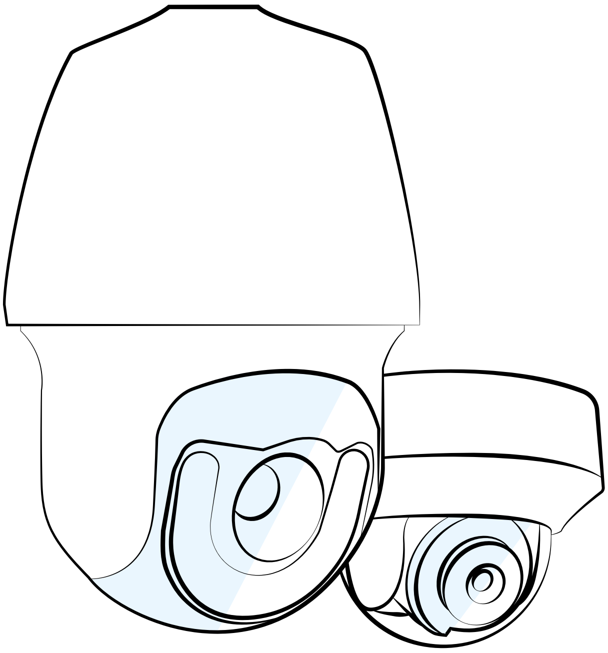
EN

BCS

Network Speed Dome PTZ Camera Web 5.0

User's Manual



☎ ✉

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FOREWORD

General

This manual introduces the functions and operations of the Network Speed Dome PTZ Camera (hereinafter referred to as “the Camera”).

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.

Frequently Used Functions

Button	Description
Apply/Save	Save the configurations.
Refresh	Refresh the configurations to the latest.
Default	Restore the configurations to the default.
Clear	Clear the configurations.
Delete	Delete the configurations.

Revision History

Revision Content	Release Time	Revision Content
V1.0.7	• Added face detection. • Added app center.	December 2023
V1.0.6	Updated AI functions.	October 2023
V1.0.5	• Added maintenance center. • Updated illuminator function.	September 2023
V1.0.4	Added low power mode.	August 2023
V1.0.3	Added descriptions on the power consumption mode and PIR alarm functions.	June 2023
V1.0.1	Added cellular network function.	August 2022
V1.0.0	First release.	September 2021

Privacy Protection Notice

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

Interface Declaration

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

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the props.
- We are not liable for losses incurred due to operating the props 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 props 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.

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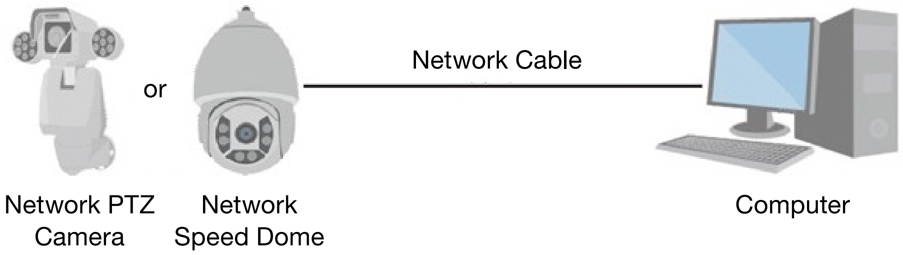
1. OVERVIEW

1.1 Introduction

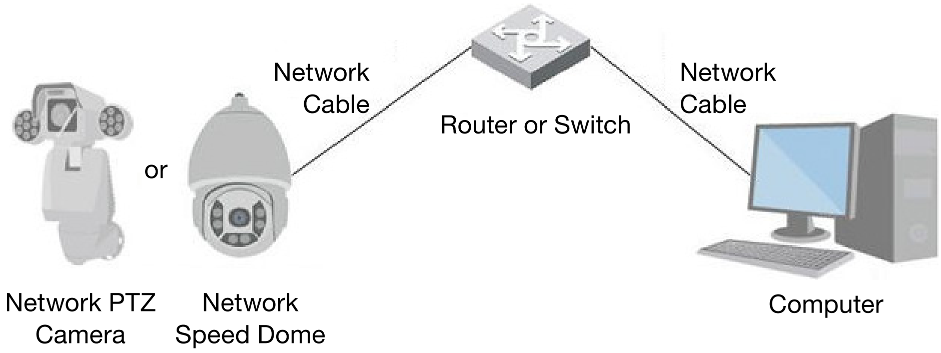
Network Speed Dome PTZ Camera is a combination of traditional camera and network technology. Users can remotely connect to the Camera through the network for configuration and management.

Get the camera IP address before visiting PTZ Camera through network, which can be searched by ConfigTool.

Connected through network cable



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.

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

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.

IVS

- Supports crossing fence detection, tripwire, intrusion, abandoned object, moving object, fast moving, parking detection, people gathering, loitering detection, and more.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending and snapshot taking.

Face detection

- Supports human face detection and display the related attributes on the **Live** page.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending and snapshot taking.

Face Recognition

- Detects human faces, compares them with face images in the database, and links alarm output.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending and snapshot taking.

People Counting

- Support counting of people number (including the people flow enter/exit the detection area and people stay in the area) and queuing data, and generate report.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending and snapshot taking.

Video Metadata

- Supports the detection of people, non-motor vehicles, and motor vehicles in the captured video, and displays the related attributes and characteristics on the Live page.
- When an alarm is triggered, the system performs linkages such as alarm output.

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 playing audio.

2. CONFIGURATION FLOW

Configure the device as needed.

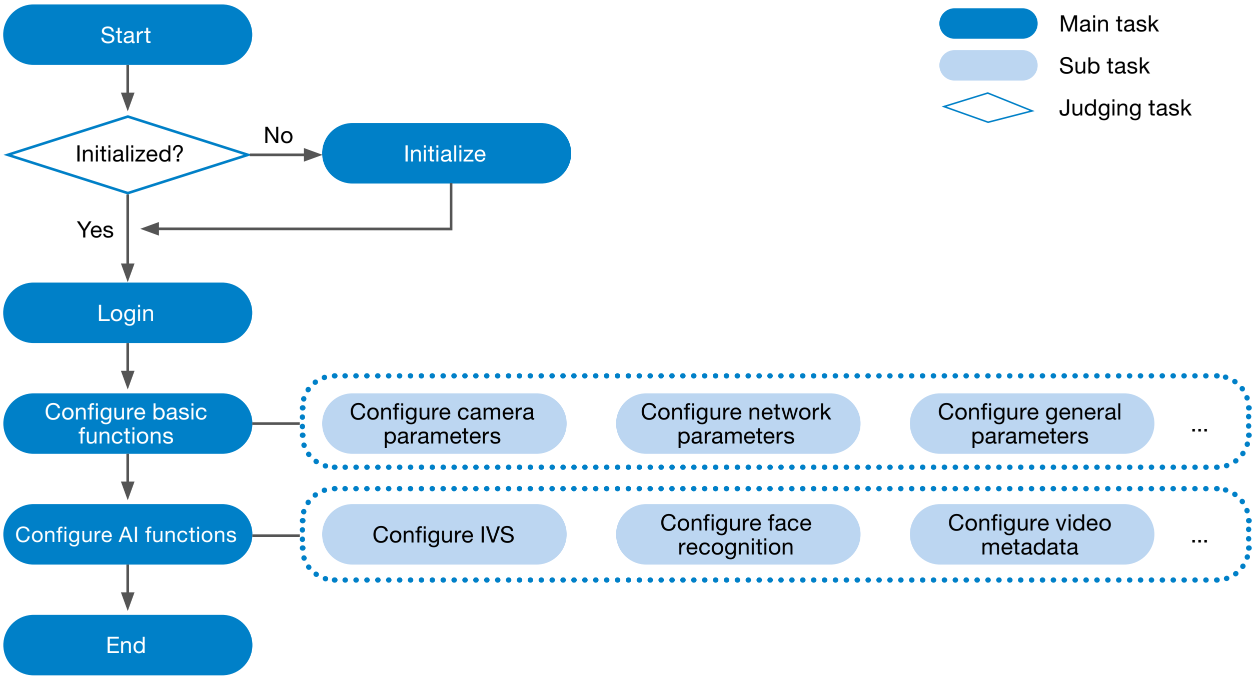
Start
Initialized?
No
Initialize
Yes
Login
Configure basic functions
Configure camera parameters
Configure network parameters
Configure general parameters
...
Configure AI functions
Configure IVS
Configure face recognition
Configure video metadata
...
End
Main task
Sub task
Judging task

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 webpage. 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 AI”

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3. DEVICE INITIALIZATION

Background Information

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

NOTE!

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

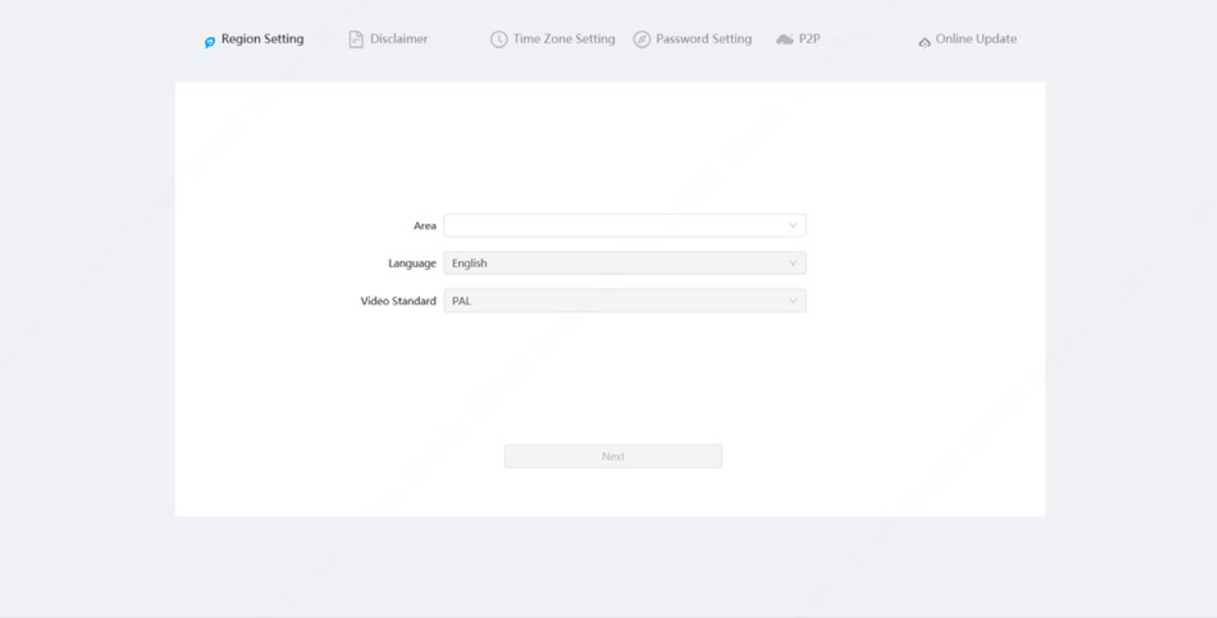
Procedure

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

NOTE!

The IP is 192.168.1.108 by default.

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

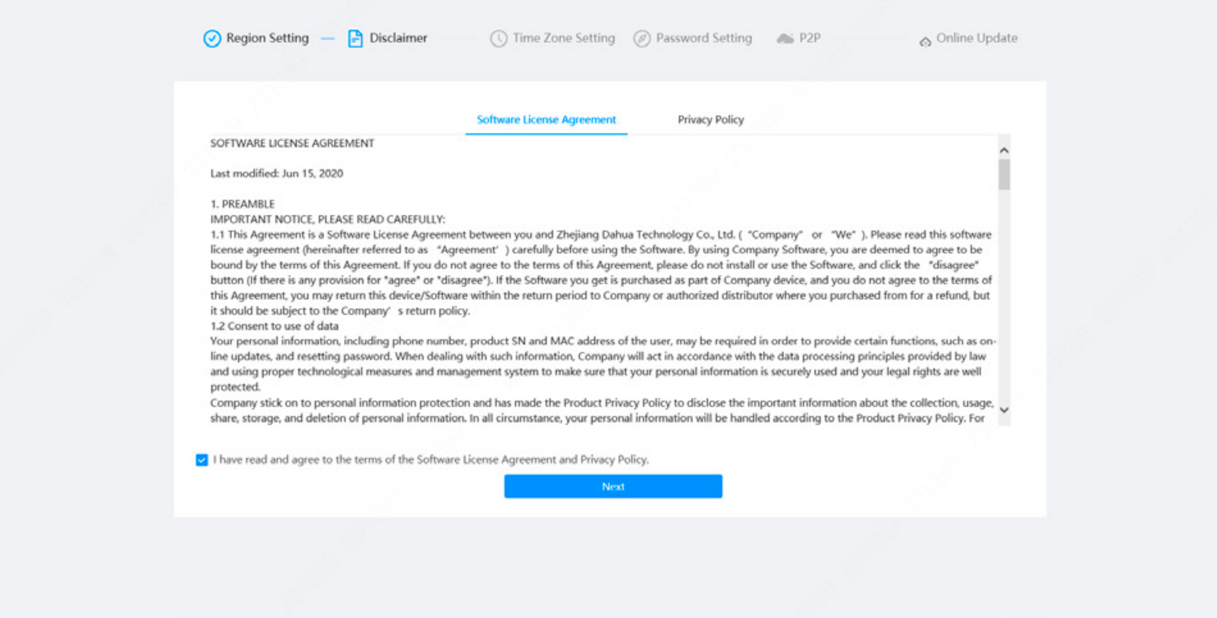


Area

Language: English

Video Standard: PAL

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**.



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.

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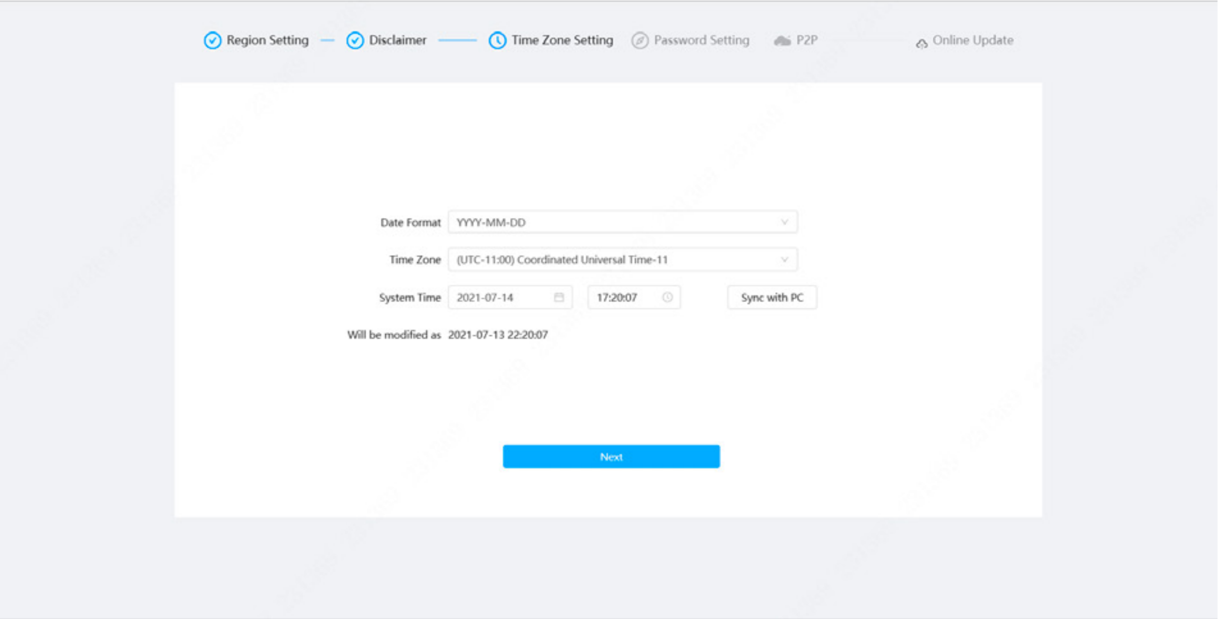
4. Configure the time parameters, and then click **Next**.



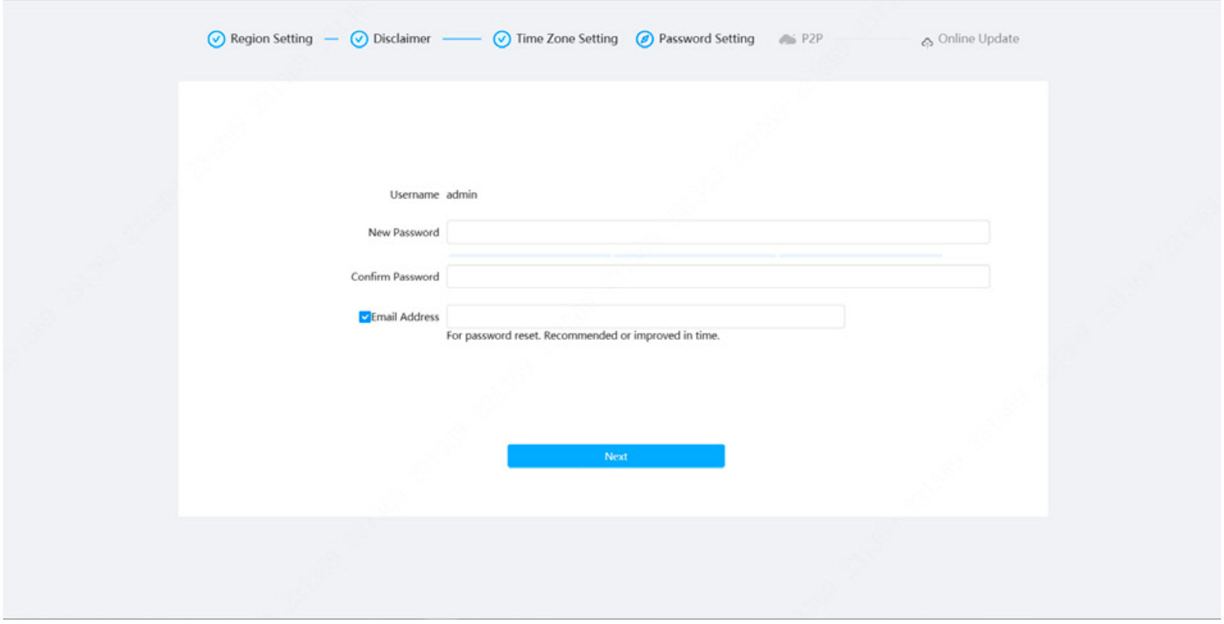
Date Format: YYYY-MM-DD

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

System Time: 2021-07-14 17:20:07

Will be modified as 2021-07-13 22:20:07

5. Set the password for the admin account.



Username admin

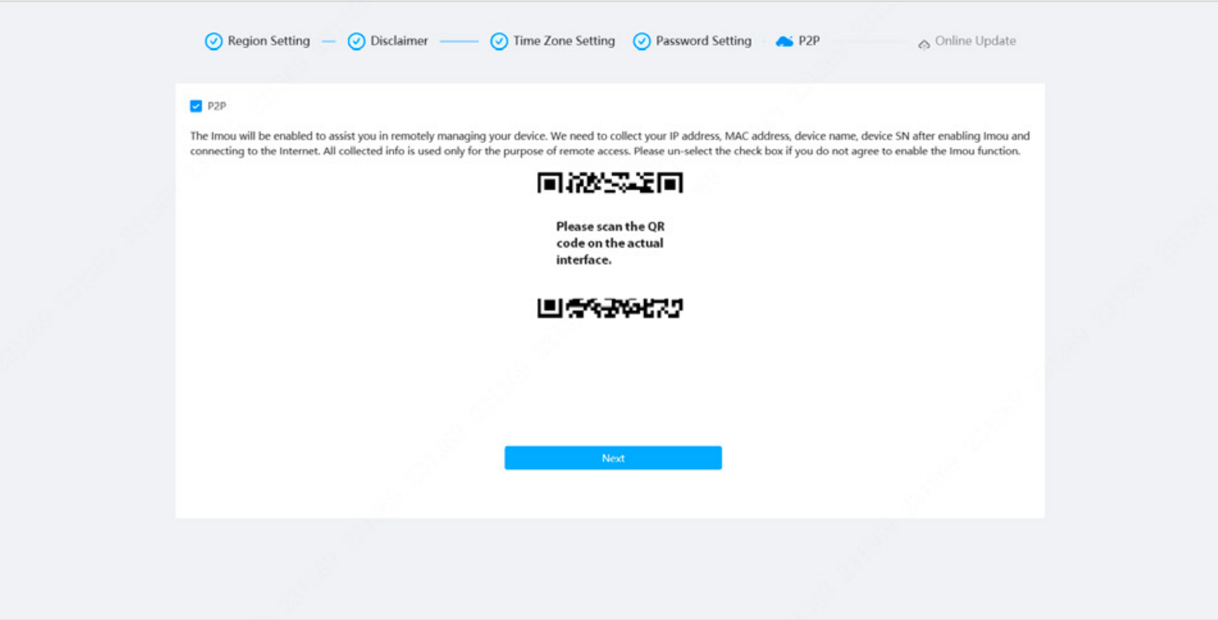
☑ Email Address

For password reset. Recommended or improved in time.

Table 3-1 Description of password configuration

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

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

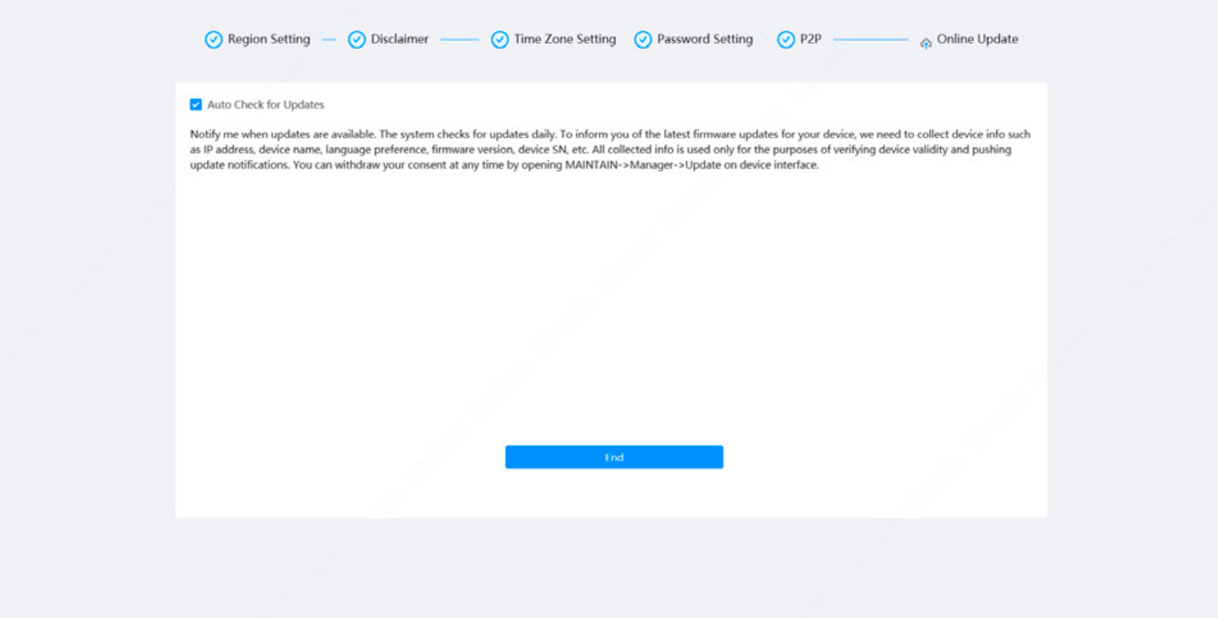


☑ P2P

The Imou will be enabled to assist you in remotely managing your device. We need to collect your IP address, MAC address, device name, device SN after enabling Imou and connecting to the Internet. All collected info is used only for the purpose of remote access. Please un-select the check box if you do not agree to enable the Imou function.

Please scan the QR code on the actual interface.

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



☑ Auto Check for Updates

Notify me when updates are available. The system checks for updates daily. To inform you of the latest firmware updates for your device, we need to collect device info such as IP address, device name, language preference, firmware version, device SN, etc. All collected info is used only for the purposes of verifying device validity and pushing update notifications. You can withdraw your consent at any time by opening MAINTAIN->Manager->Update on device interface.

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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 main page

4.1 Device Login

Log in to the device webpage through a browser.

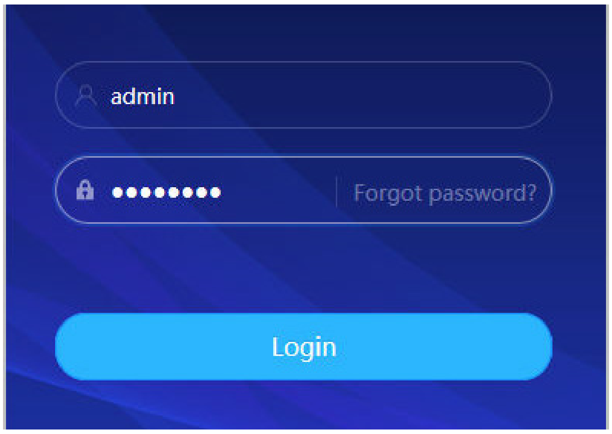
Prerequisites

- 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 IP of the computer and the IP of the Camera on the same network.

Procedure

1. Open the browser, enter the device IP address (192.168.1.108 by default) in the address box, and then press Enter key.
2. Enter the username and password. The username is admin by default.

TIPS!
Click “Forgot password?” to reset the password through the email address that is set during the initialization. For details, see “4.8.3.2 Resetting Password”.



admin

●●●●●●●●

3. Click **Login**.

   The **Live** page is displayed. For details, see “6.1 Live Page”.

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

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

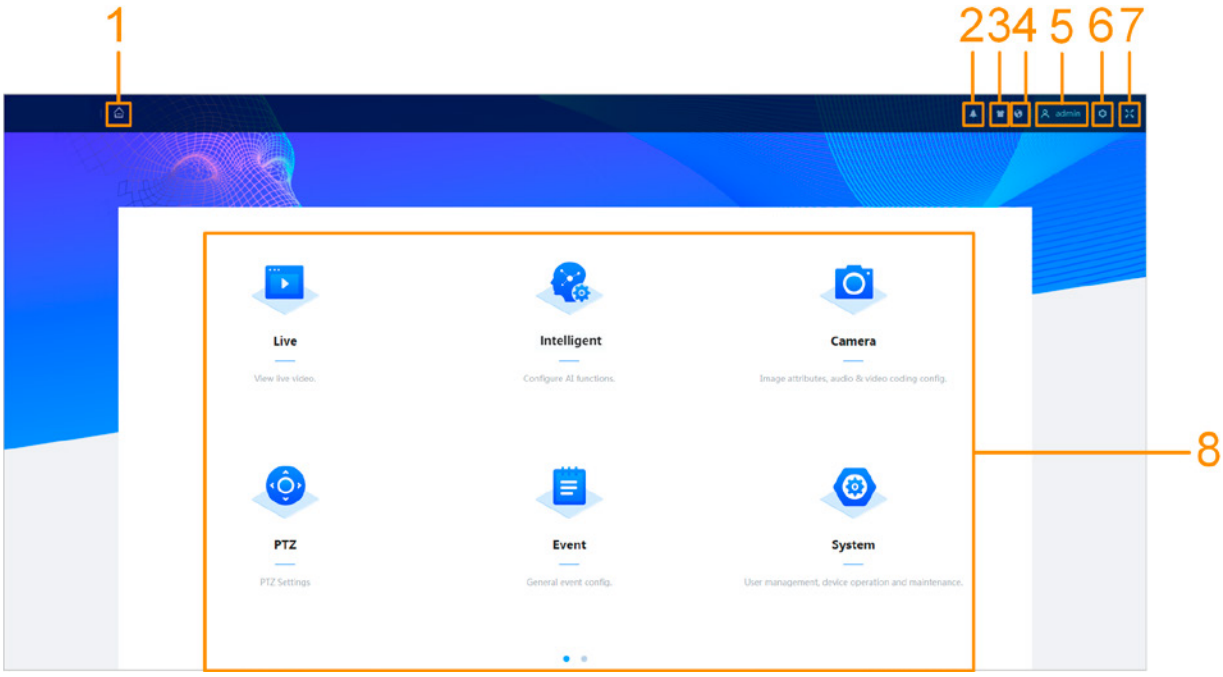


Table 4-1 Description of main page

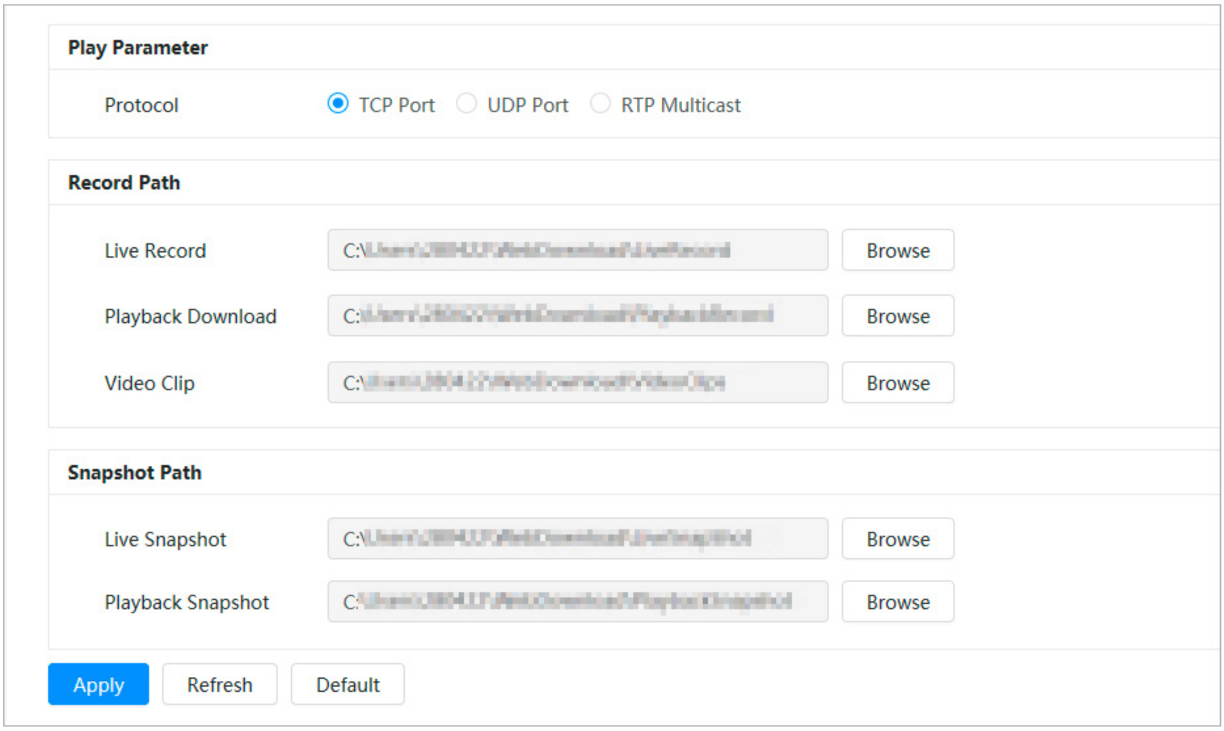
No.	Button	Description
1	⌂	Display the main page.
2	🔔	Subscribe to alarm messages. For details, see "4.6.1.4.2 Subscribing to Alarm Information".
3	👕	Set the skin.
4	🌐	Set the language.
5	admin	• Click and select **Restart**, and the camera restarts. • Click and select **Logout** to go back to the login 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. • Intelligent: Configure AI functions of the camera. • 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. • Security: Check the device security status and set security functions. • 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. • 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

1. Select ⚙ > **Local**.



Play Parameter

Protocol ● TCP Port ○ UDP Port ○ RTP Multicast

Record Path

Live Record C:\[redacted] Browse

Playback Download C:\[redacted] Browse

Video Clip C:\[redacted] Browse

Snapshot Path

Live Snapshot C:\[redacted] Browse

Playback Snapshot C:\[redacted] Browse

Apply Refresh Default

2. Configure play parameters.

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

NOTE!
Before selecting **Multicast**, you need to configure multicast parameters in advance. For details, see “4.4.9 Multicast”.

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**. **NOTE!** 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	**NOTE!** “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	
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	

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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.

NOTE!
Camera parameters might differ depending on the device.

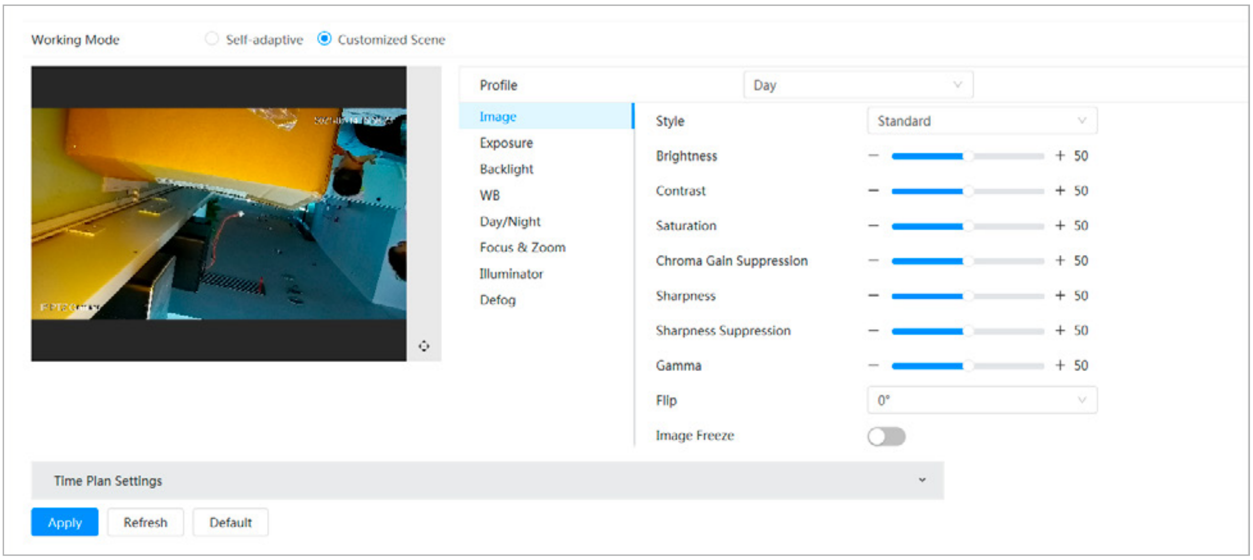
4.3.1 SETTING IMAGE PARAMETERS

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, including day, night, general and front light, to set and view the configuration parameters and effects under the corresponding type, including image, exposure and backlight.



Working Mode ○ Self-adaptive ● Customized Scene

Profile: Day

Style	Standard
Brightness	50
Contrast	50
Saturation	50
Chroma Gain Suppression	50
Sharpness	50
Sharpness Suppression	50
Gamma	50
Flip	0°
Image Freeze	○

4.3.1.2 Configuring Operating Mode

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

Procedure

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

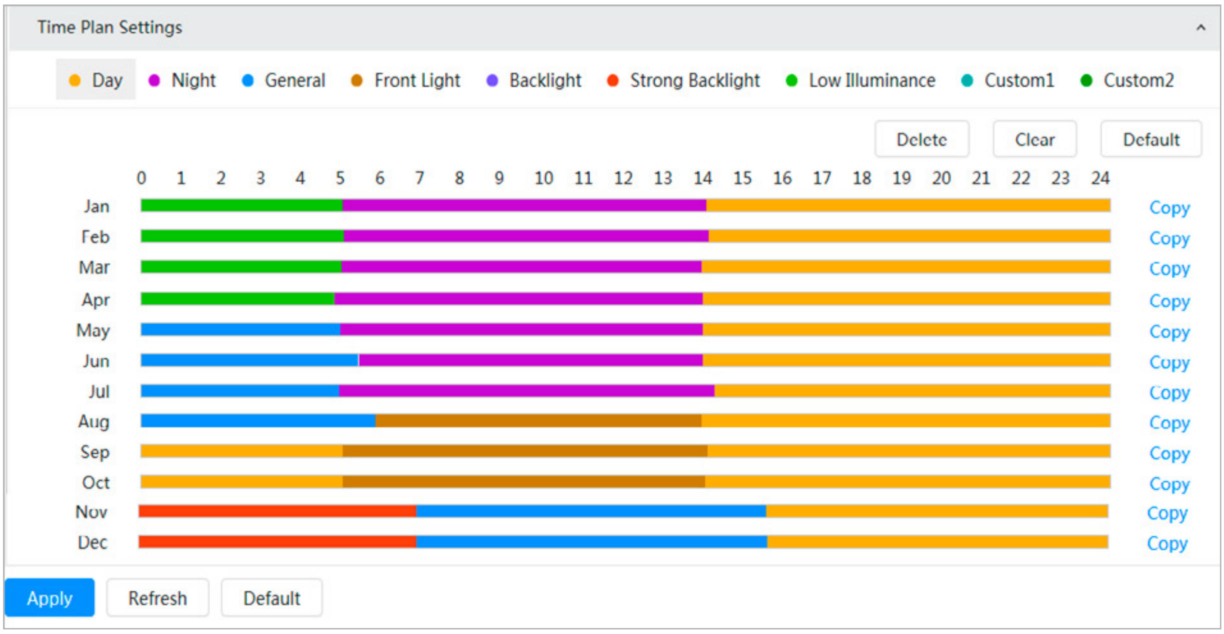
     If you select **Self-adaptive**, go straight to Step 5.
   - Customized scene: Camera monitors according to the settings of the profile type at different times.

     If you select **Customized scene**, go straight to Step 3.
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.

4. Set time plans.

   You can set daily schedule by month.



   (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**.

NOTE!
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.

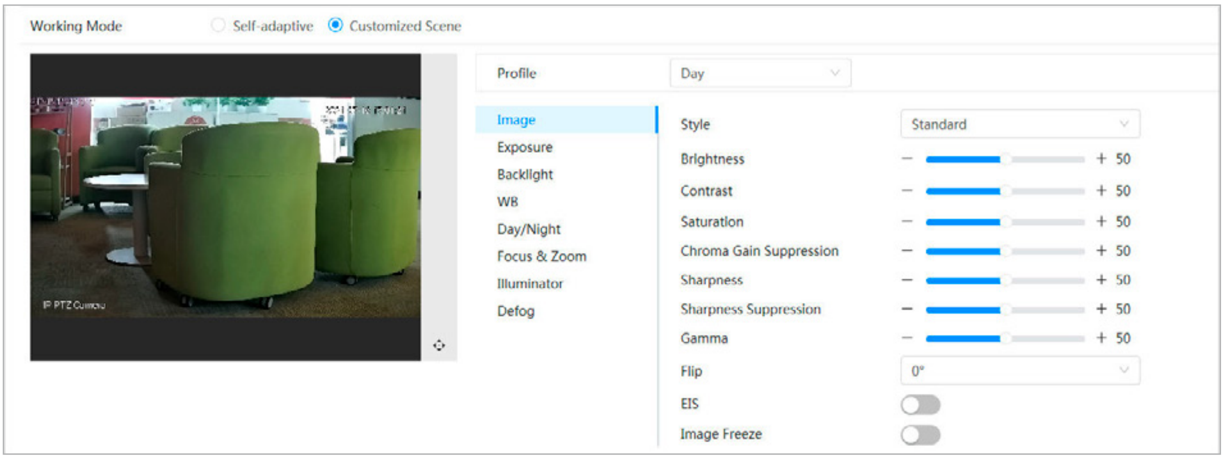
5. Click **Apply**.

4.3.1.3 Adjusting Image

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

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Image > Image**.
2. Select the camera that needs to be configured from the "Channel" drop-down list and then configure parameters.



Working Mode ○ Self-adaptive ● Customized Scene

Profile: Day

Style: Standard

Brightness: 50

Contrast: 50

Saturation: 50

Chroma Gain Suppression: 50

Sharpness: 50

Sharpness Suppression: 50

Gamma: 50

Flip: 0°

EIS: off

Image Freeze: off

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. **NOTE!** 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. **NOTE!** This parameter takes effect only when the Camera is in an environment with low luminance.
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 (OIS) 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.
ELS	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.

3. Click **Apply**.

4.3.1.4 Exposure

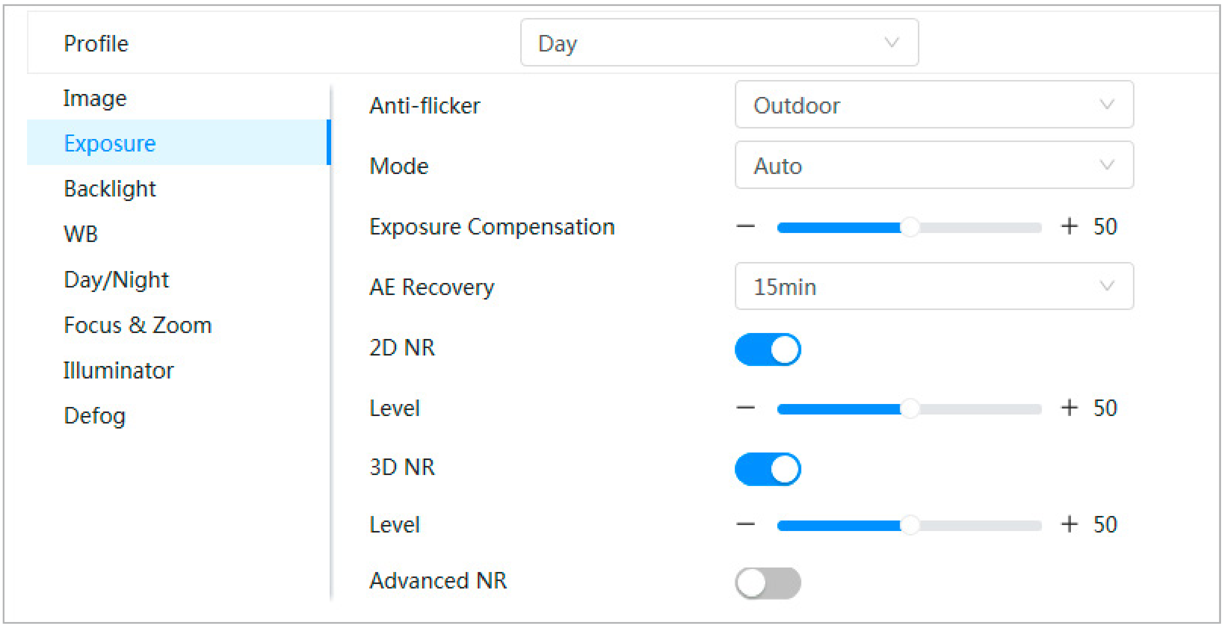
Background Information

Configure iris and shutter to improve image clarity.

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

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Image > Exposure**.
2. Select the camera that needs to be configured from the **Channel** drop-down list and then configure parameters.



Profile: Day

Anti-flicker: Outdoor

Mode: Auto

Exposure Compensation: 50

AE Recovery: 15min

2D NR: on

Level: 50

3D NR: on

Level: 50

Advanced NR: 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 Camera 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.
Iris	You can set the camera luminous flux. The larger the Iris value, the brighter the image.

Parameter	Description	
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 low-speed shutter for the Camera. 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.	**NOTE!** 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.	

3. Click **Apply**.

4.3.1.5 Backlight

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

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Image > Backlight**.
2. Select the camera that needs to be configured from the "Channel" drop-down list and then select a backlight mode from the list.

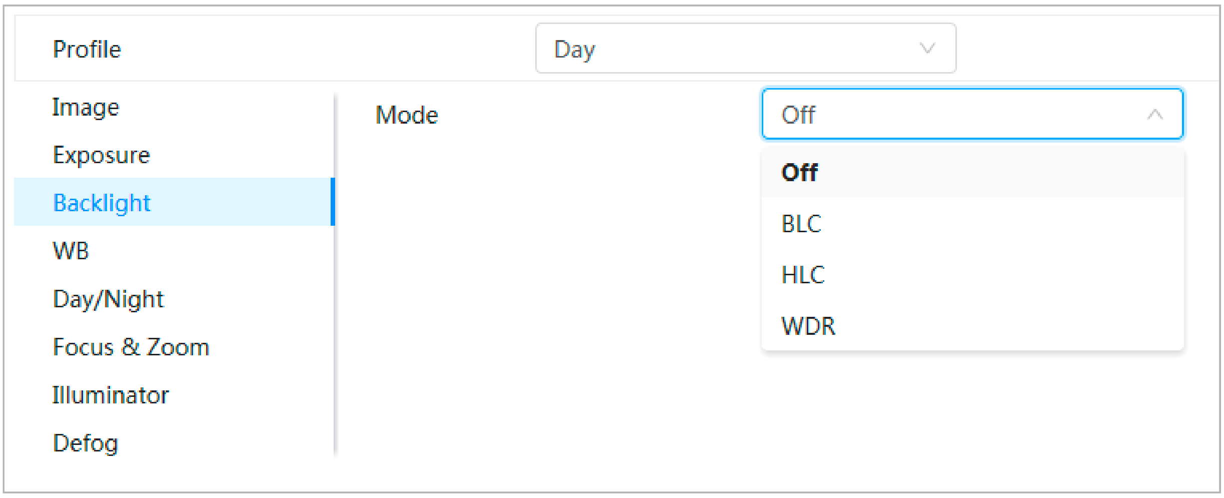


Table 4-5 Description of backlight parameters

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. **NOTE!** 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.

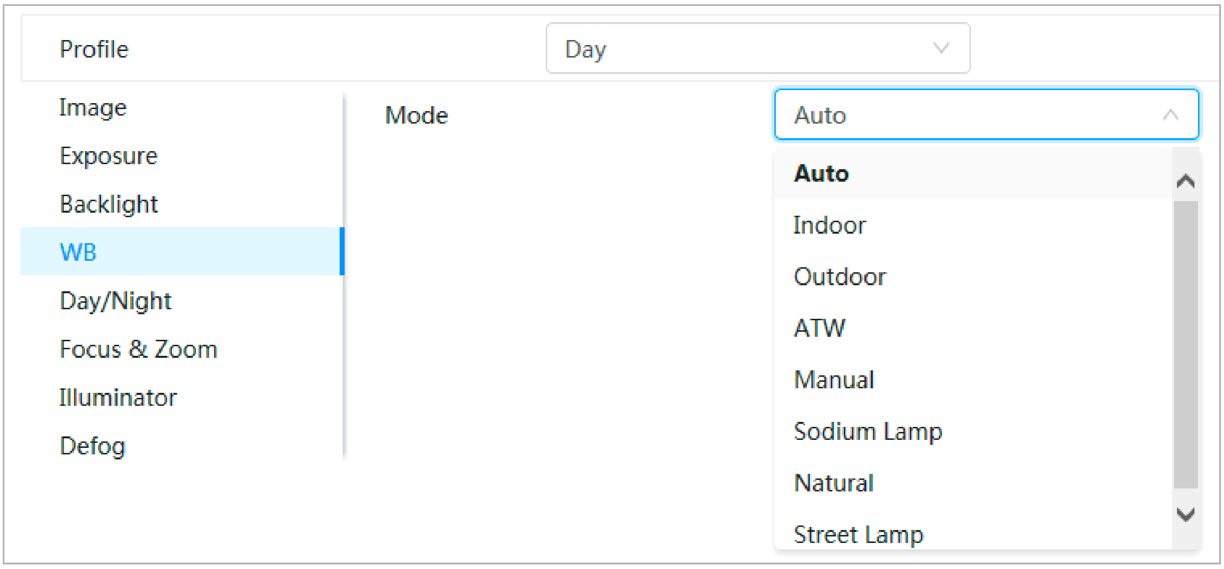
3. Click **Apply**.

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.

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Image > WB**.
2. Select the camera that needs to be configured from the “Channel” drop-down list and then configure **White Balance Mode**.



Profile: Day

Mode: Auto

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.

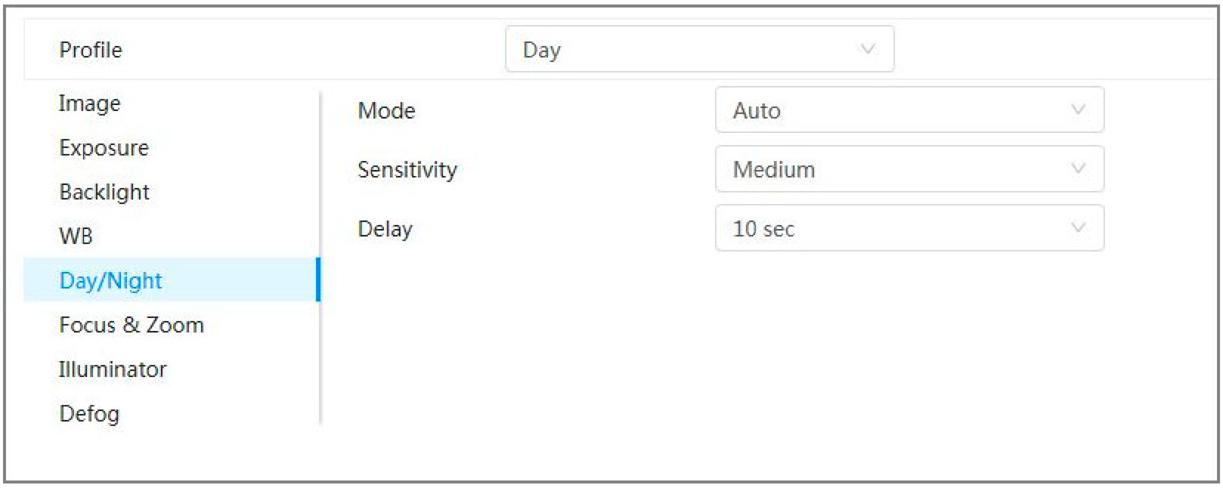
3. Click **Apply**.

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.

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Image > Day/ Night**.
2. Select the camera that needs to be configured from the **Channel** drop-down list and then configure parameters.



Profile: Day

Mode: Auto

Sensitivity: Medium

Delay: 10 sec

Table 4-7 Description of Day/Night mode parameters

Parameter	Description
Mode	You can select device display mode from **Color**, **Auto**, and **B/W**. NOTE! **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 the Camera switches between color and black- and-white mode. The lower the value is, the faster the Camera switches between color and black-and-white mode.

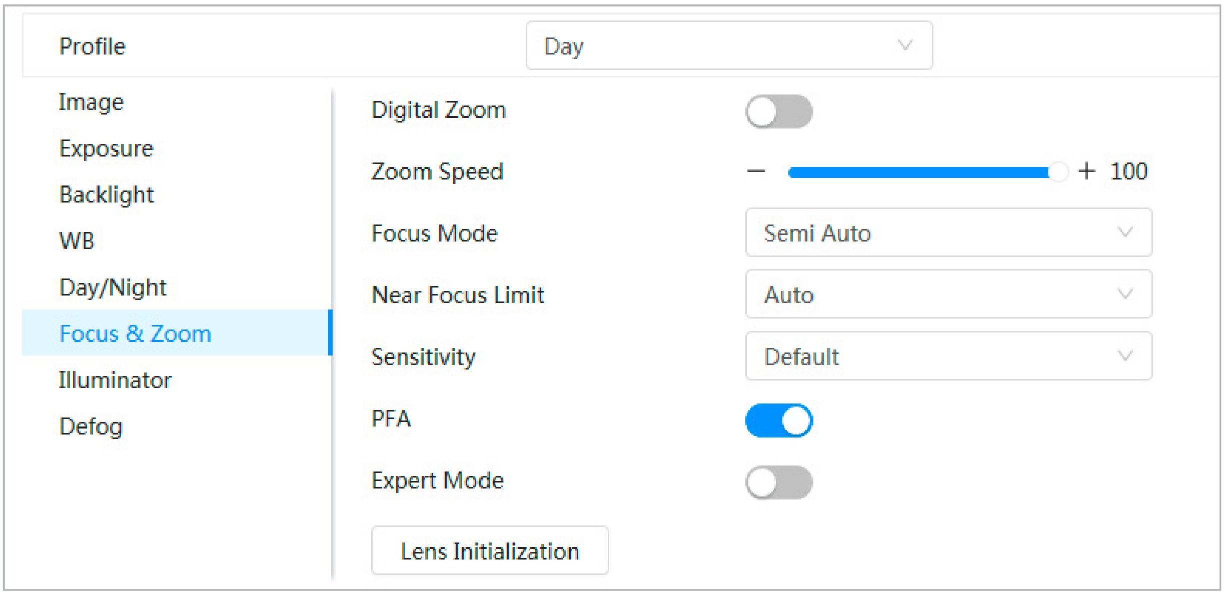
3. Click **Apply**.

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.

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Image > Focus & Zoom**.
2. Select the camera that needs to be configured from the **Channel** drop-down list and then configure focus & zoom parameters.



Profile: Day

Digital Zoom: ○

Zoom Speed: 100

Focus Mode: Semi Auto

Near Focus Limit: Auto

Sensitivity: Default

PFA: ●

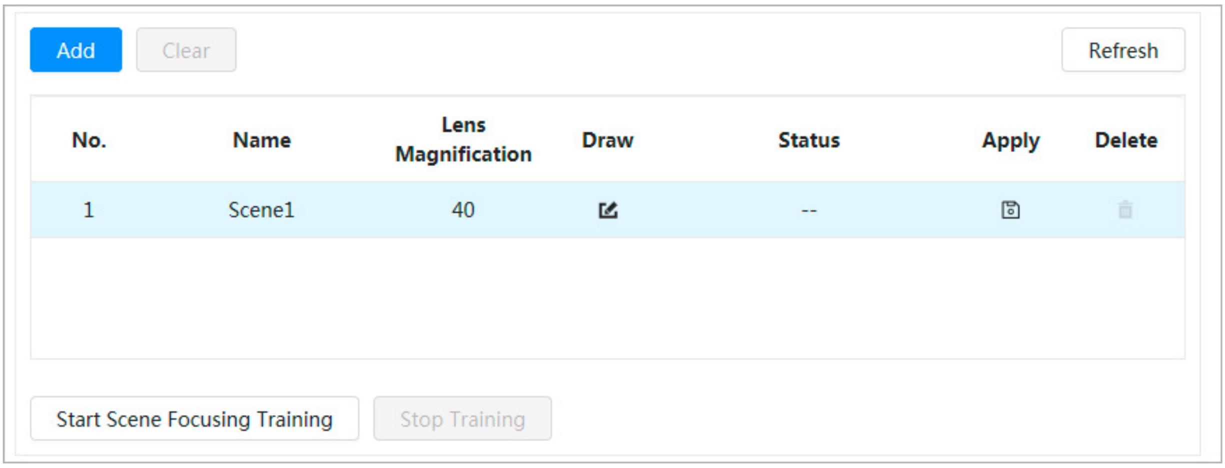
Expert Mode: ○

Table 4-8 Description of focus & zoom parameters

Parameter	Description
Digital Zoom	Click ○ to enable the digital zoom function. You can use the digital zoom to continue zooming operation even if the optical zoom is at its maximum value.
Zoom Speed	Adjust the zoom speed of the Camera. The larger the value, the faster the zoom speed.
Focus Mode	Set focus mode. • **Auto**: Once there is any movement or change of an object on the video image and the image turns blurry, the Camera will focus again automatically. • **Semi-Auto**: The Camera will focus automatically when you click **Focus** or **Zoom** or when a preset change or PTZ switch is detected. • **Manual**: The Camera cannot focus automatically. You need to adjust the focus manually.
Near Focus Limit	Set the near focus limit of the Camera. If the focus limit is too small, the Camera might get the camera focus on its dome. By changing the focus limit, the focus speed can be changed.
Sensitivity	Trigger the focusing sensitivity of the Camera. The higher the sensitivity, the easier to trigger focus.
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.

3. (Optional) Configure expert mode.

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



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.

NOTE!
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**.

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.

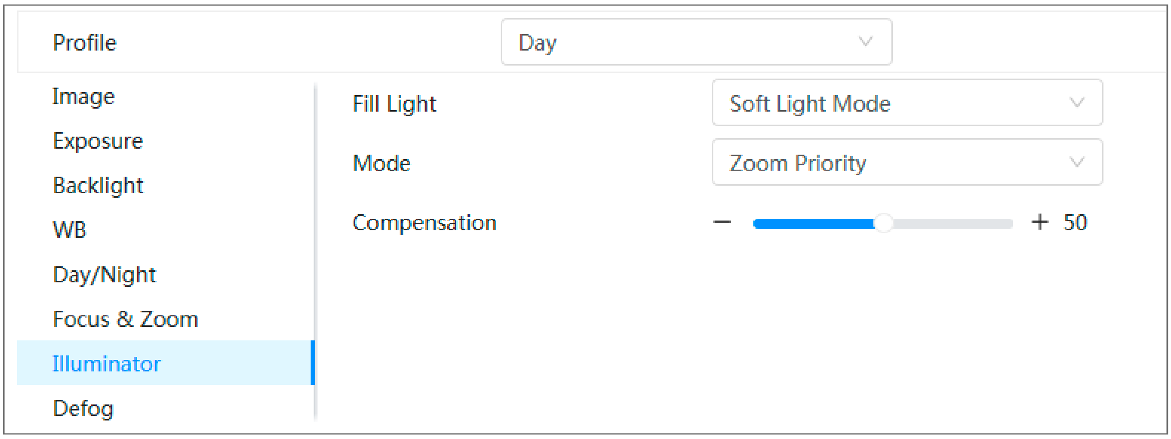
Procedure

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

NOTE!
Different device models support different types of illuminators. This manual is for reference only, and might differ from the actual page.

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

Illuminator (1)



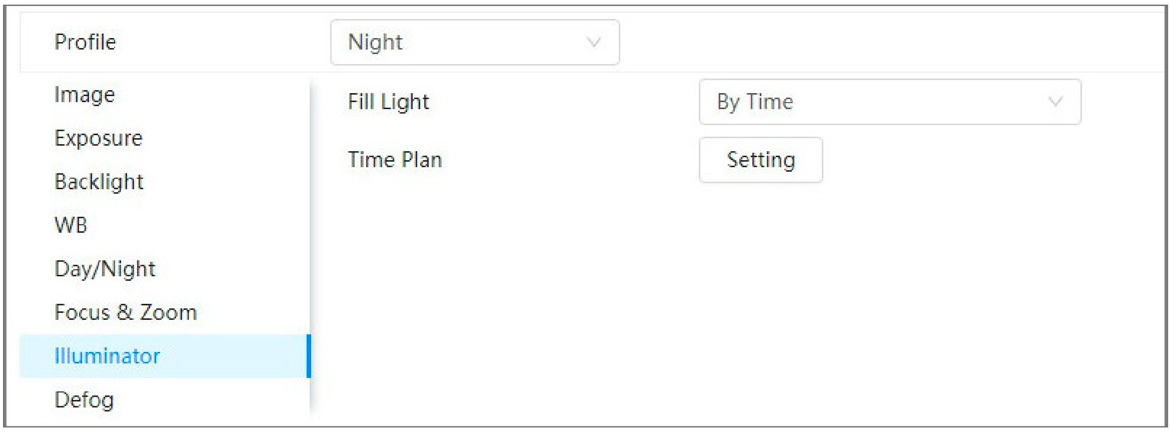
Profile: Day

Fill Light: Soft Light Mode

Mode: Zoom Priority

Compensation: − + 50

Illuminator (2)

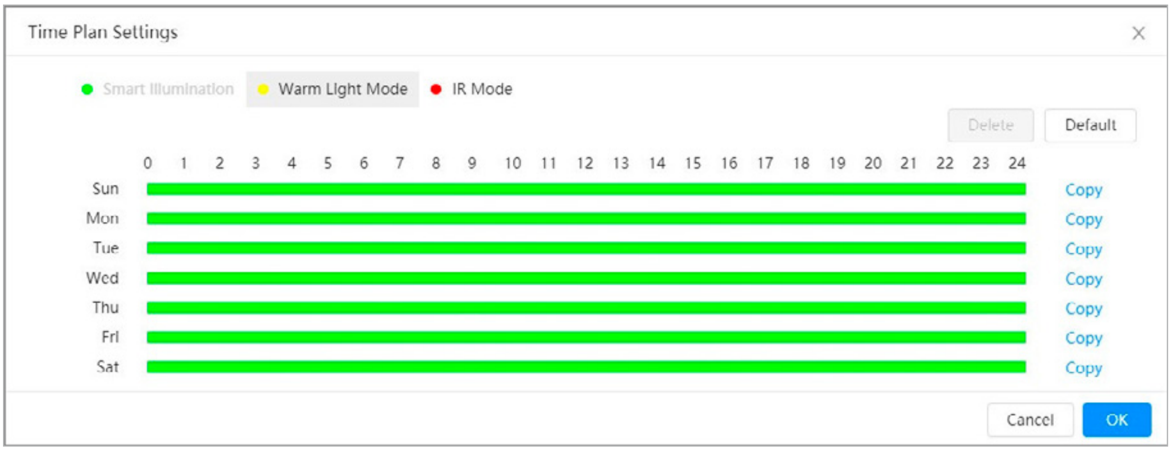


Profile: Night

Fill Light: By Time

Time Plan: Setting

Time plan settings



● Smart Illumination ● Warm Light Mode ● IR Mode

Table 4-9 Description of illuminator parameters

Parameter		Description
Fill Light		When the Camera is equipped with illuminator, it supports setting illumination mode for illuminator, including **IR Mode**, **White Light Mode**, **Soft Light Mode**, **Smart Illumination**, and **By Time**. • **IR Mode**: Enable the IR illuminator, and the white light is disabled. You can only capture black and white images after enabling this function. • **White Light Mode**: Enable the white light, and the IR illuminator is disabled. You can capture clear scene image after enabling this function. • **Warm Light Mode**: Enable the warm light, and the IR illuminator is disabled. You can capture clear scene image after enabling this function. • **Soft Light Mode**: Enable both IR illuminator and white light at the same time, and adjust the brightness of 2 illuminators to get clear images. • **Smart Illumination**: This function is mainly used at night. Smart illumination applies IR mode in most situations. When an event occurs (perimeter, motion detection and human detection), the camera automatically switches to white light mode to link image capturing and video recording under the full color mode. The white light turns off when the event stops, and then the mode switches to IR mode according to the ambient brightness. **NOTE!** The status of the illuminator mainly depends on time and environment. If the smart illumination is triggered at night and the event continues during the day, the illuminator configured for the daytime will be turned off. • **By Time**: Set the illumination solution according to the time period and use different solutions at different time periods.
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 illuminator is too bright, the center of the image may be overexposed. We recommend adjusting the brightness upper limit according to the actual scene. The value range is 0–100, and the default is 100.
	SmartIR	The system adjusts the illumination intensity according to the ambient lighting condition. **NOTE!** 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. **NOTE!** Some devices support setting the sensitivity of the illuminator.
	Off	Illuminator is off.
Illuminator Delay		The duration of the illuminator. **NOTE!** When selecting **Smart Illumination** in the drop-down list next to **Fill Light**, you need to set **Illuminator Delay**.
Time Plan		When selecting **By Time** in the drop-down list next to **Fill Light**, you need to set **Time Plan**. The Camera uses different illumination solutions at different time periods based on the time. 1. Click **Setting** next to **Time Plan**. 2. Select an illumination solution, and then drag on the timeline to select the time period of the illumination solution. Different colors represent different illumination solutions on the timeline. **NOTE!** • Click the selected time period, and then set an accurate start and end time. • Click **Copy**, select weeks, and then click **Apply**. Time plans for the current week can be quickly copied to other weeks.

3. Click **Apply.**

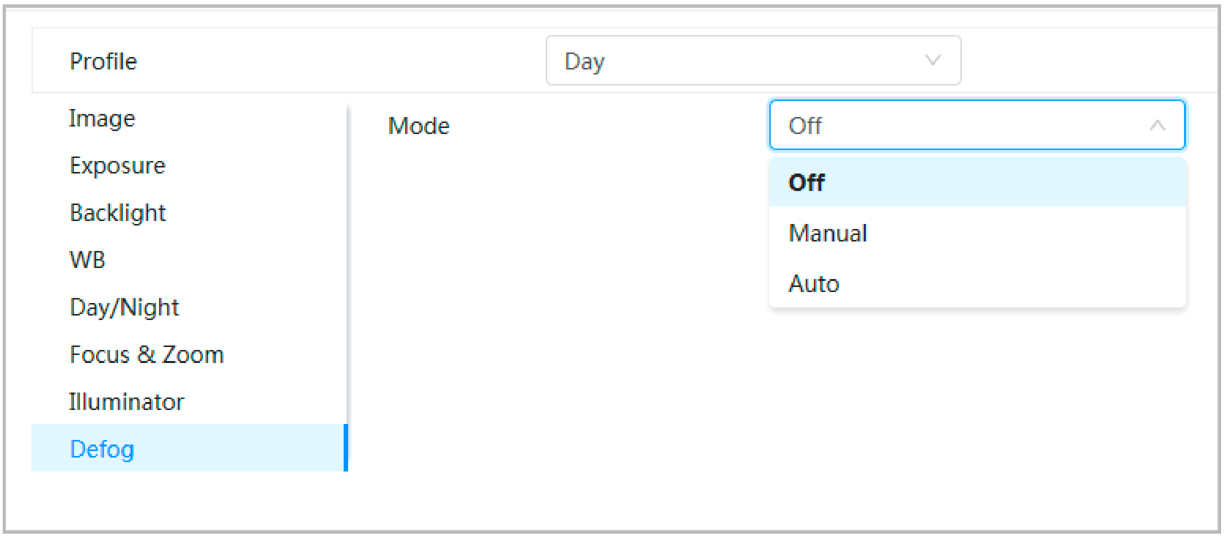
4.3.1.10 Defog

Background Information

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

Procedure

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



Profile: Day

Mode: Off

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.

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.

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

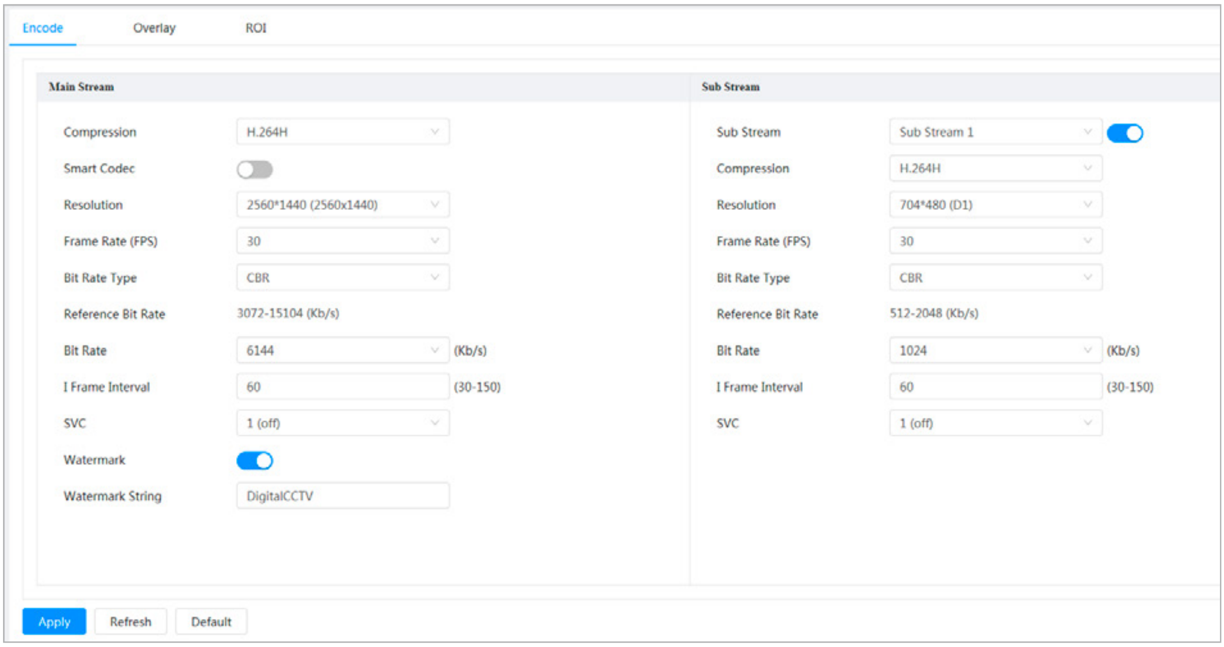
4.3.2.1 Encode

Background Information

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

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Encode**.



