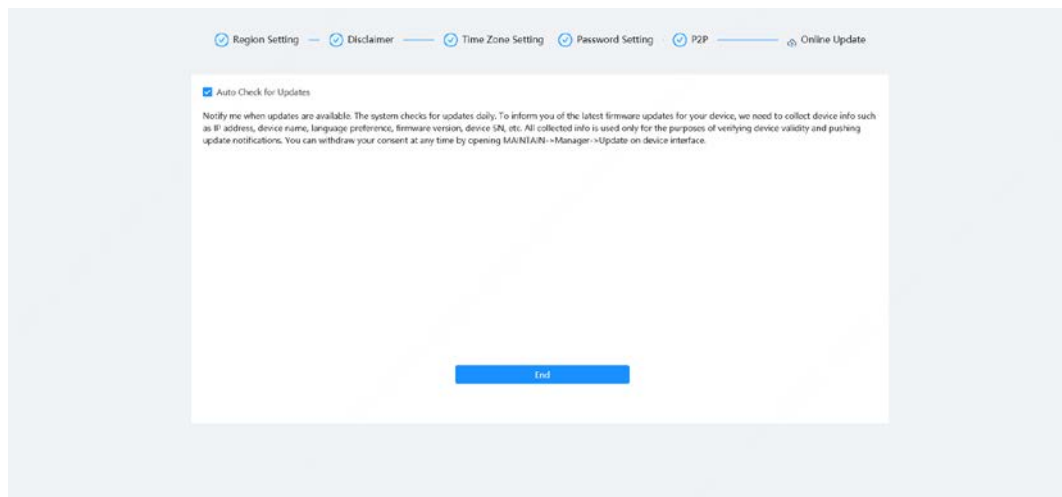
Step 6 Click **Next**, and the **P2P** page is displayed.

Figure 3-5 P2P



Step 7 Click **Next**, and then click **End** to complete initialization.

Figure 3-6 Online update



4 Setting

This chapter introduces the basic settings of the Camera, including the configuration of local parameters, camera, network, PTZ, event, storage, system information, log, and more.

You can configure the camera, event and system through two methods. This section uses method 1 as an example.

- Method 1: Click , and then select the corresponding item.
- Method 2: Click the corresponding icon on the home page.

4.1 Device Login

Log in to the device webpage through a browser.

Prerequisites

- You need to initialize the Camera before logging in to the webpage. For details, see "3 Device Initialization".
- When logging in to the webpage, keep the PC IP and device IP on the same network.

Procedure

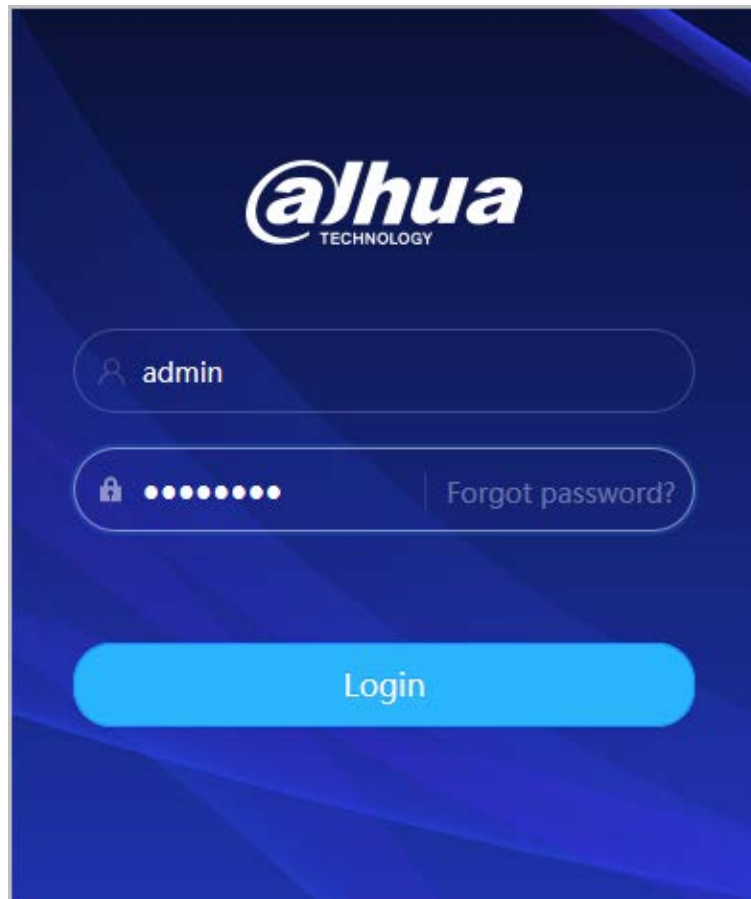
Step 1 Open the browser, enter the device IP address (192.168.1.108 by default) in the address box, and then press Enter key.

Step 2 Enter the username and password.
The username is admin by default.



Click **Forgot password?** to reset the password through the email address that is set during the initialization. For details, see "4.8.2.2 Resetting Password".

Figure 4-1 Login

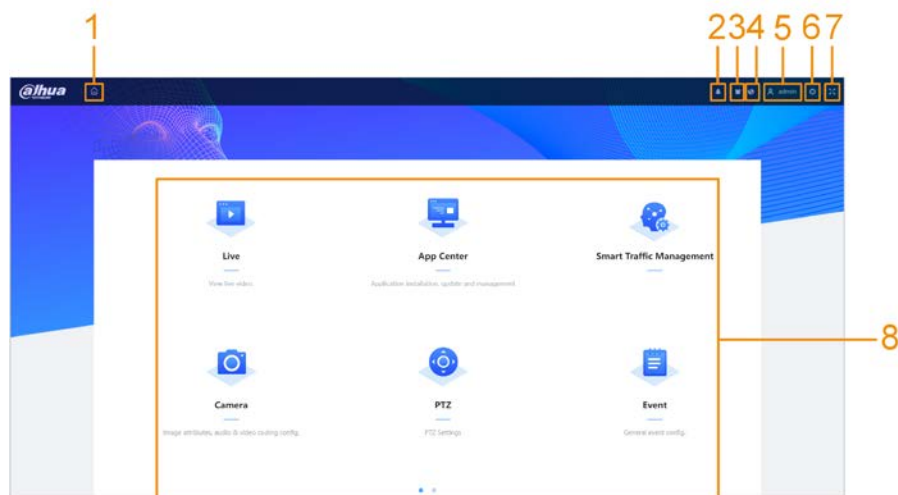


Step 3 Click **Login**.

The **Live** page is displayed. For details, see "5.1 Live Page".

Click  on the left-upper corner of the page to display the main page.

Figure 4-2 Main page



For first-time login, you need to install the plug-in. Follow the on-screen instructions to complete download and installation.

Table 4-1 Description of main page

No.	Button	Description
1		Display the main page.
2		Subscribe to alarm messages. For details, see "4.6.1.3.2 Subscribing to Alarm Information".
3		Set the skin.
4		Set the language.
5		- Click and select Restart, and the camera restarts. - Click and select Logout to go back to the login page.
6		Configure the basic parameters. For details, see "4 Setting".
7		- Click the button to enter full screen mode. - Click  to exit full screen mode.
8	Main page	The main page includes the following modules. Click   on the bottom of the page to switch between multiple pages. - Live: View the real-time monitoring image. The Live view page supports multi-channel display. - App Center: Configure application installation, update and management. - Smart Traffic Management: Configure the global plan for illegal parking manual capture and the preset plans for E-Police, illegal parking snapshot, road events, ANPR and littering. - Camera: Configure camera parameters, including image parameters, encoder parameters, and audio parameters. - PTZ: Configure PTZ functions. - Event: Configure alarm linkage parameters of general events. - System: Configure basic system parameters, manage users and peripherals, maintain and upgrade the system. - Record: Configure record functions, play back or download recorded videos. When playing back multi-channel recordings, you can choose channel No. to play back. - Picture: Configure image functions, play back or download image files. When playing back multi-channel images, you can choose channel No. to play back. - Security: Check the device security status and set security functions. - Report: Search the AI event report and system report.

4.2 Local

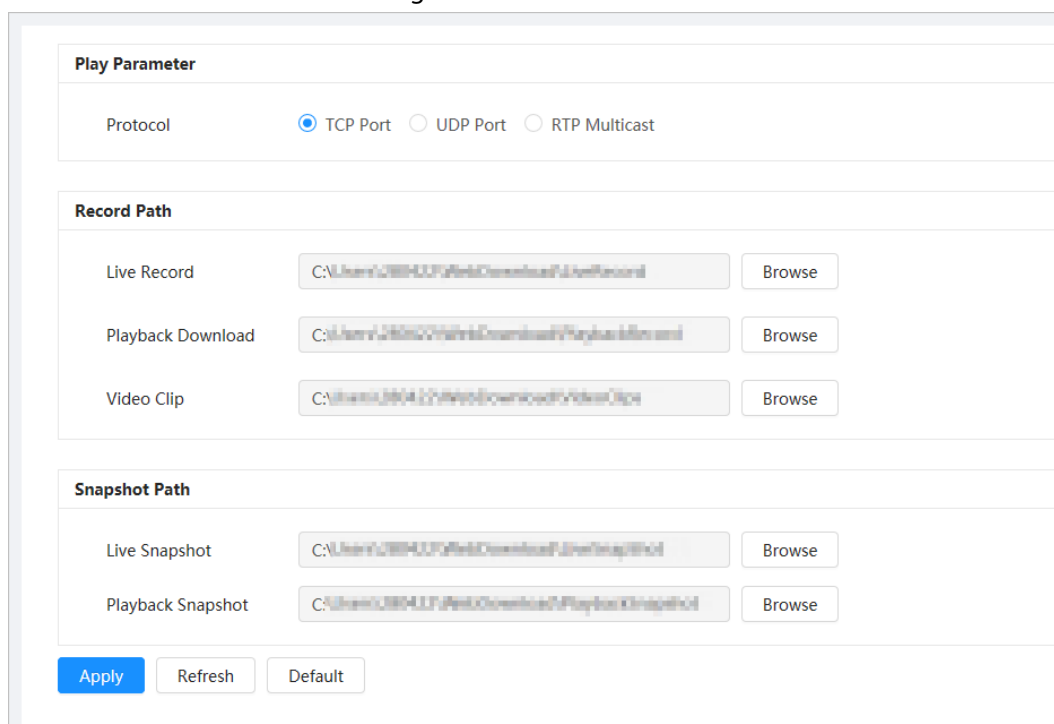
You can select protocol and configure the storage path for live snapshot, live record, playback

snapshot, playback download, and video clips.

Procedure

Step 1 Select  > **Local**.

Figure 4-3 Local



Step 2 Configure play parameters.

Protocol: Network transport protocol type, supporting TCP (Transmission Control Protocol) port, UDP (User Datagram Protocol) port and multicast.



Before selecting **Multicast**, you need to configure multicast parameters in advance. For details, see "4.4.9 Multicast".

Step 3 Click **Browse** to select the storage path for live snapshot, live record, playback snapshot, playback download, and video clips.

Table 4-2 Description of local parameter

Parameter	Description	
Protocol	You can select the network transmission protocol from TCP , UDP and Multicast .  Before selecting Multicast , make sure that you have set the Multicast parameters.	
Live Record	The recorded video of Live page. The default path is C:\Users\admin\WebDownload\LiveRecord.	 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\WebDownload\PlaybackRecord.	

Parameter	Description	
Video Clips	The clipped video of playback page. C:\Users\admin\WebDownload\VideoClips.	
Live Snapshot	The snapshot of Live page. The default path is C:\Users\admin\WebDownload\LiveSnapshot.	
Playback Snapshot	The snapshot of playback page. The default path is C:\Users\admin\WebDownload\PlaybackSnapshot.	

Step 4 Click **Apply**.

Related Operations

- Click **Refresh** to refresh the parameters of the current page.
- Click **Default** to restore the default parameter values.

4.3 Camera

This section introduces camera configuration, including configuring image parameters, encoder parameters, and audio parameters.



Camera parameters might differ depending on the device.

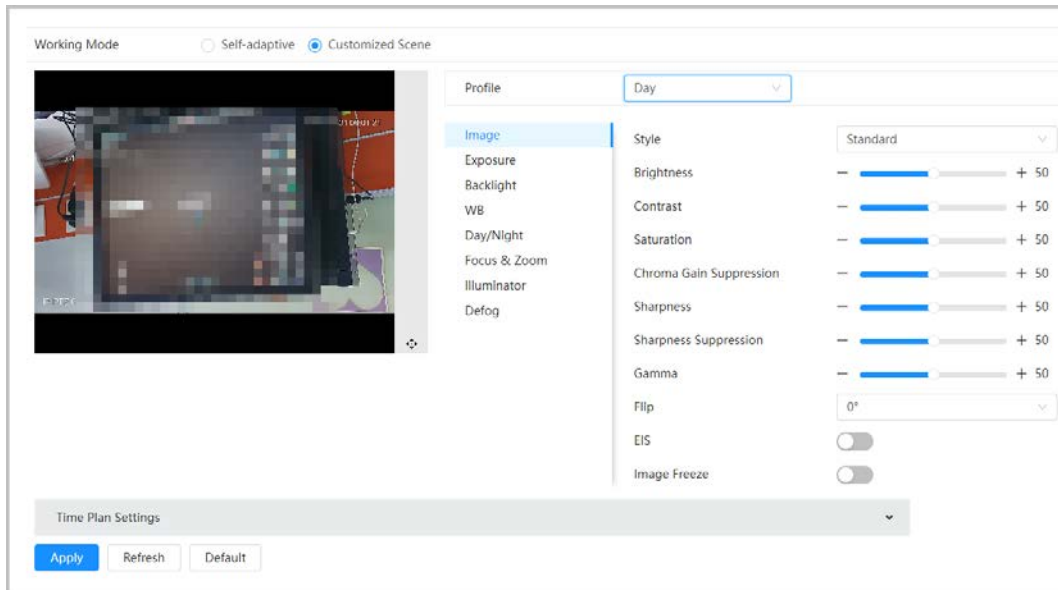
4.3.1 Setting Image Parameters

Configure image parameters according to the actual situation, including image, exposure, backlight, white balance, Day/Night, and more.

4.3.1.1 Page Layout

Configure camera parameters to improve the image clarity, and ensure that surveillance goes well. Camera supports two working modes: **Self-adaptive** and **Customized scene**. You can select 9 configuration file types to set and view the configuration parameters and effects under the corresponding type, including image, exposure and backlight and more.

Figure 4-4 Camera conditions (common camera)



4.3.1.2 Configuring Operating Mode

Select working mode as needed, including self-adaptive and customized scene.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then select working mode on the top of the page.

- Self-adaptive: Camera automatically matches the appropriate configuration file type according to different environments.

If you select **Self-adaptive**, go straight to **Step5**.

- Customized scene: Camera monitors according to the settings of the profile type at different times.

If you select **Customized scene**, go straight to **Step3**.

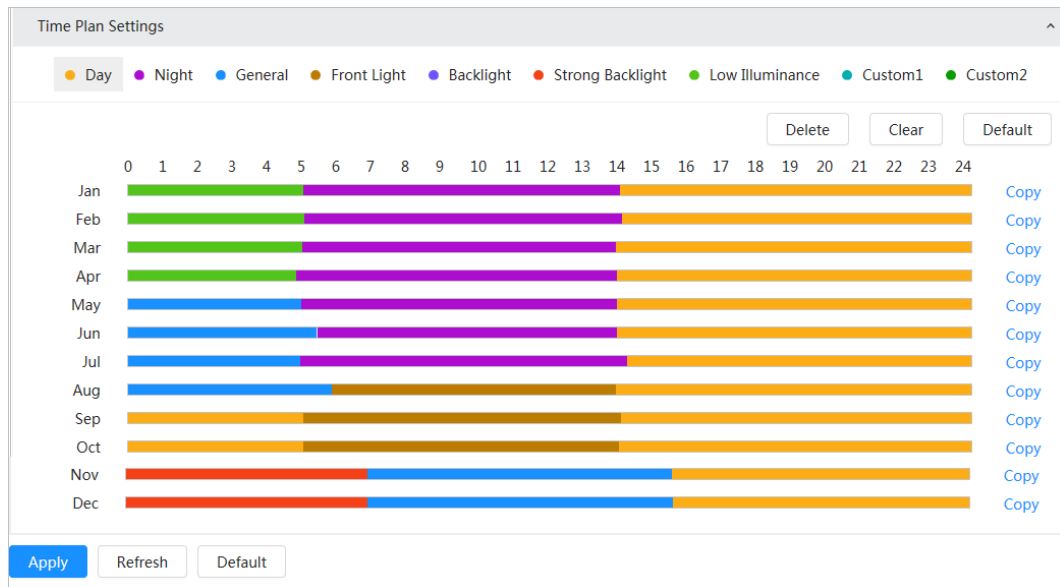
Step 3 Select configuration file type.

You can select 9 configuration file types, including **general, day, night, front light** and **backlight** to set and view the configuration parameters and effects under the corresponding type, including image, exposure and backlight.

Step 4 Set time plans.

You can set daily schedule by month.

Figure 4-5 Time plan settings



- 1) Click **Time Plan Settings** or  to open time plan.
- 2) Click to configure file type, for example **general**, left-drag on the timeline to set the time period using **general** type.
In the same way, you can set up separate time periods when applying other file types, including **Day**, **Night** and **Front Light**.



Time period is set as **Day** and **Night** by default. Click **Delete** or **Clear** before you start setting time period.

- 3) (Optional) Click **Copy**; select a month, then click **Apply**.
Time plan for the current month can be quickly copied to other months.

Step 5 Click **Apply**.

4.3.1.3 Adjusting Image

You can configure image parameters. The actual parameters of the camera can be adjusted here.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > Image**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then configure parameters.

Figure 4-6 Image

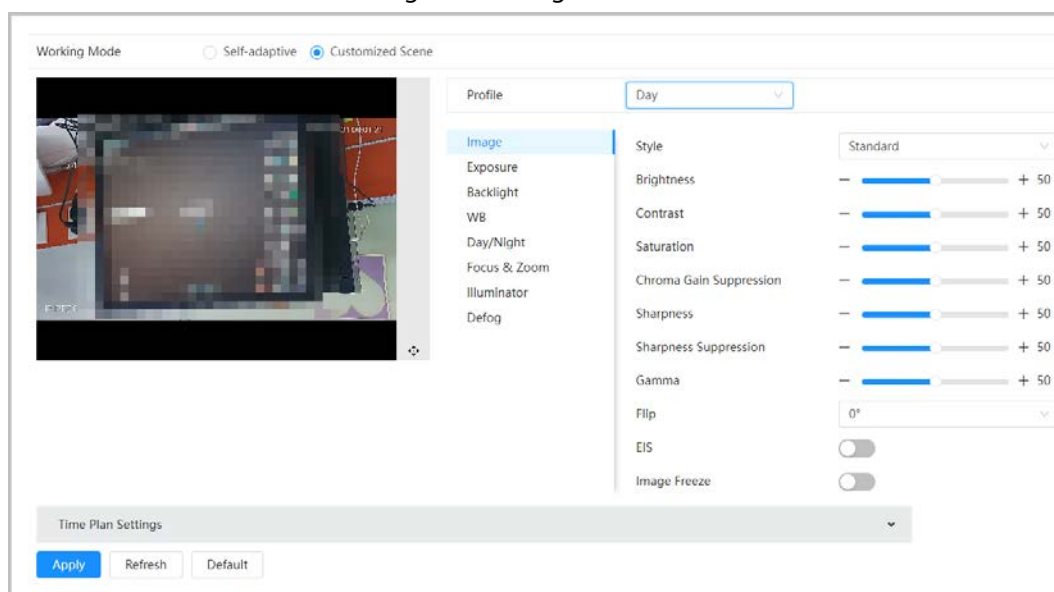


Table 4-3 Description of image parameters

Parameter	Description
Style	Select the image style from soft, standard and vivid. • Standard: Default image style, which 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.
Brightness	Change the overall brightness of the image. The higher the value, the brighter the image. The image might be hazy if the value is configured too high.
Contrast	Change the contrast of the image. The higher the value, the greater the contrast between bright and dark areas. If the value is too big, the dark area will be too dark and the bright area will more vulnerable to overexposure. The image might be hazy if the value is set too small.
Saturation	Set the intensity of colors. The higher the value, the deeper the color. 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	Change the sharpness of image edges. The higher the value, the clearer the image edges. If the value is too high, image noise is 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.

Parameter	Description
Gamma	Change the image brightness and contrast in a non-linear way. The higher the value, the brighter the image.
Flip	Change the display direction of the image. • Normal: The normal display of the image. • Reflection: The image flips up and down.
OIS	Optical Image Stabilization (OLS) is used to effectively solve the problem of image shaking during use through ISP algorithm and optical technology, thus presenting clearer images. It is On by default. • This function is available on select models. • Optical image stabilization and electronic image stabilization cannot be enabled at the same time.
EIS	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 enabling this function, 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.
Image Freeze	After enabling this function, the image at the called preset is displayed directly if you call a preset or tour, and no images during the rotation of the Device are displayed.

Step 3 Click **Apply**.

4.3.1.4 Exposure

Configure iris and shutter to improve image clarity.



Cameras with WDR do not support long exposure when WDR is enabled in **Backlight**.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > Exposure**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then configure parameters.

Figure 4-7 Exposure

The screenshot shows a camera's settings menu with 'Exposure' selected. The settings are as follows:

- Profile: Day
- Image: (selected)
- Exposure: (selected)
- Backlight: (not selected)
- WB: (not selected)
- Day/Night: (not selected)
- Focus & Zoom: (not selected)
- Illuminator: (not selected)
- Defog: (not selected)
- Anti-flicker: Outdoor
- Mode: Auto
- Exposure Compensation: - [slider] + 50
- AE Recovery: 15min
- 2D NR: [toggle on]
- Level: - [slider] + 50
- 3D NR: [toggle on]
- Level: - [slider] + 50
- Advanced NR: [toggle off]

Table 4-4 Description of exposure parameters

Parameter	Description
Anti-flicker	You can select 50Hz, 60Hz, or Outdoor from the list. • 50Hz: The system adjusts the exposure according to ambient light automatically to ensure that stripes do not appear. • 60Hz: The system adjusts the exposure according to ambient light automatically to ensure that stripes do not appear. • 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.
Mode	Set the exposure modes. You can select Auto, Manual, Iris Priority, Shutter Priority and Gain Priority. The Auto mode is selected by default. • Auto: 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.
Gain	If you select Gain Priority or Manual, you can set gain range to automatically increase the gain of the device when the illumination is low, thus obtaining a clear image.
Shutter	Set the effective exposure time. The smaller the value, the shorter the exposure time.
Shutter range	If you select Shutter Priority or Manual, and select Shutter as Custom, you can set the shutter range in ms unit.

Parameter	Description	
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.	
Exposure adjustment speed	You can set the exposure adjustment speed. The value ranges from 0 to 100.	
Upper gain threshold	You can set the upper gain threshold of exposure. The value ranges from 0 to 100.	
Low-speed shutter	In a low luminance environment, snapping images by expending the automatic exposure time effectively reduces image noise, but images of moving objects may be blurred.	
Lower threshold of low-speed shutter	You can set the lower threshold of the camera low-speed shutter. The lower the value, the faster the shutter.	
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.	
Advanced NR	You can suppress noise in the time-domain and space-domain based on the video filter method.	 Some models do not support advanced noise reduction, time domain grade, or space domain grade.
Time domain grade	You can set the time domain grade. The value ranges from 0 to 100.	
Space domain grade	You can set the space domain grade. The value ranges from 0 to 100.	

Step 3 Click **Apply**.

4.3.1.5 Backlight

You can select backlight mode from BLC, WDR and HLS.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > Backlight**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then select a backlight mode from the list.

Figure 4-8 Backlight mode

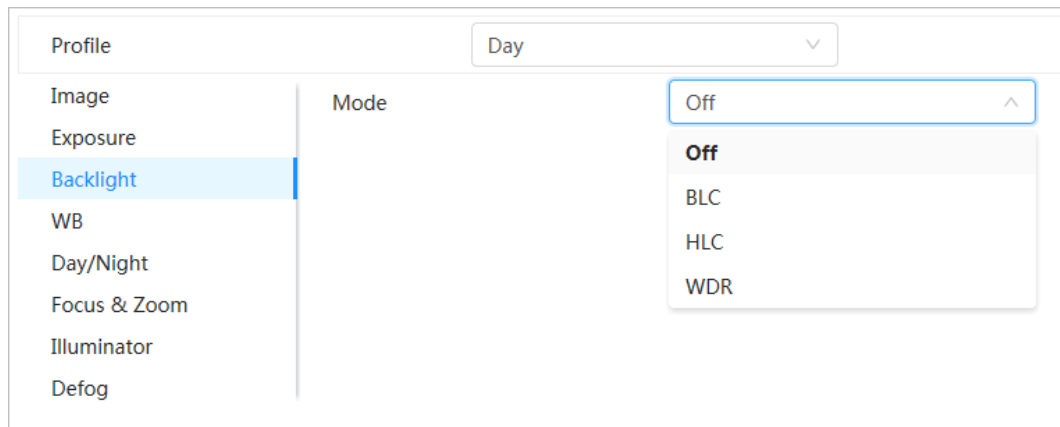


Table 4-5 Description of backlight parameters

Parameter	Description
BLC	Enable BLC, the camera can get a clearer image of the dark areas on the target when shooting against light. You can select default mode or customized mode. - When in default mode, the system automatically adjusts exposure according to ambient lighting conditions to ensure the clarity of the darkest area. - When in customized mode, the system auto adjusts exposure only to the set area according to ambient lighting conditions to ensure the image of the set area is at its ideal brightness.
WDR	The system dims bright areas and compensates for dark areas to ensure the clarity of all areas. The higher the value is, the stronger the darkness will be, but the more intense the noise will be.  There might be a few seconds of video loss when the device is switching to WDR mode from other modes.
HLC	Enable HLC when extremely strong light is in the environment (such as a toll station or parking lot). The Camera dims strong lights, and reduce the size of Halo zone to lower the brightness of the whole image, so that the camera can capture human faces or car plate details clearly. The larger the value is, the more obvious the HLS effect will be.

Step 3 Click **Apply**.

4.3.1.6 White Balance

The white balance function can correct the color deviation to ensure color precision. When in WB mode, white objects are displayed in a white color depending on the environment.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > WB**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then configure **White Balance Mode**.

Figure 4-9 White balance

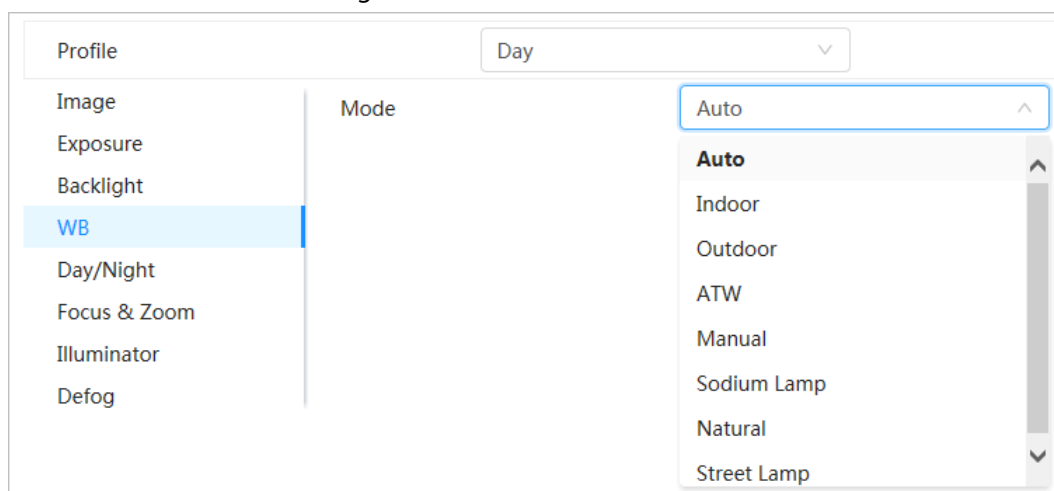


Table 4-6 Description of white balance parameters

Parameter	Description
Auto	The system compensates WB according to color temperature to ensure color precision.
Indoor	The system compensates WB for the general situation of indoor lighting to ensure color precision.
Outdoor	The system auto compensates WB to most outdoor environments with natural or artificial light to ensure color precision.
ATW	When the device is tracked, the system auto compensates WB to ensure color precision.
Manual	Configure red gain and blue gain manually. The system auto compensates WB according to color temperature.
Sodium Lamp	The system compensates WB to sodium lamp to ensure color precision.
Natural Light	The system auto compensates WB to environments without artificial light to ensure color precision.
Street Lamp	The system compensates WB to ensure color precision in outdoor scenes at night.

Step 3 Click **Apply**.

4.3.1.7 Day/Night

Configure the display mode of the image. The system switches between color and black-and-white mode according to the actual condition.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > Day/Night**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then configure parameters.

Figure 4-10 Day/night mode

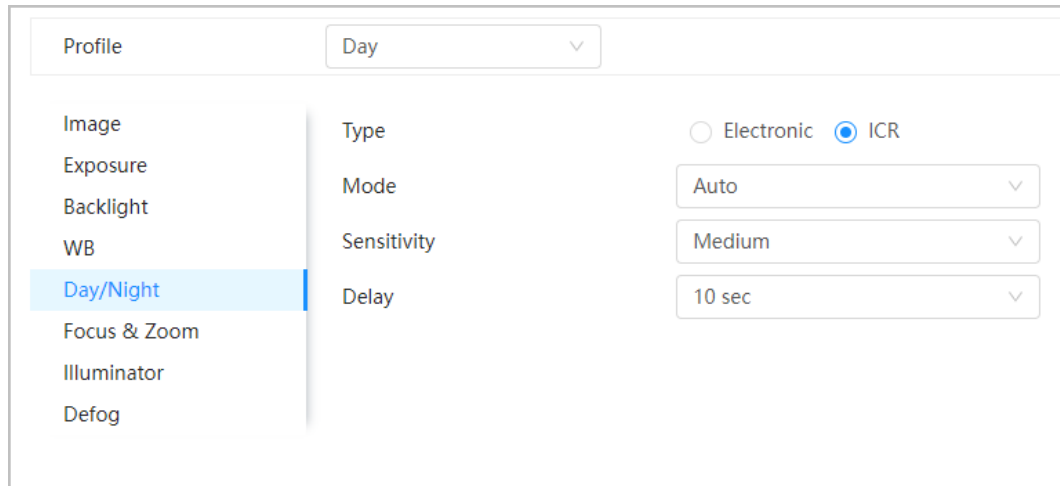


Table 4-7 Description of day/night mode parameters

Parameter	Description
Type	There are two options: Electrical and ICR. ICR is selected by default. • Electrical image processing method is used for day & night switch. • ICR is used for day & night switch.
Mode	You can select device display mode from Color , Auto , and B/W .  Day/Night configuration is independent from Profile management configuration. • Color: The system displays the image in color. • Auto: The system switches between color and black-and-white according to actual conditions. • B/W: The system displays black-and-white image.
Sensitivity	This configuration is available only when you set Auto in 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 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.

Step 3 Click **Apply**.

4.3.1.8 Focus & Zoom

Focus & Zoom (digital zoom) refers to capturing a part of the image to magnify it. The higher the magnification is, the blurrier the images will become.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > Focus & Zoom**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then configure focus & zoom parameters.

Figure 4-11 Focus & zoom

Table 4-8 Description of focus & zoom parameters

Parameter	Description
Digital Zoom	Click ☐ to enable 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.
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 Device 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.
PFA	Enable PFA . 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.

Step 3 (Optional) Configure expert mode.

- 1) Enable **Expert mode**, click **Add** to add a new scene.

Figure 4-12 Expert mode

The interface includes buttons for 'Add', 'Clear', and 'Refresh' at the top right. Below them is a table with the following columns: No., Name, Lens Magnification, Draw, Status, Apply, and Delete. The table contains one row with the following data: No. 1, Name Scene1, Lens Magnification 40, Draw (icon), Status --, Apply (icon), and Delete (icon). At the bottom, there are buttons for 'Start Scene Focusing Training' and 'Stop Training'.

No.	Name	Lens Magnification	Draw	Status	Apply	Delete
1	Scene1	40		--		

- 2) Click to adjust the video screen and draw the training region on the screen.



Only supports closed model area (triangle and polygons above).

- 3) Double-click **Lens Magnification** to set focus magnification.
- 4) Click **Apply** to save settings.
- 5) Click **Start Scene Focusing Training**.

The scene rotates and automatically focuses to the specified position. After the training is complete, the scene status is displayed as **Complete**.

Step 4 Click **Apply**.

4.3.1.9 Illuminator

This configuration is available only when the device is equipped with illuminator. Common illuminators are classified into IR lights, white light, laser lights, and full-spectrum lights. Different device models support different types of illuminators. This manual is for reference only, and might differ from the actual page.

Step 1 Click on the upper-right corner of the page, and then select **Camera > Image > Illuminator**.

Step 2 Select the camera that needs to be configured from the **Channel** drop-down list and then configure illuminator mode.

Figure 4-13 Illuminator

The interface shows a sidebar on the left with the following items: Profile, Image, Exposure, Backlight, WB, Day/Night, Focus & Zoom, **Illuminator** (highlighted), and Defog. The main area has a 'Day' dropdown at the top. Below it, the 'Mode' is set to 'Zoom Priority' (dropdown) and 'Compensation' is set to 50 (slider).

Table 4-9 Description of illuminator parameters

Parameter		Description
Mode	Manual	Adjust the brightness of illuminator manually, and then the system will illuminate the image accordingly.
	Auto	The system adjusts the illuminator 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 filling light is too bright, the center of the image may be overexposed. We recommend adjusting to adjust the brightness upper limit according to the actual scene. The value range is 0-100, and the default is 100.
	SmartIR	The system adjusts the illumination intensity according to the ambient lighting condition.  Only IR illuminator supports the smart IR mode.
	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.  Some devices support setting the sensitivity of the illuminator.
	Off	Illuminator is off.

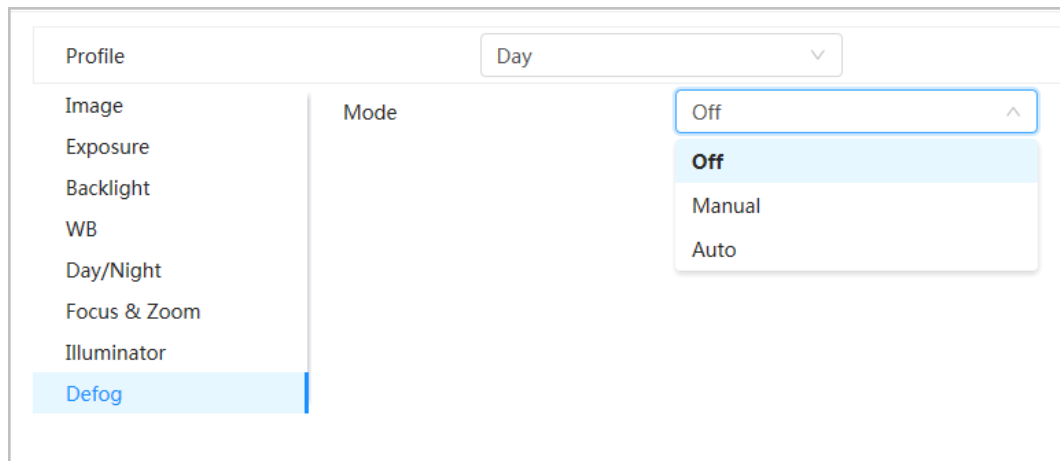
Step 3 Click **Apply**.

4.3.1.10 Defog

The image quality is compromised in foggy or hazy environment, and defog can be used to improve image clarity.

Step 1 Select  > **Camera** > **Image** > **Defog**.

Figure 4-14 Defog



Step 2 Configure defog parameters.

Table 4-10 Description of defog parameters

Defog	Description
Manual	Configure function intensity and atmospheric light mode manually, and then the system adjusts image clarity accordingly. Atmospheric light mode can be adjusted automatically or manually.
Auto	The system adjusts image clarity according to the actual condition.
Off	Defog function is disabled.

Step 3 Click **Apply**.

4.3.2 Setting Encode Parameters

This section introduces video parameters, such as video, snapshot, overlay, ROI (region of interest) and path.



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

4.3.2.1 Encode

Configure video stream parameters, such as compression, resolution, frame rate, bit rate type, bit rate, I frame interval, SVC (Scalable Video Coding) and watermark.

Step 1 Select  > **Camera** > **Encode** > **Encode**.

Figure 4-15 Encode

The screenshot shows the 'Encode' configuration window with two tabs: 'Main Stream' and 'Sub Stream'. The 'Main Stream' tab is active, showing the following settings:

- Compression: H.264
- Encoding Strategy: General
- Resolution: 2560*1440 (2560x1440)
- Frame Rate (FPS): 30
- Bit Rate Type: CBR
- Reference Bit Rate: 3072-15104 (Kb/s)
- Bit Rate: Custom (Kb/s)
- I Frame Interval: 60 (30-150)
- SVC: 1 (off)
- Watermark: ☒
- Watermark String: DigitalCCTV

The 'Sub Stream' tab is also visible, showing the following settings:

- Sub Stream: Sub Stream 1 ☒
- Compression: H.264H
- Resolution: 704*480 (D1)
- Frame Rate (FPS): 30
- Bit Rate Type: CBR
- Reference Bit Rate: 512-2048 (Kb/s)
- Bit Rate: 1024 (Kb/s)
- I Frame Interval: 60 (30-150)
- SVC: 1 (off)

At the bottom of the window are buttons for 'Apply', 'Refresh', and 'Default'.

Step 2 Configure encode parameters.

Table 4-11 Description of encode parameters

Parameter	Description
Sub Stream	Click ☒ to enable sub stream, it is enabled by default. You can enable multiple sub streams simultaneously.
Compression	Select encode mode. ● H.264: It includes H.264B (baseline profile encode mode), H.264 (main profile encode mode) and H.264H (high profile encode mode). Under the same image quality, the bandwidth of the three decreases in turn. ● H.265: Main profile encode mode. Compared with H.264, it requires smaller bandwidth. ● MJPEG: Under this mode, the image requires high bit rate to ensure clarity, you are recommended to set the Bit Rate to the biggest value in the Reference Bit Rate.
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 frame 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 only be set as CBR when Encode Mode is set as MJPEG.

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.
Reference Bit Rate	The most suitable bit rate value range recommended to user according to the defined resolution and frame rate.
Max Bit Rate	This parameter can be configured only when the Bit Rate Type is set as VBR . You can select the value of the Max Bit Rate according to the Reference Bit Rate value. The bit rate then changes as monitoring scene changes, but the max bit rate keeps close to the defined value.
Bit Rate	This parameter can be configured only when the Bit Rate Type is set as CBR . Select bit rate value in the list 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 .
SVC	Scaled video coding, is able to encode a high quality video bit stream that contains one or more subset bit streams. When sending stream, to improve fluency, the system will quit some data of related lays according to the network status. • 1: The default value, which means that there is no layered coding. • 2, 3 and 4: The lay number that the video stream is packed.
Watermark	You can verify the watermark to check if the video has been tampered. • Click ☐ to enable watermark function. • Enter watermark string. The string is DigitalCCTV by default.
Watermark String	

Step 3 Click **Apply**.

4.3.2.2 Overlay

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

4.3.2.2.1 Privacy Masking

You can enable this function when you need to protect the privacy of some area on the video image.

Step 1 Select  > **Camera** > **Encode** > **Privacy Masking**.

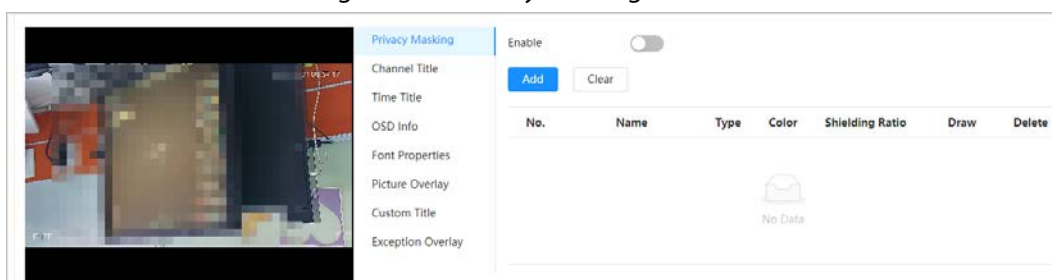
Step 2 Select **Enable**.

Step 3 Click **Add**, select **Color Block** or **Mosaic**, and then draw the blocks on the screen.