Main Stream

Compression: H.264H
Smart Codec: ○
Resolution: 2560*1440 (2560x1440)
Frame Rate (FPS): 30
Bit Rate Type: CBR
Reference Bit Rate: 3072-15104 (Kb/s)
Bit Rate: 6144 (Kb/s)
I Frame Interval: 60 (30-150)
SVC: 1 (off)
Watermark: ●
Watermark String: DigitalCCTV

Sub Stream

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)

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. **NOTE!** 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.**
Smart Codec	Click ○ to enable smart codec to improve video compressibility and save storage space. **NOTE!** After smart codec is enabled, the device would stop supporting the third bit stream, ROI, and smart event detection.
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.

Parameter	Description
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. **NOTE!** The **Bit Rate Type** can only be set as **CBR** when **Encode Mode** is set as **MJPEG**.
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	

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

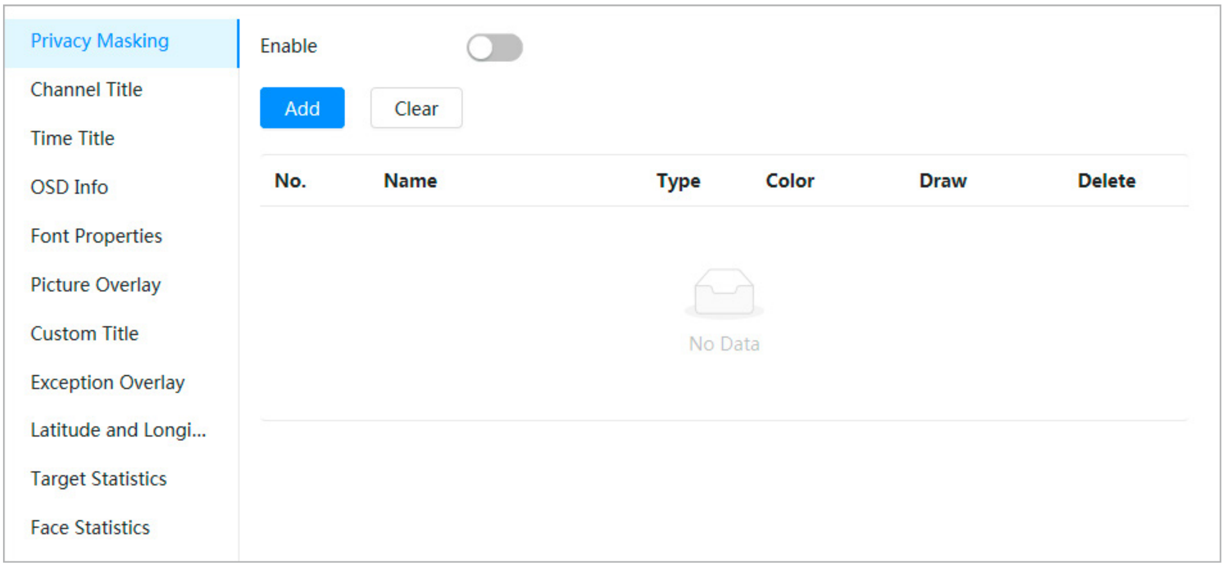
You can enable this function when you need to protect the privacy of some area on the video image.

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Privacy Masking**.
2. Select **Enable**.
3. Click **Add**, select **Color Block** or **Mosaic**, and then draw the blocks on the screen.

NOTE!

- 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.



4. Adjust block size to protect the privacy.
5. Click **Apply**.

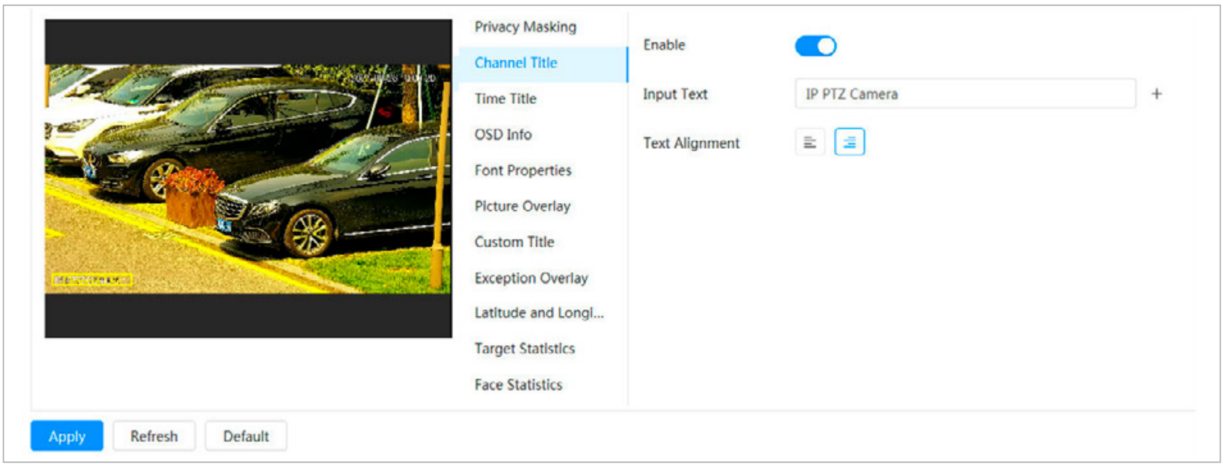
4.3.2.2.2 Channel Title

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

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Overlay** > **Channel Title**.
2. Select **Enable**.
3. Configure channel title, and then select the text alignment.

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



Enable ●

Input Text IP PTZ Camera +

Text Alignment

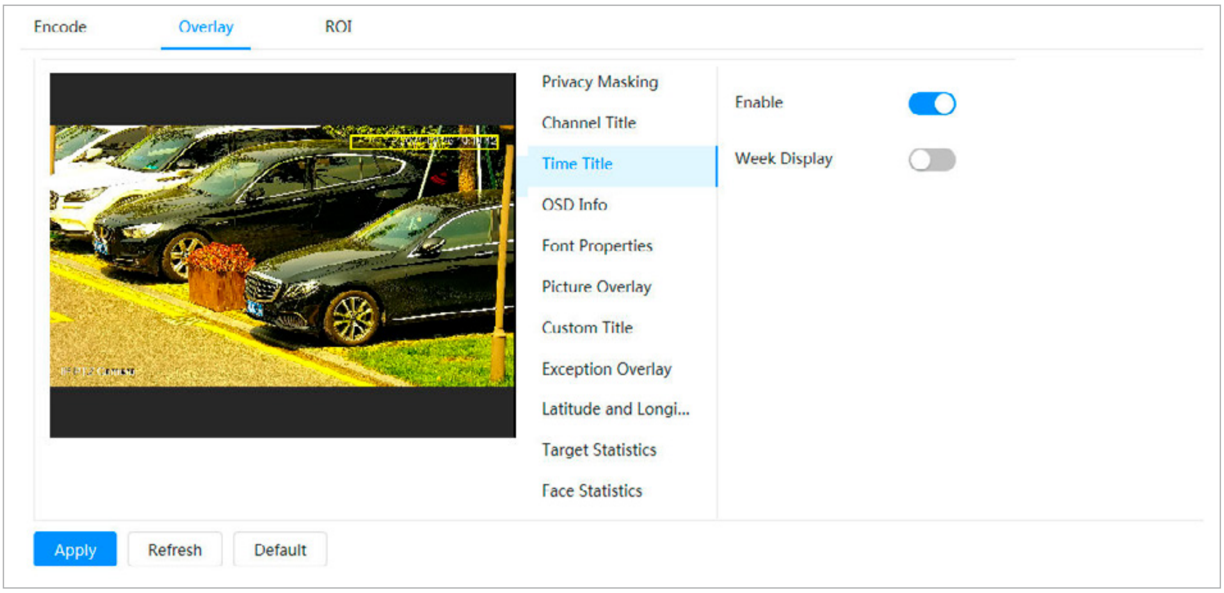
4. Move the title box to the position that you want in the image.
5. Click **Apply**.

4.3.2.2.3 Time Title

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

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Overlay** > **Time Title**.
2. Select **Enable**.
3. (Optional) Select **Week Display** to display the day of week on the video image.
4. Move the time box to the position that you want on the image.



Enable ●

Week Display ○

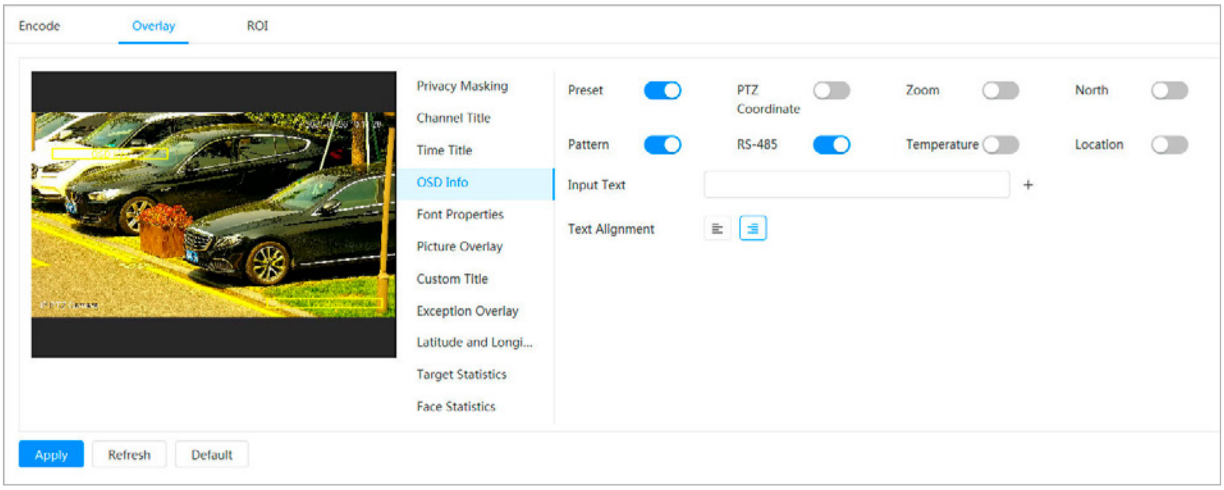
5. Click **Apply**.

4.3.2.2.4 OSD Info

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.

Procedure

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



Preset ● PTZ Coordinate ○ Zoom ○ North ○

Pattern ● RS-485 ● Temperature ○ Location ○

Input Text +

Text Alignment

2. Configure OSD information.

Table 4-12 Description of OSD information parameter

Parameter	Description
Presets	Select **Enable**, and the preset name is displayed on the image when the camera turns to the preset, and it will disappear 3 seconds later.
PTZ Coordinates	Select **Enable**, and the PTZ coordinates information is displayed on the image.
Zoom	Select **Enable** and the zoom information is displayed on the image.
North	Select **Enable**, and the north direction is displayed on the image. When you enable the due north orientation function, the system will prompt you to restart the PTZ.
Pattern	Select **Enable**, and the pattern information is displayed on the image.
RS485	Select **Enable**, and the RS485 information is displayed on the image.
Location	Select **Enable**, and the geographical location is displayed in the text.
Text Alignment	Set the alignment mode of the displayed information on the image.

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

4. Click **Apply**.

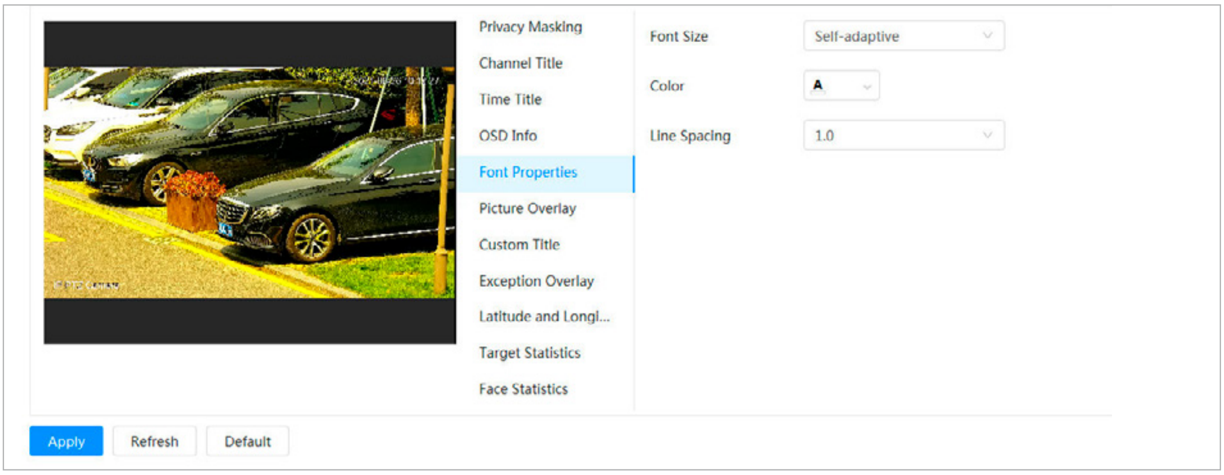
4.3.2.2.5 Font Properties

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

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Overlay** > **Font Properties**.
2. Select the font color and size.

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



Font Size: Self-adaptive
Color: A
Line Spacing: 1.0

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

Background Information

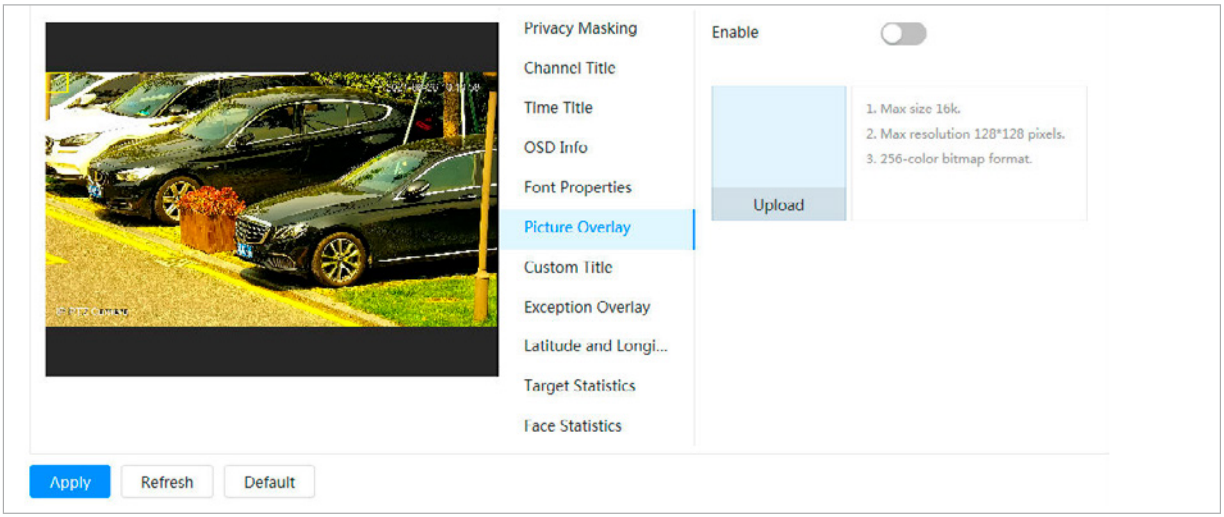
You can enable this function if you need to display image information on the video image.

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

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Overlay** > **Picture Overlay**.
2. Select channel and then select **Enable**.
3. Click **Upload**, and then select the overlaid image.

   The image shows in the **Picture Preview**.



1. Max size 16k.
2. Max resolution 128*128 pixels.
3. 256-color bitmap format.

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

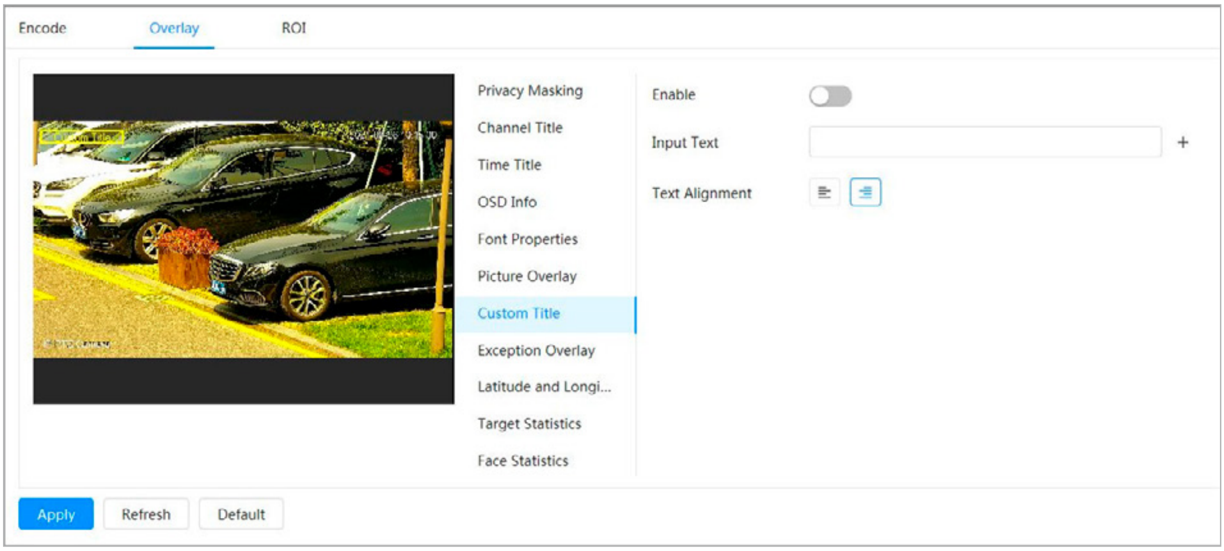
4.3.2.2.7 Custom Title

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

Procedure

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

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



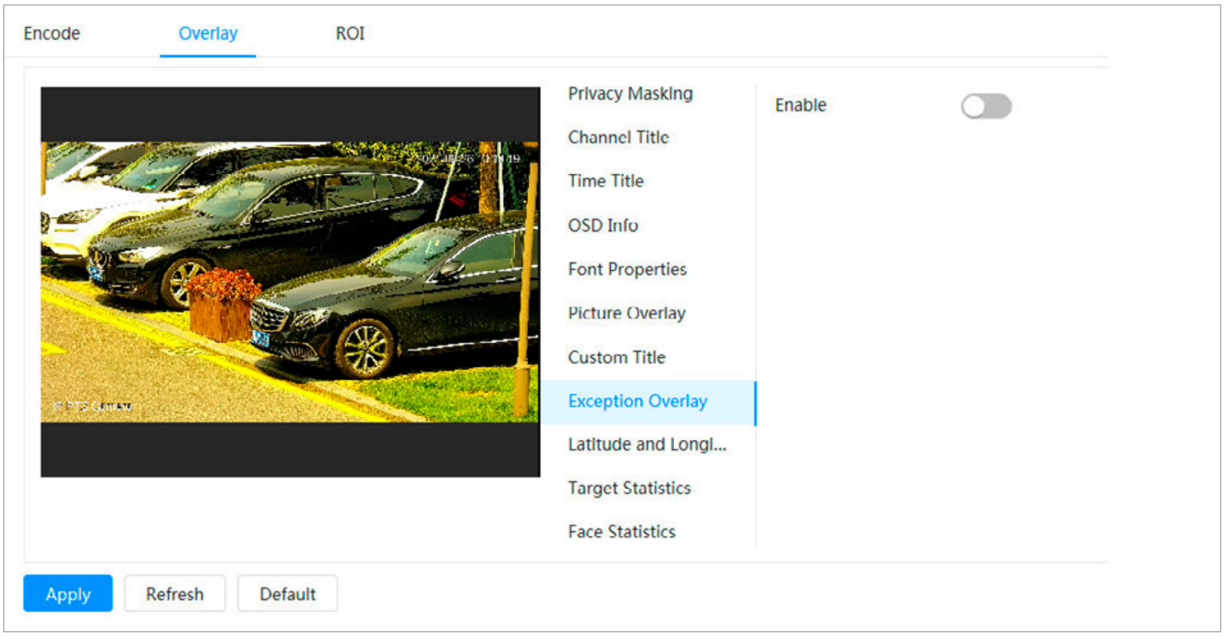
4. Move the custom box to the position that you want in the image.
5. Click **Apply**.

4.3.2.2.8 Exception Overlay

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

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Overlay** > **Exception Overlay**.



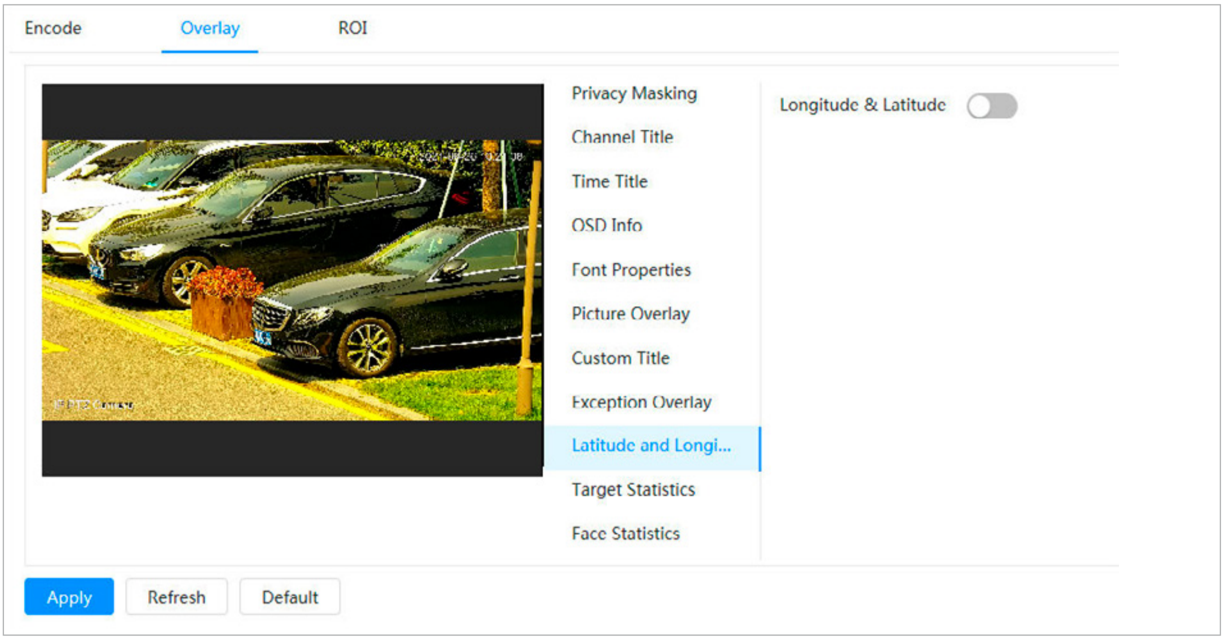
2. Select **Enable**, and then click **Apply**.

4.3.2.2.9 Longitude & Latitude

You can enable this function to display the latitude and longitude information of the cameras on the screen.

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Longitude & Latitude**.



2. Enable **Longitude & Latitude**, and then click **Apply**.

4.3.2.2.10 Target Statistics

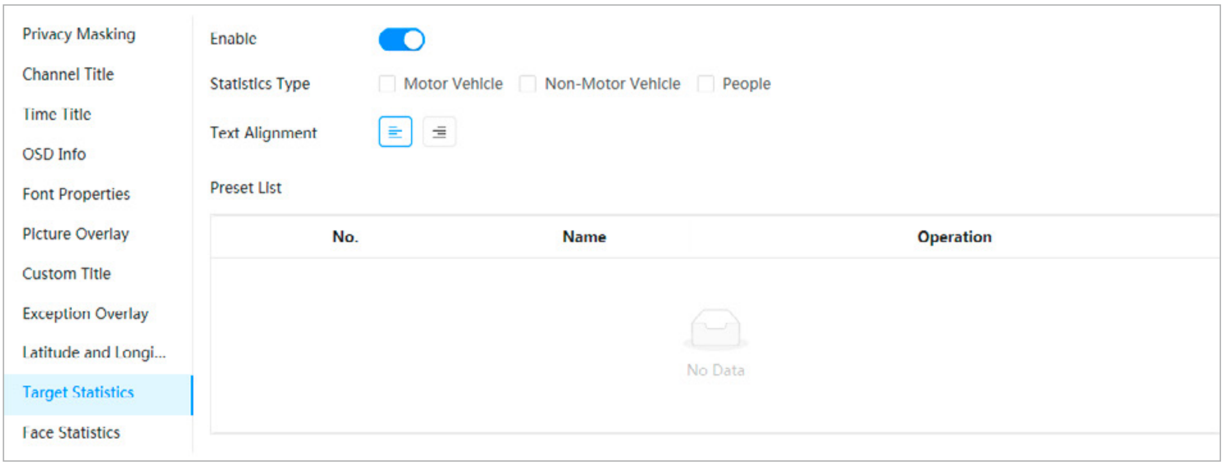
Background Information

After configuring the target statistics, the number of target statistics will be displayed in the image.

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Target Statistics**.
2. Select **Enable**.
3. Select the statistics type, and then select the text alignment.

NOTE!
Click Reset to clear the statistics data.

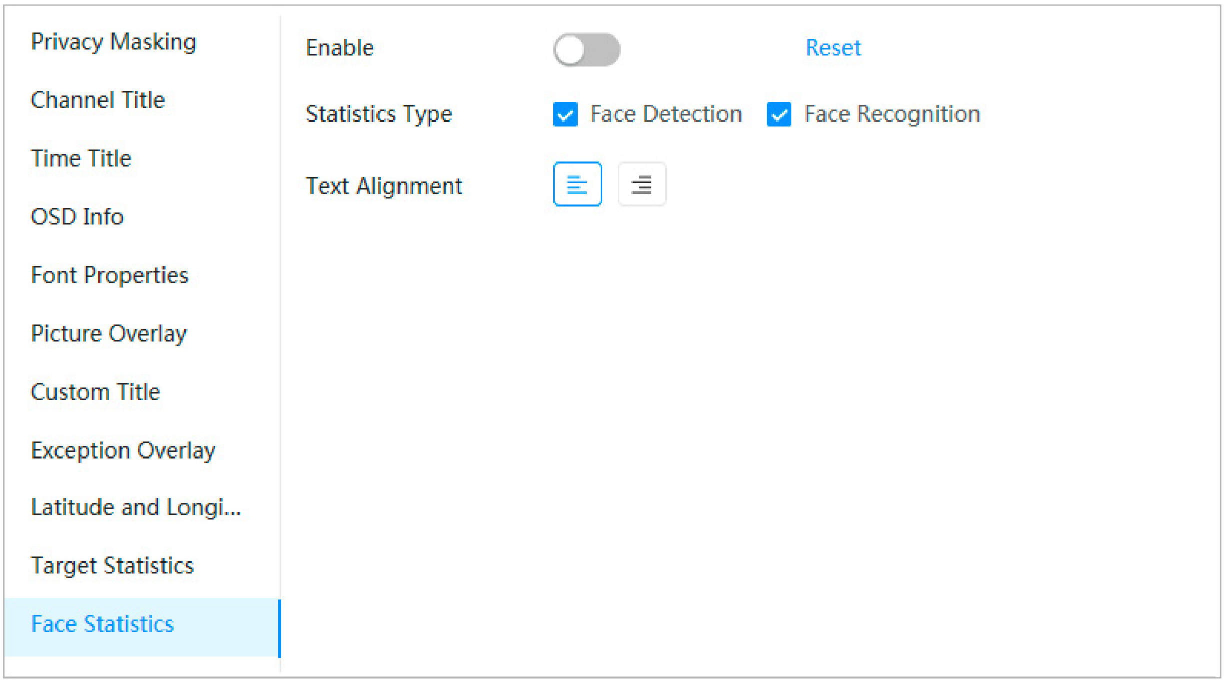


4. Move the target statistics box to the position that you want in the image.
5. Click **Apply**.
   The overlaid information will be displayed after enabling video metadata function.

4.3.2.2.11 Face Statistics

Procedure

1. Select ⚙ > **Camera** > **Encode** > **Face Statistics**.



Enable

Statistics Type ☑ Face Detection ☑ Face Recognition

Text Alignment

2. Select **Enable**, and then select **Statistics Type**.
   - Face detection: The screen displays the quantity information of face detection.
   - Face recognition: The screen displays the quantity information of face recognition.

NOTE!
Click **Reset** to clear the statistics data.

3. Select the text alignment, and then move the face statistics box to the position that you want in the image.
4. Click **Apply**.

Related Operations

Click **Reset** to clear the statistics data and start counting again.

4.3.2.3 ROI

Background Information

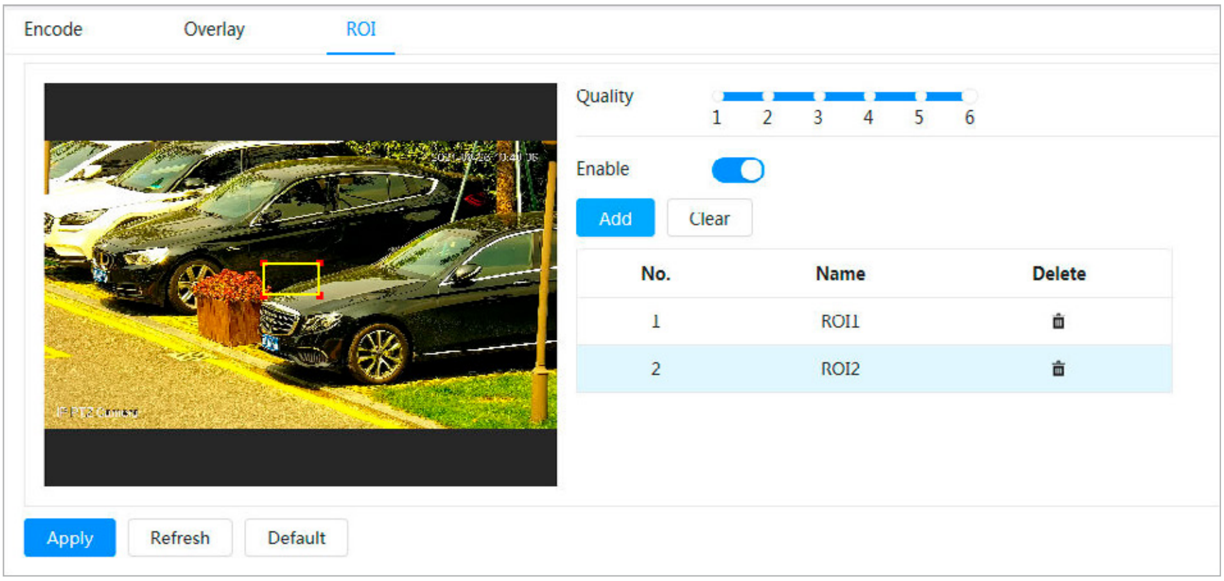
Select ROI (region of interest) on the image and configure the image quality of ROI, and then the selected image is display at defined quality.

Procedure

1. Select ⚙ > **Camera** > **Encode** > **ROI**.
2. Select channel, and then select **Enable**.
3. Click **Add**, draw an area on the image, and then configure the image quality of ROI.

NOTE!

- 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.



Quality 1 2 3 4 5 6

Enable

No.	Name	Delete
1	ROI1	🗑
2	ROI2	🗑

4. Click **Apply**.

4.3.3 AUDIO

Background Information

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.

NOTE!

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.

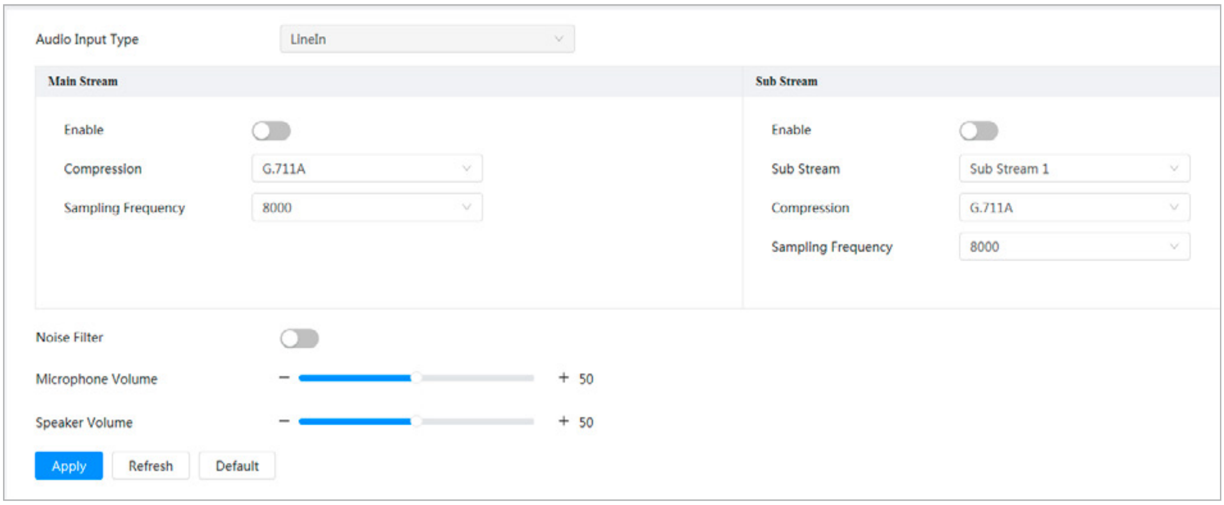
Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Camera > Audio**.
2. Select **Main Stream** or **Sub Stream** to enable audio encoding.

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

CAUTION!

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



Audio Input Type: LineIn

Main Stream

Enable: ○

Compression: G.711A

Sampling Frequency: 8000

Sub Stream

Enable: ○

Sub Stream: Sub Stream 1

Compression: G.711A

Sampling Frequency: 8000

Noise Filter: ○

Microphone Volume: − + 50

Speaker Volume: − + 50

3. Configure audio parameters.

Table 4-13 Description of audio parameters

Parameter	Description
Compression	Configure audio compression. 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.
Speaker Volume	Adjusts speaker volume.

4. Click **Apply**.

4.4 Network

This section introduces network configuration.

4.4.1 TCP/IP

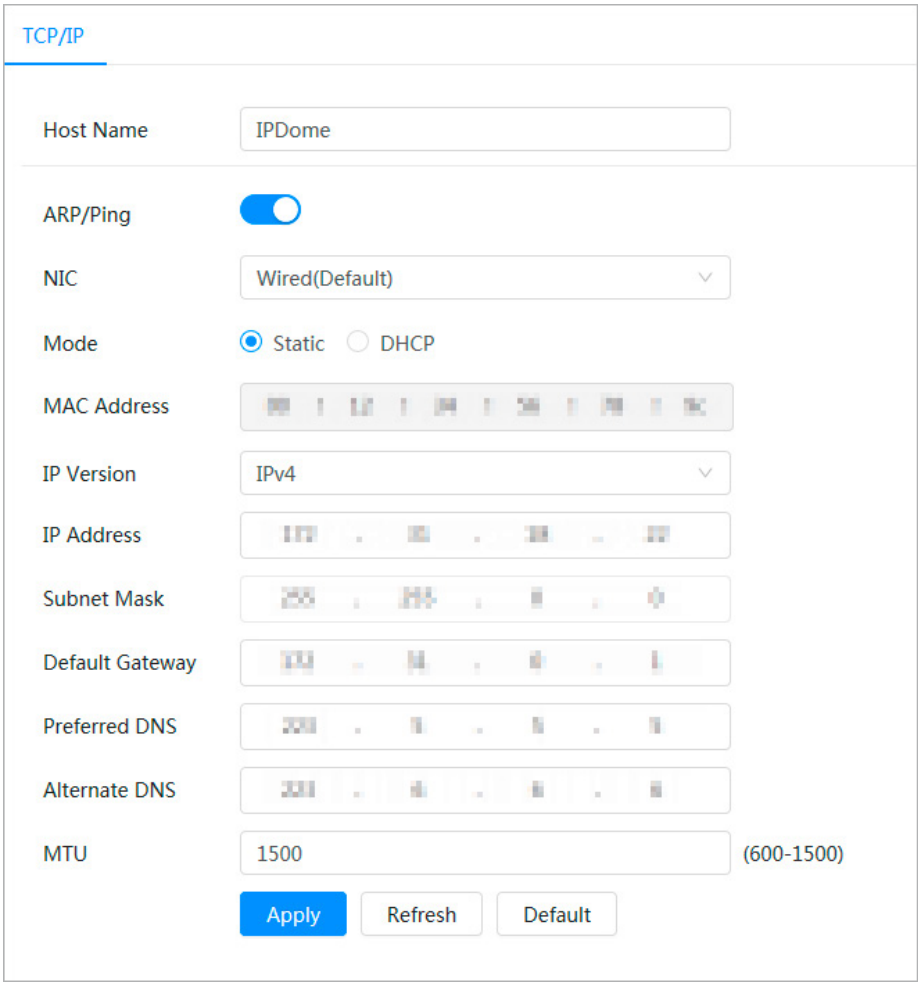
You can configure IP address and DNS (Domain Name System) server and other information according to network planning to ensure the device is properly connected to other devices in the network.

Prerequisites

The Camera is connected to the network.

Procedure

1. Select ⚙ **> Network Settings > TCP/IP**.
2. Configure TCP/IP parameters.



TCP/IP

Host Name: IPDome

ARP/Ping: ●

NIC: Wired(Default)

Mode: ● Static ○ DHCP

MAC Address: [redacted]

IP Version: IPv4

IP Address: [redacted]

Subnet Mask: [redacted]

Default Gateway: [redacted]

Preferred DNS: [redacted]

Alternate DNS: [redacted]

MTU: 1500 (600-1500)

Table 4-14 Description of TCP/IP parameters

Parameter	Description
Host Name	Enter the host name. **NOTE!** 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**.

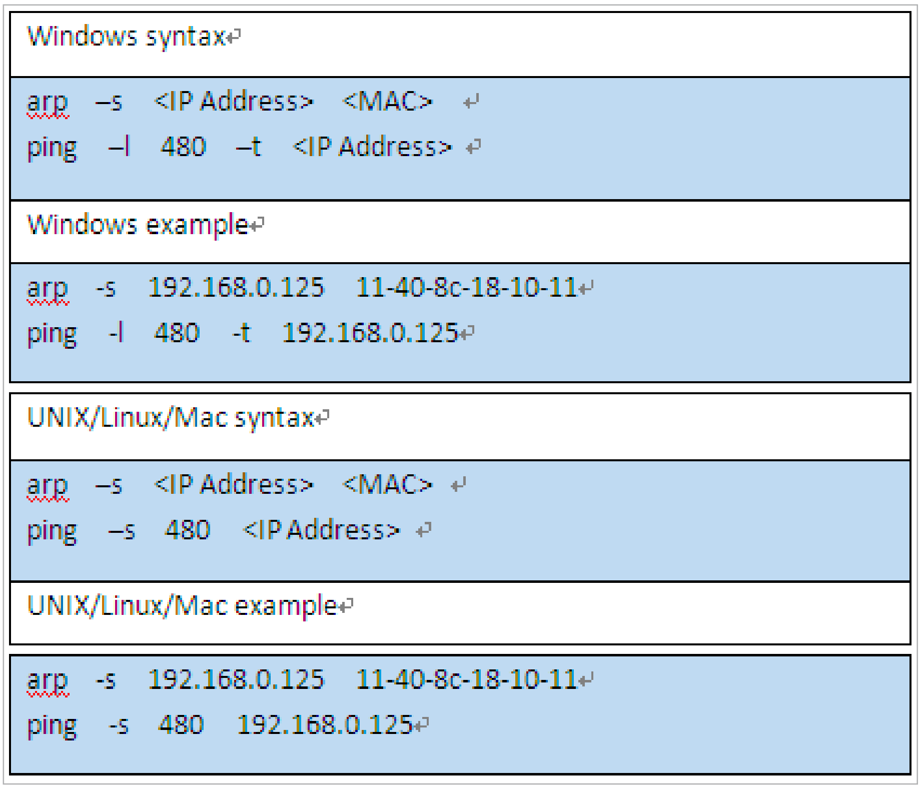
Parameter	Description
Mode	The mode that the camera gets IP: • **Static** Configure **IP Address**, **Subnet Mask**, and **Default Gateway** manually, and then click **Save**, the login page with the configured IP address is displayed. • **DHCP** (Dynamic Host Configuration Protocol) When there is DHCP 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. **NOTE!** • 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.

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.



Windows syntax↵

```
arp   –s   <IP Address>   <MAC>   ↵
ping   –l   480   –t   <IP Address> ↵
```

Windows example↵

```
arp   -s   192.168.0.125   11-40-8c-18-10-11↵
ping   -l   480   -t   192.168.0.125↵
```

UNIX/Linux/Mac syntax↵

```
arp   –s   <IP Address>   <MAC>  ↵
ping   –s   480   <IP Address>  ↵
```

UNIX/Linux/Mac example↵

```
arp   -s   192.168.0.125   11-40-8c-18-10-11↵
ping   -s   480   192.168.0.125↵
```

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

Background Information

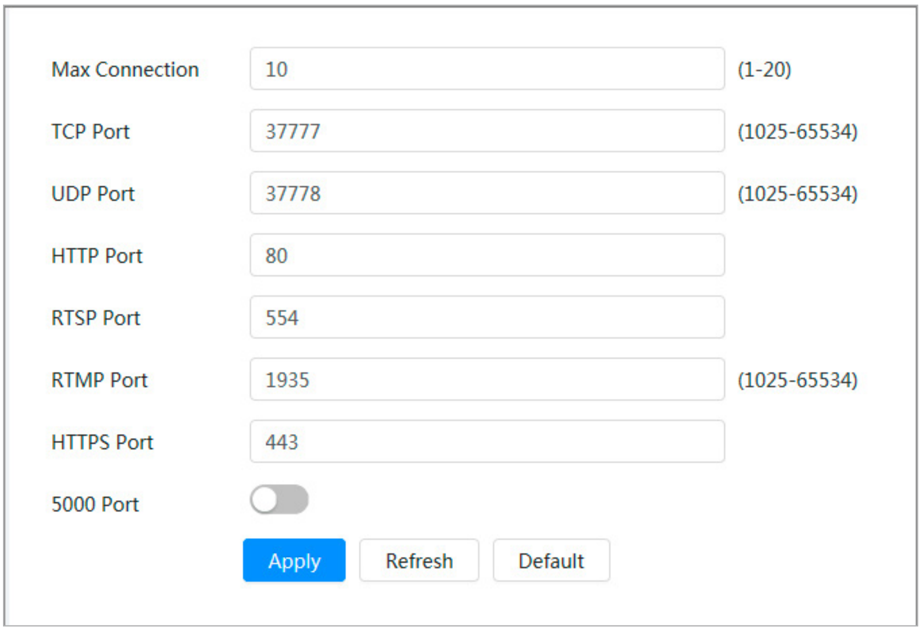
Configure the port numbers and the maximum number of users (includes web, platform client and mobile phone client) that can connect to the device simultaneously.

Procedure

1. Select ⚙ > **Network Settings** > **Port**.
2. Configure port parameters.

NOTE!

- 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.



Max Connection	10	(1-20)
TCP Port	37777	(1025-65534)
UDP Port	37778	(1025-65534)
HTTP Port	80	
RTSP Port	554	
RTMP Port	1935	(1025-65534)
HTTPS Port	443	
5000 Port	○	

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.
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.

Parameter	Description
RTSP Port	• 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@192.168.1.112:554/cam/realmonitor?channel=2&=1 If username and password are not needed, then the URL can be: rtsp://ip:port/cam/realmonitor?channel=11&subtype=0
RTMP Port	Real Time Messaging Protocol Port. This is the port that RTMP provides service. It is 1935 by default.
HTTPS Port	Hyper Text Transfer Protocol over Secure Socket Layer Port. It is 443 by default.

3. Click **Apply**.

4.4.3 PPPOE

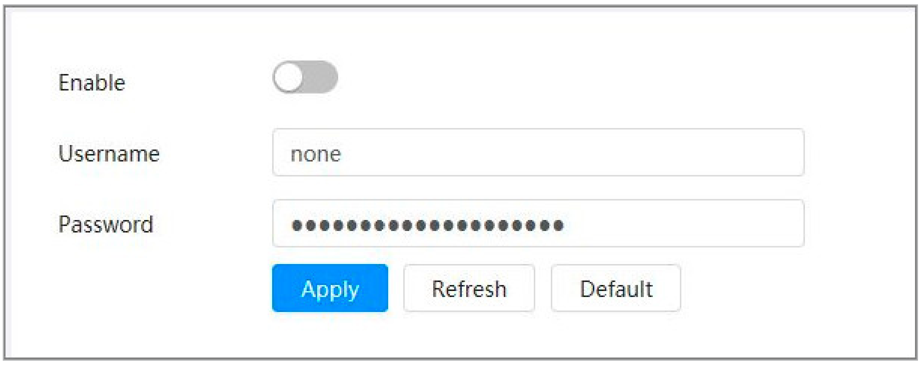
Point-to-Point Protocol over Ethernet, is one of the protocols that device uses to connect to the internet. Get the PPPoE username and password from the internet service provider, and then set up network connection through PPPoE, the Camera will acquire a WAN dynamic IP address.

Prerequisites

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

Procedure

1. Select ⚙ **> Network Settings > PPPoE**.
2. Click ○, and then enter username and password.



Enable ○

Username none

Password ••••••••••••••••••••

NOTE!

- Disable UPnP while using PPPoE.
- After making the PPPoE connection, the IP address of the Camera cannot be modified through the webpage.

3. Click **Apply**.

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

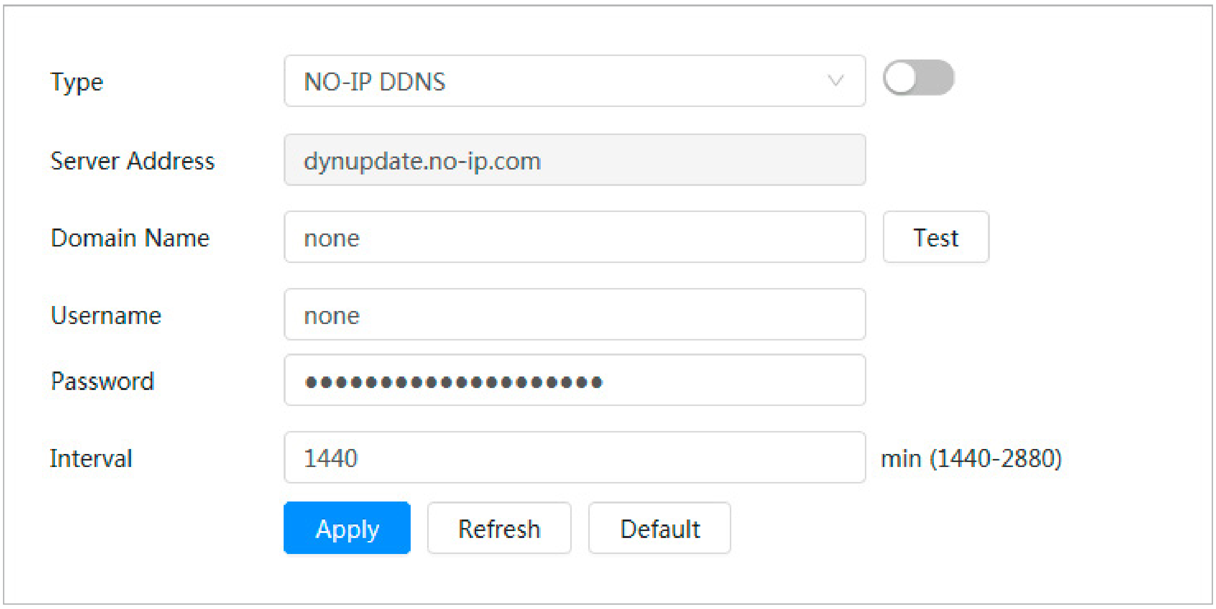
Check the type of DNS server supported by the Camera.

Procedure

1. Select ⚙ > **Network Settings** > **DDNS**.

NOTE!
- 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.

2. Click ○ to enable the function.
3. Configure DDNS parameters.



Type: NO-IP DDNS
Server Address: dynupdate.no-ip.com
Domain Name: none
Username: none
Password: ••••••••••••••••••••
Interval: 1440 min (1440-2880)

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	The domain name you registered on the DDNS website.
Test	Only when selecting **NO-IP DDNS** type, you can click **Test** to check whether the domain name registration is successful.
Username	Enter the username and password that you got from the DDNS server provider. You need to register an account (includes username and password) on the DDNS server provider's website.
Password	
Interval	The update cycle of the connection between the device and the server, and the time is 10 minutes by default.

4. Click **Apply**.

Results

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

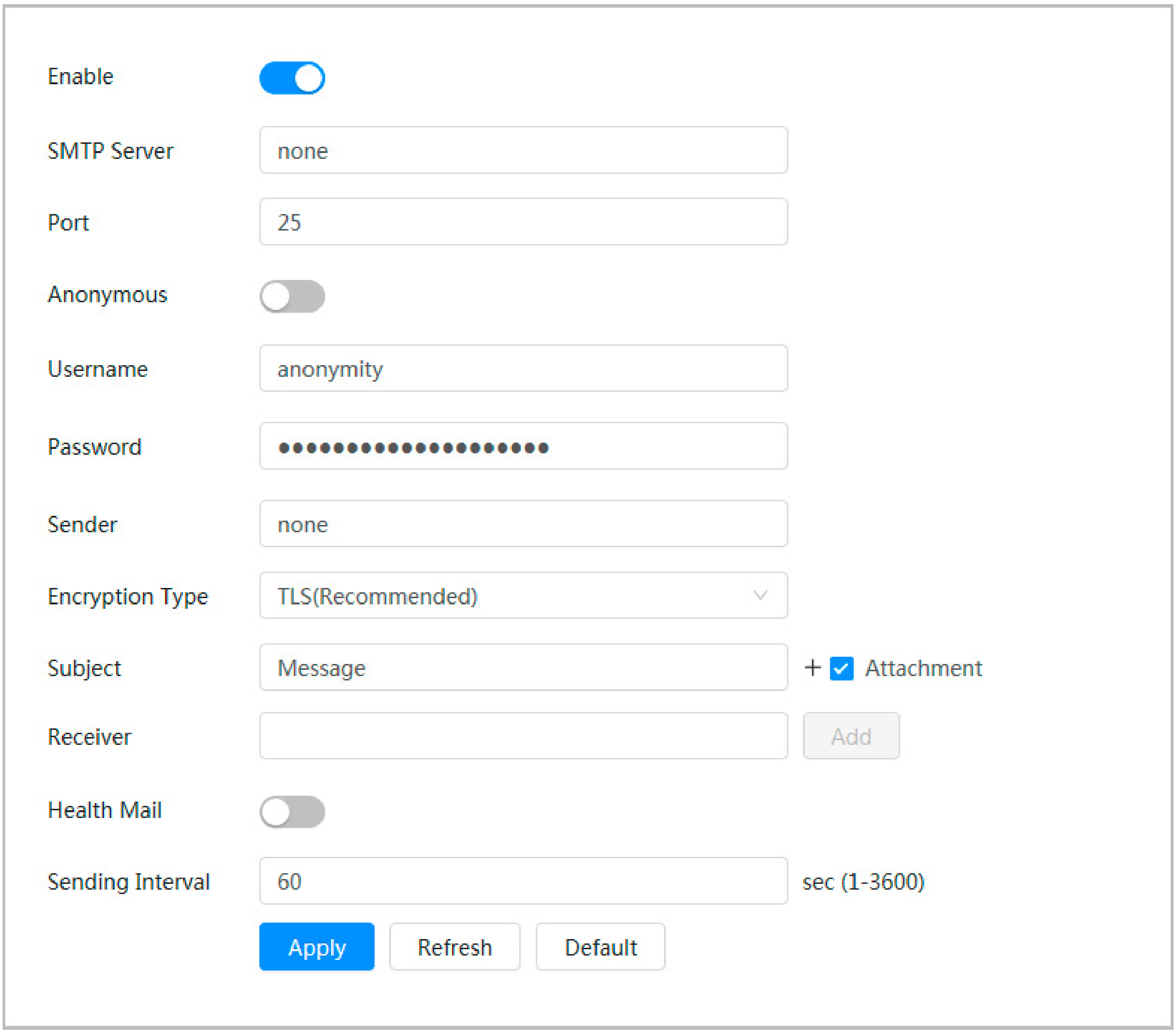
4.4.5 EMAIL

Background Information

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

Procedure

1. Select ⚙ > **Network Settings** > **Email**.
2. Click ○ to enable the function.
3. Configure email parameters.



Enable	●
SMTP Server	none
Port	25
Anonymous	○
Username	anonymity
Password	●●●●●●●●●●●●●●●●●●●●
Sender	none
Encryption Type	TLS(Recommended)
Subject	Message + ☑ Attachment
Receiver	
Health Mail	○
Sending Interval	60 sec (1-3600)

Table 4-17 Description of email parameters

Parameter	Description	
SMTP Server	SMTP (Simple Mail Transfer Protocol) server address.	NOTE! 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)**. NOTE! For details, see Table 4-18 .	

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

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. **NOTE!** 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. **NOTE!** Authentication Password: Authentication Password is obtained when the SMTP service is enabled.
		TLS	587	

4. Click **Apply**.

4.4.6 UPNP

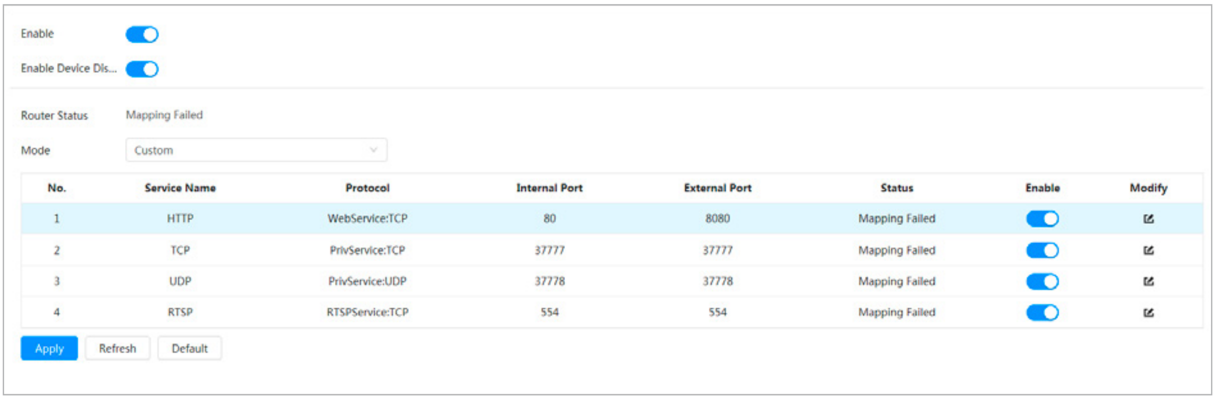
UPnP (Universal Plug and Play) is a protocol that establishes mapping relation between local area and wide area networks. This function enables you to visit local area device through wide area IP address.

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 Settings > 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

1. Select ⚙ **> Network Settings > UPnP**.
2. Click ○ next to **Enable** , and there are two mapping modes: **Custom** and **Default**.



Enable ●

Enable Device Dis... ●

Router Status Mapping Failed

Mode Custom

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 Camera through online neighbors of the computer. The device name is the serial number.

3. Click **Apply**.

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

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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

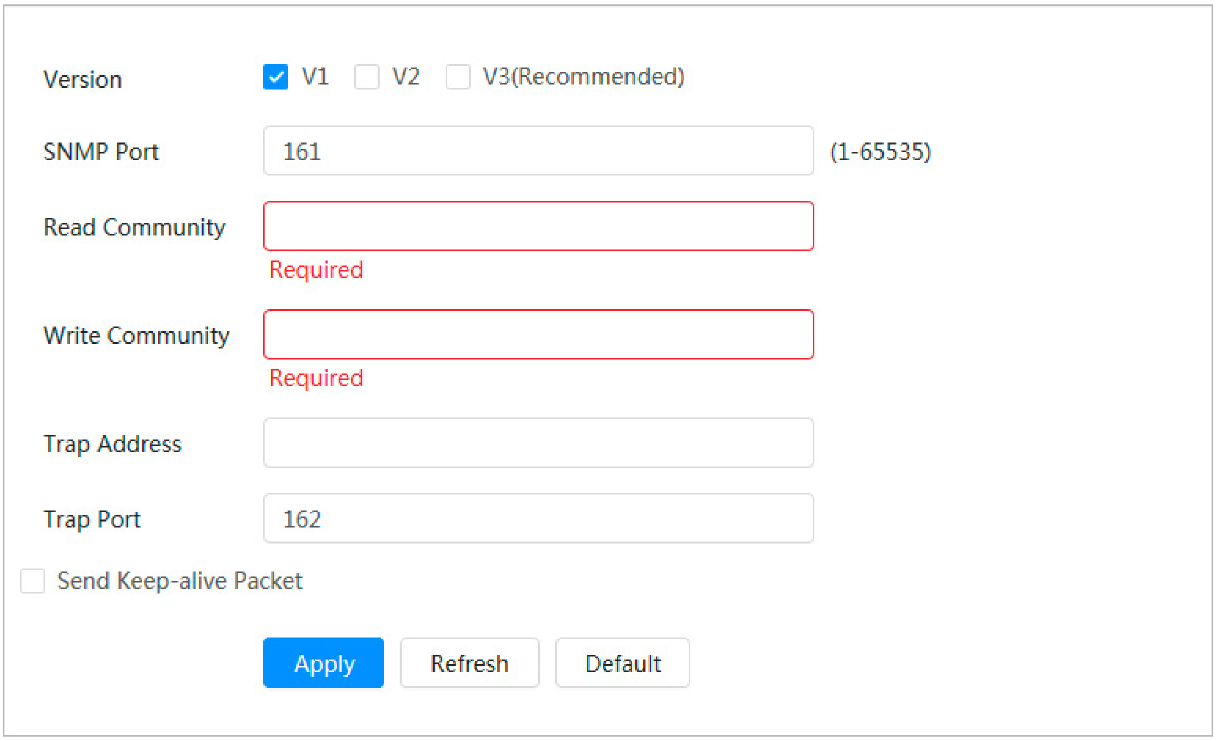
- Install SNMP monitoring and managing tools such as MIB Builder and MG-SOFT MIB Browser.
- Get the MIB file of the matched version from technical support.

Procedure

1. Select ⚙ **> Network Settings > SNMP**.
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.

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

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.



Version ☑ V1 □ V2 □ V3(Recommended)

SNMP Port 161 (1-65535)

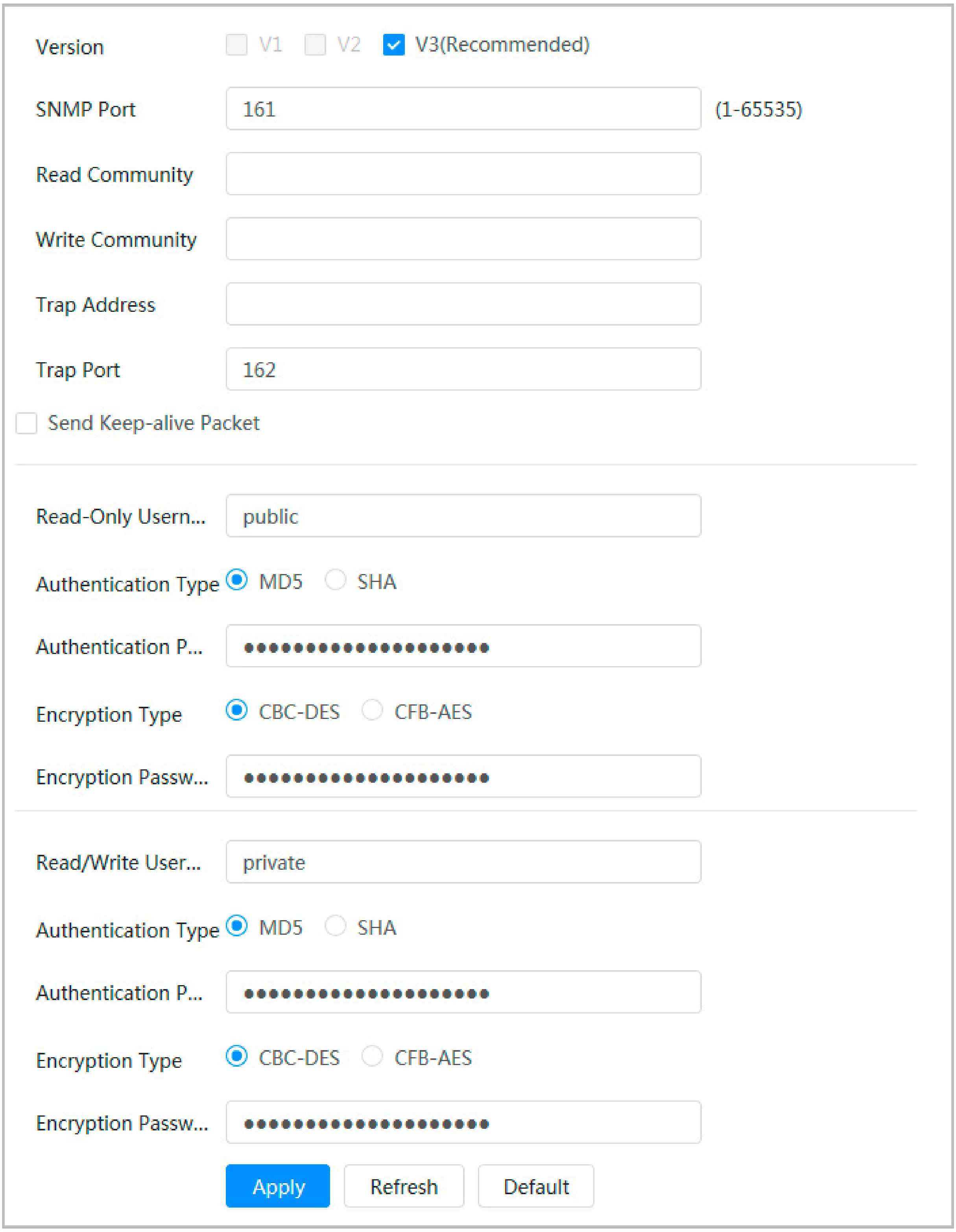
Read Community
Required

Write Community
Required

Trap Address

Trap Port 162

□ Send Keep-alive Packet



Version □ V1 □ V2 ☑ V3(Recommended)

SNMP Port 161 (1-65535)

Read Community

Write Community

Trap Address

Trap Port 162

□ Send Keep-alive Packet

Read-Only Usern... public

Authentication Type ● MD5 ○ SHA

Authentication P... ••••••••••••••••••••

Encryption Type ● CBC-DES ○ CFB-AES

Encryption Passw... ••••••••••••••••••••

Read/Write User... private

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 Camera.
Read Community	The read and write community string that the software agent supports. **NOTE!** 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 Camera.
Trap Port	The target port of the Trap information sent by the software agent in the Camera.

Parameter	Description
Read-only Username	Set the read-only username accessing the Camera, and it is **public** by default. **NOTE!** You can enter number, letter, and underline to form the name.
Read/Write Username	Set the read/write username accessing the Camera, and it is **private** by default. **NOTE!** 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.

4. Click **Apply**.

Results

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 Camera you need to manage in the MG-SOFT MIB Browser, and then select a version to search for.
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.

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

4.4.8 BONJOUR

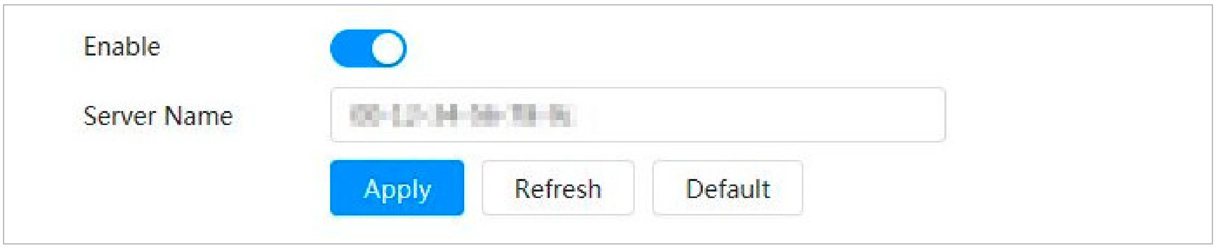
Background Information

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 Camera is automatically detected by Bonjour, the name is displayed as the defined server name.

NOTE!
Bonjour is enabled by default.

Procedure

1. Select ⚙ > **Network Settings** > **Bonjour**.
2. Click ○, and then configure server name.



Enable ●

Server Name [redacted]

3. Click **Apply**.

Results

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 webpage.

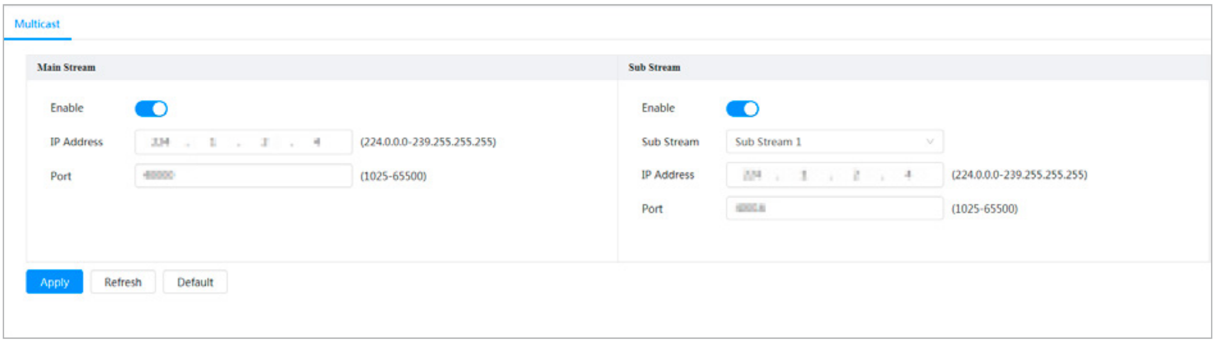
4.4.9 MULTICAST

Background Information

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

Procedure

1. Select ⚙ > **Network Settings** > **Multicast**.
2. Click ○, and then enter IP address and port number.



Multicast

Main Stream

Enable ●

IP Address 224 . 1 . 2 . 4 (224.0.0.0-239.255.255.255)

Port 40000 (1025-65500)

Sub Stream

Enable ●

Sub Stream Sub Stream 1

IP Address 224 . 1 . 2 . 4 (224.0.0.0-239.255.255.255)

Port 40016 (1025-65500)

Apply Refresh Default

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.
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: 1. Channel 1: The multicast port of corresponding stream: **Main Stream**: 40000; **Sub Stream1**: 40016; **Sub Stream2**: 40032. 2. Channel 2: The multicast port of corresponding stream: **Main Stream**: 40048; **Sub Stream1**: 40064; **Sub Stream2**: 40080. 2. Channel 3: The multicast port of corresponding stream: **Main Stream**: 40096; **Sub Stream1**: 40112; **Sub Stream2**: 40128. 4. Channel 4: The multicast port of corresponding stream: **Main Stream**: 40144; **Sub Stream1**: 40160; **Sub Stream2**: 40176.