- You can draw 8 blocks at most. The same screen can add up to 4 mosaic blocks.
- Click **Clear** to delete all blocks; select the block you want to delete, click  to delete the corresponding block.

Figure 4-16 Privacy masking



Step 4 Adjust block size to protect the privacy.

Step 5 Click **Apply**.

4.3.2.2.2 Channel Title

You can enable this function when you need to display channel title in the video image.

Step 1 Select > **Camera** > **Encode** > **Overlay** > **Channel Title**.

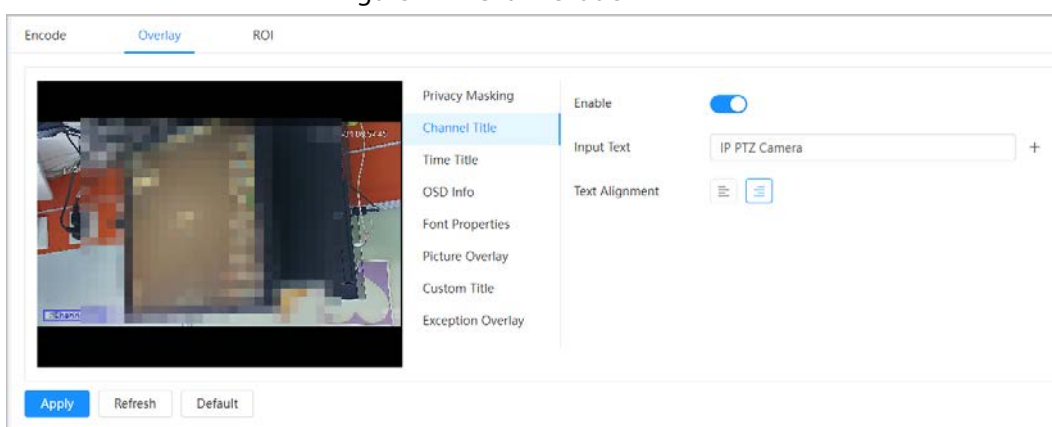
Step 2 Select **Enable**.

Step 3 Configure channel title, and then select the text alignment.



Click + to add the channel title, and you can add 1 line at most.

Figure 4-17 Channel title



Step 4 Move the title box to the position that you want in the image.

Step 5 Click **Apply**.

4.3.2.2.3 Time Title

You can enable this function when you need to display time title in the video image.

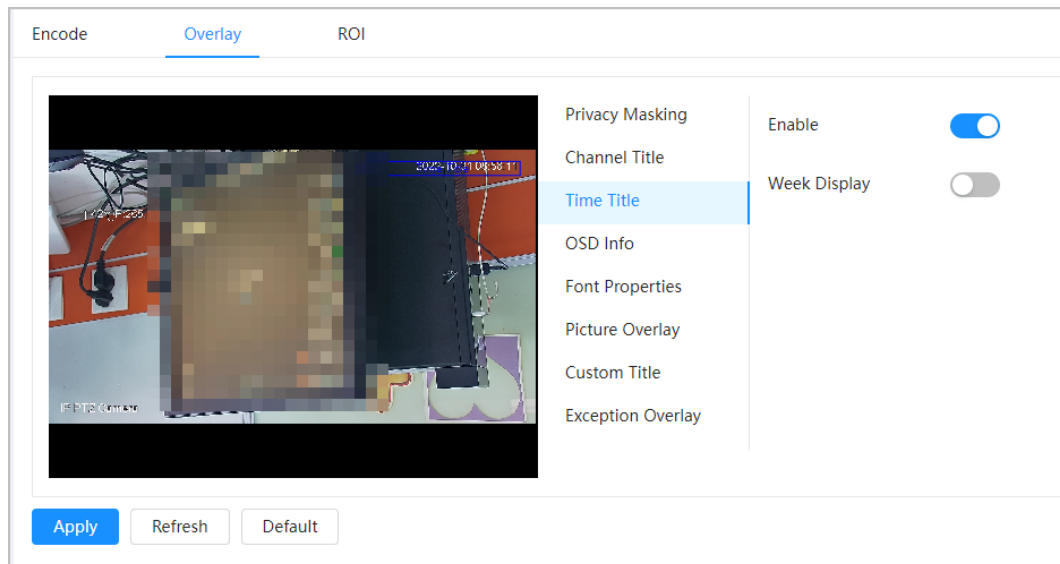
Step 1 Select > **Camera** > **Encode** > **Overlay** > **Time Title**.

Step 2 Select **Enable**.

Step 3 (Optional) Select **Week Display** to display the day of week on the video image.

Step 4 Move the time box to the position that you want on the image.

Figure 4-18 Time title



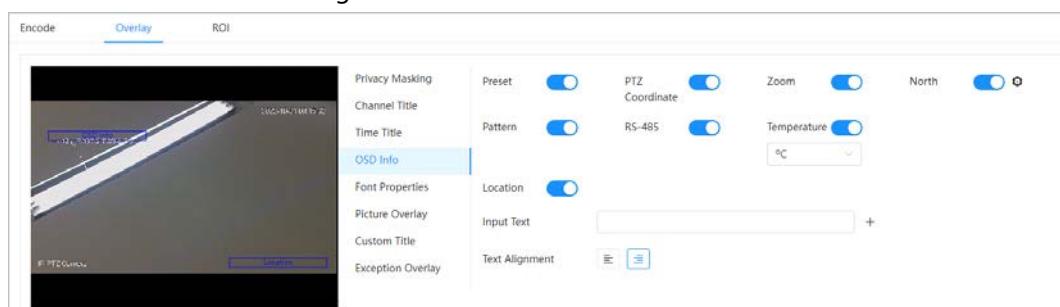
Step 5 Click **Apply**.

4.3.2.2.4 OSD Information

If you want to represent such information in video images as preset dots, PTZ/geography location, zoom and touring pattern, you can enable this function.

Step 1 Select **Camera > Encode > Overlay > OSD Info**.

Figure 4-19 OSD information



Step 2 Configure OSD information.

Table 4-12 Description of OSD information parameter

Parameter	Description
Presets	Select Enable , and then the preset name is displayed on the image when the camera turns to the preset, and it will disappear 3 s later.
PTZ Coordinates	Select Enable , and then the PTZ coordinates information is displayed on the image.
Zoom	Select Enable and then the zoom information is displayed on the image.
North	Select Enable , and then 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.
Pattern	Select Enable , and then the pattern information is displayed on the image.

Parameter	Description
Temperature	Select Enable , and then the temperature information is displayed in the text.
RS-485	Select Enable , and then the RS485 information is displayed on the image.
Location	Select Enable , and then the geographical location is displayed in the text.
Input Text	Enter the text, and then the text is displayed on the image.  You can add up to 13 lines of text.
Text Alignment	Set the alignment mode of the displayed information on the image.

Step 3 Move the OSD box to the position that you want on the image.

Step 4 Click **Apply**.

4.3.2.2.5 Font Properties

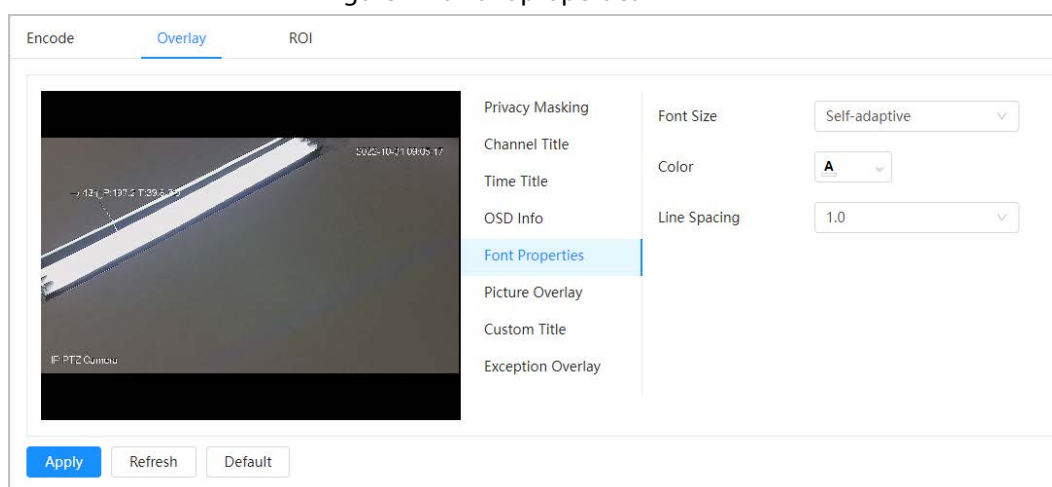
You can enable this function if you need to adjust the font size in the video image.

Step 1 Select  > **Camera** > **Encode** > **Overlay** > **Font Properties**.

Step 2 Select the font color and size.

You can set the RGB value to customize the font color.

Figure 4-20 Font properties



Step 3 Click **Apply** to complete the settings.

After saving the settings, the color and size of the font in the video image change accordingly.

4.3.2.2.6 Picture Overlay

You can enable this function if you need to display image information on the video image.



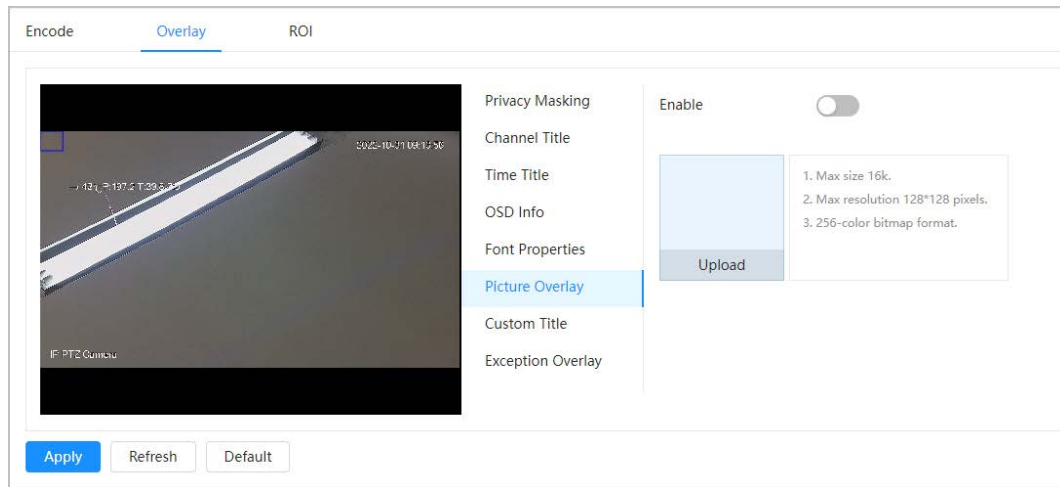
Text overlay and picture overlay cannot work at the same time.

Step 1 Select  > **Camera** > **Encode** > **Overlay** > **Picture Overlay**.

Step 2 Select channel and then select **Enable**.

- Step 3** Click **Upload**, and then select the overlaid image.
The image shows in the **Picture Preview**.

Figure 4-21 Picture overlay



- Step 4** You can move the overlaid image to the position you want in the image.
Step 5 Click **Apply**.

4.3.2.2.7 Custom Title

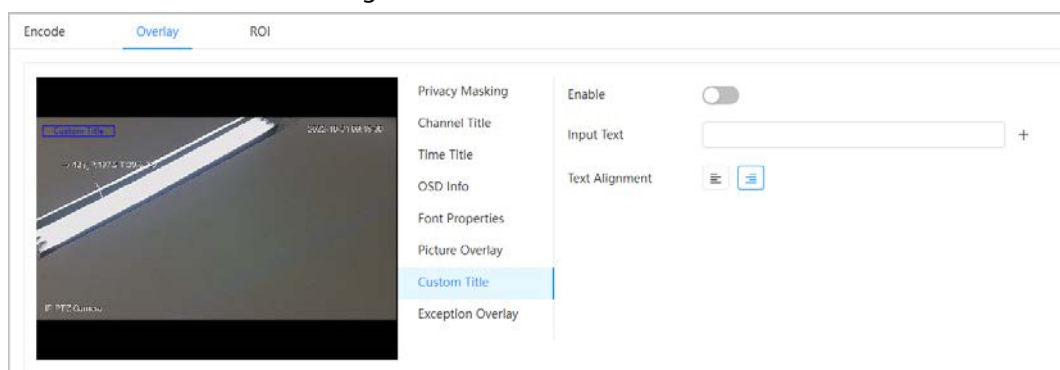
You can enable this function if you need to display custom information on the video image.

- Step 1** Select **Camera > Encode > Overlay > Custom Title**.
Step 2 Select **Enable**.
Step 3 Configure custom overlay, and then select the text alignment.



Click + to add the custom overlay, and you can add 1 line at most.

Figure 4-22 Custom title



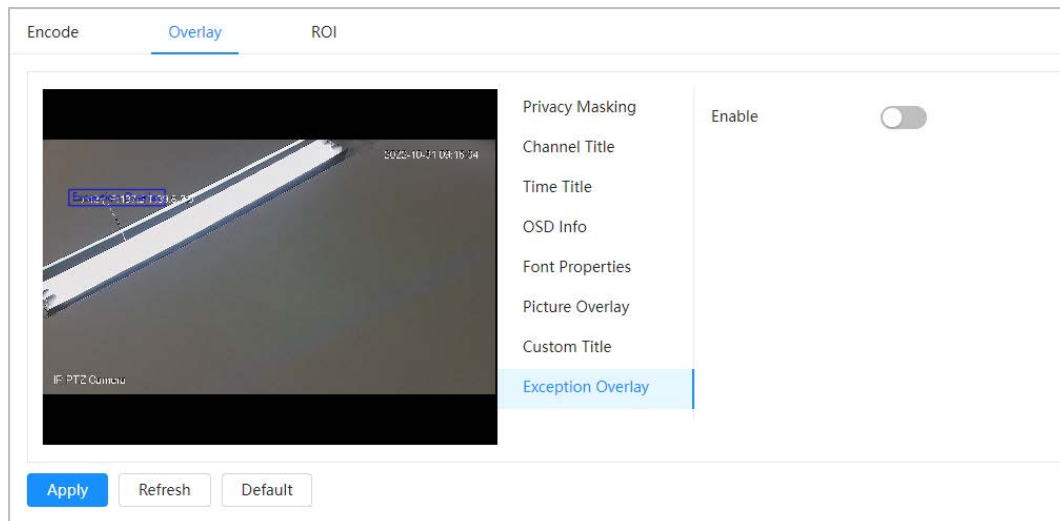
- Step 4** Move the custom box to the position that you want in the image.
Step 5 Click **Apply**.

4.3.2.2.8 Exception Overlay

You can enable this function to display the overlaid abnormal information of the cameras on the screen.

- Step 1** Select **Camera > Encode > Overlay > Exception Overlay**.

Figure 4-23 Exception overlay



Step 2 Select **Enable**, and then click **Apply**.

4.3.2.3 ROI

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

Step 1 Select > **Camera** > **Encode** > **ROI**.

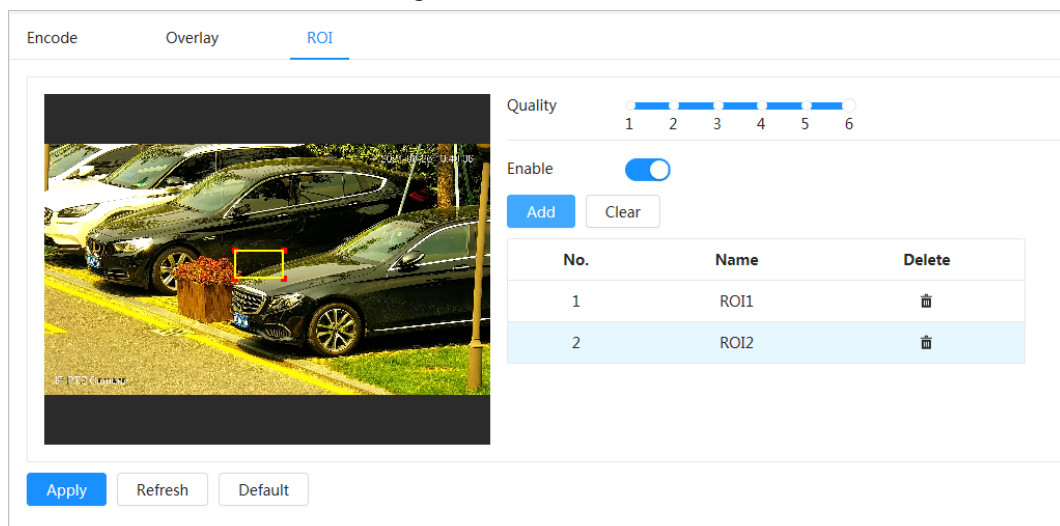
Step 2 Select channel, and then select **Enable**.

Step 3 Click **Add**, draw an area on the image, and then configure the image quality of ROI.



- You can draw 4 area boxes at most.
- The higher the image quality value is, the better the quality will be.
- Click **Clear** to delete all the area boxes; select one box, and then click to delete it.

Figure 4-24 ROI



Step 4 Click **Apply**.

4.3.3 Audio

You can configure audio parameters and alarm audio.



The function is available on select models.

4.3.3.1 Configuring Audio Parameters

Configure the noise filter and sampling frequency of the Camera. When enabling audio encoding, the network stream contains both audio and video, otherwise, it is only video stream.



You need to click  on the upper-right corner of the page, and then select **Camera > Encode > Encode** to enable the video stream of Sub Stream before enabling the audio.

Step 1 Click  on the upper-right corner of the page, and then select **Camera > Audio > Audio**.

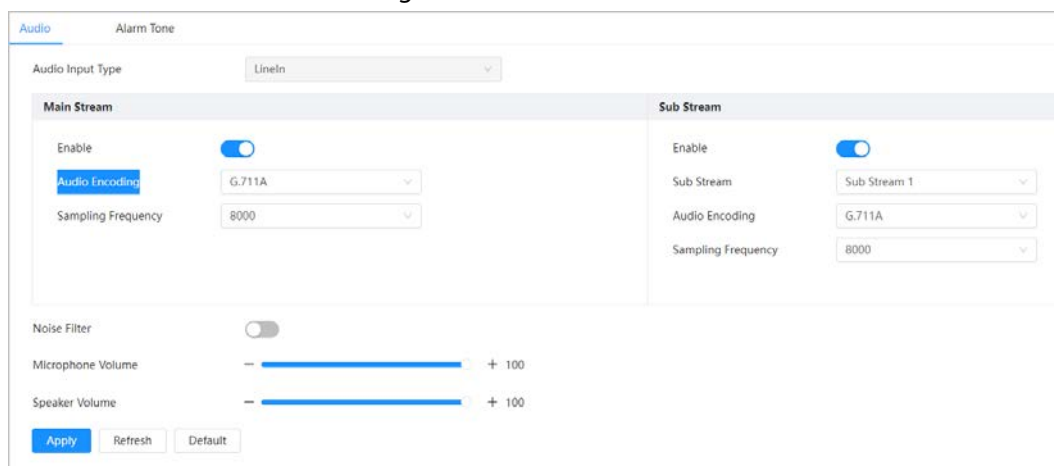
Step 2 Select **Main Stream** or **Sub Stream** to enable audio encoding.

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



Please carefully activate the audio acquisition function according to the actual requirements of the application scenario.

Figure 4-25 Audio



Step 3 Configure audio parameters.

Table 4-13 Description of audio parameters

Parameter	Description
Audio Encoding	Configure audio encoding. The configured audio encode mode applies to both audio and intercom. The default value is recommended.
Sampling Frequency	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.
Noise Filter	Enable this function, and the system automatically filters ambient noise.
Microphone Volume	Adjusts microphone volume.

Parameter	Description
Speaker Volume	Adjusts speaker volume.

Step 4 Click **Apply**.

4.3.3.2 Configuring Alarm Tone

You can set the alarm audio to be played when an alarm is triggered. For some devices, you can record or upload alarm audios.

Procedure

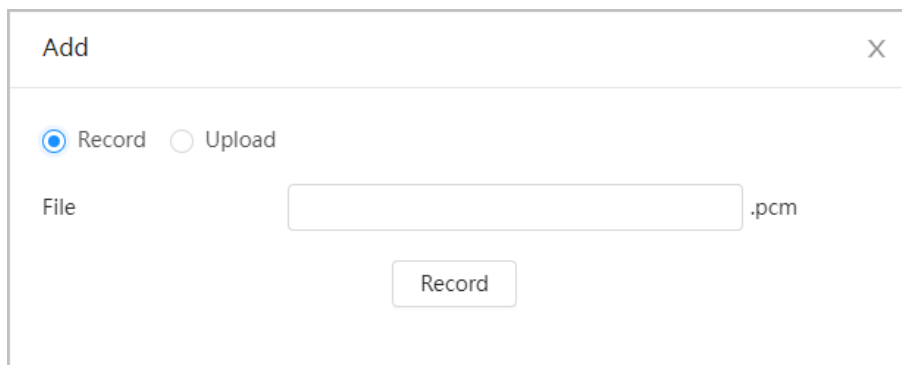
Step 1 Click  on the upper-right corner of the page, and then select **Camera > Audio > Audio**.

Figure 4-26 Alarm audio



Step 2 Click **Add**.

Figure 4-27 Add audio file



Step 3 Configure the audio file.

- Select **Record**, enter the audio file name, and then click **Record**. Click **Stop** to complete recording.
- Select **Upload**, click **Browse**, select the audio file to be uploaded, and then click **Upload**.



- The format of recorded audio is .pcm. Audio recording is only supported by some devices.
- Audio file in the format of .wav can be uploaded.
- You can edit and delete recorded or uploaded audio.
 - ◇ Click  to edit audio file.
 - ◇ Click  to delete audio file.

Step 4 Select the audio file that you need.

Related Operations

- Play audio: Click  to play the alarm audio.

- Download audio: Click  to download the alarm audio to local storage. The audio is saved to the default download path of the browser.

4.4 Network

This section introduces network configuration.

4.4.1 TCP/IP

You can configure IP address and DNS (Domain Name System) server and other information according to network planning to ensure the device is properly connected to other devices in the network.

Prerequisites

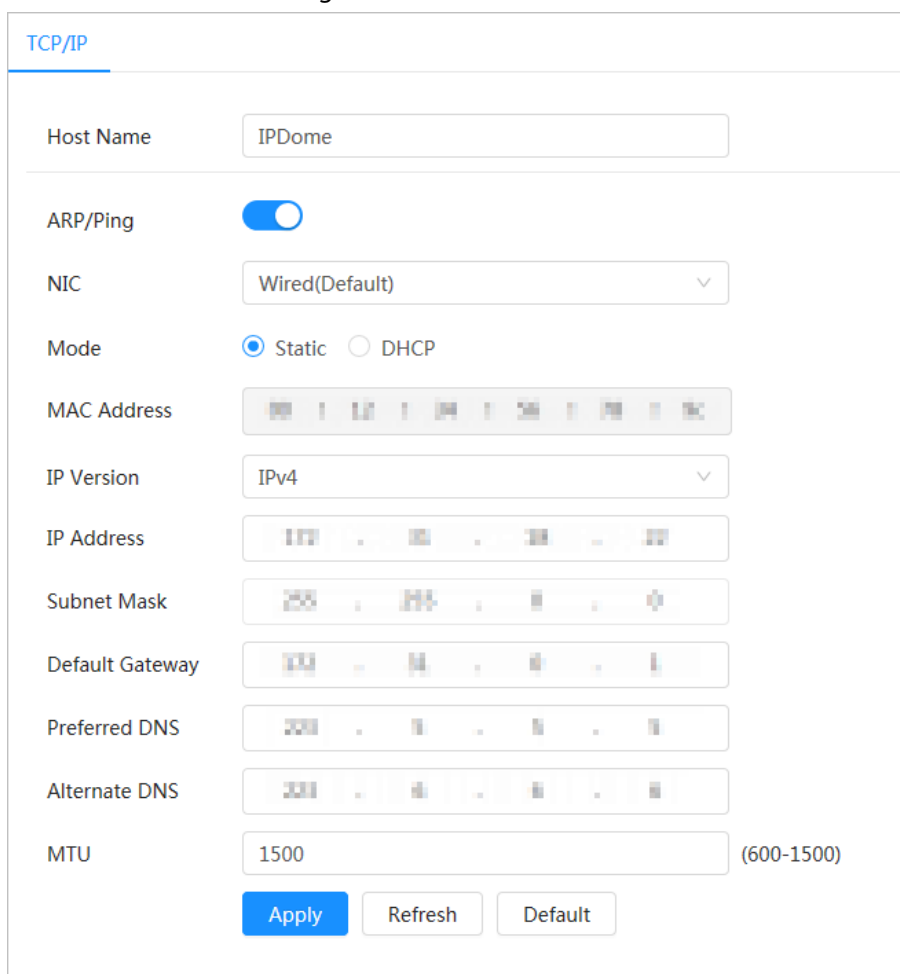
The camera has connected to the network.

Procedure

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

Step 2 Configure TCP/IP parameters.

Figure 4-28 TCP/IP



TCP/IP

Host Name: IPDome

ARP/Ping: ☒

NIC: Wired(Default)

Mode: ☒ Static ☐ DHCP

MAC Address: 08 00 27 12 34 56 78 9A BC

IP Version: IPv4

IP Address: 192 . 168 . 1 . 1

Subnet Mask: 255 . 255 . 0 . 0

Default Gateway: 192 . 168 . 0 . 1

Preferred DNS: 208 . 80 . 0 . 0

Alternate DNS: 208 . 80 . 0 . 0

MTU: 1500 (600-1500)

Apply Refresh Default

Table 4-14 Description of TCP/IP parameters

Parameter	Description
Host Name	Enter the host name.  The maximum length is 32 characters.
ARP/Ping	Click  to enable ARP/Ping to set IP address service. Get the camera MAC address, and then you can change and configure the device IP address with ARP (Address Resolution Protocol) /ping command. This is enabled by default. During restart, you will have no more than 2 minutes to configure the device IP address by a ping packet with certain length, the server will be turned off in 2 minutes, or it will be turned off immediately after the IP address is successfully configured. If this is not enabled, the IP address cannot be configured with ping packet.
NIC	Select the Ethernet card that need to be configured, and the default one is Wire .
Mode	The mode that the camera gets IP: • Static Configure IP Address, Subnet Mask, and Default Gateway manually, and then click Save, the login page with the configured IP address is displayed. • DHCP (Dynamic Host Configuration Protocol) When there is DHCP server in the network, select DHCP, and the camera acquires IP address automatically.
MAC Address	Displays host MAC (Media Access Control) address.
IP Version	Select IPv4 or IPv6 .
IP Address	When you select Static as Mode , enter the IP address and subnet mask according to the network plan.  • IPv6 does not have a subnet mask. • The default gateway must be on the same network segment with the IP address.
Subnet Mask	
Default Gateway	
Preferred DNS	IP address of the preferred DNS.
Alternate DNS	IP address of the alternate DNS.

Step 3 Click **Apply**.

Related Operations

Configuring IP address with ARP/Ping

1. Keep the camera that needs to be configured and the PC within the same local network, and then get a usable IP address.
2. Get the MAC address of the camera from device label.
3. Open command editor on the PC and enter the following command.

Figure 4-29 Edit command

Windows syntax↵
<pre>arp -s <IP Address> <MAC> ↵ ping -l 480 -t <IP Address> ↵</pre>
Windows example↵
<pre>arp -s 192.168.0.125 11-40-8c-18-10-11↵ ping -l 480 -t 192.168.0.125↵</pre>
UNIX/Linux/Mac syntax↵
<pre>arp -s <IP Address> <MAC> ↵ ping -s 480 <IP Address> ↵</pre>
UNIX/Linux/Mac example↵
<pre>arp -s 192.168.0.125 11-40-8c-18-10-11↵ ping -s 480 192.168.0.125↵</pre>

4. Restart the camera.
5. Check the PC command line, if information such as **Reply from 192.168.0.125...** is displayed, the configuration succeeds.
6. Enter *http://(IP address)* in the browser address bar to log in.

4.4.2 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.

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

Step 2 Configure port parameters.



- The configuration of **Max Connection**, **RTSP Port**, **RTMP Port**, **HTTPS Port** take effect immediately, and others will take effect after reboot.
- 0–1024, 1900, 3800, 5000, 5050, 9999, 37776, 37780–37880, 39999, 42323 are occupied for specific uses, do not use them.
- Do not use the same value of any other port during port configuration.

Figure 4-30 Port

Max Connection	10	(1-20)
TCP Port	37777	(1025-65534)
UDP Port	37778	(1025-65534)
HTTP Port	80	
RTSP Port	554	
HTTPS Port	443	
5000 Port	☐	
Apply Refresh Default		

Table 4-15 Description of port parameters

Parameter	Description
Max Connection	The max number of users (web client, platform client or mobile phone client) that can connect to the device simultaneously. The value is 10 by default.
TCP Port	Transmission Control Protocol port. The value is 37777 by default.
UDP Port	User Datagram Protocol Port. The value is 37778 by default.
HTTP Port	Hyper Text Transfer Protocol Port. The value is 80 by default. If it is configured to another value, you need to add the new port number to the IP address when logging in to the system using a browser.

Parameter	Description
RTSP Port	- Real Time Streaming Protocol Port, and the value is 554 by default. If you play live view with QuickTime, VLC (Video LAN Client) or Blackberry smart phone, the following URL (Uniform Resource Locator) format is available. - When the URL format requires 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.264B and resolution to CIF. URL format example: rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0 Among that: - Username: The username, such as admin. - Password: The password, such as admin. - IP: The device IP, such as 192.168.1.112. - Port: Leave it as default (554). - Channel: The channel number, which starts from 1. For example, if you are using channel 2, then the channel=2. - Subtype: The bit stream type; 0 means main stream (Subtype=0) and 1 means sub stream (Subtype=1). Example: If you require the sub stream of channel 2 from a certain device, then the URL should be: rtsp://admin:admin@10.12.4.84:554/cam/realmonitor?channel=21&=1 If username and password are not needed, then the URL can be: rtsp://ip:port/cam/realmonitor?channel=11&=0
HTTPS Port	Hyper Text Transfer Protocol over Secure Socket Layer Port. It is 443 by default.
5000 Port	The port is disabled by default. If you need to connect the Camera to intelligent transportation box through 5000 port, enable this port.  There might be network risk if the port is enabled. Please be cautious.

Step 3 Click **Apply**.

4.4.3 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.

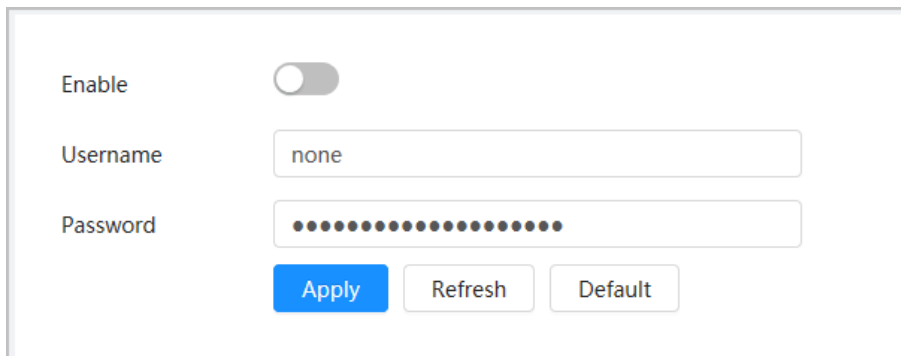
Prerequisites

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

Procedure

- Step 1 Select  > **Network** > **PPPoE**.
- Step 2 Click , and then enter username and password.

Figure 4-31 PPPoE



- Disable UPnP while using PPPoE.
- 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 visit camera through the IP address.

4.4.4 DDNS

Properly configure DDNS (Dynamic Domain Name System), and then the domain name on the DNS server matches your IP address and the matching relation refreshes in real time. You can always access 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  > **Network** > **DDNS**.



- 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.

Figure 4-32 DDNS

The screenshot shows a DDNS configuration window. At the top, 'Type' is set to 'NO-IP DDNS' with a dropdown arrow and a toggle switch. Below it, 'Server Address' is 'dynupdate.no-ip.com'. 'Domain Name' is 'none' with a 'Test' button to its right. 'Username' is 'none'. 'Password' is masked with 12 dots. 'Interval' is '1440' with a note 'min (1440-2880)'. At the bottom are 'Apply' (blue), 'Refresh', and 'Default' buttons.

Table 4-16 Description of DDNS parameters

Parameter	Description
Type	The name and web address of the DDNS service provider, see the matching relationship below: • CN99 DDNS web address: www.3322.org • NO-IP DDNS web address: dynupdate.no-ip.com • Dyndns DDNS web address: members.dyndns.org
Server Address	
Domain Name	
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	
Interval	The update cycle of the connection between the device and the server, and the time is 10 minutes by default.

Step 4 Click **Apply**.

Result

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

4.4.5 Email

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

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

Step 2 Click to enable the function.

Step 3 Configure email parameters.

Figure 4-33 Email

Enable ☒

SMTP Server

Port

Anonymous ☐

Username

Password

Sender

Encryption Type

Subject + ☒ Attachment

Receiver

Health Mail ☐

Sending Interval sec (1-3600)

Table 4-17 Description of email parameters

Parameter	Description	
SMTP Server	SMTP (Simple Mail Transfer Protocol) server address.	 For details, see Table 4-18.
Port	The port number of the SMTP server.	
Username	The account of SMTP server.	
Password	The password of SMTP server.	
Anonymous	Click  , and the sender's information is not displayed in the email.	
Sender	Sender's email address.	
Encryption Type	Select from None , SSL (Secure Sockets Layer) and TLS (Transport Layer Security) .  For details, see Table 4-18.	
Subject	Enter maximum 63 characters in Chinese, English, and Arabic numbers. Click  to select title type, including Device Name , Device ID , and Event Type , and you can set maximum 2 titles.	
Attachment	Select the checkbox to support attachment in the email.	
Receiver	- Receiver's email address. Supports 3 addresses at most. - After entering the receiver's email address, click Test to test whether the emails can be sent and received successfully.	
Health Mail	The system sends test mail to check if the connection is successfully	

Parameter	Description
Sending Interval	configured. Click  and configure the Sending Interval, and then the system sends test mail as the set interval.  Sending interval of health mail ranges from 1 second to 3,600 seconds.

Table 4-18 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	
Sina	smtp.sina.com	SSL	465	
		None	25	
126	smtp.126.com	None	25	
163	smtp.163.com	SSL	465/994	- You need to enable SMTP service in your mailbox. - The password should be "Authentication Password". Password for email login is invalid.  Authentication Password: Authentication Password is obtained when the SMTP service is enabled.
		TLS	25	
		None	25	
QQ	smtp.qq.com	SSL	465	None cannot be selected for authentication. - You need to enable SMTP service in your mailbox. - The password should be "Authentication Password". Password for email login is invalid.  Authentication Password: Authentication Password is obtained when the SMTP service is enabled.
		TLS	587	

Step 4 Click **Apply**.

4.4.6 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 visit local area device through wide area IP

address.

Prerequisites

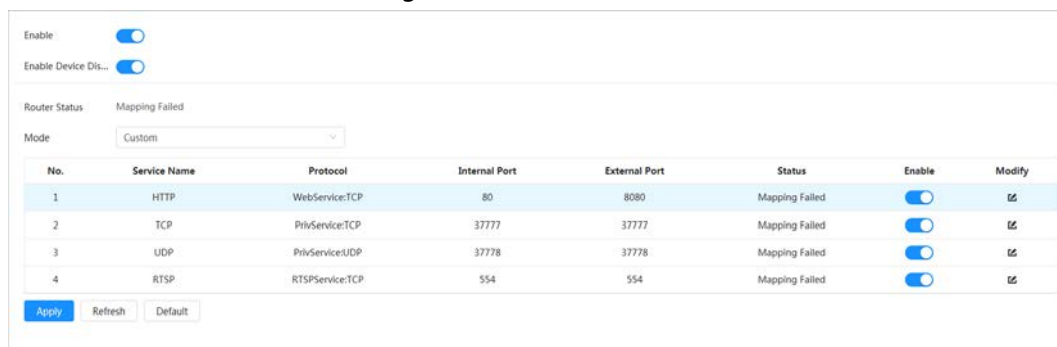
- Make sure the UPnP service is installed in the system.
- Log in to the router, and then configure WAN IP address to set up internet connection.
- Enable UPnP in the router.
- Connect your device to the LAN port of the router.
- Select  > **Network** > **TCP/IP**, in **IP Address**, enter the local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

Procedure

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

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

Figure 4-34 UPnP



No.	Service Name	Protocol	Internal Port	External Port	Status	Enable	Modify
1	HTTP	WebService:TCP	80	8080	Mapping Failed		
2	TCP	PrivService:TCP	37777	37777	Mapping Failed		
3	UDP	PrivService:UDP	37778	37778	Mapping Failed		
4	RTSP	RTSPService:TCP	554	554	Mapping Failed		

- Select **Custom**, click  and then you can change external port.
- Select **Default**, and then the system finishes mapping with unoccupied port automatically, and you cannot edit mapping relation.
- Select **Enable Device Discovery** to search for the device through the PC's online neighbors. The device name is the serial number.

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.

4.4.7 SNMP

SNMP (Simple Network Management Protocol) can be used to enable software such as MIB Builder and MG-SOFT MIB Browser to connect to the camera, and then 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  > **Network** > **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 (Recommended)**, 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 as default.

Figure 4-35 SNMP (1)

The figure shows a web-based configuration interface for SNMP. It includes the following elements:

- Version:** Three radio buttons are present: ☒ V1, ☐ V2, and ☐ V3(Recommended).
- SNMP Port:** A text input field containing the value '161'. To the right of the field is the text '(1-65535)'.
- Read Community:** A text input field that is empty. Below the field is the word 'Required' in red text.
- Write Community:** A text input field that is empty. Below the field is the word 'Required' in red text.
- Trap Address:** A text input field that is empty.
- Trap Port:** A text input field containing the value '162'.
- Send Keep-alive Packet:** A checkbox that is currently unchecked.
- Buttons:** At the bottom of the form are three buttons: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Figure 4-36 SNMP (2)

Version
☐ V1
☐ V2
☒ V3(Recommended)

SNMP Port
(1-65535)

Read Community

Write Community

Trap Address

Trap Port

☐ Send Keep-alive Packet

Read-Only Usern...

Authentication Type
☒ MD5
☐ SHA

Authentication P...

Encryption Type
☒ CBC-DES
☐ CFB-AES

Encryption Passw...

Read/Write User...

Authentication Type
☒ MD5
☐ SHA

Authentication P...

Encryption Type
☒ CBC-DES
☐ CFB-AES

Encryption Passw...

Table 4-19 Description of SNMP parameters

Parameter	Description
SNMP Port	The listening port of the software agent in the device.
Read Community	The read and write community string that the software agent supports.  You can enter number, letter, underline and dash to form the name.
Write Community	
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.

Parameter	Description
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	It should be no less than 8 digits.
Encryption Type	The default is CBC-DES.
Encryption Password	It should be no less than 8 digits.

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.

4.4.8 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. When the device is automatically detected by Bonjour, the name is displayed as the defined server name.



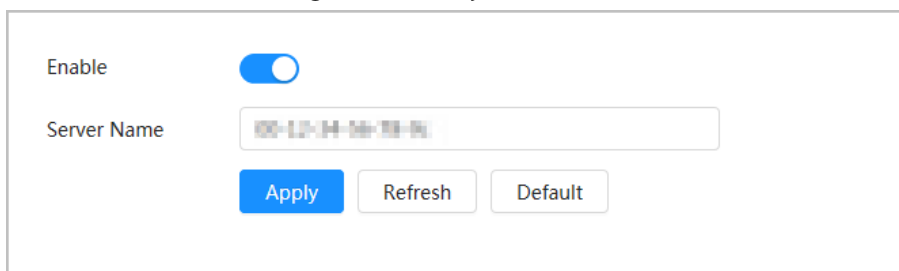
Bonjour is enabled by default.

Procedure

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

Step 2 Click , and then configure server name.

Figure 4-37 Bonjour



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.

4.4.9 Multicast

When multiple users are viewing the device video image simultaneously through 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. The Device supports two multicast protocols: RTP and TS. RTP is enabled by default when main stream and sub stream are used. TS is disabled by default.

4.4.9.1 RTP

Procedure

- Step 1 Select  > **Network** > **Multicast** > **RTP**.
- Step 2 Click , and then enter IP address and port number.

Figure 4-38 RTF

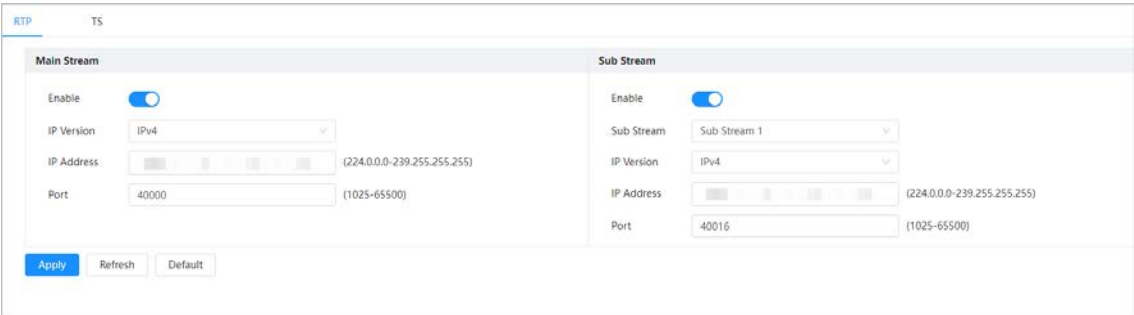


Table 4-20 Description of multicast parameters

Parameter	Description
Multicast 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.

Parameter	Description
Port	The range of multicast port is 1025–65500. - Single-channel device: The multicast port of corresponding stream: Main Stream: 40000; Sub Stream1: 40016; Sub Stream2: 40032. - Multi-channel device: - Channel 1: The multicast port of corresponding stream: Main Stream: 40000; Sub Stream1: 40016; Sub Stream2: 40032. - Channel 2: The multicast port of corresponding stream: Main Stream: 40048; Sub Stream1: 40064; Sub Stream2: 40080. - Channel 3: The multicast port of corresponding stream: Main Stream: 40096; Sub Stream1: 40112; Sub Stream2: 40128. - Channel 4: The multicast port of corresponding stream: Main Stream: 40144; Sub Stream1: 40160; Sub Stream2: 40176.

Step 3 Click **Apply**.

Result

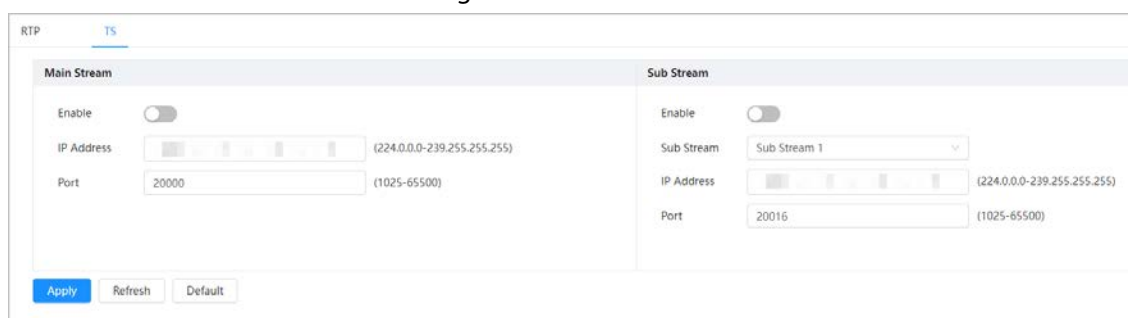
- On the webpage, click  and then select **local**. In the **Play Parameter** area, select **Protocol** as **Multicast**.
- Click **Live** on the main page of the webpage, and then monitor the video image of corresponding stream in a multicast form on the **Live** page.

4.4.9.2 TS

Step 1 Select  > **Network** > **Multicast** > **TS**.

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

Figure 4-39 TS



Step 3 Click **Apply**.

4.4.10 Register

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.

Step 1 Select  > **Network** > **Register**.

Step 2 Click , and then configure **Server Address**, **Port** and **Sub-Device ID**.

Figure 4-40 Register



Table 4-21 Description of register parameters

Parameter	Description
Server Address	The IP address or domain name of the server to be registered.
Port	The port number of the server to be registered.
Sub-Device ID	The custom ID for the camera.

Step 3 Click **Apply**.

4.4.11 QoS

You can solve problems such as network delay and congestion with QoS (Quality of Service) function. It helps to assure bandwidth, reduce transmission delay, packet loss rate, and delay jitter to improve experience.

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

Step 2 Configure QoS parameters.

Figure 4-41 QoS

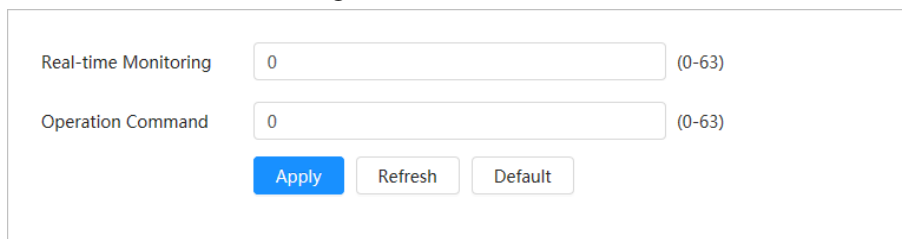


Table 4-22 Description of QoS parameters

Parameter	Description
Real-time Monitoring	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 are used for configure or checking. 0 for the lowest and 63 the highest.

Step 3 Click **Apply**.

4.4.12 Platform Access

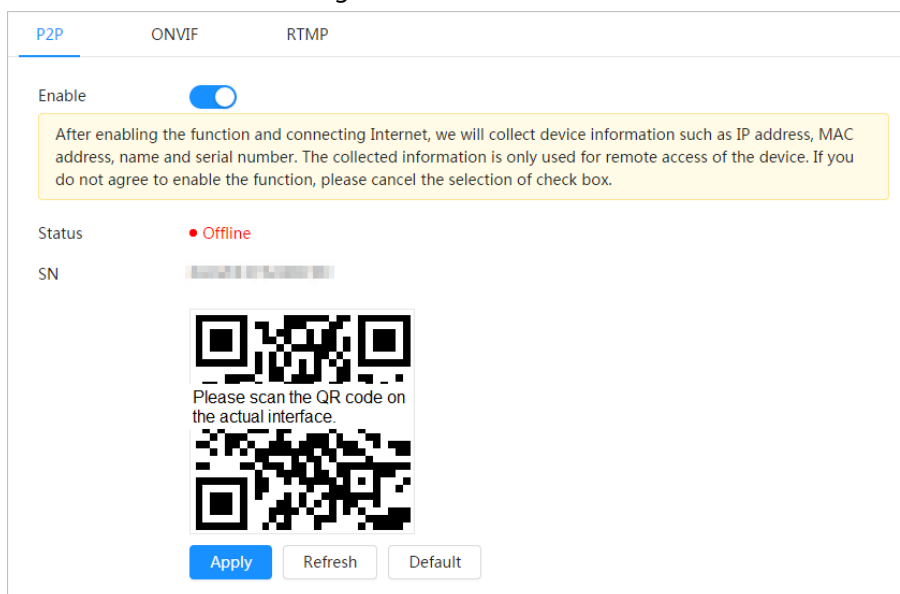
4.4.12.1 P2P

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

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

Step 1 Select  > **Network** > **Platform Access** > **P2P**.

Figure 4-42 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 then 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.

4.4.12.2 ONVIF

The ONVIF verification is 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.

Step 1 Select  > **Network** > **Platform Access** > **ONVIF**.

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

Figure 4-43 ONVIF

Step 3 Click **Apply**.

4.4.12.3 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, H.264 B and H.264H video formats, and the AAC (Advanced Audio Coding) audio format only.

Step 1 Select  > **Network** > **Platform Access** > **RTMP**.

Step 2 Click , and then configure RTMP parameters.



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

Figure 4-44 RTMP

Table 4-23 Description of RTMP parameters

Parameter	Description
Stream Type	The stream for live view. Make sure that the video format is H.264, H.264 B or H.264H, and the audio format is AAC.
Address Type	• Non-custom: Enter the server IP and domain name. • Custom: Enter the path allocated by the server.

Parameter	Description
Encryption	Click  to enable encryption function.
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 Custom , you need to enter the path allocated by the server.

Step 3 Click **Apply**.

4.4.13 Basic 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 web page. This is to enhance network and data security.

Step 1 Select  > **Network** > **Basic Service**.

Step 2 Enable the basic service according to the actual needs.

Figure 4-45 Basic service

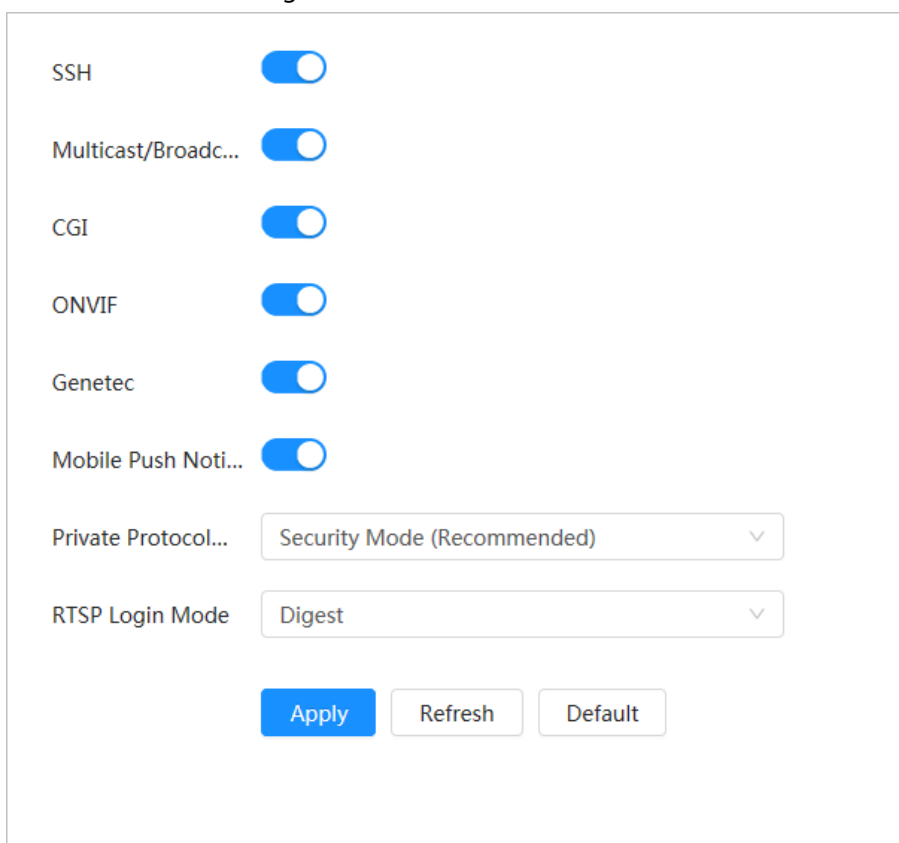


Table 4-24 Description of basic service parameters

Parameter	Description
SSH	You can enable SSH (Secure Shell) authentication to perform safety management. This function is disabled by default.
Multicast/Broadcast Search	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.

Parameter	Description
CGI	Enable this function, and then other devices can access through this service. The function is enabled by default. CGI: Common Gateway Interface.
ONVIF	
Genetec	
Mobile Push Notification	Enable this function, and then alarm capture picture triggered by the Camera is sent to your mobile phone. This is enabled by default.
Private Protocol Authentication Mode	Select the authentication mode from Security Mode and Compatible Mode . Security mode is recommended.
RTSP Login Mode	Compatible with the old platform login mode. The default is digest mode.

Step 3 Click **Apply**.

4.5 PTZ

This section introduces the configuration of PTZ parameters, such as preset, tour, and PTZ speed.



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

You can enter the page of **PTZ** through two methods. The following content of the chapter uses the button entry from the upper right corner of the page as an example.

- Click **PTZ** on the main web page.
- Click  on the upper right corner of the page, and then click **PTZ**.

4.5.1 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.

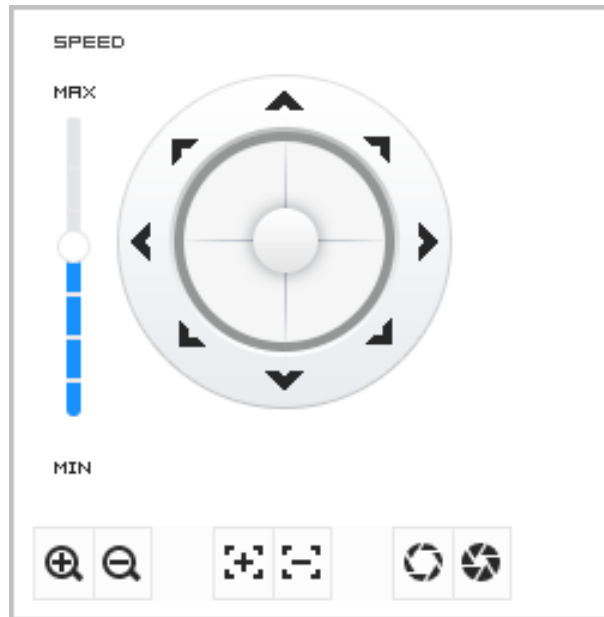
Procedure

Step 1 Click , and then select **PTZ > Preset**.

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

   to adjust zoom, focus and iris to adjust the camera to the proper position.

Figure 4-46 Adjust PTZ



Step 3 Click **Add Preset**.

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

Figure 4-47 Add preset

Add Preset

Clear

Refresh

No.	Name	Apply	Delete
1	Preset1		
2	Preset2		
3	Preset3		

Step 4 Double-click **Preset Title** to change the name of the corresponding preset in the screen.

Step 5 Click to save the preset.

Related Operations

- Delete preset: Click to delete corresponding preset.
- Clear all presets: Click **Clear** to delete all added presets.

4.5.2 Configuring Tour

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 Click and then select **PTZ > Tour**.

Step 2 Click **Add Tour Group**, and then double click **Name** to change the name of tour.

- Step 3** Select tour group 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 3,600 seconds.

Figure 4-48 Tour group

Tour Mode Select: Original Path

Buttons: Add Tour Group, Clear, Refresh

No.	Name	Run	Delete
+ 1	Tour1	☐	
- 2	Tour2	☐	

Buttons: Add Preset, Clear, Apply

No.	Preset	Stay Time(S)	Speed	Delete
1	Preset1	15	7	
2	Preset1	15	7	

- 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 tour.

Related Operations

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

4.5.3 Configuring Scan

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

Procedure

- Step 1 Click  and then select **PTZ > Scan**.
- Step 2 Click **Add Scan**, and then double 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 4-49 Scan

Add Scan		Clear		Refresh		
No.	Name	Left Limit	Right Limit	Speed	Run	Delete
1	Scan1			5 ▾	☐	
2	Scan2			5 ▾	☐	

- Step 4 Click  to start scanning.
- Click  to stop scanning.

Related Operations

- Delete scan: Click  to delete corresponding scan.
- Clear all scans: Click **Clear** to delete all added scans.

4.5.4 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 Click  and then select **PTZ > Pattern**.
- Step 2 Click **Add Pattern**, and then double click **Name** to change the name of pattern.
- Step 3 Click  to adjust the direction, focus, zoom and other parameters according to actual needs.
- Step 4 Click  to complete records.

Figure 4-50 Pattern

Add Pattern		Clear	Refresh	
No.	Name	Setting	Run	Delete
1	Pattern1	▶	☐	🗑️
2	Pattern2	▶	☐	🗑️

- Step 5** Click ☒ to start pattern.
Click ☐ to stop pattern.

Related Operations

- Delete pattern: Click 🗑️ to delete the corresponding pattern.
- Clear all patterns: Click **Clear** to delete all added patterns.

4.5.5 Configuring Pan

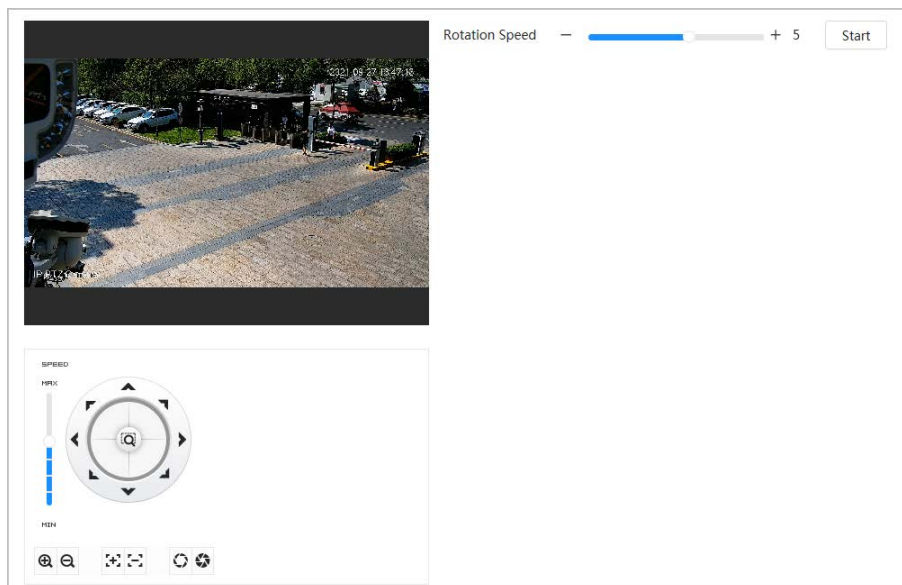
Pan refers to the continuous 360° rotation of the Camera in a horizontal way at a certain speed.

Step 1 Click  and then select **PTZ > Pan**.

Step 2 Configure the rotation speed.

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

Figure 4-51 Pan

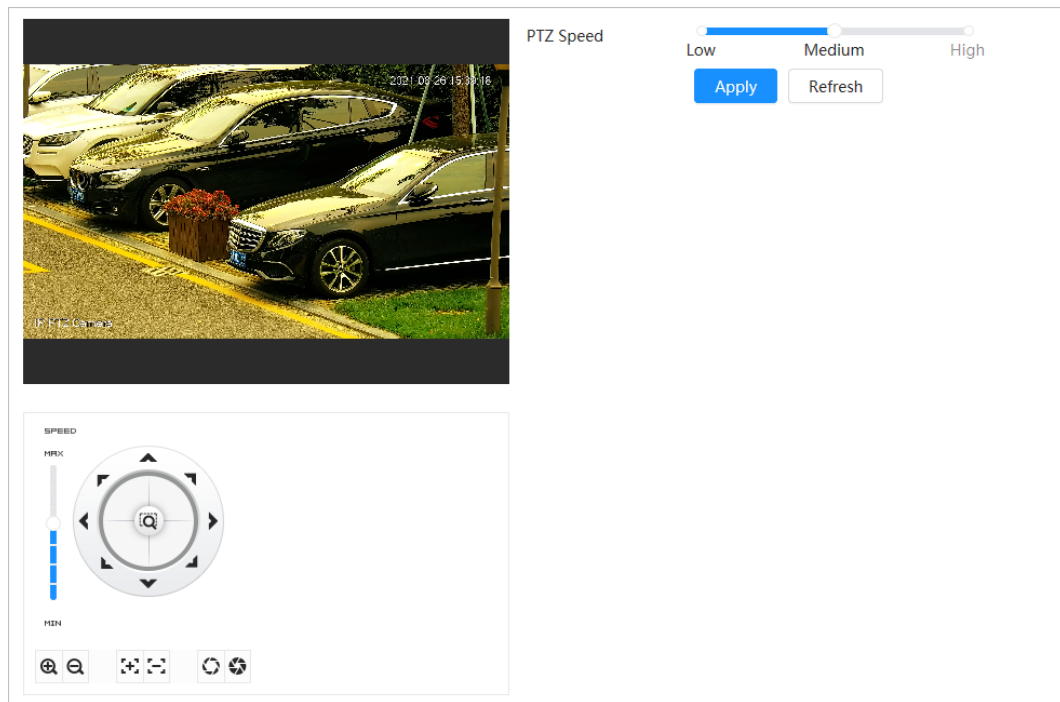


4.5.6 Configuring PTZ Speed

Configure the rotation speed when manually controlling the PTZ.

Step 1 Click  and then select **PTZ > PTZ Speed**.

Figure 4-52 PTZ Speed



Step 2 Select PTZ speed, and then click **Apply**.

4.5.7 Configuring Idle Motion

Idle motion refers to a preset motion when the PTZ does not receive any valid command within a certain period.

Prerequisites

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

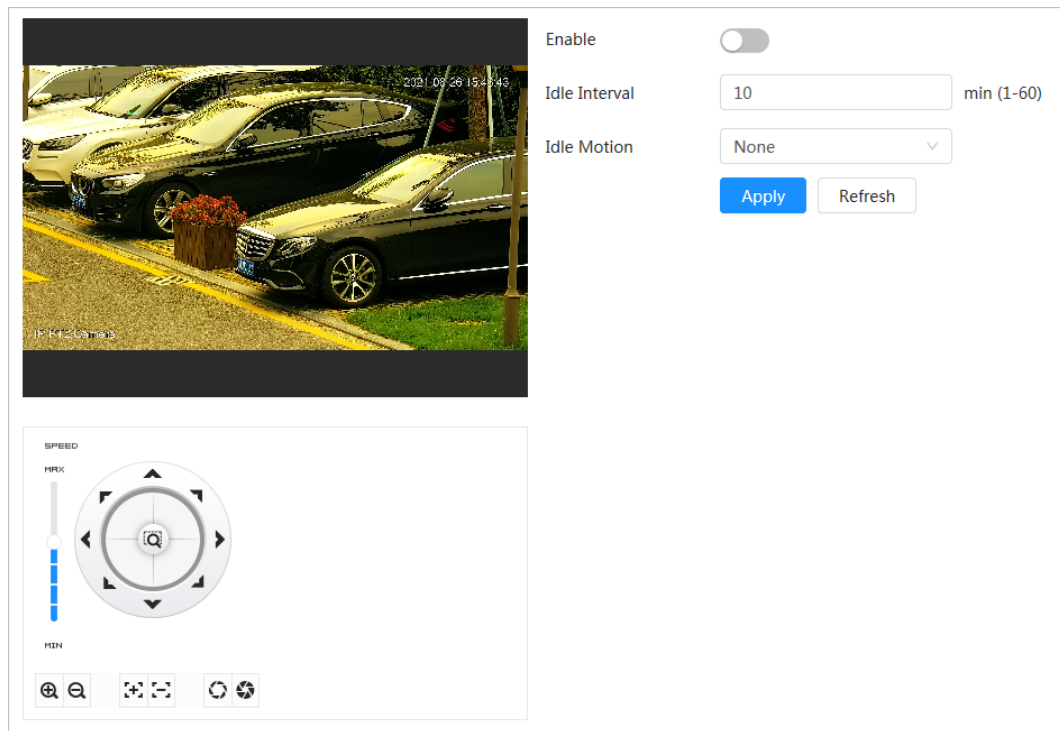
Procedure

Step 1 Click  and then select **PTZ > PTZ Speed**.

Step 2 Click  to enable idle motion.

Step 3 Configure idle interval time, and then select idle motion type.

Figure 4-53 Idle motion



The screenshot shows a camera configuration window. On the left is a live video feed of a parking lot with several cars. On the right are the settings for 'Idle motion'. The 'Enable' toggle is turned off. The 'Idle Interval' is set to 10, with a range of 'min (1-60)'. The 'Idle Motion' dropdown is set to 'None'. Below these are 'Apply' and 'Refresh' buttons. At the bottom left is a PTZ control panel with a speed slider (MIN to MAX), a directional pad, and icons for zoom, pan, and other functions.

Enable ☐

Idle Interval min (1-60)

Idle Motion

SPEED
MAX
MIN

Step 4 Click **Apply**.

4.5.8 Configuring Power Up

After configuring PowerUp, the camera will automatically perform the set motion after being powered up.

Prerequisites

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

Procedure

Step 1 Click  and then select **PTZ > PowerUp**.

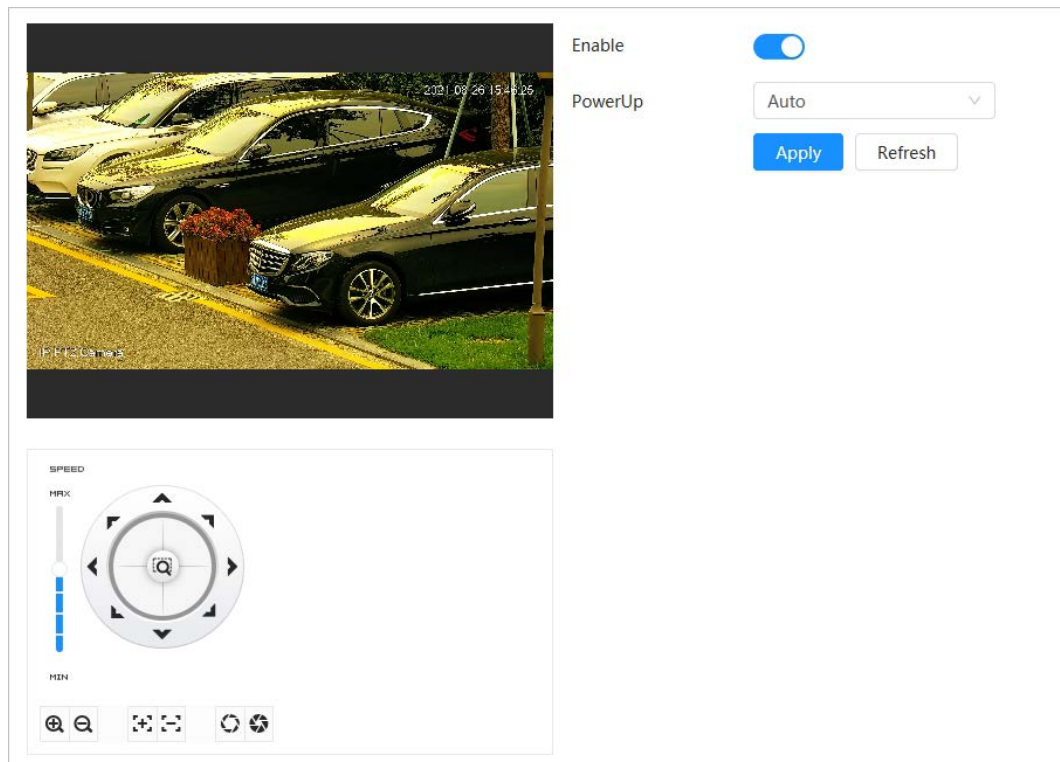
Step 2 Click ☐ to enable PowerUp function.

Step 3 Select PowerUp type.



Select **Auto** and the system will implement the last action performed for more than 20 seconds before the Camera is shut down.

Figure 4-54 PowerUp



Step 4 Click **Apply**.

4.5.9 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.

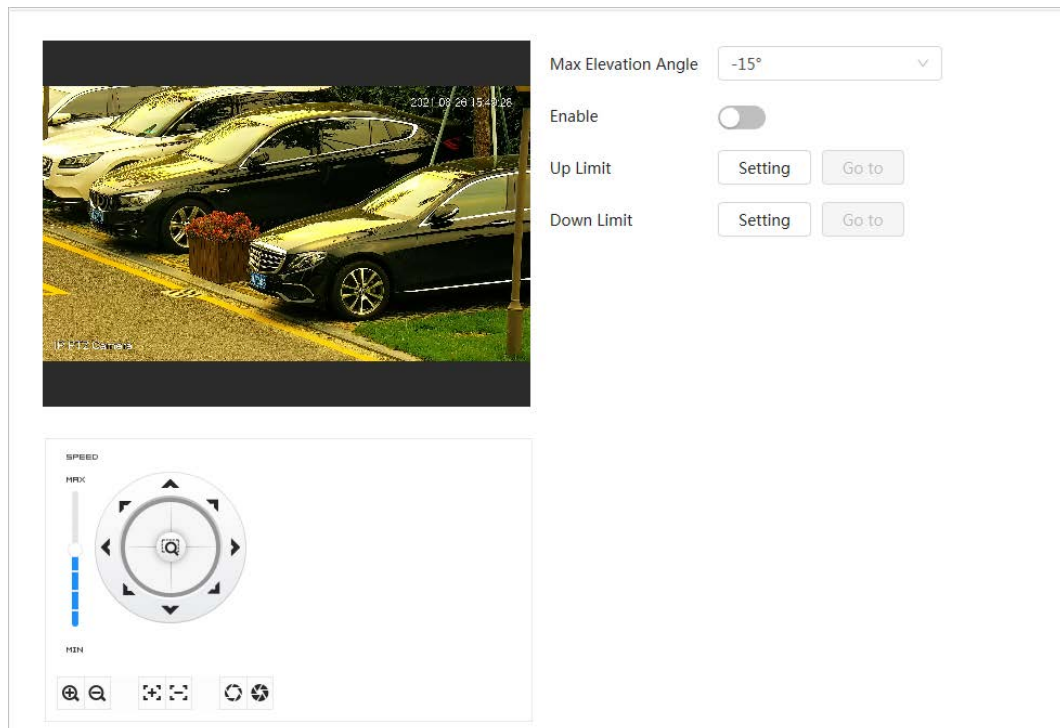
Step 1 Click  and then select **PTZ > PTZ Rotation Limit**.

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.

Figure 4-55 PTZ rotation 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 **Enable** to enable **PTZ Rotation Limit**.

4.5.10 Configuring Scheduled 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 Click  and then select **PTZ > Scheduled Task**.

Step 2 Click **Add Scheduled Task**.

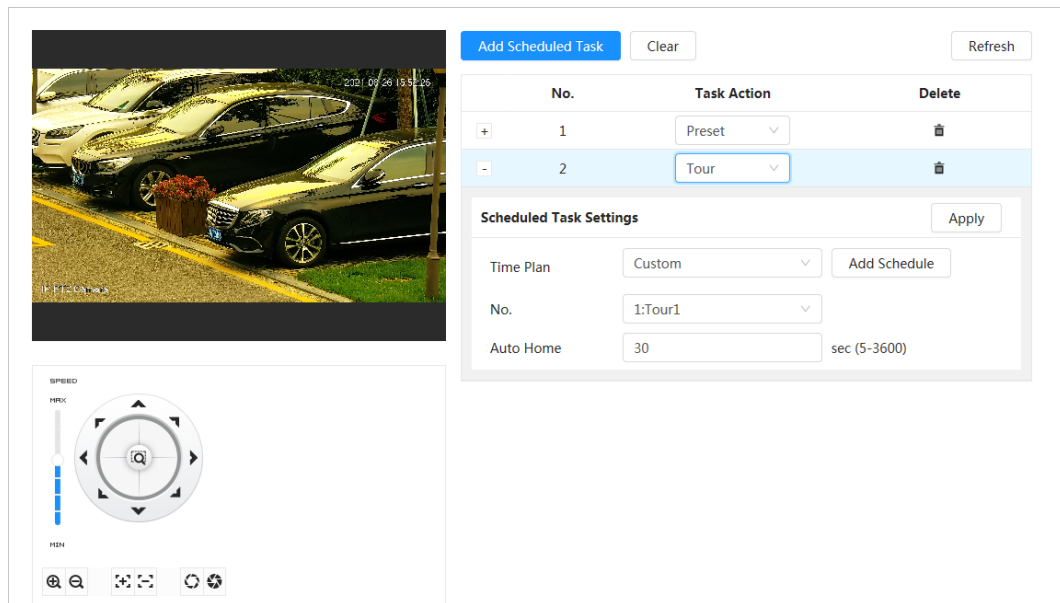
Step 3 Select **Task Action**.

Some task actions need to select corresponding action number.

Step 4 Select **Time Plan** or click **Add Schedule**. Configure the name and time of the scheduled task in the pop-up page, and then click **Apply**.

To configure arming/disarming period, see "4.6.1.2.1 Adding Schedule".

Figure 4-56 Scheduled task



Step 5 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 6 Click **Apply**.

4.5.11 Configuring PTZ Maintenance

PTZ Maintenance includes **PTZ Restart** and **Default**.

Step 1 Click [PTZ Icon] and then select **PTZ > PTZ Maintenance**.

Step 2 Click **PTZ Restart** to restart PTZ or click **Default** to restore PTZ to defaults.



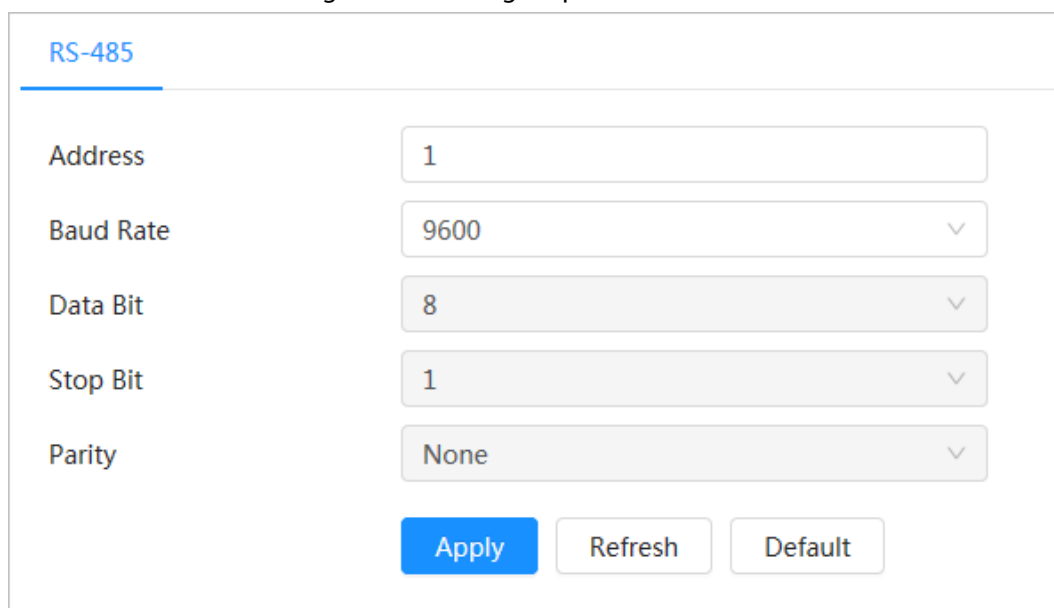
Default PTZ will restore the Camera to defaults. Think twice before clicking **Default**.

4.5.12 Configuring Protocol

Configure parameters for RS-485.

Step 1 Click [PTZ Icon] and then select **PTZ > Protocol**.

Figure 4-57 Configure protocol

The image shows a web-based configuration interface for RS-485. At the top, there is a tab labeled "RS-485". Below the tab, there are five configuration fields: "Address" with a text input containing "1", "Baud Rate" with a dropdown menu showing "9600", "Data Bit" with a dropdown menu showing "8", "Stop Bit" with a dropdown menu showing "1", and "Parity" with a dropdown menu showing "None". At the bottom of the configuration area, there are three buttons: "Apply" (highlighted in blue), "Refresh", and "Default".

RS-485	
Address	1
Baud Rate	9600
Data Bit	8
Stop Bit	1
Parity	None
Apply Refresh Default	

Step 2 Click **Apply**.

4.6 Event

Click **Event** to configure general events, including alarm linkage, exception, video detection, and audio detection.

You can go to the **Event** page through two methods. This following section uses method 1 as an example.

- Method 1: Click  on the right-upper corner of the main page, and then click **Event**.
- Method 2: Click **Event** on the page.

4.6.1 Setting Alarm Linkage

4.6.1.1 Setting Alarm-in

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

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

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

Figure 4-58 Alarm linkage

Enable ☐

Alarm-in Port Alarm1

Schedule Custom Add Schedule

Anti-dither 0 sec (0-100)

Sensor Type NO

+Event Linkage

Record | Enabled

Post-Record 10 sec (10-300)

Send Email | Enabled

Snapshot | Enabled

PTZ Linkage | Enabled

Linkage Operation None

Alarm-out Port | Enabled

Alarm Channel 1 2

Post-alarm 10 sec (10-300)

Apply Refresh Default

Step 3 Select an alarm-in port and a sensor type.

- **Anti-Dither:** Only record one alarm event during the anti-dither period.
- Sensor Type: **NO** or **NC**.

Step 4 Select the schedule and arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

If the existing schedules cannot meet the scene requirement, you can click **Add Schedule** to add new schedule. For details, see "4.6.1.2.1 Adding Schedule".

Step 5 Click **Apply**.

4.6.1.2 Alarm Linkage

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

Select  > **Event** > **Alarm**, and then click  next to **Enable** to enable alarm linkage.

Figure 4-59 Alarm linkage

Enable ☐

Alarm-in Port Alarm1

Schedule Custom Add Schedule

Anti-dither 0 sec (0-100)

Sensor Type NO

+Event Linkage

Record | Enabled 🗑️

Post-Record 10 sec (10-300)

Send Email | Enabled 🗑️

Snapshot | Enabled 🗑️

PTZ Linkage | Enabled 🗑️

Linkage Operation None

Alarm-out Port | Enabled 🗑️

Alarm Channel 1 2

Post-alarm 10 sec (10-300)

Apply Refresh Default

4.6.1.2.1 Adding Schedule

Configure arming schedule. The system only performs corresponding linkage action in the defined period.

Step 1 Click **Add Schedule** next to **Schedule**.

Step 2 Click **Time Plan Table**.

You can set up multiple time plan tables for selection.

Step 3 Configure the name of the **Time Plan Table**.

Step 4 Configure arming periods.

- 1) Press and drag the left mouse button on the timeline to set arming periods. The green area on the timeline means that this time period has been armed.

Figure 4-60 Configuring arming period

- 2) Click the selected time period, and then enter the specific time in the text box to configure exact arming period.

Figure 4-61 Configuring exact arming period

- Step 5** (Optional) Click **Copy**, select weeks, and then click **Apply**.
Time plans for the current week can be quickly copied to other weeks.
- Step 6** Click **Apply**.

4.6.1.2.2 Record Linkage

After enabling **Record Linkage**, the system can link record channel when an alarm event occurs. After the alarm, the system stops recording after an extended time period according to the **Post-Record** setting.

Prerequisites

- Enable the corresponding alarm type (**Normal**, **Motion**, or **Alarm**) before the record channel links recording. For details, see "7.3 Setting Record Plan".
- Enable auto record mode before the record linkage takes effect. For details, see "7.2 Setting Record Control".

Setting Record Linkage

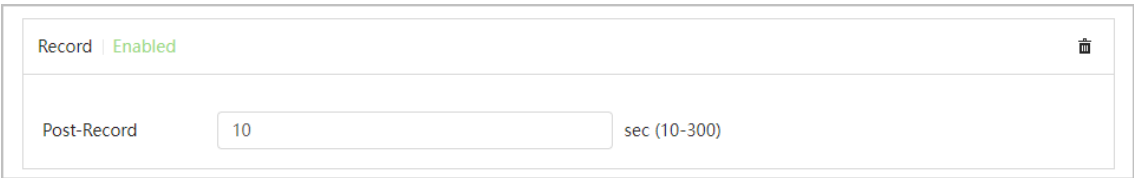
On the **Alarm** page, click  to enable record linkage, and then set **Post-Record** to set alarm linkage and record delay.

After **Post-Record** is configured, alarm recording continues for an extended period after the alarm ends.



Click  to delete record linkage function.

Figure 4-62 Record linkage



4.6.1.2.3 Snapshot Linkage

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

Prerequisites

Enable the corresponding alarm type (**Normal**, **Motion**, or **Alarm**) before the snapshot channel links capturing. For details, see "7.3 Setting Record Plan".

Setting record linkage

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



Click  to delete snapshot linkage function.

Figure 4-63 Snapshot linkage



4.6.1.2.4 Alarm-out Linkage

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

On the **Alarm** page, click  to enable alarm-out linkage, select the channel and then configure **Post-alarm**.

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



- If the Camera has multiple alarm-out channels, you need to select the linkage alarm-out channel.
- Click  to delete alarm-out linkage function.

Figure 4-64 Alarm-out linkage

Alarm-out Port Enabled		
Alarm Channel	1 2	
Post-alarm	10	sec (10-300)

4.6.1.2.5 Email Linkage

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

Prerequisites

Email linkage takes effect only when SMTP is configured. For details, see "4.4.5 Email".

Setting Email Linkage

On the **Alarm** page, Click **Event Linkage**, and then select **Send Email**.



Click  to delete email linkage function.

Figure 4-65 Email linkage

Send Email Enabled	
----------------------	---

4.6.1.2.6 PTZ Linkage

When an alarm is triggered, the system will automatically link PTZ devices.

Click **Event Linkage**, select **PTZ Linkage**, and then select the **Linkage Operation**.



Click  to delete PTZ linkage function.

Figure 4-66 PTZ linkage

PTZ Linkage Enabled		
Linkage Operation	None	▼

4.6.1.3 Subscribing to Alarm

4.6.1.3.1 Alarm Types

Following are the alarm types and preparations of alarm events.