3. Click **Apply**.

Results

- In 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.

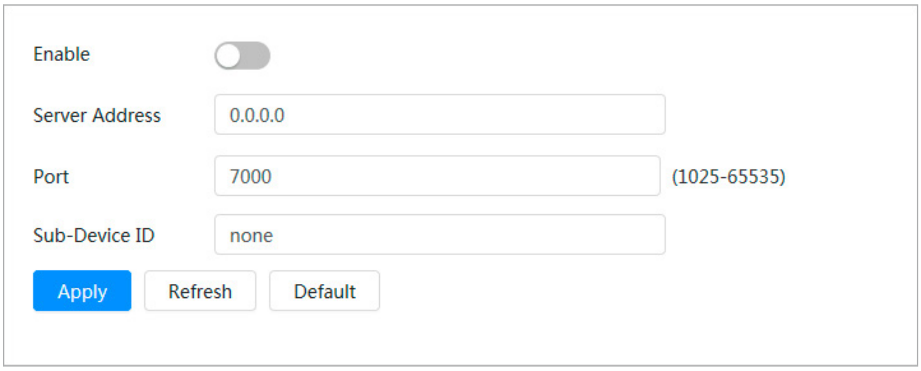
4.4.10 REGISTER

Background Information

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

Procedure

1. Select ⚙ > **Network Settings > Register.**
2. Click ○, and then configure **Server Address**, **Port** and **Sub-Device ID**.



Enable ○

Server Address: 0.0.0.0

Port: 7000 (1025-65535)

Sub-Device ID: none

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.

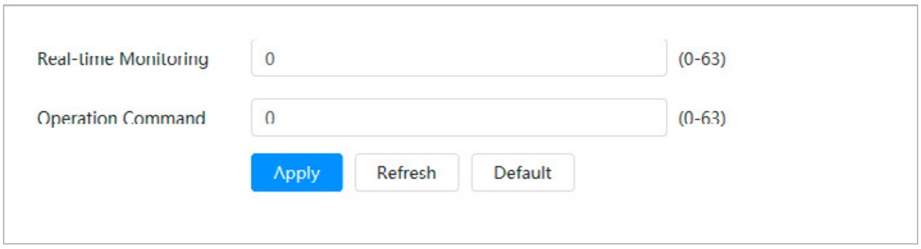
3. Click **Apply**.

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.

Procedure

1. Select ⚙ > **Network Settings > QoS**.
2. Configure QoS parameters.



Real-time Monitoring: 0 (0-63)

Operation Command: 0 (0-63)

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.

3. Click **Apply**.

4.4.12 CELLULAR NETWORK

After the Camera is installed with the SIM (Subscriber Identification Module) card, the Camera can be connected to the network through dial-up settings or mobile settings, and then you can remotely preview the real-time video of the Camera through the platform client or mobile phone client.

- Dial-up setting: Connects the Camera to the network within a specified time period.
- Mobile setting: Connects the Camera to the network by sending messages or making calls through mobile phones, and alarm information can be received through messages.

4.4.12.1 Dial-up Settings

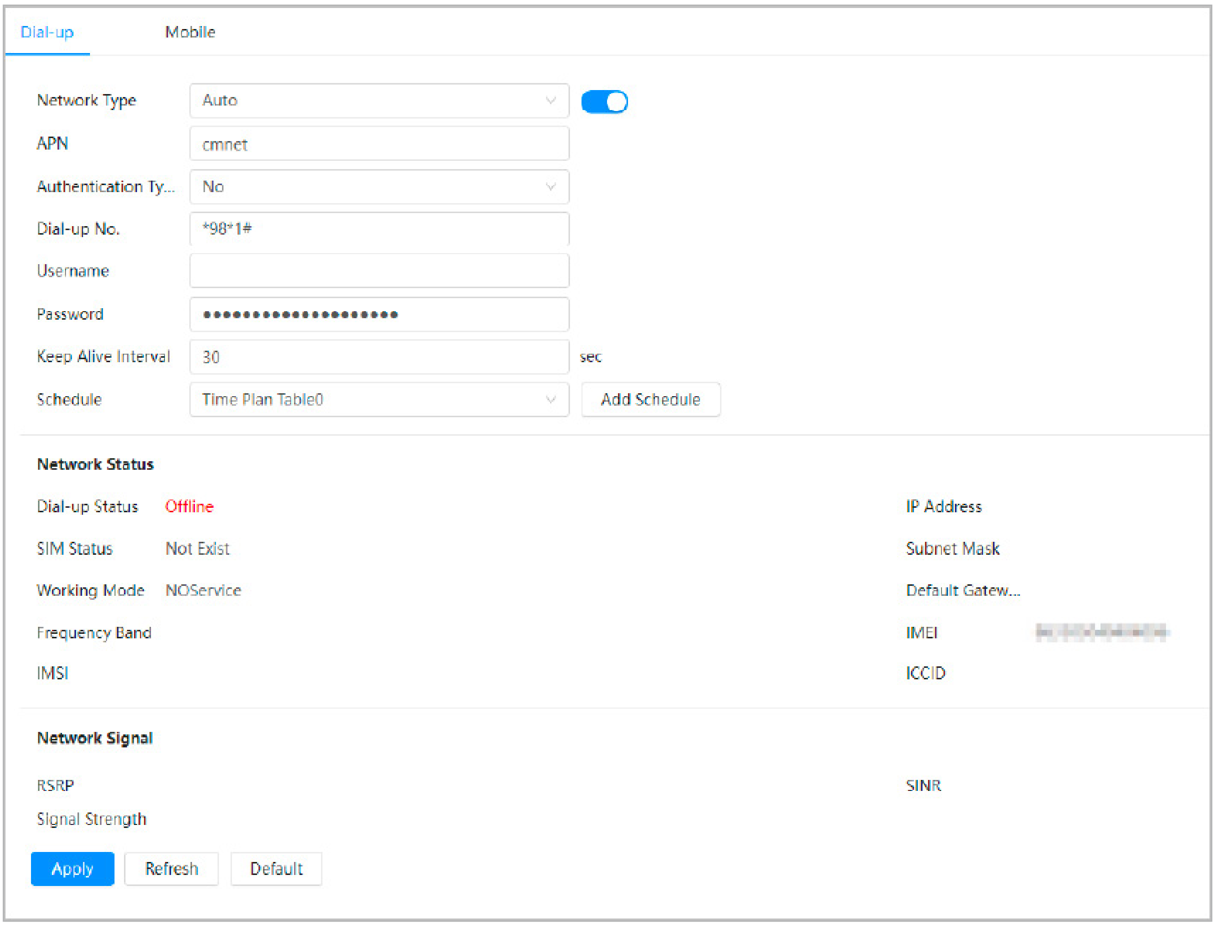
Connects the Camera to the network through dial-up settings. For the network type, please refer to the actual page. The following text uses a 4G device as an example.

Procedure

1. Select ⚙ > **Network Settings** > **Cellular Network** > **Dial-up**.

NOTE!
After the SIM card is installed, the module information, network status and network signal are displayed.

2. Select **Network Type**, and then click ○ to enable the 4G dial-up function.



Network Type: Auto
APN: cmnet
Authentication Ty...: No
Dial-up No.: *98*1#
Username:
Password: ●●●●●●●●●●●●●●●●●●●●
Keep Alive Interval: 30 sec
Schedule: Time Plan Table0

Network Status

Dial-up Status: Offline
SIM Status: Not Exist
Working Mode: NOService
Frequency Band:
IMSI:
IP Address:
Subnet Mask:
Default Gatew...:
IMEI: [redacted]
ICCID:

Network Signal

RSRP:
Signal Strength:
SINR:

3. Configure dial-up parameters.

NOTE!
The APN, authentication type, dial-up number, username and password of certain network cards vary, and you need to contact the card suppliers for related information.

Table 4-23 Description of dial-up setting parameters

Parameter		Description
Network Type		The network types are as follows: • **4G (TD-LTE)**: Dial (For China Mobile/Telecom/Unicom SIM card). • **4G (FDD-LTE)**: Dial (For Telecom/Unicom SIM card). • **Auto**: We recommend you use the auto mode, and then the system automatically selects the signal type. • **3G (WCDMA)**: Dial, text, call (For China Unicom SIM card). • **5G (NR)**: Dial, text, call (For China Mobile/Telecom/ Unicom special network card).
APN		For ordinary cards, the APN (Access Point Name) of telecom is ctlte, the mobile is cmnet, and the Unicom is 3gnet.
Authentication Type		For ordinary cards, the authentication type of telecom is CHAP (Challenge Handshake Authentication Protocol) or PAP (Password Authentication Protocol). The mobile and Unicom have no authentication type.
Dial-up No.		For ordinary cards, the dial-up number of telecom is #777, the mobile is *98*1#, and the Unicom is *99#.
Username		For ordinary cards, the username of telecom is ctnet@mycdma.cn or card. The mobile and Unicom have no username.
Password		For ordinary cards, the password of telecom is vnet.mobi or card. The mobile and Unicom have no password.
Keep Alive Interval		It refers to the connection time for the mobile user to activate the device to access the 5G network outside the set time period. The default value is 30 seconds, and the value ranges from 0 seconds to 7,200 seconds. After the Keep Alive Interval ends, the device actively disconnects the network to achieve the purpose of saving traffic.
Schedule		Configure the dial-up time period, and then the device will connect to the network within this specified time period. If the added schedule does not meet requirements, click Add Schedule to add a new schedule. For details, see "4.6.1.2.1 Adding Schedule".
Network Status	Dial-up Status	After the dial-up succeeds, the obtained information, such as the IP address, is displayed. • IMSI: Displays international mobile subscriber identity. • IMEI: Displays international mobile equipment identity. • ICCID: Displays integrate circuit card identity.
	SIM Status	
	Working Mode	
	IP Address	
	Subnet Mask	
	Default Gateway	
	Frequency band	
	IMSI	
	IMEI	
	ICCID	

4. Click **Apply**.

4.4.12.2 Mobile Settings

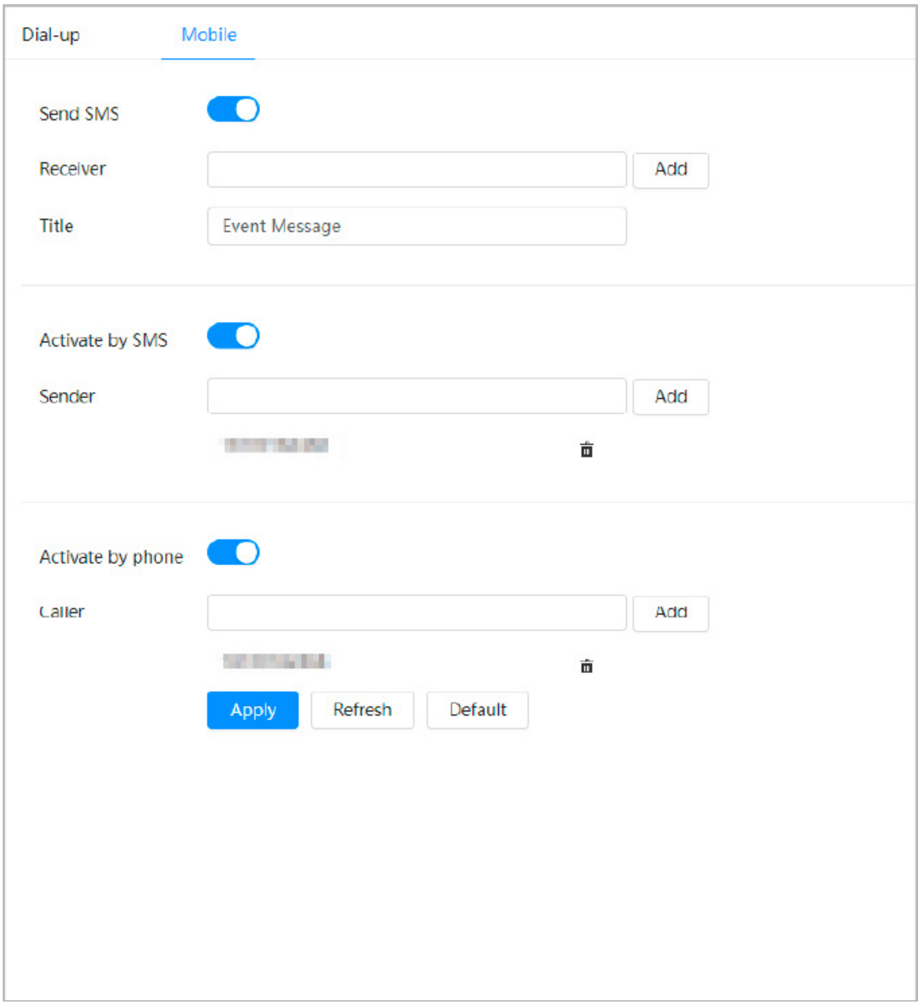
Connects the Camera to the 5G network by sending messages or making calls through mobile phones, and alarm information can be received through messages.

Background Information

- Send SMS: Set the mobile phone number of the receiver, and then all kinds of alarms can be linked with the platform to send alarm SMS to the receiver.
- Activate by SMS: Set the mobile phone number of the sender, and the sender can send an activation command SMS to the device to enable the Camera to connect to the network, disconnect from the network, or reboot.
  - Send SMS command **On** : means to connect the Camera to the network.
  - Send SMS command **Off** : means to disconnect the Camera from the network.
  - Send SMS command **Reboot** : means to reboot the Camera.
- Activate by phone: Set the mobile phone of the caller, and then the caller can call the Camera and activate the Camera to access the network.

Procedure

1. Select ⚙ > **Network Settings** > **Cellular Network** > **Mobile**.
2. Enable **Send SMS**, **Activation by SMS**, or **Activation by phone** according to actual needs.



Dial-up | Mobile

Send SMS ●

Receiver: [ ] Add

Title: Event Message

Activate by SMS ●

Sender: [ ] Add

[redacted] 🗑

Activate by phone ●

Caller: [ ] Add

[redacted] 🗑

Apply | Refresh | Default

3. Enter the phone numbers of receiver, sender and caller, and then click **Add** to add the mobile phone users to the list.

NOTE!

- Click 🗑 to delete the user number.
- When setting SMS, you can modify the title of the SMS message.

4. Click **Apply**.

4.4.13 PLATFORM ACCESS

4.4.13.1 P2P

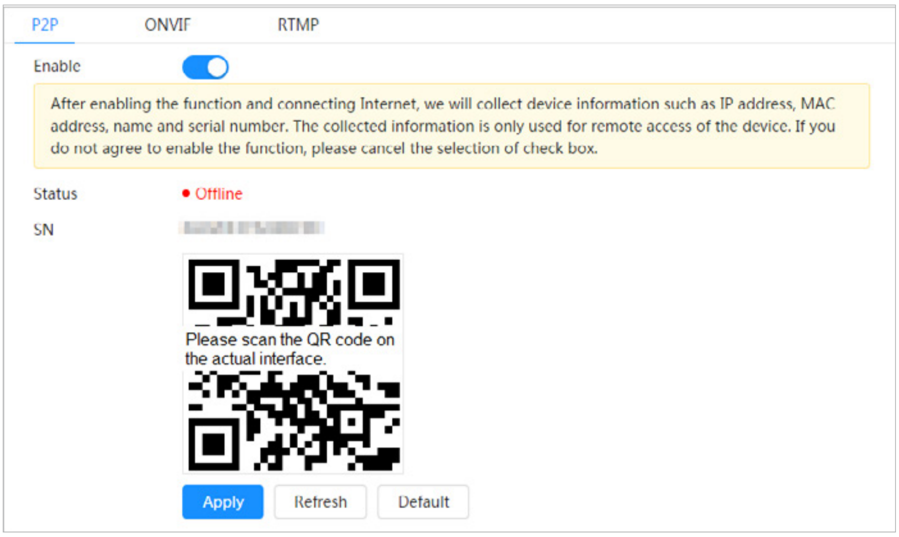
P2P (peer-to-peer) technology enables users to manage devices easily without requiring DDNS, port mapping or transit server.

Background Information

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

Procedure

1. Select ⚙ > **Network Settings** > **Platform Access** > **P2P**.



Enable

After enabling the function and connecting Internet, we will collect device information such as IP address, MAC address, name and serial number. The collected information is only used for remote access of the device. If you do not agree to enable the function, please cancel the selection of check box.

Status ● Offline

SN

Please scan the QR code on the actual interface.

- When P2P is enabled, you can manage the Camera remotely.
- When P2P is enabled and the Camera 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.

2. Log in to mobile phone client and tap **Device management**.
3. Tap + at the upper-right corner.
4. Scan the QR code on the **P2P** page.
5. Follow the instructions to finish the settings.

4.4.13.2 ONVIF

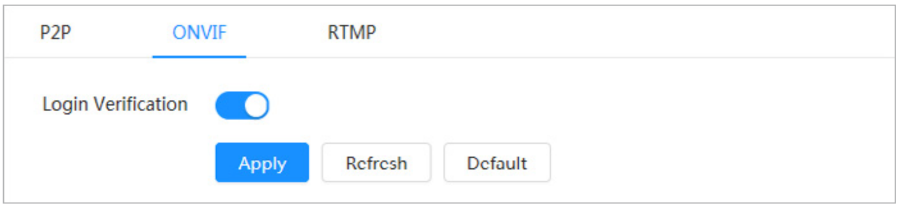
Background Information

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 the Camera.

NOTE!
ONVIF is enabled by default.

Procedure

1. Select ⚙ > **Network Settings** > **Platform Access** > **ONVIF**.
2. Click ○ next to **Login Verification**.



Login Verification

3. Click **Apply**.

4.4.13.3 RTMP

Background Information

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

NOTE!

- 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.

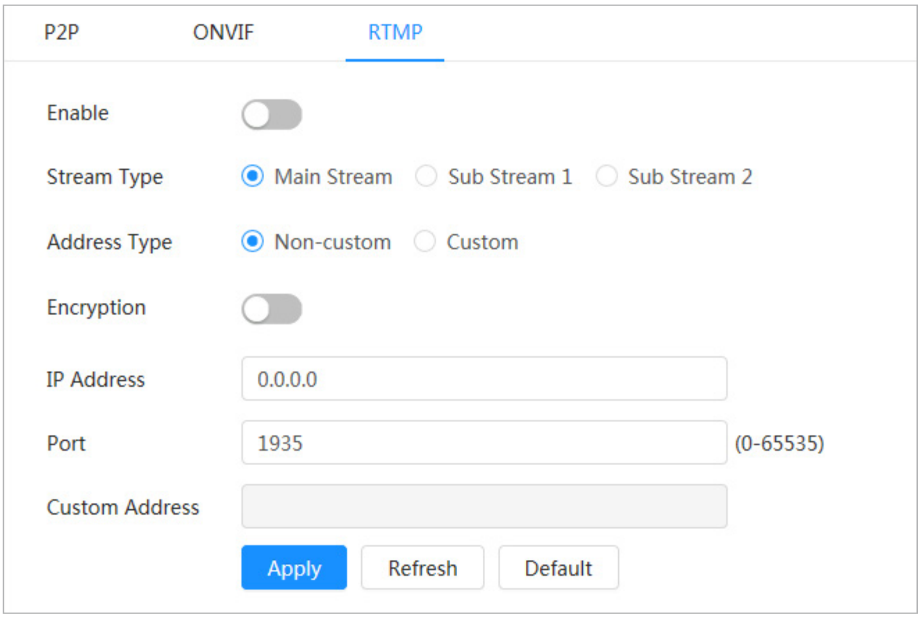
Procedure

1. Select ⚙ > **Network Settings** > **Platform Access** > **RTMP**.
2. Click ○.

CAUTION!

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

3. Configure RTMP parameters.



P2P ONVIF RTMP

Enable ○

Stream Type ● Main Stream ○ Sub Stream 1 ○ Sub Stream 2

Address Type ● Non-custom ○ Custom

Encryption ○

IP Address 0.0.0.0

Port 1935 (0-65535)

Custom Address

Apply Refresh Default

Table 4-24 Description of RTMP parameters

Parameter	Description
Stream Type	The stream for live view. Make sure that the video format is H.264, H. 264B 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.
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.

4. Click **Apply**.

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4.4.14 WI-FI

Connect the Camera with a function of Wi-Fi to wireless networks.

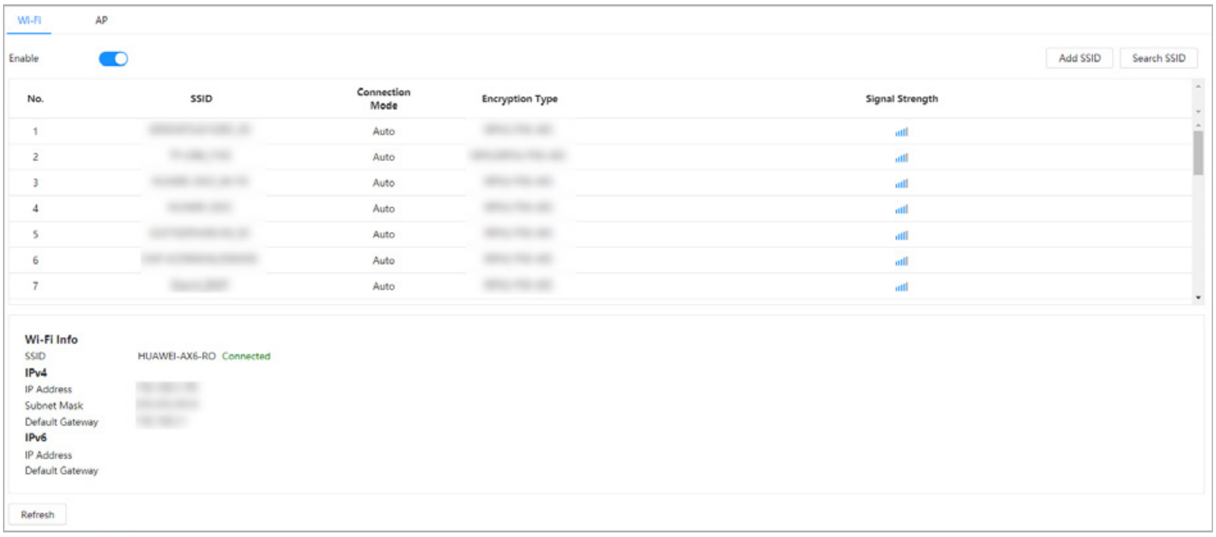
Background Information

SSID (Service Set Identifier):

SSID technology divides a wireless local area network into multiple subnets requiring authentication, each of the multiple subnets requires the independent authentication. Only an authenticated user can enter a corresponding subnet.

Procedure

1. Click ⚙ on the upper-right corner of the page, and then select **Network Settings > Wi- Fi > Wi-Fi**.
2. Click ○ to enable the function.



Enable ●

No.	SSID	Connection Mode	Encryption Type	Signal Strength
1	[redacted]	Auto	[redacted]	📶
2	[redacted]	Auto	[redacted]	📶
3	[redacted]	Auto	[redacted]	📶
4	[redacted]	Auto	[redacted]	📶
5	[redacted]	Auto	[redacted]	📶
6	[redacted]	Auto	[redacted]	📶
7	[redacted]	Auto	[redacted]	📶

Wi-Fi Info

SSID HUAWEI-AX6-RO Connected

IPv4

IP Address [redacted]

Subnet Mask [redacted]

Default Gateway [redacted]

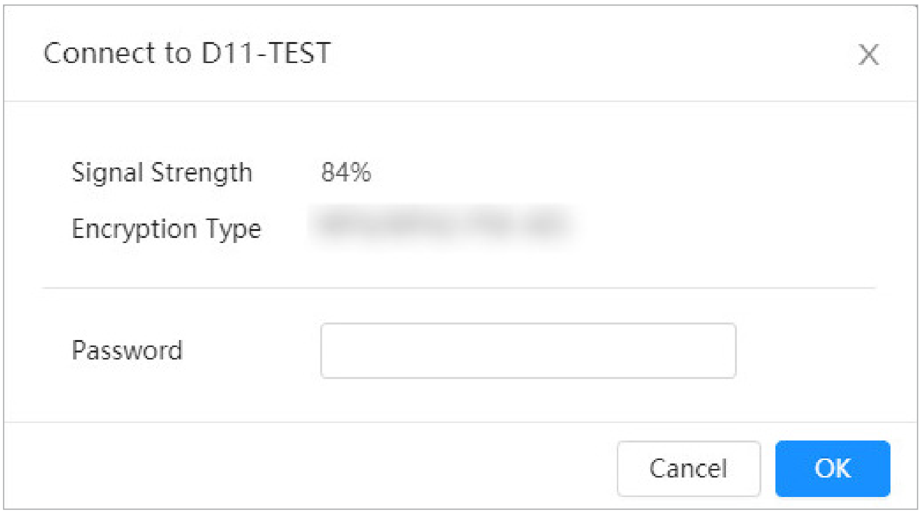
IPv6

IP Address

Default Gateway

3. Connect to a wireless network.
   - Connect to the wireless network through search.
     (1) Click **Search SSID**, and the list will display wireless network hotspots in an environment where the Camera is located.
     (2) Click a network you want to connect to.
     (3) Enter the password in a pop-up page.

NOTE!
Click **OK** if you do not need to enter the password.



Connect to D11-TEST

Signal Strength 84%

Encryption Type [redacted]

Password

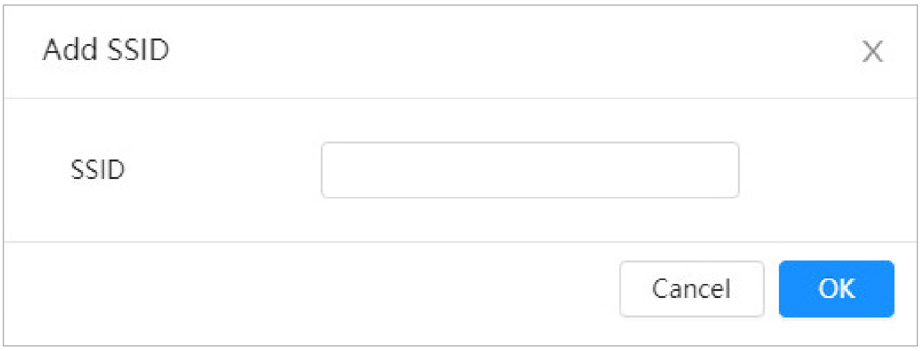
     (4) Click **OK**.

- Manually add a wireless network.

  When the Camera cannot search for a wireless network, for example, when a router has turned off the SSID broadcast function, you can manually add the wireless network.

  (1) Click **Add SSID**.

  (2) Enter the name in a pop-up page, and then click **OK**.



Add SSID

SSID

  (3) Enter the Wi-Fi password.

NOTE!
Click **OK** if you do not need to enter the password.

  (4) Click **OK**.

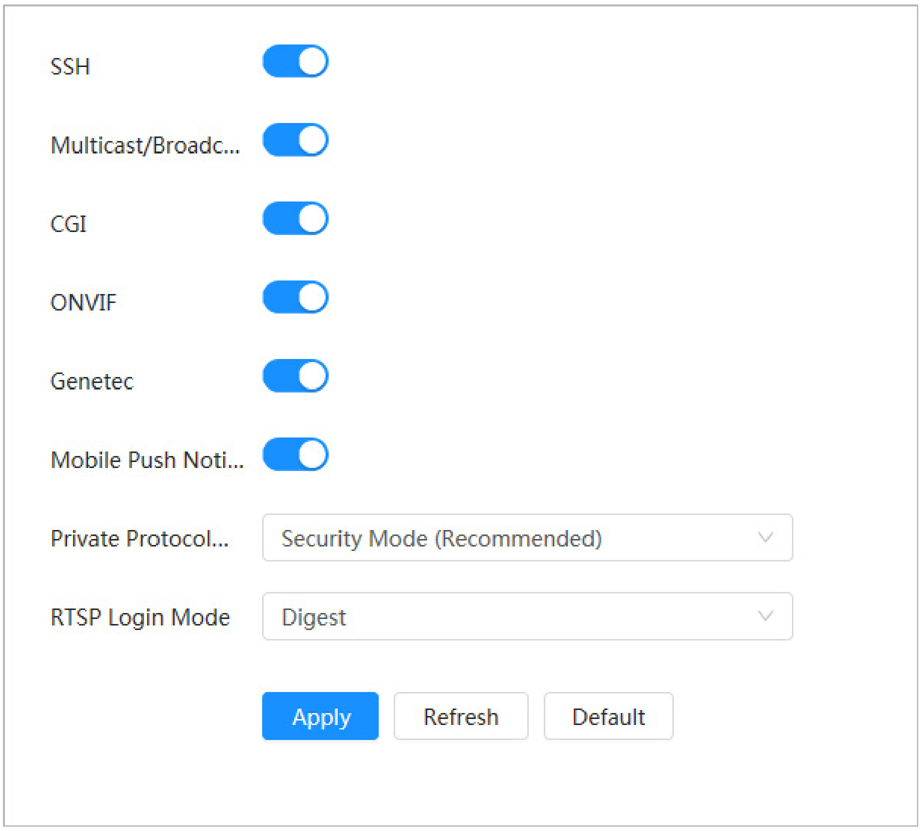
4. Click **Refresh** to obtain a connection status.

4.4.15 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 webpage. This is to enhance network and data security.

Procedure

1. Select ⚙ > **Network Settings** > **Basic Service**.
2. Enable the basic service according to the actual needs.



SSH ●

Multicast/Broadc... ●

CGI ●

ONVIF ●

Genetec ●

Mobile Push Noti... ●

Private Protocol... Security Mode (Recommended)

RTSP Login Mode Digest

Table 4-25 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.
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.

3. Click **Apply**.

4.5 PTZ

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

NOTE!

- 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 2 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 webpage.
- Click ⚙ on the upper-right corner of the page, and then click **PTZ**.

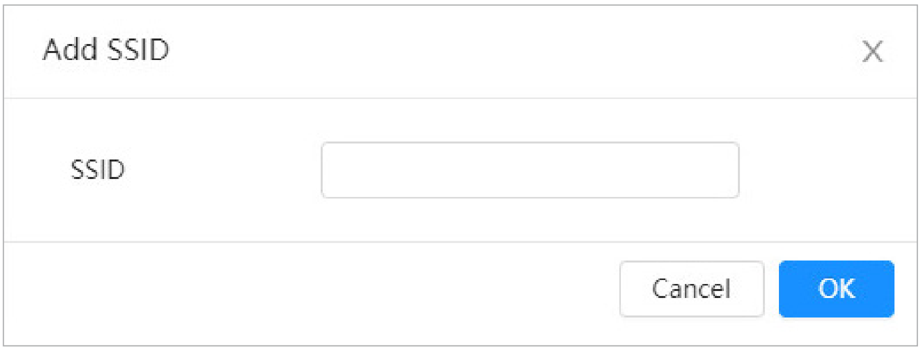
4.5.1 CONFIGURING PRESETS

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

1. Click ⚙, and then select **PTZ > Preset**.
2. Set step length and click the direction buttons to adjust PTZ Direction.
3. Click ⊕ ⊖ to adjust zoom, focus and iris to adjust the Camera to the proper position.
4. Click **Add Preset** to add the preset.

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



Add SSID

SSID

5. Double-click **Preset Title** to change the name of the corresponding preset.
6. 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

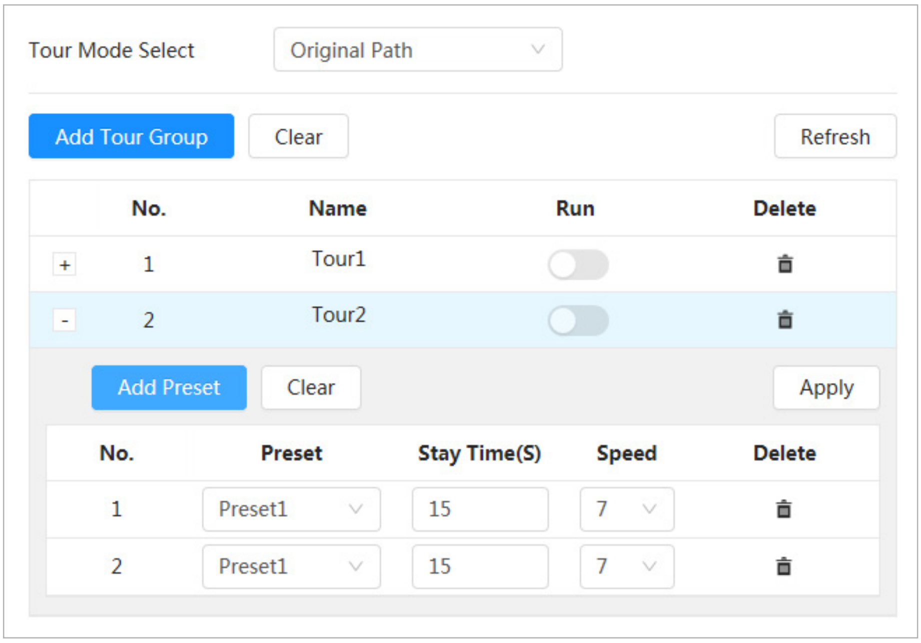
You need to setup several preset points in advance.

Procedure

1. Click ⚙, and then select **PTZ > Tour.**
2. Click **Add Tour Group** , and then double click **Name** to change the name of tour.
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.
4. Configure **Stay Time(S)** and **Speed** to set the stay time of the Camera at the preset point and its rotating speed.

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



Tour Mode Select: Original Path

	No.	Name	Run	Delete
+	1	Tour1	○	🗑
-	2	Tour2	○	🗑

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

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.

NOTE!
This function is available on select models.

6. Click **Apply** to complete settings.
7. Click ● to start tour.
   - The ongoing tour stops if any operation is made to the PTZ.
   - Click ○ to stop the tour.

Related Operations

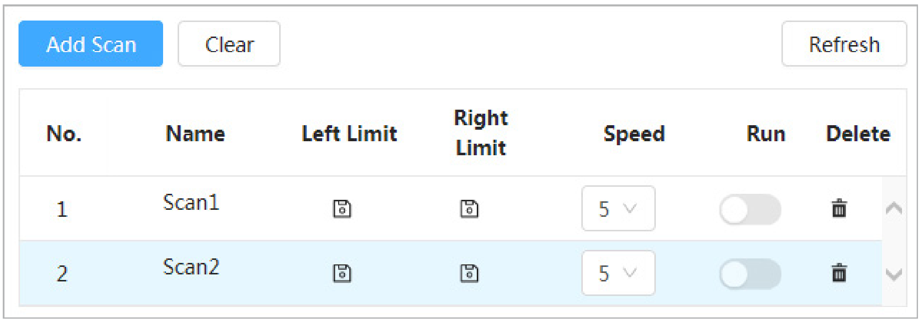
- Delete tour group: Click 🗑 to delete corresponding tour group.
- Clear all tour groups: Click **Clear** to delete all added tour groups.

4.5.3 CONFIGURING SCAN

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

Procedure

1. Click ⚙, and then select **PTZ > Scan**.
2. Click **Add Scan** , and then double click **Name** to change the name of scan.
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.



No.	Name	Left Limit	Right Limit	Speed	Run	Delete
1	Scan1	💾	💾	5 ∨	○	🗑
2	Scan2	💾	💾	5 ∨	○	🗑

4. Click ● to start scanning.
   Click ○ to stop scanning.

Related Operations

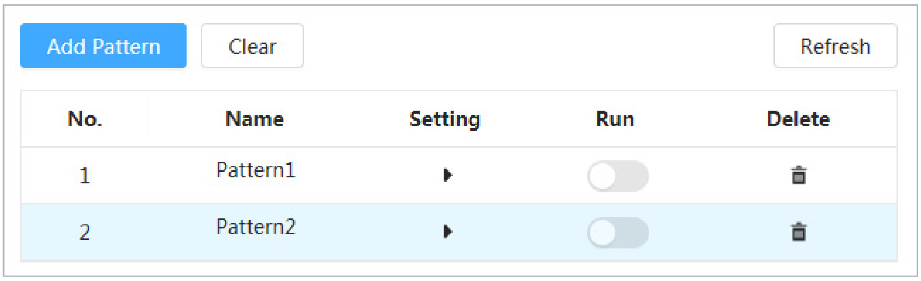
- Delete scan: Click 🗑 to delete corresponding scan.
- Clear all scans: Click **Clear** to delete all added scans.

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

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



No.	Name	Setting	Run	Delete
1	Pattern1	▶	○	🗑
2	Pattern2	▶	○	🗑

5. Click ● to start the pattern.
   Click ○ to stop the pattern.

Related Operations

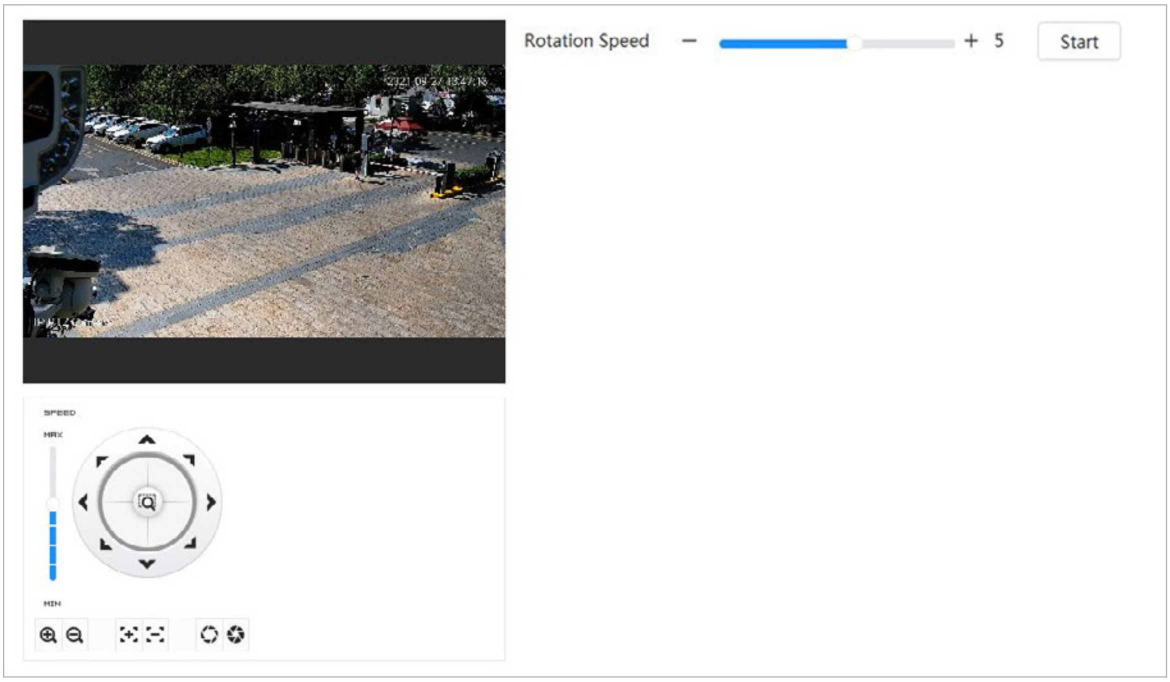
- Delete pattern: Click 🗑 to delete the corresponding pattern.
- Clear all patterns: Click **Clear** to delete all added patterns.

4.5.5 CONFIGURING PAN

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

Procedure

1. Click ⚙, and then select **PTZ > Pan**.
2. Configure the rotation speed.
   - Click **Start** and PTZ starts horizontal rotation.
   - Click **Stop** to stop the pan.



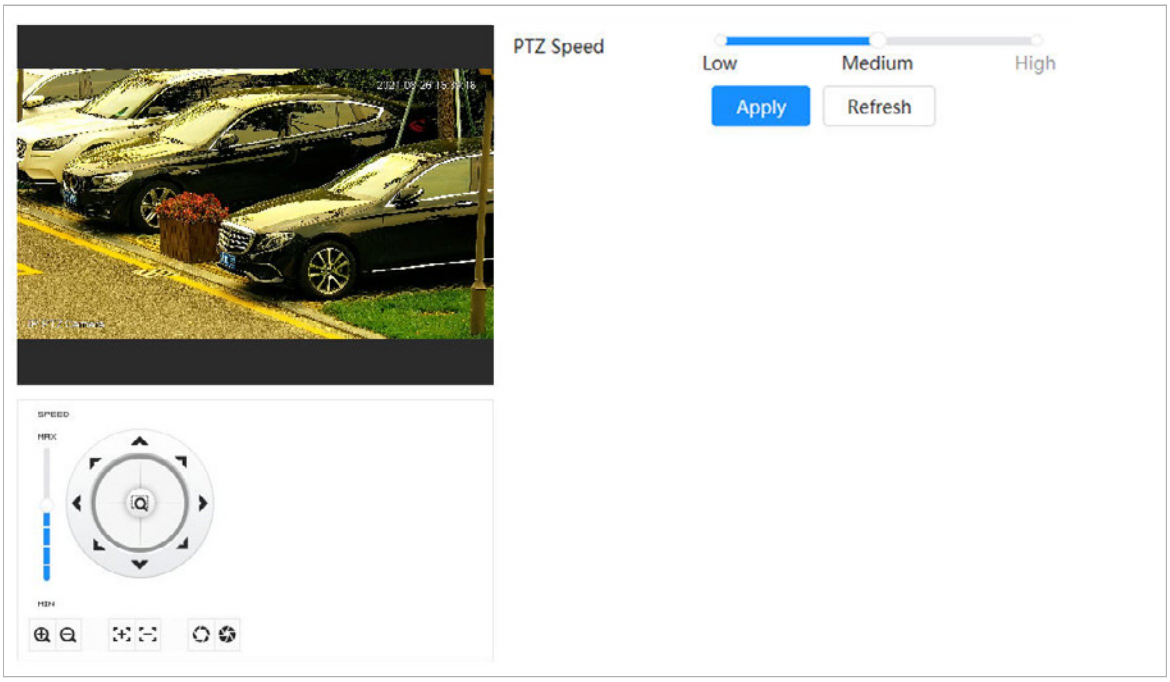
Rotation Speed − + 5

4.5.6 CONFIGURING PTZ SPEED

Configure the rotation speed when manually controlling the PTZ.

Procedure

1. Click ⚙, and then select **PTZ > PTZ Speed**.



PTZ Speed Low Medium High

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

4.5.7 CONFIGURING IDLE MOTION

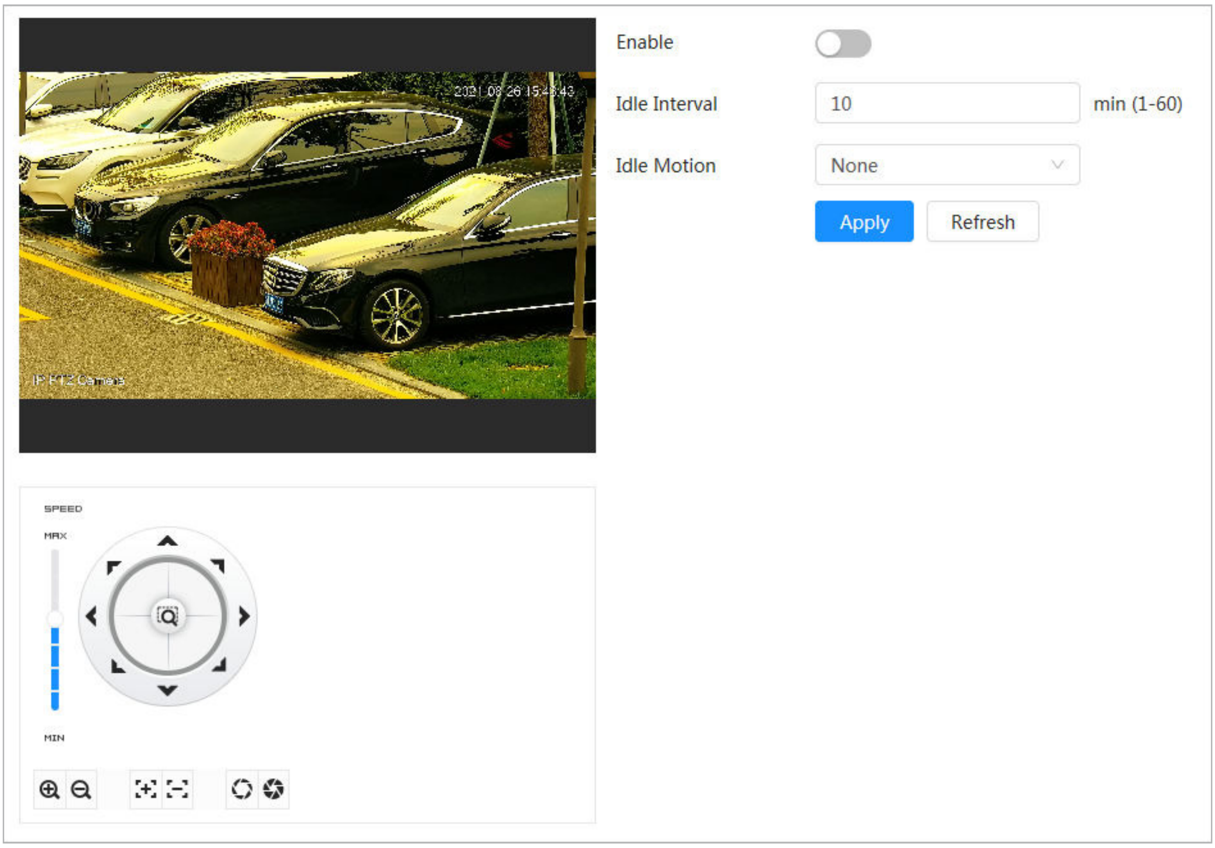
Idle motion refers to a preset motion when the PTZ does not receive any valid command within a certain period.

Prerequisites

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

Procedure

1. Click ⚙ and then select **PTZ > PTZ Speed**.
2. Click ○ to enable idle motion.
3. Configure idle interval time, and then select idle motion type.



Enable ○

Idle Interval 10 min (1-60)

Idle Motion None

4. Click Apply.

4.5.8 CONFIGURING POWER UP

After configuring PowerUp, the Camera will automatically perform the defined motion after being powered up.

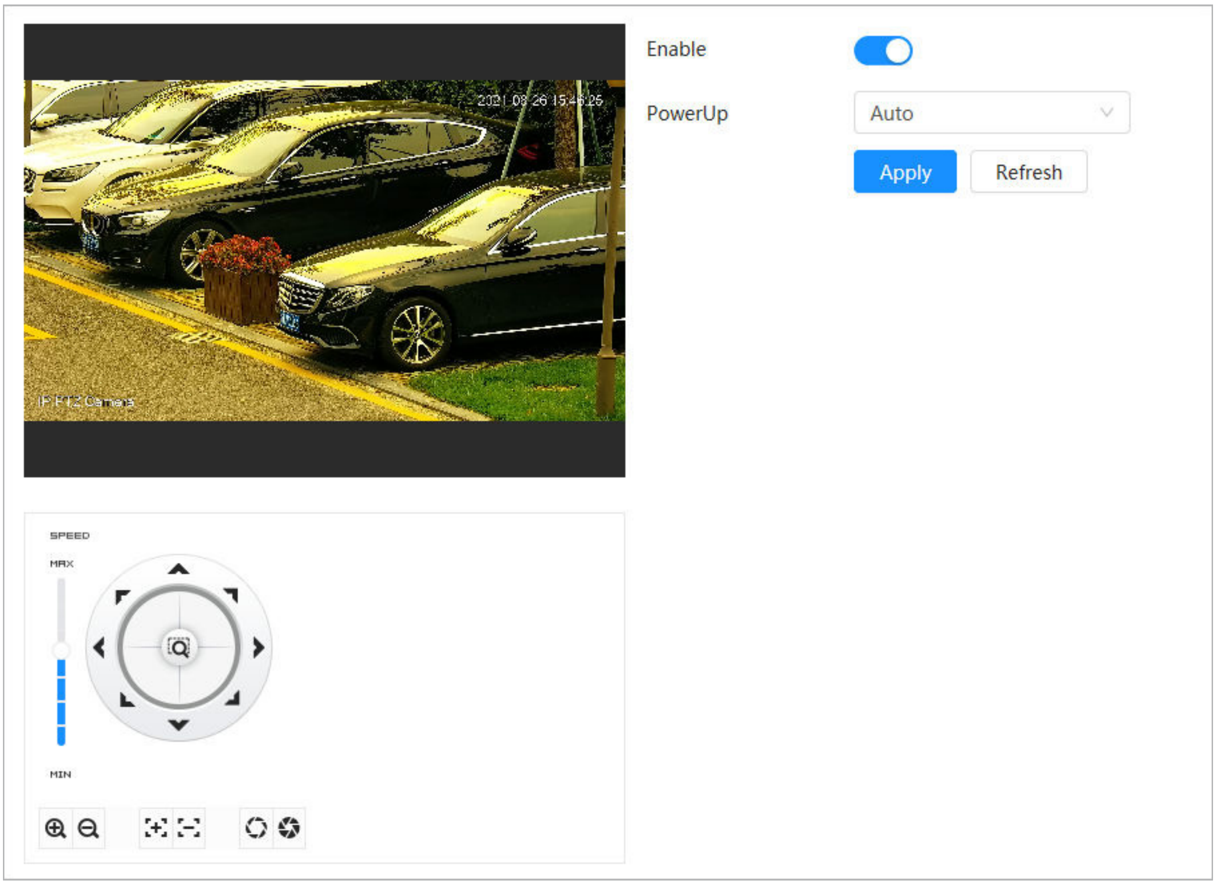
Prerequisites

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

Procedure

1. Click ⚙, and then select **PTZ > PowerUp**.
2. Click ○ to enable PowerUp function.
3. Select PowerUp type.

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



Enable ●

PowerUp Auto

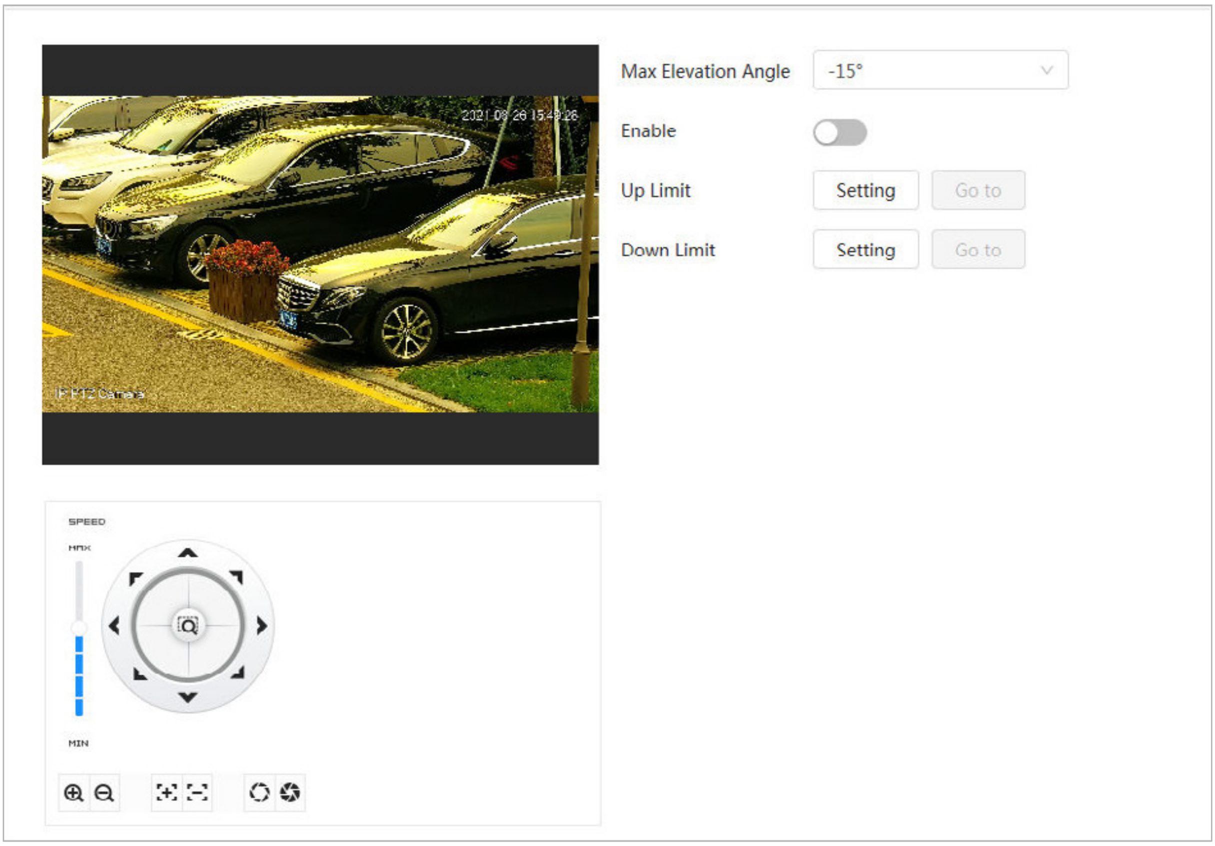
4. Click **Apply**.

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.

Procedure

1. Click ⚙, and then select **PTZ > PTZ Rotation Limit**.
2. Adjust the device direction to the “Up Limit”, and then click up limit **Setting** to set the current position to the up limit.
3. Adjust the device direction to the “Down Limit”, and then click down limit **Setting** to set the current position to the down limit.
4. Click **Go to** to preview the defined up/down limit.



Max Elevation Angle: -15°

Enable: ○

Up Limit: Setting | Go to

Down Limit: Setting | Go to

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

NOTE!
This function is available on select models.

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

4.5.10 CONFIGURING SCHEDULED TASK

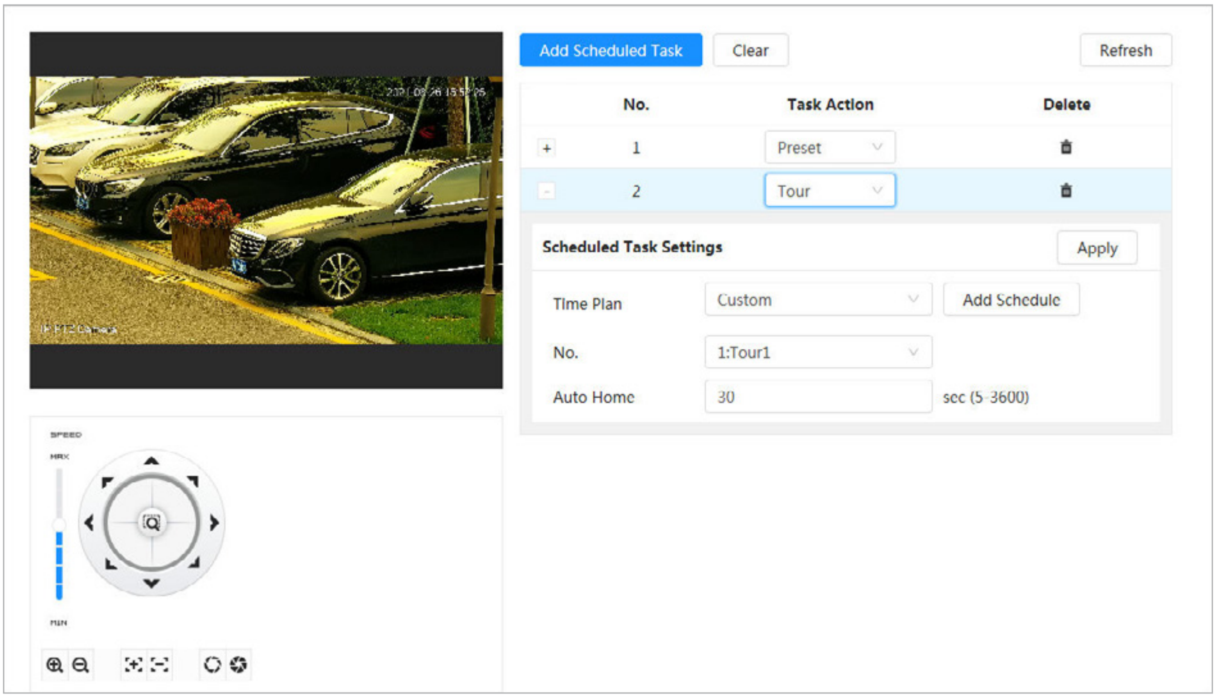
After setting scheduled task, the Camera performs the relevant motions during the set period.

Prerequisites

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

Procedure

1. Click ⚙, and then select **PTZ > Scheduled Task**.
2. Click **Add Scheduled Task**.
3. Select **Task Action**.
   Some task actions need to select corresponding action number.
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”.



	No.	Task Action	Delete
+	1	Preset	🗑
-	2	Tour	🗑

Scheduled Task Settings

Time Plan	Custom
No.	1:Tour1
Auto Home	30 sec (5-3600)

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.
6. Click **Apply**.

4.5.11 CONFIGURING PTZ MAINTENANCE

PTZ maintenance includes **PTZ Restart** and **Default**.

Procedure

1. Click ⚙, and then select **PTZ > PTZ Maintenance**.
2. Click **PTZ Restart** to restart PTZ or click **Default** to restore PTZ to defaults.

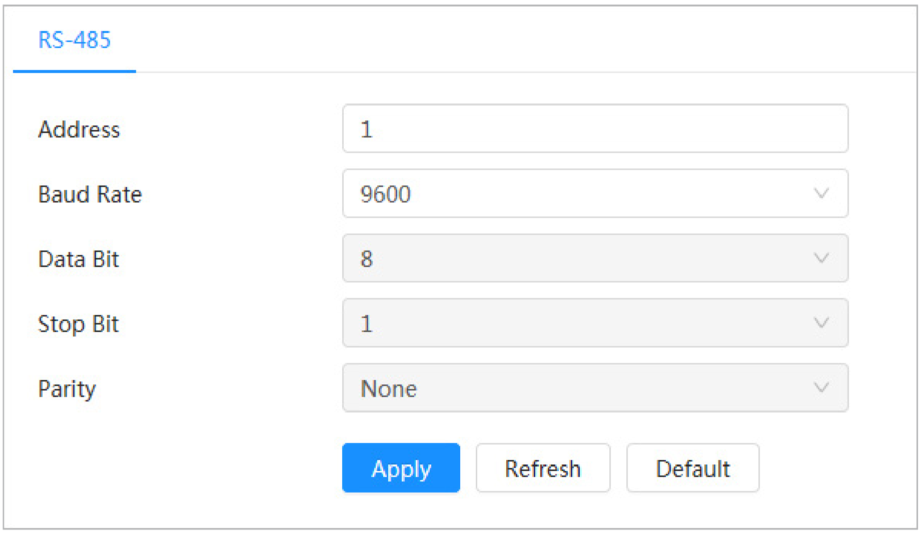
⚠ **CAUTION!**
Default PTZ will restore the Camera to defaults. Think twice before clicking Default.

4.5.12 CONFIGURING PROTOCOL

Configure parameters for RS-485.

Procedure

1. Click ⚙, and then select **PTZ > Protocol**.



Address: 1
Baud Rate: 9600
Data Bit: 8
Stop Bit: 1
Parity: None

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.

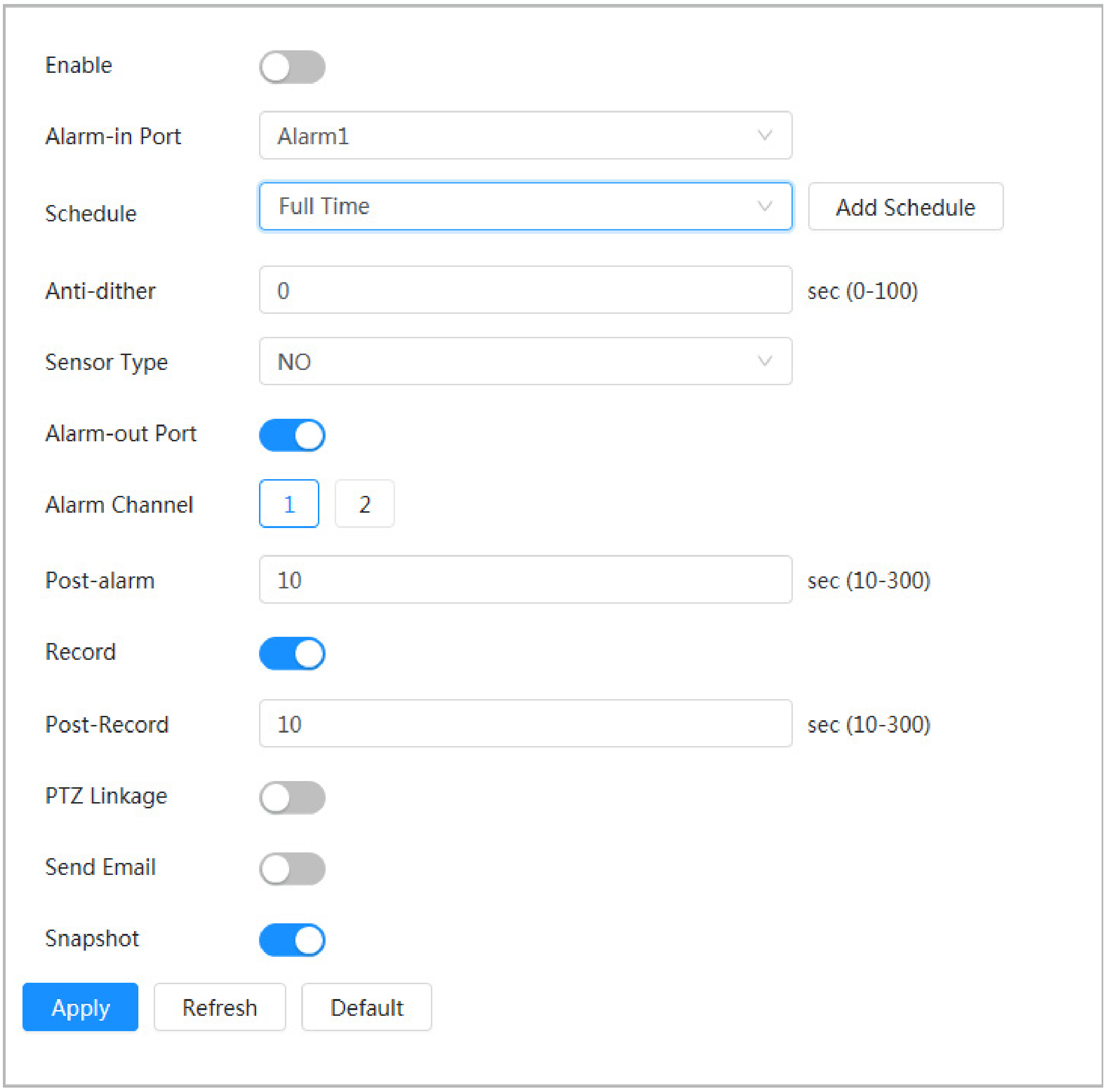
4.6.1 SETTING ALARM LINKAGE

4.6.1.1 Setting Alarm-in

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

Procedure

1. Select ⚙ **> Event > Alarm**.
2. Click ○ next to Enable to enable alarm linkage.
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**.

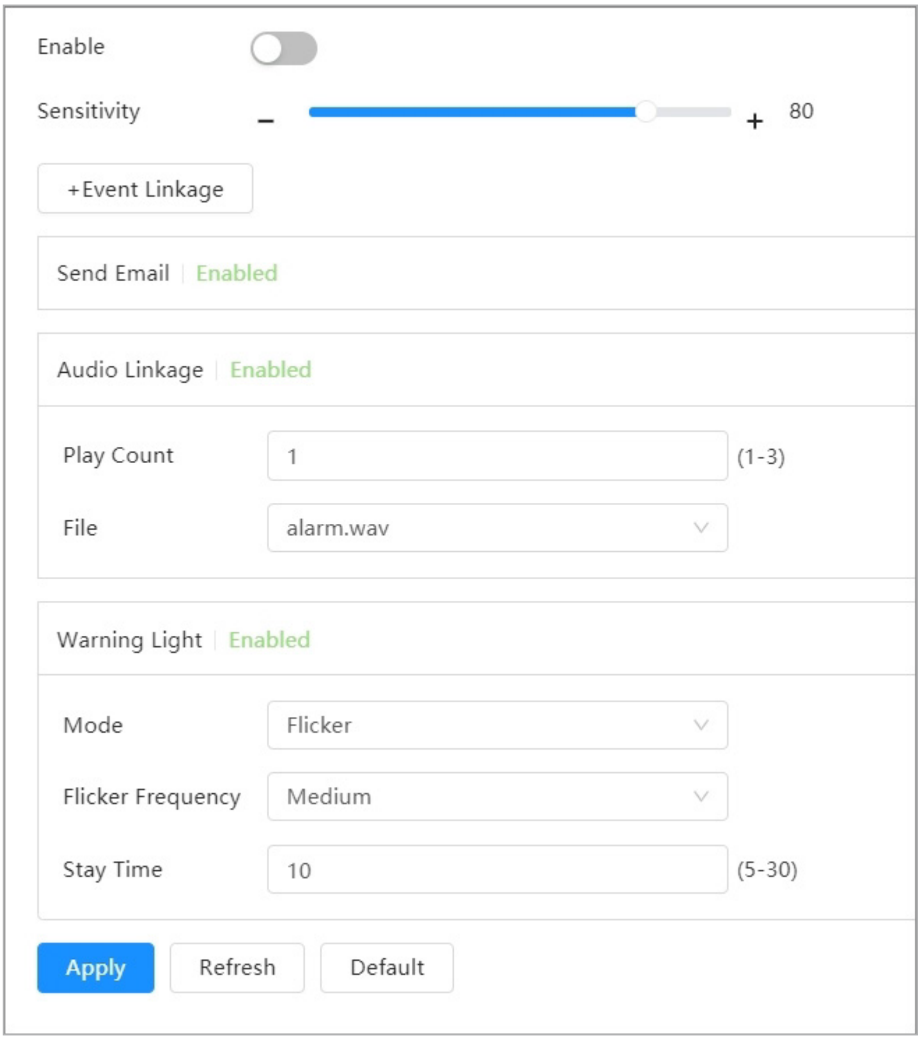


Enable	○	
Alarm-in Port	Alarm1	
Schedule	Full Time	Add Schedule
Anti-dither	0	sec (0-100)
Sensor Type	NO	
Alarm-out Port	●	
Alarm Channel	1 2	
Post-alarm	10	sec (10-300)
Record	●	
Post-Record	10	sec (10-300)
PTZ Linkage	○	
Send Email	○	
Snapshot	●	

4. (Optional) Configure the parameters for PIR alarm.