Table 4-25 Description of alarm types

Alarm Type	Description	Preparation
Motion Detection	The alarm is triggered when a moving object is detected.	Motion detection is enabled. For details, see "4.6.3.1 Setting Motion Detection".
Disk Full	The alarm is triggered when the free space of SD card is less than the configured value.	Insufficient SD card space detection is enabled. For details, see "4.6.2.1 Setting SD Card Exception".
Disk Error	The alarm is triggered when there is a failure or malfunction in the SD card.	SD card failure detection is enabled. For details, see "4.6.2.1 Setting SD Card Exception".
Video Tampering	The alarm is triggered when the camera lens is covered or there is a defocus in video images.	Video tampering is enabled. For details, see "4.6.3.2 Setting Video Tampering".
External Alarm	The alarm is triggered when there is an external alarm input.	The device has alarm input port and external alarm function is enabled. For details, see "4.6.1.1 Setting Alarm-in".
Security Warning	The alarm is triggered when there is a security warning.	Security warning is enabled. For details, see "10.6 Security Warning".
Audio Detection	The alarm is triggered when there is an audio connection problem.	Abnormal audio detection is enabled. For details, see "4.6.4 Setting Audio Detection".
AI Event	The alarm is triggered when an AI event is triggered.	IVS, face detection, people counting, or other intelligent functions is enabled.

4.6.1.3.2 Subscribing to Alarm Information

You can subscribe alarm event. When a subscribed alarm event is triggered, the system records detailed alarm information on the bottom of the page.



Functions of different devices might vary.

Step 1 Click  on the right-upper corner of the main page.

Step 2 Click  next to **Alarm** to enable alarm subscription, and then the system prompts and records alarm information according to actual conditions.

- When the subscribed alarm event is triggered and the alarm subscription page is not displayed, a number is displayed on , and the alarm information is recorded automatically. Click  to view the details in the alarm list. You can click **Clear** to clear the record.
- When the subscribed alarm event is triggered and the system is in the alarm page, the corresponding alarm information will be displayed in the alarm list below.

Figure 4-67 Alarm (subscription)

Alarm ☒ Alarm Subs... ^

☐ All Types

☐ Motion ... ☐ Disk Full ☐ Disk Error

☐ Video Ta... ☐ External ... ☐ Security ...

☐ Audio D... ☐ AI Event

Play Alarm Tone ☐

No.	Time	Alarm Type	Source IP Address	Alarm Channel
 No Data				

- Step 3** Click ☐ next to **Play Alarm Tone**, and then select the tone path.
The system will play the selected audio file when the subscribed alarm is triggered.

4.6.2 Setting Exception

Abnormality includes SD card exception and network exception.



Only the device with SD card function has exception setting functions, including **No SD card**, **SD card error**, and **Low SD card space**.

4.6.2.1 Setting SD Card Exception

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

Step 1 Select  > **Event** > **Exception** > **SD Card Exception**.

Step 2 Click ☐ to enable the SD card detection functions.

When **Low SD Card Space** is enabled, set **Capacity Limit**. When the remaining space of SD card is less than this value, the alarm is triggered.

Figure 4-68 SD card exception

The screenshot shows the 'SD Card Exception' configuration page. It features two tabs: 'SD Card Exception' and 'Network Exception'. The 'SD Card Exception' tab is active. It contains three main sections: 'No SD card' with a disabled toggle switch; 'Low SD card space' with an enabled toggle switch, a 'Free Space' input field set to 10, a '+Event Linkage' button, and three linkage actions: 'Send Email' (Enabled), 'Alarm-out Port' (Enabled), and 'Alarm Channel' (set to 1 and 2) with a 'Post-alarm' input field set to 10 seconds. The 'SD card error' section has a disabled toggle switch. At the bottom are 'Apply', 'Refresh', and 'Default' buttons.

Step 3 Set alarm linkage actions. For details, see "4.6.1.2 Alarm Linkage".

Step 4 Click **Apply**.

4.6.2.2 Setting Network Exception

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

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

Step 2 Click to enable the network exception detection.

Step 3 Set alarm linkage actions. For details, see "4.6.1.2 Alarm Linkage".

Figure 4-69 Network exception

The screenshot shows the 'Network Exception' configuration page. It features two main sections: 'Offline' and 'IP Conflict'. Each section has a toggle switch (currently turned on) and a '+Event Linkage' button. Below each toggle are three rows of configuration options: 'Record' (set to 'Enabled'), 'Post-Record' (set to '10' with a unit of 'sec (10-300)'), 'Alarm-out Port' (set to 'Enabled'), 'Alarm Channel' (with buttons for '1' and '2'), and 'Post-alarm' (set to '10' with a unit of 'sec (10-300)'). At the bottom of the page are three buttons: 'Apply', 'Refresh', and 'Default'.

Step 4 Click **Apply**.

4.6.3 Setting Video Detection

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, fuzzy image), the system performs an alarm linkage.

4.6.3.1 Setting Motion Detection

The system performs an alarm linkage when a moving object appears in the image and its moving speed reaches the defined 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 videos 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.

Step 1 Select  > **Event** > **Video Detection** > **Motion Detection**.

Figure 4-70 Motion detection

Step 2 Click to enable the motion detection function.

Step 3 Set the area for motion detection.

1) Click **Setting** next to **Area**.

Figure 4-71 Area

2) Select a color and set the region name. Select an effective area for motion detection in the image and set **Sensitivity** and **Threshold**.

- Select a color on to set different detection parameters for each region.
- Sensitivity: Sensitive degree of outside changes. The higher sensitivity is, the easier to trigger the alarm.

- **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. Select color blocks to configure different detection parameters for different regions.
- The red line in the waveform indicates that the Motion Detection is triggered, and the green line indicates that there is no motion is detected. Adjust sensitivity and threshold according to the waveform.

3) Click **OK**.

Step 4 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".

Anti-dither: After the **Anti-dither** time is set, the system only records one motion detection event in the period.

Step 5 Click **Apply**.

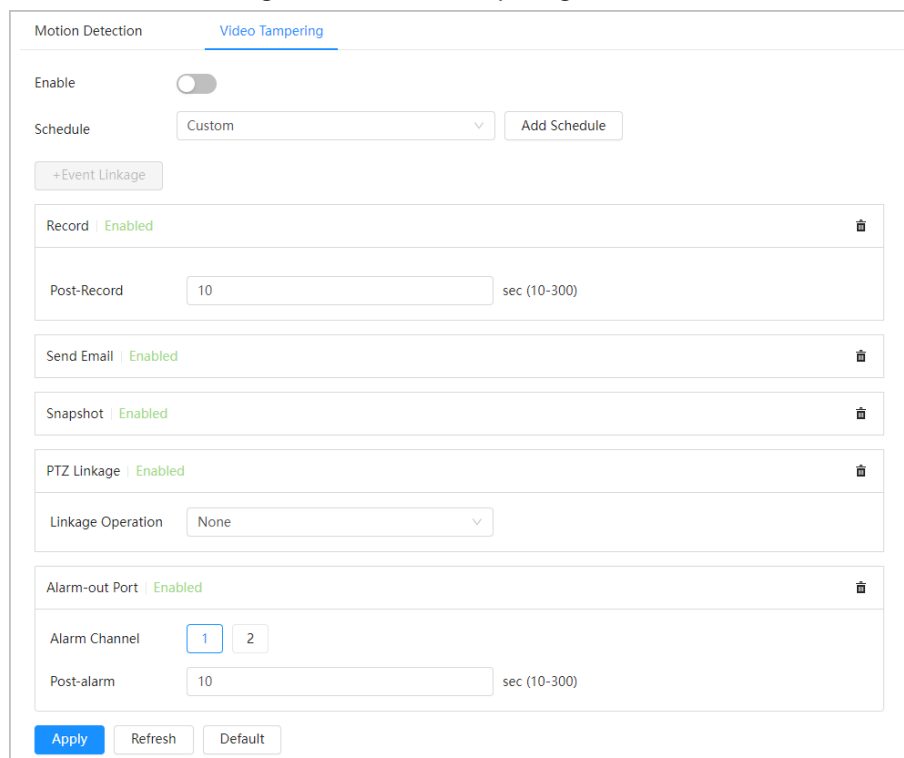
4.6.3.2 Setting Video Tampering

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

Step 1 Select  > **Event** > **Video Detection** > **Video Tampering**.

Step 2 Select **Channel**, and then click  to enable the video tampering detection.

Figure 4-72 Video tampering



Step 3 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".

Anti-dither: After the **Anti-dither** time is set, the system only records one motion detection event in the period.

Step 4 Click **Apply**.

4.6.4 Setting Audio Detection

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

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

Step 2 (Optional) Select audio channels.

When the camera supports multiple audio channels, you can select different audio channels.

Step 3 Configure parameters of audio detection.

- Input abnormal: Click  to enable **Audio Exception**, and the alarm is triggered when the system detects abnormal sound input.
- Intensity change: Click  to enable **Intensity Change** and then configure **Sensitivity** and **Threshold**. The alarm is triggered when the system detects that the sound intensity exceeds the configured threshold.
 - ◇ The alarm is easier to be triggered 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 is detected. Adjust sensitivity and threshold according to the waveform.

Figure 4-73 Audio detection

Audio Exception ☐

Intensity Change ☐

Sensitivity 50

Threshold 50

Schedule Custom

Anti-dither 5 sec (0-100)

Record **Enabled**

Post-Record 10 sec (10-300)

Send Email **Enabled**

Snapshot **Enabled**

PTZ Linkage **Enabled**

Linkage Operation None

Alarm-out Port **Enabled**

Alarm Channel 1 2

Post-alarm 10 sec (10-300)

- Step 4** Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".
If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
Anti-dither: After the **Anti-dither** time is set, the system only records one motion detection event in the period.
- Step 5** Click **Apply**.

4.7 Storage

Display the information of the local SD card. You can set it as read only or read & write; you can also

hot swap and format SD card.

Background Information



- If you enter an incorrect password for five consecutive times during authentication, password change or password clearing, the account will be locked for five minutes.
- Before using the recording and playback function, ensure that the SD card has been authenticated.
- The health status of the SD card is classified as follows.
 - ◇ Green: The SD card status is optimal.
 - ◇ Blue: The SD card status is good.
 - ◇ Orange: The SD card status is moderate.
 - ◇ Red: The SD card status is bad. Change the SD card in time.
- If the capacity of the SD card is obviously smaller than the nominal capacity when it is read by the computer, it means the SD card has been formatted to a private file system. You need to download DiskManager from Dahua Tool Manager to read the SD card. For details, contact Dahua technical personnel.
- Functions might vary with different models.

Procedure

Step 1 Select  > **Storage**.

Step 2 Select the SD card to be configured, and then perform the following operations as needed.

- Click **Read-Only**, and then the SD card is set to read only.
- Click **Read & Write**, and then the SD card is set to read & write.
- Click **Hot Swap**, and then you can pull out the SD card.
- Click **Format** to format the SD card.

Click **OK** in the pop-up dialog box to format the SD card.

Figure 4-74 Storage

Format	Read-Only	Read/Write	Hot Swap	Refresh
☒ Name	Status	Properties	Used Space/Total Space	
☒ Local Disk1	Normal	Read/Write		25.88GB / 310.92GB
			General Config	

4.8 System

This section introduces system configurations, including general, date & time, account, peripheral management, manager and upgrade.

You can go to the **System** page through two methods. This following section uses method 1 as an example.

- Method 1: Click  on the right-upper corner of the main page, and then click **System**.
- Method 2: Click **System** on the main page.

4.8.1 General

4.8.1.1 Basic

You can configure device name and video standard.

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

Figure 4-75 Basic

Basic

Date & Time

Device Name

Video Standard

PAL

▼

Apply

Refresh

Default

Step 2 Configure general parameters.

Table 4-26 Description of general parameters

Parameter	Description
Name	Enter the device name. When a device is added by another device, the device name is displayed as the defined device name.  Different devices have different names.
Video Standard	Select video standard from PAL and NTSC .

Step 3 Click **Apply**.

4.8.1.2 Date & Time

You can configure date and time format, time zone, current time, DST (Daylight Saving Time) or NTP (Network Time Protocol) server.

Step 1 Select  > **System** > **General** > **Date & Time**.

Figure 4-76 Date and time

Step 2 Configure date and time parameters.

Table 4-27 Description of date and time parameters

Parameter	Description
Time	Manually Setting: Configure the parameters manually. NTP: When selecting NTP, the system then syncs time with the internet server in real time. You can also enter the IP address, time zone, port, and interval of a PC running NTP server to use NTP.
System Time	Configure system time. Click Sync with PC , and the system time changes to the PC time.
Time Format	Configure the time format.
Time Zone	Configure the time zone that the camera is at.
DST	Enable DST as needed. Click  , and then configure start time and end time of DST with Date or Week .

Step 3 Click **Apply**.

4.8.2 Account

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

Only administrator users can manage users and groups. The operations include adding or deleting users and user groups, modifying user information.

- The max. length of the user or group name is 31 characters which consist of number, letter, underline, dash, dot and @.
- The password must consist of 8–32 non-blank characters and contain at least two types of the

following characters: Uppercase, lowercase, numbers, and special characters (excluding ' " ; : &).

- You can have up to 18 users (excluding the admin user) and 1 anonymous user, and you can have six user groups (excluding the admin and user groups).
- You can manage users through a 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 only own authorities within the group authority range.
- Online users cannot edit their own authority.
- The default user name of the system is admin, which has the highest authority.
- Select **Anonymous Login**, and then log in with only IP address instead of username and password. Anonymous users only have preview authorities. During anonymous login, click **Logout** to log in with other username.

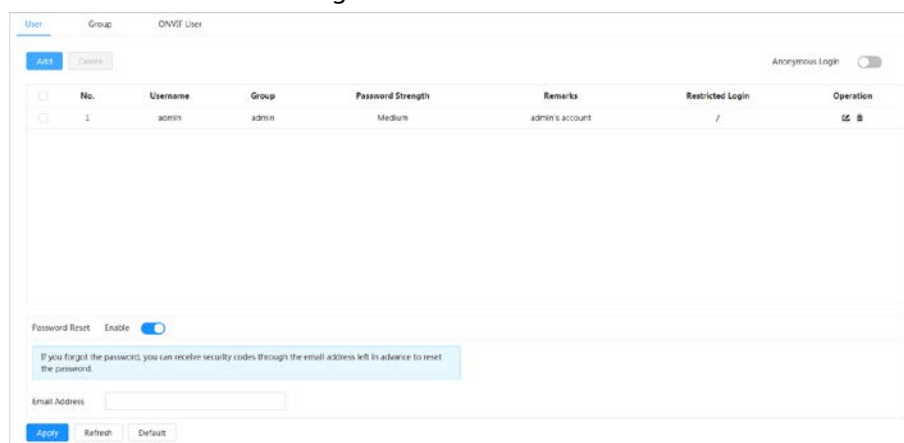
4.8.2.1 Adding User

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

Procedure

Step 1 Select  > **System** > **Account** > **User**.

Figure 4-77 User



No.	Username	Group	Password Strength	Remarks	Restricted Login	Operation
1	admin	admin	Medium	admin's account	/	 

Anonymous Login ☐

Password Reset Enable ☒

If you forget the password, you can receive security codes through the email address left in advance to reset the password.

Email Address

Step 2 Click **Add**.

Figure 4-78 Add user (system)

Add

Username

Password

Confirm Password

Group

admin

Remarks

System

Live

Search

Restricted Login

☒ All

☒ Account

☒ Manual Control

☒ Event

☒ Camera

☒ Maintenance

☒ System

☒ File Backup

☒ Network

☒ PTZ

☒ System Info

☒ Storage

☒ Peripheral

☒ Security

Apply

Cancel

Figure 4-79 Add user (live)

Add

Username

Password

Confirm Password

Group

admin

Remarks

System

Live

Search

Restricted Login

☒ Live

Apply

Cancel

Figure 4-80 Add user (search)

Add

Username

Password

Confirm Password

Group

admin

Remarks

System

Live

Search

Restricted Login

☒ Search

Apply

Cancel

Figure 4-81 Add user (restricted log)

Step 3 Configure user parameters.

Table 4-28 Description of user parameters

Parameter	Description
Username	User's unique identification. You cannot use existing user name. The max. length of the user or group name is 31 characters which consist of number, letter, underline, dash, dot and @.
Password	Enter and confirm the password.
Confirm Password	The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: Uppercase, lowercase, numbers, and special characters (excluding ' " ; : &). Set a high-security password based on the password strength prompt.
Group	The group that users belong to. Each group has different authorities.
Remarks	Describe the user.
System	Select system authorities as needed.  We recommend you give fewer authorities to normal users than premium users.
Live	Select the live view authority for the user to be added.
Search	Select the search authority for the user to be added.

Parameter	Description
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 web page with the defined IP in the defined time range of validity period. Set as follows: • Enable IP address, select IP type and then configure 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. • Enable Validity Period, and then configure start and end time. • Enable Period, and then click Time Plan to set the login period. For details, see "4.6.1.2.1 Adding Schedule".

Step 4 Click **Apply**.

The newly added user is displayed in the user list.

Related Operations

- Modify user group information.
Click  to edit password, group, remarks or authorities.



For admin account, you can only edit the password.

- Delete user group.
Click  to delete the added user group.



The admin account and user group cannot be deleted.

4.8.2.2 Resetting Password

When you need to reset the password for the admin account, there will be a security code sent to the linked email address which can be used to reset the password.

Step 1 Select  > **System** > **Account** > **User**.

Figure 4-82 Resetting password

Step 2 Click  to enable **Password Reset**.

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

Step 3 Enter the reserved email address.

After configuring the reserved email address, you can set a new password by clicking

Forgot password? on the login page.

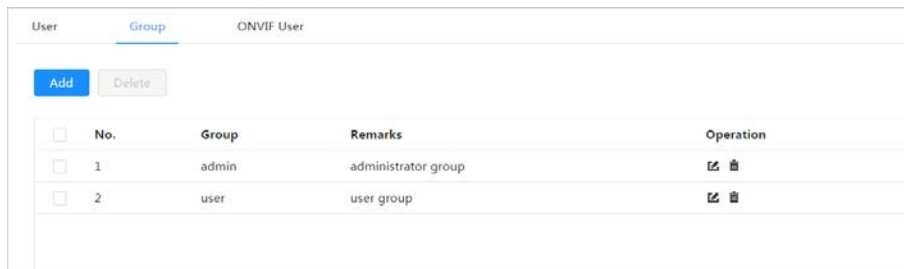
Step 4 Click **Apply**.

4.8.2.3 Adding User Group

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

Step 1 Select  > **System** > **Account** > **Group**.

Figure 4-83 Group name



Step 2 Click **Add**.

Step 3 Enter the user group name and remarks, and then select the system, preview and playback authorities for the user group.

The max length of the user or group name is 31 characters which consist of number, letter, underline, dash, dot and @.

Figure 4-84 Add group

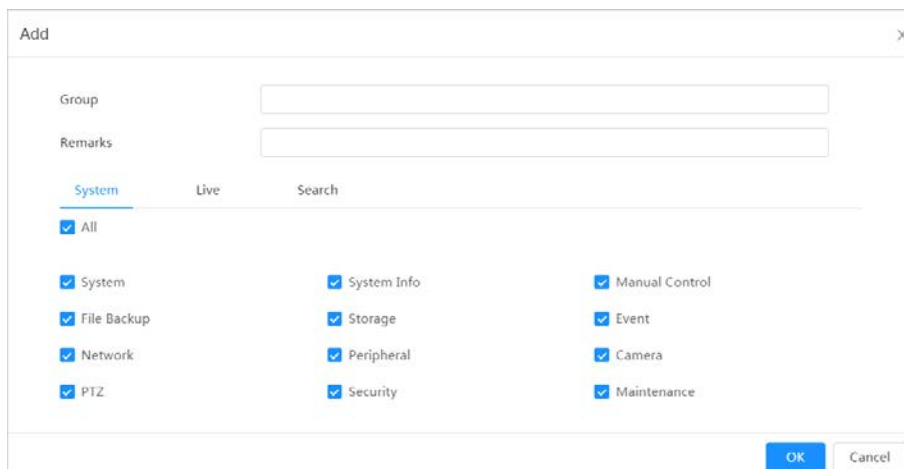


Table 4-29 Description of user group parameters

Group Authority	Admin	User	Functions
System	YES	NA	System time setting and more.
System Info	YES	NA	Version information, system logs and more.
Manual Control	YES	NA	PTZ settings.
File Backup	YES	NA	File backup.

Group Authority	Admin	User	Functions
Storage	YES	NA	Storage point configuration, snapshot recording time configuration, SFTP configuration and more.
Event	YES	NA	Video detection settings, audio detection settings, alarm settings and more.
Network	YES	NA	IP settings, SMTP settings, SNMP settings, AP Hotspot settings and more.
Peripheral	YES	NA	External light, wiper and serial port settings.
Camera	YES	NA	Camera property settings, audio and video settings and more.
PTZ	YES	NA	Preset settings, tour settings and more.
Security	YES	NA	HTTPS settings, RTSP over TLS settings and more.
Maintenance	YES	NA	Automatic maintenance settings and more.



- Any user in the **Admin** group has **User** authorities to modify group authorities. The **User** group does not have this authority.
- The functions of the device correspond to the authority control respectively. Only user with specified authority can use corresponding function; the **Admin** group has all the authorities.

Step 4 Enter the group name and remarks, and then select group authorities.

Step 5 Click **OK** to finish configuration.

The newly added group displays in the group name list.

Related Operations

- Modify user group information.
Click  to edit password, group, remarks or authorities.



For admin account, you can only edit the password.

- Delete user group.

Click  to delete the added users.



The admin account and user group cannot be deleted.

4.8.2.4 ONVIF User

You can add, delete ONVIF user, and change their passwords. The default ONVIF user is admin.

Step 1 Select  > **System** > **Account** > **ONVIF User**.

Figure 4-85 ONVIF user

User					
Group					
ONVIF User					
Add Delete					
☐	No.	Username	Group	Password Strength	Edit
☐	1	admin	admin	Medium	 

Step 2 Click **Add**.

Figure 4-86 Add ONVIF user

Add

Username

admin1

Password

.....

Confirm Password

.....

Group

admin

Apply

Cancel

Step 3 Configure user parameters.

Table 4-30 Description of ONVIF user parameters

Parameter	Description
Username	User's unique identification. You cannot use existed username. The max length of the user or group name is 31 characters which consist of number, letter, underline, dash, dot and @.
Password	Enter and confirm the password.
Confirm 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 ' " ; : &).
Group Name	The group that users belong to. Each group has different authorities.

Step 4 Click **OK**.

The newly added user displays in the username list.

Related Operations

- Modify user group information.
Click  to edit password, group, remarks or authorities.



For admin account, you can only edit the password.

- Delete user group.
Click  to delete the added users.



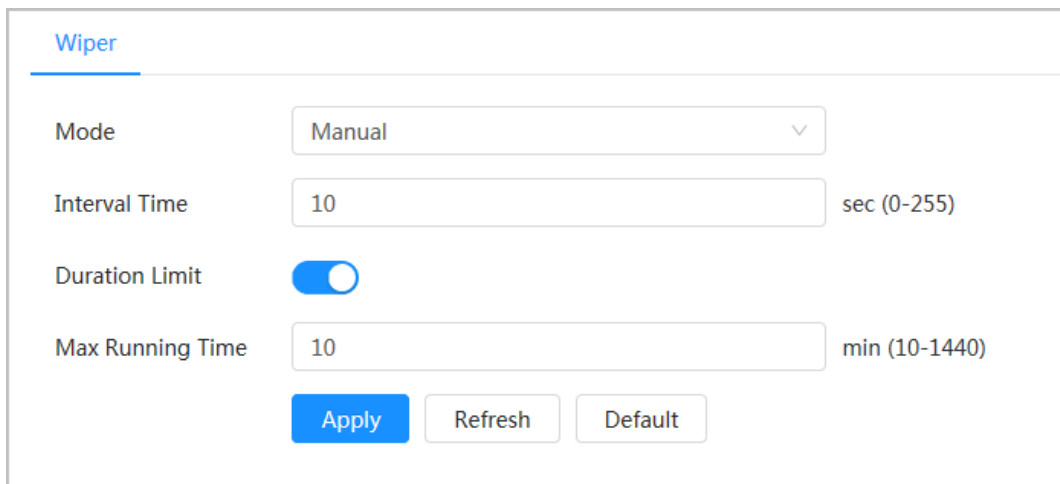
The admin account cannot be deleted.

4.8.3 Peripheral Management

Step 1 Select  > **System** > **Peripheral** > > **Wiper**.

Step 2 Configure working mode of wipers.

Figure 4-87 Wiper



The screenshot shows the 'Wiper' configuration page. It has a title bar 'Wiper' with a blue underline. Below it are four settings: 'Mode' with a dropdown menu set to 'Manual', 'Interval Time' with a text input '10' and unit 'sec (0-255)', 'Duration Limit' with a toggle switch turned on, and 'Max Running Time' with a text input '10' and unit 'min (10-1440)'. At the bottom are three buttons: 'Apply' (blue), 'Refresh' (light blue), and 'Default' (light blue).

Table 4-31 Configure parameters of wiper

Parameter	Description
Mode	Select the start mode of wiper. You can select from Manual mode and Auto mode. The default mode is Manual. • Manual mode: Manually enable start the wiper on the Live page. • Auto mode: When a certain amount of rain is detected, the wiper automatically runs.  Some devices do not support Auto mode.
Interval Time	The interval time between stop mode and start mode. For example, set the time to 10 s, and the wiper will work every 10 s.
Duration Limit	Enable Duration Limit and configure Max Running Time , and then the wiper will automatically turn off when it runs up to this time.
Max Running Time	

Step 3 Click **Apply**.

4.8.4 Manager

4.8.4.1 Requirements

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

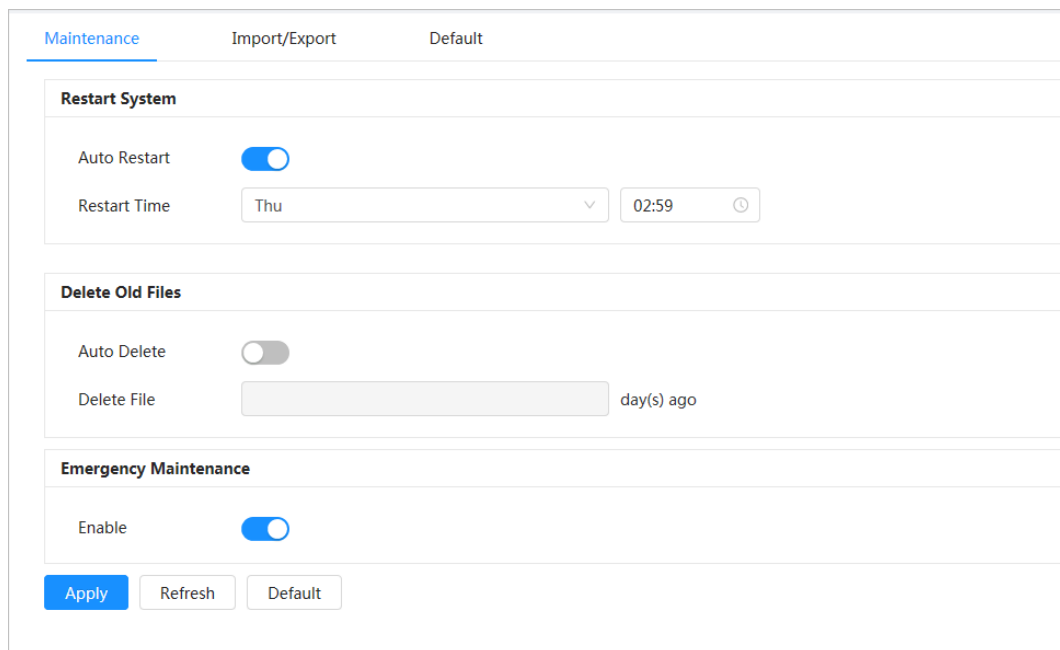
- Check surveillance images regularly.
- Clear regularly user and user group information that is not frequently used.
- Change the password every three months. For details, see "4.8.2 Account".
- View system logs and analyze them, and process the abnormality in time.
- Back up the system configuration regularly.
- Restart the device and delete the old files regularly.
- Update firmware in time.

4.8.4.2 Maintenance

You can restart the system manually, and then set the time of auto reboot and auto deleting old files. This function is disabled by default.

Step 1 Select  > **System** > **Manager** > **Maintenance**.

Figure 4-88 Maintenance



The screenshot shows the 'Maintenance' configuration page. It has three tabs: 'Maintenance' (selected), 'Import/Export', and 'Default'. The page is divided into three main sections: 'Restart System', 'Delete Old Files', and 'Emergency Maintenance'. In the 'Restart System' section, 'Auto Restart' is enabled (blue toggle) and 'Restart Time' is set to 'Thu' and '02:59'. In the 'Delete Old Files' section, 'Auto Delete' is disabled (grey toggle) and 'Delete File' is an empty field. In the 'Emergency Maintenance' section, 'Enable' is enabled (blue toggle). At the bottom, there are three buttons: 'Apply' (blue), 'Refresh' (grey), and 'Default' (grey).

Step 2 Configure auto maintain parameters.

- Click  next to **Auto Reboot** in **Restart System**, and then set the reboot time, the system automatically restarts at the set time every week.
- Click  next to **Auto Delete** in **Delete Old Files**, and then set the time, the system automatically deletes old files at the set time. The time range is 1 to 31 days.



When you enable and confirm the **Auto Delete** function, the deleted files cannot be restored. Operate it carefully.

- Enable **Emergency Maintenance** function, and then the device will provide a port for online tool maintenance and device upgrade.

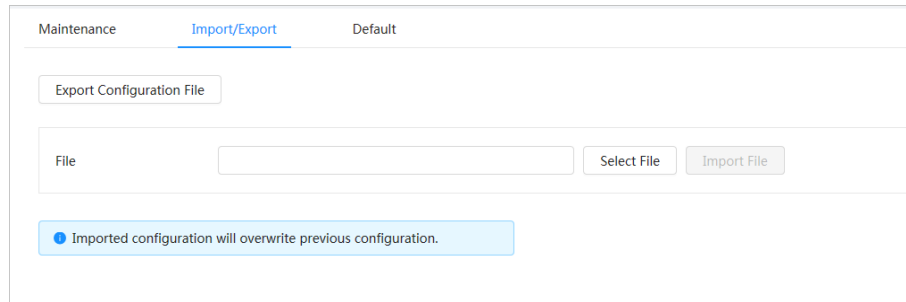
Step 3 Click **Apply**.

4.8.4.3 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.

Step 1 Select  > **System** > **Manager** > **Import/Export**.

Figure 4-89 Import/export



Step 2 Import and export.

- Import: Select local configuration file, and click **Import File** to import the local system configuration file to the system.
- Export: Click **Export Configuration file** to export the system configuration file to local storage.

4.8.4.4 Default

Restore the device to default configuration or factory settings.

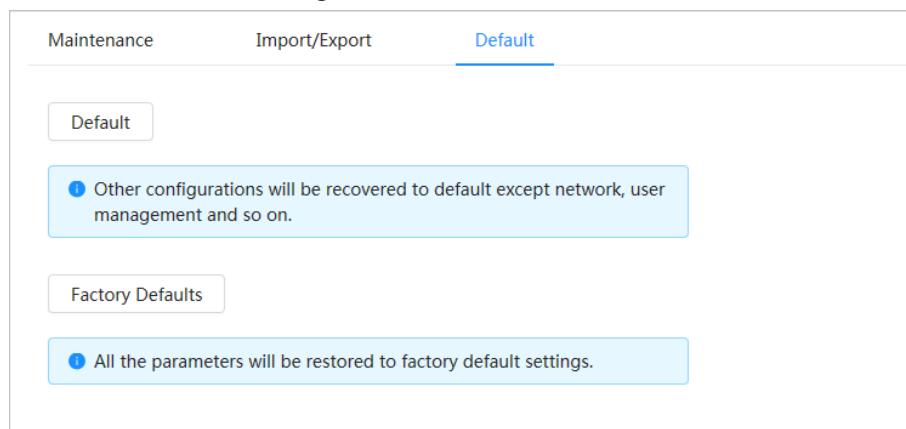


This function will restore the device to default configuration or factory settings. Operate it carefully.

Select  > **System** > **Manager** > **Default**

- Click **Default**, and then all the configurations except IP address and account are recovered to default.
- Click **Factory Default**, and all the configurations are restored to factory settings.

Figure 4-90 Default



4.8.5 Upgrade

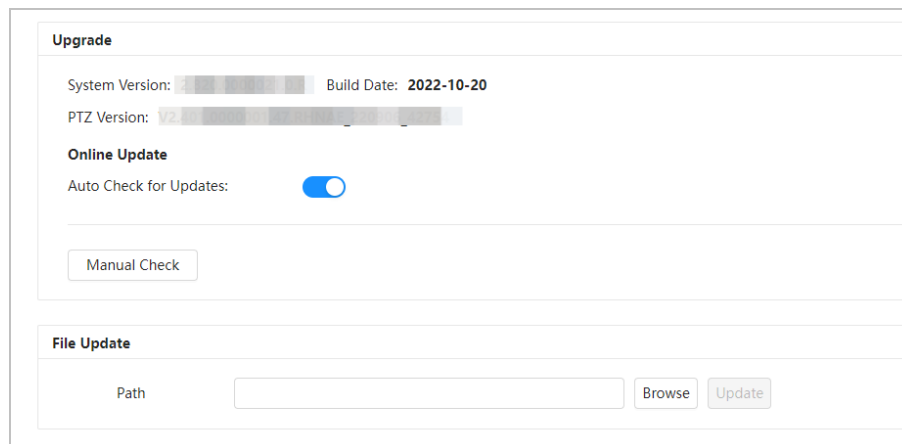
Upgrading to the latest system can refine camera functions and improve stability.



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

Step 1 Select  > **System** > **Upgrade**.

Figure 4-91 Upgrade



The screenshot shows the 'Upgrade' page with the following elements:

- System Version:** [Progress bar]
- Build Date:** 2022-10-20
- PTZ Version:** V2 [Progress bar]
- Online Update:**
 - Auto Check for Updates:** [Toggle switch, currently on]
 - Manual Check:** [Button]
- File Update:**
 - Path:** [Text input field]
 - Browse:** [Button]
 - Update:** [Button]

Step 2 Enable **Auto Check for Update**, and then the system will automatically detect whether there is an update version.

Click **Manual Check**, and then the system detects whether there is a later version.

Step 3 Click **Browse**, and then upload upgrade file.

The upgrade file should be a .bin file.

Step 4 Click **Upgrade**.

The upgrade starts.

4.9 System Information

You can view the information, including version, log and online user, and back up or clear log.

4.9.1 Version

View the **ONVIF Version**, **System Version**, **Web Version** and other information of the camera.

Select  > **System Info** > **Version** to view the version information of the camera.

4.9.2 Online User

View all the current users logging into the web.

Select  > **System Info** > **Online User** to view all the current users logging into the device.

4.9.3 Durability Statistics

View the **Total Working Time**, **Update Times**, **Last Upgrade Date** of the camera.

Select  > **System Info** > **Durability Statistics** to view the durability statistics of the camera.

4.9.4 Legal Information

View the **Software License Agreement**, **Privacy Policy**, **Open Source Software Notice** of the camera.

Select  > **System Info** > **Legal Info** to view the legal information of the camera.

4.10 Setting Log

4.10.1 Log

You can view and back up logs.

Step 1 Select  > **Log** > **Log**.

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

The start time should be no earlier than January 1, 2000, and the end time should be no later than December 31, 2037.

The log type includes **All**, **System**, **Config**, **Storage**, **Alarm Event**, **Record**, **Account**, **Security**, and **Clear Log**.

Type	Description
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	Includes event start and event end. Events includes video detection, smart plan, alarm and abnormality and more.
Record	Includes file access, file access error, and file search.
Account	Includes login, logout, adding user, deleting user, editing user, adding group, deleting group, and editing group.
Security	Includes password resetting and IP filter.
Clear Log	Includes clearing system log.

Step 3 Click **Search**.

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

Figure 4-92 Log

Start Time		2021-07-26 10:26:47 - 2021-07-27 10:26:47	Type	All	Search	Backup	Clear
No.	Time	Username	Type	Details			
1	2021-07-27 09:55:57	admin	Login				
2	2021-07-26 17:51:35	admin	Logout				
3	2021-07-26 16:35:50	admin	Logout				
4	2021-07-26 16:01:50	admin	Login				
5	2021-07-26 15:41:36	admin	Logout				
6	2021-07-26 15:19:17	System	End Event				
7	2021-07-26 15:19:12	System	Start Event				
8	2021-07-26 15:18:42	System	End Event				
9	2021-07-26 15:18:37	System	Start Event				
10	2021-07-26 15:18:20	System	End Event				
11	2021-07-26 15:18:15	System	Start Event				
12	2021-07-26 15:17:48	System	End Event				
13	2021-07-26 15:17:43	System	Start Event				
14	2021-07-26 15:17:07	System	End Event				
15	2021-07-26 15:17:02	System	Start Event				

1024 record(s)

< 1 2 3 4 5 ... 11 > Go to

4.10.2 Remote Log

Configure remote log, and then you can get the related log by accessing the set address.

Step 1 Select  > **Log** > **Remote Log**.

Step 2 Click ☐ to enable remote log function.

Step 3 Configure address, port and device number.

Step 4 Click **Apply**.

Figure 4-93 Remote log

Enable ☐

Server Address

Port (1-65534)

Device No. (0-23)

5 Live

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

5.1 Live Page

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



Pages might vary with different models.

Figure 5-1 Live page



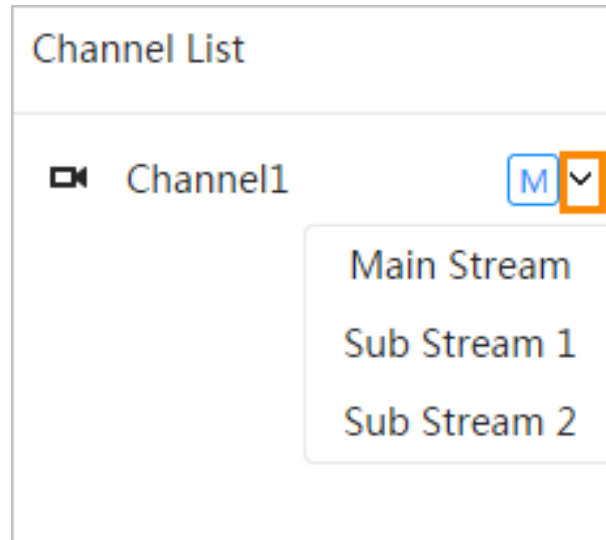
Table 5-1 The description of live page

Number	Function	Description
1	Display mode	Switches the video display mode. It includes general mode and traffic event mode. For details on traffic event mode, see "5.5 Display Mode".
2	Channel list	Displays all channels. You can select the channel and set the stream type.
3	Image adjustment	Adjusts the images in the live viewing. For details, see "5.4 Window Adjustment Bar".
4		
5	Live view	Displays the real-time monitoring image.
6	Live view function bar	Displays the shortcut for available functions.

5.2 Configuring Encoding

On the left side of the **Live** page, click  on the right side of the video channel to select the video stream.

Figure 5-2 Configure video stream



- **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. For details, see "4.3.2.1 Encode".
- **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. For details, see "4.3.2.1 Encode".
- means the current stream is main stream; means the current stream is sub stream 1; means the current stream is sub stream 2.
Click this icon to choose whether to display the video image.

5.3 Live View Function Bar

This section introduces the shortcuts supported when viewing live video.



The live view function bar might vary depending on the different models.

Table 5-2 Description of live view function bar

Icon	Function	Description
	Alarm	Displays the status of the alarm sound, click the icon to turn on or off the alarm sound.
	Force Alarm	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.

Icon	Function	Description
	Snapshot	Capture one image of the current screen, and it will be saved to the configured storage path. For details of viewing or configuring storage path, see "4.2 Local".
	Triple Snapshot	Capture three images of the current screen, and they will be saved to the configured storage path. For details of viewing or configuring storage path, see "4.2 Local".
	Record	Record video, and it will be saved to the configured storage path. For details of viewing or configuring storage path, see "4.2 Local".
	Sound	Enable or disable audio output of corresponding channel.
	Talk	Enable or disable the audio talk.
	AR Mark	Mark the objects in the screen. Mark points do not move as the screen moves.

5.4 Window Adjustment Bar

5.4.1 Adjustment

This section introduces the adjustment of live view image.

Table 5-3 Description of adjustment bar

Icon	Function	Description
	Original Size	Only single-channel devices display this icon. Click this icon and when the icon changes to , the actual size of the screen is displayed. Click the icon again to restore the screen to the appropriate size
	W:H	Click the icon to resume original ratio or change ratio. It supports Original and Adaptive .
	Fluency Adjustment	Click the icon to adjust the fluency of the image. It supports Realtime , Fluent and General . • Realtime: Guarantees the real time of the image. When the bandwidth is not enough, the image might not be smooth. • Fluent: Guarantees the fluency of the image. There might be delay between live view image and real-time image. • General: It is between Realtime and Fluent.
	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.

Icon	Function	Description
	Anti-aliasing	Click this icon to enable or disable anti-aliasing function.

5.4.2 PTZ Control

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

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

Figure 5-3 PTZ Control

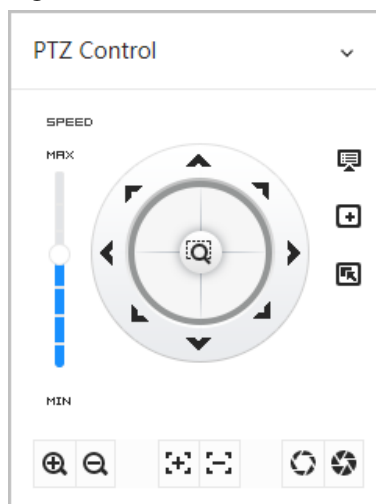


Table 5-4 Description of PTZ control functions

Function	Description
	Control device toward eight directions, including up, down, left, right, left up, right up, left down and right down. Click  , and then select an area in the monitor frame, the PTZ will rotate and zoom quickly to the specified area.
	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.
	Zoom: Adjust the zooming of images.
	Focus: Adjust the focal length of the Camera.
	Iris: Adjust the brightness of images.
	PTZ Menu: Click to enter PTZ menu. Configure the camera setting, PTZ setting, system management and other functions according to the actual page.
	Area Focus: Focus on the selected area. Select the Live page, click the icon, and select the area on the Live page. Then the device will automatically focus on this area.
	Manual Capture: Click the icon to select the illegal parking object in the monitoring window, and then the device capture images according to the selected target.

5.4.3 PTZ Function

On the **Live** page, click the **PTZ Function** on the lower left corner of the page. Before using PTZ function, see "4.5 PTZ" to configure PTZ function.



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

Figure 5-4 PTZ function

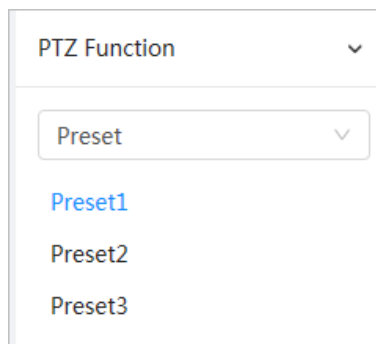


Table 5-5 Description of PTZ function

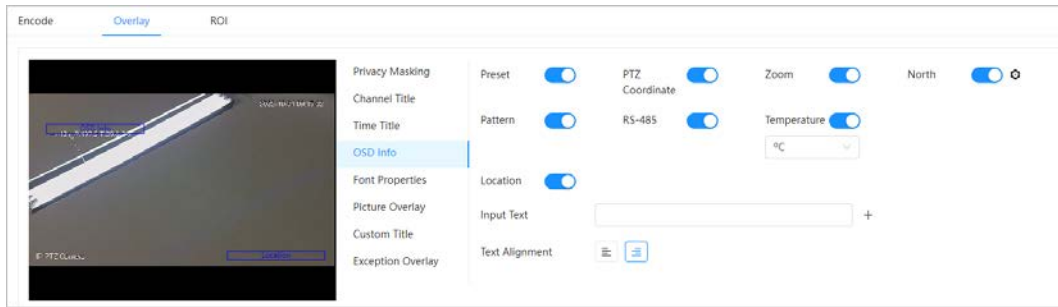
Parameter	Description
Preset	Configure preset number, and then select Preset from the drop-down list position the device to the corresponding point. The preset contains PTZ's horizontal angle, tilt angle, lens focal length and other parameters.
Tour Group	Select Scan from the drop-down list, and then the device automatically rotates back and forth in the order of the set preset points. Click again to finish tour.
Scan	Select Scan from the drop-down list, and then the device will scan back and forth at a certain speed according to the set boundary. Click again to finish scan.
Pattern	Select Pattern from the drop-down list, and then the device automatically rotates back and forth according to the set operating record. Click again 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. Click Stop to finish pan.
Go to	Configure horizontal angle, vertical angel and zoom. Click Go to to pinpoint to a point.

5.4.4 OSD Information

If you want to represent such information in video images as preset dots, PTZ/geography location, zoom and touring pattern, you can enable this function.

Step 1 Select  > **Camera** > **Encode** > **Overlay** > **OSD Info**.

Figure 5-5 OSD information



Step 2 Configure OSD Information.

Table 5-6 Description of OSD information parameter

Parameter	Description
Presets	Select Enable , and then the preset name is displayed on the image when the camera turns to the preset, and it will disappear 3 s later.
PTZ Coordinates	Select Enable , and then the PTZ coordinates information is displayed on the image.
Zoom	Select Enable and then the zoom information is displayed on the image.
North	Select Enable , and then 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.
Pattern	Select Enable , and then the pattern information is displayed on the image.
Temperature	Select Enable , and then the temperature information is displayed in the text.
RS-485	Select Enable , and then the RS-485 information is displayed on the image.
Location	Select Enable , and then the geographical location is displayed in the text.
Input Text	Enter the text, and then the text is displayed on the image.  You can add up to 13 lines of text.
Text Alignment	Set the alignment mode of the displayed information on the image.

Step 3 Move the OSD box to the position that you want on the image.

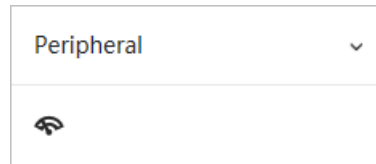
Step 4 Click **Apply**.

5.4.5 Peripheral Management

Manage peripherals of PTZ Camera.

Step 1 On the **Live** page, click the **Peripheral Management** on the lower left corner of the page.

Figure 5-6 Peripheral management



Step 2 Click  to enable or disable wiper function.

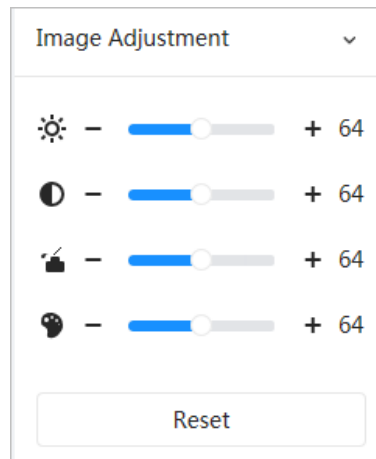
5.4.6 Image Adjustment

Click **Image Adjustment** on the lower-left corner of **Live** page, and click + or– icon, or 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 5-7 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.

5.5 Display Mode

It includes general mode and traffic event mode. For general mode, see "5.1 Live Page". Before previewing with traffic event mode, configure corresponding AI function in advance.

Traffic Event Mode

Select **Traffic Event Mode** on the upper left corner of the **Live** page, and then the page turns into traffic event mode.

Figure 5-8 Traffic event mode

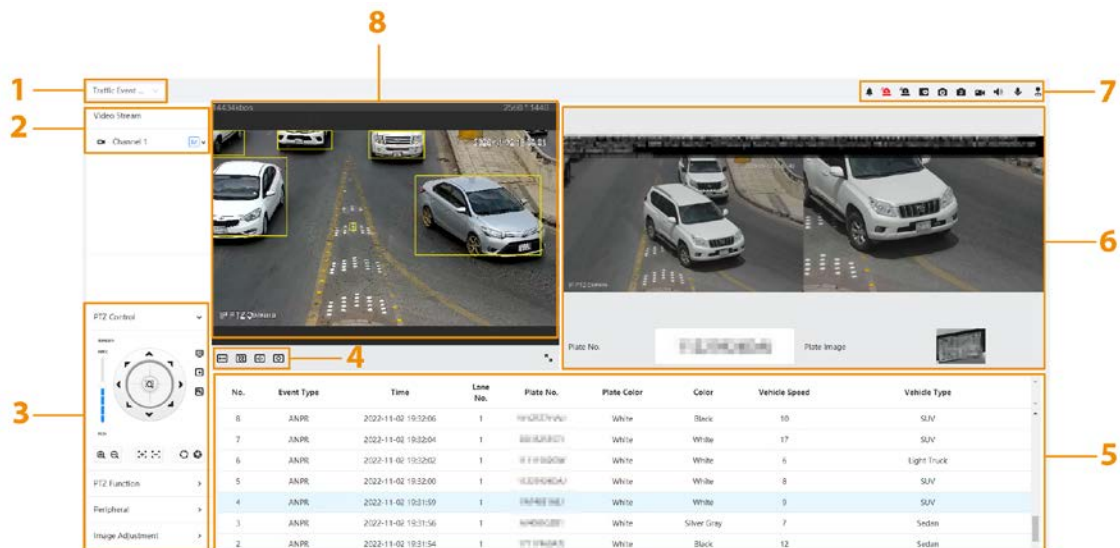


Table 5-7 The description of live page

Number	Function	Description
1	Display mode	Switches the video display mode. It includes general mode and traffic event mode. Before using the traffic event mode, please configure the corresponding smart plan in advance.
2	Channel list	Displays all channels. You can select the channel and set the stream type.
3	Image adjustment	Adjusts the images in the live viewing. For details, see "5.4 Window Adjustment Bar".
4		
5	Traffic event information bar	Displays the detail information of the traffic events, including the event time, event time, lane No., plate No. and more.
6	License plate image	Displays the vehicle image of the traffic event. The license plate identified by the system and the license plate image captured by the camera are displayed below the picture.
7	Live view function bar	Displays the shortcut for available functions. Among them, some shortcut buttons of multi-channel devices are in the upper-right corner of the channel screen. For details, see "5.3 Live View Function Bar".
8	Live view	Displays the real-time monitoring image. When you need to display information such as presets, PTZ coordinates, geographic locations and more on the monitoring screen, you can configure the OSD (On-Screen Display) information. For details, see "5.4.4 OSD Information".

6 App Center

This chapter introduces the installation, update and management of the application.

6.1 Application Overview

You can view the device basic information, application resource overview, application running overview and application information on this page.

Figure 6-1 Application overview

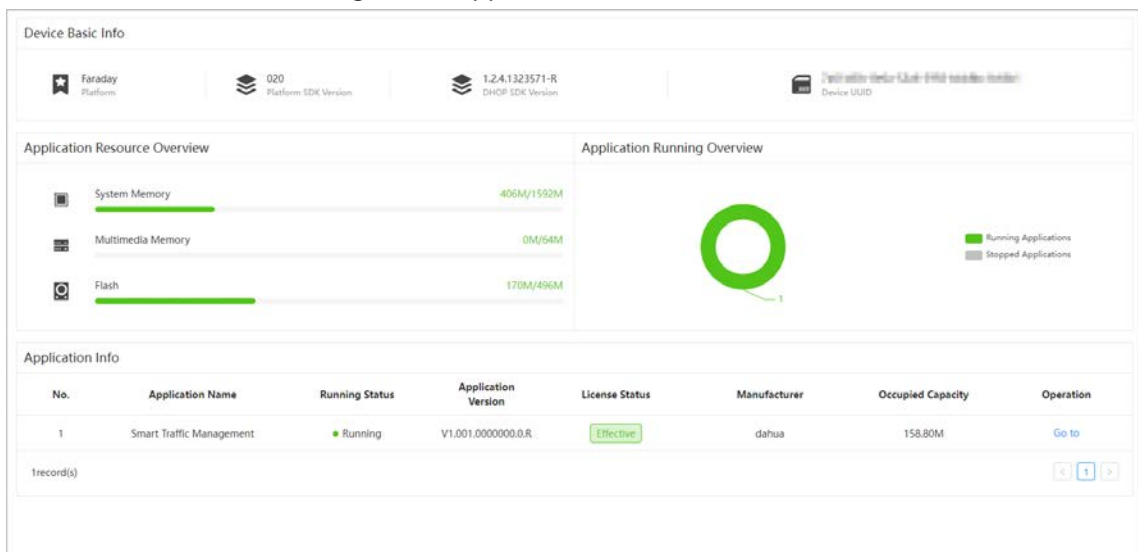


Table 6-1 Description of application overview

Parameter	Description
Device Basic Info	You can view the platform type, platform SDK version, DHOP SDK Version and Device UUID in this area.
Application Resource Overview	You can view the system memory, multimedia memory and flash in this area.
Application Running Overview	You can view the running applications and stopped applications in this area.
Application Info	You can view the application name, running status, application version and other information in this area. Click Go to to go to the Application page.

6.2 Application

This section introduces basic operations such as adding and upgrading an application.

- The App installation package comes with the device cannot be uninstalled.
- The App installation package that is not supported by the device cannot be upgraded.

Figure 6-2 Application

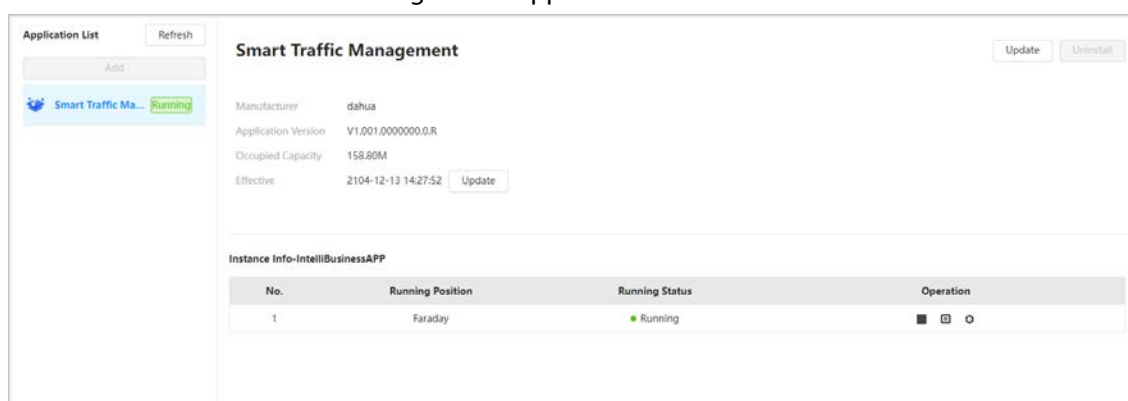


Table 6-2 Description of application parameters

Parameter	Description
Application List	Displays the name and running status of the application. Up to one application can be added. - Click Add to add applications to the list. - Click Refresh to the application list.
Smart Traffic Management	Displays the manufacturer, application version, occupied capacity and other information of the application. - Click the Update next to the Effective, and then click Browse to import the license. - Click Update on the upper-right corner of the page, and then import the installation package to upgrade the application. The upgrade contents might vary depending on the imported installation packages. The installation packages are classified into the three types: - Firmware package: Only firmware related content is updated after the upgrade. - Smart App package: After the device firmware is running and stable, you can independently upgrade the intelligent App upgrade package, and only the smart-related content is updated after the upgrade. Firmware-related functions (such as audio and video, PTZ and wiper) can be used normally during the upgrade process and run automatically after the upgrade. - Complete package: Firmware and smart modules can be updated at the same time after upgrade.
Instance Info-IntelliBusinessAPP	Displays the running position, running status and operation information of the application. - Click  to stop the application operation. - Click  to view the smart traffic management logs. - Click  to go to the smart plan configuration page of smart traffic management.

7 Record

This chapter introduces the functions of video playback and operations of record control, record plan and record storage.

7.1 Playback

This section describes the operations of video playback and management. It supports editing and downloading videos.

7.1.1 Playing Back Video

Query and playback video files stored in the SD card.

Prerequisites

- This function is available on the camera with SD card.
- Before playing back video, configure record time range, record storage method, record schedule and record control. For details, see "7.2 Setting Record Control", "7.3 Setting Record Plan", and "7.4 Storage".

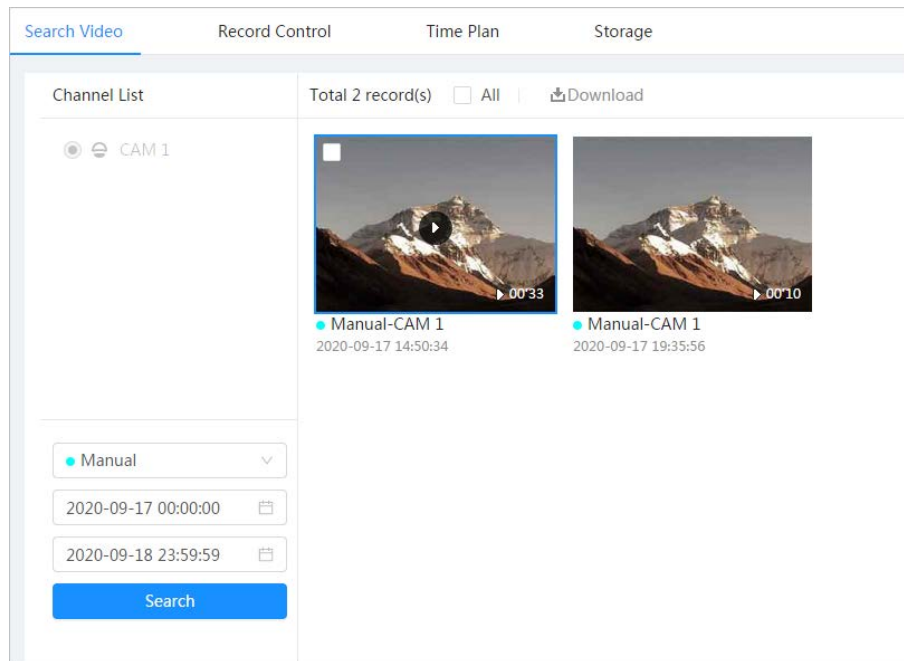
Procedure

Step 1 Select **Record** > **Search Video**.

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

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

Figure 7-1 Search video



Step 3 Point to the searched video, and then click  to play back the selected video.

Figure 7-2 Video playback

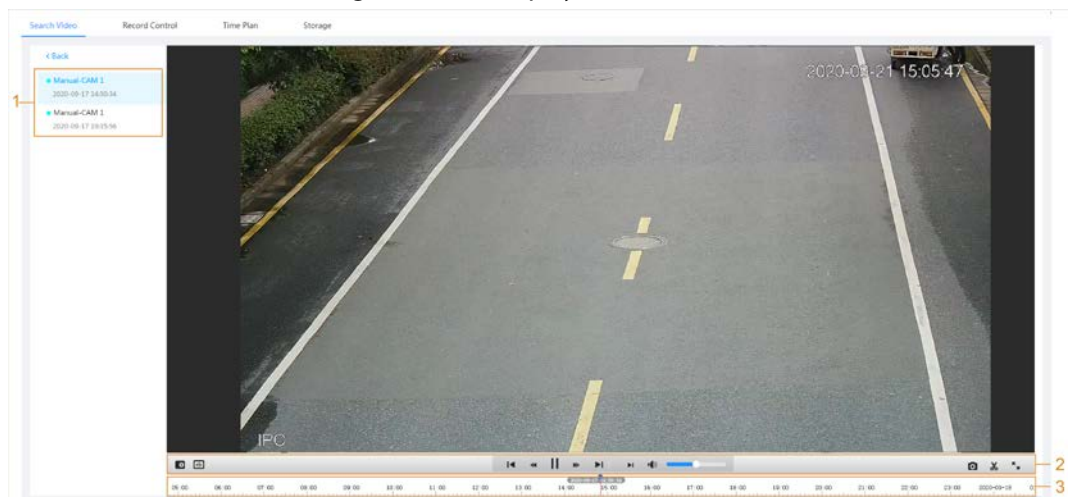


Table 7-1 Description of video playback page

No	Icon	Function	Description
1	Recorded video list		Displays all searched recorded video files. Click any files to view the recording. Click Back at the upper-left corner to go to the Search Video page.

No	Icon	Function	Description
2		Digital Zoom	You can zoom in or out 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 area. - Click the icon, and then scroll the mouse wheel in the video image to zoom in or out.
		AI Rule	Click the icon, and then select Enable to display AI rules and detection box; select Disable to stop displaying AI rules. It is disabled by default.  AI rules are valid only when you enabled the rule during recording.
	Play control bar		Controls playback. : Click the icon to play the previous recorded video in the recorded video list. : Click the icon to slow down the playback. : Click the icon to stop playing recorded videos. The icon changes to , click the icon to play recorded videos. : Click the icon to speed up the playback. : Click the icon to play 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. : Vocal state. You can adjust the sound.
		Snapshot	Click  to capture one image of the current screen, and it will be saved to the configured storage path.  About viewing or configuring storage path, see "7.4.1 Local Storage".
		Video clip	Click , and clip a certain recorded video and save it. For details, see "7.1.2 Clipping Video".
		Full screen	Click , and the image is displayed in full-screen; double-click the image or press Esc key to exit.

No	Icon	Function	Description
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.

7.1.2 Clipping Video

Step 1 Click  below the video during playback.

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

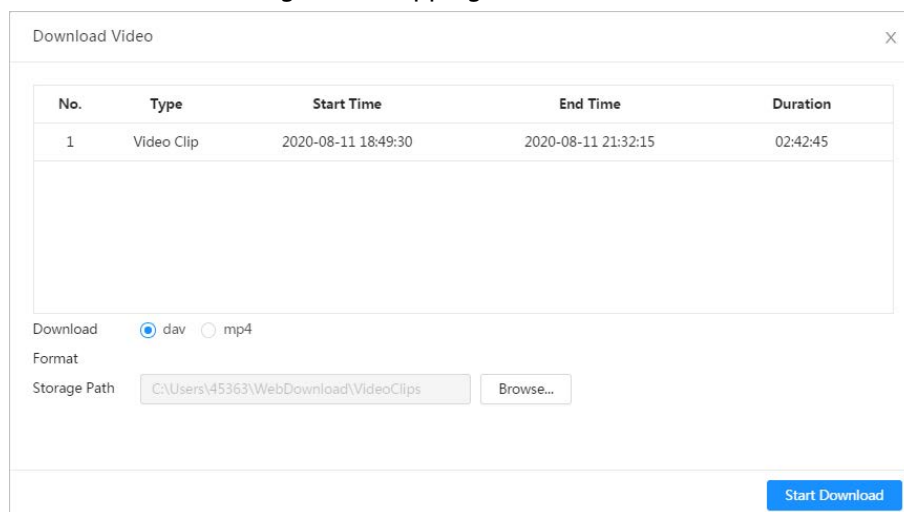
Figure 7-3 Clipping video



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

Step 4 Select the download format and storage path.

Figure 7-4 Clipping video



Step 5 Click **Start Download**.

The playback stops and the clipped file is saved in the configured storage path. For details of storage path, see "4.2 Local".

7.1.3 Downloading Video

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



- Playback and download at the same time is not supported.
- Operations might vary with different browsers.
- For details of viewing or setting storage path, see "4.2 Local".

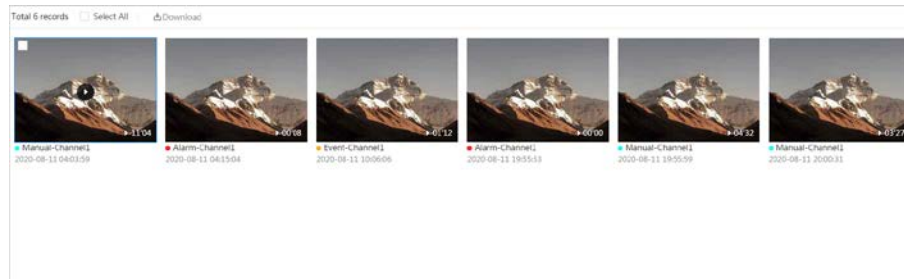
Step 1 Select **Record** > **Search Video**.

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

Step 3 Select videos to be downloaded.

- Select ☐ at the upper-right corner of each video file to select one or more videos. The icon at the upper left corner of the selected file changes to ☒.
- Select ☐ next to **Select All** to select all searched videos.

Figure 7-5 Selecting video file



Step 4 Click **Download**.

Step 5 Select the download format and storage path.

Figure 7-6 Downloading video

Download Video

No.	Type	Start Time	End Time	Duration	Size
1	Manual	2020-08-11 04:03:59	2020-08-11 04:15:03	00:11:04	277.8M
2	Event	2020-08-11 04:15:04	2020-08-11 04:15:12	00:00:08	0.6M
3	Event	2020-08-11 10:06:06	2020-08-11 10:07:18	00:01:12	4.6M
4	Event	2020-08-11 19:55:53	2020-08-11 19:55:53	00:00:00	0M
5	Manual	2020-08-11 19:55:59	2020-08-11 20:00:31	00:04:32	102M
6	Manual	2020-08-11 20:00:31	2020-08-11 20:03:58	00:03:27	86.6M

Size: 471.8M

Download: ☒ dav ☐ mp4

Format:

Storage Path: C:\Users\45363\WebDownload\PlaybackRecord

Step 6 Click **Start Download**.

The system starts to download the video and displays the download progress. After the video is downloaded successfully, the video file is saved in the configured storage path.

7.2 Setting Record Control

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



When a Dahua smart SD card is inserted into a device that supports Dahua smart SD card, make sure that the SD card has been authenticated before using the video recording function. For details, see "4.2 Local".

Step 1 Click **Record** in the main page, and then click the **Record Control** tab.

Figure 7-7 Record control

Max Duration: 30 min (1-120)

Pre-Record: 5 sec (0-5)

Record Mode: ☒ Auto ☐ Manual ☐ Off

Record Stream: Main Stream

Buttons: Apply, Refresh, Default

Step 2 Set parameters.

Table 7-2 Description of record control parameters

Parameter	Description
Max Duration	The time for packing each video file.
Pre-Record	The time to record the video in advance of a triggered alarm. For example, if the pre-event record is set to be 5 s, the system saves the recorded video 5 s before the alarm.  When an alarm or motion detection links recording, and the recording is not enabled, the system saves the recording within the pre-event record time to the video file.
Record Mode	• Manual: the system starts recording. • Auto: the system starts recording in the configured time period of record plan. • Off: the system does not record.
Record Stream	Select record stream, including Main Stream and Sub Stream .

Step 3 Click **Apply**.

7.3 Setting Record Plan

Configure daily and holiday record plan, After the corresponding alarm type (**General**, **Event**, and **Alarm**) is enabled, the record channel links recording.

Background Information

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

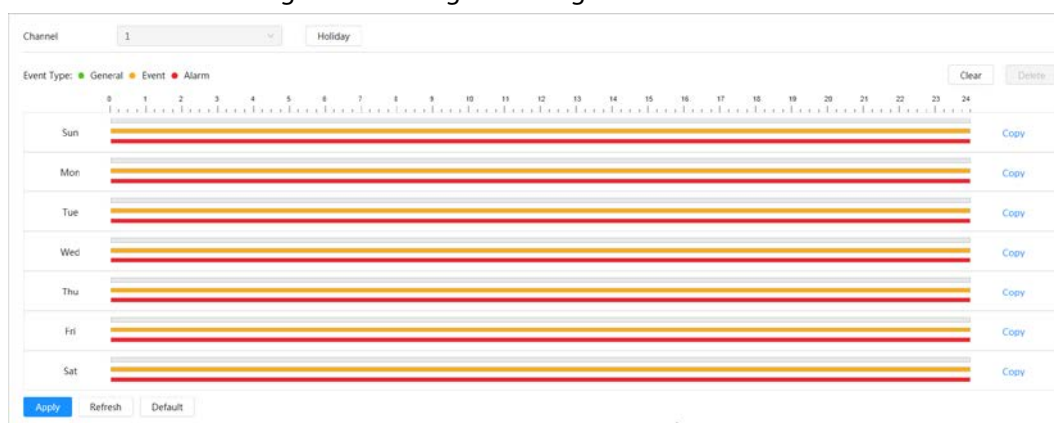
Procedure

Step 1 Click **Record** on the main page, and then click the **Time Plan** tab.

Step 2 Select record channel and then set record plan.

- Green represents normal record plan (such as timing recording).
 - Yellow represents motion record plan (such as recording triggered by intelligent events).
 - Red represents alarm record plan (such as recording triggered by alarm-in).
- 1) Select a record type, and left-click and drag on the timeline to set the recording period of each event.
Record plan from top to bottom are respectively normal record plan, motion record plan and alarm record plan.

Figure 7-8 Configure through timeline



- 2) Click the selected time range and then set an accurate start and end time.

Figure 7-9 Configure accurate time period



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

Step 3 Click **Apply**.

Step 4 Click **Holiday** to set holiday record plan.

Figure 7-10 Holiday plan

The screenshot shows a 'Holiday' configuration window. At the top, there's a title bar with 'Holiday' and a close button 'X'. Below the title bar, there's an 'Enable' toggle switch (currently off) and a 'Clear' button. The main area contains a calendar for the month of July. The calendar shows days from 1 to 31. The day 27 is highlighted with a blue border. At the bottom right of the window are 'OK' and 'Cancel' buttons.

- Click  to enable the holiday plan, and select the days that you need to set as holiday.
The selected dates are shown in blue.
- 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 captures or records as general setting.

Step 5 Click **OK**.

7.4 Storage

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

Step 1 Select **Record** > **Storage**.

Step 2 Select the storage method that you need for different types of recorded videos.

Figure 7-11 Storage

Table 7-3 Description of storage parameters

Parameter	Description
Event Type	Select from General , Event and Alarm .
Disk Full	Recording strategy when the disk is full. • Overwrite: Overwrite the earliest video when the disk is full. • Stop: Stop recording when the disk is full.
Storage Method	Select from Local storage and Network storage • Local storage: Save the recorded videos in the internal SD card.  Local storage is displayed only on models that support SD card. • Network storage: Save the recorded videos on the FTP (File Transfer Protocol) server or NAS (Network Attached Storage).

Step 3 Click **Apply**.

7.4.1 Local Storage

Step 1 Select **Record** > **Storage**.

Step 2 Select the recording strategy in **Disk Full**.

Step 3 Select **Local storage** in **Storage Method** to save the recorded videos in the internal SD card.

Figure 7-12 Local storage

Step 4 Click **Apply**.

7.4.2 Network Storage

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

When the network does not work, you can save all the files to the internal SD card for emergency cases.

7.4.2.1 FTP

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

Step 1 Select **Record** > **Storage**.

Step 2 Select the recording strategy in **Disk Full**.

- **Overwrite**: Cyclically overwrite the earliest video when the disk is full.
- **Stop**: Stop recording when the disk is full.

Step 3 Select **Network storage** in **Storage Method**, and select **FTP** to save the recorded videos in FTP server.

Step 4 Select **FTP** or **SFTP** from the drop-down list. **SFTP** is recommended to enhance network security.

Step 5 Click ☐ next to **Enable** to enable the FTP function.

Figure 7-13 FTP

The screenshot displays the FTP configuration window. At the top, 'Event Type' has checkboxes for 'General', 'Event', and 'Alarm', all of which are checked. Below this, 'Disk Full' has radio buttons for 'Overwrite' (selected) and 'Stop'. 'Storage Method' is set to 'Network Storage' in a dropdown menu. Below that, another dropdown menu is set to 'FTP'. 'Mode' is set to 'SFTP(Recommended)' in a dropdown menu. The 'Enable' toggle switch is currently turned off. The 'Server IP' field contains '0.0.0.0'. The 'Port' field contains '22' with a range '(0~65535)' indicated. The 'Username' field contains 'anonymity'. The 'Password' field is masked with dots. The 'Storage Path' field contains 'share'. The 'Urgently store to local' toggle switch is turned off. There is a 'Test' button. The 'Video and Storage Path Naming' section shows a text field with the pattern '%02/%y%M%d/%18/%y%M%d%h%m%s.dav' and a 'Reset' button. Below this is a preview of the resulting filename '0002/20180801/18/20180801%h%m%s.dav' and a 'Help' button. At the bottom, there are three buttons: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Step 6 Configure FTP parameters.

Table 7-4 Description of FTP parameters

Parameter	Description
Server IP	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 Path	The storage path in the FTP server.

Parameter	Description
Directory Structure	Select a directory level for the storage path and then set the directory name for the level.
Urgently store to local	Click ☐ , and when the FTP server does not work, all the files are saved to the internal SD card.
Video and Storage Path Naming	Configure the storage path and naming format of the video. You can directly change the file format of the video. It supports .dav, .mp4 and .avi format. The default format is .dav. - Click Reset to reset the name. - The naming is displayed as an escape character on the webpage. Click Help to get the meaning of the escape character.

Step 7 Click **Apply**.

Step 8 Click **Test** to test whether FTP function works normally.

7.4.2.2 NAS

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

Step 1 Select **Record** > **Storage**.

Step 2 Select the recording strategy in **Disk Full**.

- **Overwrite**: Cyclically overwrite the earliest video when the disk is full.
- **Stop**: Stop recording when the disk is full.

Step 3 Select **Network storage** in **Storage Method**, and select **NAS** to save the recorded videos in NAS server.

Step 4 Select NAS protocol type.

- **NFS** (Network File System): A file system which enables computers in the same network share files through TCP/IP.
- **SMB** (Server Message Block): Provides shared access for clients and servers.

Figure 7-14 NAS

The screenshot displays the NAS configuration page. At the top, 'Event Type' has three checked checkboxes: General, Event, and Alarm. Below, 'Disk Full' has two radio buttons: 'Overwrite' (selected) and 'Stop'. The 'Storage Method' section contains two dropdown menus; the first is set to 'Network Storage' and the second is set to 'NAS'. An 'Enable' toggle switch is currently turned off. The 'Server IP' field contains '0.0.0.0' and the 'Storage Path' field is empty. At the bottom, there are three buttons: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Step 5 Select ☐ to enable NAS function, and then configure NAS parameters.

Table 7-5 Description of NAS parameters

Parameter	Description
Server IP	The IP address of the NAS server.
Storage Path	The destination path in the NAS server.
Password	Password for logging in to the NAS server.  This is required when the protocol type is SMB.
Username	Username for logging in to the NAS server.  This is required when the protocol type is SMB.

Step 6 Click **Apply**.

8 Picture

This chapter introduces the related functions and operations of image playback, including configuring snapshot parameters, configuring snapshot plan and snapshot storage.

8.1 Playback

This section describes playing back and downloading images.

8.1.1 Playing Back Image

This section introduces the operation of image playback.

Prerequisites

- This function is available on the camera with SD card.
- Before playing back image, configure snapshot time range, snapshot storage method, snapshot plan. For details, see "8.2 Setting Snapshot Parameters", "8.3 Setting Snapshot Plan" and "8.5 Storage".

Procedure

Step 1 Select **Record** > **Picture Query**.

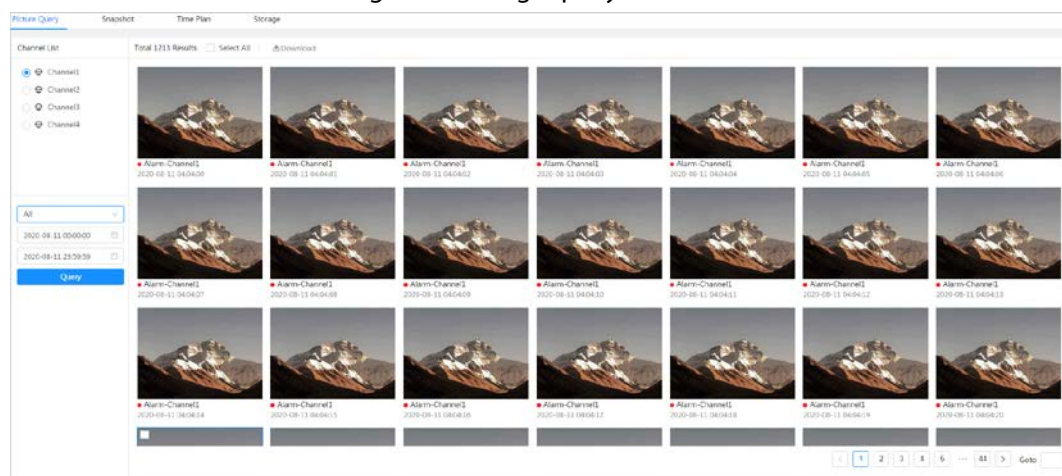
Step 2 Select the channel, the snapshot type and snapshot time, and then click **Query**.

- Click **All**, and select the snapshot type from the drop-down list, you can select from **All**, **General**, **Event**, and **Alarm**.

When selecting **Event** as the snapshot type, you can select the specific event types, such as **Motion Detection**, **Video Tamper** and **Scene Changing**.

- The dates with blue dots indicate there are snapshots on those days.

Figure 8-1 Image query



Step 3 Point to the searched image, and then click  to play back the selected image.

Figure 8-2 Playback image

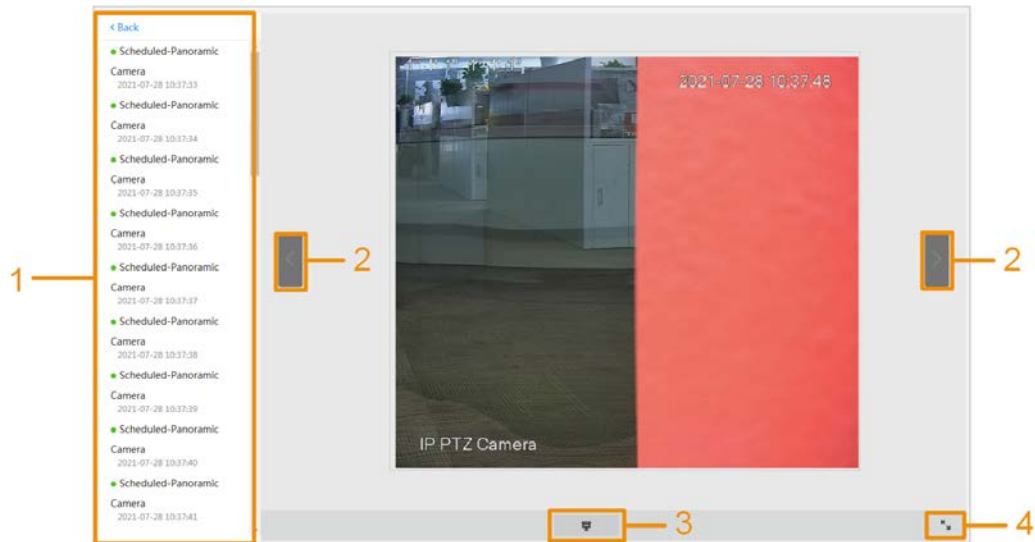


Table 8-1 Description of playback page

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 Picture Query 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.
4	Full screen	Click  , and the snapshot is displayed in full-screen mode; double-click the image or press Esc to exit full-screen mode.

8.1.2 Downloading Image

Download images to a defined path. You can download a single image, or download images in batches.



- Operations might vary with different browsers.
- For details of viewing or setting storage path, see "4.2 Local".

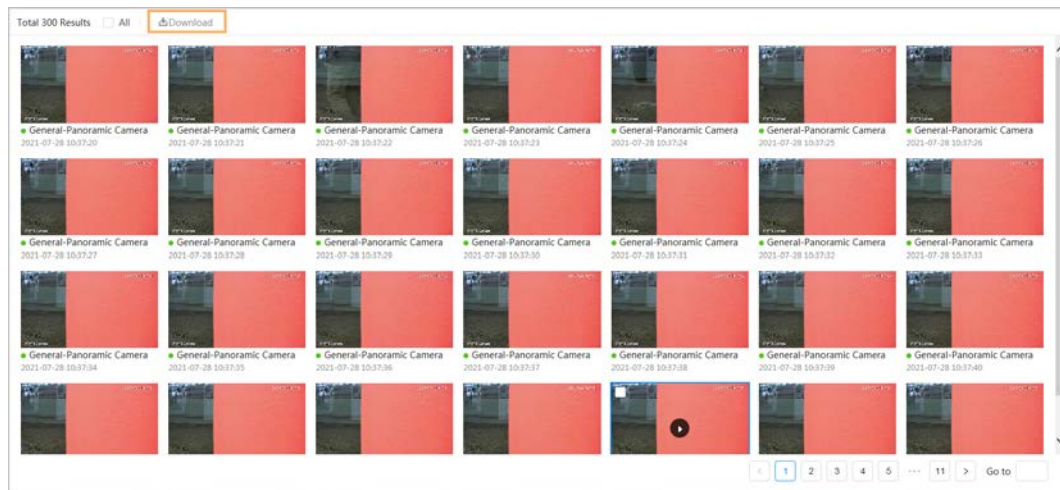
Step 1 Select **Picture** > **Picture Query**.