   For models that support PIR alarm, you also need to configure the following parameters.

   - Sensitivity: The larger the value, the easier an alarm will be triggered.
   - Audio Linkage: Select the audio file and set the play times, and then the audio will be played for the defined times when an alarm is triggered.
   - Warning Light: The default mode is **Flicker**, and the flickering frequency and duration can be set.
   - Send Email: Send messages to the preset email address.



Enable

Sensitivity – + 80

Send Email | Enabled

Audio Linkage | Enabled

Play Count: 1 (1-3)

File: alarm.wav

Warning Light | Enabled

Mode: Flicker

Flicker Frequency: Medium

Stay Time: 10 (5-30)

5. Select the schedule and arming periods and alarm linkage action. For details, see “4.6.1.2 Configuring Alarm Linkage”.

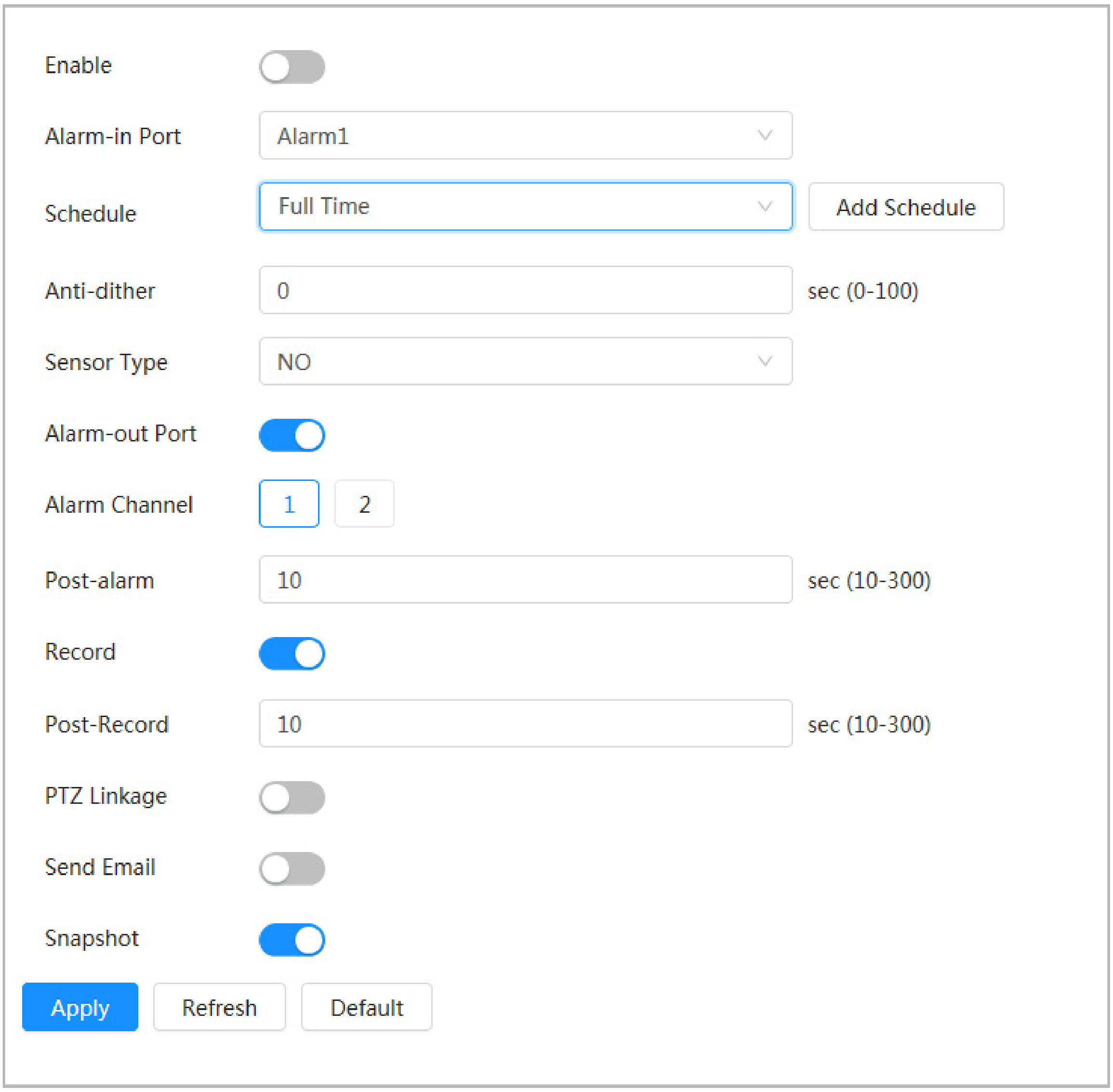
   If the exiting schedules cannot meet the scene requirement, you can click **Add Schedule** to add new schedule. For details, see “4.6.1.2.1 Adding Schedule”.

6. Click **Apply**.

4.6.1.2 Configuring 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 an alarm linkage.

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



Enable	○	
Alarm-in Port	Alarm1	
Schedule	Full Time	Add Schedule
Anti-dither	0	sec (0-100)
Sensor Type	NO	
Alarm-out Port	●	
Alarm Channel	1 2	
Post-alarm	10	sec (10-300)
Record	●	
Post-Record	10	sec (10-300)
PTZ Linkage	○	
Send Email	○	
Snapshot	●	

4.6.1.2.1 Adding Schedule

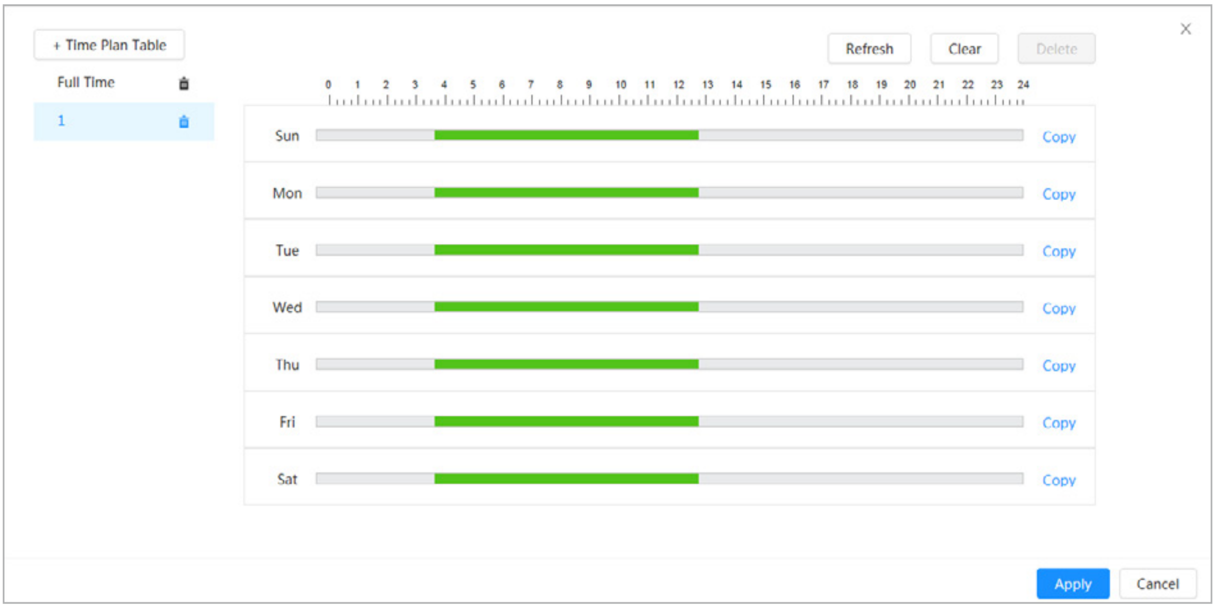
Configure arming schedule. The system only performs corresponding linkage action in the defined period.

Procedure

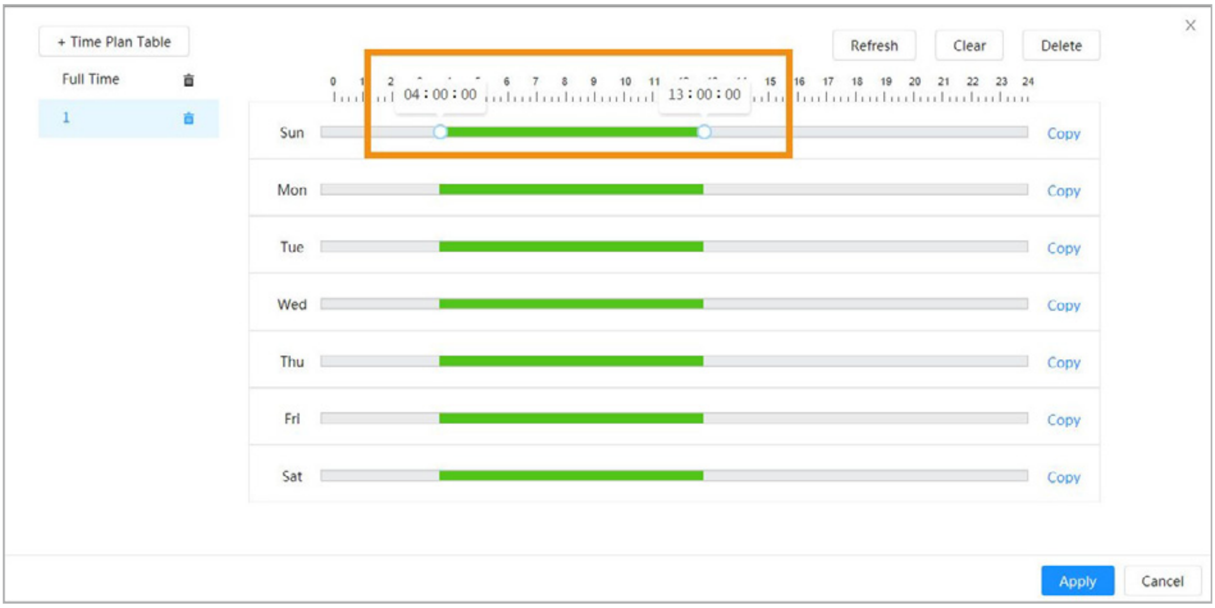
1. Click **Add Schedule** next to **Schedule**.
2. Click **Time Plan Table**.

   You can set up multiple time plan tables for selection.
3. Configure the name of the **Time Plan Table**.
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.



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



5. (Optional) Click **Copy**, select weeks, and then click **Apply**.

   Time plans for the current week can be quickly copied to other weeks.
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.

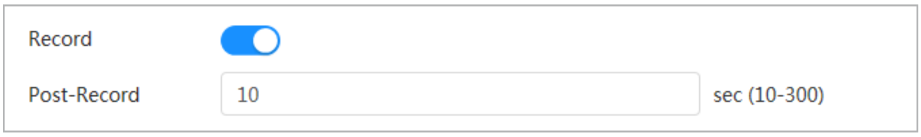
Prerequisites

- 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, select the channel, 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.



Record ●

Post-Record 10 sec (10-300)

4.6.1.2.3 Snapshot Linkage

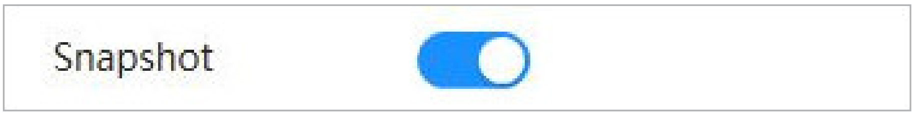
After snapshot linkage is configured, the system can automatically alarm and take snapshots when an alarm is triggered.

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, and select the channel.



Snapshot ●

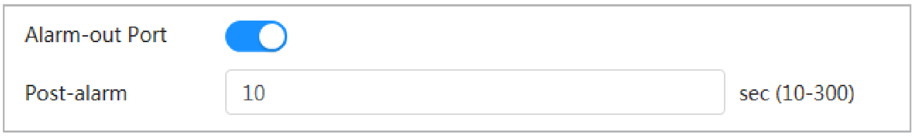
4.6.1.2.4 Alarm-out Linkage

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.

NOTE!
If the Camera has multiple alarm-out channels, you need to select the linkage alarm-out channel.



Alarm-out Port ●

Post-alarm 10 sec (10-300)

4.6.1.2.5 Email Linkage

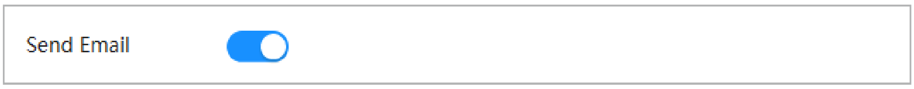
When an alarm is triggered, the system will automatically send an email to defined users.

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 ○ to enable email linkage.



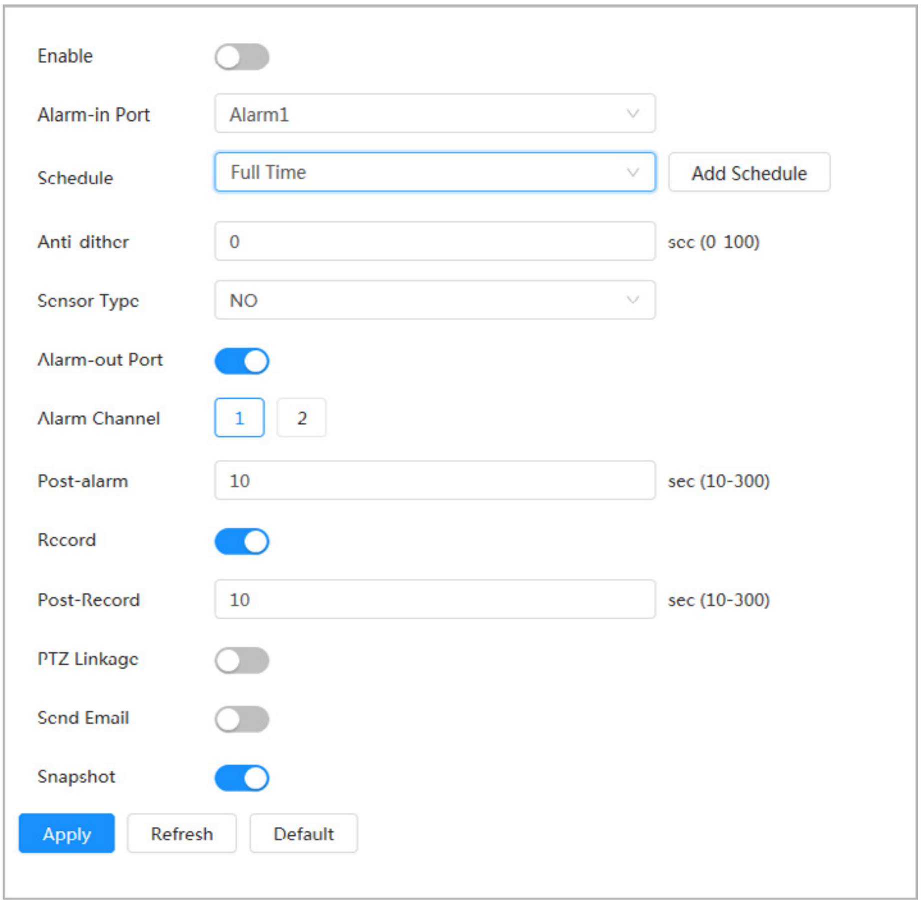
Send Email ●

4.6.1.3 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.

Procedure

1. Select ⚙ > **Event** > **Alarm**, and then click ○ next to **Enable** to enable alarm linkage.
2. Click **Apply**.



Enable	○	
Alarm-in Port	Alarm1	
Schedule	Full Time	Add Schedule
Anti dithcr	0	scc (0 100)
Scnsor Typc	NO	
Alarm-out Port	●	
Alarm Channel	1 2	
Post-alarm	10	sec (10-300)
Rccord	●	
Post-Record	10	sec (10-300)
PTZ Linkagc	○	
Scnd Email	○	
Snapshot	●	

4.6.1.4 Subscribing to Alarm

4.6.1.4.1 Alarm Types

Following are the alarm types and preparations of alarm events.

Table 4-26 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".
IVS	The alarm is triggered when an intelligent rule is triggered.	IVS, face detection, people counting, or other intelligent functions is enabled.
Scene Changing	The alarm is triggered when the device monitoring scene changes.	Scene changing detection is enabled. For details, see "4.6.3.3 Setting Scene Changing".
Voltage Detection	The alarm is triggered when the device detects abnormal voltage input.	Voltage detection is enabled. For details, see "4.6.2.3 Setting Tampering Detection".
Security Exception	The alarm is triggered when the device detects malicious attack.	Voltage detection is enabled. For details, see "10.1 Security Status".

4.6.1.4.2 Subscribing to Alarm Information

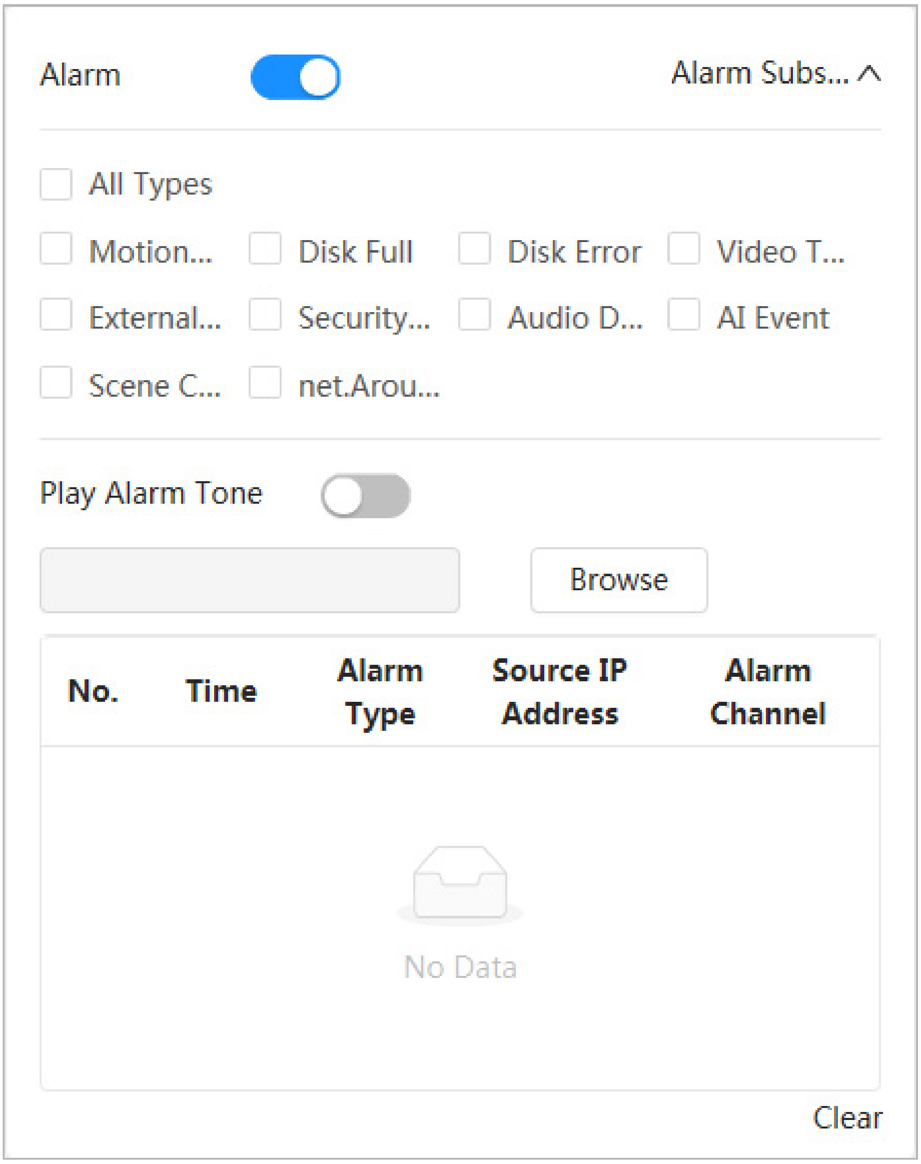
Background Information

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

NOTE!
Functions of different devices might vary.

Procedure

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



No.	Time	Alarm Type	Source IP Address	Alarm Channel

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.

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4.6.2 SETTING EXCEPTION

Abnormality includes SD card exception, network exception and tampering detection.

> **NOTE!**
> 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.

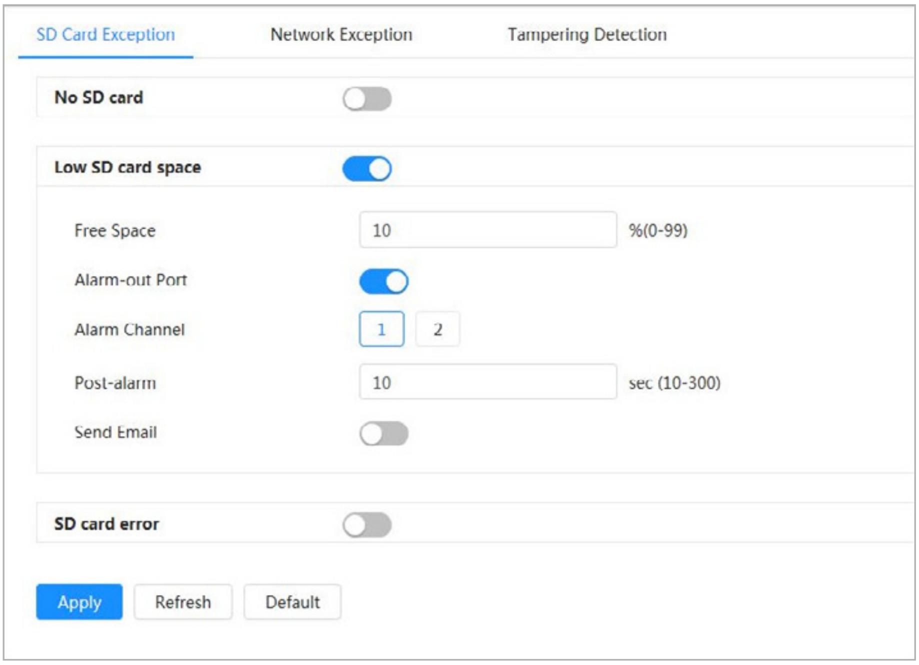
Background Information

The event types include **No SD Card**, **Low SD Card Space**, and **SD Card Error**. Functions might vary with different models.

Procedure

1. Select ⚙ **> Event > Exception > SD Card Exception.**
2. Select event type, and then enable SD card exception detection.

   When the event type is **Low SD card space**, you can configure **Free Space.** When the remaining free space is less than this value, an alarm is triggered.



SD Card Exception | Network Exception | Tampering Detection

No SD card ○

Low SD card space ●

Free Space: 10 %(0-99)

Alarm-out Port ●

Alarm Channel: 1 2

Post-alarm: 10 sec (10-300)

Send Email ○

SD card error ○

Apply | Refresh | Default

3. 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.
4. Set alarm linkage actions. For details, see “4.6.1.2 Configuring Alarm Linkage”.
5. Click **Apply**.

4.6.2.2 Setting Network Exception

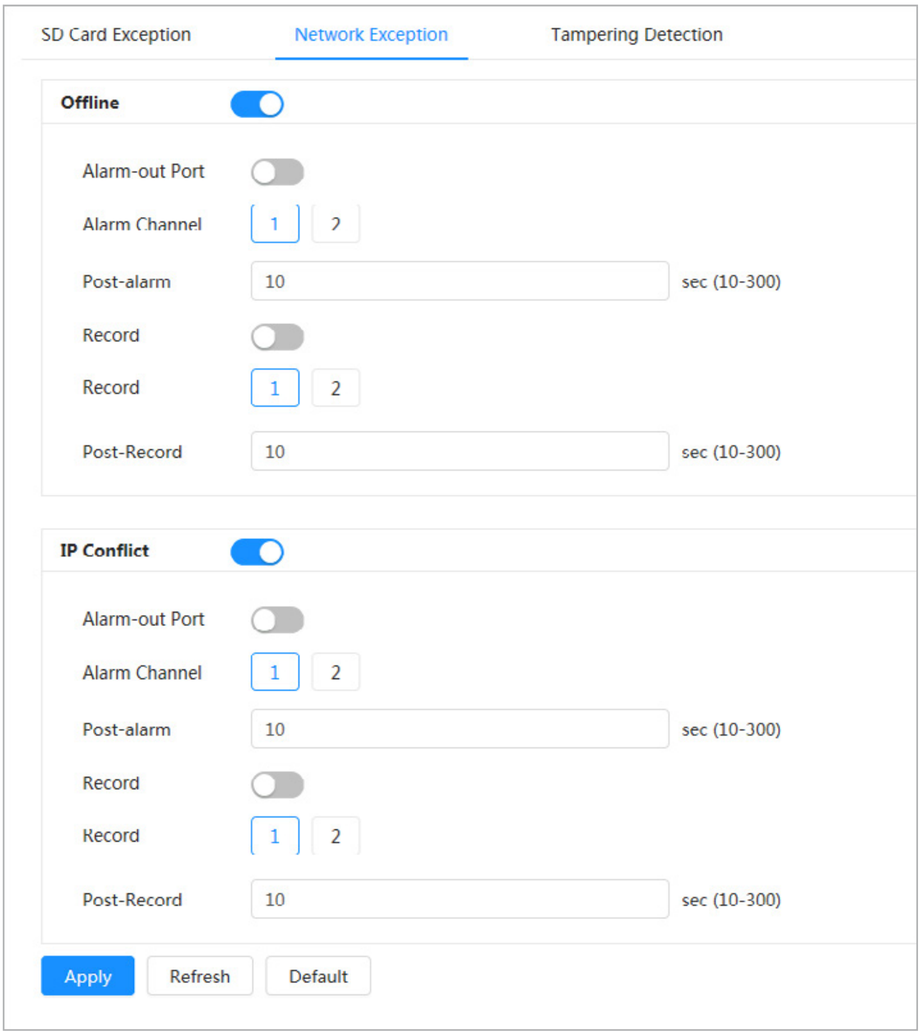
In case of network exception, the system performs alarm linkage.

Background Information

The event types include **Offline** and **IP Conflict**.

Procedure

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



Offline ●

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

IP Conflict ●

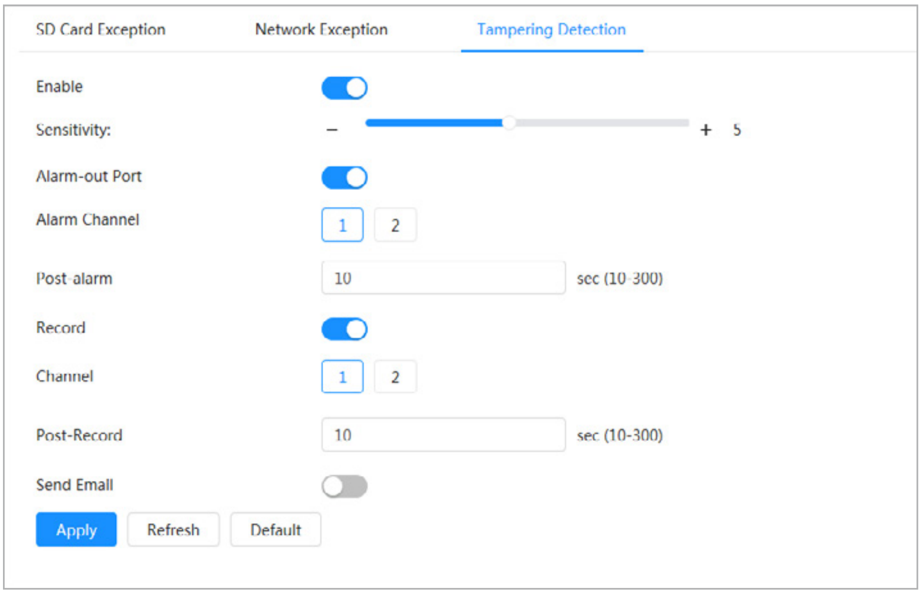
Alarm-out Port ○
Alarm Channel 1 2
Post-alarm 10 sec (10-300)
Record ○
Record 1 2
Post-Record 10 sec (10-300)

2. Click ○ to enable the network exception detection.
3. Set alarm linkage actions. For details, see “4.6.1.2 Configuring Alarm Linkage”.
4. Click **Apply**.

4.6.2.3 Setting Tampering Detection

Procedure

1. Select ⚙ > **Event** > **Exception** > **Tampering Detection**.
2. Click ○ to enable the tampering detection function.
3. Configure alarm parameters.



SD Card Exception | Network Exception | Tampering Detection

Enable	●
Sensitivity:	– + 5
Alarm-out Port	●
Alarm Channel	1 2
Post-alarm	10 sec (10-300)
Record	●
Channel	1 2
Post-Record	10 sec (10-300)
Send Email	○

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

Background Information

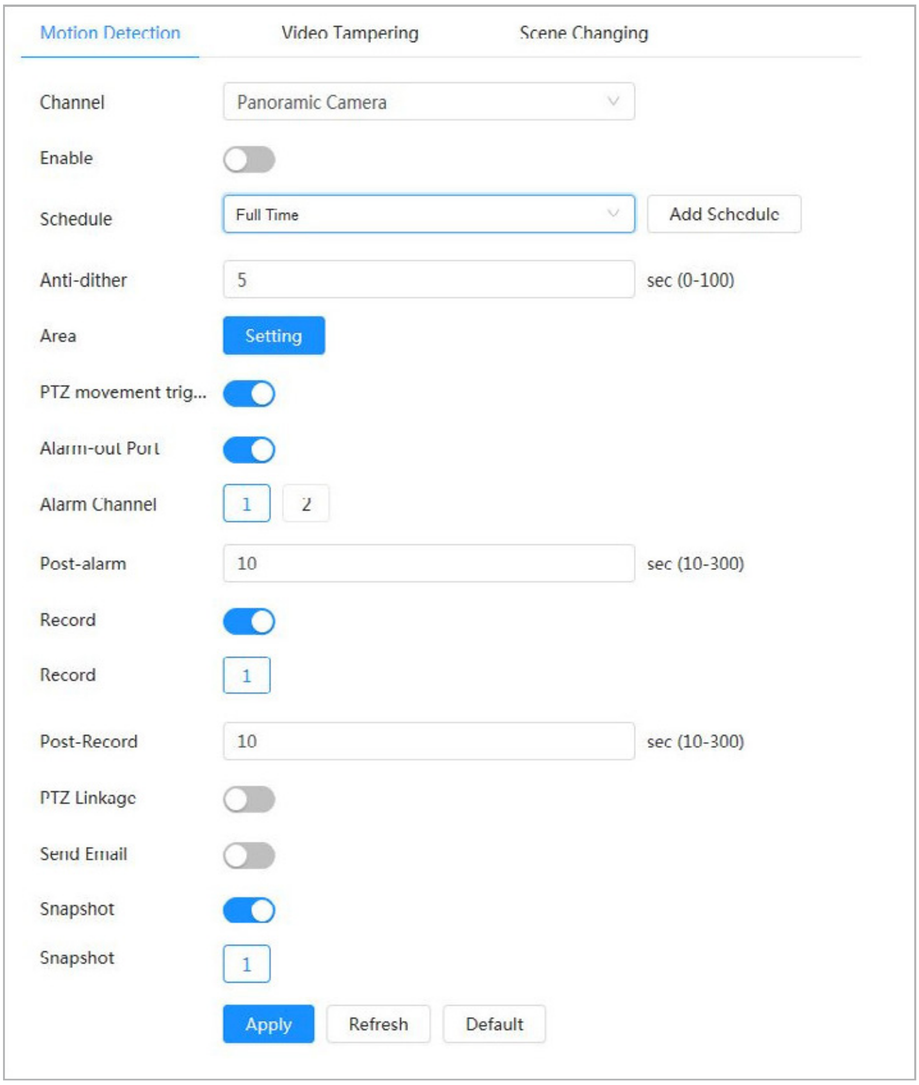
The system performs an alarm linkage when a moving object appears in the image and its moving speed reaches the defined sensitivity.

NOTE!

- 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.

Procedure

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



Channel: Panoramic Camera

Enable: ○

Schedule: Full Time

Anti-dither: 5 sec (0-100)

Area: Setting

PTZ movement trig...: ●

Alarm-out Port: ●

Alarm Channel: 1 2

Post-alarm: 10 sec (10-300)

Record: ●

Record: 1

Post-Record: 10 sec (10-300)

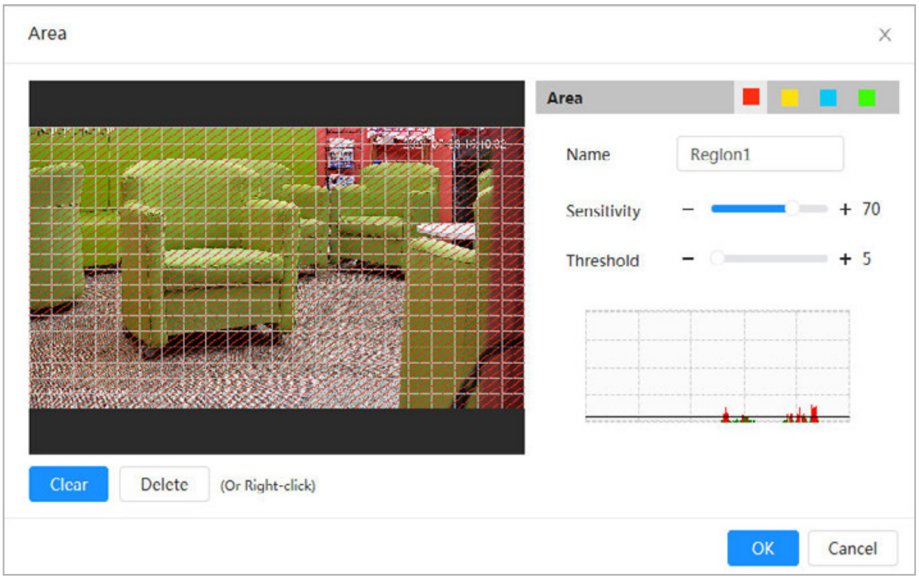
PTZ Linkage: ○

Send Email: ○

Snapshot: ●

Snapshot: 1

2. Click ○ to enable the motion detection function.
3. Set the area for motion detection.
   (1) Click **Setting** next to **Area**.



Name: Region1

Sensitivity: 70

Threshold: 5

(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**.

4. Set arming periods and alarm linkage action. For details, see “4.6.1.2 Configuring 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.

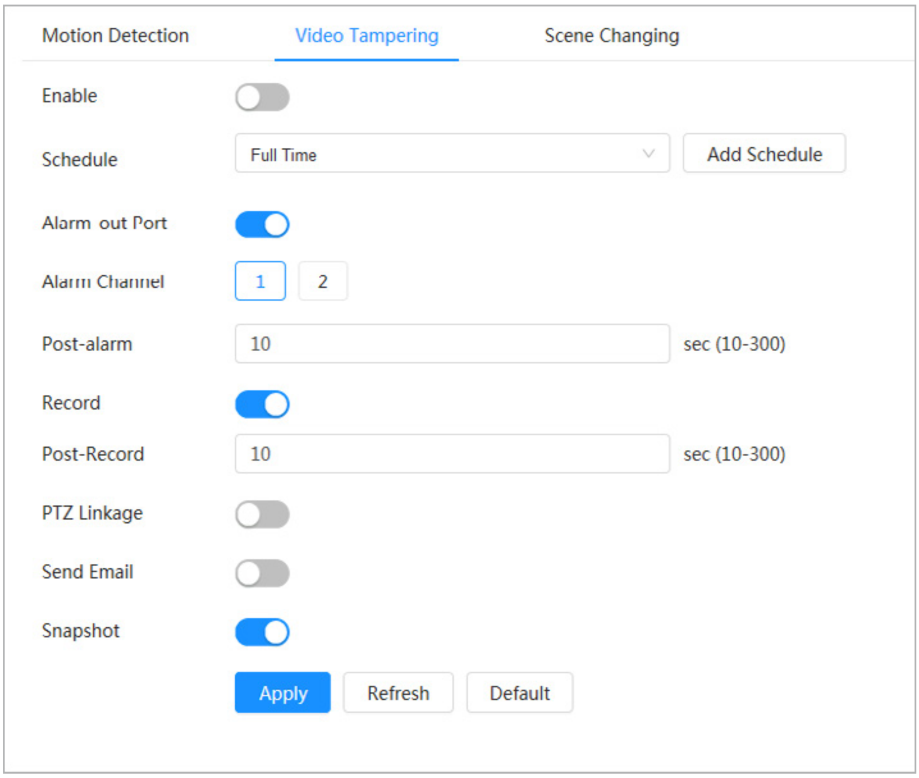
5. Click **Apply**.

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.

Procedure

1. Select ⚙ > **Event** > **Video Detection** > **Video Tampering**.
2. Select **Channel**, and then click ○ to enable the video tampering detection.



Enable ○

Schedule: Full Time

Alarm out Port ●

Alarm Channel: [✓ 1] 2

Post-alarm: 10 sec (10-300)

Record ●

Post-Record: 10 sec (10-300)

PTZ Linkage ○

Send Email ○

Snapshot ●

3. Set arming periods and alarm linkage action. For details, see “4.6.1.2 Configuring 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”.

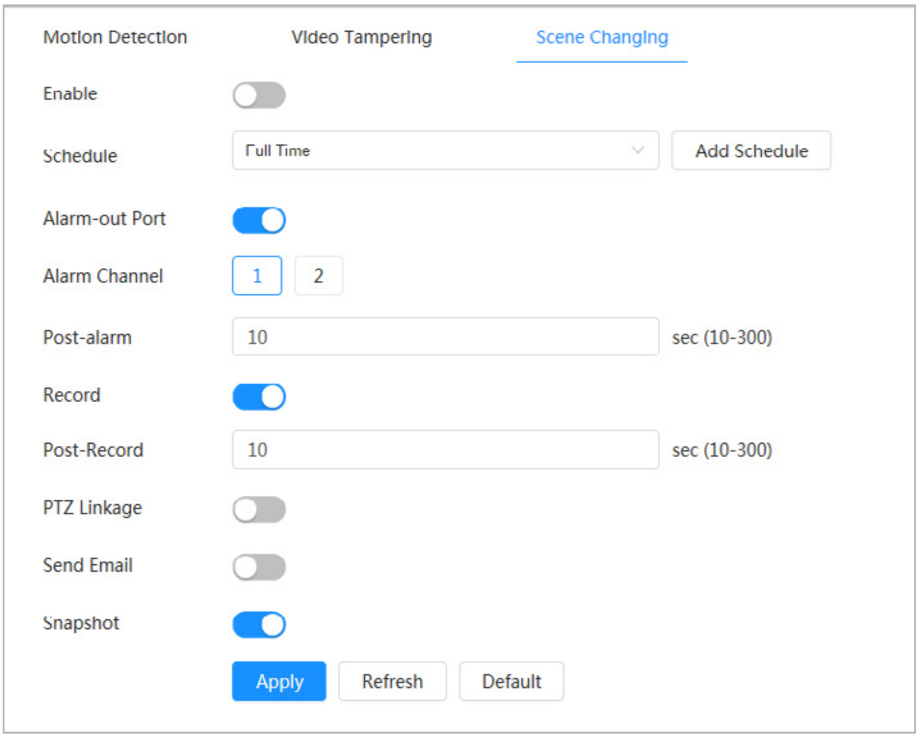
   Anti-dither: After the **Anti-dither** time is set, the system only records one motion detection event in the period.
4. Click **Apply**.

4.6.3.3 Setting Scene Changing

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

Procedure

1. Select ⚙ > **Event** > **Video Detection** > **Scene Changing**.
2. Select **Channel** and then click ○ to enable the scene changing detection.



Enable ○

Schedule: Full Time | Add Schedule

Alarm-out Port ●

Alarm Channel: [1] 2

Post-alarm: 10 sec (10-300)

Record ●

Post-Record: 10 sec (10-300)

PTZ Linkage ○

Send Email ○

Snapshot ●

3. Set arming periods and alarm linkage action. For details, see “4.6.1.2 Configuring 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.
4. Click **Apply**.

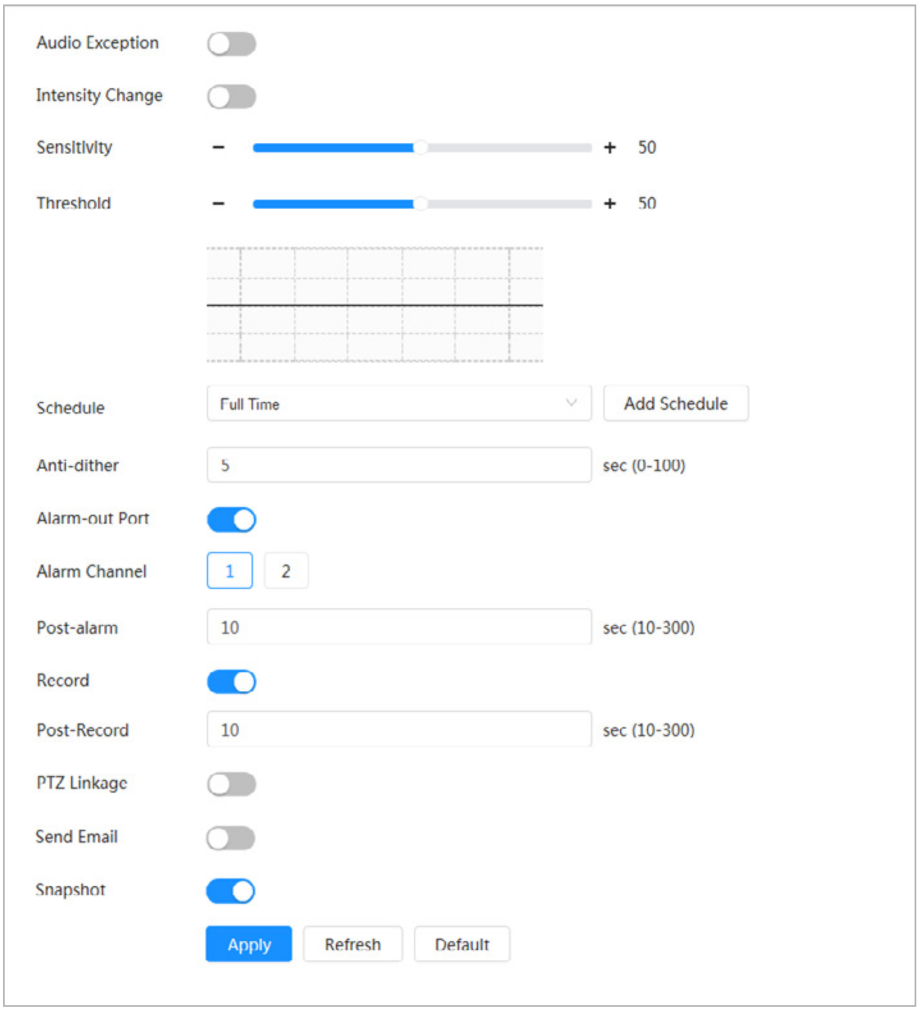
4.6.4 SETTING AUDIO DETECTION

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

Procedure

1. Select ⚙ **> Event > Audio Detection**.
2. (Optional) Select audio channels.

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



Audio Exception	○	
Intensity Change	○	
Sensitivity	− + 50	
Threshold	− + 50	
Schedule	Full Time	Add Schedule
Anti-dither	5	sec (0-100)
Alarm-out Port	●	
Alarm Channel	1 2	
Post-alarm	10	sec (10-300)
Record	●	
Post-Record	10	sec (10-300)
PTZ Linkage	○	
Send Email	○	
Snapshot	●	

4. Set arming periods and alarm linkage action. For details, see “4.6.1.2 Configuring 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.
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.

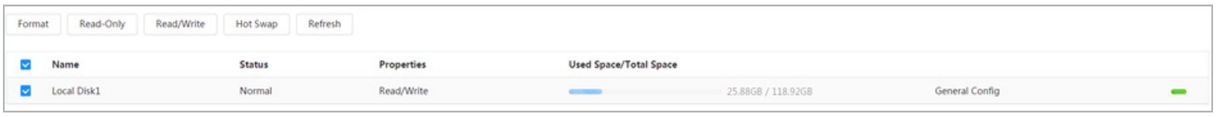
Background Information

NOTE!

- 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

1. Select ⚙ > **Storage**.
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**, and you can format the SD card.
     Click **OK** in the pop-up dialogue box to format the SD card.



☑	Name	Status	Properties	Used Space/Total Space		
☑	Local Disk1	Normal	Read/Write	25.88GB / 118.92GB	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.

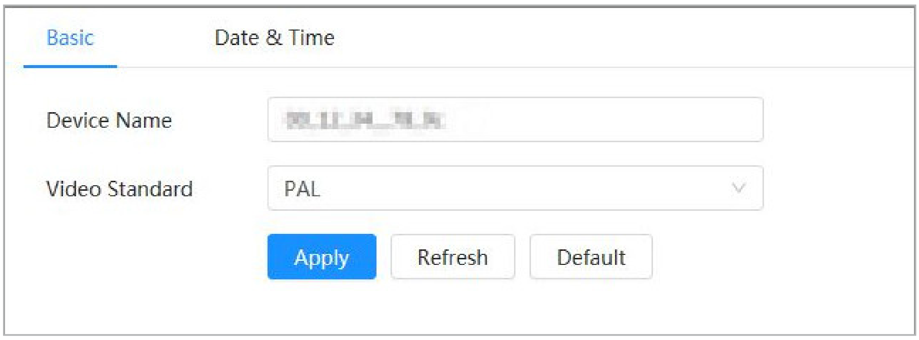
4.8.1 GENERAL

4.8.1.1 Basic

You can configure device name and video standard.

Procedure

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



Device Name [redacted]

Video Standard PAL

2. Configure general parameters.

Table 4-27 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. **NOTE!** Different devices have different names.
Video Standard	Select video standard from **PAL** and **NTSC**.
Analog Output	This function is available only for devices that support analog output. **NOTE!** • Some devices automatically turn off AI function when enabling analog output, and automatically turn off analog output when enabling AI function. • Some devices support SDI (Serial Digital Interface) and HDCVI (High Definition Composite Video Interface) function.

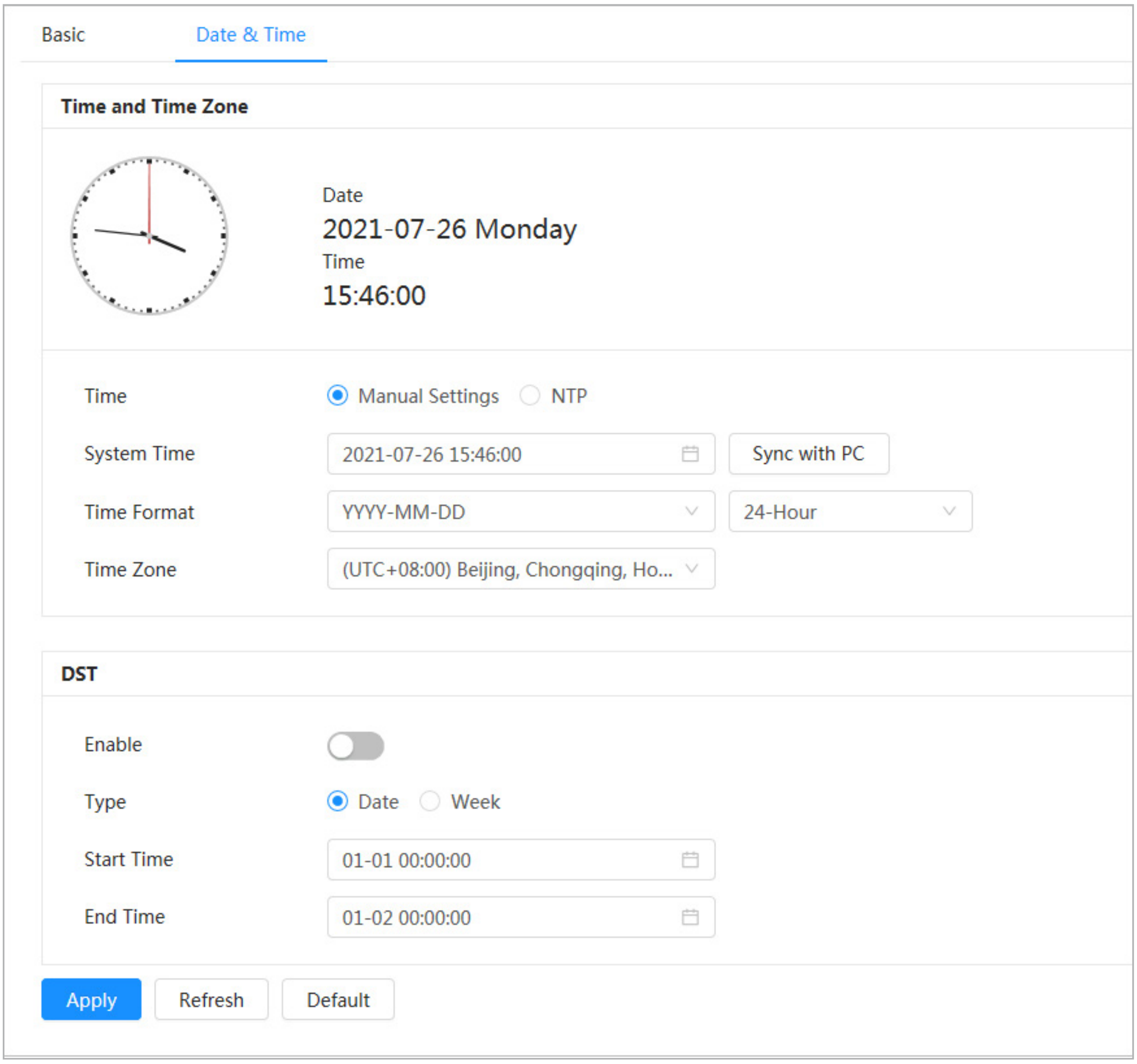
3. Click **Apply**.

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.

Procedure

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



Time and Time Zone

Date
2021-07-26 Monday
Time
15:46:00

Time ● Manual Settings ○ NTP
System Time 2021-07-26 15:46:00
Time Format YYYY-MM-DD 24-Hour
Time Zone (UTC+08:00) Beijing, Chongqing, Ho...

DST

Enable ○
Type ● Date ○ Week
Start Time 01-01 00:00:00
End Time 01-02 00:00:00

2. Configure date and time parameters.

Table 4-28 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 computer running NTP server to use NTP.
System Time	Configure system time. Click **Sync with PC**, and the system time changes to the computer 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**.

3. Click **Apply**.

4.8.2 POWER CONSUMPTION MODE

You can configure the power consumption mode of the Camera to sleep mode or general mode. Both modes include parameters that can help to reduce power consumption. Sleep mode is enabled by default.

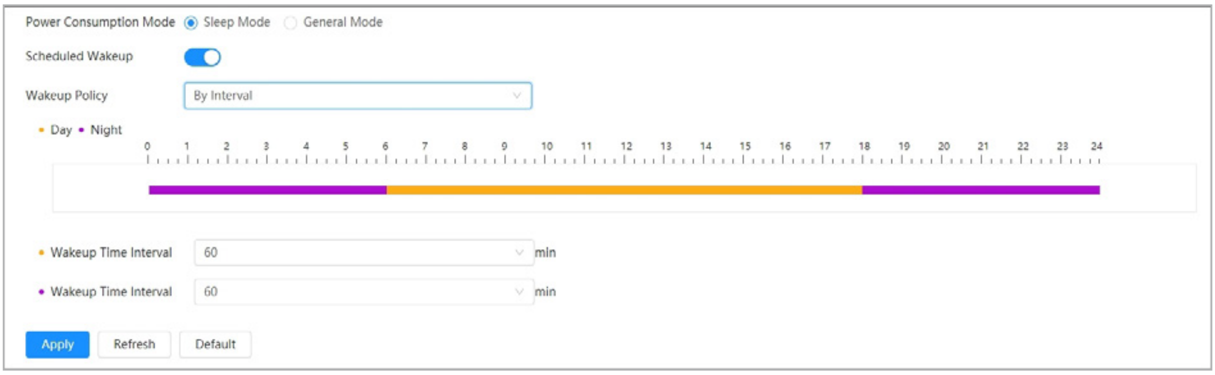
4.8.2.1 Sleep Mode

Under this mode, except for the 4G module and microcontroller that are working in low power consumption, other components of the Camera are not working. You can also configure the scheduled wakeup function for the Camera to automatically wake up at the specified time, or wake up when the PIR alarm is triggered.

Procedure

1. Select ⚙ **> System > Power Consumption Mode > Sleep Mode**.
2. Enable **Scheduled Wakeup** if you need to, set the **Wakeup Policy** to **By Duration** or **By Interval**, and then configure the parameters.
   - By interval:
     (1) Set the daytime and nighttime by clicking and dragging on the timeline or by entering the specific numbers in the text box.

     (2) Set the wakeup time interval for the day and night respectively.



Power Consumption Mode ● Sleep Mode ○ General Mode

Scheduled Wakeup

Wakeup Policy: By Interval

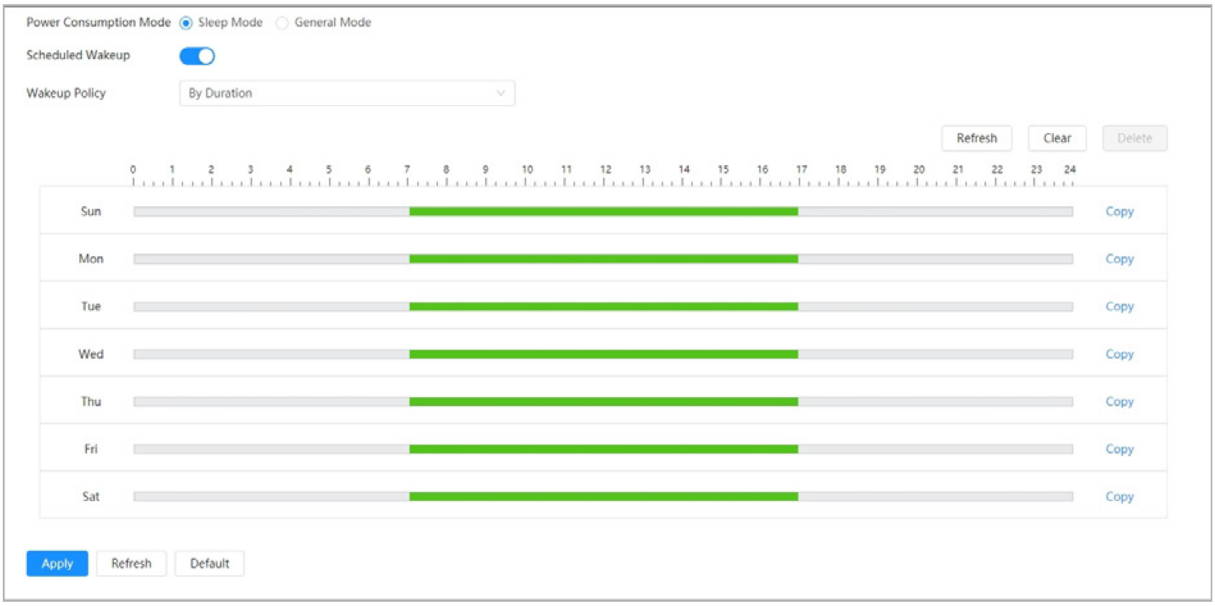
• Day • Night

• Wakeup Time Interval: 60 min

• Wakeup Time Interval: 60 min

   - By duration:
     (1) Set the wakeup duration for each day of a week by clicking and dragging on the timeline or by entering the specific numbers in the text box.

     (2) Set the wakeup period for a day, click **Copy**, select the days to share the wakeup periods with the day, and then click **Apply**.



Power Consumption Mode ● Sleep Mode ○ General Mode

Scheduled Wakeup

Wakeup Policy: By Duration

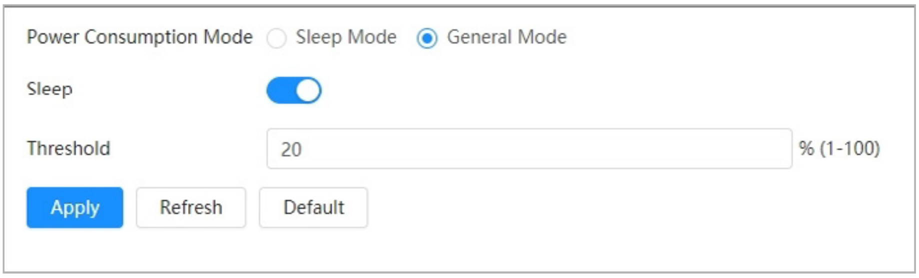
3. Click **Apply**.

4.8.2.2 General Mode

Under this mode, the Camera works with continuous power supply. You can also enable the sleep function for the device to automatically sleep when the battery level reaches the threshold.

Procedure

1. Select ⚙ > **System** > **Power Consumption Mode** > **General Mode**.



Power Consumption Mode ○ Sleep Mode ● General Mode

Sleep ●

Threshold 20 % (1-100)

2. Enable **Sleep** if you need to, and then set the threshold.

   The default threshold of the battery level is 20%.

3. Click **Apply**.

4.8.3 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.

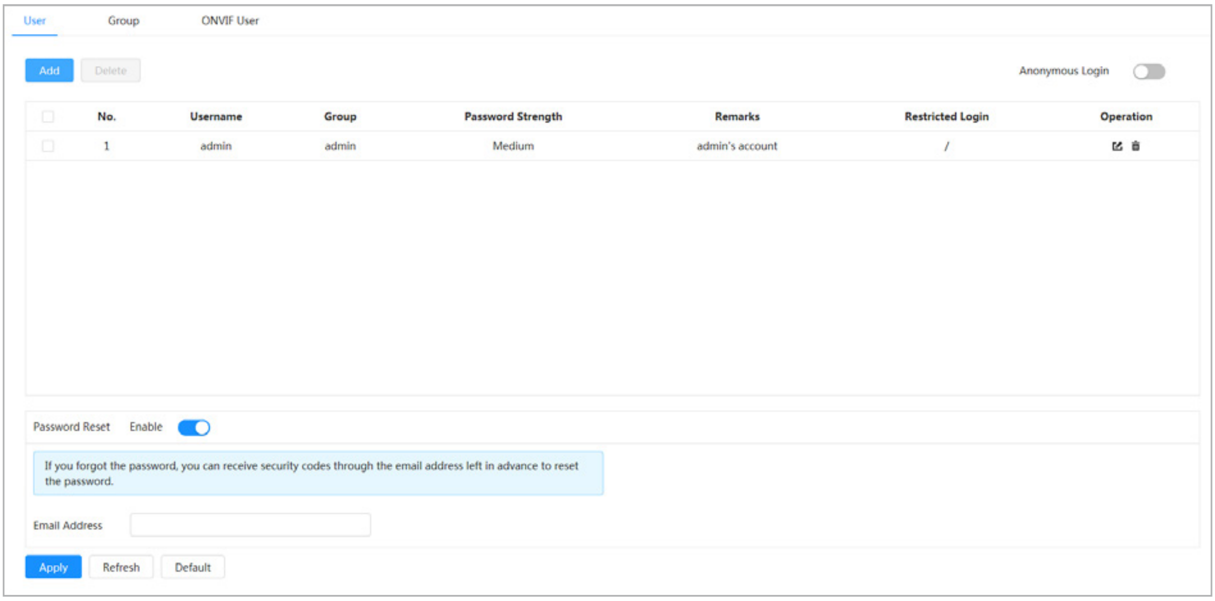
- The maximum length of the user or group name is 31 characters which consist of number, letter, underline, dash, dot and @.
- The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: Uppercase, lowercase, numbers, and special characters (excluding ‘ “ ; : &).
- 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.

4.8.3.1 Adding User

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

Procedure

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



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

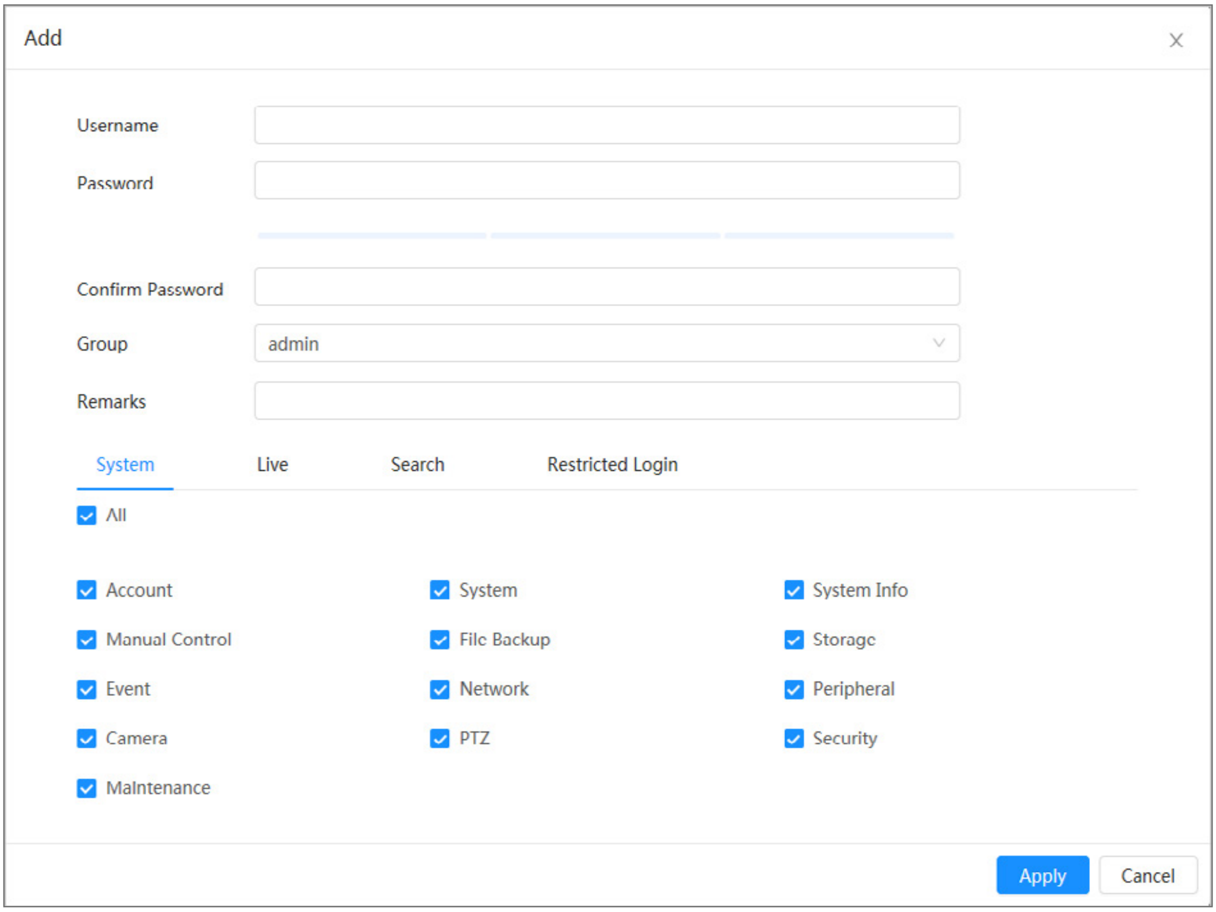
Password Reset Enable

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

Email Address

2. Click **Add**.

Add user (system)



Add ×

Username

Password

Confirm Password

Group: admin

Remarks

System | Live | Search | Restricted Login

☑ All

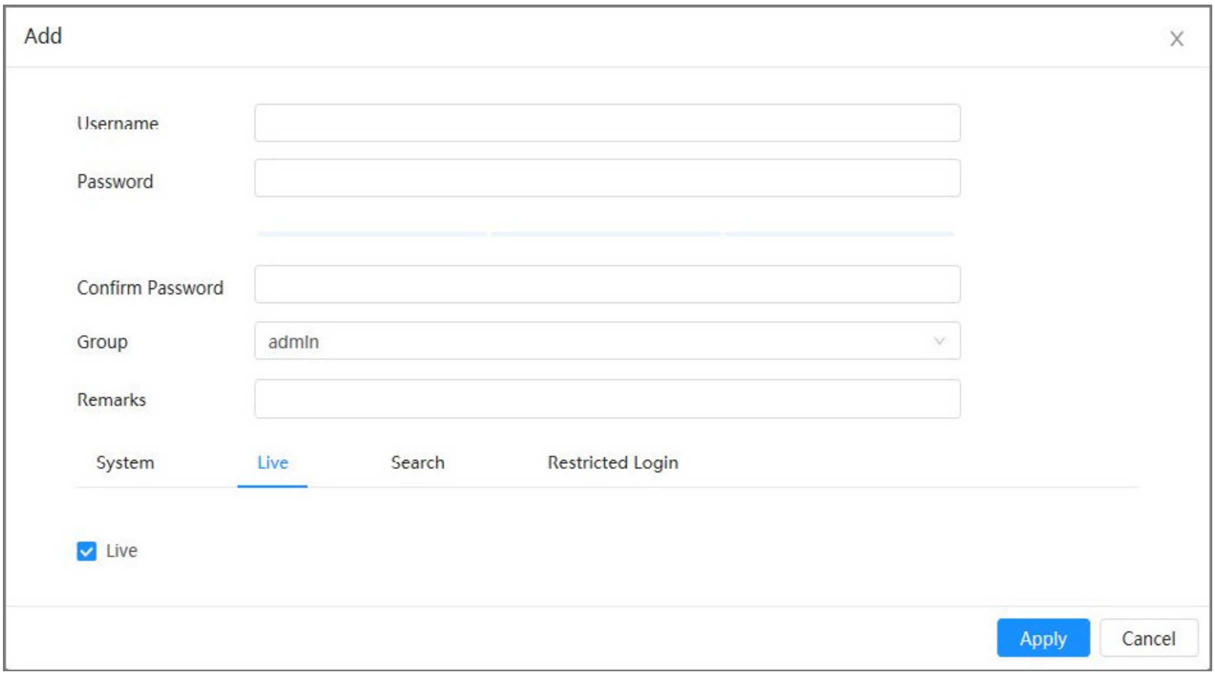
☑ Account
☑ Manual Control
☑ Event
☑ Camera
☑ Malntenance

☑ System
☑ Filc Backup
☑ Network
☑ PTZ

☑ System Info
☑ Storagc
☑ Peripheral
☑ Security

Apply Cancel

Add user (live)



Add ×

Username

Password

Confirm Password

Group: admln

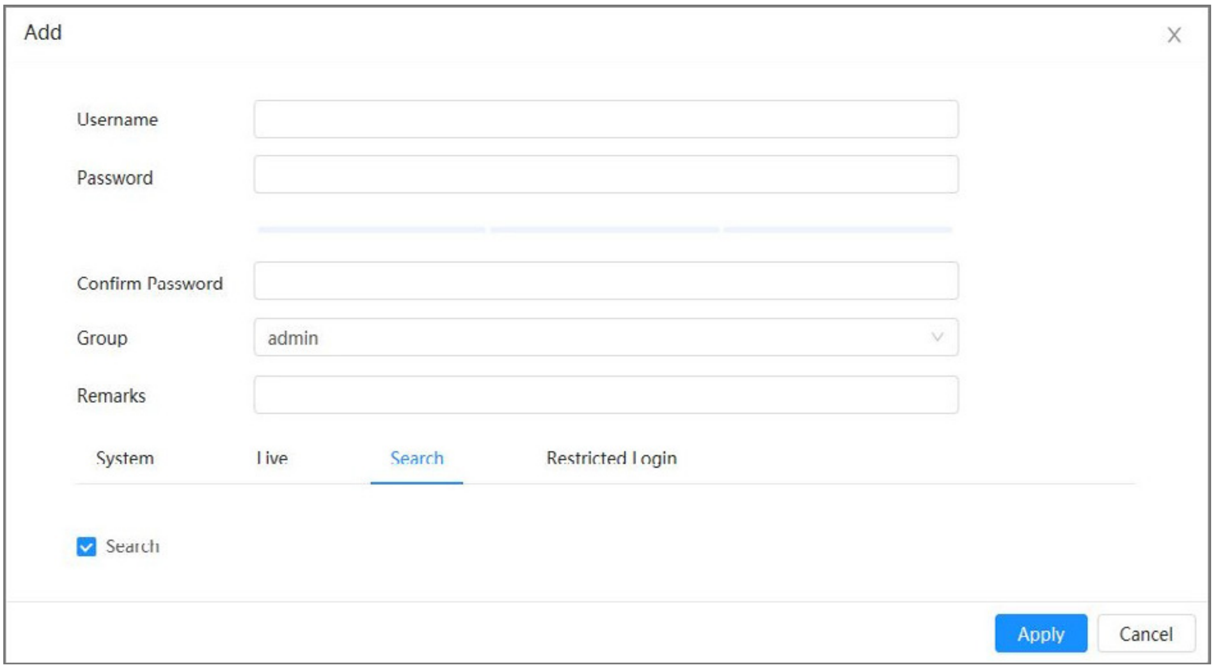
Remarks

System | Live | Search | Restricted Login

☑ Live

Apply Cancel

Add user (search)



Add

Username

Password

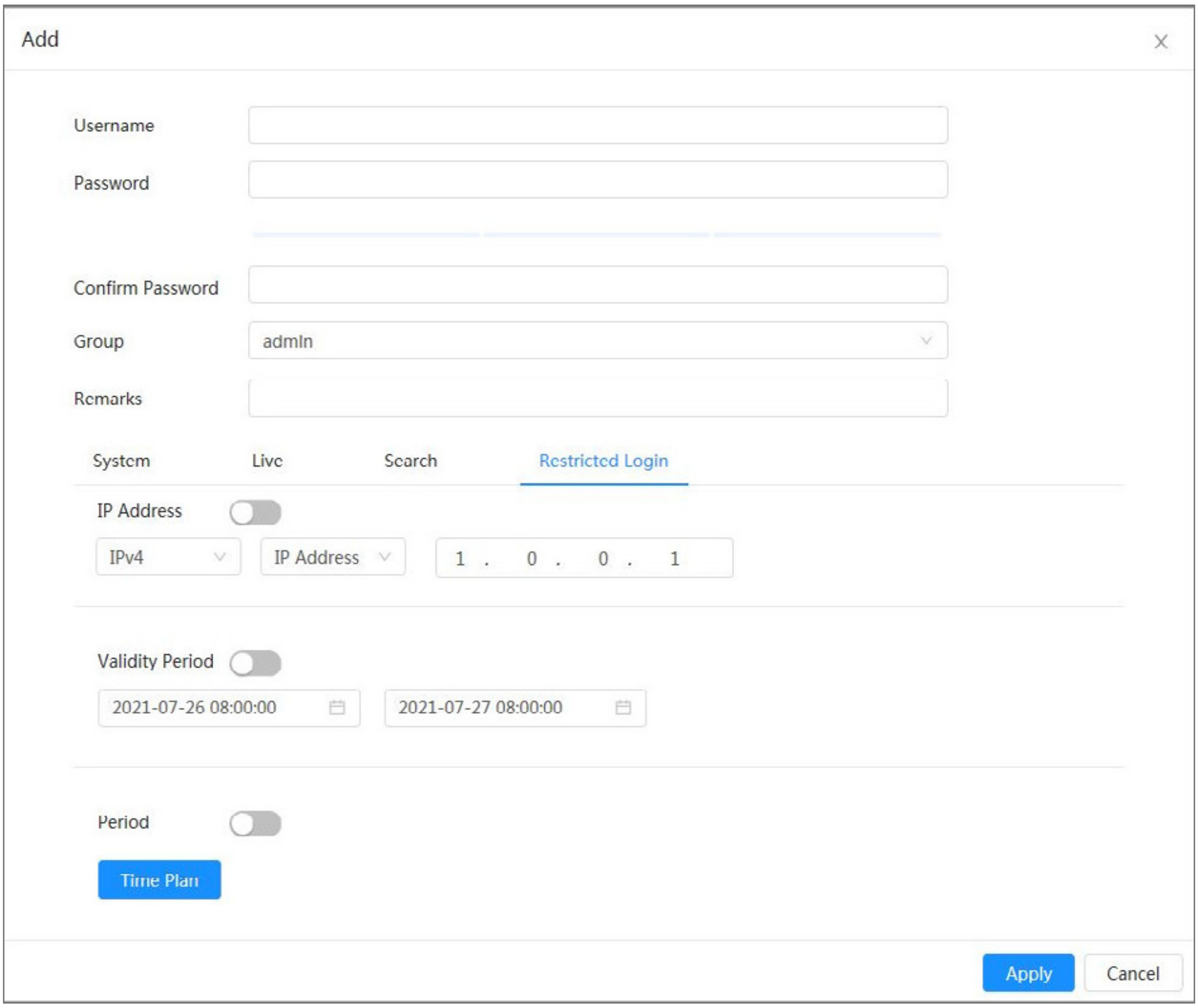
Confirm Password

Group: admin

Remarks

☑ Search

Add user (restricted log)



Add

Username

Password

Confirm Password

Group: admin

Remarks

IP Address: IPv4, IP Address, 1 . 0 . 0 . 1

Validity Period: 2021-07-26 08:00:00 – 2021-07-27 08:00:00

Period

3. Configure user parameters.

Table 4-29 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 password and confirm it again. 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.
Confirm Password	
Group	The group that users belong to. Each group has different authorities.
Remarks	Describe the user.
System	Select system authorities as needed. **NOTE!** We recommend giving 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.
Restricted Login	Set the computer address that allows the defined user to log in to the Camera and the validity period and time range. You can log in to the webpage with the defined IP in the defined time range of validity period. Set as follows: • Enable **IP address**, select IP type and then configure IP address. – IP segment: Enter the start address and end address of the host to be added. – IP address: Enter the IP 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.