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

Step 3 Select the images to be downloaded.

- Select ☐ at the upper-right corner of each image file to select one or multiple images. The icon in the upper left corner of the selected file changes to ☒.
- Select ☐ next to **All** to select all searched images.

Figure 8-3 Selecting image file



Step 4 Click **Download**.

Step 5 Select the download format and storage path.

Figure 8-4 Downloading image

Download
×

No.	Type	Time	Size
1	jpg	2021-07-28 10:37:20	0.43M
2	jpg	2021-07-28 10:37:21	0.44M

Size 0.86M

Download ☒ jpg

Format

Storage Path

Step 6 Click **Start Download**.

The downloaded images are saved in the configured storage path. For details of storage path, see "4.2 Local".

8.2 Setting Snapshot Parameters

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

Step 1 Select **Picture > Snapshot**.

Step 2 Select the channel, and then set the parameters.

Figure 8-5 Snapshot

The screenshot shows a web interface for configuring snapshots. The 'Snapshot' tab is active. The 'Type' is set to 'Scheduled'. The 'Size' is set to '2560*1440 (2560x1440)'. The 'Quality' is set to 5 on a scale from 1 to 6. The 'Interval' is set to '1 sec'. There are 'Apply', 'Refresh', and 'Default' buttons at the bottom.

Table 8-2 Description of snapshot parameters

Parameter	Description
Type	You can select from Scheduled and Event. • Scheduled: Capture images in the defined period. For details, see "8.3 Setting Snapshot Plan". • Event: Capture images when configured event is triggered, such as Motion Detection and Video Tamper.  Make sure that you have enabled the corresponding event detection and the snapshot function.
Size	Set the size of the snapshot. 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 Custom to set the frequency.

Step 3 Click **Apply**.

8.3 Setting Snapshot Plan

Configure daily and holiday snapshot plan. After the corresponding alarm type (**General**, **Event**, and **Alarm**) is enabled, the snapshot channel links snapshot.

Background Information

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

Procedure

Step 1 Click **Picture** on the main page, and then click the **Time Plan** tab.

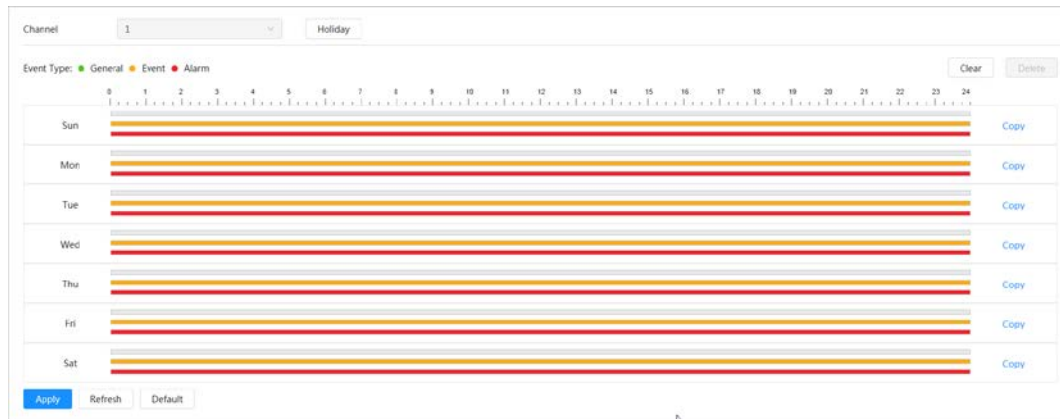
Step 2 Select snapshot channel and then set snapshot plan.

- Green represents normal snapshot plan (such as timing snapshot).
 - Yellow represents motion snapshot plan (such as snapshot triggered by intelligent events).
 - Red represents alarm snapshot plan (such as snapshot triggered by alarm-in).
- 1) Select a snapshot type, and left-click and drag on the timeline to set the snapshot

period of each event.

Snapshot plan from top to bottom are respectively normal snapshot plan, motion snapshot plan and alarm snapshot plan.

Figure 8-6 Configure through timeline



2) Click the selected time range and then set an accurate start and end time.

Figure 8-7 Configure accurate time period



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

Step 3 Click **Apply**.

Step 4 Click **Holiday** to set holiday snapshot plan.

Figure 8-8 Holiday plan

- Click  to enable the holiday plan, and select the days that you need to set as holiday.
The selected dates are shown in blue.
- 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 captures or records as general setting.

Step 5 Click **OK**.

8.4 Snapshot by Location

When the Camera goes to a certain preset point, the current screen image is captured.

Prerequisites



Add the presets in advance. For details of adding presets, see "4.5.1 Configuring Presets".

Procedure

Step 1 Select **Picture** > **Snapshot by Location**.

Step 2 Click  corresponding to the preset point to enable its capture function, or click **All**

Enabled to enable the capture function of all preset points.

Click **All Disabled** to disable the capture function of all preset points.

Figure 8-9 Snapshot by location

No.	Name	Snapshot
1	Preset1	☐

Step 3 Click **Apply**.

8.5 Storage

This section introduces the configuration of the storage methods for the snapshot.

Step 1 Select **Picture** > **Storage**.

Step 2 Select the storage method that you need for different types of snapshots.

Figure 8-10 Storage

Event Type: ☒ General ☒ Event ☒ Alarm

Disk Full: ☒ Overwrite ☐ Stop

Storage Method: Local Storage

Table 8-3 Description of storage parameters

Parameter	Description
Event Type	Select from General , Event and Alarm .
Disk Full	Recording strategy when the disk is full. • Overwrite: Cyclically overwrite the earliest video when the disk is full. • Stop: Stop recording when the disk is full.
Storage Method	Select from Local storage and Network storage • Local storage: Save the snapshots in the internal SD card.  Local storage is displayed only on models that support SD card. • Network storage: Save the snapshots in the FTP server or NAS.

Step 3 Click **Apply**.

8.5.1 Local Storage

Step 1 Select **Picture** > **Storage**.

Step 2 Select the snapshot strategy in **Disk Full**.

- **Overwrite:** Cyclically overwrite the earliest snapshot when the disk is full.
- **Stop:** Stop recording when the disk is full.

Step 3 Select **Local storage** in **Storage Method** to save the snapshots in the internal SD card.

Figure 8-11 Local storage

Step 4 Click **Apply**.

8.5.2 Network Storage

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

When the network does not work, you can save all the files to the internal SD card for emergency cases.

8.5.2.1 FTP

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

Step 1 Select **Picture** > **Storage**.

Step 2 Select the snapshot strategy in **Disk Full**.

- **Overwrite:** Cyclically overwrite the earliest snapshot when the disk is full.
- **Stop:** Stop snapshot when the disk is full.

Step 3 Select **Network storage** in **Storage Method**, and select **FTP** to save the snapshots in FTP server.

You select **FTP** or **SFPT** from the drop-down list. **SFPT** is recommended.

Step 4 Click ☐ next to **Enable** to enable the FTP function.

Figure 8-12 FTP

Event Type ☒ General ☒ Event ☒ Alarm

Disk Full ☒ Overwrite ☐ Stop

Storage Method Network Storage FTP

Mode SFTP(Recommended)

Enable ☐

Server IP 0.0.0.0

Port 22 (0~65535)

Username anonymity

Password

Storage Path share

Urgently store to local ☐

Test

Picture and Storage Path Naming 6.jpg Reset

1.jpg Help

Original Picture and Storage Path Naming 1.jpg Reset

1.jpg Help

Picture and Storage Path Naming(Imminent Illegal Parking) 5.jpg Reset

1.jpg Help

Apply Refresh Default

Step 5 Configure FTP parameters.

Table 8-4 Description of FTP parameters

Parameter	Description
Server IP	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 Path	The storage path in the FTP server.
Urgently store to local	Click ☐ , and when the FTP server does not work, all the files are saved to the internal SD card.
Picture and Storage Path Naming	Configure the storage path and naming format of the picture, original picture and imminent illegal parking picture. The default format is .jpg. - Click Reset to reset the name. - The naming is displayed as an escape character on the webpage. Click Help to get the meaning of the escape character.
Original Picture and Storage Path Naming	
Picture and Storage Path Naming(Imminent Illegal Parking)	

Step 6 Click **Apply**.

Step 7 Click **Test** to test whether FTP function works normally.

8.5.2.2 NAS

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

Step 1 Select **Picture** > **Storage**.

Step 2 Select the snapshot strategy in **Disk Full**.

- **Overwrite**: Cyclically overwrite the earliest snapshot when the disk is full.
- **Stop**: Stop snapshot when the disk is full.

Step 3 Select **Network storage** in **Storage Method**, and select **NAS** to save the snapshots in NAS server.

Step 4 Select NAS protocol type.

- **NFS** (Network File System): A file system which enables computers in the same network share files through TCP/IP.
- **SMB** (Server Message Block): Provides shared access for clients and servers.

Figure 8-13 NAS

The screenshot shows a configuration window for NAS. It includes the following elements:

- Event Type**: Three checkboxes labeled 'General', 'Event', and 'Alarm', all of which are checked.
- Disk Full**: Two radio buttons labeled 'Overwrite' (selected) and 'Stop'.
- Storage Method**: A dropdown menu with 'Network Storage' selected.
- NAS**: A sub-dropdown menu with 'NAS' selected.
- Enable**: A toggle switch that is currently turned off.
- Server IP**: A text input field containing '0.0.0.0'.
- Storage Path**: An empty text input field.
- Buttons**: Three buttons at the bottom: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Step 5 Select ☐ to enable NAS function, and then configure NAS parameters.

Table 8-5 Description of NAS parameters

Parameter	Description
Server IP	The IP address of the NAS server.
Storage Path	The destination path in the NAS server.
Username	Username for logging in to the NAS server.  This is required when the protocol type is SMB.
Password	Password for logging in to the NAS server.  This is required when the protocol type is SMB.

Step 6 Click **Apply**.

9 Smart Traffic Management

9.1 Configuring Smart Plan

The AI functions include E-Police, illegal parking snapshot, road events, ANPR and littering. After configuring the smart plan, the corresponding AI function of the device enables.



The smart plans might vary depending on different devices.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Enable the smart functions of the global and preset plan based on actual needs and then click **Next**.



Before configuring the preset plan, please add the appropriate presets in advance. For details, see "4.5.1 Configuring Presets".

Step 3 Enable the intelligent functions of the **Global** and **Preset** as required, and then click **Next**.

Figure 9-1 Enable smart function

1 Smart Plan — Rule Config

No appropriate preset? [Please add a preset first.](#)

+ Preset

Global

Illegal Parking Manual Capture ☒

1:Preset1

E Police ☒ Road Event ☐ ANPR ☐ Illegal Parking Snapshot ☐ Littering ☐

2:Preset2

E Police ☒ Road Event ☐ ANPR ☐ Illegal Parking Snapshot ☐ Littering ☐

Next Refresh Default

Step 4 Configure smart function rule as required. For details, see "9.2 Configuring Smart Function Rule".

9.2 Configuring Smart Function Rule

9.2.1 Configuring Illegal Parking Snapshot

9.2.1.1 Area Configuration (Illegal Parking Snapshot)

Draw the area of illegal parking snapshot and set the horizontal proportion after positioning.

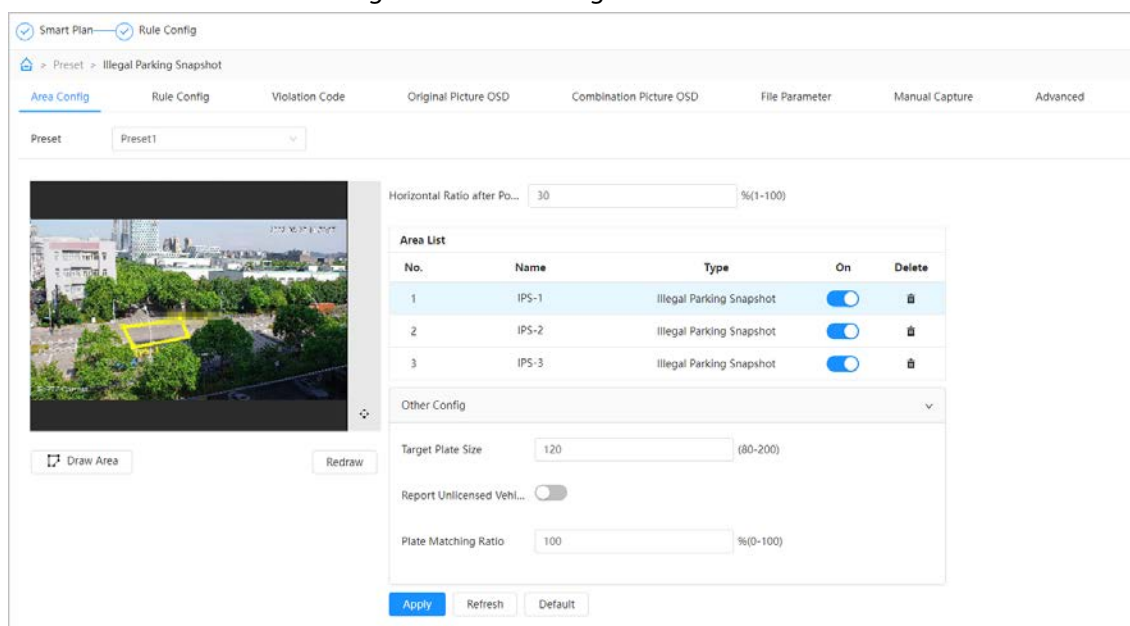
Prerequisites

Smart plans for illegal parking snapshot has been configured.

Procedure

- Step 1** On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Illegal Parking Snapshot**.
- Step 3** Click the **Preset** list to select the preset to be configured with illegal parking snapshot rule.
- Step 4** Configure **Horizontal Ratio after Positioning**.
This parameter means the horizontal ratio of the target vehicle to the monitoring screen after the first zoom in or out of the Camera. The default value is 30%.
- Step 5** Click **Draw Area** to draw an area where the rule take effect on the live view page, and then right-click to finish the drawing.
You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.
- Click  in the area list to delete the drawn detection area of the filtering rule.
 - Click  to adjust the monitoring screen through the PTZ control panel.
 - Click the name in the area list to modify the name of the rule.

Figure 9-2 Area configuration



The screenshot displays the 'Area Configuration' page for the 'Illegal Parking Snapshot' rule. The page includes a breadcrumb trail: 'Smart Plan > Rule Config > Illegal Parking Snapshot'. Below the breadcrumb, there are tabs for 'Area Config', 'Rule Config', 'Violation Code', 'Original Picture OSD', 'Combination Picture OSD', 'File Parameter', 'Manual Capture', and 'Advanced'. The 'Area Config' tab is active.

On the left, there is a 'Preset' dropdown menu set to 'Preset1'. Below it is a live video feed showing a street scene with a yellow rectangular detection area drawn on it. Below the video feed are 'Draw Area' and 'Redraw' buttons.

On the right, there is a 'Horizontal Ratio after Po...' input field set to '30' with a unit of '%(1-100)'. Below this is an 'Area List' table:

No.	Name	Type	On	Delete
1	IPS-1	Illegal Parking Snapshot	☒	
2	IPS-2	Illegal Parking Snapshot	☒	
3	IPS-3	Illegal Parking Snapshot	☒	

Below the table is an 'Other Config' section with a dropdown arrow. It contains the following parameters:

- 'Target Plate Size' input field set to '120' with a unit of '(80-200)'.
- 'Report Unlicensed Vehi...' toggle switch, currently turned off.
- 'Plate Matching Ratio' input field set to '100' with a unit of '%(0-100)'.

At the bottom of the 'Other Config' section are 'Apply', 'Refresh', and 'Default' buttons.

- Step 6** Configure the parameters in **Other Config** area.

Table 9-1 Description of area configuration parameters

Parameter	Description
Target Plate Size	Set the pixel size of the target license plate in the close shot. The value ranges from 80 pixels to 200 pixels.
Report Unlicensed Vehicle	Click  to report unlicensed vehicles.
Plate Matching Ratio	Set the accuracy for matching two license plate tight shots. It is 100 by default, which means there will only be a match when two license plates are identical.

Step 7 Click **Apply**.

9.2.1.2 Rule Configuration (Illegal Parking Snapshot)

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Illegal Parking Snapshot**.

Step 3 Click **Rule Config** tab, and then select the preset and configured area from the drop-down list.

Only one rule can be added to different areas of a single preset point.

Step 4 Click **Add Rule**, and then set the rule type as **Illegal Parking**. One area only supports adding one rule type.

The added rules are displayed in the drop-down list. The rule is enabled by default.

Figure 9-3 Illegal parking



Step 5 Configure parameters for illegal parking snapshot.



The parameters might vary depending on different rules.

Figure 9-4 Configure illegal parking snapshot

Zoom Snapshot
☒

Sensitivity

Min Duration
sec(5-300)

Alarm Filter Duration
min(0-1440)

Recording Parameters (SD Card is Re...
☒ Save locally
☒ FTP Upload

Time Plan
Full Time
Add Schedule

+Event Linkage

Snapshot Enabled

☐ Snapshot
☐ Reset after 24:00

Snapshot Quantity
Snapshot Setting

Violation Time OSD

☐ Replace Private Picture

Please configure the private pictures in 'File Parameter'.

Single picture uploaded in advance
☐ Picture 1
☒ Picture 2
☐ Picture 3
☒ Picture 4

Alarm-out Port Enabled

Alarm Channel

Post-alarm
sec (10-300)

Audio Linkage Enabled

Play Count
(1-3)

File

Apply
Refresh

Table 9-2 Description of illegal parking snapshot parameters

Parameter	Description
Zoom Snapshot	This function is enabled by default. If the picture type of the snapshot is a close shot or license plate close-up shot, the Camera performs zoom snapshot.
Sensitivity	Set the sensitivity of zoom snapshot.
Min Duration	The minimum time between the detection of triggering the rule and the first evidence chain.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.
Save locally	Select the storage location of the videos. You can select Local Save or FTP Upload .
FTP Upload	 Only when an SD card has been formatted and installed on the device can the video be saved locally.

Parameter	Description
Snapshot	Select the checkbox, and then a second change will not be made when capturing close shots or license plate close-up shots.
Reset after 24:00	Select the checkbox, and then the uploading interval of the combination picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots. Click Snapshot Setting to set the Camera capture distant view, medium view, close view or plate future, and the snapshot interval between two pictures.  Non-motor vehicle violations only support capture 1 picture.
Snapshot Setting	
Violation Time OSD	Set the time of one snapshot as the illegal time according to the number of snapshots. The value ranges from 1 to 4.
Replace Private Picture	Select the checkbox, select the picture number in the list, and then the picture with the number will be replaced by the picture uploaded by the user.
Single picture uploaded in advance	Select the picture number, and then the picture can be uploaded to the platform in advance.  - The image must be a close shot or a license plate close-up shot. - After capturing, the system will report the event as an imminent illegal parking event to the platform, triggering early warning actions such as sending SMS.

Step 6 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

- If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
- Click Event Linkage, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe relevant alarm event. For details, see "4.6.1.3 Subscribing to Alarm".

9.2.1.3 Violation Code (Illegal Parking Snapshot)

You can set the violation name and violation code of illegal parking snapshot, and you can overlay the violation information on the combination picture.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Illegal Parking Snapshot**.

Step 3 Click **Violation Code** tab.

Step 4 Click **Violation Name** and **Violation Code** to modify the name and code.



An impending parking violation event is called imminent illegal parking.

Figure 9-5 Violation code (illegal parking snapshot)

No.	Rule Type	Violation Name	Violation Code
1	Illegal Parking	Illegal Parking	1039
2	Imminent Illegal Parking	Imminent Illegal Parking	1041

Step 5 Click **Apply**.

9.2.1.4 Original Picture OSD (Illegal Parking Snapshot)

You can set the content and style of the OSD information of the original snapshot.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Illegal Parking Snapshot**.

Step 3 Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.

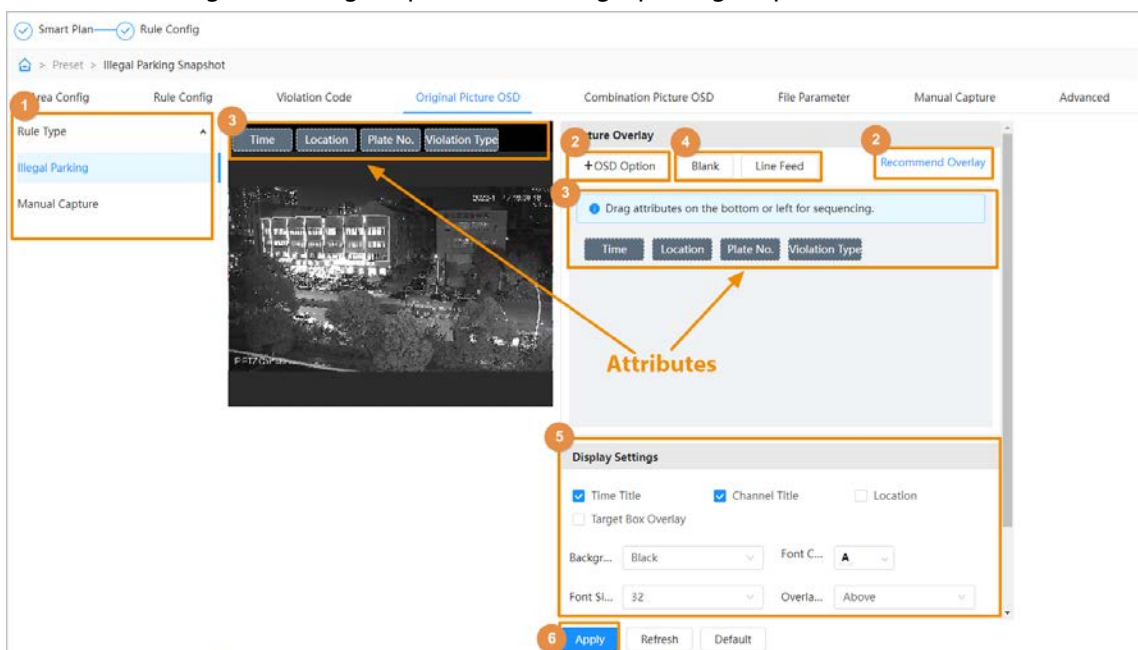
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

- Point to the attribute, and then a red x appears in the upper-right corner of the attribute, for example **Time**. Click x to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-6 Original picture OSD (illegal parking snapshot)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate

OSD information.

Step 7 Configure parameter in **Display Settings**.



The parameters might vary depending on different rule types.

Table 9-3 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Location	Select to display the location on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	
Report Picture	Select to save the pictures to local computer or upload to the platform. Only when an SD card has been formatted and installed on the device can the picture be saved locally.
Save locally	
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

9.2.1.5 Combination Picture OSD (Illegal Parking Snapshot)

You can set the content and style of the OSD information of combination pictures.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Illegal Parking Snapshot**.

Step 3 Click **Combination Picture OSD** tab, and then select the rule type from the left side of the page.

Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

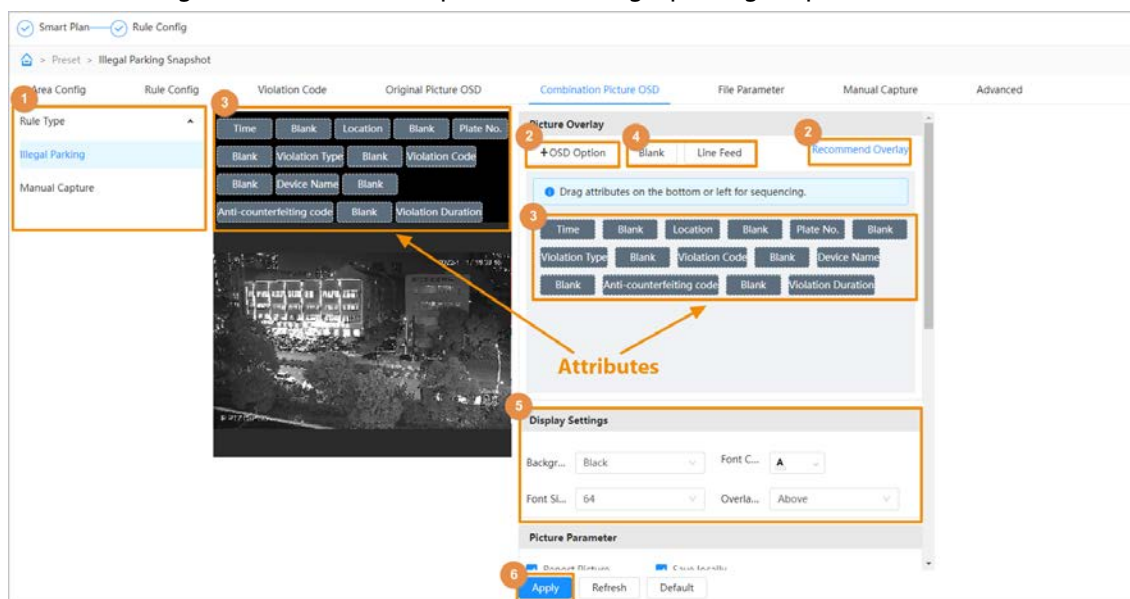
Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.

- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-7 Combination picture OSD (illegal parking snapshot)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameter in **Display Settings**.

The parameters might vary depending on different rule types.

Table 9-4 Description of combination picture OSD parameters

Parameter	Description
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position from Above and Below .
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the picture be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.
Composite Picture Order	Set the order of the composite pictures.

Step 8 Click **Apply**.

9.2.1.6 File Parameter (Illegal Parking Snapshot)

You can add local pictures to replace pictures of the illegal events, and set the picture used to replace a picture of a composite image of one scene.

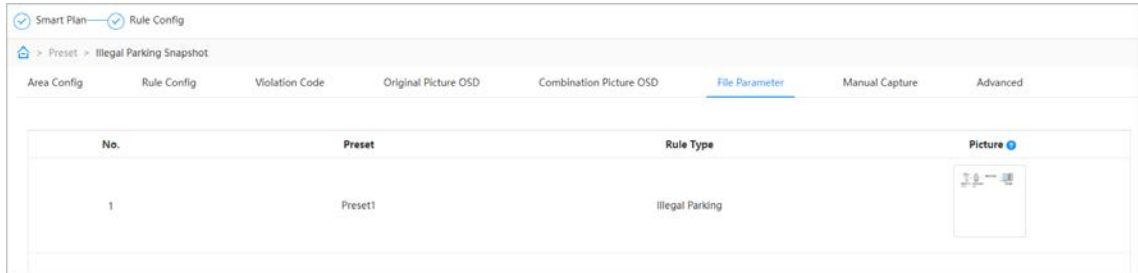
Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

- Step 2** Click **Rule Config**, and then select **Illegal Parking Snapshot**.
- Step 3** Click **File Parameter** tab, and then click **Upload Picture**. Select a picture from local computer, and then click **Open**.



- The size of the image cannot exceed 4 M, the format is .jpg, and the color is 256 colors.
- Point to the image, click  to enlarge the picture or click  to delete the picture.

Figure 9-8 File parameter



- Step 4** Click **Rule Type** column, and then set the rule type.

9.2.1.7 Manual Capture (Illegal Parking Snapshot)

Set the rule parameters of manual capture, including vehicle body proportion after zoom, zoom snapshot, and sensitivity.

- Step 1** On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Illegal Parking Snapshot**.
- Step 3** Click **Manual Capture** tab, and then configure manual capture parameters.

Figure 9-9 Manual capture

Vehicle Body Proportion after Zoo...
25
%(1-100)

Zoom Snapshot
☒

Sensitivity
0 1 2 3 4 5 6 7 8 9 10

Alarm Filter Duration
0
min(0-1440)

Recording Parameters (SD Card is R...
☐ Save locally
☐ FTP Upload

+Event Linkage

Snapshot | Enabled

☐ Snapshot

☐ Reset after 24:00

Snapshot Quantity
4
Snapshot Setting

Alarm-out Port | Enabled

Alarm Channel
1 2

Post-alarm
10
sec (10-300)

Audio Linkage | Enabled

Play Count
1
(1-3)

File
alarm.wav

Apply Refresh

Table 9-5 Description of manual capture parameter

Parameter	Description
Vehicle Body Proportion after Zoom	Set the proportion of the vehicle body in the live view after zooming and taking snapshots.
Zoom Snapshot	This function is enabled by default. If the picture type of the snapshot is a close shot, license plate features or others, the Camera performs zoom snapshot.
Sensitivity	Set the sensitivity of zoom snapshot.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.
Save locally	Select the storage location of the videos. You can select Local Save or FTP Upload .  Only when an SD card has been formatted and installed on the device can the video be saved locally.
FTP Upload	
Snapshot	Select the checkbox, and then a second change will not be made when capturing close shots or license plate close-up shots.
Reset after 24:00	Select the checkbox, and then the uploading interval of the combination picture will be cleared at 0 o'clock every day.

Parameter	Description
Snapshot Quantity	Set the number of snapshots. Click Snapshot Setting to set the Camera capture distant view, medium view, close view or plate future, and the snapshot interval between two pictures.  Non-motor vehicle violations only support capture 1 picture.
Snapshot Setting	

Step 4 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

- If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
- Click Event Linkage, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 5 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe relevant alarm event. For details, see "4.6.1.3 Subscribing to Alarm".

9.2.1.8 Advanced Parameters (Illegal Parking Snapshot)

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Illegal Parking Snapshot**.

Step 3 Click **Advanced** tab, and then select the mode from the drop-down list.

- **None**: You do not need to configure advanced parameters.
- **Capture by Group**: The Camera first captures a set of illegal pictures with close shots or license plate close-up shots, and when the set illegal parking time is exceeded, the Camera continues to capture the next set of pictures.



You need to configure multi-scene tour before capturing by group, and this function only takes effect when the quantity of the snapshots is 4 to 6.

- **Capture by Interval**: The Camera captures the distant view and the close view at the beginning and the end respectively, and records the license plate and location. If it is a distant view, the Camera rotates to detect the vehicle and capture the snapshot at a fixed time and fixed point in the process; if it is a close view, the Camera rotates to the last close-up position to identify the license plate and capture the snapshot at a fixed time and fixed point in the process.



Setting the mode as **Capture by Interval** can improve the accuracy rate of the imminent illegal parking and the capture rate of long-time illegal parking.

Figure 9-10 Advanced parameters

The screenshot shows a web interface for configuring 'Illegal Parking Snapshot'. At the top, there are tabs for 'Smart Plan' and 'Rule Config', with 'Rule Config' being the active tab. Below this, there's a breadcrumb trail: 'Preset > Illegal Parking Snapshot'. A horizontal menu contains several tabs: 'Area Config', 'Rule Config', 'Violation Code', 'Original Picture OSD', 'Combination Picture OSD', 'File Parameter', 'Manual Capture', and 'Advanced'. The 'Advanced' tab is selected. In the 'Advanced' section, there are two main settings: 'Mode' is set to 'Capture by Group' (indicated by a dropdown arrow), and 'Longest Snapshot L...' is set to '3600' with a unit of 'sec (600-3600)'. At the bottom of the configuration area, there are three buttons: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Step 4 Set the longest snapshot interval.

This function is enabled when you select **Capture by Group** as the mode. You can set the longest time of the image cache. Images that exceed this time can be deleted from the cache and the snapshot will be abandoned.

Step 5 Click **Apply**.

9.2.2 Configuring E-Police

9.2.2.1 Lane Configuration (E-Police)

Prerequisites

The smart plan of the E-Police has been configured.

Procedure

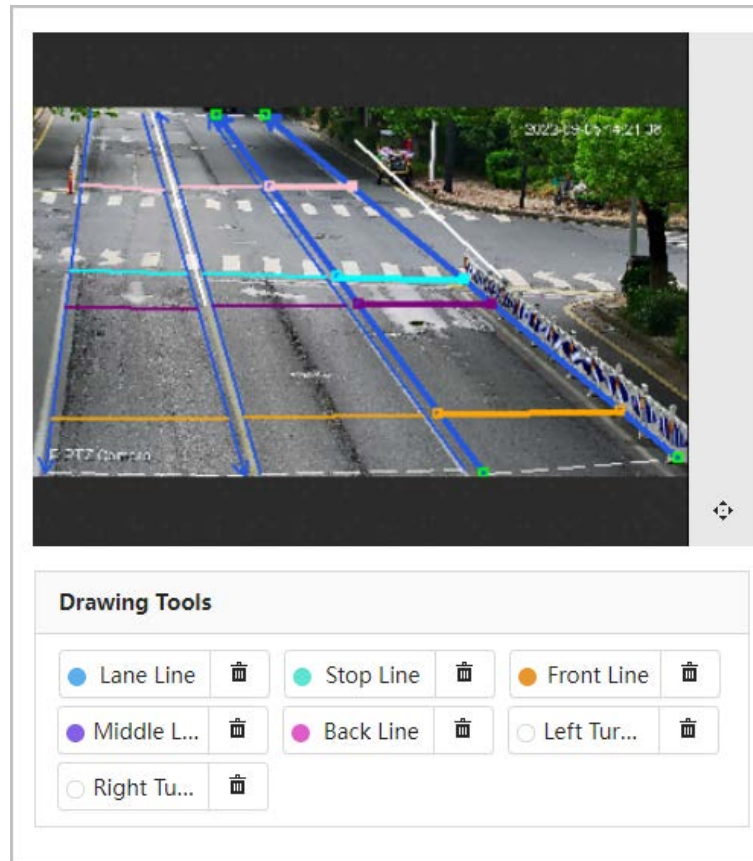
Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **E Police**.

Step 3 Click **Lane Config** tab, and then select the preset from the drop-down list.

Step 4 Click **Lane Line** in the **Drawing Tool**, and then draw the lane line on monitoring screen. After finishing drawing the lane line, select other line types, and then draw them in turn.

Figure 9-11 Lane configuration



This section introduces lane parameters using driving without following the guiding arrow as an example.

Table 9-6 Description of line types

Parameter	Description
Lane Line	The drawn lane line should be consistent with the actual length and tilt angle of the lane line in the picture. Each lane is composed of two lane lines, which are shown as blue lines with arrows. The arrows of lane lines indicate the direction of vehicles.
Stop Line	The stop line of the vehicle in the actual road.
Front Line	Front line is recommended to be drawn at one-vehicle-position away from the stop line at the bottom.
Middle Line	The middle line is recommended to be drawn below the stop line to ensure that when the vehicle crosses the middle line, the vehicle front wheel has crossed the stop line.
Back Line	The back line is recommended to be drawn above the area. If there is no waiting area, draw it near the top 1/3 of screen. It is the judgment line of whether the motor vehicle is going straight or not, and the third snapshot position of going straight without following the guiding arrow.
Left Turn Division Line	The left turn division line is the judgment line of whether the motor vehicle is turning left or not, and the third snapshot position of turning left without following the guiding arrow.

Parameter	Description
Right Turn Division Line	The right turn division line is the judgment line of whether the motor vehicle is turning right or not, and the third snapshot position of turning right without following the guiding arrow.

Step 5 Configure lane parameters.

Figure 9-12 Configuring lane parameters

Lane List

Lane1

Enable

☒

Name

Lane Line1

Lane Direction

☒ Vehicle Head
☐ Vehicle Tail

Lane No.

1

Left Lane Line

Solid White Line

Right Lane Line

Solid White Line

Lane Type

Lanes for Small-sized Vehicle

Road Direction

Straight ×

Passing Direction

South to North

Statistical Cycle

1

min (1-10080)

1

ms (1-59999)

Other Config

☒ Unlicensed Vehicle Snapshot

☐ Non-motor Vehicle Snapshot

Apply

Refresh

Table 9-7 Description of lane parameters

Parameter	Description
Enable	Enabled by default.
Lane Direction	You can select Vehicle Head or Vehicle Tail . The direction of the lane arrow is changed simultaneously when you select the lane direction. The default selection is Vehicle Head .
Lane No.	You can configure from 1-16. The default number starts with 1.
Left Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Right Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .

Parameter	Description
Lane Type	You can select from Lanes for Small-sized Vehicle , Bus Lane and Non-motor Vehicle Lane . The default is Lanes for Small-sized Vehicle .
Road Direction	You can select from Left Rotation , Straight , Right Turn and U Turn . You can select multiple road directions at a time.
Passing direction	You can select from South to North , West to East , North to South and East to West . The default is South to North .
Statistical Cycle	Set the statistical cycle for collecting traffic data.

Step 6 Configure parameters in **Other Config** area.

Table 9-8 Description of other configuration parameters

Parameter	Description
Unlicensed Vehicle Snapshot	When the license plate is not recognized or the vehicle has no license plate, it will be captured and reported as an unlicensed vehicle.
Non-motor Vehicle Snapshot	When the non-motor vehicles have ANPR, wrong-way driving and other violations will be captured and reported.

Step 7 Click **Apply**.

9.2.2.2 Rule Configuration (E-Police)

The lane line is drawn in the **Lane Config**.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **E Police**.

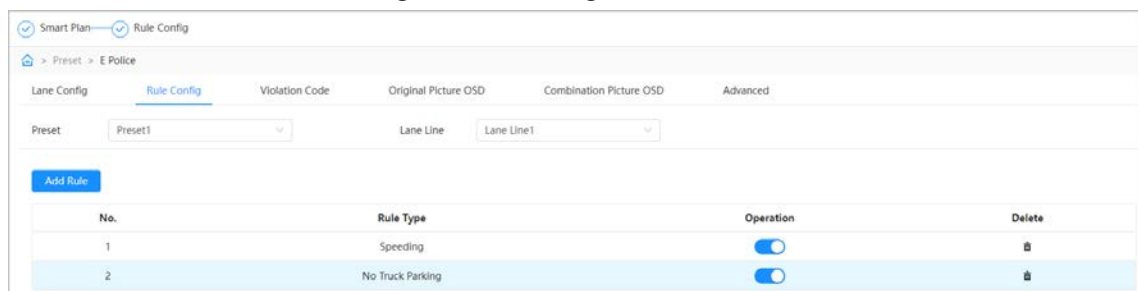
Step 3 Click **Rule Config** tab, and then select the preset and lane line from the drop-down list.

Step 4 Add rules, and then configure the corresponding rule parameters.

- 1) Click **Add Rule**, and then select the rule type. It supports adding illegal reversal, illegal lane change and other 13 rules.

The added rules are displayed in the following list, and they are enabled by default.

Figure 9-13 Adding rules



- 2) Configure rule parameters for lane events.

The parameters might vary depending on different rule types.

- Sensitivity: Set the sensitivity of lane event snapshot.
- Record: Enable the local recording function.

Figure 9-14 Rule configuration (speeding)

Distinguish Speed Limit ... ☐

Vehicle Max Spe... km/h(0-255) + km/h(0-255)

Record ☐

Time Plan

Snapshot | Enabled

Snapshot Quantity

Alarm-out Port | Enabled

Alarm Channel

Post-alarm sec (10-300)

Figure 9-15 Rule configuration (no truck parking)

Capture Blue Plate Trucks ☐

Vehicle Type ☒ General Vehicle ☐ Special Vehicle

Truck Type

Record ☐

Time Plan

Snapshot | Enabled

Snapshot Quantity

Alarm-out Port | Enabled

Alarm Channel

Post-alarm sec (10-300)

Table 9-9 Description of rule configuration parameters

Rule Type	Parameter	Description
Speeding	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the highest speed limit of small-sized vehicle and large-sized vehicle. - Small-sized Vehicle Highest Speed Limit: Set the maximum speed limit for small-sized vehicle. - Large-sized Vehicle Highest Speed Limit: Set the maximum speed limit for large-sized vehicle.
	Vehicle Max Speed Limit	Set the maximum speed limit for the vehicle.
No Truck Parking	Capture Blue Plate Trucks	Enable capturing blue plate trucks function.
	Vehicle type	You can select from General Vehicle and Special Vehicle .
	Truck Type	Select one or more truck types to be queried. - When you select General Vehicle as Vehicle Type, you can select Heavy Truck, Medium Truck, Light Truck and Pickup as the Truck Type. - When you select Special Vehicle as Vehicle Type, you can select Dangerous Goods Vehicle, Tank Truck, Construction Truck, Mixer Truck, Engineering Truck, Powder Material Truck and Sewage Suction Truck as the Truck Type.

Step 5 Configure snapshot parameters.

- **Snapshot Quantity:** Set the number of snapshots.
- Click **Snapshot Setting**, and then set the **Cutout Proportion**. This function is only supported on select rules.

Step 6 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

- If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
- Click Event Linkage, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe relevant alarm event. For details, see "4.6.1.3 Subscribing to Alarm".