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.

NOTE!
For admin account, you can only edit the password.

- Delete user group.

  Click to delete the added user group.

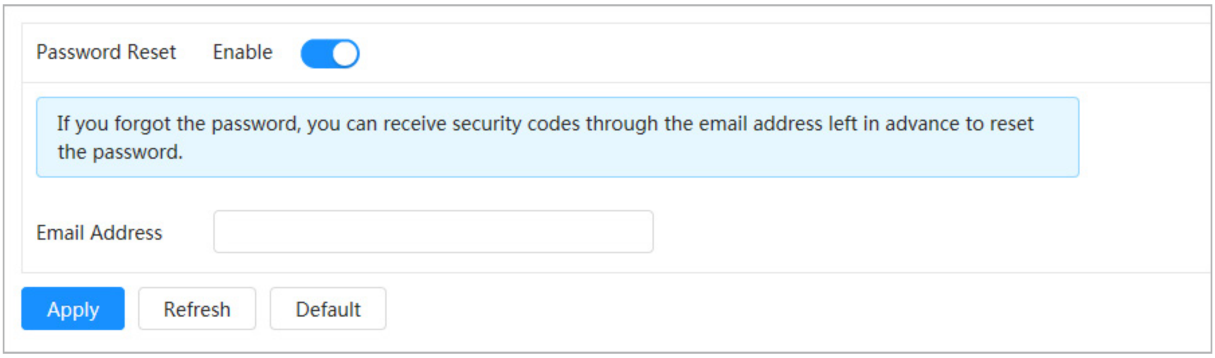
NOTE!
The admin account and user group cannot be deleted.

4.8.3.2 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.

Procedure

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



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

Email Address

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

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

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.

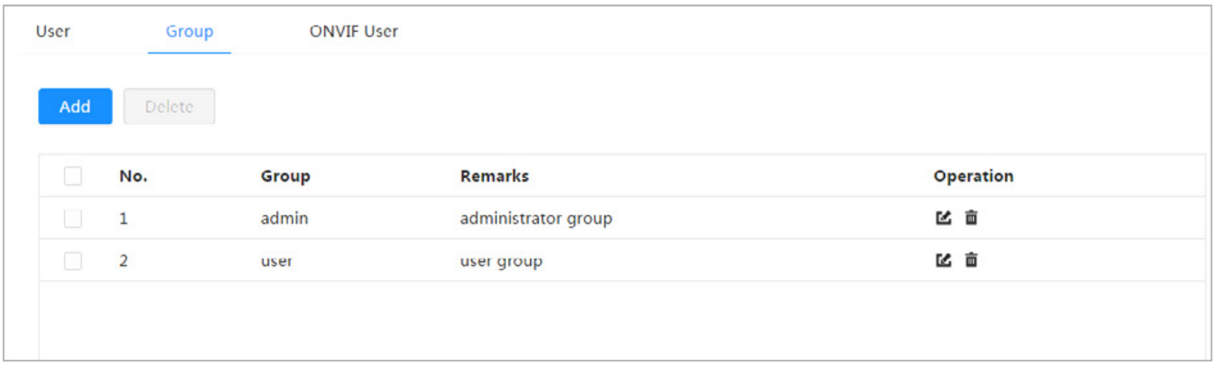
4. Click **Apply**.

4.8.3.3 Adding User Group

You have 2 groups named admin and user by default, and you can add new group, delete added group or edit group authority and remarks.

Procedure

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

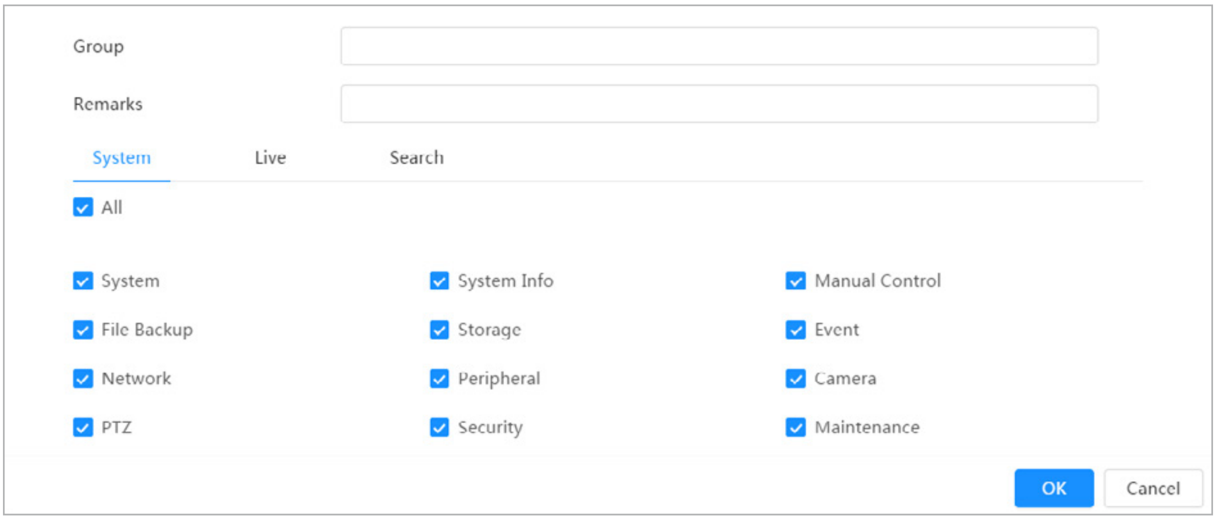


□	No.	Group	Remarks	Operation
□	1	admin	administrator group	✎ 🗑
□	2	user	user group	✎ 🗑

2. Click **Add**.

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 @.



Group

Remarks

☑ All

☑ System
☑ System Info
☑ Manual Control
☑ File Backup
☑ Storage
☑ Event
☑ Network
☑ Peripheral
☑ Camera
☑ PTZ
☑ Security
☑ Maintenance

Table 4-30 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.
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.

NOTE!

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

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

NOTE!

For admin account, you can only edit the password.

- Delete user group.

  Click 🗑 to delete the added users.

NOTE!

The admin account and user group cannot be deleted.

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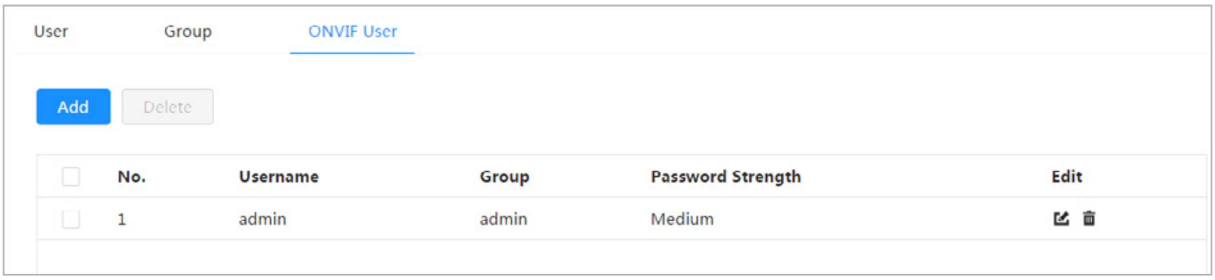
4.8.3.4 ONVIF User

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

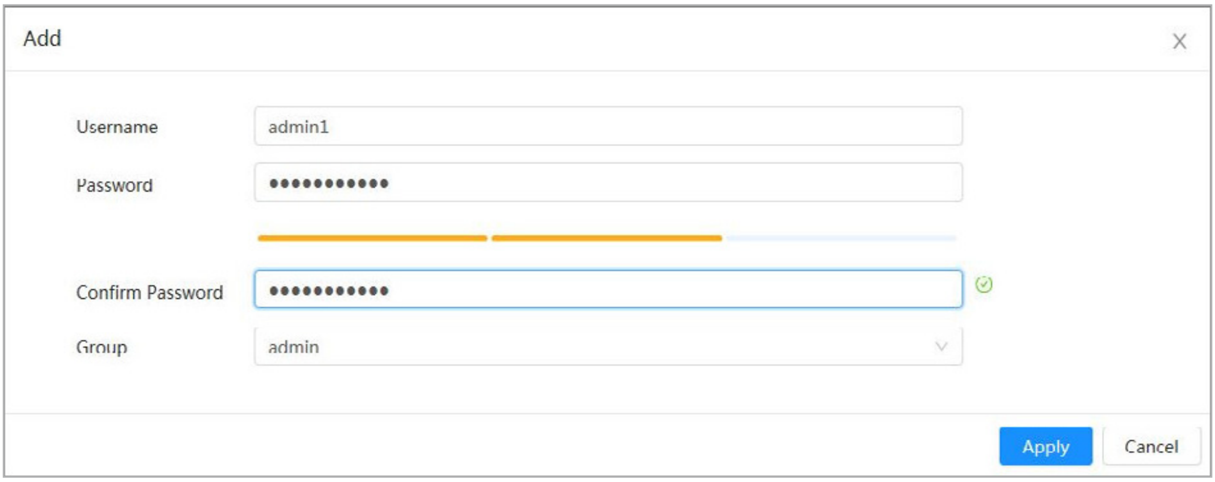
Procedure

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



□	No.	Username	Group	Password Strength	Edit
□	1	admin	admin	Medium	✎ 🗑

2. Click **Add**.



Username: admin1

Password: •••••••••••

Confirm Password: •••••••••••

Group: admin

3. Configure user parameters.

Table 4-31 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 password and confirm it again. The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ‘ “ ; : &).
Confirm Password	
Group Name	The group that users belong to. Each group has different authorities.

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.

NOTE!
For admin account, you can only edit the password.

- Delete user group.

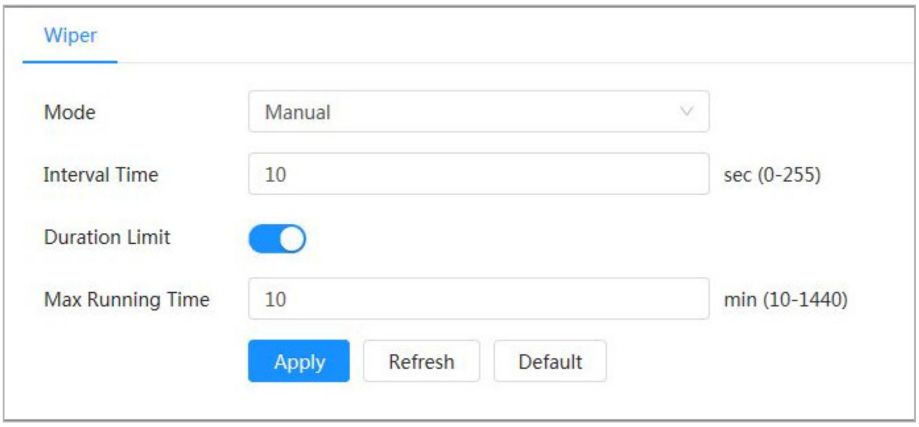
  Click 🗑 to delete the added users.

NOTE!
The admin account and user group cannot be deleted.

4.8.4 PERIPHERAL MANAGEMENT

Procedure

1. Select ⚙ > **System** > **Peripheral** > **Wiper**.
2. Configure working mode of wipers.



Wiper

Mode: Manual

Interval Time: 10 sec (0-255)

Duration Limit: ●

Max Running Time: 10 min (10-1440)

Table 4-32 Configure parameters of wiper

Parameter	Description
Mode	Select the start mode of wiper. Only manual mode is supported at present.
Interval Time	The interval time between stop mode and start mode. For example, set the time to 10 seconds, and the wiper will work every 10 seconds.
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	

3. Click **Apply**.

5. LOW POWER MODE

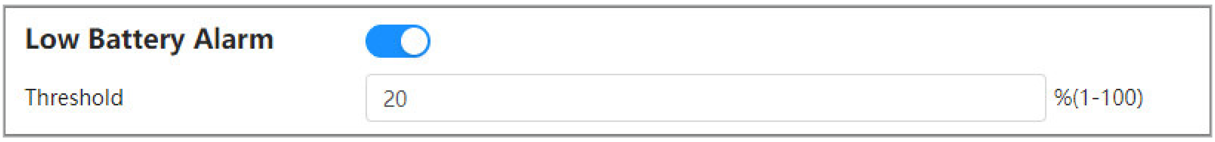
Low power mode includes power consumption mode, deep hibernation, and light hibernation. Only some devices support low power mode. The following pages are for reference only. Please refer to the actual page.

Procedure

1. Click **Low Power Mode** on the main page of the webpage, then enter the **Low Power Mode** page, and then set **Threshold**.

> **NOTE!**
> **Low Battery Alarm** is turned on by default.

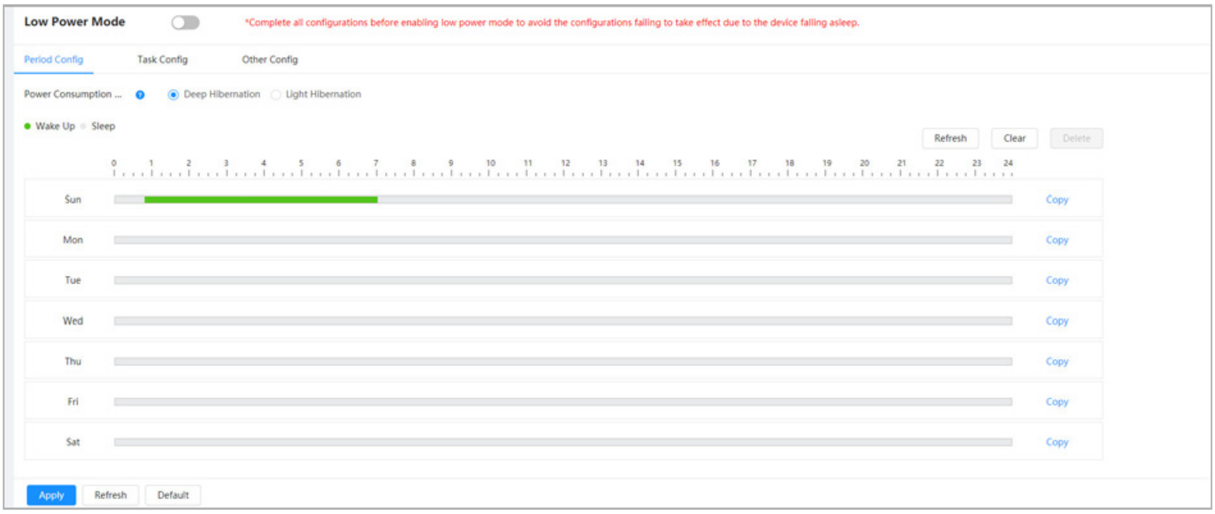
An alarm is triggered when the battery level falls below the threshold.



Low Battery Alarm: on

Threshold: 20 %(1-100)

2. Configure period.



Low Power Mode: off

*Complete all configurations before enabling low power mode to avoid the configurations failing to take effect due to the device falling asleep.

Power Consumption ...: ● Deep Hibernation ○ Light Hibernation

(1) Select the **Period Config** tab.

(2) Select **Power Consumption Mode**.

You can click ? to view specific meanings of **Deep Hibernation** and **Light Hibernation**.

(3) Set a wake-up plan, with green indicating wake up and gray indicating sleep.

On the timeline, hold down a left button and drag to select the wake up period, click the selected period, enter the specific value in the start time box, and then set the accurate start time.

- Click **Clear** to clear all set wake-up plans.
- Click **Delete** to delete the corresponding wake-up plan.

(4) (Optional) Click **Copy**, select the week, and then click **Apply**.

You can quickly copy the plan of the current week to other weeks.

(5) Click **Apply**.

3. Configure task.

(1) Select the **Task Config** tab.

(2) Click **Add Plan** on the left of the page.

(3) Set **Time**, add **Remarks**.

The **Wake-up Plan** area displays time and remarks.

- Click **Batch Add** to batch add plans.
- Click **Batch Delete** to batch delete plan.

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(4) Click **Event Linkage**.

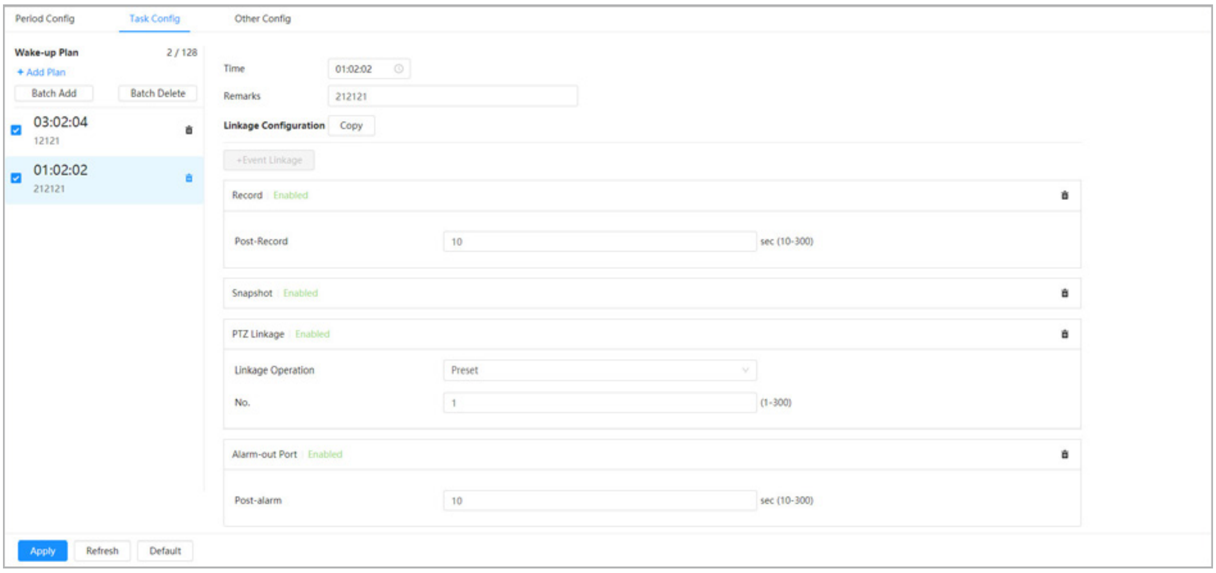
You can enable **Record**, **Snapshot**, **PTZ Linkage**, and **Alarm-out Port**. For details, please refer to "4.6.1.2 Configuring Alarm Linkage".

Enabling **PTZ Linkage** requires setting **Linkage Operation** and corresponding **No.**

(5) (Optional) When there are two or more plans, click **Copy**, select the wake up plan, click **Apply**.

You can quickly copy the linkage configuration of the current plan to other plans.

(6) Click **Apply**.



Wake-up Plan 2 / 128

☑ 03:02:04 12121

☑ 01:02:02 212121

Time: 01:02:02

Remarks: 212121

Linkage Configuration

Record Enabled

Post-Record: 10 sec (10-300)

Snapshot Enabled

PTZ Linkage Enabled

Linkage Operation: Preset

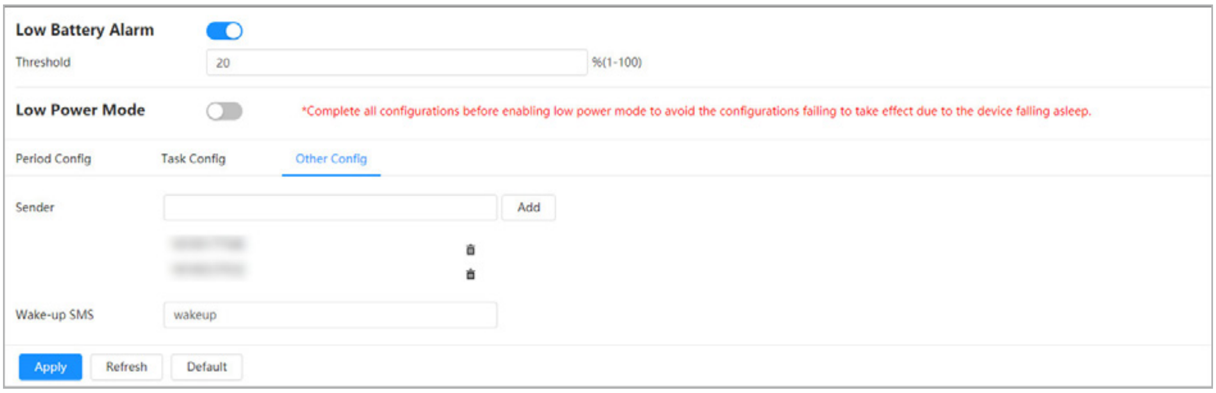
No.: 1 (1-300)

Alarm-out Port Enabled

Post-alarm: 10 sec (10-300)

4. Set other configurations.

(1) Enter the phone number of the sender and click **Add** to add multiple senders. Click **Delete** to delete the added sender.



Low Battery Alarm ●

Threshold: 20 %(1-100)

Low Power Mode ○ *Complete all configurations before enabling low power mode to avoid the configurations failing to take effect due to the device falling asleep.

Sender:

[redacted]

[redacted]

Wake-up SMS: wakeup

(2) Set the content of **Wake-up SMS**.

(3) Click **Apply**.

5. Click ○ right to **Low Battery Alarm**, and then enable the low power mode according to actual needs.

6. LIVE

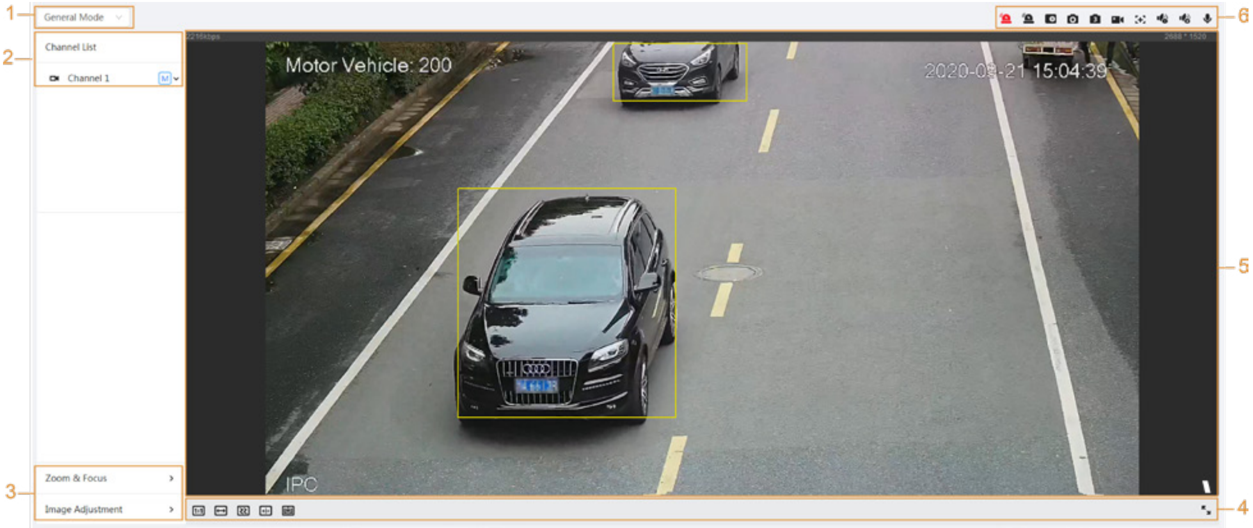
This chapter introduces the layout of the page and function configuration.

6.1 Live Page

This section respectively describes the **Live** page for single-channel and multi-channel devices. Click Live on the main webpage to enter **Live** page.

NOTE!
Pages might vary with different models.

Live (single-channel)



Live (multi-channel)

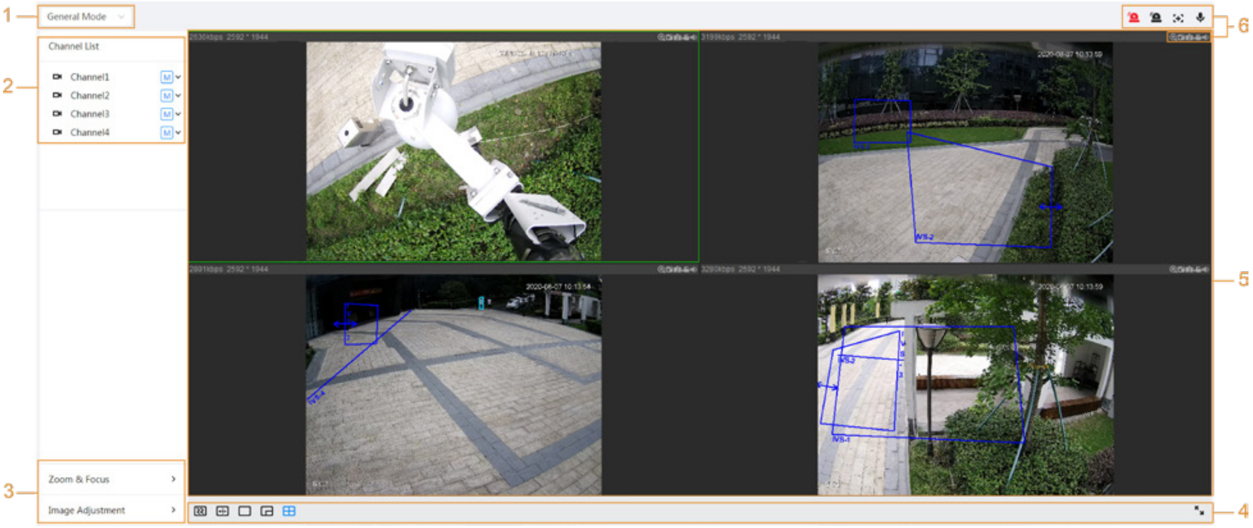


Table 6-1 The description of live page

No.	Function	Description
1	Display mode	Switches the video display mode. It includes general mode, face mode and metadata mode. For details, see “6.5 Display Mode”.
2	Channel list	Displays all channels. You can select the channel and set the stream type.
3 4	Image adjustment	Adjusts the images in the live viewing. For details, see “6.4 Window Adjustment Bar”.
5	Live view	Displays the real-time monitoring image.
6	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 “6.3 Live View Function Bar”.

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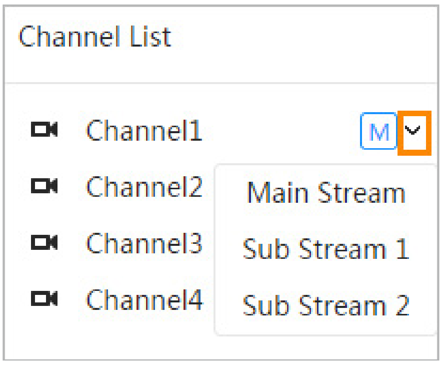
6.2 Configuring Encoding

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



Channel List

Channel1 M ⌄

Channel2

Channel3

Channel4

Main Stream

Sub Stream 1

Sub Stream 2

- **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".
- M means the current stream is main stream; S1 means the current stream is sub stream 1; S2 means the current stream is sub stream 2.

  Click this icon to choose whether to display the video image.

6.3 Live View Function Bar

This section introduces the shortcuts supported when viewing live video.

- Whether it is single-channel or multi-channel, the icons of **Force Alarm**, **Aux Focus** and **Talk** are the same, all above **Live** page.
- Icons for other functions are on the top of the **Live** page for single-channel devices and on the top right corner of the **Live** page for multi-channel devices.

Table 6-2 Description of live view function bar

Icon	Function	Description
🚨	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.
📷 | 📷	Snapshot	Capture one image of the current screen, and it will be saved to the configured storage path. NOTE! For details of viewing or configuring storage path, see"4.2 Local".
3 | 3	Triple Snapshot	Capture three images of the current screen, and they will be saved to the configured storage path. NOTE! 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. NOTE! For details of viewing or configuring storage path, see"4.2 Local".
⌖	Manual Position	Select the area in the panorama camera screen, and the detail camera screen will be automatically positioned to the selected area.
🔊 | 🔊	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.

6.4 Window Adjustment Bar

6.4.1 ADJUSTMENT

This section introduces the adjustment of image.

Table 6-3 Description of adjustment bar

Icon	Function	Description
1:1	Original Size	Only single-channel devices display this icon. Click this icon and when the icon changes to 1:1, 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.
◇	Anti-aliasing	Click this icon to enable or disable anti-aliasing function.

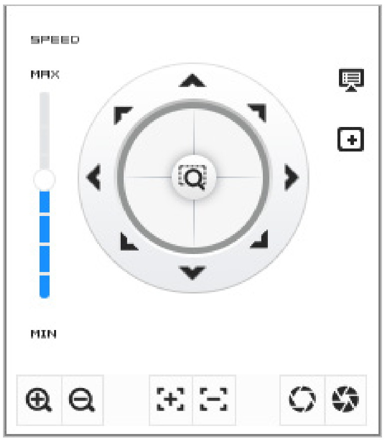
6.4.2 PTZ CONTROL

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

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

Table 6-4 Description of PTZ control functions

Function	Description
	Control device toward eight directions, including up, down, left, right, upper left, upper right, lower left, and lower right. Click 🔍, and then select an area in the monitor frame, the PTZ will rotate and zoom quickly to the specified area.
	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 interface.
⊞	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 Track: Select a tracking target on the **Live** page, and then the device tracks the selected object.



6.4.3 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.

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

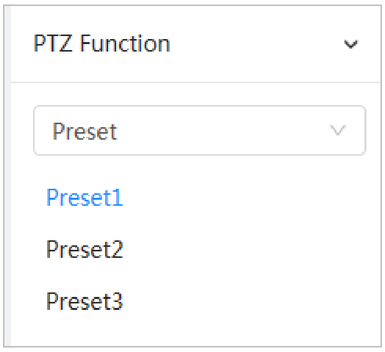


Table 6-5 Description of PTZ function

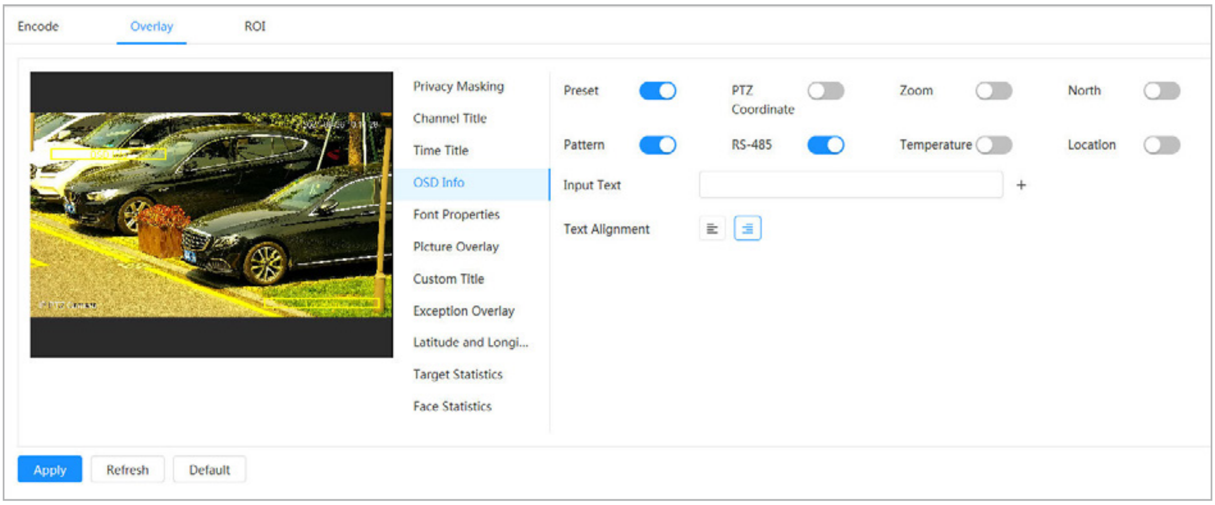
Parameter	Description
Scan	Configure the scan number. Click **Start**, and the device will scan back and forth at a certain speed according to the set boundary. Click **Stop** to finish scan.
Preset	Configure preset number, and then click **View** to position the device to the corresponding point. The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

6.4.4 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.

Procedure

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



Preset ●
PTZ Coordinate ○
Zoom ○
North ○
Pattern ●
RS-485 ●
Temperature ○
Location ○
Input Text +
Text Alignment

2. Configure OSD Information.

Table 6-6 Description of OSD information parameter

Parameter	Description
Preset	Click to enable preset function. The preset name is displayed on the image when the camera turns to the preset, and it will disappear 3 seconds later.
PTZ Coordinate	Click to enable PTZ coordinate function, and the PTZ coordinates information is displayed on the image.
Zoom	Click to enable zoom function, and the zooming information is displayed on the image.
North	Click to enable north function, and the north direction is displayed on the image. When you enable the due north orientation function, the system will prompt you to restart the PTZ.
Pattern	Click to enable pattern function, and the pattern information is displayed on the image.
RS485	Click to enable RS485 function, and the RS485 information is displayed on the image.
Temperature	Click to enable temperature function, and the internal temperature of the current device is displayed.
Location	Click to enable location function, and the geographical location is displayed in the text.
Text Alignment	Set the alignment mode of the displayed information on the image.
Input text	Enter text, and the text is displayed on the image.

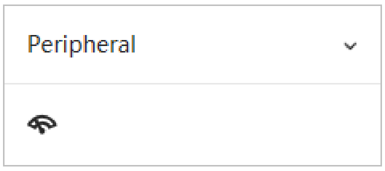
3. Move the OSD box to the position that you want on the image.
4. Click **Apply**.

6.4.5 PERIPHERAL MANAGEMENT

Manage peripherals of the Camera.

Procedure

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

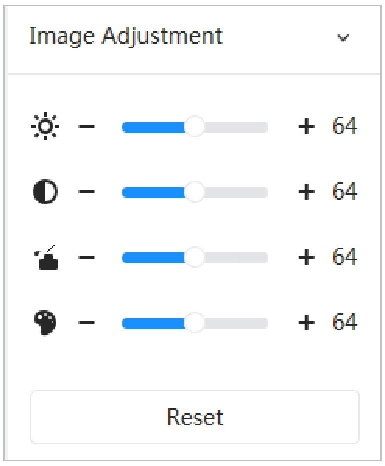


2. Click to enable or disable wiper function.

6.4.6 IMAGE ADJUSTMENT

Click **Image Adjustment** on the lower-left corner of **Live** page, and click + or –, or drag the slider to adjust image parameters, including brightness, contrast, hue and saturation.

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



☼ (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.

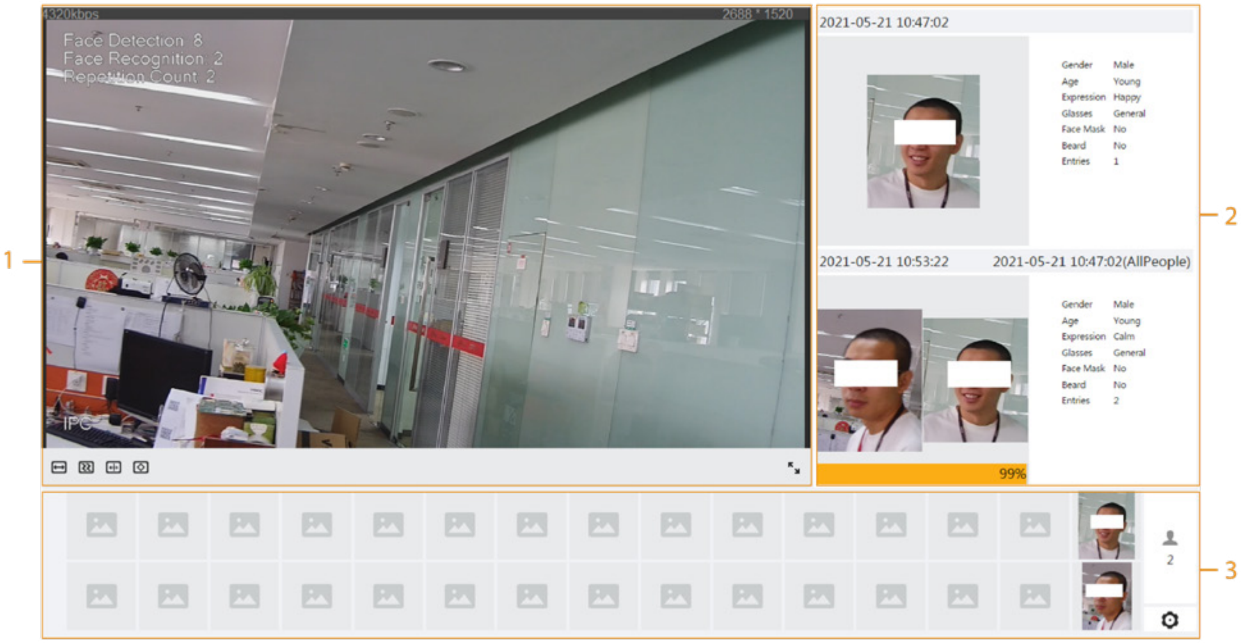
NOTE!
You can restore the zoom if the image has poor clarity or has been zoomed too frequently.

6.5 Display Mode

It includes general mode, face mode and metadata mode. For general mode, see “6.1 Live Page”. Before previewing with face mode and metadata mode, configure corresponding AI function in advance.

Preview Mode

- Select **Face Mode** on the upper left corner of the **Live** page, and then the page turns into face mode.



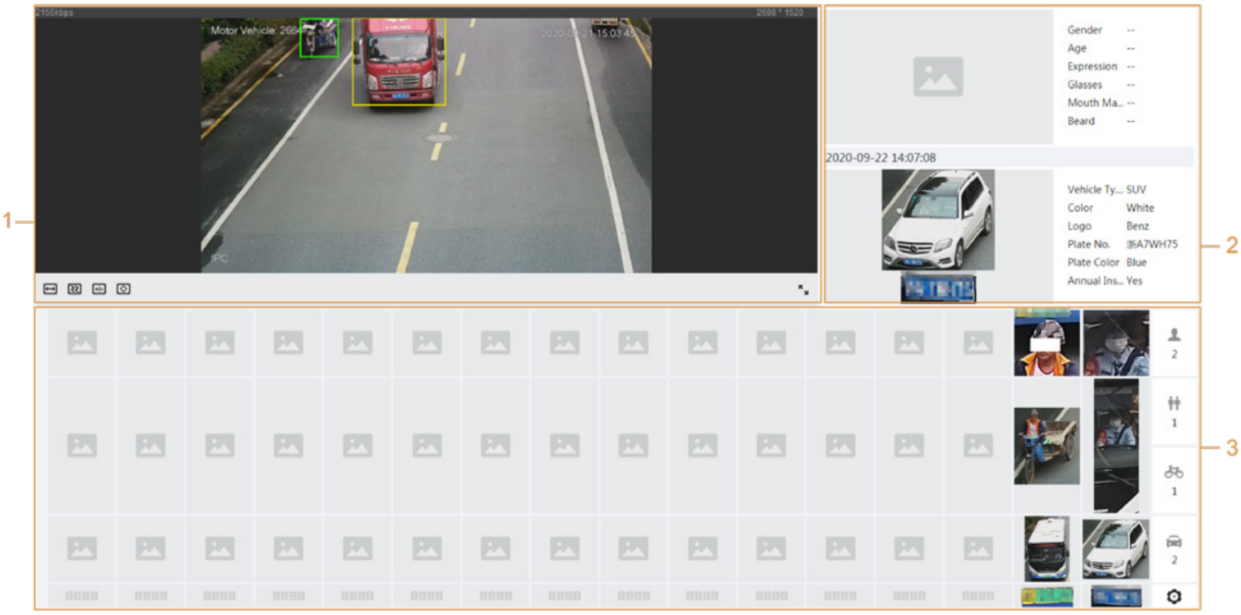
2021-05-21 10:47:02

Gender	Male
Age	Young
Expression	Happy
Glasses	General
Face Mask	No
Beard	No
Entries	1

2021-05-21 10:53:22 2021-05-21 10:47:02(AllPeople)

Gender	Male
Age	Young
Expression	Calm
Glasses	General
Face Mask	No
Beard	No
Entries	2

- Select **Metadata Mode** on the upper left corner of the **Live** page, and then the page turns into metadata mode.



Gender	--
Age	--
Expression	--
Glasses	--
Mouth Ma...	--
Beard	--

2020-09-22 14:07:08

Vehicle Ty...	SUV
Color	White
Logo	Benz
Plate No.	浙A7WH75
Plate Color	Blue
Annual Ins...	Yes

Table 6-7 Description of display mode

No.	Function	Description
1	Live view	Displays the real-time monitoring image. For details, see “6.4.1 Adjustment”.
2	Details	Displays the captured image and details.
3	Captured image	Enable statistics of people faces, human bodies, motor vehicles and non-motor vehicles. • Click the image to view its detailed information in the “Captured image”. • Click ⚙ to change the properties shown in the “Captured image”. For details, see “Configuring Display Properties”.

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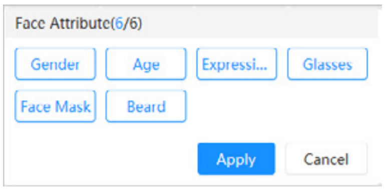
Configuring Display Properties

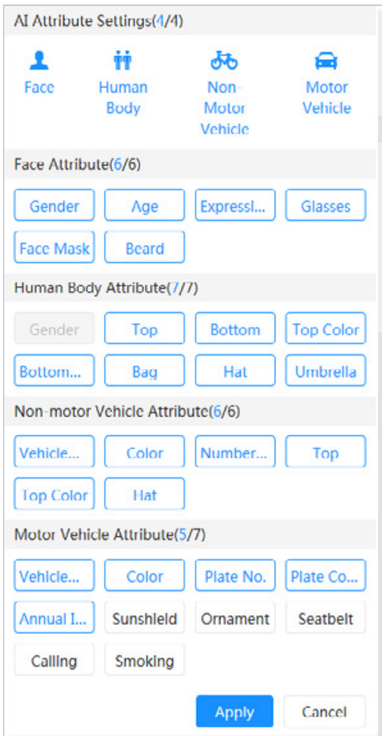
Under face mode or metadata mode, click ⚙ at the right lower corner. Select the properties to be displayed on the **Live** page, and then click **Apply**. Properties shown in blue boxes indicate that they are selected, and properties shown in gray boxes indicate that they are not selected.

Properties of different modes are different.

Configure detection properties (face mode)



Configure detection properties (metadata mode)



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.

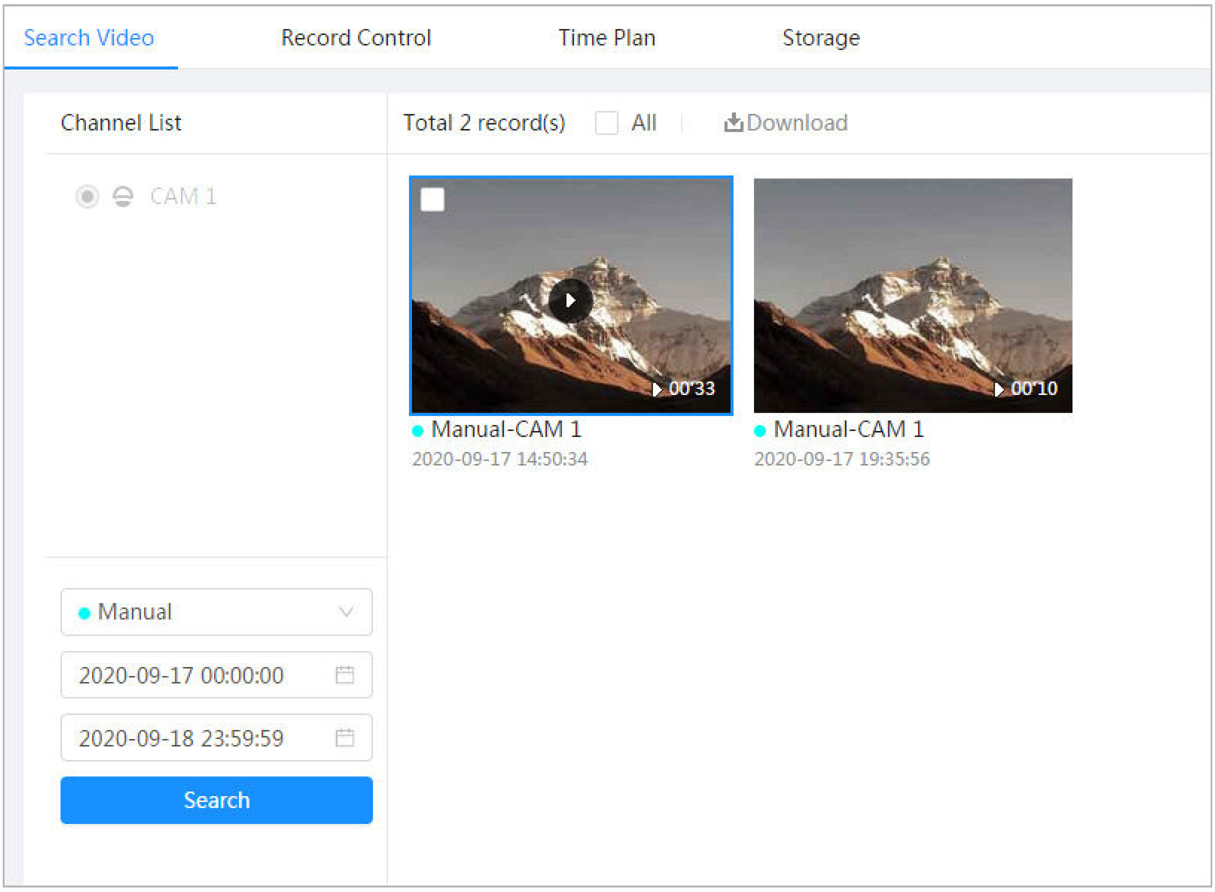
Prerequisites

- 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

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



Manual-CAM 1 2020-09-17 14:50:34

Manual-CAM 1 2020-09-17 19:35:56

● Manual

2020-09-17 00:00:00

2020-09-18 23:59:59

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

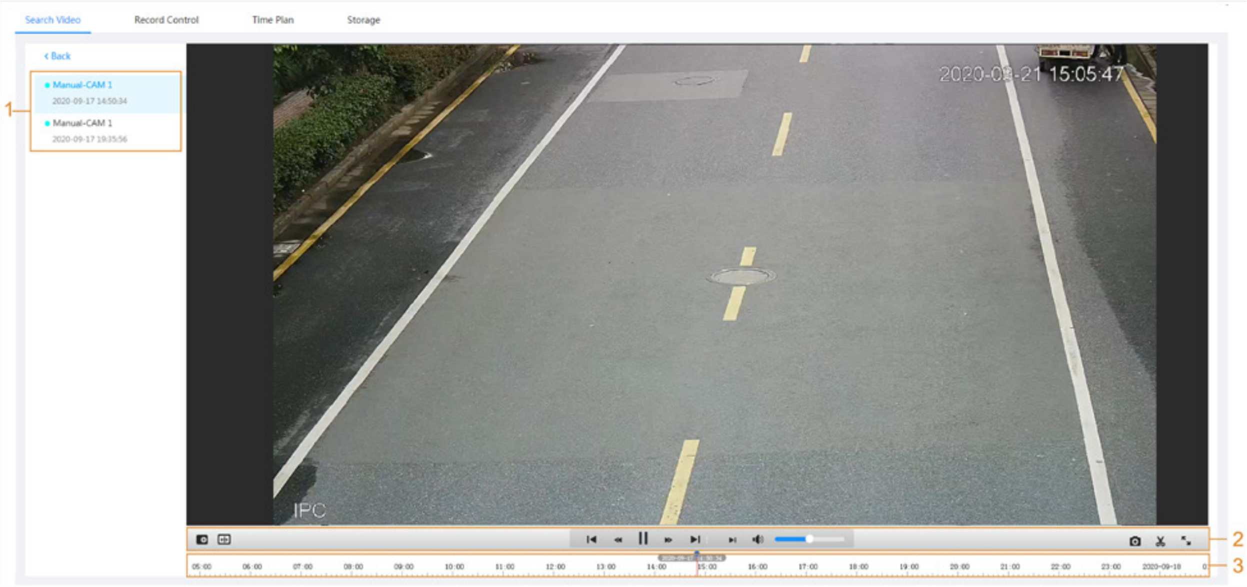


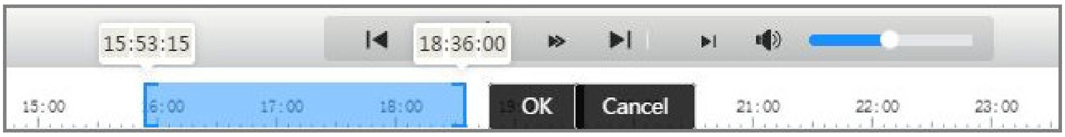
Table 7-1 Description of video playback page

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.
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. **NOTE!** 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. **NOTE!** 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.
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.

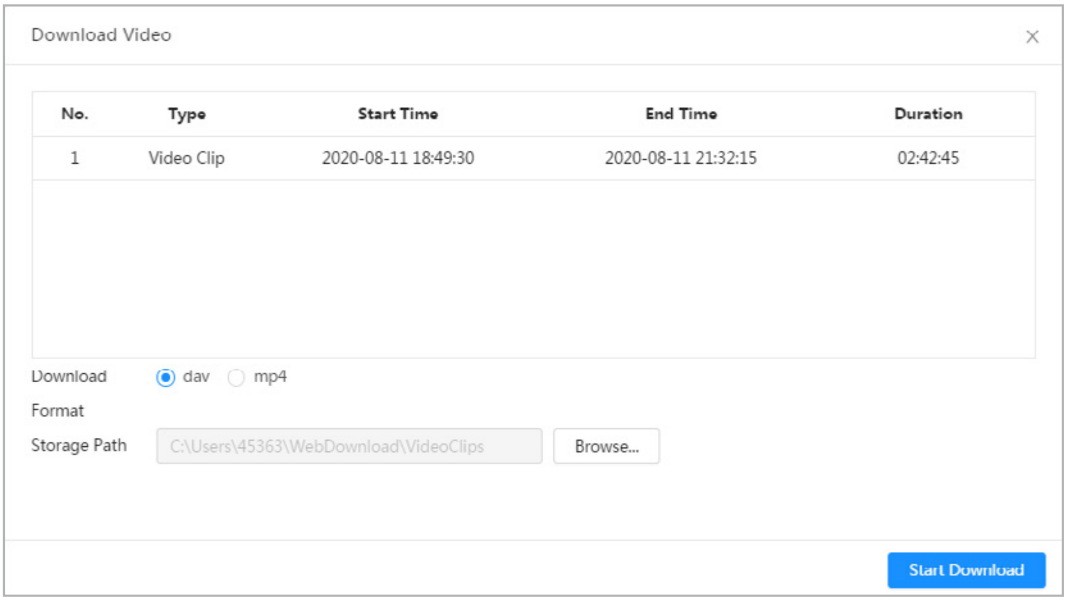
7.1.2 CLIPPING VIDEO

Procedure

1. Click ⧉ below the video during playback.
2. Drag the clipping box on the progress bar to select the start time and end time of the target video.



3. Click **OK** to download the video.
4. Select the download format and storage path.


Download Video

No.	Type	Start Time	End Time	Duration
1	Video Clip	2020-08-11 18:49:30	2020-08-11 21:32:15	02:42:45

Download Format ● dav ○ mp4

Storage Path C:\Users\45363\WebDownload\VideoClips Browse...

Start Download

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

Background Information

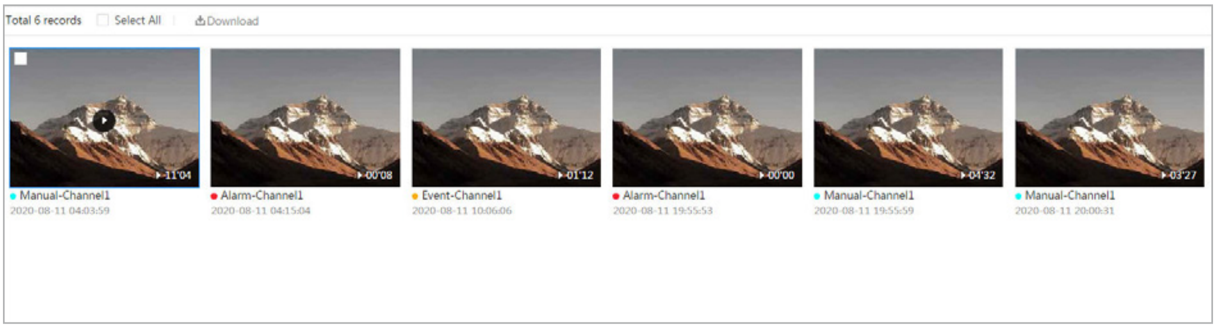
Download videos to a defined path. You can download a single video, or download videos in batches.

NOTE!

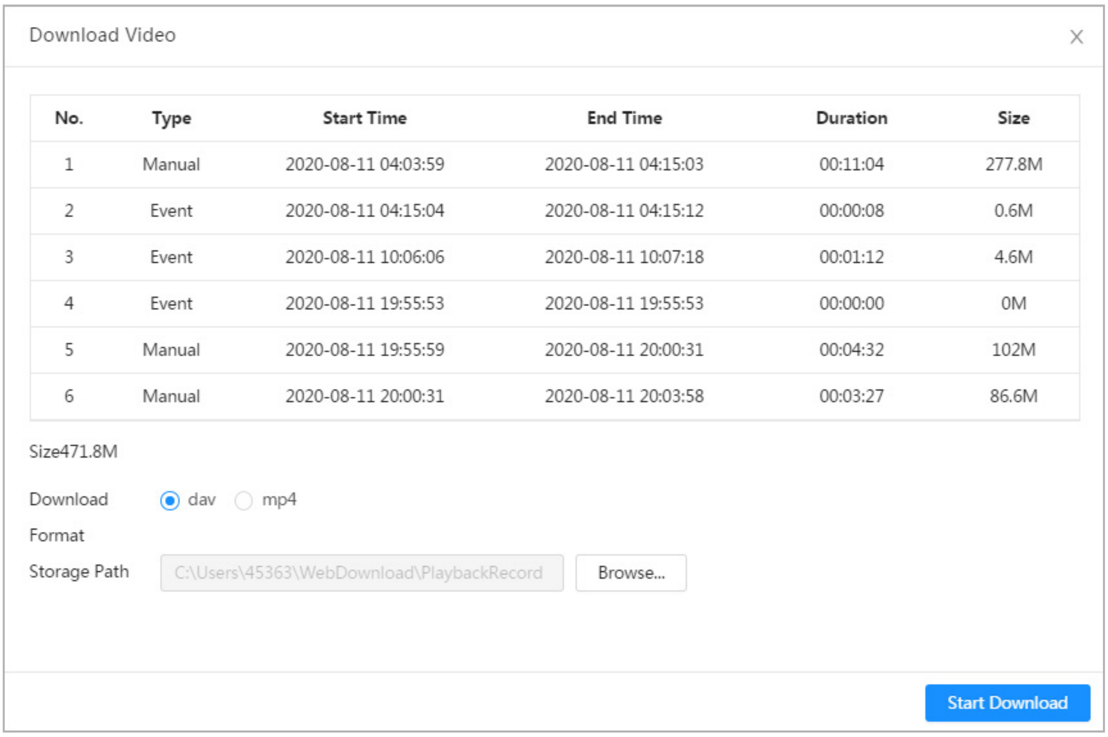
- Playback and download at the same time is not supported.
- Operations might vary with different browsers.
- For details of viewing or setting storage path, see “4.2 Local”.

Procedure

1. Select **Record > Search Video**.
2. Select the channel, the record type, and record time, and then click **Search**.
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.



4. Click **Download**.
5. Select the download format and storage path.



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

Size471.8M

Download Format ● dav ○ mp4

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

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.

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7.2 Setting Record Control

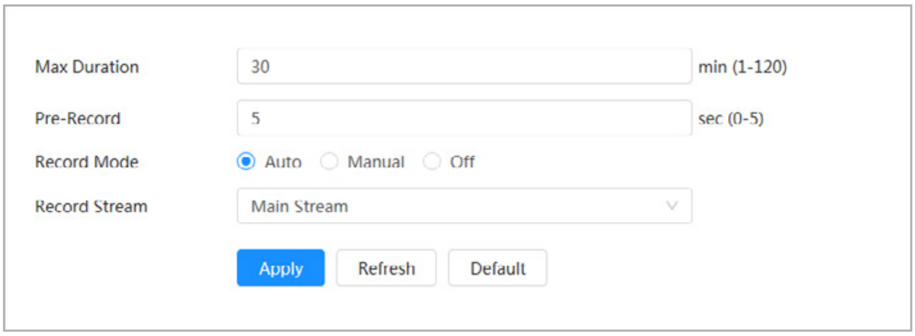
Background Information

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

NOTE!
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”.

Procedure

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



Max Duration 30 min (1-120)

Pre-Record 5 sec (0-5)

Record Mode ● Auto ○ Manual ○ Off

Record Stream Main Stream

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. **NOTE!** 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**.

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

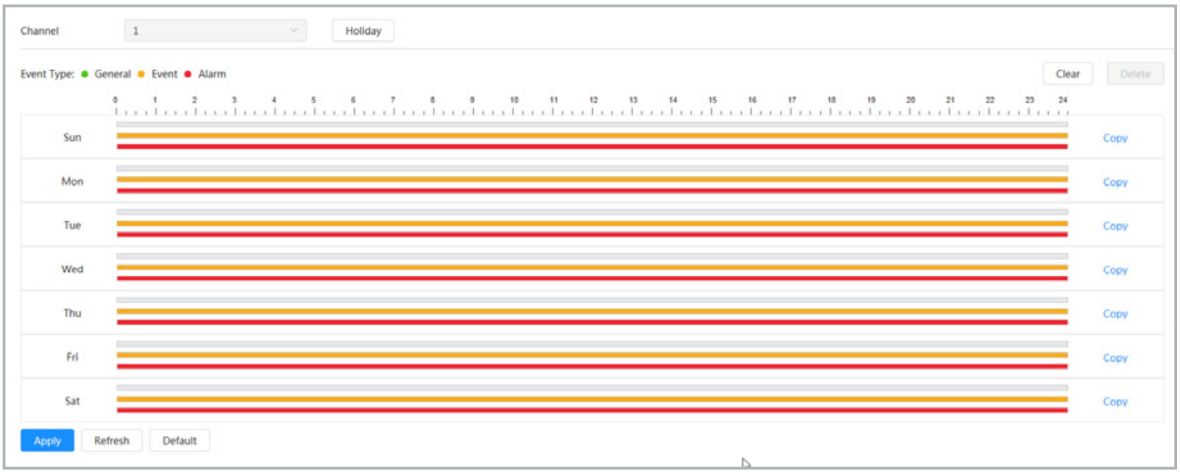
Set certain days as holiday, and when the **Record** is selected in the holiday schedule, the system records video as the holiday schedule.

Procedure

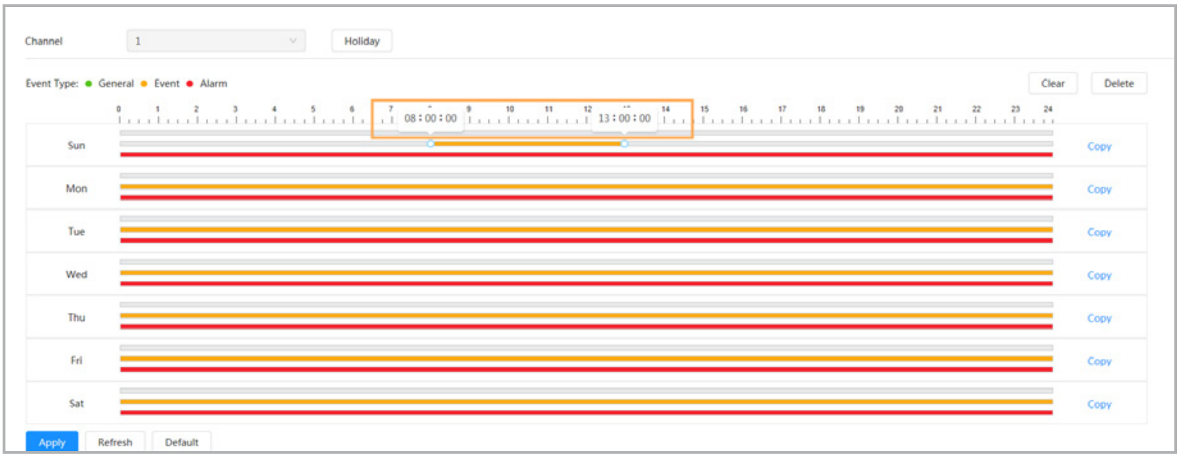
1. Click **Record** on the main page, and then click the **Time Plan** tab.
2. Select record channel and then set record plan.
   - Green represents normal record plan (such as timing recording).
   - Yellow represents motion record plan (such as recording triggered by intelligent events).
   - Red represents 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.



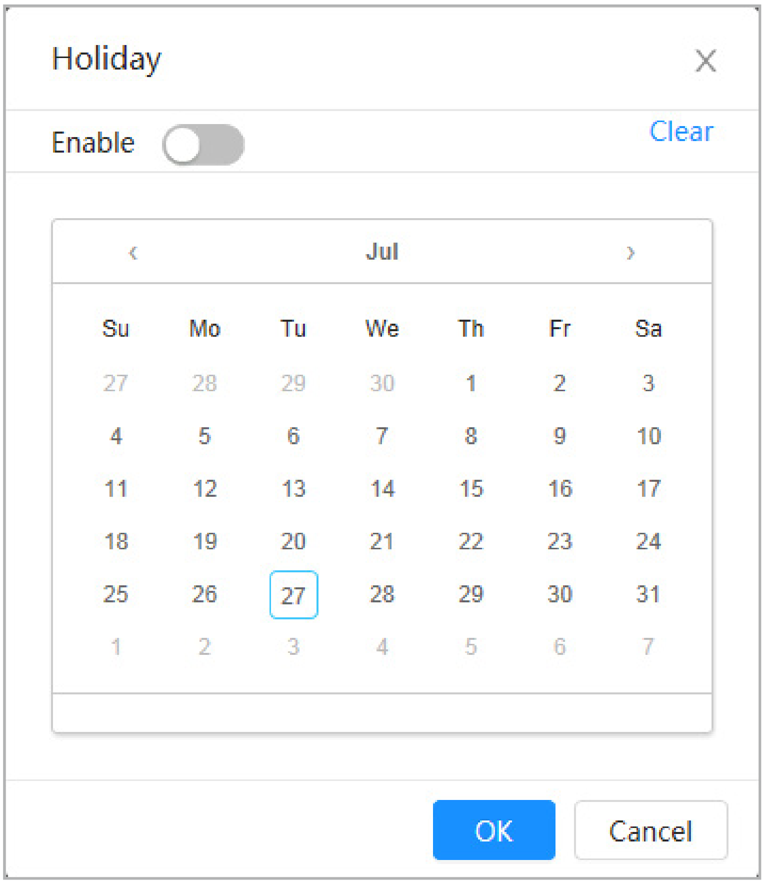
   (2) Click the selected time range and then set an accurate start and end time.



NOTE!

- 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.

3. Click **Apply**.
4. Click **Holiday** to set holiday record plan.



Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

- 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.

NOTE!
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.

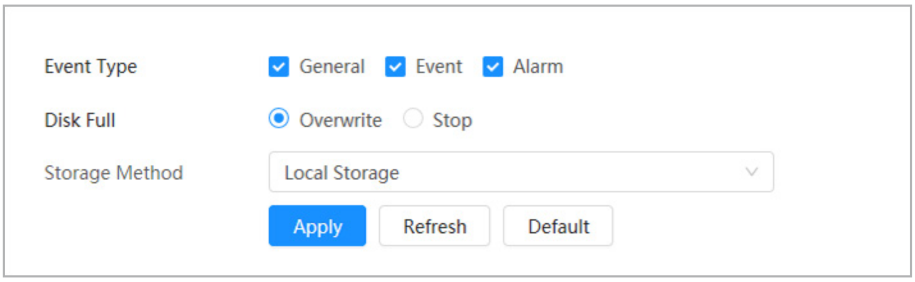
5. Click **OK**.

7.4 Storage

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

Procedure

1. Select **Record > Storage**.

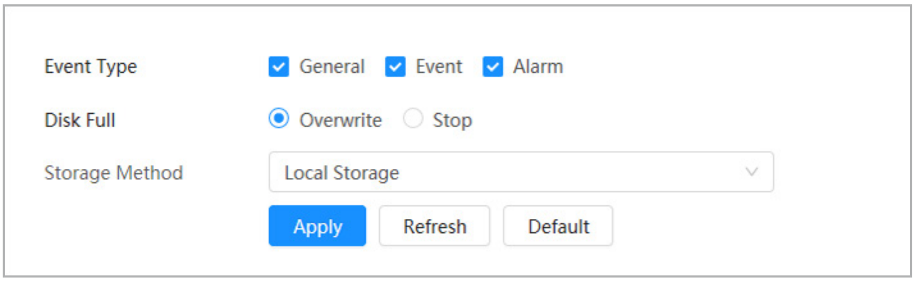


Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Local Storage

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



Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Local Storage

Table 7-3 Description of storage parameters

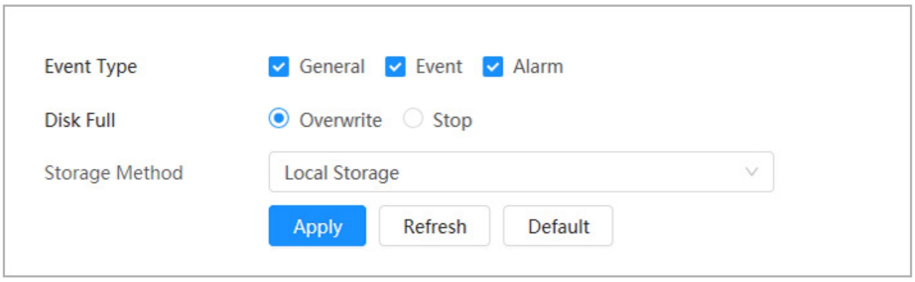
Parameter	Description
Event Type	Select from **General**, **Event** and **Alarm**.
Disk Full	Recording strategy when the disk is full. • **Overwrite**: Overwrite the earliest video when the disk is full. • **Stop**: Stop recording when the disk is full.
Storage Method	Select from **Local storage** and **Network storage**. • **Local storage**: Save the recorded videos in the internal SD card. NOTE! **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).

3. Click **Apply**.

7.4.1 LOCAL STORAGE

Procedure

1. Select **Record > Storage**.
2. Select the recording strategy in **Disk Full**.
3. Select **Local storage** in **Storage Method** to save the recorded videos in the internal SD card.



Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Local Storage

4. Click **Apply**.

7.4.2 NETWORK STORAGE

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

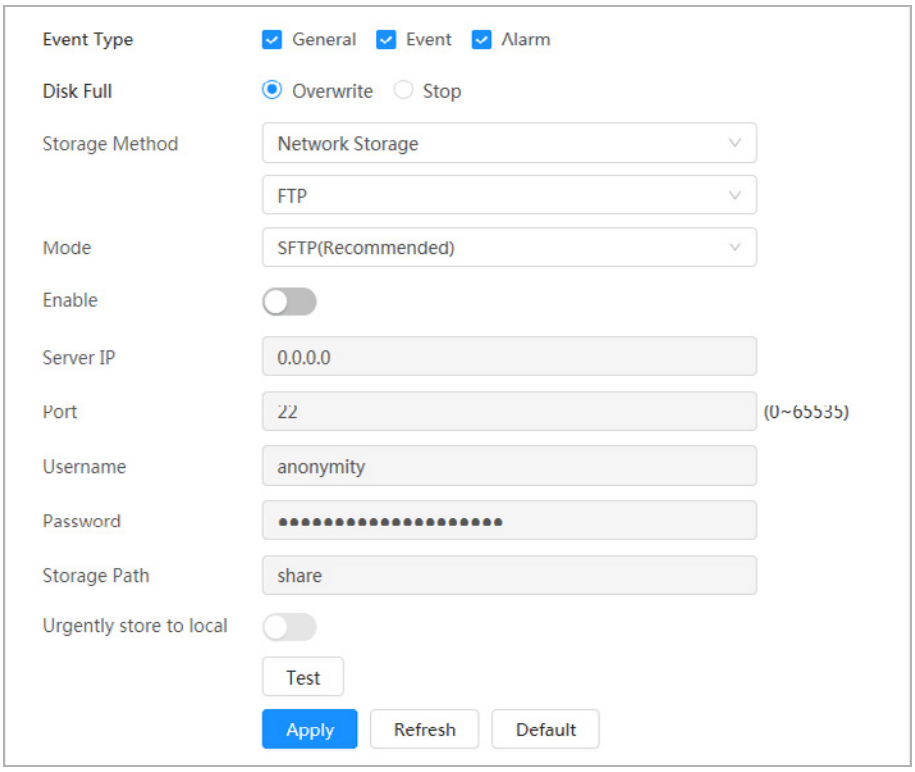
When the network does not work, you can save all the files to the internal SD card for emergency.

7.4.2.1 FTP

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

Procedure

1. Select **Record > Storage**.
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.
3. Select **Network storage** in **Storage Method**, and select **FTP** to save the recorded videos in FTP server.
4. Select **FTP** or **SFPT** from the drop-down list. **SFPT** is recommended to enhance network security.
5. Click ○ next to **Enable** to enable the FTP function.



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
	Apply Refresh Default

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.
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.

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

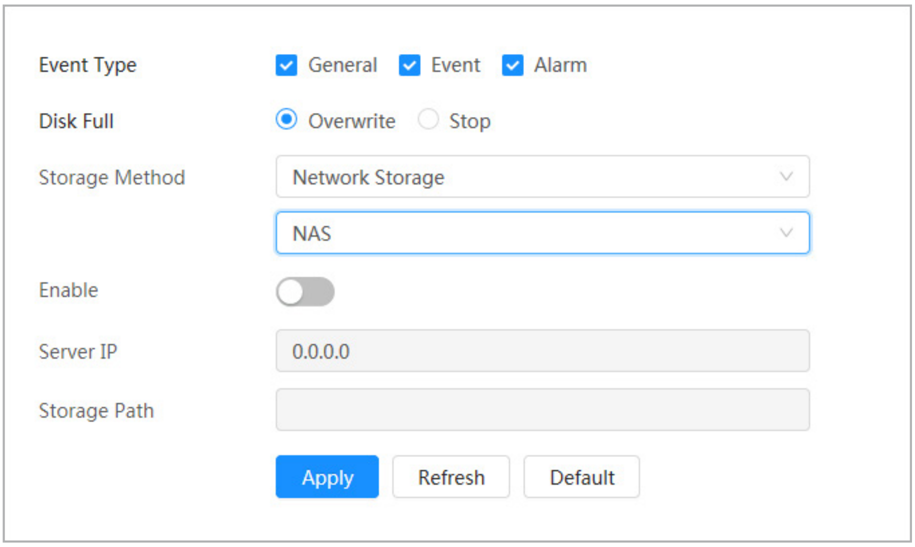
7.4.2.2 NAS

Background Information

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

Procedure

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



Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Network Storage

NAS

Enable ◯

Server IP 0.0.0.0

Storage Path

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. **NOTE!** This is required when the protocol type is SMB.
Username	Username for logging in to the NAS server. **NOTE!** This is required when the protocol type is SMB.

6. Click **Apply**.

8. IMAGE

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.

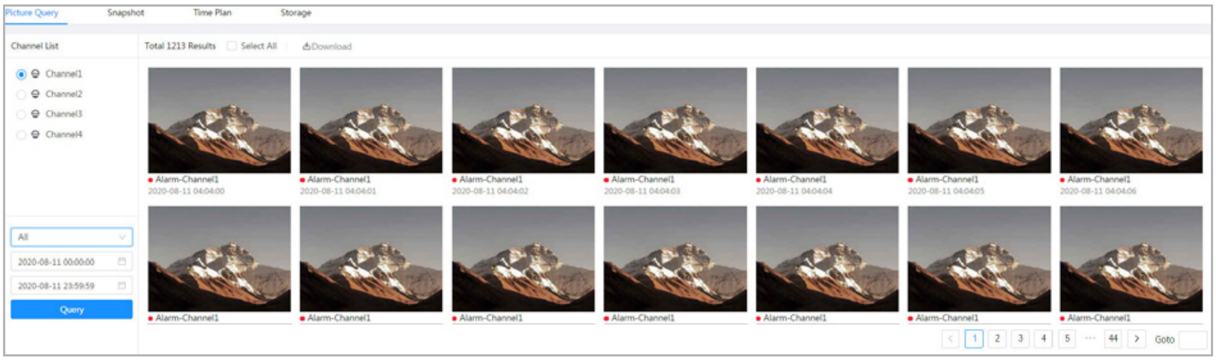
Prerequisites

- 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 “8.4 Storage”.

Procedure

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



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

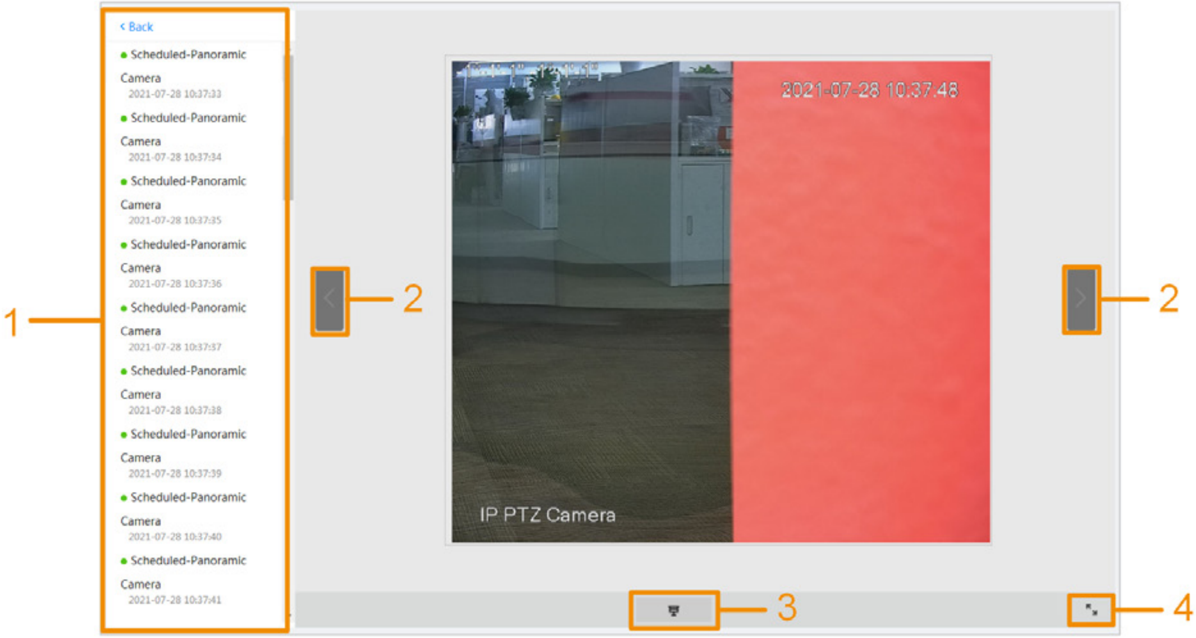

‹ Back
Scheduled-Panoramic Camera
2021-07-28 10:37:33
Scheduled-Panoramic Camera
2021-07-28 10:37:34
Scheduled-Panoramic Camera
2021-07-28 10:37:35
Scheduled-Panoramic Camera
2021-07-28 10:37:36
Scheduled-Panoramic Camera
2021-07-28 10:37:37
Scheduled-Panoramic Camera
2021-07-28 10:37:38
Scheduled-Panoramic Camera
2021-07-28 10:37:39
Scheduled-Panoramic Camera
2021-07-28 10:37:40
Scheduled-Panoramic Camera
2021-07-28 10:37:41
2021-07-28 10:37:48
IP PTZ Camera
1
2
2
3
4

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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 nest 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 button to exit full-screen mode.

8.1.2 DOWNLOADING IMAGE

Background Information

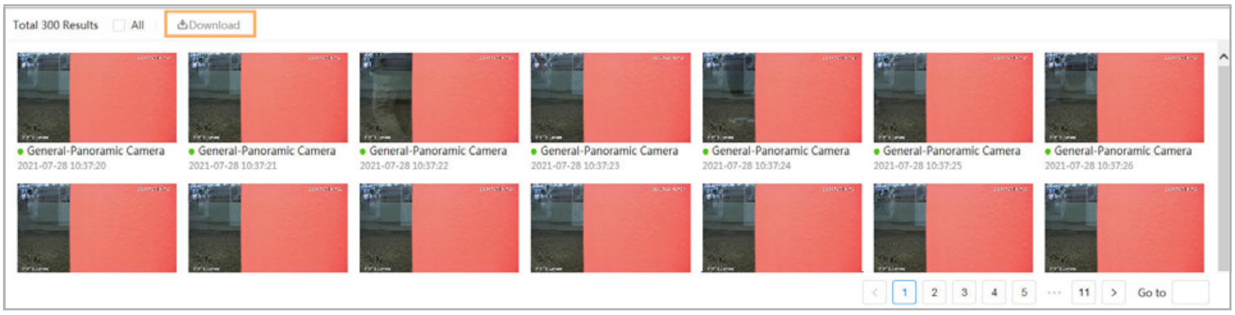
Download images to a defined path. You can download a single image, or download images in batches.

NOTE!

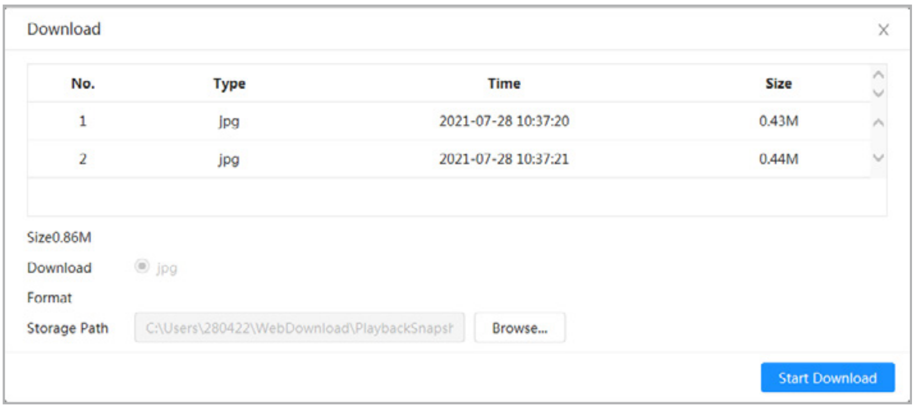
- Operations might vary with different browsers.
- For details of viewing or setting storage path, see “4.2 Local”.

Procedure

1. Select **Picture > Picture Query**.
2. Select the channel, the snapshot type, and snapshot time, and then click **Query**.
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.


Total 300 Results
□ All
Download
General-Panoramic Camera 2021-07-28 10:37:20
General-Panoramic Camera 2021-07-28 10:37:21
General-Panoramic Camera 2021-07-28 10:37:22
General-Panoramic Camera 2021-07-28 10:37:23
General-Panoramic Camera 2021-07-28 10:37:24
General-Panoramic Camera 2021-07-28 10:37:25
General-Panoramic Camera 2021-07-28 10:37:26
< 1 2 3 4 5 ··· 11 > Go to

4. Click **Download**.



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

Size0.86M

Download Format ● jpg

Storage Path C:\Users\280422\WebDownload\PlaybackSnapst

5. Select the download format and storage path.
6. Click **Start Download**.

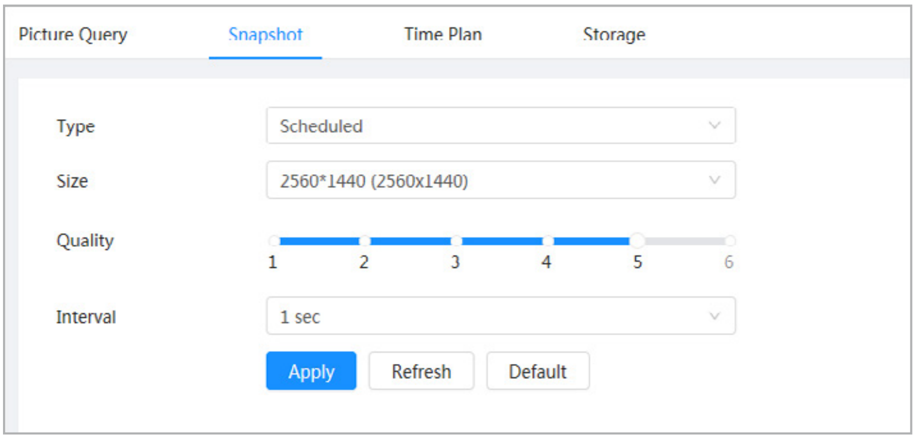
   The downloaded images are saved in the configured storage path. For details of storage path, see “4.2 Local”.

8.2 Setting Snapshot Parameters

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

Procedure

1. Select **Picture > Snapshot**.
2. Select the channel, and then set the parameters.



Type: Scheduled

Size: 2560*1440 (2560x1440)

Quality: 1 2 3 4 5 6

Interval: 1 sec

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**, **Video Tamper** and **Scene Changing**. NOTE! 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.

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

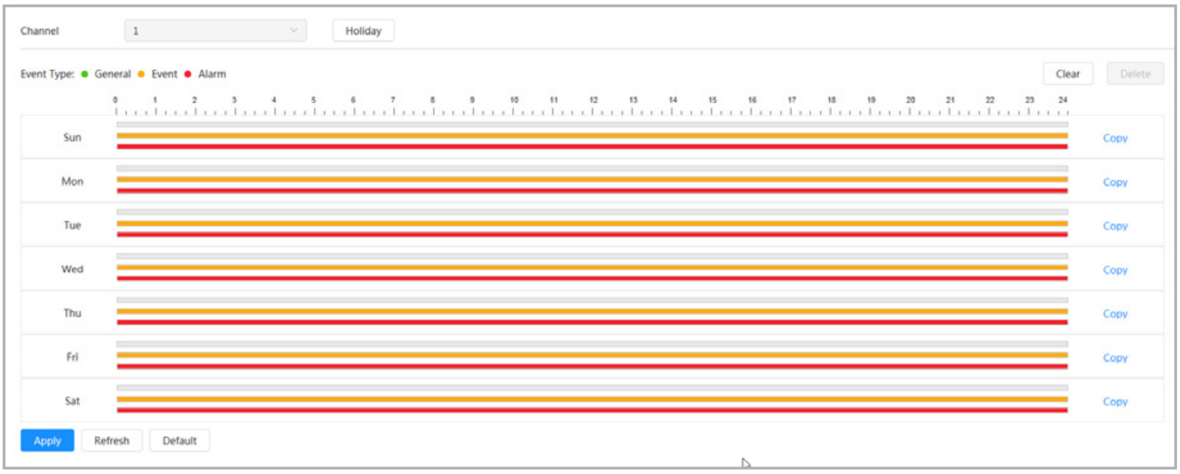
Set certain days as holiday, and when the **Snapshot** is selected in the holiday schedule, the system records video as the holiday schedule.

Procedure

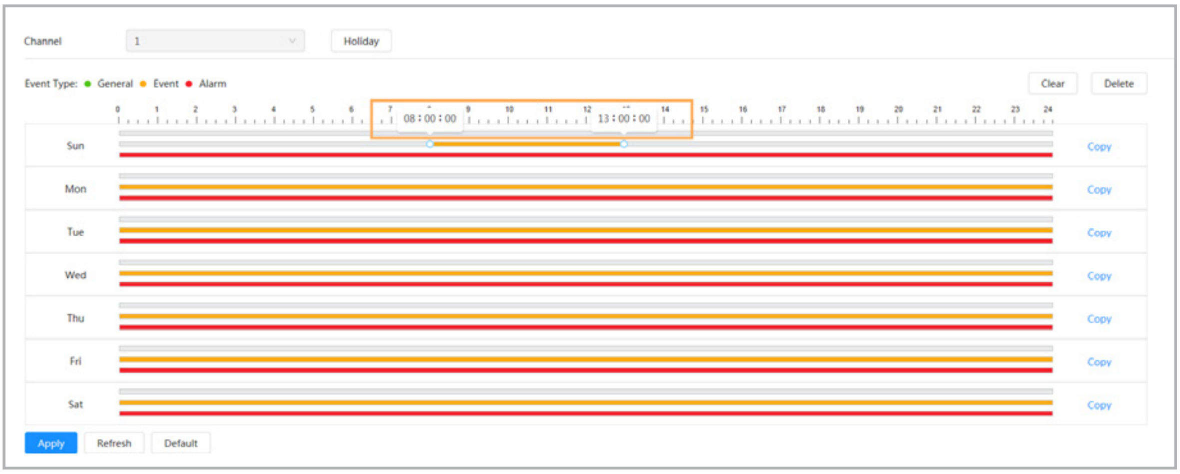
1. Click **Picture** on the main page, and then click the **Time Plan** tab.
2. Select snapshot channel and then set snapshot plan.
   - Green represents normal snapshot plan (such as timing snapshot).
   - Yellow represents motion snapshot plan (such as snapshot triggered by intelligent events).
   - 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.



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

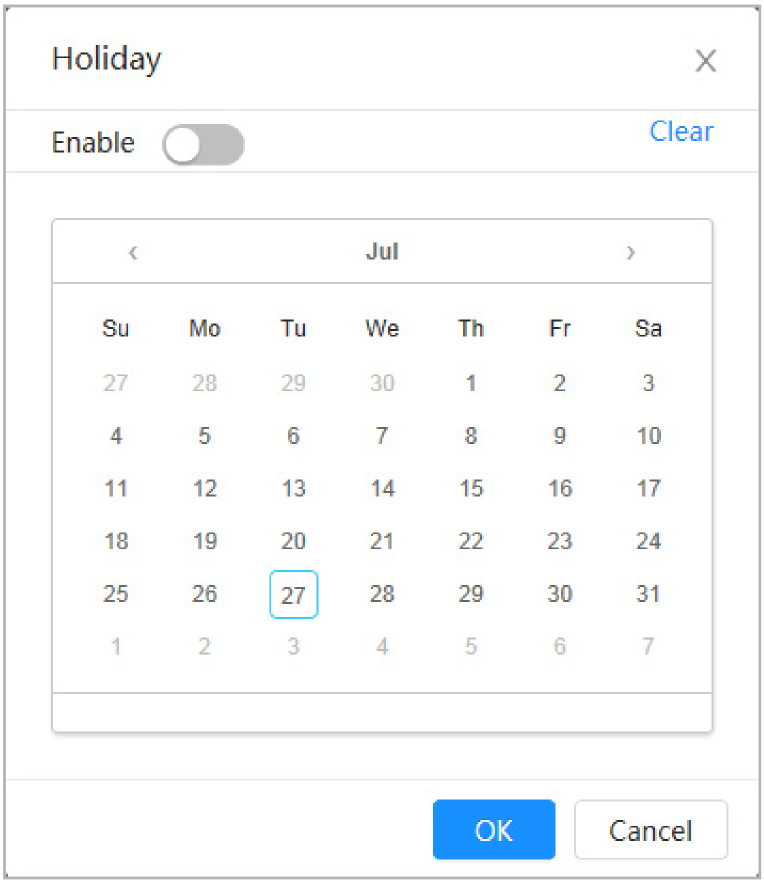


NOTE!

- 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.

3. Click **Apply**.

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



Holiday

Enable

Jul

Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

- 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.

NOTE!
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.

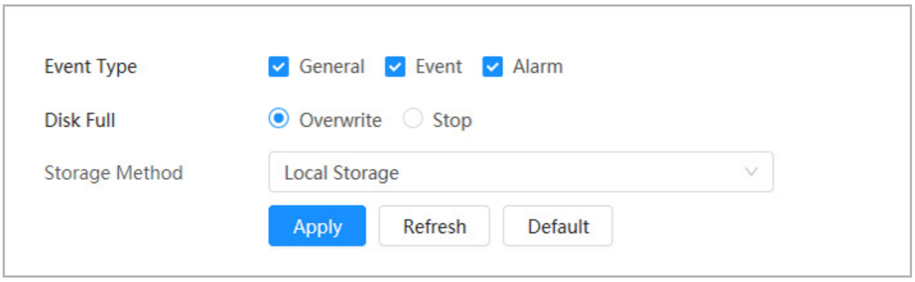
5. Click **OK**.

8.4 Storage

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

Procedure

1. Select **Picture > Storage**.
2. Select the storage method that you need for different types of snapshots.



Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Local Storage

Table 8-3 Description of storage parameters

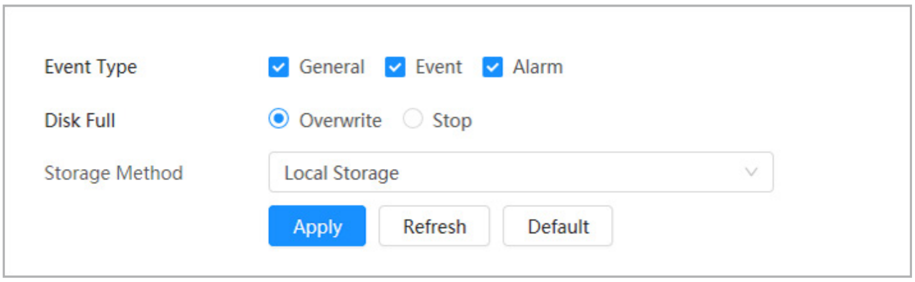
Parameter	Description
Event Type	Select from **General**, **Event** and **Alarm**.
Disk Full	Recording strategy when the disk is full. • **Overwrite**: Cyclically overwrite the earliest video when the disk is full. • **Stop**: Stop recording when the disk is full.
Storage Method	Select from **Local storage**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

3. Click **Apply**.

8.4.1 LOCAL STORAGE

Procedure

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



Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Local Storage

4. Click **Apply**.

8.4.2 NETWORK STORAGE

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

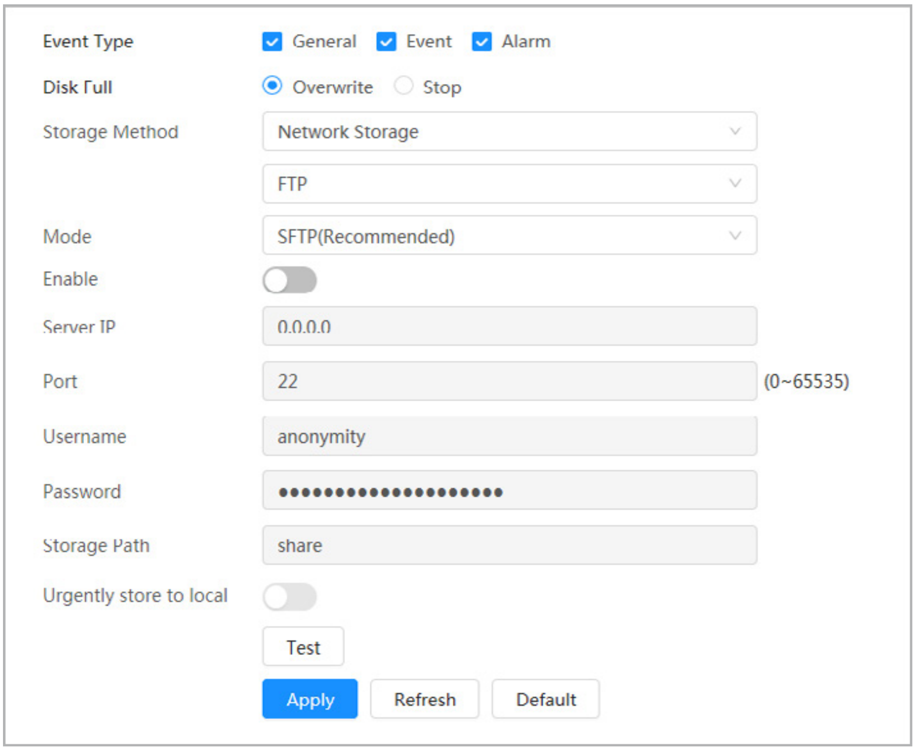
When the network does not work, you can save all the files to the internal SD card for emergency.

8.4.2.1 FTP

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

Procedure

1. Select **Picture > Storage**.
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.
3. Select **Network storage** in **Storage Method**, and select **FTP** to save the snapshots in FTP server. You can select **FTP** or **SFPT** from the drop-down list. **SFPT** is recommended.
4. Click next to **Enable** to enable the FTP function.



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	

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.
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.

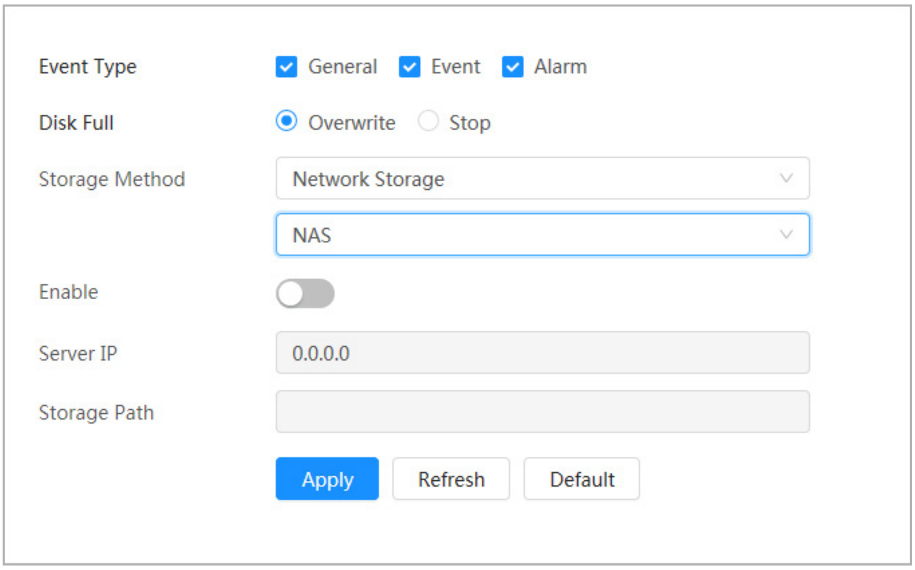
6. Click **Apply**.
7. Click **Test** to test whether FTP function works normally.

8.4.2.2 NAS

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

Procedure

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



Event Type ☑ General ☑ Event ☑ Alarm

Disk Full ● Overwrite ○ Stop

Storage Method Network Storage

NAS

Enable

Server IP 0.0.0.0

Storage Path

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. NOTE! **This is required when the protocol type is SMB.**
Password	Password for logging in to the NAS server. NOTE! **This is required when the protocol type is SMB.**

6. Click **Apply**.

9. AI

This chapter describes how to configure device AI events, including face recognition, IVS and video metadata.

9.1 Configuring Smart Plan

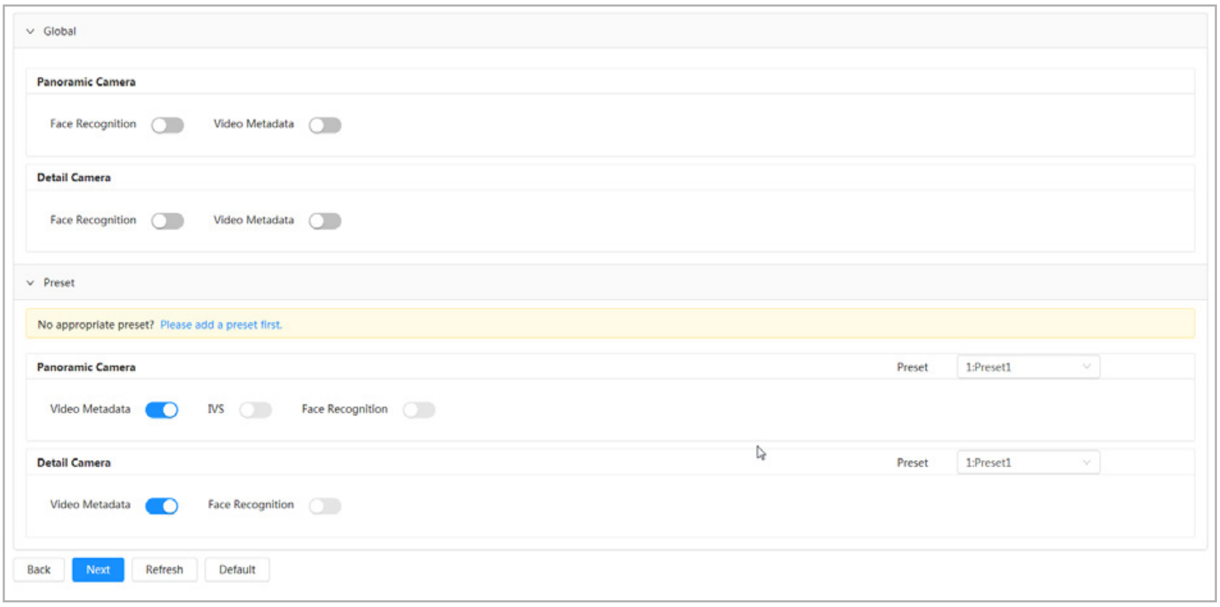
Smart plans include face recognition, intelligence behavior analysis, video metadata and so on. The smart functions of the camera cannot take effect until the smart plan has been enabled.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Enable the smart functions of the global and preset plan based on actual needs and then click **Next**.

NOTE!
Before configuring the preset plan, please add the appropriate presets in advance. For details of adding presets, see “4.5.1 Configuring Presets”.

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



Global

Panoramic Camera

Face Recognition: off
Video Metadata: off

Detail Camera

Face Recognition: off
Video Metadata: off

Preset

No appropriate preset? Please add a preset first.

Panoramic Camera — Preset: 1:Preset1

Video Metadata: on
IVS: off
Face Recognition: off

Detail Camera — Preset: 1:Preset1

Video Metadata: on
Face Recognition: off

4. Configure smart function rule as required.

9.2 Configuring People Counting

You can set people counting (including entry number, exit number and stay number in area), queuing number, and view the people counting data in report form.

NOTE!
The data of people counting will be periodically overwritten when the capacity is full.

9.2.1 GLOBAL CONFIGURATION

Set the sensitivity of people counting.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **People Counting**.
3. Click **Global Config** tab, and then select a preset in the **Preset** list.
4. Set **Sensitivity**.

   When the sensitivity is high, it is easier to trigger an alarm.

5. Click **Apply**.

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9.2.2 PEOPLE COUNTING

The system counts the number of people entering and leaving the detection area. When the number of counted people exceeds the configured value, an alarm will be triggered and the system performs an alarm linkage.

Prerequisites

Enable the **People Counting** function in **Intelligent > AI Config > Smart Plan**.

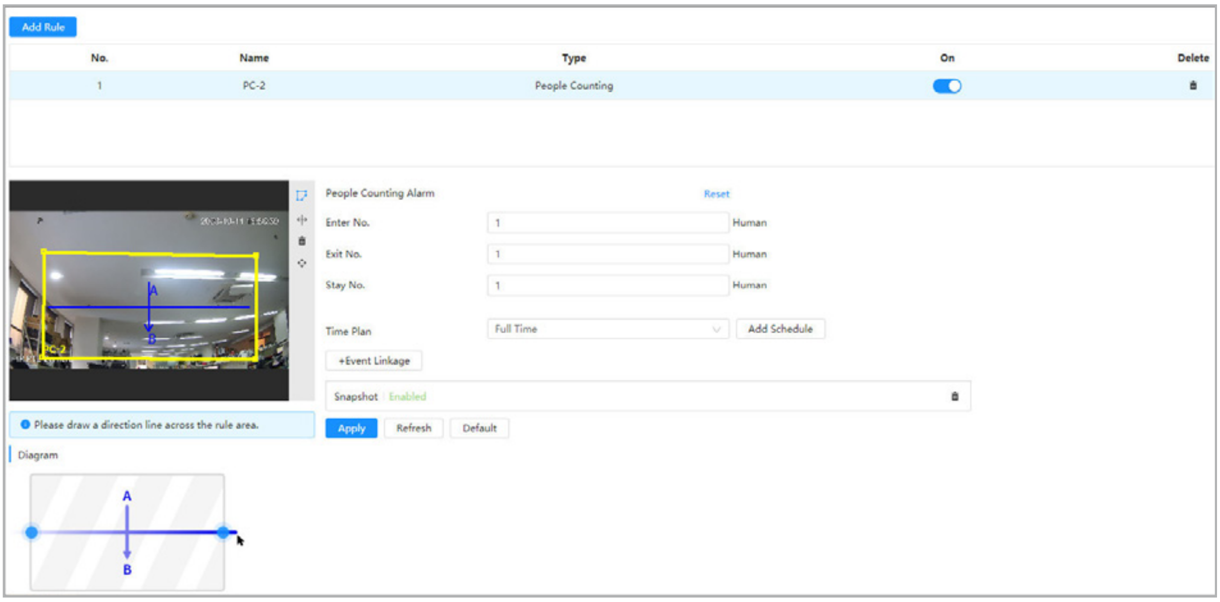
Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **People Counting**.
3. Click **People Counting** tab, and then select a preset in the **Preset** list.
4. Click the **People Counting** tab, and then select **Area People Counting** rule or **People Counting** rule as needed.

   The added rule is shown in the list below. Click the rule name under Name tab to change it. The rule is enabled by default.

   - People counting: The system counts the people entering and leaving the detection area. When the counted number of people who enter, leave, or stay in the area exceeds the configured value, an alarm will be triggered, and the system performs an alarm linkage.

     (1) Click ⬚, drag any corner of the box to adjust the size of the area, right click and hold on the mouse, and then move the box to adjust the position.



No.	Name	Type	On	Delete
1	PC-2	People Counting	●	

People Counting Alarm

Enter No. 1 Human

Exit No. 1 Human

Stay No. 1 Human

Time Plan Full Time

Snapshot Enabled

Please draw a direction line across the rule area.

     (2) Click ↔ to draw the direction line on the image.

     When targets enter or leave the detection area along the direction line, they will be counted.

NOTE!
Please refer to the prompt and diagram below for drawing the detection area and direction line.

     (3) Configure parameters of people counting.

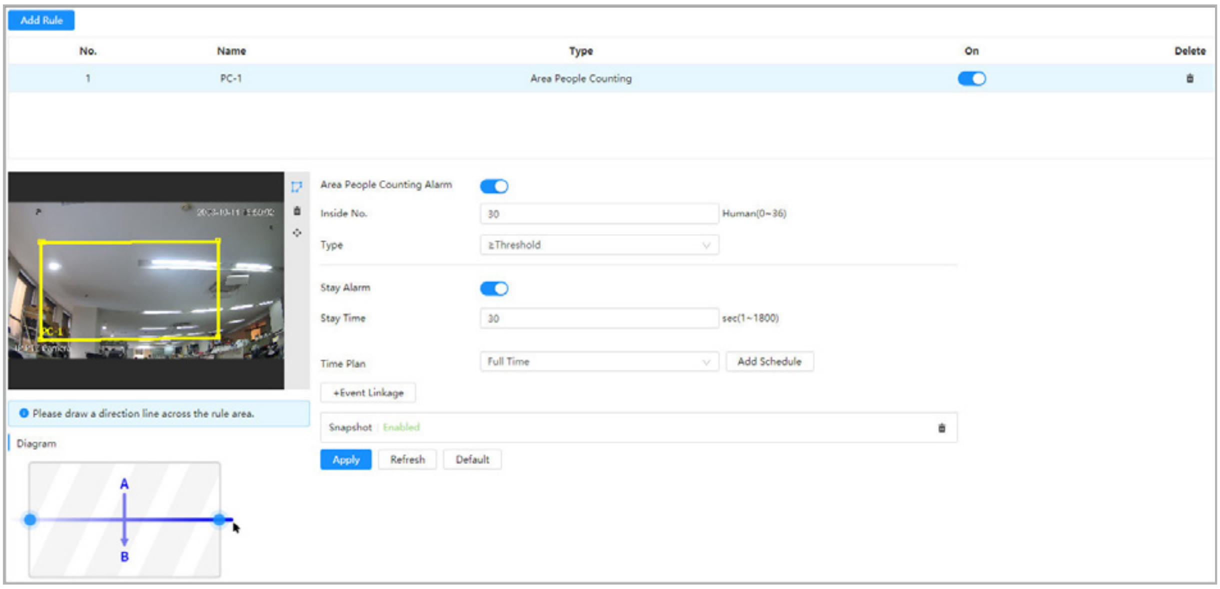
Table 9-1 Description of people counting parameters

Parameter	Description
People Counting Alarm	Click **Reset** to reset the current counting results.
Enter No.	Counts the number of people entering in the direction A-->B. When the number exceeds the configured value, an alarm will be triggered.
Exit No.	Counts the number of people entering in the direction B-->A. When the number exceeds the configured value, an alarm will be triggered.
Stay No.	It is the difference between the **Enter No.** and **Exit No.** When the number exceeds the configured value, an alarm will be triggered.

- Area People Counting: The system counts the people in the detection area and the duration that people stay in the area. When the counted number of people in the detection area or the stay duration exceeds the configured value, an alarm will be triggered, and the system performs an alarm linkage.

NOTE!
Only available on select models.

(1) Click ⬚, drag any corner of the box to adjust the size of the area, right click and hold on the mouse, and then move the box to adjust the position.



No.	Name	Type	On	Delete
1	PC-1	Area People Counting	●	🗑

Area People Counting Alarm ●
Inside No. 30 Human(0~36)
Type ≥Threshold
Stay Alarm ●
Stay Time 30 sec(1~1800)
Time Plan Full Time Add Schedule
+Event Linkage
Snapshot Enabled

Please draw a direction line across the rule area.

(2) Configure parameters of area people counting.

Table 9-2 Description of area people counting parameters

Parameter	Description
Area People Counting Alarm	After enabling the **Area People Counting Alarm** function, different alarm rules are generated based on **Inside No.** and **Type**. For example, set **Inside No.** to 8 and select **≥ threshold** in **Type**, an alarm will be triggered when the number of people in the detection area is 9. a. Click ○ next to **Area People Counting Alarm** to enable the function. b. Set the number of people in the detection area. c. Select the counting type. ≤ threshold ≥ threshold = threshold ≠ threshold
Inside No.	
Type	
Stay Alarm	Click ○ next to **Stay Alarm** to enable the function, and then set **Stay Time**. When the stay time of people in the detection area exceeds the configured value, an alarm will be triggered.
Stay Time	

5. (Optional) Click other icons on the right side of the image to delete the detection line and adjust the image.
   - Click 🗑 to delete the detection line.
   - Click ✥ to adjust the image through the PTZ control panel, and then click **Apply**.
6. Select the time plan and configure event linkage.
   - If the added time schedule does not meet requirements, click **Add Schedule** to add a new time plan. For details, see “4.6.1.2.1 Adding Schedule”.
   - Click **Event Linkage** to add the linkage action, and then configure the linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.
7. Click **Apply**.

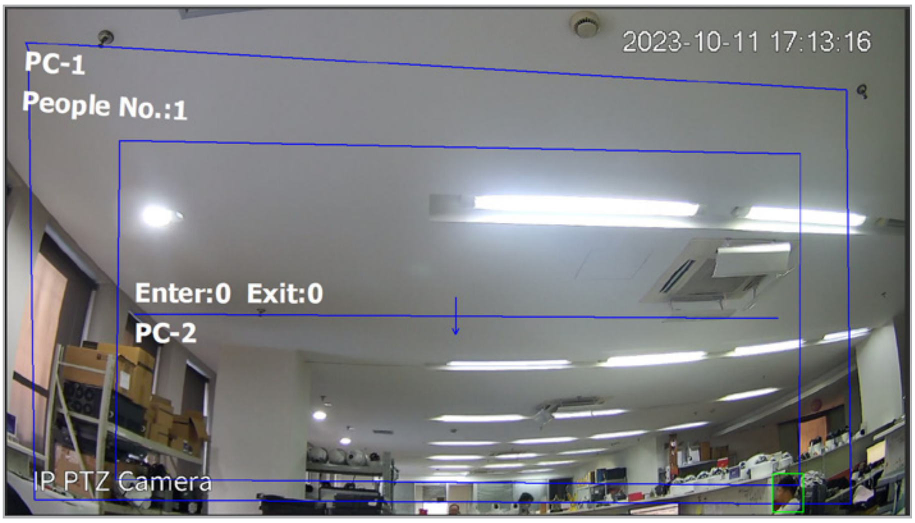
NOTE!

If you need to click 🔔 on the top right corner of the page to view alarm information, please subscribe the alarm event first. For details, see “4.6.1.4.2 Subscribing to Alarm Information”.

Results

You can view the counting results on the **Live** page.

- For **People Counting** rule, the entry and exit numbers are displayed.
- For **Area People Counting** rule, the number of people in the detection area is displayed.



9.2.3 QUEUE PEOPLE COUNTING

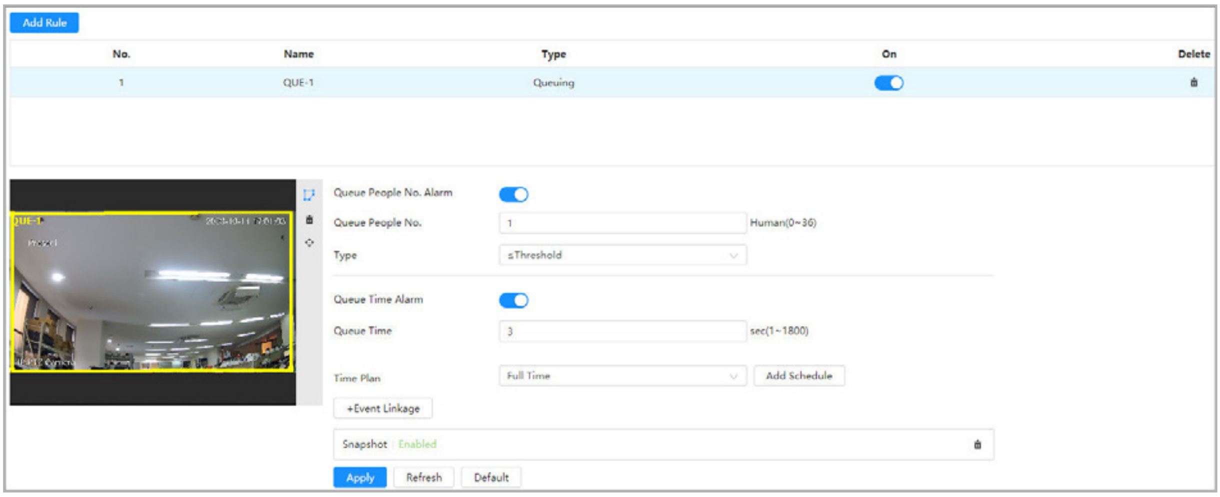
The system counts the queue people in the detection area. When the queue people number exceeds the configured number or the queue time exceeds the configured time, an alarm will be triggered, and the system performs an alarm linkage.

Prerequisites

Enable the **People Counting** function in **Intelligent > AI Config > Smart Plan**.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **People Counting**.
3. Click **Quene** tab, and then select a preset in the **Preset** list.
4. Click **Add Rule**, and then add **Queuing** rule.
5. Click ⛶ to draw the detection area, and then right click and hold on the mouse to complete the drawing.



No.	Name	Type	On	Delete
1	QUE-1	Queuing	●	🗑

Queue People No. Alarm ●

Queue People No. 1 Human(0~36)

Type ≤Threshold

Queue Time Alarm ●

Queue Time 3 sec(1~1800)

Time Plan Full Time Add Schedule

Snapshot Enabled

6. Configure parameters of queuing.

Table 9-3 Description of queuing parameters

Parameter	Description
Queue People No. Alarm	After enabling the **Queue People No. Alarm** function, different alarm rules are generated based on **Queue People No.** and **Type.** For example, set **Queue People No.** to 8 and select **≥ threshold** in **Type**, an alarm will be triggered when the queue number of people in the detection area is 9. 1. Click ○ next to **Queue People No. Alarm** to enable the function. 2. Set the number of people inside the detection area. 3. Select the counting type. ≤ threshold ≥ threshold
Queue People No.	
Type	
Queue Time Alarm	Click ○ next to **Queue Time Alarm** to enable the function, and then set **Queue Time**. When the queue time of people in the detection area exceeds the set queue time, an alarm will be triggered.
Queue Time	

7. (Optional) Click other icons on the right side of the image to delete the detection line and adjust the image.
   - Click 🗑 to delete the detection line.
   - Click ✥ to adjust the image through the PTZ control panel, and then click **Apply**.
8. Select the time plan and configure event linkage.
   - If the added time schedule does not meet requirements, click **Add Schedule** to add a new time plan. For details,see “4.6.1.2.1 Adding Schedule”.
   - Click **Event Linkage** to add the linkage action, and then configure the linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.

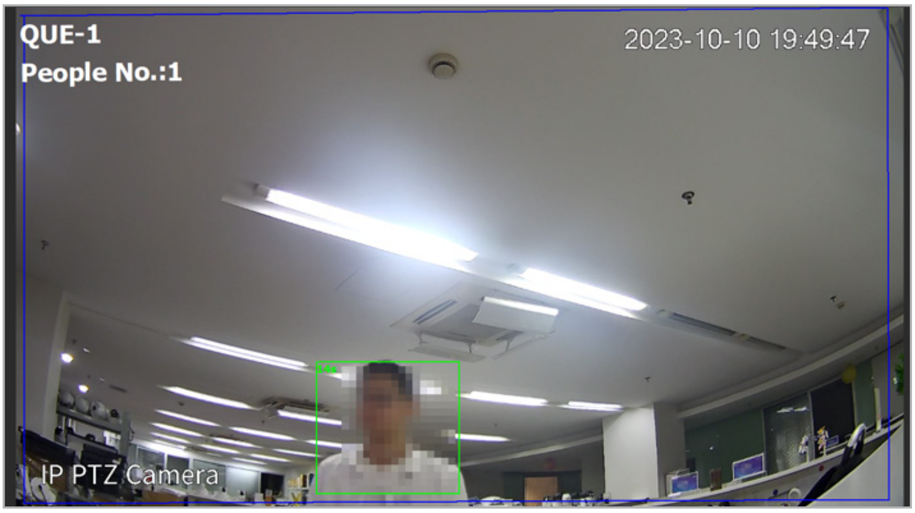
9. Click **Apply**.

NOTE!
If you need to click 🔔 on the top right corner of the page to view alarm information, please subscribe the alarm event first. For details, see”4.6.1.4.2 Subscribing to Alarm Information”.

Results

You can view the queuing results on the **Live** page.

The queuing number and the queue time of each target are displayed on the page.



9.2.4 VIEWING PEOPLE COUNTING REPORT

Search for the counting results with different rules and counting methods.

Prerequisites

You have configured the rule before searching for the report.

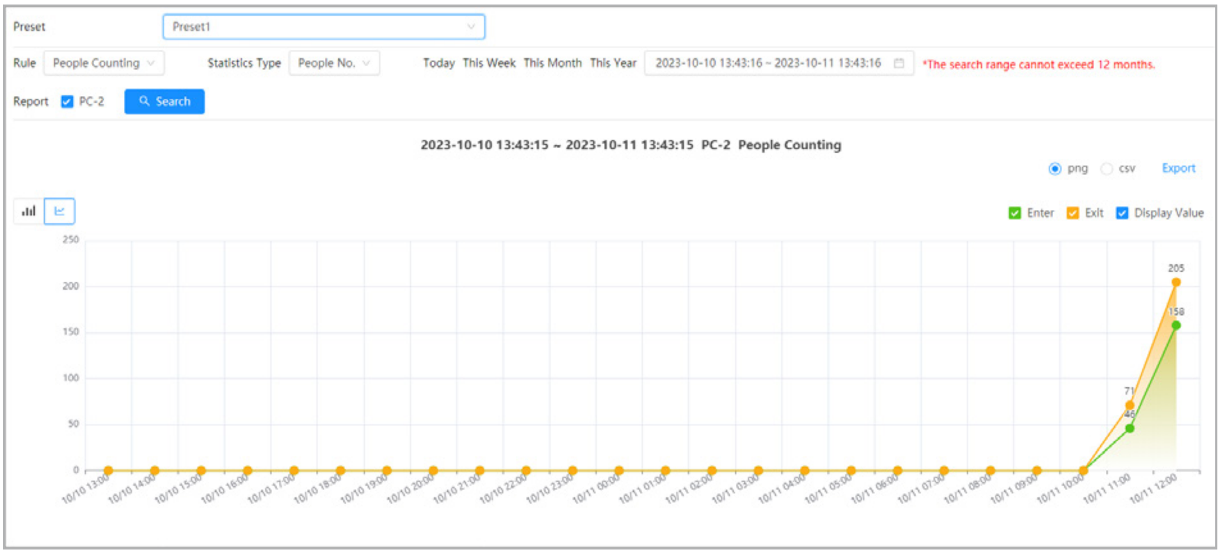
> **NOTE!**
> Some models do not support viewing the counting results in the form of a report for the area people counting rule and queuing rule. This manual is for reference only, and might differ from the actual interface.

Procedure

1. Click **Report > Report > People Counting**.
2. Select the preset and search time.

   Select **Rule** as **People Counting** and **Statistics Type** as **People No.** by default, and cannot be modified.
3. Select the report name, and then click **Search**.

> **NOTE!**
> The report name corresponds to the name of people counting rule.



Preset: Preset1

Rule: People Counting   Statistics Type: People No.   Today This Week This Month This Year   2023-10-10 13:43:16 ~ 2023-10-11 13:43:16   *The search range cannot exceed 12 months.

Report: ☑ PC-2   Search

2023-10-10 13:43:15 ~ 2023-10-11 13:43:15 PC-2 People Counting

● png ○ csv Export

☑ Enter ☑ Exit ☑ Display Value

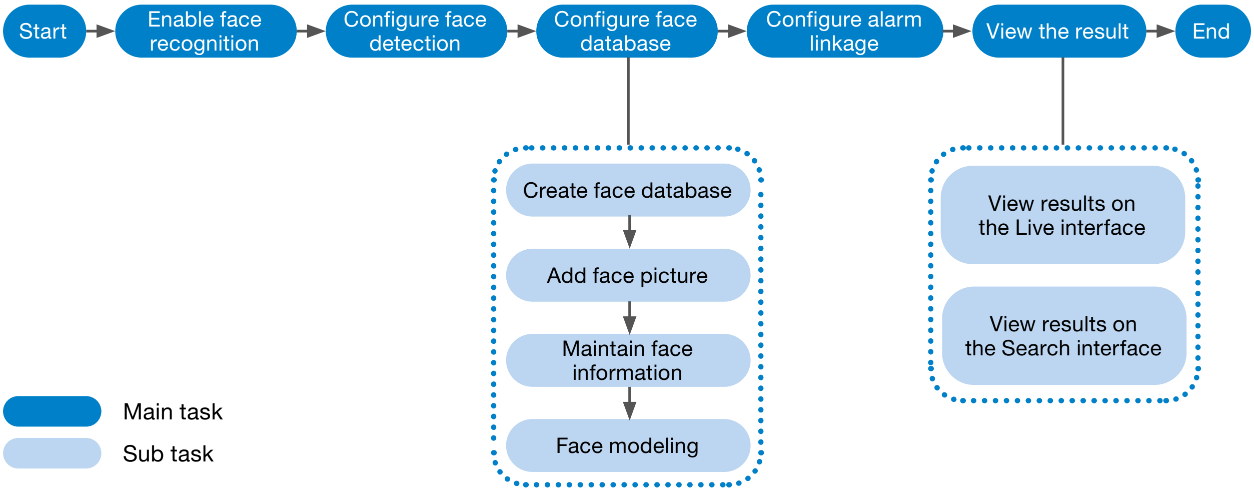
Table 9-4 Description of people counting

Icon/parameter	Description
📊 📈	Displays the results of people counting in the form of a bar chart or line chart.
☑ Enter ☑ Exit	Select **Enter**, **Exit**, and **Display Value** at the same time to view the specific number of people entering and leaving the detection area during the set time period.
☑ Display Value	
● png ○ csv	Select **PNG** or **CSV**, and then click **Export** to export the counting report in the form of an image or table.
Export	

9.3 Configuring Face Recognition

When a face is detected or recognized in the detection area, the system performs alarm linkage.

- Face detection: When a face is detected in the area, the system performs alarm linkage, such as recording and sending emails.
- Face recognition: When a face is detected in the area, the system compares the captured face image with the information in the face database, and links alarm according to the comparison result.



9.3.1 CONFIGURING FACE RECOGNITION RULE

When a face is recognized in the detection area, the system performs alarm linkage.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click to enable the function.
4. (Optional) Click the icon on the right of the screen to draw a recognition area, an exclusion area and a filtering target model on the monitoring screen.
   - Click to draw a face recognition area in the image, and then right-click to finish the drawing.

     The default recognition area is the whole screen.
   - Click to draw an exclusion area for face recognition in the image, and then right- click to finish the drawing.
   - Click , and then press and hold the left mouse button to draw a rectangle. The pixel size is displayed.
   - Click to draw the minimum size of the target and click to draw the maximum size of the target. Only when the target size is between the maximum size and the minimum size, the alarm will be triggered.
   - Click to delete the detection line.
   - Click to adjust the image through the PTZ control panel, and then click **Apply**.
5. Configure relevant parameter of face recognition.

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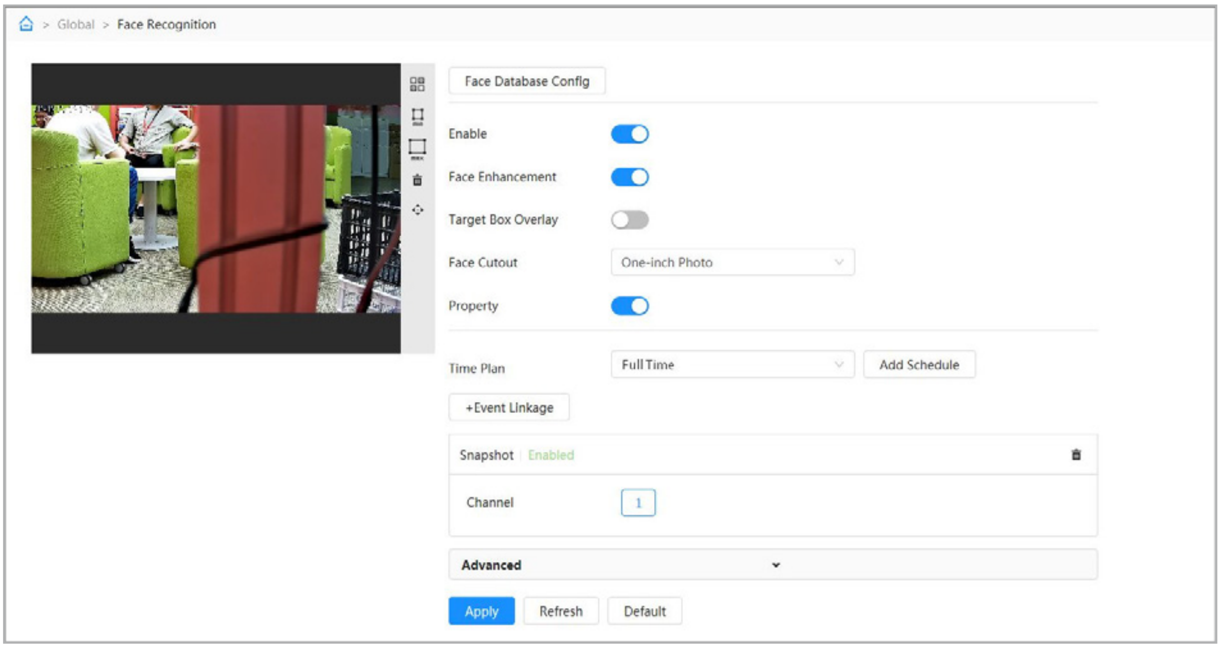


Enable: On

Face Enhancement: On

Target Box Overlay: Off

Face Cutout: One-inch Photo

Property: On

Time Plan: Full Time

Snapshot Enabled

Channel 1

Advanced

Table 9-5 Description of face recognition parameters

Parameter	Description
OSD Info	Click **OSD Info** to enter the **Overlay** page, and then you can enable the overlay of face statistics. For details, see “4.3.2.2.11 Face Statistics”.
Face Enhancement	Select **Face Enhancement** to preferably guarantee clear faces with low stream.
Target Box Overlay	You can add a bounding box to the face in the captured image to highlight the face. The captured face image is saved in SD card or the **Snapshot Path**. For the **Snapshot Path**, see “4.2 Local”.
Face Cutout	Set a range for the captured face image, including face and one-inch image. It supports custom setting. When selecting **Custom**, ⚙ click on the right side, configure the parameters on the prompt page, and then click **Apply**. • **Customized Width**: Set snapshot width; enter the times of the original face width. The value ranges from 1 to 5. • **Customized Face Height**: Set face height in snapshot; enter the times of the original face height. The value ranges from 1 to 2. • **Customized Body Height**: Set body height in snapshot; enter the times of the original body height. The value ranges from 0 to 4. When the value is 0, it cuts out the face image only.
Snapshot Mode	• **Real-time**: The Camera takes snapshot immediately when it detects faces. • **Optimized**: The Camera captures the clearest images within the optimized duration after it detects faces. • **Quality Priority**: The Camera captures the clearest image when it detects that the captured image quality exceeds the set quality threshold. **NOTE!** The quality threshold and optimized duration are configured in **Advanced** below.
Property	Click **Property** to enable the properties to be displayed during face recognition.
Advanced	• **Optimized Duration**: Set a time period to capture the clearest image after the Camera recognizes the face. • **Quality Threshold**: Set a quality threshold to capture the clearest image after the Camera recognizes the face.

6. Set arming periods and alarm linkage action.
   - Click **Add Schedule** to add time plan. For details, see “4.6.1.2.1 Adding Schedule”.
   - Click **+ Event Linkage** to set the linkage action and configure linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.
7. Click **Apply**.

9.3.2 CONFIGURING FACE DATABASE

Background Information

By configuring face database, the face database information can be used to compare with the face captured. The configuration process includes creating face database, adding face image, and face modeling.

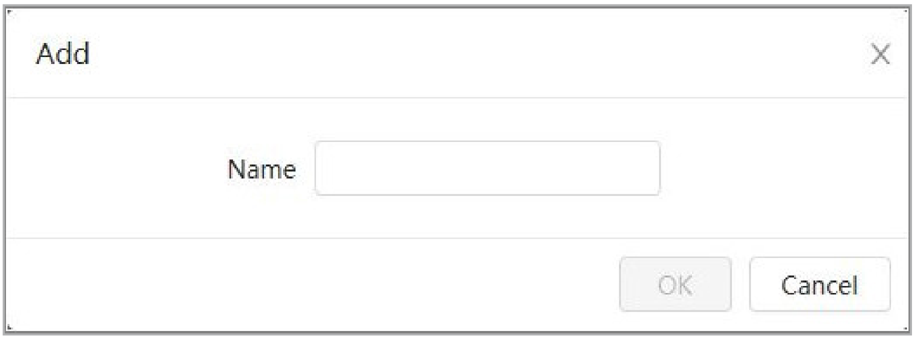
The operations for configuring face databases are all performed on **Face Database Config**.

9.3.2.1 Creating Face Database

Face database is the management center of face data information, including face image and face data. It also provides comparison data for the captured face images.

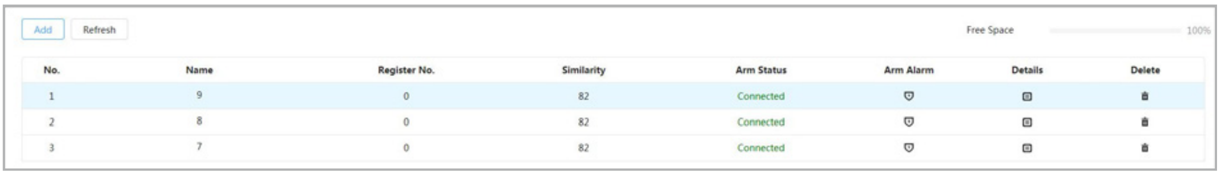
Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page.
4. Click **Add** to configure the name of face database.