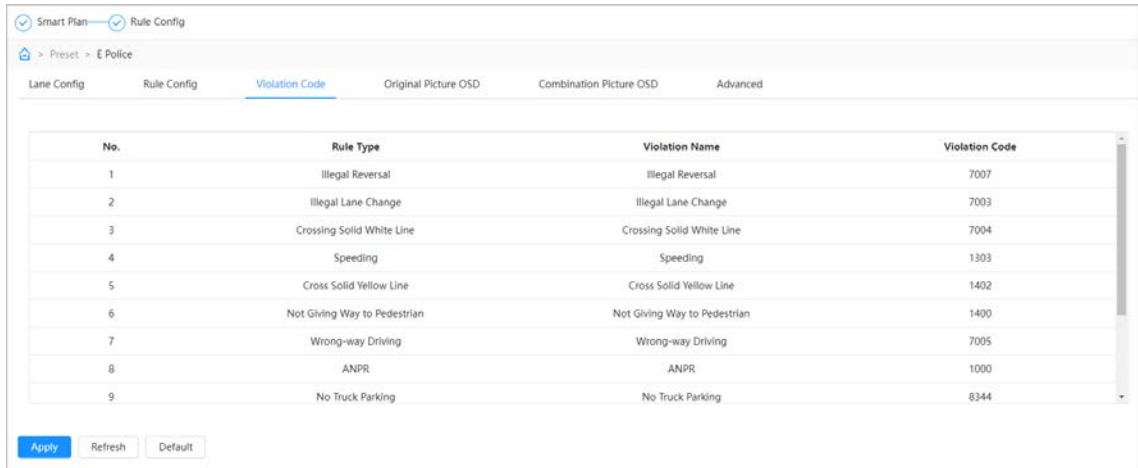
9.2.2.3 Violation Code (E-Police)

You can set the violation name and violation code of E-Police, and you can overlay the violation

information on the combination picture.

- Step 1** On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **E Police**.
- Step 3** Click **Violation Code** tab.
- Step 4** Click **Violation Name** and **Violation Code** to modify the name and code.

Figure 9-16 Violation code (E-Police)



No.	Rule Type	Violation Name	Violation Code
1	Illegal Reversal	Illegal Reversal	7007
2	Illegal Lane Change	Illegal Lane Change	7003
3	Crossing Solid White Line	Crossing Solid White Line	7004
4	Speeding	Speeding	1303
5	Cross Solid Yellow Line	Cross Solid Yellow Line	1402
6	Not Giving Way to Pedestrian	Not Giving Way to Pedestrian	1400
7	Wrong-way Driving	Wrong-way Driving	7005
8	ANPR	ANPR	1000
9	No Truck Parking	No Truck Parking	8344

- Step 5** Click **Apply**.

9.2.2.4 Original picture OSD (E-Police)

You can set the content and style of the OSD information of the original snapshot.

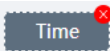
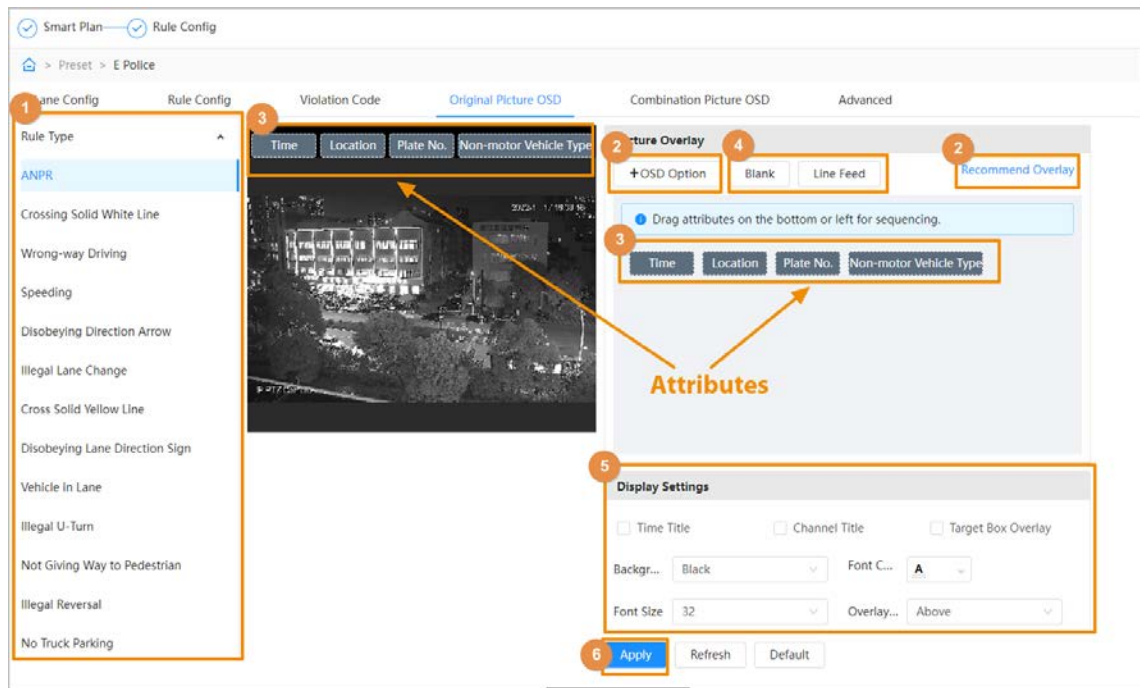
- Step 1** On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **E Police**.
- Step 3** Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.
- Step 4** Click **Recommend Overlay** or click **OSD Option** to select overlay information.
Recommended Overlay indicates a combination of common OSD options is generated automatically.
- Step 5** Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.
- Point to the attribute, and then a red x appears in the upper-right corner of the attribute, for example . Click x to delete the attribute.
 - Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-17 Original picture OSD (E-Police)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameter in **Display Settings**.



The parameters might vary depending on different rule types.

Table 9-10 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .

Parameter	Description
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

9.2.2.5 Combination Picture OSD (E-Police)

You can set the content and style of the OSD information of combination pictures.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **E Police**.

Step 3 Click **Combination OSD** tab, and then select the rule type from the left side of the page.

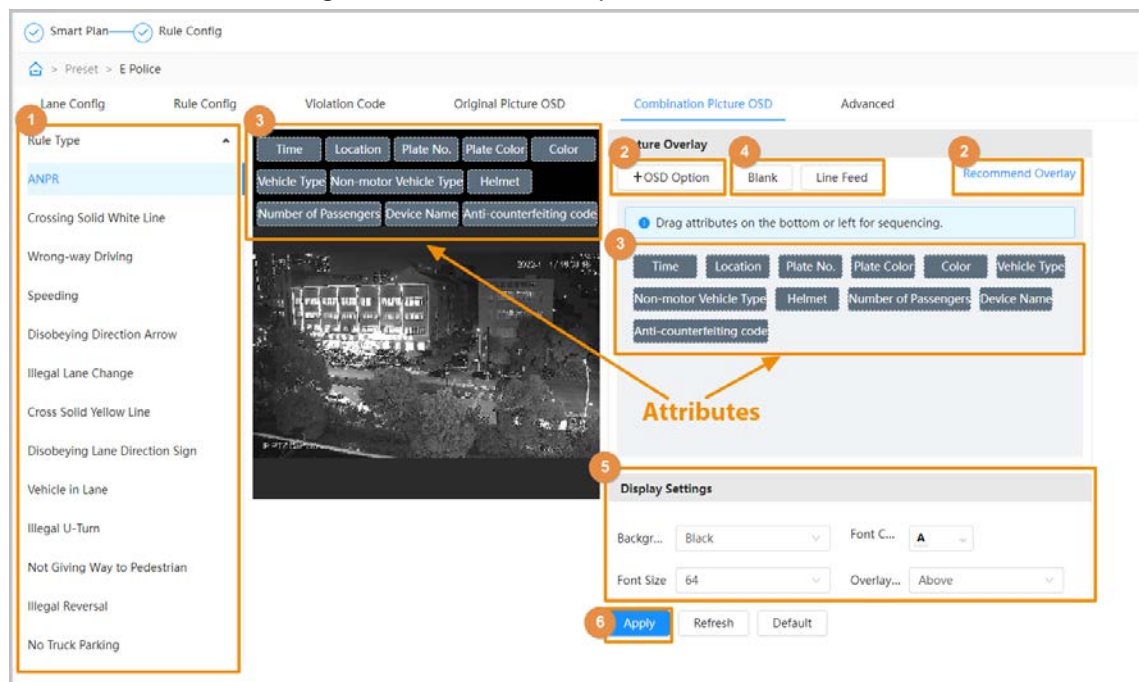
Step 4 Click **Recommended Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-18 Combination picture OSD



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameter in **Display Settings**.

The parameters might vary depending on different rule types.

Table 9-11 Description of combination picture OSD parameters

Parameter	Description
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position from Above and Below .
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion, 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.
Composite Picture Order	Set the order of the composite pictures.

Step 8 Click **Apply**.

9.2.2.6 Advanced Configuration (E-Police)

You can draw special areas and configure calibration parameters for speed measurement on this page.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **E Police**.

Step 3 Click **Advanced** tab, and then select the preset from the drop-down list.

Figure 9-19 Advanced configuration

The screenshot shows a web-based configuration interface. At the top, there is a section titled 'Vehicle Detection Area' with a dropdown arrow. Below this, there are three buttons: 'Draw Area' with a trash icon, 'Vehicle ...' with a trash icon, and 'Not Givi...' with a trash icon. Below these buttons is another section titled 'Calibration Verification' with a dropdown arrow. This section contains three steps: 'Step1: Please draw Calibration Area' with a 'Calibrati...' button and a trash icon; 'Step2: Please draw Line Segment Calibration' with a 'Line Seg...' button and a trash icon; and 'Step3: Please set Length field and click Calibration Verification.' which includes a 'Length' input field with the value '0' and a unit 'm'. At the bottom of the 'Calibration Verification' section is a 'Calibrati...' button with a trash icon. At the very bottom of the interface are two buttons: 'Apply' (highlighted in blue) and 'Refresh'.

Step 4 Draw the vehicle detection area.

Click  to delete the drawn area.

- **Draw Area:** It is used for the detection area of all rules. Only targets in the detection area will be detected.
- **Vehicle Area:** It is used for the collection and statistics of traffic data, such as traffic flow and occupancy rate.
- **Not Given Way to Pedestrian:** It is generally drawn on the sidewalk as a pedestrian detection area.

Step 5 Configure calibration verification.

- 1) Click **Calibration Area** to draw the calibration area.
- 2) Click **Line Segment Calibration** to draw the line segment calibration.
- 3) Set the **Length** according to the actual length of the calibrated line segment.
- 4) Click **Calibration Verification**, and then draw a verification line on the monitoring screen. The length calculated by the verification line will automatically display on the page. If the verification length is close to the actual value, the calibration verification is successful; otherwise, reset the length to verification again.
- 5) Configure calibration verification.

Step 6 Click **Apply**.

9.2.3 Configuring Road Events

9.2.3.1 Area Configuration (Road Event)

Prerequisites

The smart plan of the road event has been configured.

Procedure

- Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2 Click **Rule Config**, and then select **Road Event**.
- Step 3 Click **Area Config** tab, and then select the preset from the drop-down list.

Figure 9-20 Area Configuration (Road Event)

No.	Name	Type	On	Delete
1	RE-1	Road Event	☒	
2	RE-2	Road Event	☒	

- Step 4 Set the horizontal ratio after positioning.
Set the proportion of the target object in the horizontal direction of the picture after positioning.
- Step 5 Click **Draw Area** to draw an area where the rule take effect on the live view page, and then right-click to finish the drawing.
You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.
- Step 6 Click **Apply**.

9.2.3.2 Rule Configuration (Road Event)

Prerequisites

The detection area is drawn in **Area Config**.

Procedure

- Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2 Click **Rule Config**, and then select **Road Event**.
- Step 3 Click **Rule Config** tab, and then select the preset and area from the drop-down list.
You can add one or multiple road event rules for different areas of a single preset point.
 - 1) Click **Add Rule**, and then select the rule type. It supports adding illegal reversal, illegal lane change and other 13 rules.

The added rules are displayed in the following list, and they are enabled by default.

Figure 9-21 Adding rules (road event)

The screenshot shows the 'Rule Config' tab in a software interface. At the top, there are tabs for 'Area Config', 'Rule Config' (selected), 'Violation Code', 'Original Picture OSD', and 'Combination Picture OSD'. Below these, there are dropdown menus for 'Preset' (set to 'Preset1') and 'Area' (set to 'RE-4'). An 'Add Rule' button is visible. Below the button is a table with the following data:

No.	Rule Type	Operation	Delete
1	Fog Detection	☒	
2	Accident	☒	
3	Pedestrian	☒	

Table 9-12 Rule type description

Rule Type	Description
Fog Detection	When the fog is detected in the monitoring screen and reaches the set duration, the fog event is triggered.
Accident	When the parking event is detected within the rule area and there are pedestrians around, and reaches the set duration, the accident event will be triggered.
Pedestrian	When the pedestrian is detected within the rule area and reaches the set duration, the pedestrian event is triggered.

2) Configure rule parameters.

The parameters might vary depending on different rule types.

Figure 9-22 Fog detection

Min Duration: 5 sec(5-300)

Alarm Filter Duration: 1440 min(0-1440)

Alarm Threshold: Fog Blue Alert

Recording Parameters (SD Card is ...): ☐ Save locally ☐ FTP Upload

Time Plan: Full Time Add Schedule

+Event Linkage

Snapshot | Enabled

☐ Reset after 24:00

Snapshot Quantity: 1

Alarm-out Port | Enabled

Alarm Channel: 1 2

Post-alarm: 10 sec (10-300)

Audio Linkage | Enabled

Play Count: 1 (1-3)

File: alarm.wav

Apply Refresh

Table 9-13 Description of rule configuration parameters (fog detection)

Parameter	Description
Min Duration	When the fog is detected to exceed the minimum duration, the fogging event is judged to have triggered.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.
Alarm threshold	Set the alarm threshold type, which is used to distinguish the meteorological level of fog in different weather. The corresponding level of fog gradually increases: Fog Blue Alert < Fog Yellow Alert < Fog Orange Alert < Fog Red Alert.
Save locally	Select the storage location of the videos. You can select Local Save or FTP Upload .  Only when an SD card has been formatted and installed on the device can the video be saved locally.
FTP Upload	
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots.

Figure 9-23 Accident

Table 9-14 Description of rule configuration parameters (Accident)

Parameter	Description
Sensitivity	Set the sensitivity of area event snapshot.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.
Vehicle Stay Time	Set the stay time when vehicles and pedestrians trigger snapshot. The capture is triggered when the stay time of pedestrians and vehicles in the area is detected to reach the set threshold. For example, on the expressway, neither vehicles nor personnel are allowed to stay. When the vehicles stay for more than the set time, and pedestrian are detected, and the pedestrians stay for more than the set time, it is recognized as a traffic accident, and the snapshot is taken.
Pedestrian Stay Time	
Zoom Stay Time	Sets stay time in the scene after zooming.
FTP Upload	Select the storage location of the videos. You can select Local Save or FTP Upload .  Only when an SD card has been formatted and installed on the device can the video be saved locally.
Save locally	
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.

Parameter	Description
Snapshot Quantity	Set the number of snapshots. Click Snapshot Setting , and then set the distant view or close view of the picture, and the snapshot interval.

Figure 9-24 Description of rule configuration parameters (Pedestrian)

Min Duration: 5 sec(5-300)

Alarm Filter Duration: 1440 min(0-1440)

Recording Parameters (SD Card is Re... ☐ Save locally ☐ FTP Upload

Time Plan: Full Time Add Schedule

+Event Linkage

Snapshot: Enabled

☐ Reset after 24:00

Snapshot Quantity: 2 Snapshot Setting

Alarm-out Port: Enabled

Alarm Channel: 1 2

Post-alarm: 10 sec (10-300)

Audio Linkage: Enabled

Play Count: 1 (1-3)

File: alarm.wav

Apply Refresh

Table 9-15 Description of rule configuration parameters (Pedestrian)

Parameter	Description
Min Duration	When the area event is detected to exceed the minimum duration, the area event is judged to have triggered.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.
FTP Upload	Select the storage location of the videos. You can select Local Save or FTP Upload .
Save locally	Only when an SD card has been formatted and installed on the device can the video be saved locally.
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots. Click Snapshot Setting , and then set the distant view or close view of the picture, and the snapshot interval.

Step 4 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

- If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
- Click Event Linkage, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 5 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe relevant alarm event. For details, see "4.6.1.3 Subscribing to Alarm".

9.2.3.3 Violation Code (Road Event)

You can set the violation name and violation code of road event, and you can overlay the violation information on the combination picture.

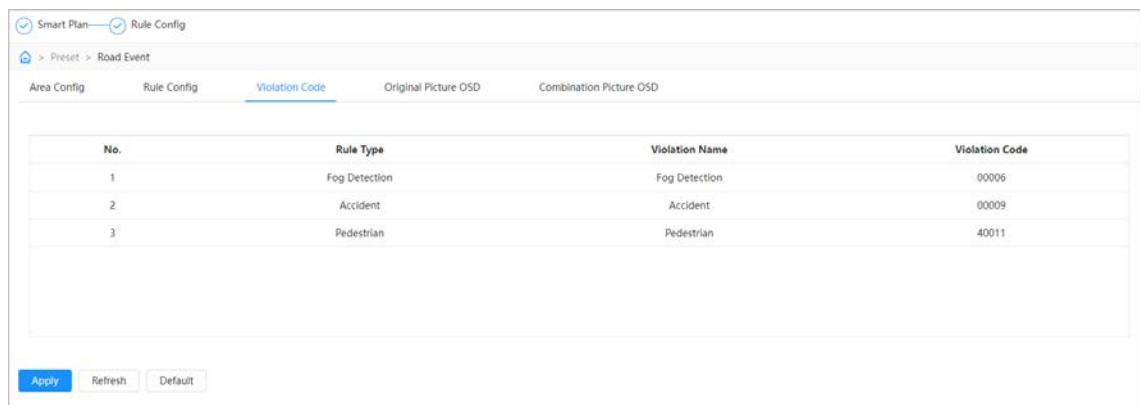
Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Road Event**.

Step 3 Click **Violation Code** tab.

Step 4 Click **Violation Name** and **Violation Code** to modify the name and code.

Figure 9-25 Violation code (road event)



No.	Rule Type	Violation Name	Violation Code
1	Fog Detection	Fog Detection	00006
2	Accident	Accident	00009
3	Pedestrian	Pedestrian	40011

Step 5 Click **Apply**.

9.2.3.4 Original picture OSD (Road Event)

You can set the content and style of the OSD information of the original snapshot.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Road Event**.

Step 3 Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.

Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

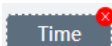
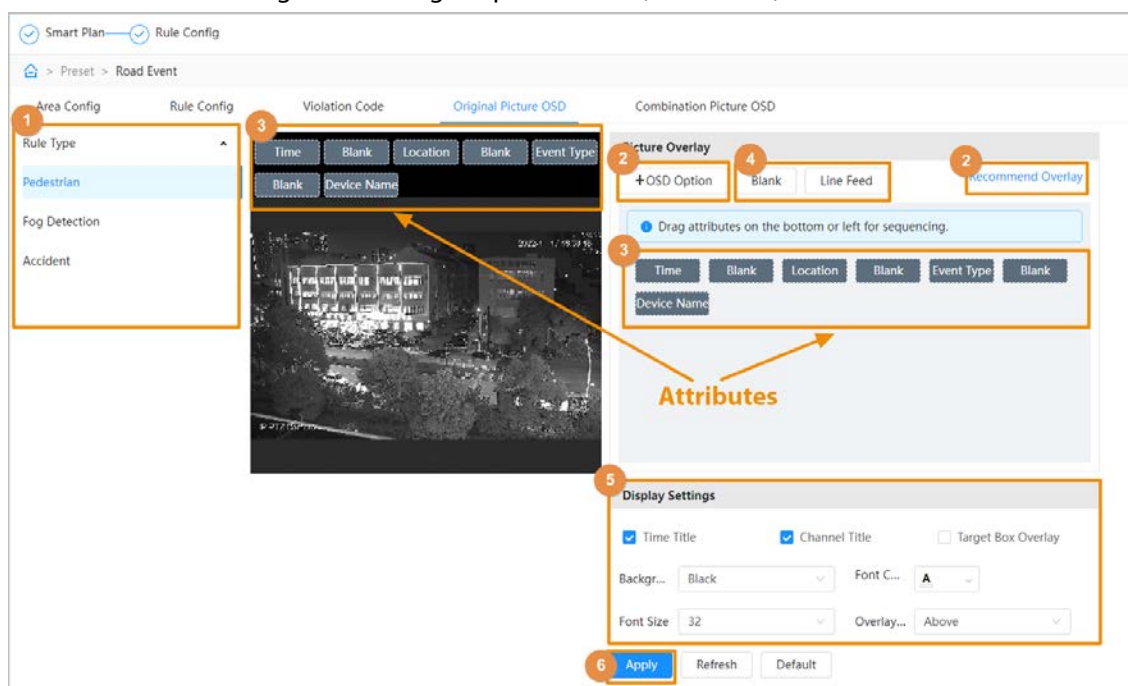
- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-26 Original picture OSD (road event)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 9-16 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

9.2.3.5 Combination picture OSD (Road Event)

You can set the content and style of the OSD information of combination pictures.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Road Event**.

Step 3 Click **Combination OSD** tab, and then select the rule type from the left side of the page.

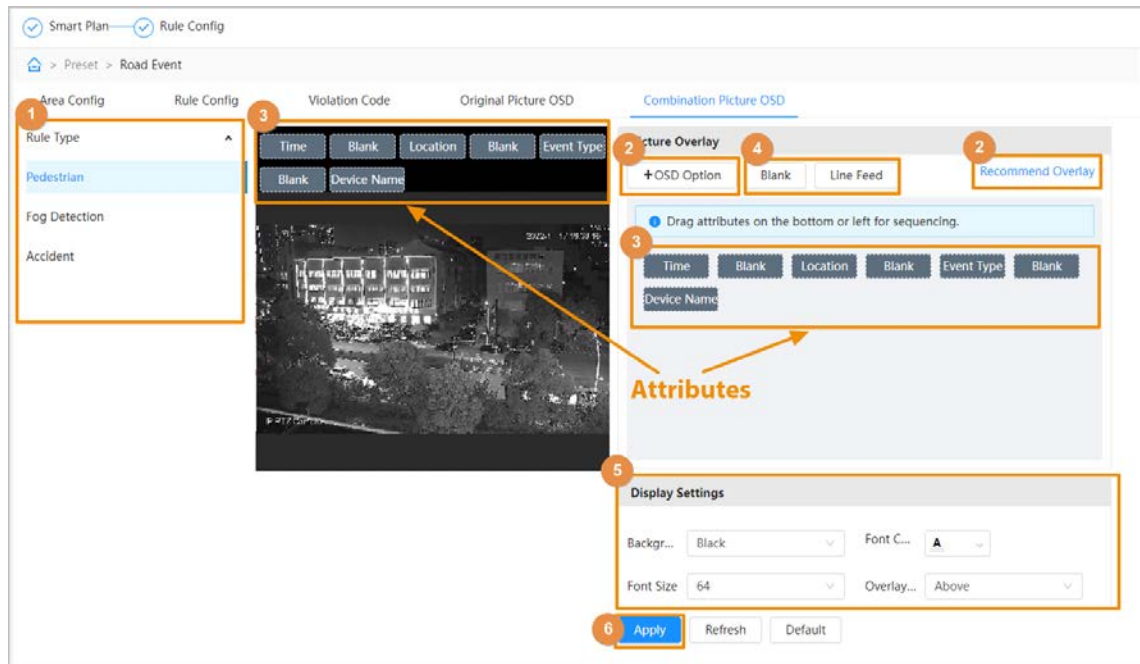
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example **Time**. Click × to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-27 Combination picture OSD (road event)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 9-17 Description of combination picture OSD parameters

Parameter	Description
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position from Above and Below.
Report Picture	Select to save the pictures to local computer or upload to the platform.

Parameter	Description
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.
Composite Picture Order	Set the order of the composite pictures.

Step 8 Click **Apply**.

9.2.4 Configuring ANPR

9.2.4.1 Lane Configuration (ANPR)

Prerequisites

The smart plan of the ANPR has been configured.

Procedure

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Lane Config** tab, and then select the preset from the drop-down list.

Step 4 Configure lanes.

- 1) Click **Lane Line** and **Detection Line** respectively, and then draw lines in the monitoring screen.

You can draw up to 4 lanes, and the lanes are enabled by default after drawing. Click



to delete the lane line or detection line.

- **Lane Line:** Draw lines of the lanes to be detected according to the actual traffic situation. Two lane lines are required for each lane. A blue line with arrow will be displayed when drawing a lane line, and the direction of arrow indicates the direction of vehicles.
- **Detection Line:** Draw the detection line which triggers video capture, it is as functional as the line in real traffic. It will trigger and take snapshot when the vehicle crosses the detection line. The detection line is shown as a red line, and only displays within the range of drawn lane lines. Lines outside the range will not be displayed.

Figure 9-28 Configure lane

2) Configure lane parameters.

Table 9-18 Description of lane parameters

Parameter	Description
Enable	Enabled by default.
Lane Direction	You can select Vehicle Head or Vehicle Tail . The direction of the lane arrow is changed simultaneously when you select the lane direction. The default selection is Vehicle Head .
Lane No.	You can configure from 1-16. The default number starts with 1.
Left Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Right Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Lane Type	You can select from Lanes for Small-sized Vehicle , Bus Lane and Non-motor Vehicle Lane . The default is Lanes for Small-sized Vehicle .
Passing direction	You can select from South to North , West to East , North to South and East to West . The default is South to North .
Statistical Cycle	Set the statistical cycle for collecting traffic data.

Step 5 Configure parameters in **Other Config** area.

Table 9-19 Description of other configuration parameters

Parameter	Description
Unlicensed Vehicle Snapshot	When the license plate is not recognized or the vehicle has no license plate, it will be captured and reported as an unlicensed vehicle.

Parameter	Description
Non-motor Vehicle Snapshot	When the non-motor vehicles have ANPR, wrong-way driving and other violations will be captured and reported.

Step 6 Click **Apply**.

9.2.4.2 Rule Configuration (ANPR)

The lane line is drawn in the Lane Config.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Rule Config** tab, and then select the preset and lane line from the drop-down list.

Step 4 Add rules, and then configure the corresponding rule parameters.

- 1) Click **Add Rule**, and then select the rule type. It supports adding traffic congestion, illegal lane change and other 13 rules.

The added rules are displayed in the following list, and they are enabled by default.

Figure 9-29 Add rules (ANPR)

No.	Rule Type	Operation	Delete
1	Speeding	☒	
2	Underspeed	☒	
3	No Truck Parking	☒	
4	Traffic Congestion	☒	
5	Illegal Lane Change	☒	

- 2) Configure rule parameters for lane events.



The parameters might vary depending on different rule types.

Table 9-20 Description of rule configuration parameters

Rule Type	Parameter	Description
-	Sensitivity	Set the sensitivity of lane event snapshot.
-	Record	Enable the local recording function.
Underspeed	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the lowest speed limit of small-sized vehicle and large-sized vehicle. ● Small-sized Vehicle Lowest Speed Limit: Set the lowest speed of small-size vehicles. ● Large-sized Vehicle Lowest Speed Limit: Set the lowest speed of large-size vehicles.
	Vehicle Min Speed Limit	Set the minimum speed limit for the vehicle.

Rule Type	Parameter	Description
Speeding	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the highest speed limit of small-sized vehicle and large-sized vehicle. • Small-sized Vehicle Highest Speed Limit: Set the maximum speed limit for small-sized vehicle. • Large-sized Vehicle Highest Speed Limit: Set the maximum speed limit for large-sized vehicle.
	Vehicle Max Speed Limit	Set the maximum speed limit for the vehicle.
No Truck Parking	Capture Blue Plate Trucks	Enable capturing blue plate trucks function.
	Vehicle type	You can select from General Vehicle and Special Vehicle .
	Truck Type	Select one or more truck types to be queried. • When you select General Vehicle as the Vehicle Type, you can select Heavy Truck, Medium Truck, Light Truck and Pickup as the Truck Type. • When you select Special Vehicle as the Vehicle Type, you can select Dangerous Goods Vehicle, Tank Truck, Construction Truck, Mixer Truck, Engineering Truck, Powder Material Truck and Sewage Suction Truck as the Truck Type.
Traffic Congestion	Alarm Time	Set the duration for traffic congestion to trigger the alarm. When the traffic congestion time exceeds this value, the alarm will be triggered.
	Threshold	Set the ratio of traffic congestion to the total length of the drawn lanes. If the upper limit of the range is exceeded, the alarm will be triggered. When the congestion team drops to the lower limit of the set threshold, the alarm will be cancelled.

Step 5 Configure snapshot parameters.

- Channel: the default snapshot channel is 2.
- **Snapshot Quantity:** Set the number of snapshots.
- Click **Snapshot Setting**, and then set the **Cutout Proportion**. This function is only supported on select rules.

Step 6 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

- If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
- Click Event Linkage, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe relevant alarm event. For details, see "4.6.1.3 Subscribing to Alarm".

9.2.4.3 Violation Code (ANPR)

You can set the violation name and violation code of ANPR, and you can overlay the violation information on the combination picture.

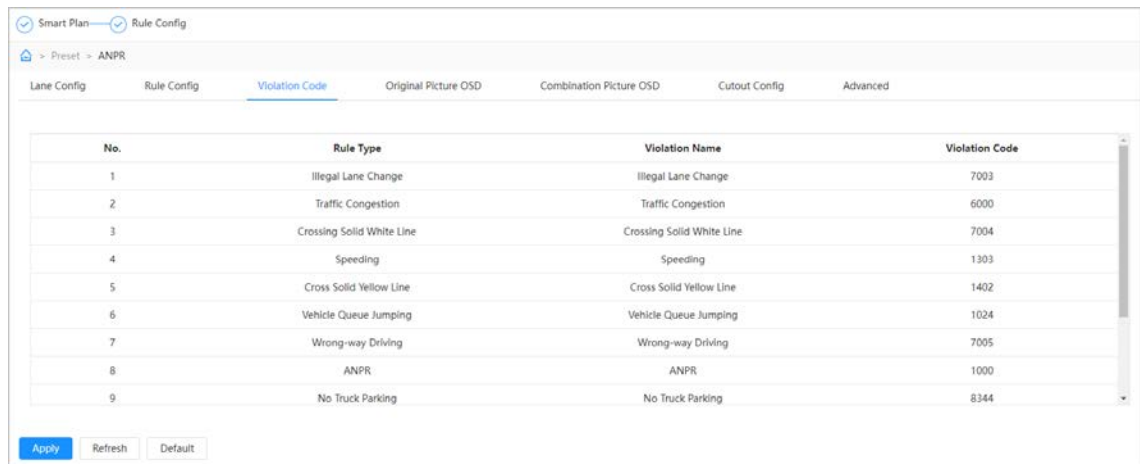
Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Violation Code** tab.

Step 4 Click **Violation Name** and **Violation Code** to modify the name and code.

Figure 9-30 Violation code



No.	Rule Type	Violation Name	Violation Code
1	Illegal Lane Change	Illegal Lane Change	7003
2	Traffic Congestion	Traffic Congestion	6000
3	Crossing Solid White Line	Crossing Solid White Line	7004
4	Speeding	Speeding	1303
5	Cross Solid Yellow Line	Cross Solid Yellow Line	1402
6	Vehicle Queue Jumping	Vehicle Queue Jumping	1024
7	Wrong-way Driving	Wrong-way Driving	7005
8	ANPR	ANPR	1000
9	No Truck Parking	No Truck Parking	8344

Step 5 Click **Apply**.

9.2.4.4 Original picture OSD (ANPR)

You can set the content and style of the OSD information of the original snapshot.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.

Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

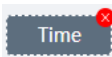
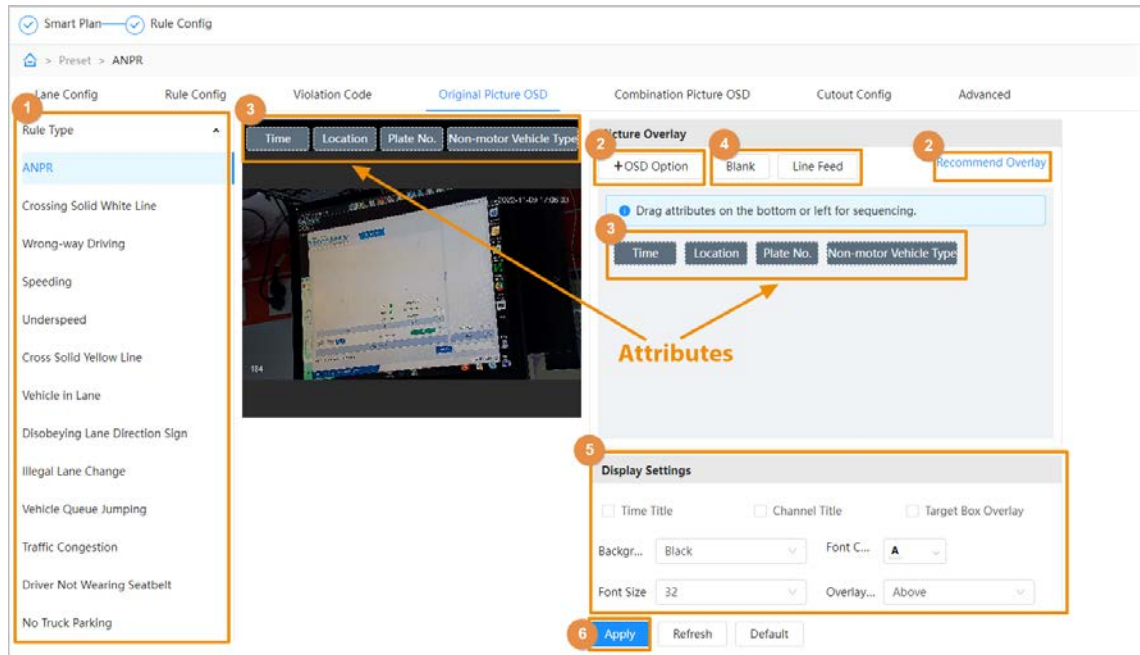
- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-31 Original picture OSD (road event)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameters.
The parameters might vary depending on different rule types.

Table 9-21 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	
Report Picture	Select to save the pictures to local computer or upload to the platform.  Only when an SD card has been formatted and installed on the device can the video be saved locally.
Save locally	
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

9.2.4.5 Combination Picture OSD (ANPR)

You can set the content and style of the OSD information of combination pictures.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Combination OSD** tab, and then select the rule type from the left side of the page.

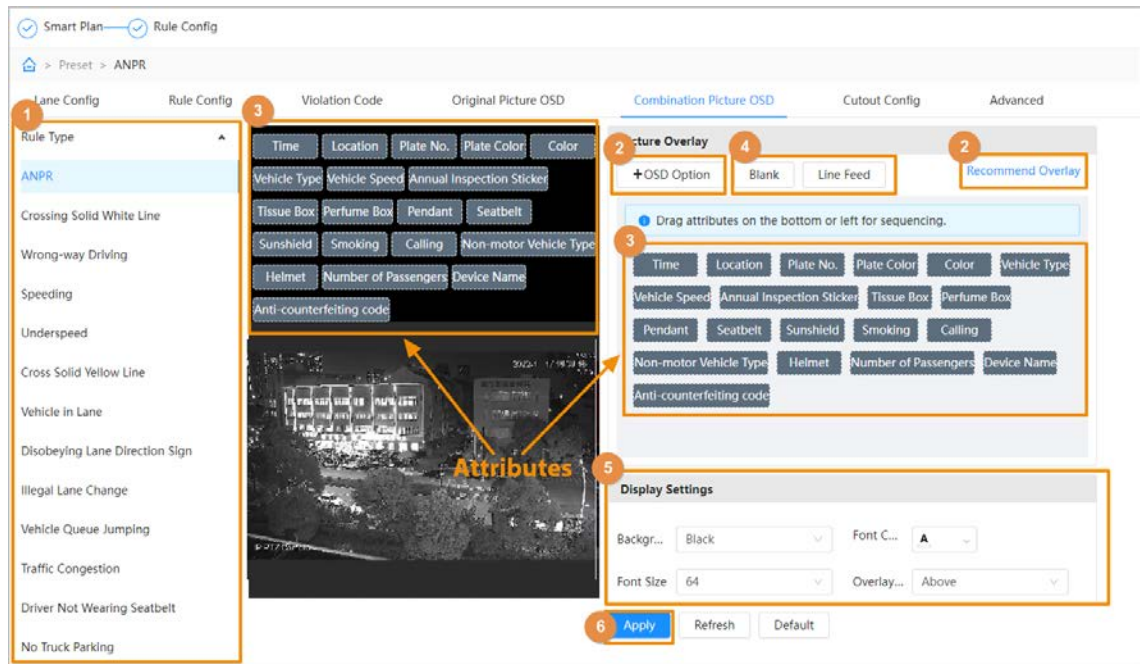
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

- Point to the attribute, and then a red x appears in the upper-right corner of the attribute, for example **Time**. Click x to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-32 Combination picture OSD



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 9-22 Description of combination picture OSD parameters

Parameter	Description
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position from Above and Below .
Report Picture	Select to save the pictures to local computer or upload to the platform.

Parameter	Description
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.
Composite Picture Order	Set the order of the composite pictures.

Step 8 Click **Apply**.

9.2.4.6 Cutout Configuration (ANPR)

Configure the cutout of the driver and front seat passenger, and overlay the face information from the rules of ANPR and driver not wearing seat belts on the picture.

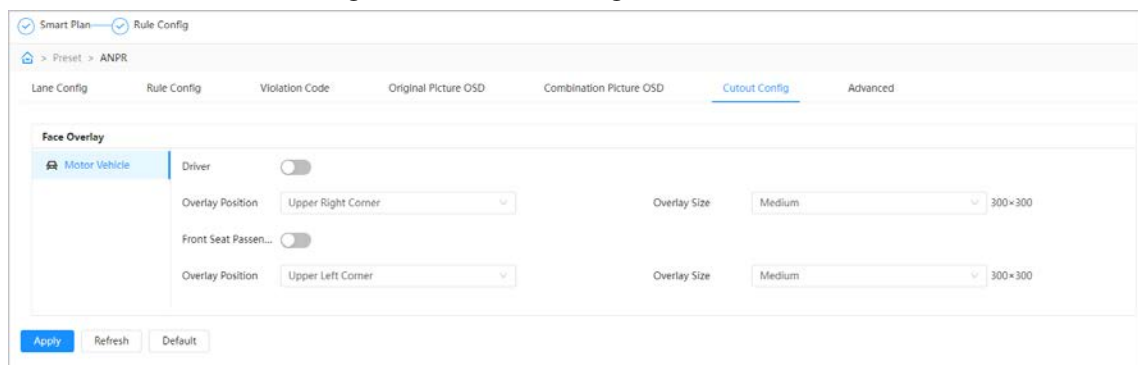
Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Cutout Config** tab, and then configure cutout overlay parameters.

- Driver: Click  to enable driver cutout function.
- Front Seat Passenger: Click  to enable front seat passenger cutout function.
- **Overlay Position:** Set the overlay position of the cutout.
- **Overlay Size:** Set the overlay size of the cutout.

Figure 9-33 Cutout configuration



Step 4 Click **Apply**.

9.2.4.7 Advanced Configuration (ANPR)

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **ANPR**.

Step 3 Click **Advanced** tab, and then select the preset from the drop-down list.

Step 4 Draw the vehicle detection area.

Click  to delete the drawn area.

- **Draw Area:** It is used for the detection area of all rules. Only targets in the detection area will be detected.
- **Vehicle Area:** It is used for the collection and statistics of traffic data, such as traffic flow

and occupancy rate.

Figure 9-34 Advanced configuration

The screenshot shows a web interface for advanced configuration. It has two main sections: 'Vehicle Detection Area' and 'Calibration Verification'. The 'Vehicle Detection Area' section contains buttons for 'Draw Area' and 'Vehicle ...'. The 'Calibration Verification' section contains instructions for three steps: Step 1 (draw Calibration Area), Step 2 (draw Line Segment Calibration), and Step 3 (set Length field). Each step has a corresponding button ('Calibrati...' for Step 1, 'Line Seg...' for Step 2, and 'Calibrati...' for Step 3). A 'Length' input field with a value of '0' and a unit 'm' is present. At the bottom, there are 'Apply' and 'Refresh' buttons.