5. Click **OK**.

   The added face database information is displayed on the page.



No.	Name	Register No.	Similarity	Arm Status	Arm Alarm	Details	Delete
1	9	0	82	Connected	🛡	▣	🗑
2	8	0	82	Connected	🛡	▣	🗑
3	7	0	82	Connected	🛡	▣	🗑

Related Operations

- Change the name of face database.

  Click the text box under the name to change the name of face database.

- Arm alarm.

  Click 🛡 to configure relevant parameters of face database control and alarm. For details, see”9.3.3 Configuring Arming Alarm”.

- Manage face database.

  Click ▤ to manage face database. You can set search conditions, register people, modify people information and face modeling.

- Deleting face database.

  Click 🗑 to delete face database.

9.3.2.2 Adding Face Images

Add face images to the created face database. You can add them one by one or in batches. Requirements on face images:

- A single image size is 50 KB–150 KB in JPEG format. The resolution is less than 1920 × 1080.
- Face size is 30%–60% of the whole image. There must be at least 100 pixels between the ears.
- Taken in full-face view directly facing the camera without makeup, filters, glasses, and fringe. Eyebrow, mouth and other face features must be visible.

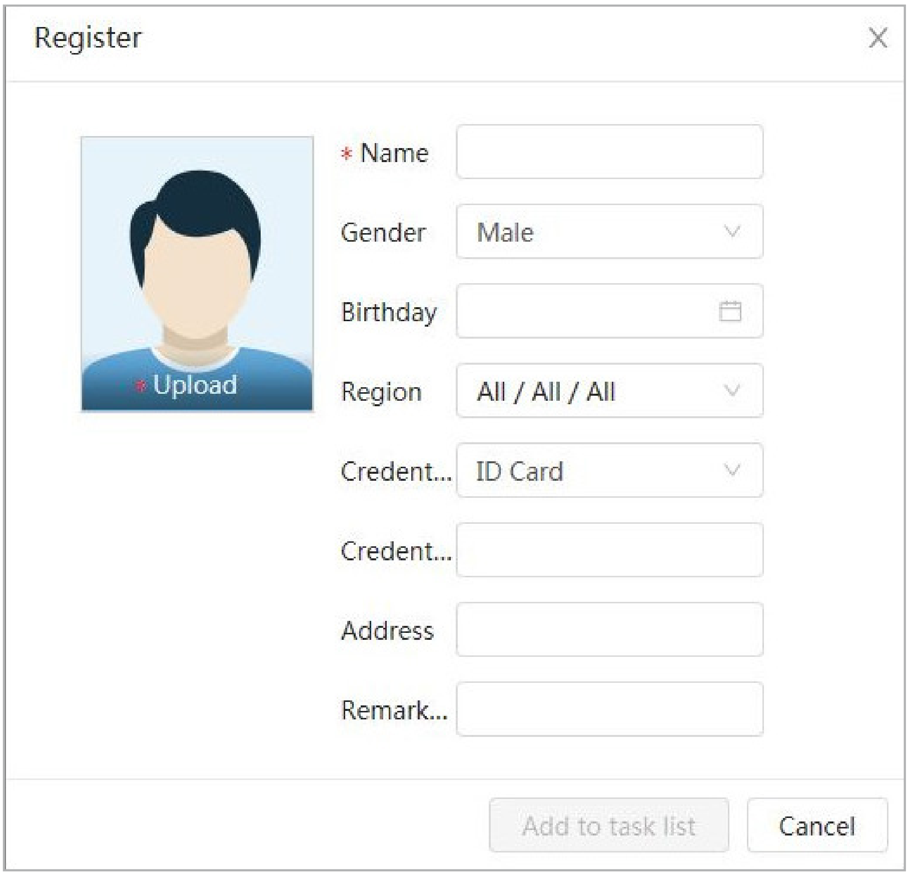
9.3.2.2.1 Adding Face Images One by One

Adding face images one by one. Select this way when you need to add a small number of face images.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page, and then click ☰ next to the face database to be configured.
4. Click **Register**.
5. Click **Upload** to select the face image you want to upload, and then click **Open**.

NOTE!
After uploading the image, select a face area and click **OK** to save the face image. If there are multiple faces in an image, select the target face and click **OK** to save the face image.



* Name	
Gender	Male
Birthday	
Region	All / All / All
Credent...	ID Card
Credent...	
Address	
Remark...	

6. Enter the information about face image according to the actual situation, and then click **Add to task list**.
7. Click Task List 1 at the upper-right corner, and then click **Operation**.
   - If image adds successfully, it shows **Stored successfully. Modeling successful**.
   - If adding user fails, the error code is displayed on the page. View the fail reason according to error code table. For details. see “Description of error code”.

- If image modeling fails, the error code is displayed on the page. Please modify the image and remodel the image. For face modeling operation, see “9.3.2.4 Face Modeling”.

Table 9-6 Description of error code

Parameter	Error	Description
0x1134000C	Image importing error	The image is too large, and the upper limit is 150 KB.
0x1134000E		The number of the added images is to the upper limit.
0x11340019		The space of the face database exceeds the upper limit.
1	Image modeling error	The image format is not correct. Import the image in JPG format.
2		No face in the image or the face is not clear. Change the image.
3		Multiple faces in the image. Change the image.
4		Failed to decode the image. Change the image.
5		The image is not suitable to be imported to the face database. Change the image.
6		Database operation error. Restart the camera and model faces again.
7		Fails to get the image. Import the image again.
8		System error. Restart the camera and model faces again.

9.3.2.2.2 Adding Face Images in Batches

Import face images in batches when you need to add a large number of face images.

Prerequisites

Before importing images in batches, name face image in a format of “Name#SGender#BDate of Birth#NRegion#PProvince#CCity#TCredentials Type#MID No.jpg” (for example, “John#S1#B1990-01-01#NCN#PZhejiang#CHangzhou#T1#M000000199001010000”).

NOTE!

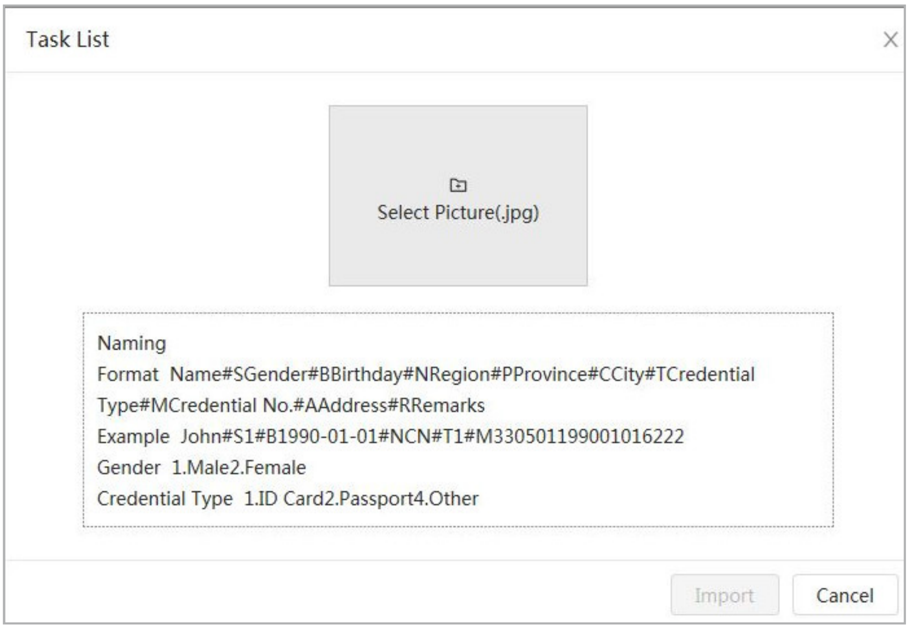
- The max size of a single face image is 150 KB, and the resolution is less than 1920p × 1080p.
- When naming images, **Name** is required, and others are optional.

Table 9-7 Description of batch importing parameters

Parameter	Description
Name	Enter the corresponding name.
Gender	“1” is male and “2” is female.
Date of Birth	Format: yyyy-mm-dd, such as 2020-10-23.
Region	Enter the abbreviation name of the country or region, such as CN (for China), BR (for Brazil).
Province	Enter the corresponding name of the province. Supports letters (capitalize the initial letter), but do not support Chinese characters.
City	Enter the corresponding name of the city.
Credential Type	“1” is ID card, “2” is passport, “3” is Officer Card and “4” is others.
ID number	Enter ID number.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page
4. Click ☰ next to the face database to be configured.
5. Click **Batch Register**.
6. Click **Select Picture**, and select storage path of the file.



Naming
Format Name#SGender#BBirthday#NRegion#PProvince#CCity#TCredential Type#MCredential No.#AAddress#RRemarks
Example John#S1#B1990-01-01#NCN#T1#M330501199001016222
Gender 1.Male2.Female
Credential Type 1.ID Card2.Passport4.Other

7. Click **Import** to import the face images.

   After the importing is completed, the result will be displayed.

   - If the image is imported successfully, click **Next** to do modeling operation.
   - If the image importing failed, click **Query** to view the details of the images and error code. For details, see Table 9-6.

     Click **Export** to export the error details. Modify and reimport the face image according to the error prompt.

8. Click **Next** to do modeling operation.

   The modeling result is displayed. If modeling failed, click **Query** and the failure details will be displayed in the list. Point to the modeling status to view the details, and then you can change image according to the failure reason. For modeling details, see “9.3.2.4 Face Modeling”.

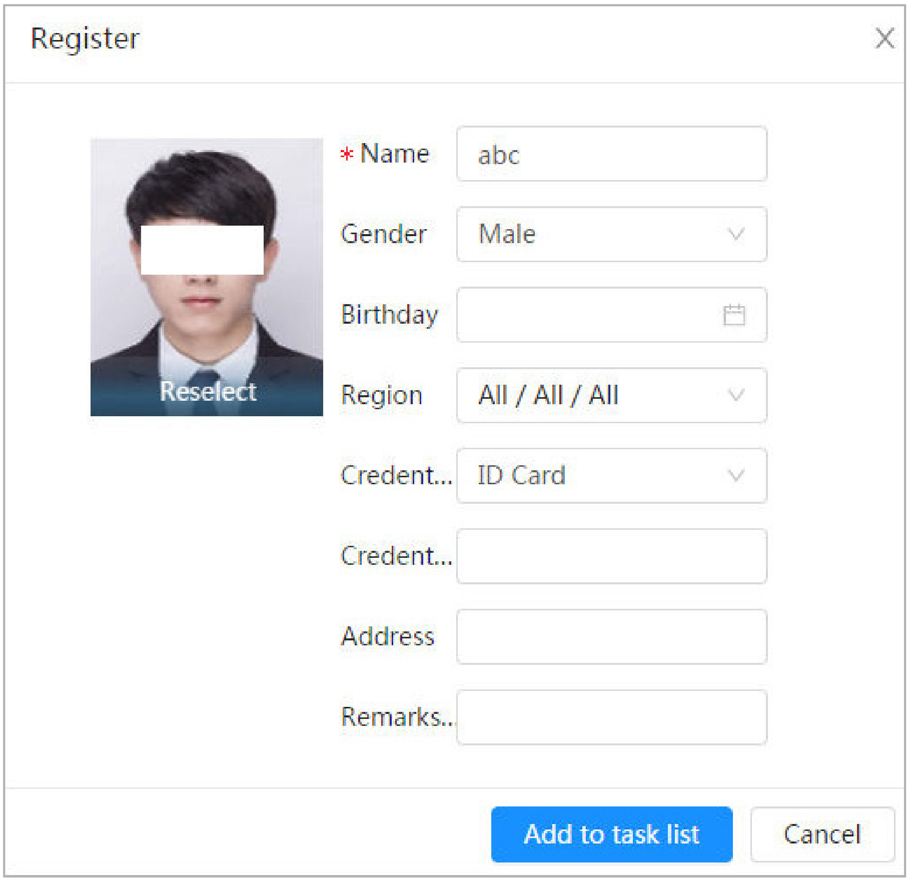
9.3.2.3 Managing Face Images

Add face images to face database, and then manage and maintain face images to ensure the information is correct.

9.3.2.3.1 Modifying Face Information

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config** and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page.
4. Click ☰ next to the face database to be configured.
5. Click **Query**, set the criteria as needed, and then click **Search**.
6. Select the row where the image or the personnel information is located, and then click ✎.
7. Edit face information according to the actual need. Click **Add to task list**.



Register

* Name	abc
Gender	Male
Birthday	
Region	All / All / All
Credent...	ID Card
Credent...	
Address	
Remarks..	

8. Click Task List 1, and then click **Operation**.

9.3.2.3.2 Deleting Face Data

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page.
4. Click ☰ next to the face database to be configured.
5. Click **Query**, and then set the search criteria. Click **Search**, and then select the face information that needs to be deleted and delete it.
   - Single delete: Select the row where the face image or the personnel information is located, and click 🗑 to delete the face image.

- Delete in batches: Select □ at the upper-right corner of the face image or □ of the row where the personnel information is located. Select the information, click **Delete**, then click Task List 1. Click **Operation** to delete the selected face images.
- Delete all: When viewing face images in a list, click □ of the row where the serial number is located; when viewing by thumbnail, select **All** to select all face images.

Click **Delete**, then click Task List 1, and then click **Operation** to delete all face images.

9.3.2.4 Face Modeling

Extract and import the relevant information of face images through face modeling, and create a face feature model for smart detection such as face recognition.

Background Information

NOTE!

- The more face images you select, the longer the face modeling process will take.
- During the modeling process, some smart detection functions (such as face comparison) are temporarily unavailable and can be resumed after the modeling is completed.

Procedure

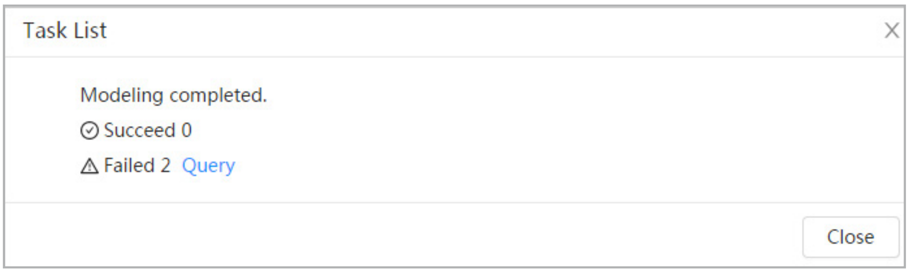
1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page.
4. Click ☰ next to the face database to be configured.
5. Start modeling.
   - Modeling some images: Select the face images to be modeled, and then click **Modeling**.

NOTE!

If there are many face images in the face database, you can set search criteria to select the images that need to be modeled.

   - Modeling all images: Click **Modeling All**, and the face images in invalid state in the face database are modeled
6. View the modeling result.

   When the modeling failed, click **Query** to view the details.



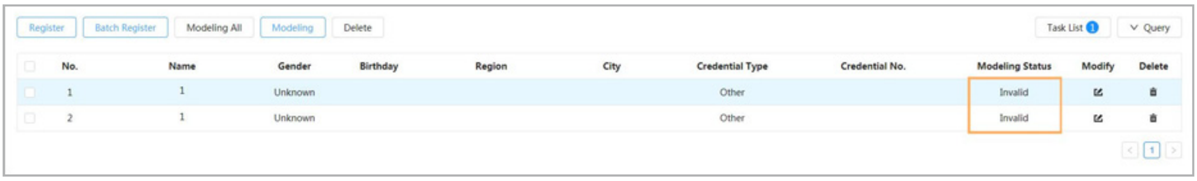
Modeling completed.

✓ Succeed 0

⚠ Failed 2 Query

Click ☰ to view the face image in list format; click ▦ to view the face image in thumbnail format.

- When the modeling status is **Valid** in the list or is displayed at the lower-left corner of the thumbnail, it means the modeling is successful.
- When the modeling status is **Invalid** in the list or is displayed at the lower-left corner of the thumbnail, it means the modeling failed. Point to the modeling status in the list to view the details of the failure. Change the images according to the reasons.



□	No.	Name	Gender	Birthday	Region	City	Credential Type	Credential No.	Modeling Status	Modify	Delete
□	1	1	Unknown				Other		Invalid		
□	2	1	Unknown				Other		Invalid		

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9.3.3 CONFIGURING ARMING ALARM

When face recognition succeeded or failed, the device outputs alarms.

Procedure

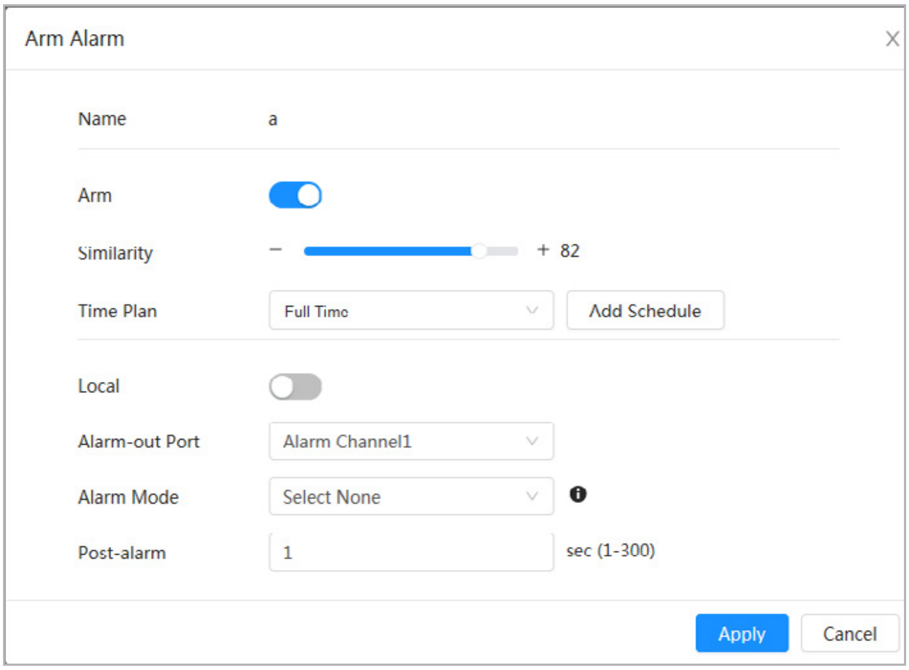
1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Recognition**.
3. Click **Face Database Config** to enter the face database configuration page.
4. Click 🛡 next to the face database to be configured.
5. Arm face database.

   (1) Click ○ to enable arm function.

   The snapshot will be compared to the images in the armed face database.

   (2) Set similarity.

   The detected face will only match the face features in the face database when the defined similarity is reached. After successful match, the comparison result is displayed on the **Live** page.



Arm Alarm

Name: a

Arm: ●

Similarity: − + 82

Time Plan: Full Time

Local: ○

Alarm-out Port: Alarm Channel1

Alarm Mode: Select None

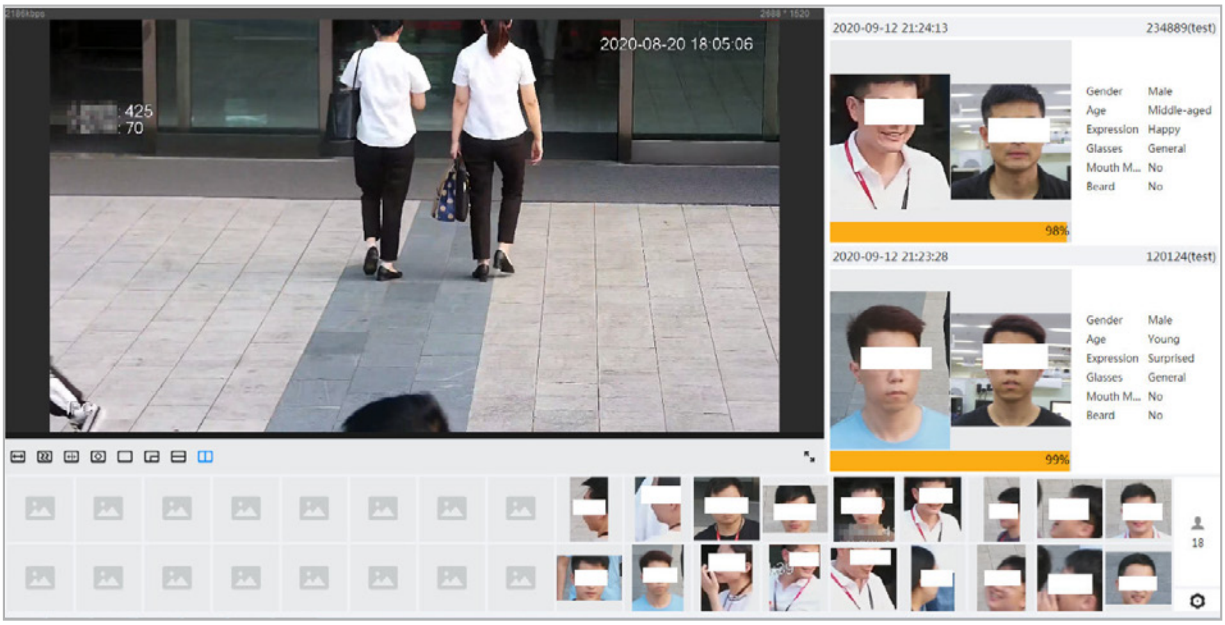
Post-alarm: 1 sec (1-300)

6. Select **Alarm Mode**.
   - **All**: The camera outputs alarms whether the detected face matches the face picture in the database or not.
   - **General**: The camera outputs alarms when the detected face matches that in the face database.
   - **Stranger**: The camera outputs alarms when the detected face fails to match that in the face database.
   - **Select none**: The camera does not output alarms whether the detected face matches the face picture in the database or not.
7. Set arming periods and alarm linkage action.
   - Click **Add Schedule** to add time plan. For details, see “4.6.1.2.1 Adding Schedule”.
   - Set the linkage action and configure linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.
8. Click **Apply**.

9.3.4 VIEWING FACE RECOGNITION RESULTS

On the **Live** page, select **Face Mode** from the display mode drop-down list on the upper-right corner to view the **Live** page of face recognition.

- The live image is displayed at the left side, and the captured face images and attribute information are displayed at the right side. When the recognition is successful, the captured face images, images in the database and the similarity of the face images and images in the database are displayed at the right side; the snapshot count and thumbnails are displayed at the bottom of the live image.
- Click ⚙ to set the attributes. For details, see “Configuring Display Properties”.



2020-09-12 21:24:13 234889(test)

Gender	Male
Age	Middle-aged
Expression	Happy
Glasses	General
Mouth M...	No
Beard	No

2020-09-12 21:23:28 120124(test)

Gender	Male
Age	Young
Expression	Surprised
Glasses	General
Mouth M...	No
Beard	No

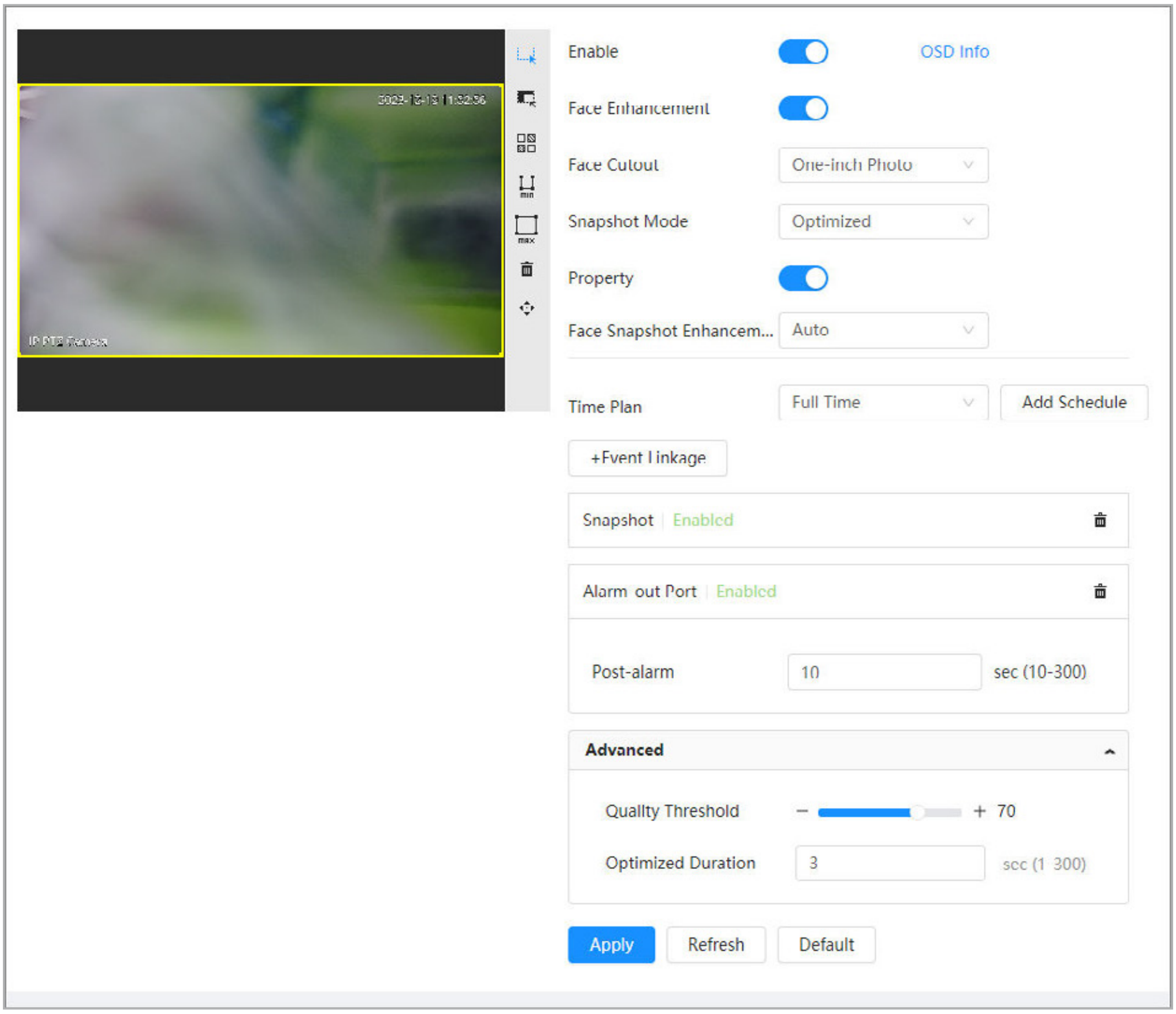
9.4 Configuring Face Detection

9.4.1 CONFIGURING FACE DETECTION RULE

When a face is detected in the detection area, the system performs alarm linkage.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Face Detection**.
3. Click to enable the function.
4. (Optional) Click the icon on the right of the screen to draw detection area, exclusion area and filtering target model on the monitoring screen.
   - Click to draw a face recognition area in the image, and then right-click to finish the drawing. The default recognition area is the whole screen.
   - Click to draw an exclusion area for face recognition in the image, and then right- click to finish the drawing.
   - Click , and then press and hold the left mouse button to draw a rectangle. The pixel size is displayed.
   - Click to draw the minimum size of the target and click to draw the maximum size of the target. Only when the target size is between the maximum size and the minimum size, the alarm will be triggered.
   - Click to delete the detection line.
   - Click to adjust the image through the PTZ control panel, and then click **Apply**.
5. Configure relevant parameter of face detection.



Enable: on

Face Enhancement: on

Face Cutout: One-inch Photo

Snapshot Mode: Optimized

Property: on

Face Snapshot Enhancem...: Auto

Time Plan: Full Time

Snapshot | Enabled

Alarm out Port | Enabled

Post-alarm: 10 sec (10-300)

Advanced

Quality Threshold: 70

Optimized Duration: 3 sec (1 300)

Table 9-8 Description of face recognition parameters

Parameter	Description
OSD Info	Click **OSD Info** to enter the **Overlay** page, and then you can enable the overlay of face statistics. For details, see “4.3.2.2.11 Face Statistics”.
Face Enhancement	Select **Face Enhancement** to preferably guarantee clear faces with low stream.
Target Box Overlay	You can add a bounding box to the face in the captured image to highlight the face. The captured face image is saved in SD card or the **Snapshot Path**. For the **Snapshot Path**, see “4.2 Local”.
Face Cutout	Set a range for the captured face image, including face and one-inch image. It supports custom setting. When selecting **Custom** , click ⚙ on the right side, configure the parameters on the prompt page, and then click **Apply**. • **Customized Width**: Set snapshot width; enter the times of the original face width. The value ranges from 1 to 5. • **Customized Face Height**: Set face height in snapshot; enter the times of the original face height. The value ranges from 1 to 2. • **Customized Body Height**: Set body height in snapshot; enter the times of the original body height. The value ranges from 0 to 4. When the value is 0, it cuts out the face image only.
Snapshot Mode	• **Real-time**: The Camera takes snapshot immediately when it detects faces. • **Optimized**: The Camera captures the clearest images within the optimized duration after it detects faces. • **Quality Priority**: The Camera captures the clearest image when it detects that the captured image quality exceeds the set quality threshold. **NOTE!** The quality threshold and optimized duration are configured in **Advanced** below.
Property	Click **Property** to enable the properties to be displayed during face recognition.
Face Snapshot Enhancement	Select the mode to enhance the snapshot. • **Auto**: The system automatically improves the quality of the snapshot. • **Manual**: You can adjust **NR Level, Sharpening Level, Brightness Level** and **Redness Level** manually. • **Off**: Turn off the function.
Advanced	• **Optimized Duration**: Set a time period to capture the clearest image after the Camera recognizes the face. • **Quality Threshold**: Set a quality threshold to capture the clearest image after the Camera recognizes the face.

6. Set arming periods and alarm linkage action.
   - Click **Add Schedule** to add time plan. For details, see “4.6.1.2.1 Adding Schedule”.
   - Click **+ Event Linkage** to set the linkage action and configure linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.
7. Click **Apply**.

9.4.2 VIEWING FACE DETECTION RESULTS

On the **Live** page, select **Face Mode** from the display mode drop-down list on the upper-right corner to view the **Live** page of face recognition.

- The live image is displayed at the left side, the captured face images and attribute information are displayed at the right side, the snapshot count and thumbnails are displayed at the bottom of the live image.
- Click ⚙ to set the attributes. For details, see “Configuring Display Properties”.

9.5 Configuring IVS

This section introduces scene selection requirements, rule configuration, and global configuration for IVS (intelligent video surveillance).

- Here are the basic requirements on the scene.
- The target should occupy no more than 10% of the whole image.
- The target size in the image should be no more than 10 × 10 pixels. The size of abandoned object in the image should be no less than 15 × 15 pixels (CIF image). The target height and width should no more than a third of the image height and width. The recommended target height is 10% of the image height.
- The brightness difference of the target and the background should be no less than 10 gray levels.
- The target should be continuously present in the image for no less than 2 seconds, and the moving distance should be larger its width and no less than 15 pixels (CIF image) at the same time.
- Reduce the complexity of surveillance scene as much as you can. Intelligent analysis functions are not recommended to be used in scene with dense targets and frequent illumination change.
- Avoid areas such as glass, reflective ground, water surface, and areas interfered by branch, shadow and mosquito. Avoid backlight scene and direct light.

9.5.1 GLOBAL CONFIGURATION

Set global rules for IVS, including calibration drawing, calibration verification and sensitivity.

Background Information

Determine corresponding relationship between 2D image captured by the camera and 3D actual object according to one horizontal ruler and three vertical rulers calibrated by the user and the corresponding actual distance.

Here are the applicable scenes.

- Medium or distant view with installation height of more than three meters. Scenes with parallel view or ceiling-mounted are not supported.
- Calibrate horizontal plane, not vertical walls or sloping surfaces.
- This function is not applicable to scenes with distorted view, such as the distorted views captured by super wide-angle camera.

Pay attention to the following points.

- Calibration Drawing
  - Calibration area: The calibration area drawn should be on one horizontal plane.
  - Vertical ruler: The bottom of three vertical rulers should be on the same horizontal plane. Select three reference objects with fixed height in triangular distribution as vertical rulers,such as vehicle parked at roadside or road lamp poles. Arrange three persons to draw at each of the three positions in the monitoring scene.
  - Horizontal ruler: Select reference object with known length on the ground, such as sign on the road, or use a tape to measure the actual length.
- Calibration Verification

  After setting the ruler, draw a straight line on the image, check the estimated value of the straight line, and then compare this value with the value measured in the actual scene to verify calibration accuracy. In case of major difference between the estimated value and the actual one, fine-tune or reset parameters until the error requirement is met.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **IVS**.
3. Click **Global Config**.
4. Configure calibration area and rulers on the left screen.

   (1) Click ⬚ and draw a calibration area in the image, and right-click to finish the drawing.

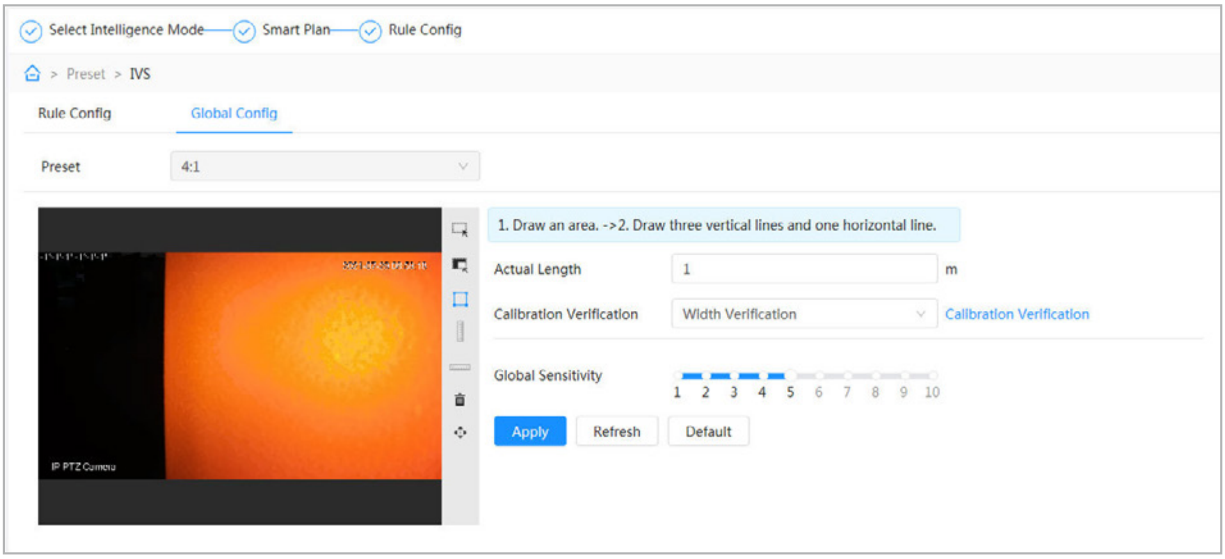
(2) Click the ruler icon to draw one horizontal ruler and three vertical rulers in the calibration area.

- ▮ indicates vertical ruler, and ▬ indicates horizontal ruler.
- Select an added ruler, and click 🗑 to delete the ruler.

(3) Configure the actual length.

5. Configure parameters for the IVS of global configuration.

   Sensitivity: Adjust the filter sensitivity. With higher value, it is easier to trigger an alarm when low-contrast object and small object are captured, and the false detection rate is higher.



Preset 4:1

1. Draw an area. ->2. Draw three vertical lines and one horizontal line.

Actual Length 1 m

Calibration Verification Width Verification Calibration Verification

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

6. Click **Apply**.

Related Operations

1. Select the verification type, and then click **Calibration Verification**.

   To verify vertical ruler and horizontal ruler, respectively select **Height Verification** and **Width Verification**.

2. Draw a straight line in the image to verify whether the rulers are correctly set.

   In case of major difference between the estimated value and the actual one, fine-tune or reset parameters until the error requirement is met.

9.5.2 RULE CONFIGURATION

This section introduces the rules used on IVS, including tripwire, intrusion, abandoned object, missing object, fast moving, parking detection, crowd gathering, crossing virtual fence and loitering detection.

Prerequisites

The global configuration for IVS has been completed.

Background Information

The roles and applicable scenes of various rules are as follows. The following section uses tripwire as an example to introduce the rule configuration of IVS.

Table 9-9 Description of IVS functions

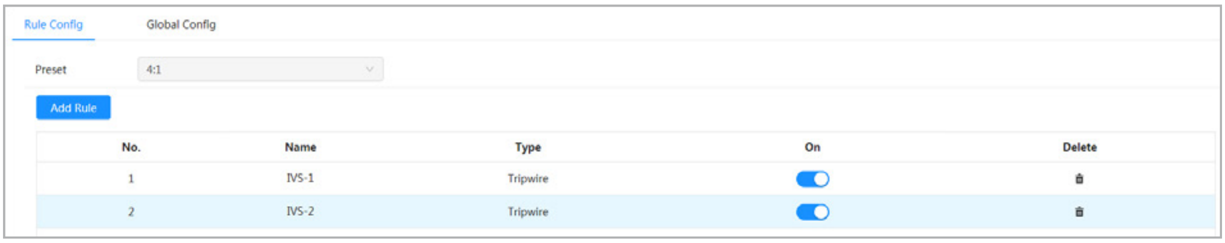
Rule	Function	Applicable Scene
Crossing virtual fence	When a target crosses the fence toward the defined direction, the alarm is triggered and the linkage is executed.	Scenes such as roads, airports and other isolation zones.
Tripwire	When a target crosses the line toward the defined direction, the alarm is triggered and the linkage is executed.	Scenes with sparse targets and no occlusion among targets, such as the perimeter protection of unattended area.
Intrusion	When the target enters, leaves, or appears in the detection area, an alarm is triggered, and the system performs defined alarm linkages.	

Rule	Function	Applicable Scene
Abandoned object	When an object is abandoned in the detection area over the defined time, an alarm is triggered, and then the system performs defined alarm linkages.	Scenes with sparse targets and without obvious and frequent light change. Simple scene in the detection area is recommended. • Missed alarm might increase in the scenes with dense targets, frequent occlusion, and people staying. • In scenes with complex foreground and background, false alarm might be triggered for abandoned or missing object.
Missing object	When an object is taken out of the detection area over the defined time, an alarm is triggered, and then the system performs defined alarm linkages.	
Fast moving	When the motion speed is higher than the defined speed, an alarm is triggered, and then the system performs defined alarm linkages.	Scenes with sparse targets and less occlusion. The camera should be installed right above the monitoring area. The light direction should be vertical to the motion direction.
Parking detection	When the target stays over the defined time, an alarm is triggered, and then the system performs defined alarm linkages.	Road monitoring and traffic management.
Crowd gathering	When the crowd gathers or the crowd density is large, an alarm is triggered, and then the system performs defined alarm linkages.	Scenes with medium or long distance, such as outdoor plaza, government entrance, station entrance and exit. It is not suitable for short-distance view analysis.
Loitering detection	When the target loiters over the shortest alarm time, an alarm is triggered, and then the system performs defined alarm linkages. After alarm is triggered, if the target stays in the area within the time interval of alarm, then alarm will be triggered again.	Scenes such as park and hall.

Procedure

1. Click **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **IVS**.
3. Click **Rule Config**.
4. Click **Add Rule** on the **Rule Config** page, and then select **Tripwire** from the drop-down list.

   The added rules are displayed in the drop-down list. Click the name, and you can edit the rule name; the rule is enabled by default.



Rule Config | Global Config

Preset: 4:1

Add Rule

No.	Name	Type	On	Delete
1	IVS-1	Tripwire	●	🗑
2	IVS-2	Tripwire	●	🗑

5. Click ↔ to draw rule lines in the image. Right-click to finish drawing.

   Different rules have slightly different drawing requirements. After drawing rules, drag corners of the detection area to adjust the area range.

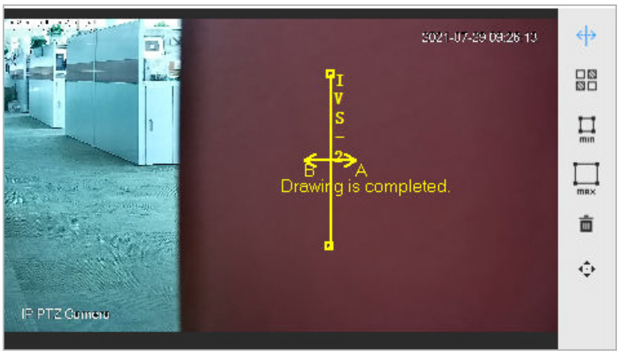


Table 9-10 Description of IVS analysis drawing rules

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

Table 9-11 Description of IVS analysis drawing rules

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

6. (Optional) Click other icons at the right side of the image to filter targets in the image.
   - Click min to draw the minimum size of the detection target and click max to draw the maximum size of the detection target. Only when the target size is between the maximum size and the minimum size, can the alarm be triggered.
   - When the rule of crowd gathering is configured, you need to draw the minimum gathering area. Click ▣ to draw the minimum gathering area in the scene. The alarm is triggered when the number of people in the detection area exceeds the minimum and the time exceeds the duration.
   - Click ⊞, and then press and hold the left mouse button to draw a rectangle, the pixel size is displayed.
   - Click 🗑 to delete the detection line.
7. Set rule parameters for IVS.

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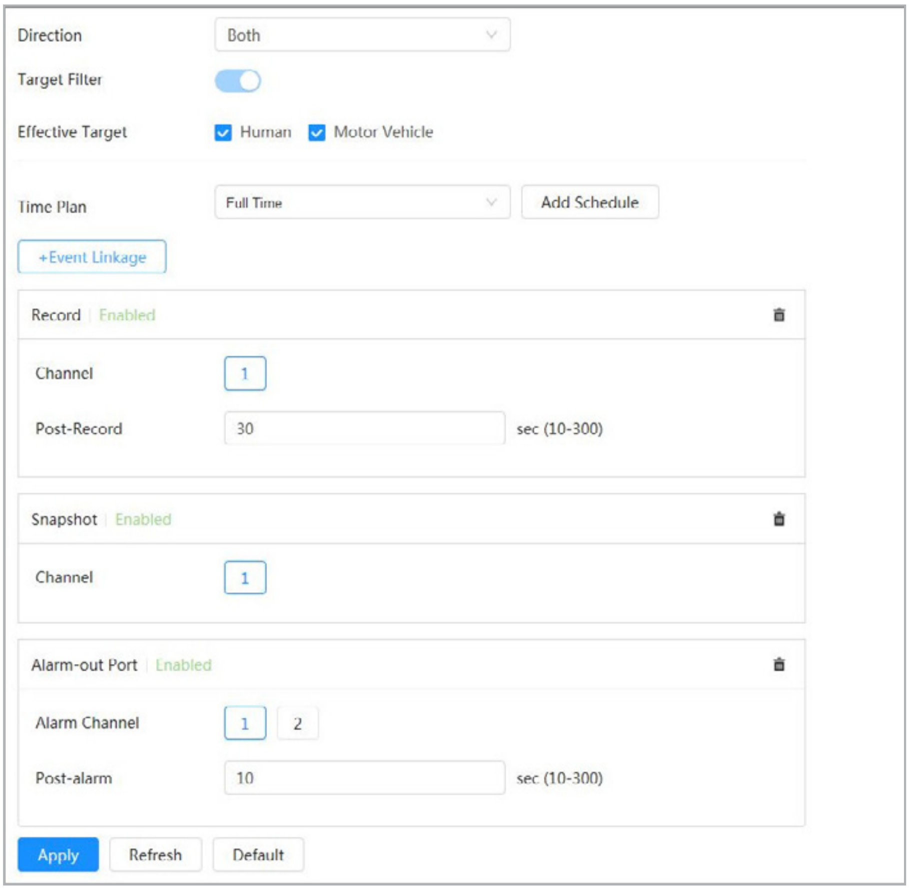


Direction: Both

Target Filter

Effective Target: ☑ Human ☑ Motor Vehicle

Time Plan: Full Time

Record | Enabled

Channel: 1

Post-Record: 30 sec (10-300)

Snapshot | Enabled

Channel: 1

Alarm-out Port | Enabled

Alarm Channel: 1 2

Post-alarm: 10 sec (10-300)

Table 9-12 Description of IVS parameters

Parameter	Description
Direction	Set the direction of rule detection. • When setting tripwire, select **A->B** , **B->A**, or **A<->B**. • When setting intrusion, select **Enter** , **Exit**, or **Both**.
Target Filter	After enabling **Target filter**, effective targets are not detected and alarms will not be triggered. This function is currently supported by tripwire, intrusion and fast moving. **NOTE!** Effective targets include **Human** and **Motor Vehicle**. Among them, **non-motor vehicle** belongs to the category of **People**.
Effective Target	
Action	When setting intrusion action, select **Appear** or **Cross**.
Duration	• For abandoned object, the duration is the shortest time for triggering an alarm after an object is abandoned. • For missing object, the duration is the shortest time for triggering an alarm after an object is missing. • For parking detection, crowd gathering, or loitering detection, the duration is the shortest time for triggering an alarm after an object appears in the area.
Sensitivity	• For fast moving, sensitivity is related to the triggering speed. Lower sensitivity requires faster moving speed to trigger the alarm. • For crowd gathering, sensitivity is related to the alarm triggering time. It is easier to trigger the alarm with higher sensitivity.

8. Set arming periods and alarm linkage action.
   - Click **Add Schedule** to add time plan. For details, see “4.6.1.2.1 Adding Schedule”.
   - Click **+ Event Linkage** to set the linkage action and configure linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.
9. Click **Apply**.

   If you need to click 🔔 on the upper-right corner of the page to view alarm information, you need to subscribe relevant alarm event. For details, see “4.6.1.4.2 Subscribing to Alarm Information”.

9.6 Configuring Video Metadata

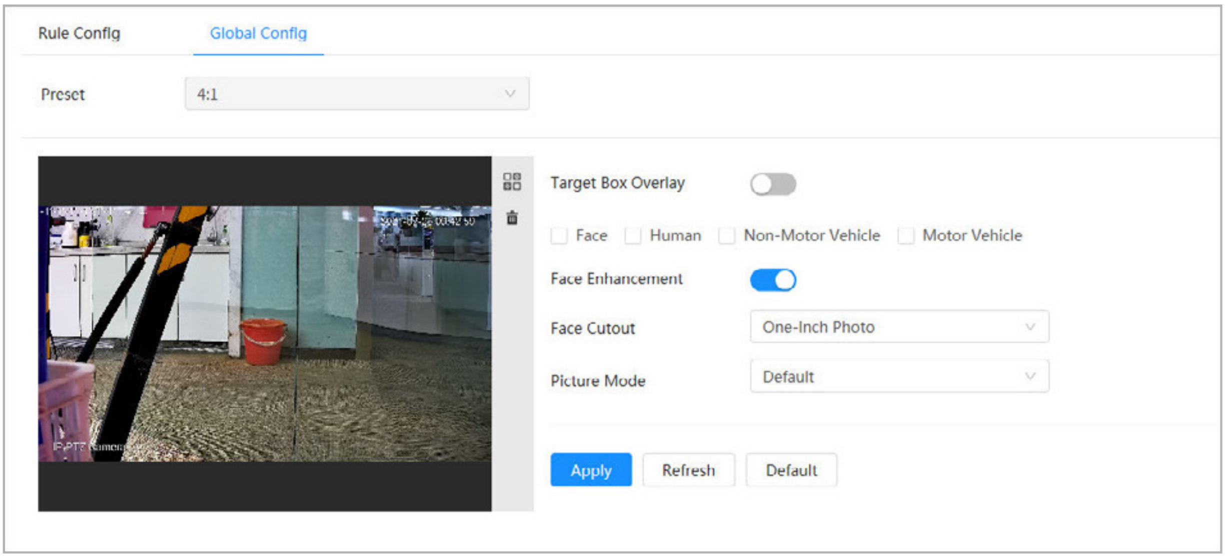
Classify people, non-motor vehicles and motor vehicles in the captured video, and display the relevant attributes on the **Live** page.

9.6.1 GLOBAL CONFIGURATION

Configure global rules for video metadata, including global parameters for faces and scenes.

Procedure

1. Select **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Video Metadata**.
3. Click **Global Config**.
4. Configure global configuration parameters.



Rule Config | Global Config

Preset: 4:1

Target Box Overlay: ○ off

□ Face □ Human □ Non-Motor Vehicle □ Motor Vehicle

Face Enhancement: ● on

Face Cutout: One-Inch Photo

Picture Mode: Default

Table 9-13 Description of global configuration parameter

Parameter	Description
Target Box Overlay	Overlay target box on the captured images to mark the target position. Four types of target boxes are supported. Select the target box as needed. The captured images are stored in SD card or the configured storage path. For details, see “4.2 Local”.
Face Enhancement	Enable **Face Enhancement** to preferably guarantee clear face with low stream.
Face Cutout	Set a range for matting face image, including face image and one-inch image.
Picture Mode	• Default: Apply default image parameters to capture images. • Number Plate Priority: Apply the image parameters corresponding to the number plate to capture the image. • Face Priority: Apply the image parameters corresponding to the face to capture the image.

5. Click **Apply**.

9.6.2 RULE CONFIGURATION

Configure detection scenes and rules, including the rule configuration of people, non-motor vehicles and motor vehicle.

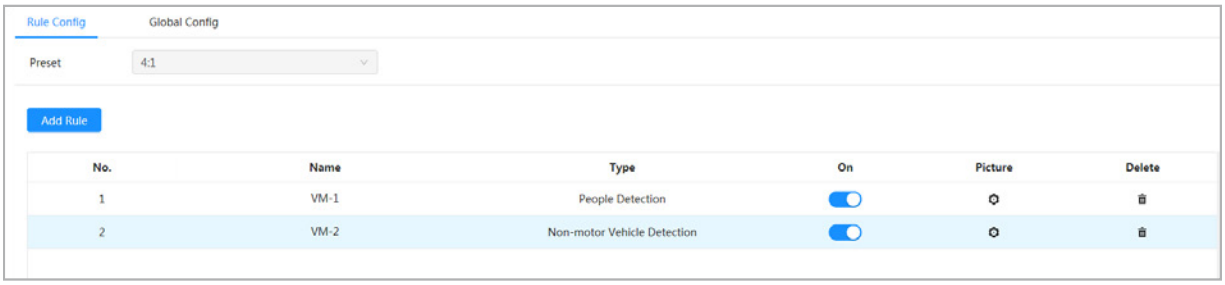
Prerequisites

Global configuration for video metadata has been completed.

Procedure

1. Select **Intelligent > AI Config > Smart Plan**.
2. Click **Rule Config**, and then select **Video Metadata**.
3. Click **Rule Config**.
4. Click **Add Rule** and then select rule type from the drop-down list.

   The added rules are displayed in the drop-down list. Click the text box under **Name** to edit the rule name. The rule is enabled by default.



Rule Config Global Config

Preset 4:1

Add Rule

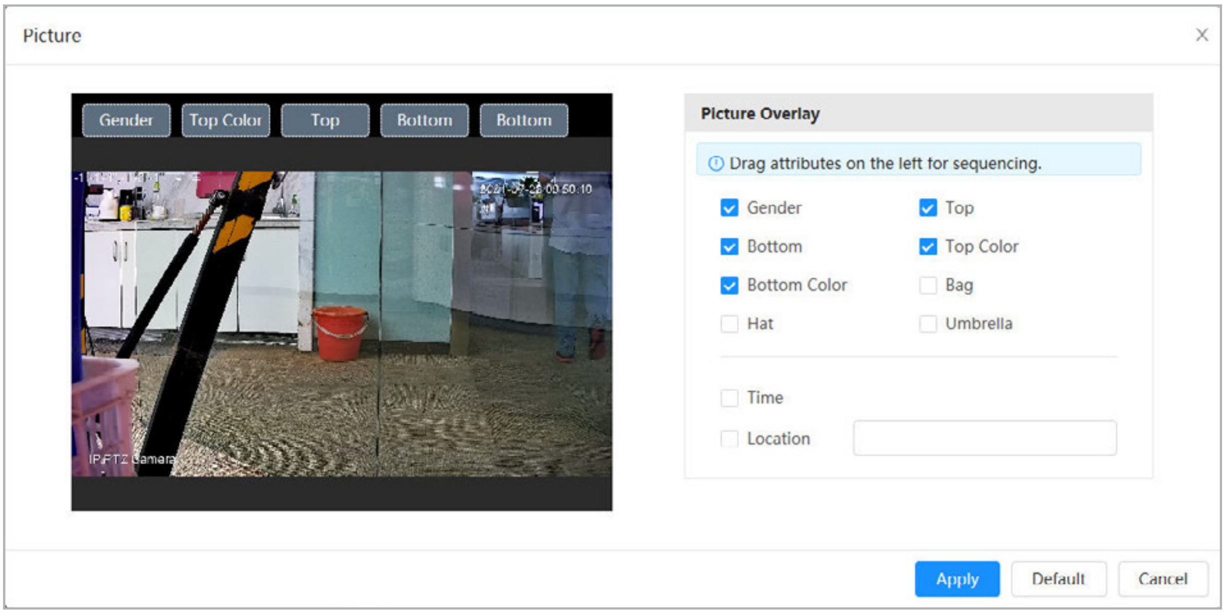
No.	Name	Type	On	Picture	Delete
1	VM-1	People Detection	●	⚙	🗑
2	VM-2	Non-motor Vehicle Detection	●	⚙	🗑

5. Configure image information.

   (1) Click the ⚙ after the corresponding rule.

   (2) Configure overlay information and adjust its position.

   This section uses the configuration of non-motor vehicle as an example.



Picture

Gender Top Color Top Bottom Bottom

Picture Overlay

ⓘ Drag attributes on the left for sequencing.

☑ Gender ☑ Top

☑ Bottom ☑ Top Color

☑ Bottom Color □ Bag

□ Hat □ Umbrella

□ Time

□ Location

Apply Default Cancel

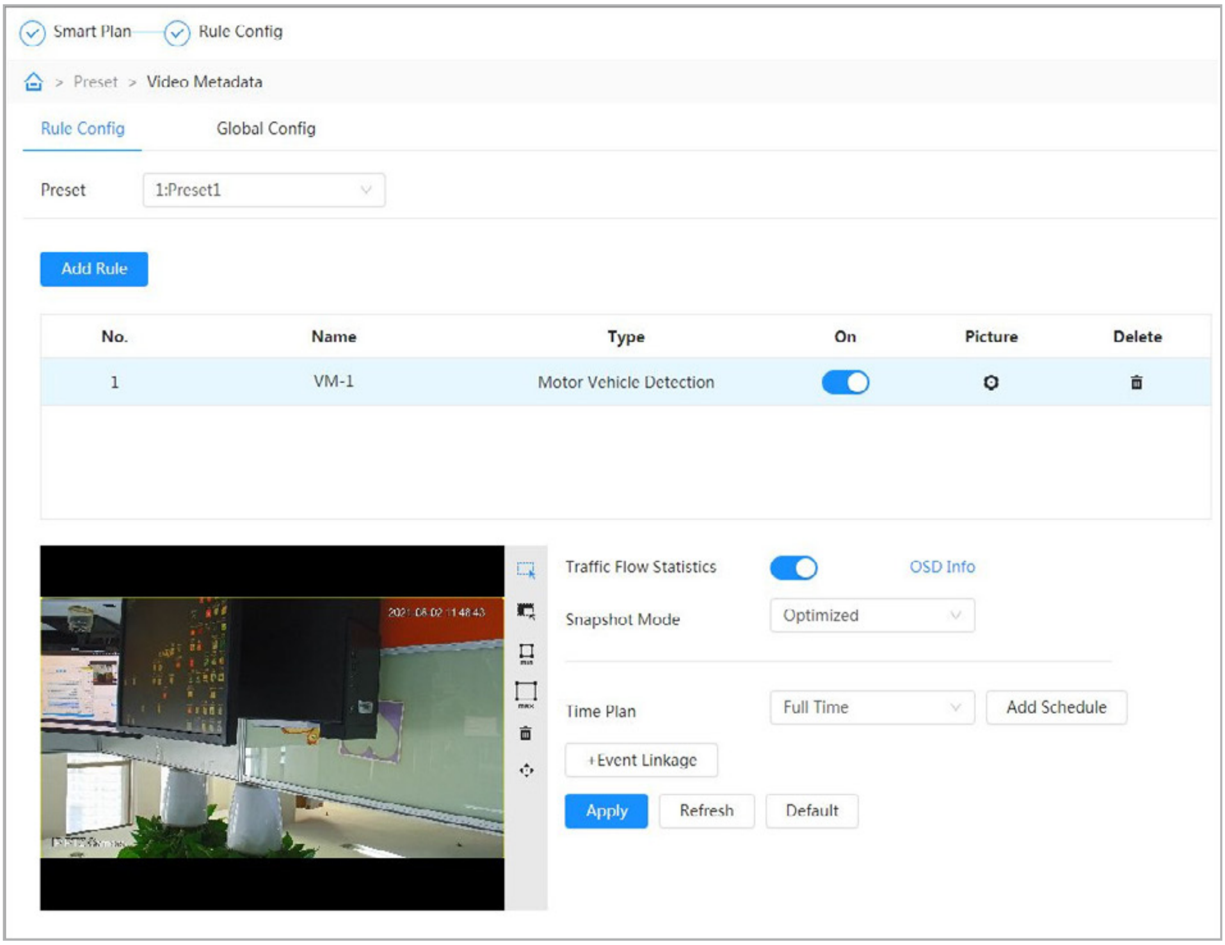
   (3) Click **Apply**.

6. (Optional) Click the icon on the right of the screen to draw detection area, exclusion area and filtering target model on the monitoring screen.

   - After enabling the rule, the detection area is displayed in the monitoring screen. Click ⬚, and then drag any corner of the box to adjust the size of the area
   - Click ⬚ to draw an area exclusion area for face detection in the image, and right-click to finish the drawing.

- Click □ to draw the minimum size of the detection target and click □ to draw the maximum size of the detection target. Only when the target size is between the maximum size and the minimum size, can the alarm be triggered.
- Click 🗑 to delete the drawn filtering rule detection line or area.

7. Configure the rule parameters of video metadata.



Smart Plan — Rule Config

Preset > Video Metadata

Rule Config | Global Config

Preset: 1:Preset1

Add Rule

No.	Name	Type	On	Picture	Delete
1	VM-1	Motor Vehicle Detection	●	⚙	🗑

Traffic Flow Statistics: ● OSD Info

Snapshot Mode: Optimized

Time Plan: Full Time | Add Schedule

+Event Linkage

Apply | Refresh | Default

Table 9-14 Description of video metadata parameter

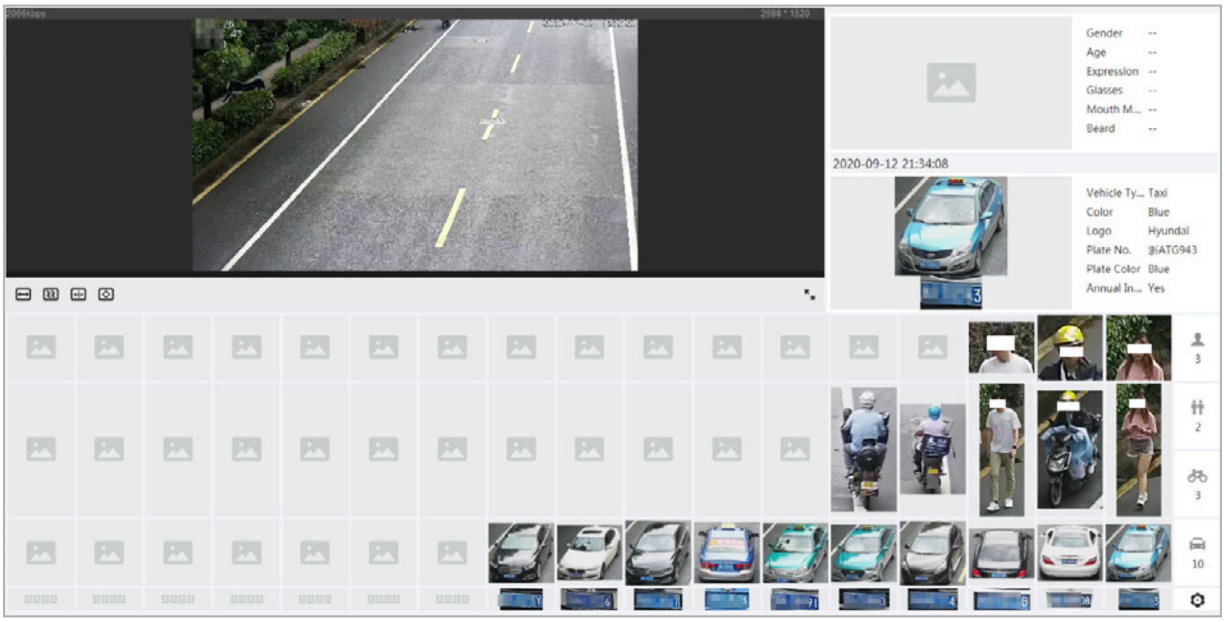
Parameter	Description
People Flow Statistics	Click ○ next to **People Flow Statistics** to count the number of people in the detection area.
Traffic Flow Statistics (Non-motor Vehicles)	Click ○ next to **Traffic Flow Statistics (Non-motor Vehicles)** to count the number of non-motor vehicles in the detection area.
Traffic Flow Statistics	Click ○ next to **Traffic Flow Statistics** to count the number of motor vehicles in the detection area.
Snapshot Mode	• Optimized: Capture the images until the vehicle disappears from the image, and upload the clearest image. • Tripwire: Capture the images when the vehicle triggers tripwire as the configured direction. The steps are as follows: 1. Select **Tripwire**. 2. Select the direction from **A to B**, **B to A** and **Both**. 3. Adjust the position of rule line as needed.

8. Set arming periods and alarm linkage action.
   - Click **Add Schedule** to add time plan. For details, see “4.6.1.2.1 Adding Schedule”.
   - Click **+ Event Linkage** to set the linkage action and configure linkage parameters. For details, see “4.6.1.2 Configuring Alarm Linkage”.
9. Click **Apply**.

9.6.3 VIEWING VIDEO METADATA REPORT

Select **Metadata Mode** on the upper-left corner of the **Live** page to view the live video image of video metadata.

- The left side displays real-time live screen; the right side displays large view of the snapshot and detailed attribute information; the bottom displays the face, human body, non-motor vehicle and motor vehicle snapshot statistics and snapshot thumbnails.
- Click ⚙ to change the attributes shown in the image. For details, see "Configuring Display Properties".



Gender --
Age --
Expression --
Glasses --
Mouth M... --
Beard --

2020-09-12 21:34:08

Vehicle Ty... Taxi
Color Blue
Logo Hyundai
Plate No. 浙ATG943
Plate Color Blue
Annual In... Yes

9.7 Configuring Tour Plan

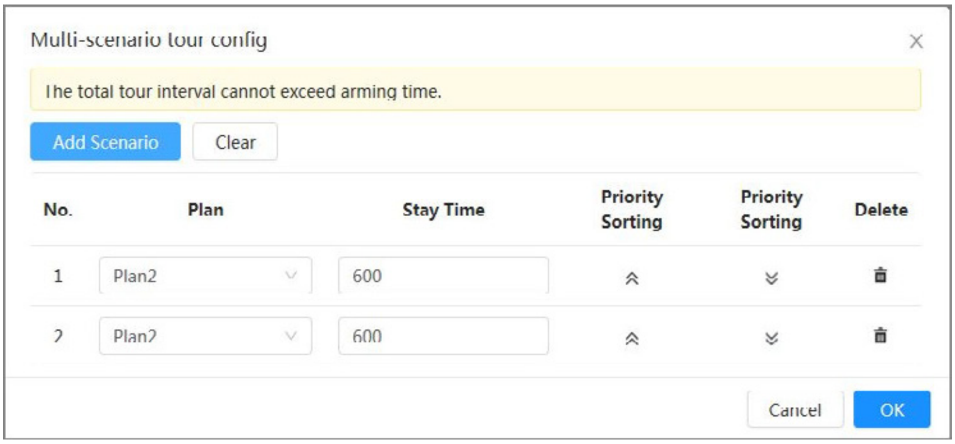
You can configure the tour mode and time plan for different periods.

Procedure

1. Select **Intelligent > Tour Plan**.
2. Select **Enable** to enable tour plan function.
3. Select tour mode and idle interval.
   - **Tour mode Select**: It only supports **Scene Priority** at present. The Camera tours according to the set duration of the scene.
   - **Idle Interval**: The time between the user manually operates the Camera and the Camera automatically rotates to the smart plan scene.
4. Configure tour plan.

   (1) Set the start time and end time of the tour.

   (2) Select period, and then click **Setting** to configure multi-scenario tour.



Multi-scenario tour config

The total tour interval cannot exceed arming time.

No.	Plan	Stay Time	Priority Sorting	Priority Sorting	Delete
1	Plan2	600	⇑	⇓	🗑
2	Plan2	600	⇑	⇓	🗑

Table 9-15 Description of multi-scenario tour parameter

Parameter	Description
Stay Time	Set the time that the Camera stays in the scene. Double-click the stay time to modify the time.
Priority Sorting	Set the priority of multiple scenes. Click ︽ or ︾ to adjust the order.
Delete	Click 🗑 to delete the scene.
Add Scenario	Click **Add Scenario** to add a new tour scene.

(3) Click **OK** to complete the configuration of multi-scenario tour.

5. (Optional) Click **Copy** to copy the configuration to the selected date.
6. Click **OK**.

10. SECURITY

10.1 Security Status

Background Information

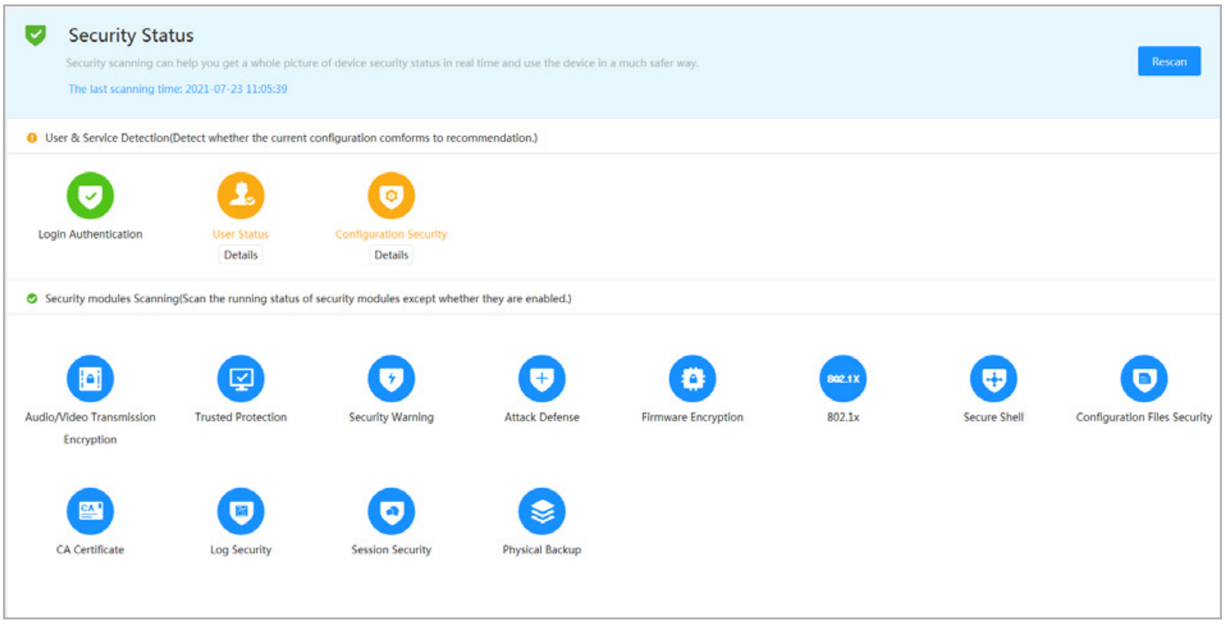
Detect the user and service, and scan the security modules to check the security status of the Camera, so that when abnormality appears, you can process it timely.