Step 5 Configure calibration verification.

- 1) Click **Calibration Area** to draw the calibration area.
- 2) Click **Line Segment Calibration** to draw the line segment calibration.
- 3) Set the **Length** according to the actual length of the calibrated line segment.
- 4) Click **Calibration Verification**, and then draw a verification line on the monitoring screen. The length calculated by the verification line will automatically display on the page. If the verification length is close to the actual value, the calibration verification is successful; otherwise, reset the length to verification again.

Step 6 Click **Apply**.

9.2.5 Configuring Littering

9.2.5.1 Area Configuration (Littering)

Prerequisites

The smart plan of the littering has been configured.

Procedure

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

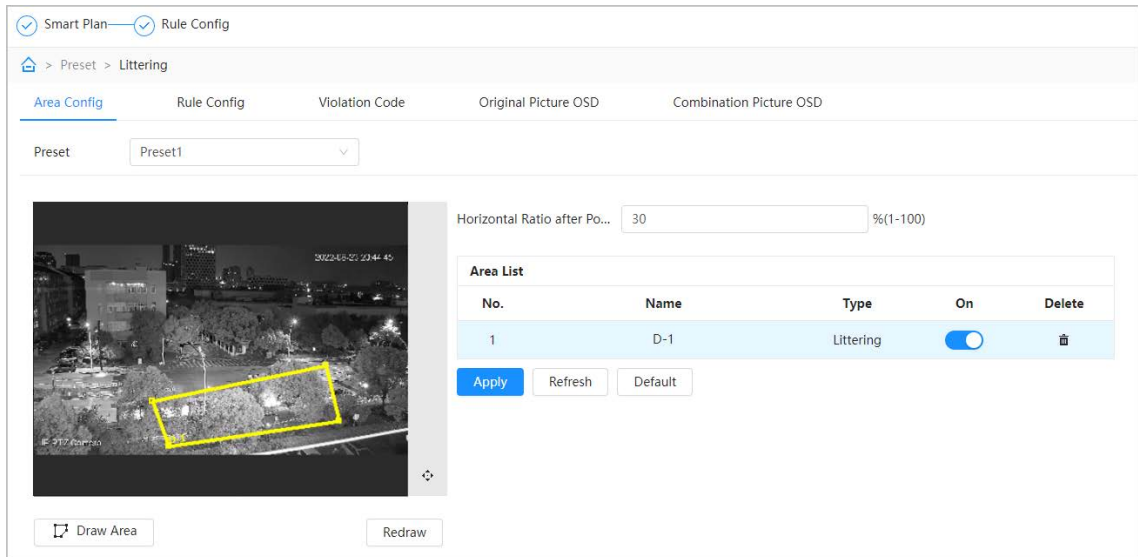
Step 2 Click **Rule Config**, and then select **Littering**.

Step 3 Click **Area Config** tab, and then select the preset from the drop-down list.

Step 4 Set the horizontal ratio after positioning.

Set the proportion of the target object in the horizontal direction of the picture after positioning.

Figure 9-35 Area configuration



Step 5 Click **Draw Area** to draw an area where the rule take effect on the live view page, and then right-click to finish the drawing.

You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.

- Click in the area list to delete the drawn detection area of the filtering rule.
- Click to adjust the monitoring screen through the PTZ control panel.
- Click the **Name** in the area list to modify the name of the rule.

Step 6 Click **Apply**.

9.2.5.2 Rule Configuration (Littering)

The detection area of littering is drawn in **Area Config**.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Littering**.

Step 3 Click **Rule Config** tab, and then select the preset and area from the drop-down list.

Step 4 Click **Add Rule** to add the littering detection rule.

The rule is enabled by default. Click to delete the added rule.

Figure 9-36 Add a rule

The screenshot shows the 'Rule Config' page. At the top, there are tabs for 'Area Config', 'Rule Config', 'Violation Code', 'Original Picture OSD', and 'Combination Picture OSD'. Below these, there are dropdowns for 'Preset' (Preset1) and 'Area' (D-5). An 'Add Rule' button is visible. A table lists the rule configuration:

No.	Rule Type	Operation	Delete
1	Littering	☒	

Below the table, the configuration parameters for the 'Littering' rule are shown:

- Sensitivity:** A slider from 0 to 10, currently set at 3.
- Alarm Time:** A text input set to '3' with the unit 'sec (0-3600)'.
- Recording Parameters (SD Card is...):** Two checkboxes: 'Save locally' (checked) and 'FTP Upload' (unchecked).
- Time Plan:** A dropdown set to 'Full Time' and an 'Add Schedule' button.
- Event Linkage:** A button labeled '+ Event Linkage'.
- Snapshot:** A section with 'Enabled' status, a 'Reset after 24:00' checkbox, and a 'Snapshot Quantity' dropdown set to '1'.
- Alarm-out Port:** A section with 'Enabled' status and a delete icon.
- Alarm Channel:** Two input fields with values '1' and '2'.
- Post-alarm:** A text input set to '10' with the unit 'sec (10-300)'.

At the bottom, there are 'Apply' and 'Refresh' buttons.

Step 5 Configure rule parameters.

Table 9-23 Description of rule configuration parameters

Parameter	Description
Sensitivity	Set the sensitivity of littering detection.
Alarm Time	Set the alarm time.
Save locally	Select the storage location of the videos. You can select Local Save or FTP Upload .
FTP Upload	Only when an SD card has been formatted and installed on the device can the video be saved locally.
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots.

Step 6 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

- If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
- Click Event Linkage, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe relevant alarm event. For details, see "4.6.1.3 Subscribing to Alarm".

9.2.5.3 Violation Code (Littering)

You can set the violation name and violation code of littering, and you can overlay the violation information on the combination picture.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

- Step 2** Click **Rule Config**, and then select **Littering**.
- Step 3** Click **Violation Code** tab.
- Step 4** Click **Violation Name** and **Violation Code** to modify the name and code.

Figure 9-37 Violation code

No.	Rule Type	Violation Name	Violation Code
1	Littering	Littering	148101

Apply Refresh Default

- Step 5** Click **Apply**.

9.2.5.4 Original picture OSD (Littering)

You can set the content and style of the OSD information of the original snapshot.

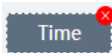
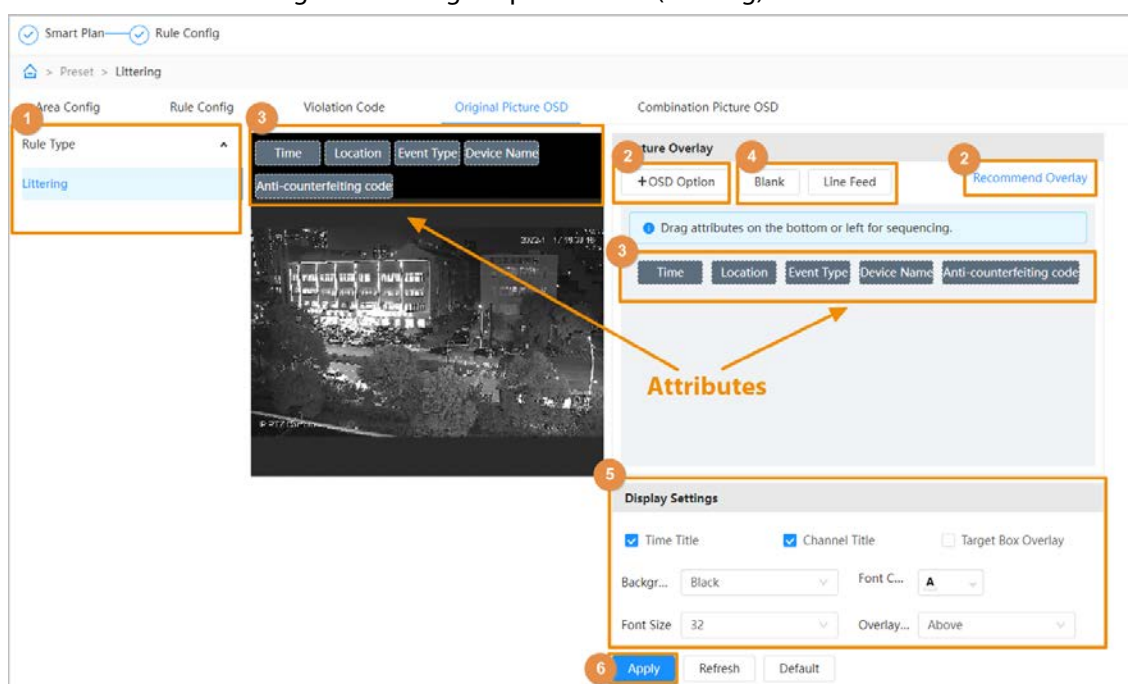
- Step 1** On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Littering**.
- Step 3** Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.
- Step 4** Click **Recommend Overlay** or click **OSD Option** to select overlay information.
Recommended Overlay indicates a combination of common OSD options is generated automatically.
- Step 5** Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.
- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.
 - Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-38 Original picture OSD (littering)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 9-24 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or i .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

9.2.5.5 Combination Picture OSD (Littering)

You can set the content and style of the OSD information of combination pictures.

Step 1 On the webpage, select **Smart Traffic Management > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Littering**.

Step 3 Click **Combination OSD** tab, and then select the rule type from the left side of the page.

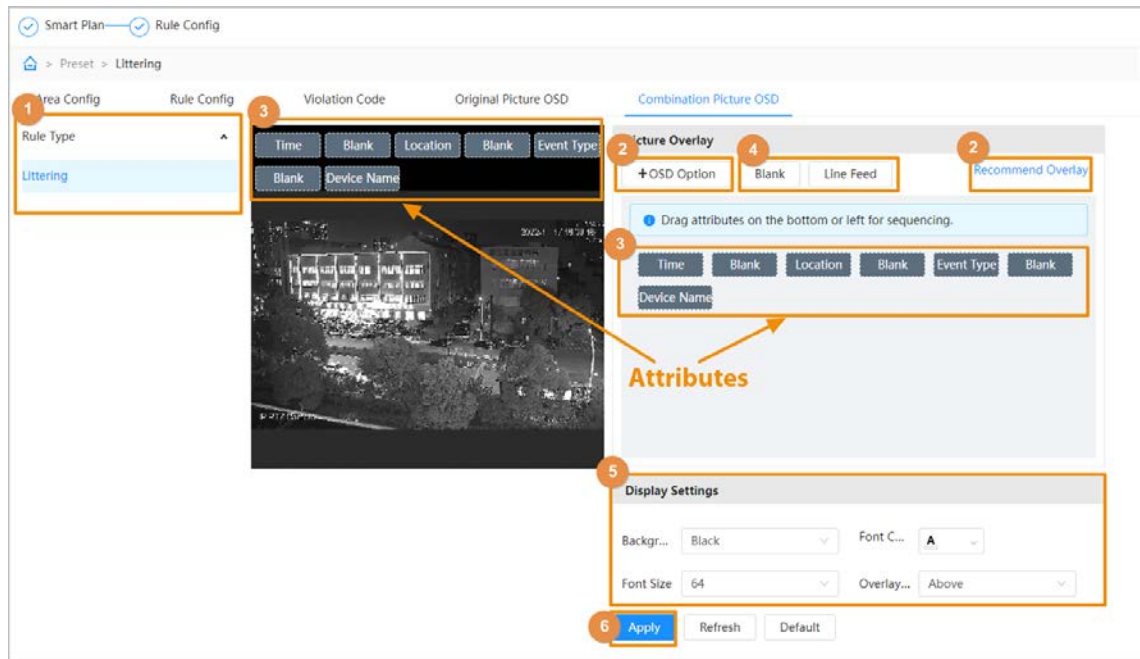
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

Recommended Overlay indicates a combination of common OSD options is generated automatically.

Step 5 Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.

- Point to the attribute, and then a red × appears in the upper-right corner of the attribute, for example **Time**. Click × to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 9-39 Combination picture OSD (littering)



Step 6 Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 9-25 Description of combination picture OSD parameters

Parameter	Description
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position from Above and Below .
Report Picture	Select to save the pictures to local computer or upload to the platform.

Parameter	Description
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion, 1/4 Size or i .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

9.3 Configuring Tour Plan

You can configure the tour mode and time plan for different periods.

Step 1 Select **Smart Traffic Management > Tour Plan**.

Step 2 Select **Enable** to enable tour plan function.

Step 3 Select tour mode and idle interval.

- **Tour mode Select:**
 - ◇ Detection priority: Tours according to the set duration of the scene.
 - ◇ Detection Priority: Detection is the priority. The PTZ rotates to another scene when no alarm events are detected in the current scene and the set scene switching time has reached.
- **Idle Interval:** The time between the user manually operates the Camera and the Camera automatically rotates to the smart plan scene.



The tour mode might vary depending on different devices.

Step 4 Configure tour plan.

- 1) Set the start time and end time of the tour.
- 2) Select period, and then click **Setting**.
- 3) Click **Add Scenario** to set multi-scene tour.

Figure 9-40 Multi-scenario tour

Multi-scenario tour config
×

The total tour interval cannot exceed arming time.

Add Scenario
Clear

No.	Plan	Stay Time	Priority Sorting	Priority Sorting	Delete
1	Plan2	600	⌆	⌇	🗑
2	Plan2	600	⌆	⌇	🗑

Cancel
OK

Table 9-26 Description of multi-scenario tour parameter

Parameter	Description
Plan	Select a scenario plan for device switching. Devices switch scenarios from top to bottom to complete the tour.
Stay Time	Set the time that the Camera stays in the scene.
Priority Sorting	Set the priority of multiple scenes. Click  or  to adjust the order.
Delete	Click  to delete the scene.

4) Click **OK** to complete the configuration of multi-scenario tour.

Step 5 (Optional) Click **Copy** to copy the configuration to the selected date.

Step 6 Click **Apply**.

10 Security

10.1 Security Status

Background Information

Detect the user and service, and scan the security modules to check the security status of the Camera, so that when abnormality appears, you can process it timely.

- User and service detection: Detect login authentication, user status, and configuration security to check whether the current configuration meet requirement.
- Security modules scanning: Scan the running status of security modules, such as audio/video transmission, trusted protection, securing warning and attack defense, but not detect whether they are enabled.

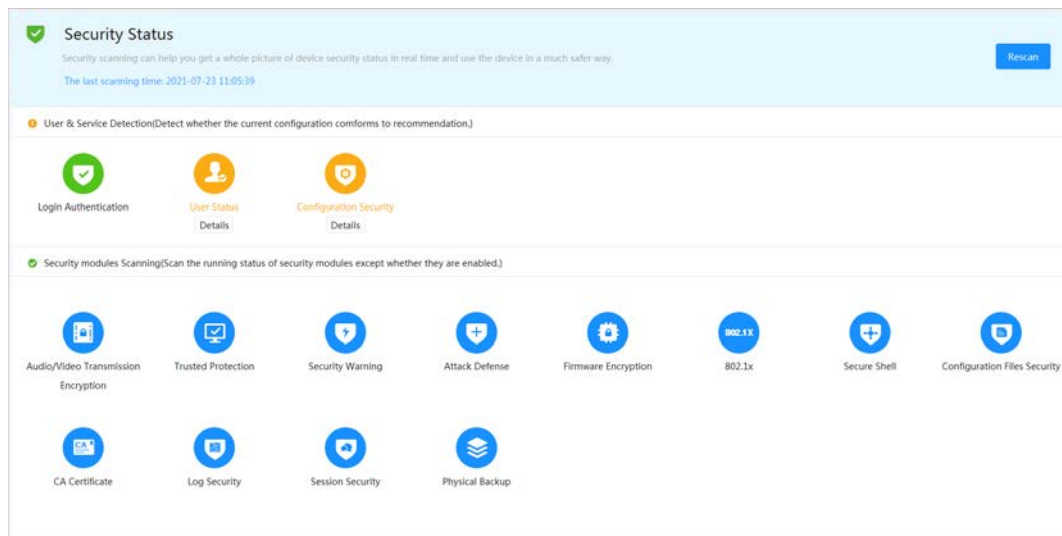
Procedure

Step 1 Select **Security** > **Security Status**.

Step 2 Click **Rescan** to scan the security status of the Camera.

During the scanning, the icon is grey. When the icon turns blue, the scanning is complete.

Figure 10-1 Security status



Related Operations

After scanning, different results will be displayed in different color. Yellow indicates that the security modules are abnormal, and green indicates that the security modules are normal.

1. Click **Details** to view the details of the scanning result.
2. Click **Ignore** to ignore the exception, and it will not be scanned in next scanning.
Click **Joint Detection**, and the error will be scanned in next scanning.
3. Click **Optimize**, and the corresponding page is displayed. You can edit the configuration to clear the exception.

Figure 10-2 Security status

Details
×

Total 2 XX items must be optimized. You are recommended to optimize now.

Ignore

Device Account Status
1.A strong password is not used.

Optimize

ONVIF Account Status
1.A strong password is not used.

Optimize

10.2 System Service

Service functions can be used only after system services are enabled.

10.2.1 802.1x

Cameras can connect to LAN after passing 802.1x authentication.

Step 1 Select **Security** > **System Service** > **802.1x**.

Step 2 Select the NIC name as needed, and 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. (Optional) Click next to CA certificate, and select the trusted CA certificate in list.



If there is no certificate in the list, click **Certificate Management** at the left navigation bar. For details, see "10.4.2 Installing Trusted CA Certificate".

Figure 10-3 802.1x (PEAP)

802.1x
HTTPS

802.1x is a network access control protocol which can effectively prevent access from unauthorized hosts.

NIC Name:

Enable: ☒

Authentication Mode:

Username:

Password:

CA Certificate: ☒

Use a trusted CA certificate to verify the validity of peer authentication server (switch or Radius server).

Device Certificate:

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
☐ 1		18200000000000000000	2050-03-12 09:46:42	Dahua Device PTZ CA	Dahua Device Root CA	
☐ 2		00000000000000000000	2059-05-23 11:05:14	Dahua Device Root CA	Dahua Device Root CA	

Apply
Refresh
Default

Certificate Management

- 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. Select the certificate from the certificate list on the **Device Certificate** page.



If there is no certificate in the list, click **Certificate Management** at the left navigation bar. For details, see "10.4.1 Installing Device Certificate".

4. (Optional) Click  next to CA certificate, and select the trusted CA certificate in list.



If there is no certificate in the list, click **Certificate Management** at the left navigation bar. For details, see "10.4.2 Installing Trusted CA Certificate".

Figure 10-4 802.1x (TLS)

[illegible]

Step 4 Click **Apply**.

10.2.2 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.



- We recommend you enable the HTTPS. Otherwise, the device data may be leaked.
- After HTTPS is enabled, TLSv1.1 and earlier versions are supported by default. However, earlier version of TLS might have security risks. Please select carefully.

Procedure

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

Step 2 Click to enable HTTPS.

Step 3 Select the certificate.



If there is no certificate in the list, click **Certificate Management** at the left navigation bar.
For details, see "10.4.1 Installing Device Certificate".

Figure 10-5 HTTPS

Step 4 Click **Apply**.

Related Operations

Enter `https://IPaddress` in the browser.

- If you have already installed the certificate, the normal login page will be displayed.
- If you have not installed the certificate, the browser displays a certificate error message.

10.3 Attack Defense

10.3.1 Firewall

Configure firewall to limit access to the camera.

Step 1 Select **Security > Attack Defense > Firewall**.

Step 2 Click ☐ to enable the firewall function.

Figure 10-6 Firewall

Step 3 Select **Allowlist** or **Blocklist** as the mode.

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

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

Figure 10-7 Firewall

The 'Add' dialog box contains the following elements:

- Add Mode:** A dropdown menu currently showing 'IP'.
- IP Version:** A dropdown menu currently showing 'IPv4'.
- IP Address:** A text input field with a red border and three dots, indicating a placeholder for an IP address.
- All Device P...:** A toggle switch that is currently turned on (blue).
- Buttons:** 'OK' and 'Cancel' buttons located at the bottom right.

Step 5 Click **Apply**.

Related Operations

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

10.3.2 Account Lockout

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

Step 1 Select **Security > Attack Defense > Account Lockout**.

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

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

Figure 10-8 Account lockout

The 'Account Lockout' configuration page includes the following sections and controls:

- Navigation:** Tabs for 'Firewall', 'Account Lockout' (active), and 'Anti-DoS Attack'.
- Device Account Section:**
 - Login Attempt:** A dropdown menu set to '5time(s)'.
 - Lock Time:** An input field with the value '5' and a 'min' unit indicator.
- ONVIF User Section:**
 - Login Attempt:** A dropdown menu set to '30time(s)'.
 - Lock Time:** An input field with the value '5' and a 'min' unit indicator.
- Buttons:** 'Apply' (blue), 'Refresh', and 'Default' buttons at the bottom.

Step 3 Click **Apply**.

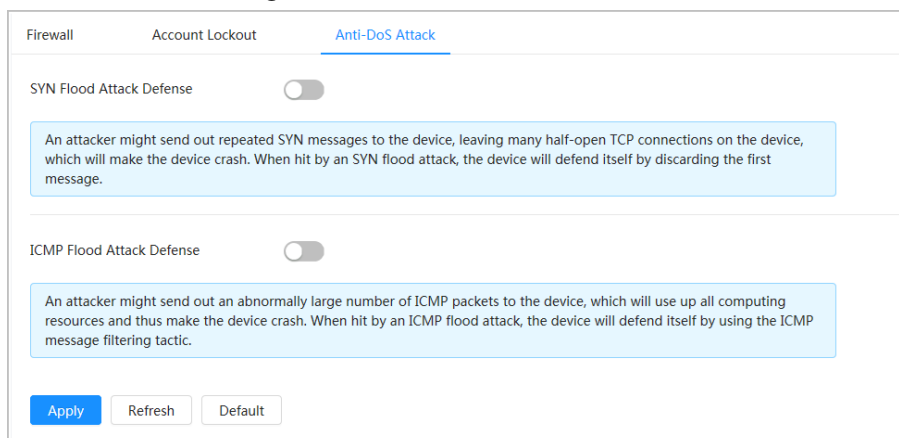
10.3.3 Anti-DoS Attack

You can enable **SYN Flood Attack Defense** and **ICMP Flood Attack Defense** to defend the device against DoS (Denial of Service) attack.

Step 1 Select **Security > Attack Defense > Anti-DoS Attack**.

Step 2 Select **SYN Flood Attack Defense** or **ICMP Flood Attack Defense** to defend the device against Dos attack.

Figure 10-9 Anti-DoS attack



10.4 CA Certificate

10.4.1 Installing Device Certificate

Create a certificate or upload an authenticated certificate, for example when you log in through HTTPS with your PC, you need to verify device certificate.

10.4.1.1 Creating Certificate

Creating certificate in the device.

Procedure

Step 1 Select **Security > CA Certificate > Device Certificate**.

Step 2 Select **Install Device Certificate**.

Step 3 Select **Create Certificate**, and click **Next**.

Step 4 Enter the certificate information.



IP or domain name of the device is automatically entered in **IP/Domain Name**.

Figure 10-10 Certificate information (1)

Step 2: Fill in certificate information.

Custom Name

* IP/Domain Na...

Organization U...

Organization

* Validity Perio... Days (1~5000)

* Region

Province

City Name

Back Create and install certificate Cancel

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 **Enter Edit Mode**, and then you can edit the custom name of the certificate.
- Click  to download the certificate.
- Click  to delete the certificate.

10.4.1.2 Applying for and Importing CA Certificate

Import the third-party CA certificate to the camera.

Procedure

Step 1 Select **Security > CA Certificate > Device Certificate**.

Step 2 Select **Installing Device Certificate**.

Step 3 Click **Apply for CA Certificate and Import (Recommended)**, and then click **Next**.

Step 4 Enter the certificate information.



IP or domain name of the device is automatically entered in **IP/Domain Name**.

Figure 10-11 Certificate information (2)

Step 2: Fill in certificate information. [X]

* IP/Domain Na...

Organization U...

Organization

* Validity Perio... Days (1~5000)

* Region

Province

City Name

[Back] [Create and Download] [Cancel]

Step 5 Click **Create and Download**.

Save the request file to your PC.

Step 6 Apply for the CA certificate from the third-party certificate authority.

Step 7 Import the signed CA certificate.

- 1) Save the CA certificate to the PC.
- 2) Select **Install Device Certificate**, click **Apply for CA Certificate and Import (Recommended)**, and then click **Next**.
- 3) Click **Browse** to select the signed CA certificate.

Figure 10-12 Import the signed certificate

Step 3: Import the signed certificate. [X]

Certificate Path [Browse]

Required

[Recreate] [Import and Install] [Import Later]

4) Click **Install and Import**.

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

- Click **Recreate** to create the request file again.
- Click **Import Later** to import the certificate next time.

Related Operations

- Click **Enter Edit Mode**, you can edit the custom name of the certificate.

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

10.4.1.3 Installing Existing Certificate

Import the existing third-party certificate to the Camera. When apply for the third-party certificate, you also need to apply for the private key file and private key password.

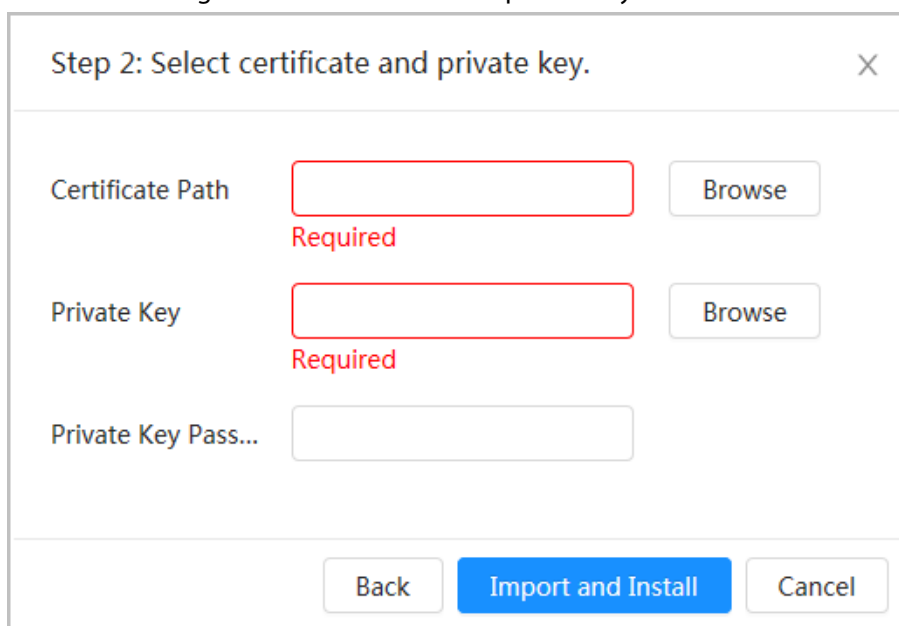
Step 1 Select **Security** > **CA Certificate** > **Device Certificate**.

Step 2 Select **Install Device Certificate**.

Step 3 Select **Install Existing Certificate**, and click **Next**.

Step 4 Click **Browse** to select the certificate and private key file, and enter the private key password.

Figure 10-13 Certificate and private key



Step 2: Select certificate and private key. [X]

Certificate Path Browse
Required

Private Key Browse
Required

Private Key Pass...

Back Import and Install Cancel

Step 5 Click **Import and Install**.

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

Related Operations

- Click **Enter Edit Mode**, you can edit the custom name of the certificate.
- Click  to download the certificate.
- Click  to delete the certificate.

10.4.2 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.

Step 1 Select **Security** > **CA Certificate** > **Trusted CA Certificates**.

Step 2 Select **Install Trusted Certificate**.

Figure 10-14 Installing trusted certificate

Device Certificate Trusted CA Certificates

A trusted CA certificate is used to verify the legal status of a host. For example, a switch CA certificate shall be installed for 802.1x authentication.

Install Trusted Certificate [Enter Edit Mode](#)

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by	Certificate Status	Download	Delete
1	3838a38b-38a13011		2050-03-12 09:46:42	Dahua Device PTZ CA	Dahua Device Root CA		Normal		
2	47a4b4ba-111a48613a		2059-05-23 11:05:14	Dahua Device Root CA	Dahua Device Root CA		Normal		

Step 3 Click **Browse** to select the certificate.

Step 4 Click **OK**.

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

Related Operations

- Click **Enter Edit Mode**, you can edit the custom name of the certificate.
- Click to download the certificate.
- Click to delete the certificate.

10.5 A/V Encryption

The device supports audio and video encryption during data transmission.



We recommend you enable A/V Encryption function. There might be safety risk if this function is disabled.

Step 1 Select **Security > A/V Encryption**.

Step 2 Configure the parameters.

Figure 10-15 A/V encryption

Encrypted Transmission

Private Protocol

Enable ☒

Stream transmission is encrypted by using private protocol.

*Please make sure that the corresponding device or software supports video decryption.

Encryption Type: AES256-OFB

Update Period of Se...: 12 hr (0-720)

RTSP over TLS

Enable ☒

RTSP stream is encrypted by using TLS tunnel before transmission.

*Please make sure that the corresponding device or software supports video decryption.

*Select a device certificate [Certificate Management](#)

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
1	303031323334353637383931363233343236323538		2051-06-04 15:44:18	00:12:34:56:78:9c	Dahua Device PTZ CA	HTTPS, RTSP over TLS

[Apply](#) [Refresh](#) [Default](#)

Table 10-1 A/V encryption parameter

Area	Parameter	Description
Private Protocol	Enable	Enables stream frame encryption by using private protocol.  There might be safety risk if this service is disabled.
	Encryption Type	Use the default setting.
	Update Period of Secret Key	Secret key update period. Value range: 0–720 hours. 0 means never update the secret key. Default value: 12.
RTSP over TLS	Enable	Enables RTSP stream encryption by using TLS.  There might be safety risk if this service is disabled.
	Select a device certificate	Select a device certificate for RTSP over TLS.
	Certificate Management	For details about certificate management, see "10.4.1 Installing Device Certificate".

Step 3 Click **Apply**.

10.6 Security Warning

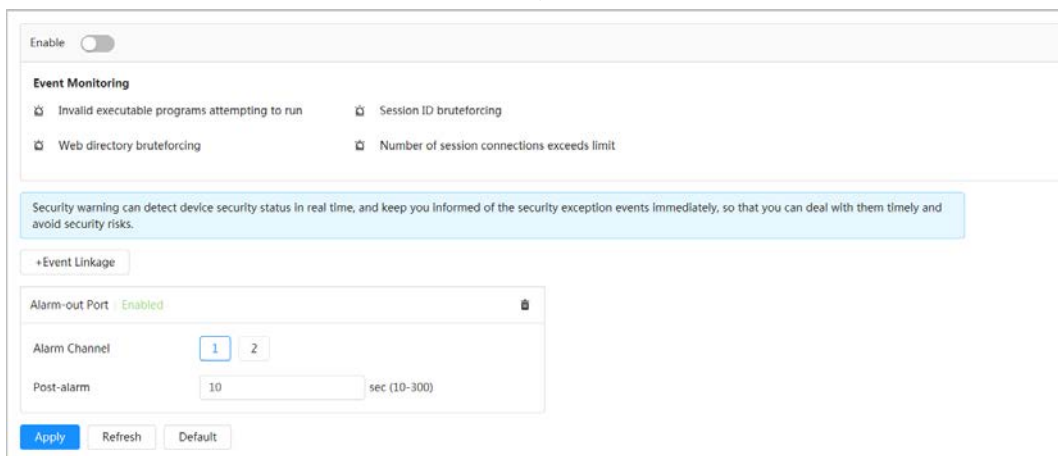
When security exception event is detected, the camera sends a warning to remind you to process it timely, to avoid security risk.

Step 1 Select **Security** > **Security Warning**.

Step 2 Click ☐ to enable security warning.

Step 3 Configure the parameters.

Figure 10-16 Security warning



Step 4 Set arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".
Click **Event Linkage** to set the linkage action.

Step 5 Click **Apply**.

11 Report

11.1 Traffic Data Report

- Step 1** Select **Report > Report > Traffic Data**.
- Step 2** Select the preset and lane.
You can select multiple presets and lanes at a time.
- Step 3** Set the query time, click **Search**, and then the traffic data such as lane number, preset number, period, traffic flow and more are displayed on the page.
Click a report to view the details of the vehicle.

Figure 11-1 Traffic data report

No.	Start Time	Lane No.	Preset	Period(sec)	Traffic Flow	Speed(km/h)	Time Occupancy Rate	Space Occupancy Rate	Time Headway(sec/vehicle)	Space Headway(m/vehicle)	Queue Length(m)	Road Status
1	2022-11-02 19:30:06	1	1	0	0	-	0.00%	0.00%	-	0.00	0.00	Clear
2	2022-11-02 19:30:07	1	1	0	1	40.00	100.00%	100.00%	-	0.00	0.00	Slow
3	2022-11-02 19:30:08	1	1	0	1	12.00	100.00%	96.88%	-	0.00	0.00	Slow
4	2022-11-02 19:30:12	1	1	0	1	8.00	100.00%	86.15%	-	0.00	0.77	Slow
5	2022-11-02 19:30:13	1	1	0	2	4.50	100.00%	99.76%	-	0.00	0.00	Congested
6	2022-11-02 19:30:13	1	1	0	0	-	100.00%	98.00%	-	0.00	0.00	Congested
7	2022-11-02 19:30:15	1	1	0	1	3.00	100.00%	100.00%	-	0.00	0.00	Congested
8	2022-11-02 19:30:18	1	1	0	1	14.00	100.00%	96.58%	-	0.00	4.11	Slow
9	2022-11-02 19:30:20	1	1	0	0	-	100.00%	97.11%	-	0.00	7.67	Congested
10	2022-11-02 19:30:22	1	1	0	1	13.00	100.00%	99.59%	-	0.00	6.90	Slow
11	2022-11-02 19:30:24	1	1	0	1	24.00	100.00%	97.55%	-	0.00	5.81	Slow
12	2022-11-02 19:30:26	1	1	0	0	-	100.00%	99.72%	-	0.00	3.28	Congested
13	2022-11-02 19:30:26	1	1	0	0	-	100.00%	100.00%	-	0.00	3.51	Congested
14	2022-11-02 19:30:31	1	1	0	1	27.00	100.00%	100.00%	-	0.00	4.21	Slow
15	2022-11-02 19:30:33	1	1	0	0	-	100.00%	100.00%	-	0.00	3.34	Congested

- Step 4** Click **Backup** to backup the report to the computer.

11.2 Picture Query

Query the pictures of the AI function. The following section uses the ANPR function as an example.

- Step 1** Select **Report > Report > Picture Query > ANPR**.
- Step 2** Select the rule type and file type.
You can select multiple rule types and file types at a time.
- Step 3** Set the query time, and then click **Search**.

Figure 11-2 Picture Query

IP PTZ Camera

Live

Report

Report

Picture Query

Single Parking Snapshot

ADME

IP Probe

Road Detect

Litering

Search Viol

Rule Type

Single Lane Change > Wrong-way Driving >

File Type

Original Image > Composite Picture >

Today

This Week

This Month

This Year

2022-11-02 09:00:00

2022-11-02 20:15:31

Search

Total 13 Results

Download

No.	Plate No.	Time	Event Type	File Type	File Size
1	2022-11-02 19:37:52	Wrong-way Driving	Composite Picture	1.48K	
2	2022-11-02 19:37:56	Wrong-way Driving	Composite Picture	1.89K	
3	2022-11-02 19:38:00	Wrong-way Driving	Composite Picture	1.47K	
4	2022-11-02 19:38:02	Wrong-way Driving	Composite Picture	1.27K	
5	2022-11-02 19:38:07	Wrong-way Driving	Composite Picture	1.42K	
6	2022-11-02 19:38:08	Wrong-way Driving	Composite Picture	1.23K	
7	2022-11-02 19:38:13	Wrong-way Driving	Composite Picture	1.47K	
8	2022-11-02 19:38:13	Wrong-way Driving	Composite Picture	1.48K	
9	2022-11-02 19:38:18	Wrong-way Driving	Composite Picture	1.24K	
10	2022-11-02 19:38:21	Wrong-way Driving	Composite Picture	1.37K	
11	2022-11-02 19:38:23	Wrong-way Driving	Composite Picture	1.24K	
12	2022-11-02 19:38:27	Wrong-way Driving	Composite Picture	1.28K	
13	2022-11-02 19:38:27	Wrong-way Driving	Composite Picture	1.59K	

- Step 4** Click **Download** to download the picture to the computer.

11.3 Video Query

Query the videos of the AI function. The following section uses the ANPR function as an example.

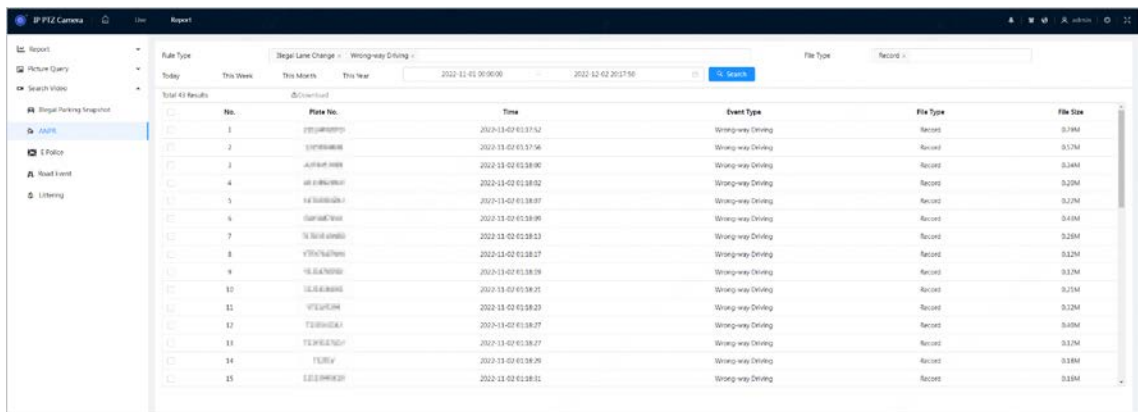
Step 1 Select **Report** > **Report** > **Search Video** > **ANPR**.

Step 2 Select the rule type and file type.

You can select multiple rule types and file types at a time.

Step 3 Set the query time, and then click **Search**.

Figure 11-3 Video Query



No.	Plate No.	Time	Event Type	File Type	File Size
1	7700W0000	2022-11-02 01:37:52	Wrong-way Driving	Record	0.19M
2	7700W0000	2022-11-02 01:37:56	Wrong-way Driving	Record	0.17M
3	400W00000	2022-11-02 01:38:00	Wrong-way Driving	Record	0.04M
4	0000W0000	2022-11-02 01:38:02	Wrong-way Driving	Record	0.23M
5	0000W0000	2022-11-02 01:38:07	Wrong-way Driving	Record	0.27M
6	0000W0000	2022-11-02 01:38:09	Wrong-way Driving	Record	0.40M
7	0000W0000	2022-11-02 01:38:13	Wrong-way Driving	Record	0.28M
8	0000W0000	2022-11-02 01:38:17	Wrong-way Driving	Record	0.32M
9	0000W0000	2022-11-02 01:38:18	Wrong-way Driving	Record	0.37M
10	0000W0000	2022-11-02 01:38:25	Wrong-way Driving	Record	0.25M
11	0000W0000	2022-11-02 01:38:27	Wrong-way Driving	Record	0.22M
12	0000W0000	2022-11-02 01:38:27	Wrong-way Driving	Record	0.40M
13	0000W0000	2022-11-02 01:38:27	Wrong-way Driving	Record	0.37M
14	0000W0000	2022-11-02 01:38:29	Wrong-way Driving	Record	0.38M
15	0000W0000	2022-11-02 01:38:31	Wrong-way Driving	Record	0.38M

Step 4 Click **Download** to download the video to the computer.

Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic equipment network security:

1. Use Strong 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; character types include 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 overlapped characters, such as 111, aaa, etc.;

2. Update Firmware and Client Software in Time

- According to the standard procedure in Tech-industry, we recommend to keep your equipment (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the equipment is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
- We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your equipment network security:

1. Physical Protection

We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable equipment (such as USB flash disk, serial port), etc.

2. Change Passwords Regularly

We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. Set and Update Passwords Reset Information Timely

The equipment supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. Enable Account Lock

The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. Change Default HTTP and Other Service Ports

We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

We recommend you to bind the IP and MAC address of the gateway to the equipment, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. **Audio and Video Encrypted Transmission**

If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

- Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
- Check equipment log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

Due to the limited storage capacity of the equipment, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. **Construct a Safe Network Environment**

In order to better ensure the safety of equipment and reduce potential cyber risks, we recommend:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
- Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.

ENABLING A SAFER SOCIETY AND SMARTER LIVING

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