- 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

1. Select **Security > Security Status**.
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.



Security Status

Security scanning can help you get a whole picture of device security status in real time and use the device in a much safer way.

The last scanning time: 2021-07-23 11:05:39

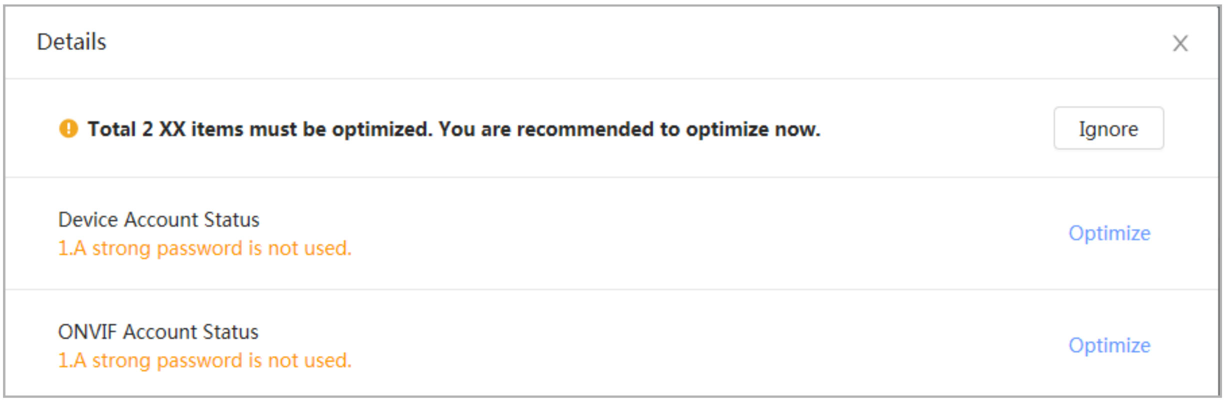
User & Service Detection(Detect whether the current configuration comforms to recommendation.)

Security modules Scanning(Scan the running status of security modules except whether they are enabled.)

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.
3. Click **Optimize**, and the corresponding page is displayed. You can edit the configuration to clear the exception.



Details

Total 2 XX items must be optimized. You are recommended to optimize now.

Device Account Status
1.A strong password is not used.

ONVIF Account Status
1.A strong password is not used.

10.2 System Service

Service functions can be used only after system services are enabled.

10.2.1 802.1x

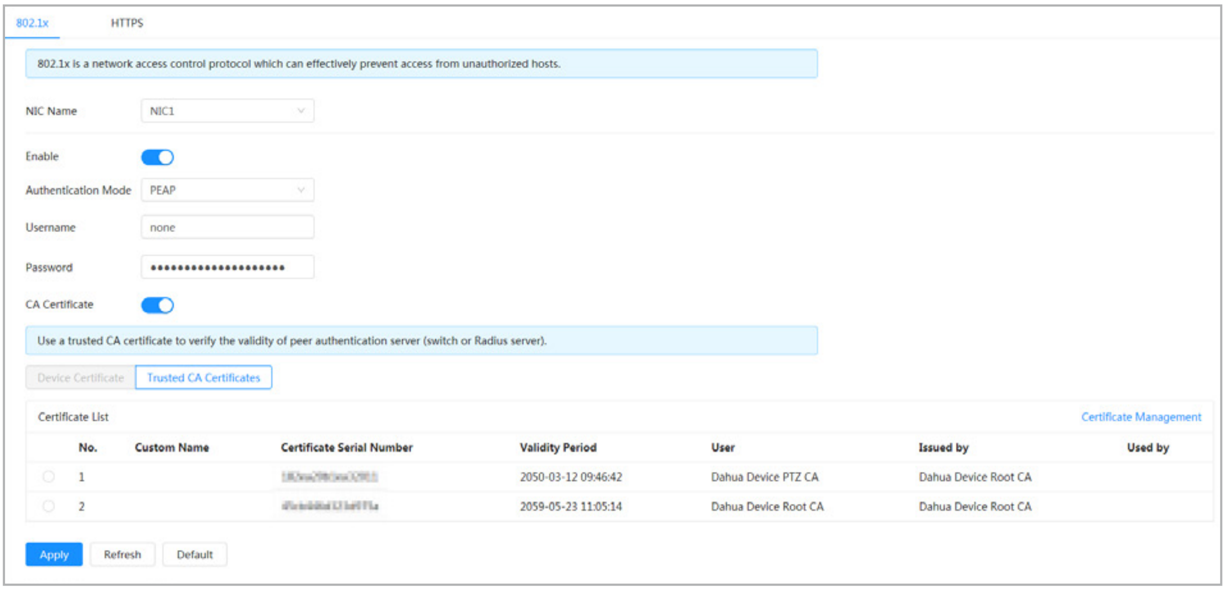
Background Information

Cameras can connect to LAN after passing 802.1x authentication.

Procedure

1. Select **Security > System Service > 802.1x**.
2. Select the NIC name as needed, and click ○ to enable it.
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.

NOTE!
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".



802.1x is a network access control protocol which can effectively prevent access from unauthorized hosts.

NIC Name	NIC1
Enable	●
Authentication Mode	PEAP
Username	none
Password	•••••••••••••••••••
CA Certificate	●

Use a trusted CA certificate to verify the validity of peer authentication server (switch or Radius server).

Certificate List

	No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
○	1		[redacted]	2050-03-12 09:46:42	Dahua Device PTZ CA	Dahua Device Root CA	
○	2		[redacted]	2059-05-23 11:05:14	Dahua Device Root CA	Dahua Device Root CA	

- 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.

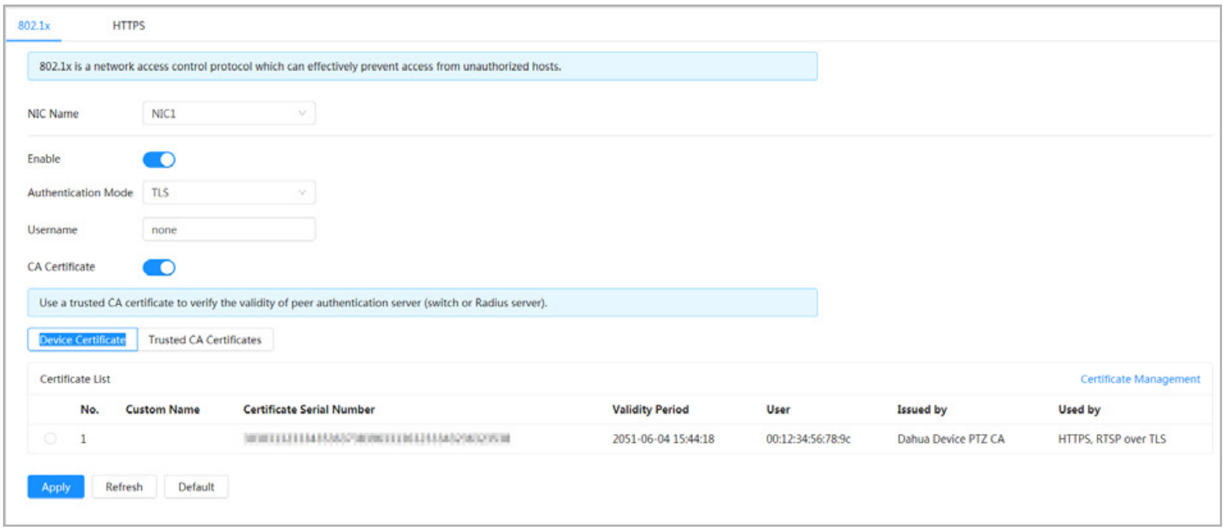
(2) Enter the username.

(3) Select the certificate from the certificate list on the "Device Certificate" page.

NOTE!
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.

NOTE!
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".



802.1x is a network access control protocol which can effectively prevent access from unauthorized hosts.

NIC Name: NIC1

Enable: on

Authentication Mode: TLS

Username: none

CA Certificate: on

Use a trusted CA certificate to verify the validity of peer authentication server (switch or Radius server).

Certificate List

	No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
○	1		[redacted]	2051-06-04 15:44:18	00:12:34:56:78:9c	Dahua Device PTZ CA	HTTPS, RTSP over TLS

4. Click **Apply**.

10.2.2 HTTPS

Background Information

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.

NOTE!

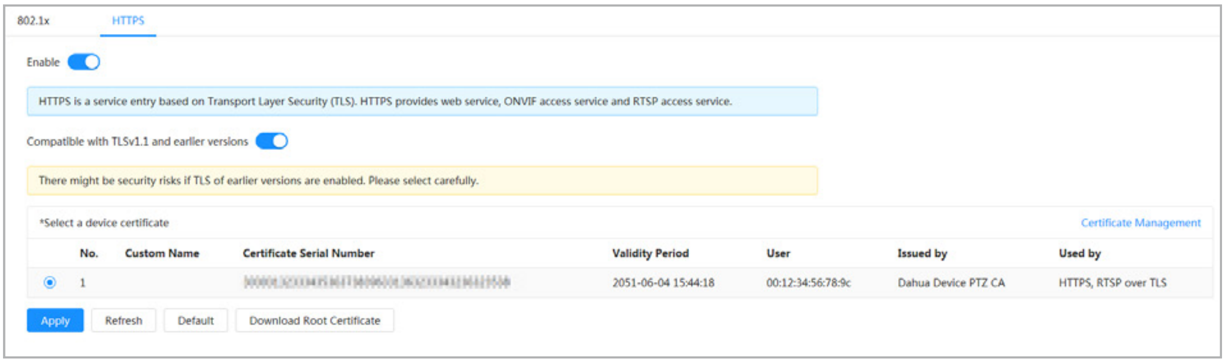
- We recommend enabling the HTTPS. Otherwise, the device data may be leaked.
- After HTTPS is enabled, TLSv1.1 and earlier versions are supported by default. However, earlier version of TLS might have security risks. Please select carefully.

Procedure

1. Select **Security > System Service > HTTPS**.
2. Click ○ to enable HTTPS.
3. Select the certificate.

NOTE!

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".



Enable: on

HTTPS is a service entry based on Transport Layer Security (TLS). HTTPS provides web service, ONVIF access service and RTSP access service.

Compatible with TLSv1.1 and earlier versions: on

There might be security risks if TLS of earlier versions are enabled. Please select carefully.

*Select a device certificate

	No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
●	1		[redacted]	2051-06-04 15:44:18	00:12:34:56:78:9c	Dahua Device PTZ CA	HTTPS, RTSP over TLS

4. Click **Apply**.

Related Operations

Enter http://(IP address) 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.

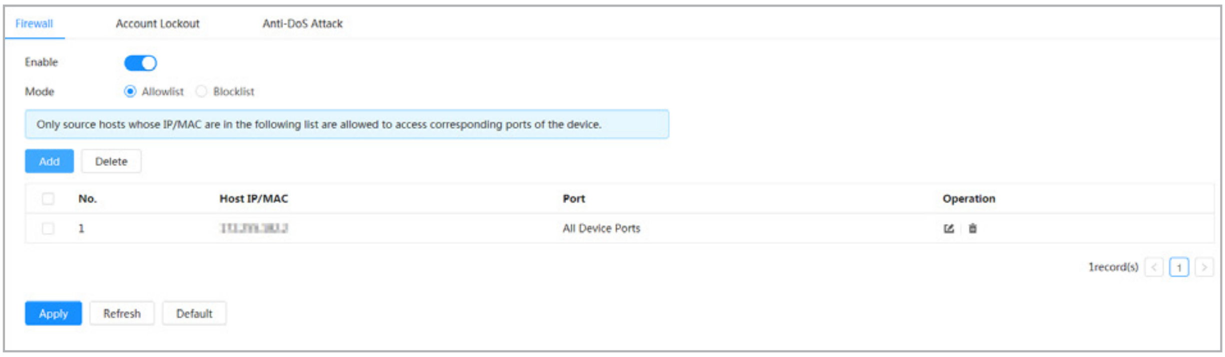
10.3 Attack Defense

10.3.1 FIREWALL

Configure firewall to limit access to the Camera.

Procedure

1. Select **Security > Attack Defense > Firewall**.
2. Click ○ to enable the firewall function.



Firewall | Account Lockout | Anti-DoS Attack

Enable ●

Mode ● Allowlist ○ Blocklist

Only source hosts whose IP/MAC are in the following list are allowed to access corresponding ports of the device.

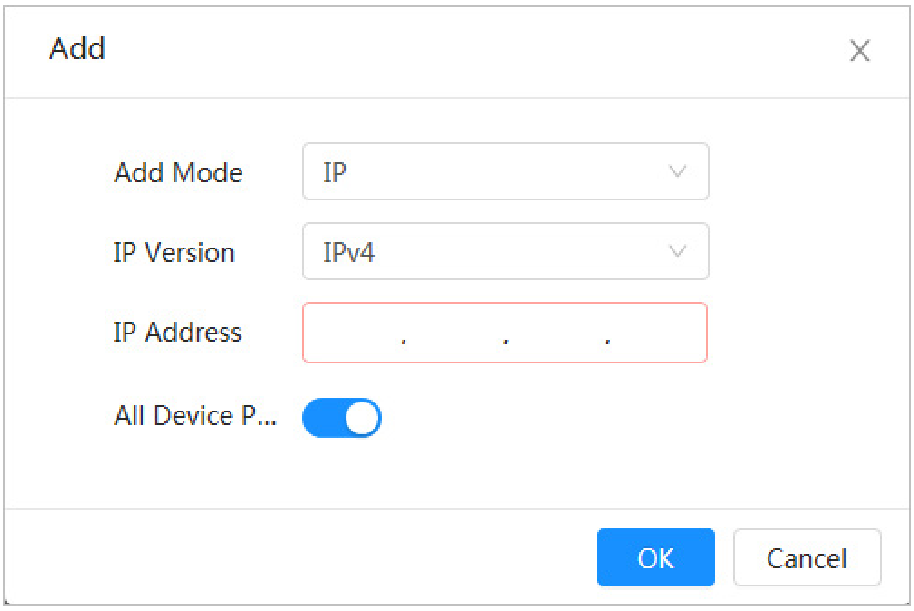
Add | Delete

□	No.	Host IP/MAC	Port	Operation
□	1	[redacted]	All Device Ports	✎ 🗑

1record(s) < 1 >

Apply | Refresh | Default

3. Select **Allowlist** or **Blocklist** as the mode.
   - **Allowlist**: Only when the IP/MAC address of your computer is in the allowlist, can you access the camera. Ports are the same.
   - **Blocklist**: When the IP/MAC address of your computer is in the blocklist, you cannot access the camera. Ports are the same.
4. Click **Add** to add the host IP/MAC address to **Allowlist** or **Blocklist**, and then click **OK**.



Add

Add Mode: IP

IP Version: IPv4

IP Address: . . .

All Device P... ●

OK | Cancel

5. Click **Apply**.

Related Operations

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

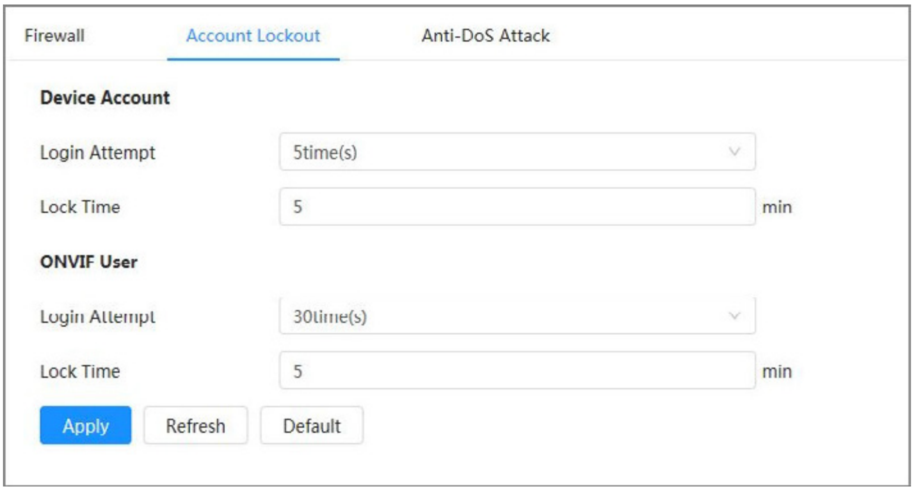
10.3.2 ACCOUNT LOCKOUT

Background Information

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

Procedure

1. Select **Security > Attack Defense > Account Lockout**.
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.



Device Account

Login Attempt: 5time(s)

Lock Time: 5 min

ONVIF User

Login Attempt: 30time(s)

Lock Time: 5 min

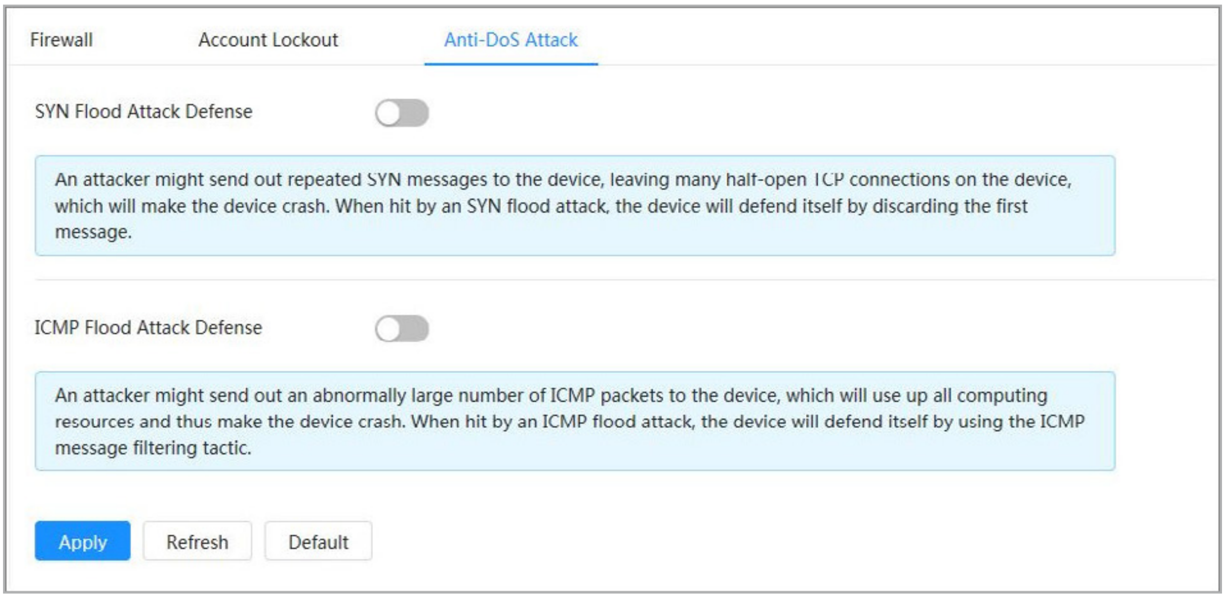
3. Click **Apply**.

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.

Procedure

1. Select **Security > Attack Defense > Anti-DoS Attack**.
2. Select **SYN Flood Attack Defense** or **ICMP Flood Attack Defense** to defend the device against Dos attack.



SYN Flood Attack Defense ○

An attacker might send out repeated SYN messages to the device, leaving many half-open TCP connections on the device, which will make the device crash. When hit by an SYN flood attack, the device will defend itself by discarding the first message.

ICMP Flood Attack Defense ○

An attacker might send out an abnormally large number of ICMP packets to the device, which will use up all computing resources and thus make the device crash. When hit by an ICMP flood attack, the device will defend itself by using the ICMP message filtering tactic.

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 computer, you need to verify device certificate.

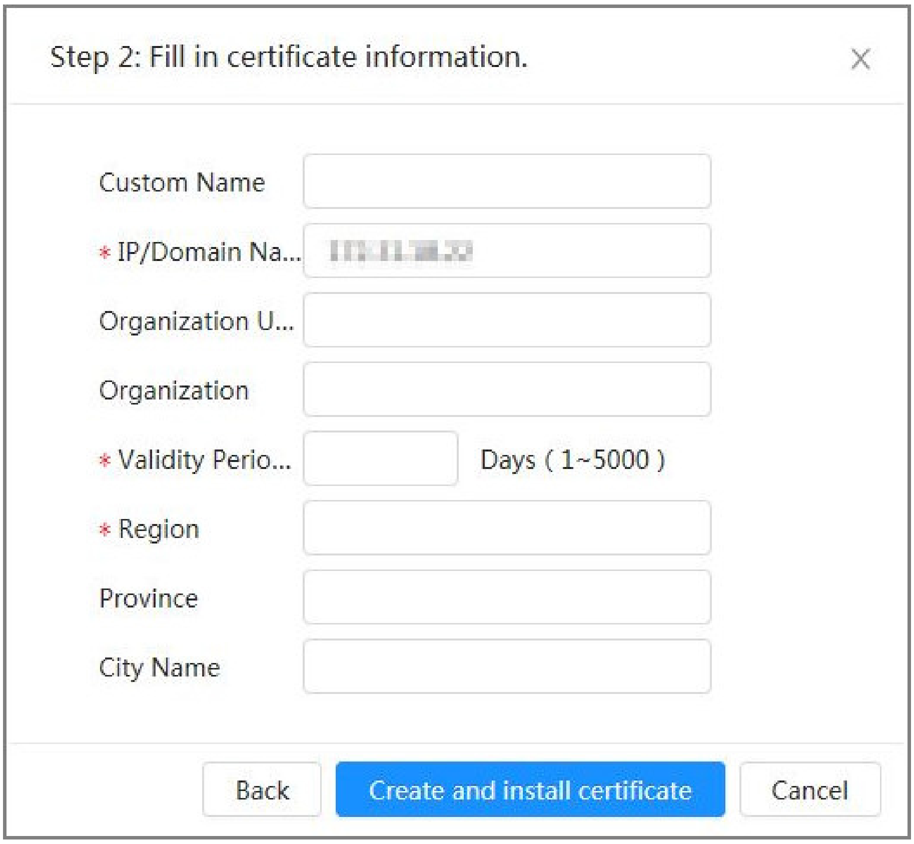
10.4.1.1 Creating Certificate

Creating certificate in the Camera.

Procedure

1. Select **Security > CA Certificate > Device Certificate**.
2. Select **Install Device Certificate**.
3. Select **Create Certificate**, and click **Next**.
4. Enter the certificate information.

NOTE!
IP or domain name of the Camera is automatically entered in **IP/Domain Name**.



Step 2: Fill in certificate information.

Custom Name

* IP/Domain Na... [redacted]

Organization U...

Organization

* Validity Perio... Days (1~5000)

* Region

Province

City Name

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**, you can edit the custom name of the certificate.
- Click 📥 to download the certificate.
- Click 🗑 to delete the certificate.

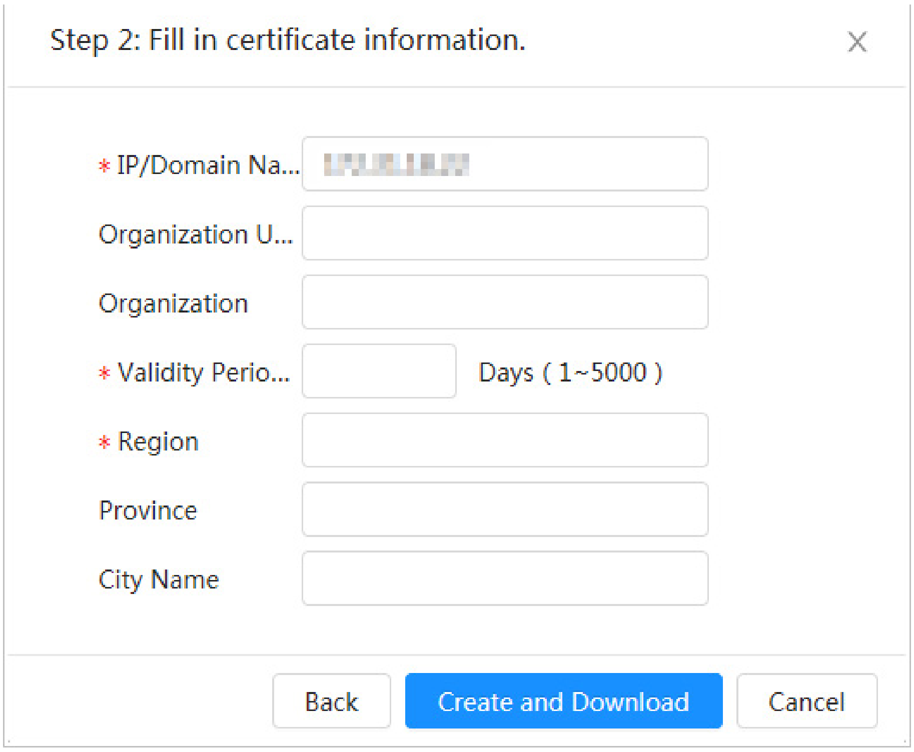
10.4.1.2 Applying for and Importing CA Certificate

Import the third-party CA certificate to the Camera.

Procedure

1. Select **Security > CA Certificate > Device Certificate**.
2. Select **Installing Device Certificate**.
3. Click **Apply for CA Certificate and Import (Recommended)**, and then click **Next**.
4. Enter the certificate information.

NOTE!
IP or domain name of the Camera is automatically entered in **IP/Domain Name**.



Step 2: Fill in certificate information.

* IP/Domain Na...	[redacted]
Organization U...	
Organization	
* Validity Perio...	Days (1~5000)
* Region	
Province	
City Name	

5. Click **Create and Download**.

   Save the request file to your computer.
6. Apply for the CA certificate from the third-party certificate authority.
7. Import the signed CA certificate.

   (1) Save the CA certificate to the computer.

   (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.

   (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

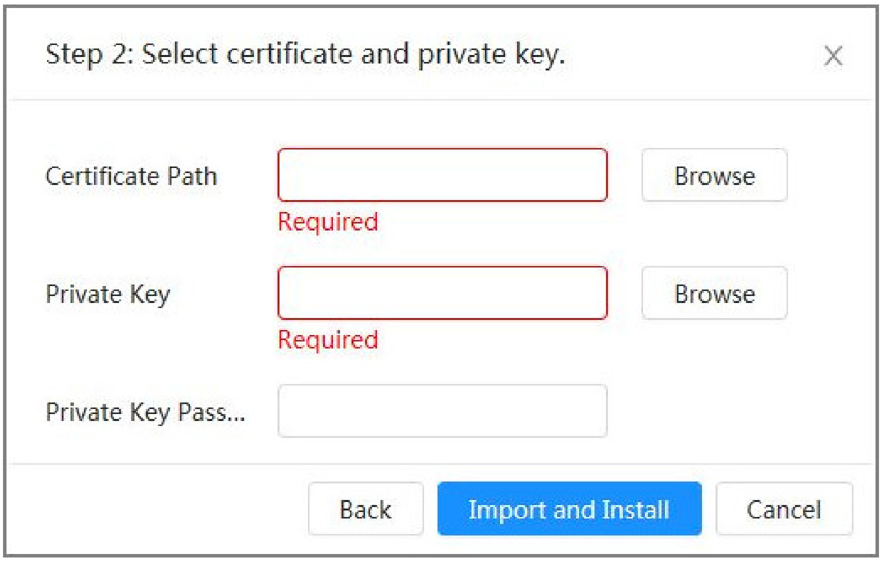
- Click **Enter Edit Mode**, you can edit the custom name of the certificate.
- Click ⬇ to download the certificate.
- Click 🗑 to delete the certificate.

10.4.1.3 Installing Existing Certificate

Import the existing third-party certificate to the Camera. When applying for the third-party certificate, you also need to apply for the private key file and private key password.

Procedure

1. Select **Security > CA Certificate > Device Certificate**.
2. Select **Install Device Certificate**.
3. Select **Install Existing Certificate**, and click **Next**.
4. Click **Browse** to select the certificate and private key file, and enter the private key password.



Step 2: Select certificate and private key.

Certificate Path: [ ] Browse
Required

Private Key: [ ] Browse
Required

Private Key Pass...: [ ]

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.

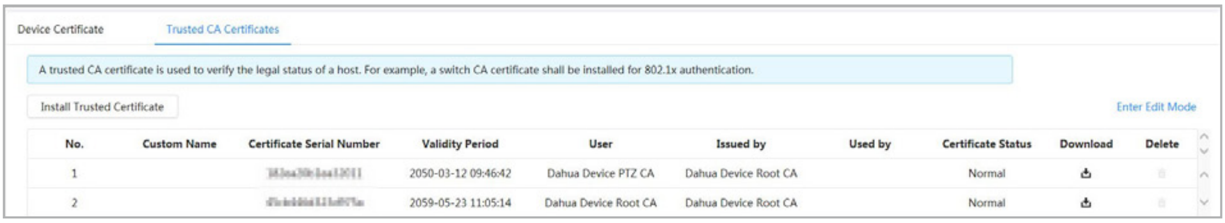
10.4.2 INSTALLING TRUSTED CA CERTIFICATE

Background Information

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

Procedure

1. Select **Security > CA Certificate > Trusted CA Certificates**.
2. Select **Install Trusted Certificate.**
3. Click **Browse** to select the certificate.



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.

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by	Certificate Status	Download	Delete
1		[redacted]	2050-03-12 09:46:42	Dahua Device PTZ CA	Dahua Device Root CA		Normal	⤓	🗑
2		[redacted]	2059-05-23 11:05:14	Dahua Device Root CA	Dahua Device Root CA		Normal	⤓	🗑

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

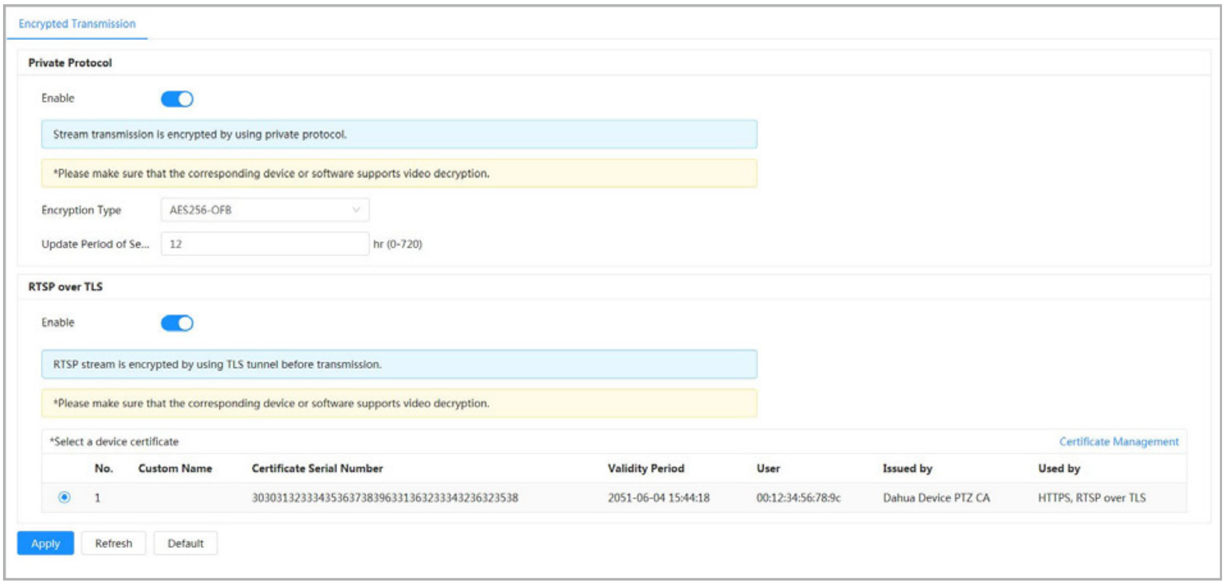
The device supports audio and video encryption during data transmission.

Background Information

⚠ **CAUTION!**
We recommend you to enable A/V Encryption function. There might be safety risk if this function is disabled.

Procedure

1. Select **Security > A/V Encryption**.
2. Configure the parameters.



Encrypted Transmission

Private Protocol

Enable: ON

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: ON

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		30303132333435363738396331363233343236323538	2051-06-04 15:44:18	00:12:34:56:78:9c	Dahua Device PTZ CA	HTTPS, RTSP over TLS

Table 10-1 A/V encryption parameter

Area	Parameter	Description
Private Protocol	Enable	Enables stream frame encryption by using private protocol. **NOTE!** 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. **NOTE!** 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”.

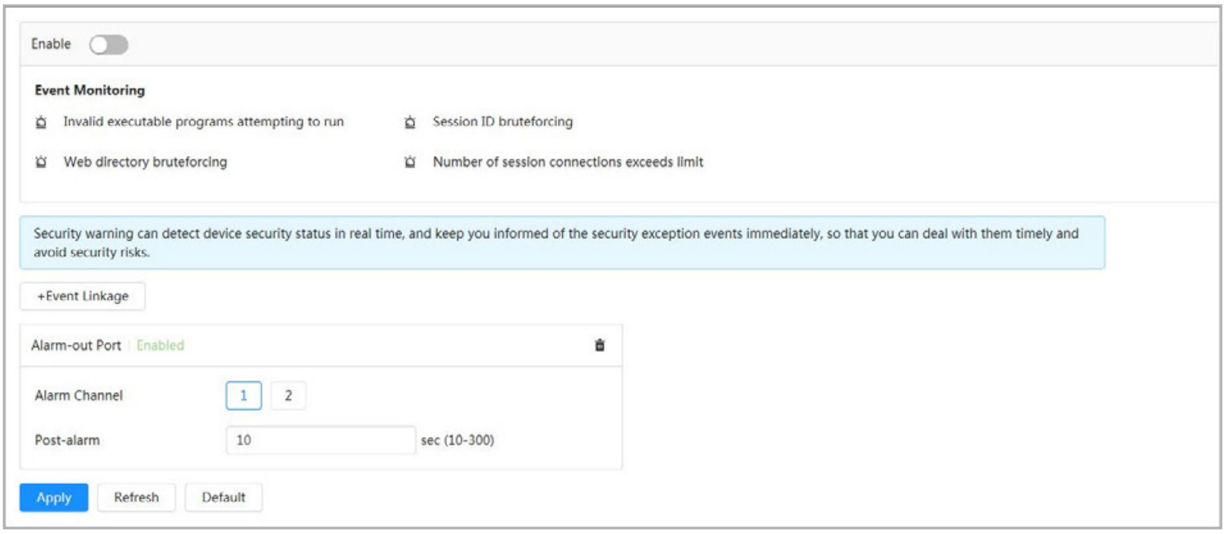
3. Click **Apply**.

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.

Procedure

1. Select **Security > Security Warning**.
2. Click ◯ to enable security warning.
3. Configure parameters.



Enable ◯

Event Monitoring

- Invalid executable programs attempting to run
- Session ID bruteforcing
- Web directory bruteforcing
- Number of session connections exceeds limit

Security warning can detect device security status in real time, and keep you informed of the security exception events immediately, so that you can deal with them timely and avoid security risks.

Alarm-out Port | Enabled

Alarm Channel: 1 2

Post-alarm: 10 sec (10-300)

4. Set arming periods and alarm linkage action. For details, see “4.6.1.2 Configuring Alarm Linkage”.
   Click **+ Event Linkage** to set the linkage action.
5. Click **Apply**.

11. REPORT

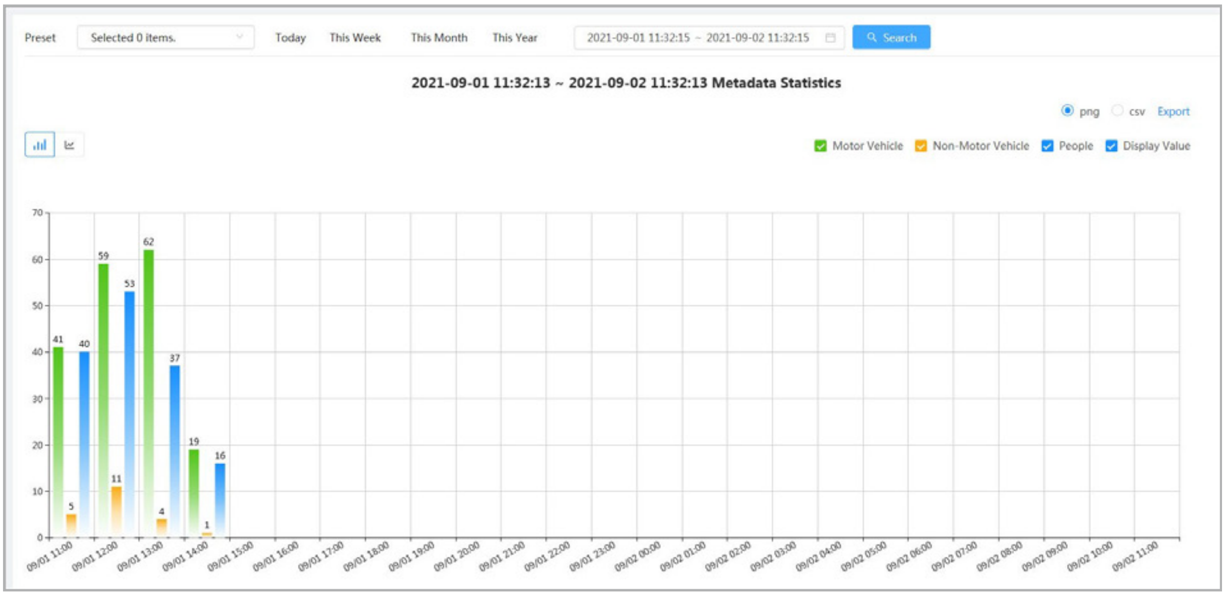
View the statistics result of video metadata in report form.

Procedure

1. Click **Report > Report > Video Metadata**.
2. Set the period for the report.

NOTE!
For multi-channel camera, select the channel first.

3. Click **Search**.



Preset: Selected 0 items.

2021-09-01 11:32:15 ~ 2021-09-02 11:32:15

2021-09-01 11:32:13 ~ 2021-09-02 11:32:13 Metadata Statistics

● png ○ csv

☑ Motor Vehicle ☑ Non-Motor Vehicle ☑ People ☑ Display Value

Related Operations

- Select the report form.
  - Click to display the report in line chart.
  - Click to display the report in bar chart.
- Select the statistics type on the upper-right corner.

  The statistics result of unselected types will not be displayed.
- Export reports.

  Select the file format, and then click **Export**.
  - Select **png**: Displays the report in image format.
  - Select **csv**: Displays the report in list format.

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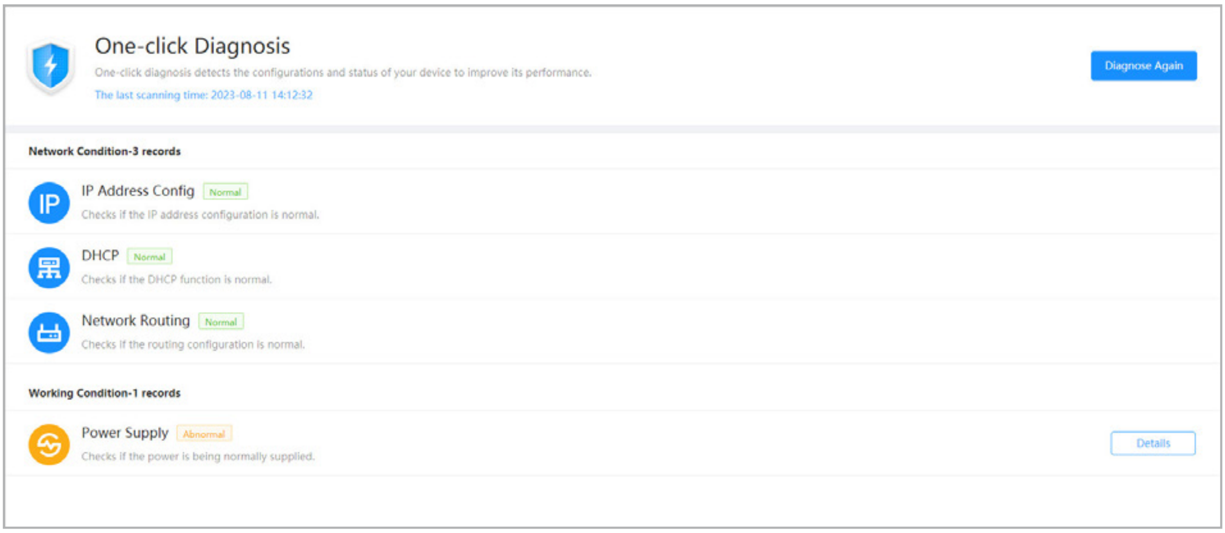
12. MAINTENANCE CENTER

12.1 One-click Diagnosis

Procedure

1. Select **Maintenance Center > One-click Diagnosis**.
2. Click **Diagnose**.

   Diagnosis information is generated and displayed on the page.



One-click Diagnosis

One-click diagnosis detects the configurations and status of your device to improve its performance.

The last scanning time: 2023-08-11 14:12:32

Network Condition-3 records

IP Address Config Normal

Checks if the IP address configuration is normal.

DHCP Normal

Checks if the DHCP function is normal.

Network Routing Normal

Checks if the routing configuration is normal.

Working Condition-1 records

Power Supply Abnormal

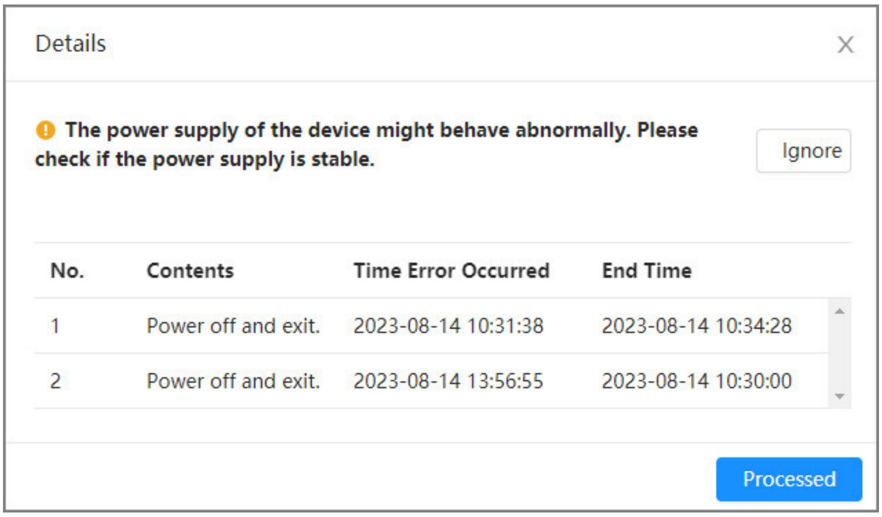
Checks if the power is being normally supplied.

Related Operations

After the one-click diagnosis is completed, the page displays the time and results of the last scanning. Click **Diagnose Again** to diagnose the Camera again.

Click **Details** to view the corresponding diagnosis information.

- Click **Ignore** to ignore the scanning results of the module. The module will not be scanned again when the Camera is diagnosed next time.
- Click **Processed** to trigger a new diagnosis based on the current status of the Camera.



Details

The power supply of the device might behave abnormally. Please check if the power supply is stable.

No.	Contents	Time Error Occurred	End Time
1	Power off and exit.	2023-08-14 10:31:38	2023-08-14 10:34:28
2	Power off and exit.	2023-08-14 13:56:55	2023-08-14 10:30:00

12.2 System Information

12.2.1 VIEWING VERSION INFORMATION

Select **Maintenance Center > System Info > Version**. You can view the device model, system version, web version and other version information.

12.2.2 VIEWING ONLINE USER

Select **Maintenance Center > System Info > Online User**. You can view the information of the user who logged in the Camera.

12.2.3 VIEWING LEGAL INFORMATION

Select **Maintenance Center > System Info > Legal Info**. You can view the corresponding information under different tabs, including software license agreement, privacy policy, and open source software notice.

12.3 Log Information

12.3.1 VIEWING LOCAL LOG

View and back up the log information of the system.

Background Information

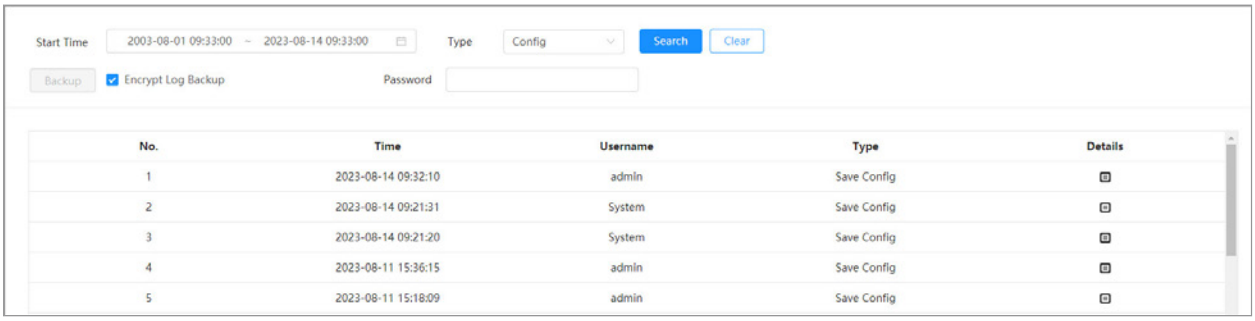
The log type includes **All**, **System**, **Config**, **Storage**, **Alarm Event**, **Record**, **Account**, **Security**, **PTZ Operation**, and **Clear Log**.

- **System** : Includes program start, abnormal close, close, program reboot, device closedown, device reboot, system reboot, and system upgrade.
- **Config** : Includes saving configuration and deleting configuration file
- **Storage** : Includes configuring disk type, clearing data, hot swap, FTP state, and record mode.
- **Alarm Event (recording events such as video detection, Intelligent, alarms, and anomalies)** : Includes event start and event end.
- **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.
- **PTZ Operation** : Includes preset, tour group, scan, pattern and other PTZ basic operations.
- **Clear Log** : Clears the log.

Procedure

1. Select **Maintenance > Log Info > Local Logs**.
2. Configure the 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.
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. If you select **Encrypt Log Backup** and set **Password**, you need to enter a password when opening a local log file.
   - Click **Clear** to clear logs.



Start Time 2003-08-01 09:33:00 ~ 2023-08-14 09:33:00

Type Config

☑ Encrypt Log Backup

Password

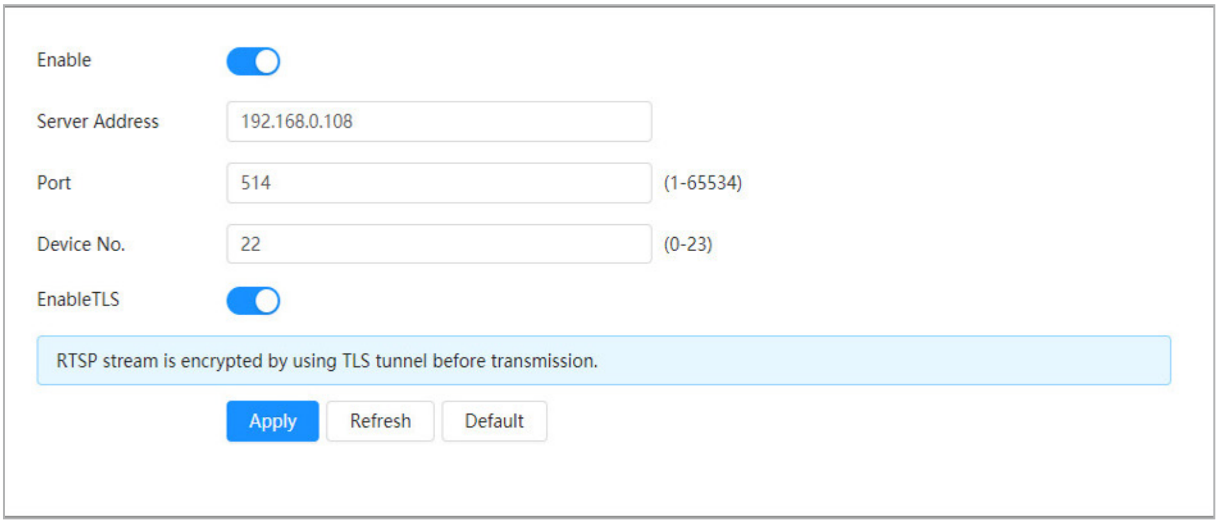
No.	Time	Username	Type	Details
1	2023-08-14 09:32:10	admin	Save Config	☰
2	2023-08-14 09:21:31	System	Save Config	☰
3	2023-08-14 09:21:20	System	Save Config	☰
4	2023-08-11 15:36:15	admin	Save Config	☰
5	2023-08-11 15:18:09	admin	Save Config	☰

12.3.2 SETTING REMOTE LOG

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

Procedure

1. Select **Maintenance Center > Log Info > Remote Log**.
2. Click ○ to enable remote log function.
3. Configure address, port and device number.



Enable: ●

Server Address: 192.168.0.108

Port: 514 (1-65534)

Device No.: 22 (0-23)

EnableTLS: ●

RTSP stream is encrypted by using TLS tunnel before transmission.

4. Click ○ corresponding to **EnableTLS** to encrypt RTSP stream by using TLS tunnel before transmission to prevent data leakage.
5. Click **Apply**.

12.4 Manager

12.4.1 REQUIREMENTS

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

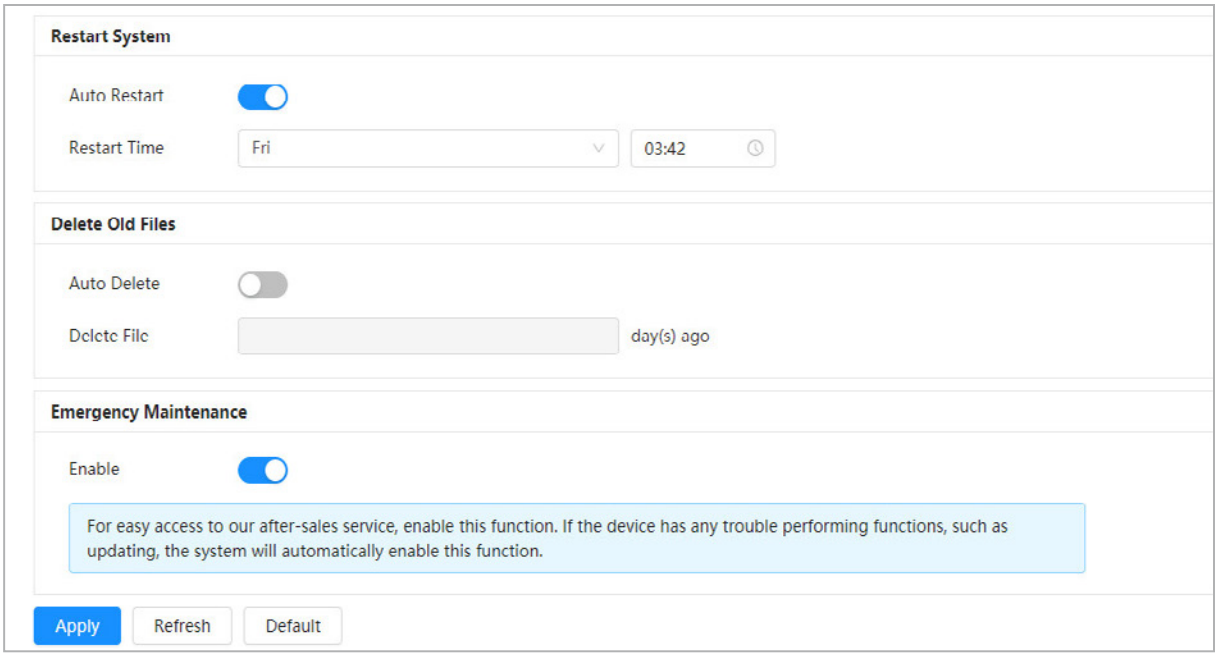
- Check surveillance images regularly.
- Clear regularly user and user group information that is not frequently used.
- Change the password every three months. For details, see “4.8.3 Account”.
- View system logs and analyze them, and process the abnormity in time.
- Back up the system configuration regularly.
- Restart the device and delete the old files regularly.
- Update firmware in time.

12.4.2 MAINTENANCE

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

Procedure

1. Select **Maintenance Center > Manager > Maintenance**.



Restart System

Auto Restart ●

Restart Time Fri 03:42

Delete Old Files

Auto Delete ○

Delete File day(s) ago

Emergency Maintenance

Enable ●

For easy access to our after-sales service, enable this function. If the device has any trouble performing functions, such as updating, the system will automatically enable this function.

2. Configure auto maintain parameters.
   - Click ○ next to **Auto Restart** in **Restart System**, and set the restart time, the system automatically restarts at the set time every week.
   - Click ○ next to **Auto Delete** in **Delete Old Files**, and set the time, the system automatically deletes old files at the set time. The time range is 1 to 31 days.

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

3. Click **Apply**.

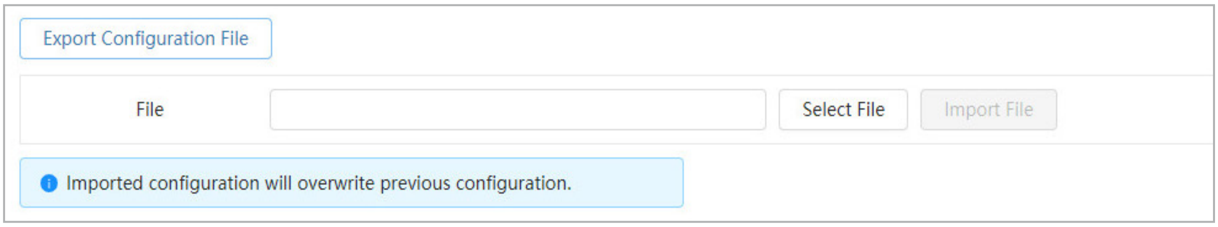
12.4.3 IMPORT/EXPORT

Background Information

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

Procedure

1. Select **Maintenance Center > Manager > Import/Export**.



Imported configuration will overwrite previous configuration.

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.

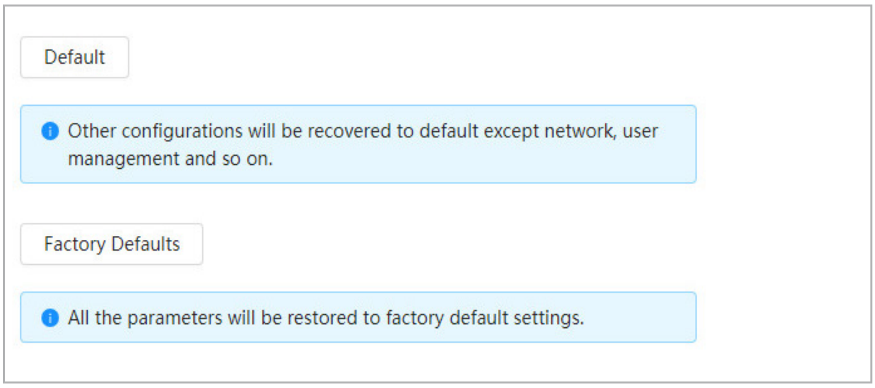
12.4.4 DEFAULT

Restore the device to default configuration or factory settings.

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

Select **Maintenance Center > Manager > Default**.

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



Other configurations will be recovered to default except network, user management and so on.

All the parameters will be restored to factory default settings.

12.5 Update

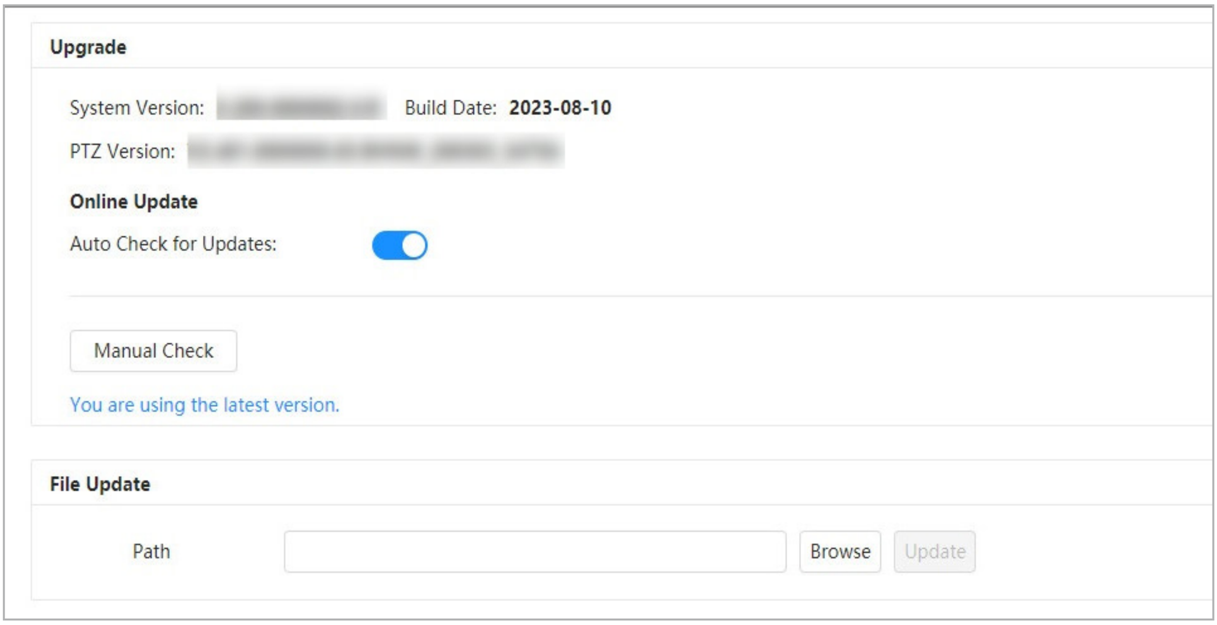
Background Information

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

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

Procedure

1. Select **Maintenance Center > Upgrade**.



Upgrade

System Version: [redacted] Build Date: 2023-08-10

PTZ Version: [redacted]

Online Update

Auto Check for Updates: ●

You are using the latest version.

File Update

Path

2. Click **Browse**, and then upload upgrade file.

   The upgrade file should be a .bin file.
   - Click ○ next to **Auto Check for Update**, the system regularly checks for a new version.
   - Click **Manual Check**, the system immediately checks for a new version.
3. Click **Upgrade**.

   The upgrade starts.

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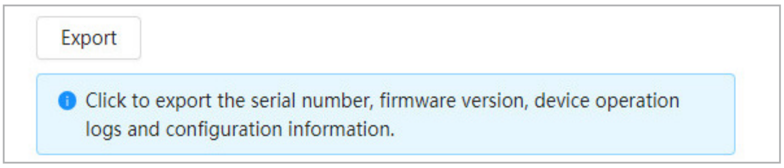
12.6 Advanced Maintenance

12.6.1 EXPORT

Export the serial number, firmware version, device operation logs, configuration information, and other information.

Procedure

1. Select **Maintenance Center > Advanced Maintenance > Export**.



Export

Click to export the serial number, firmware version, device operation logs and configuration information.

2. Click **Export**, the page displays an export progress. Click **End Export** to cancel the current export.

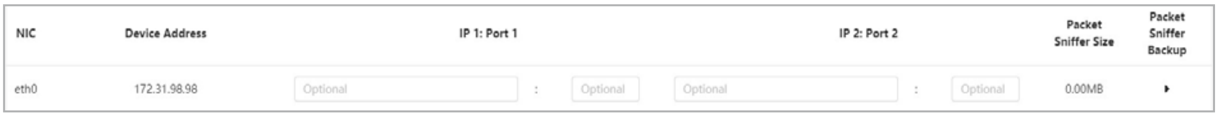
   After export is completed, the page will prompt **Exported successfully**.

12.6.2 PACKET CAPTURE

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

Procedure

1. Select **Maintenance Center > Advanced Maintenance > Packet Capture**.



NIC	Device Address	IP 1: Port 1			IP 2: Port 2			Packet Sniffer Size	Packet Sniffer Backup
eth0	172.31.98.98	Optional	:	Optional	Optional	:	Optional	0.00MB	▸

2. (Optional) In the **Packet Capture** area, set the IP addresses and ports for **IP 1: Port 1** and **IP 2: Port 2** respectively.

   Obtain the network interaction data between the Camera and the specified client.

   - The addresses and ports of **IP 1: Port 1** and **IP 2: Port 2** cannot be exactly the same.
   - **IP 1: Port 1** and **IP 2: Port 2** are optional, you can enter one IP address and port or leave them blank.

3. Capture.

   Click ▶ to start capturing. Packet Sniffer Size will display the size of the packet.

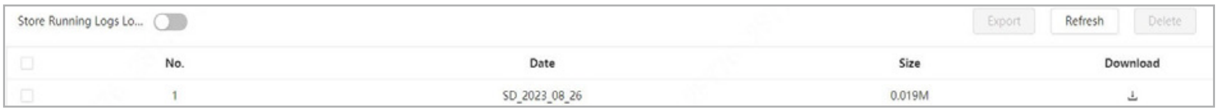
   Click ❙❙ to end capturing. The capture file will be saved locally.

12.6.3 RUN LOG

Run log refers to the serial port information automatically recorded by the Camera during operation. Viewing the run log helps to locate problems and improve work efficiency.

Procedure

1. Select **Maintenance Center > Advanced Maintenance > Run Log**.



Store Running Logs Lo... ○ Export Refresh Delete

□	No.	Date	Size	Download
□	1	SD_2023_08_26	0.019M	⤓

2. Export the log.

   - Select one log, and then click ⤓. You can export the log one by one.
   - Select more than one log, and then click **Export**. You can export the logs in batch.

   If a SD card is installed, click ○ next to **Store Running Logs Locally**. The logs will be stored in real-time on the SD card.

Related Operations

- Click **Refresh** to refresh information displayed on the page.
- Select one or more logs, and then click **Delete** to delete the log.

NOTE!
After deleting the log, it cannot be recovered.

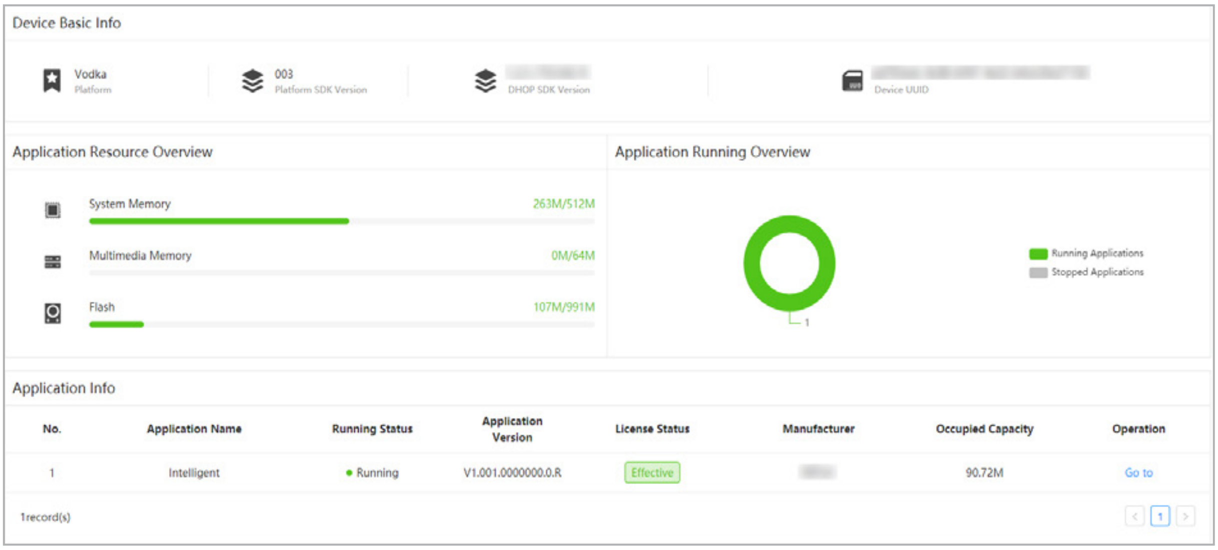
13. APP CENTER

This chapter introduces the basic information of the app center.

13.1 Application Overview

Select **App center > Application Overview**. You can view the device basic information, application resource overview, application running overview, and application information.

NOTE!
In the **Application Info**, click **Go to**, and then you can enter the **Application** page.



Device Basic Info

Vodka
Platform

003
Platform SDK Version

[redacted]
DHOP SDK Version

[redacted]
Device UUID

Application Resource Overview

System Memory	263M/512M
Multimedia Memory	0M/64M
Flash	107M/991M

Application Running Overview

Application Info

No.	Application Name	Running Status	Application Version	License Status	Manufacturer	Occupied Capacity	Operation
1	Intelligent	● Running	V1.001.0000000.0.R	Effective	[redacted]	90.72M	Go to

1record(s)

13.2 Application

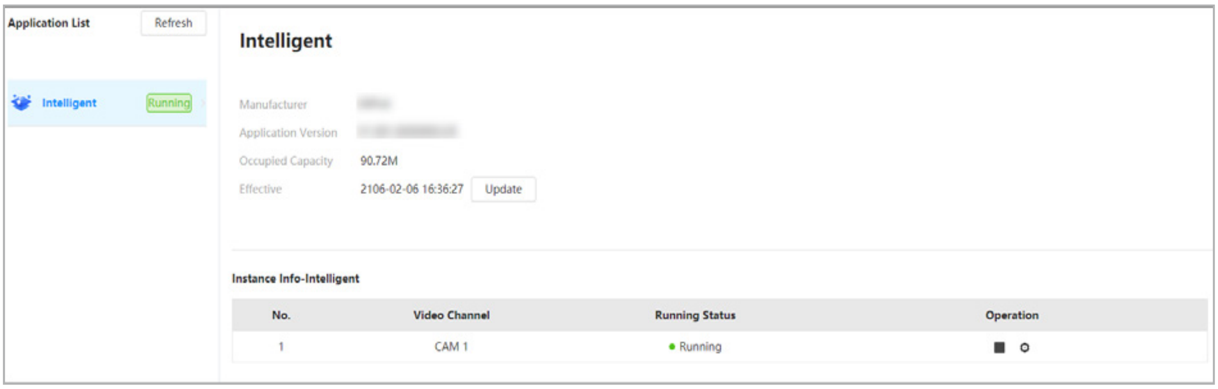
Click **App Center > Application**. You can view the basic information of the application, stop and start the application.

- Click **Refresh** to refresh the page information.
- Click **Update** to import the license and avoid license expiration.
- Click ■ to stop the application and click ▶ to start the application.

  When you stop the application:

  – Target statistics and face statistics are not available in **Camera > Encode > Overlay**.

  – **Intelligent** is not available on the main page.
- Click ⚙ to enter the **Smart Plan** page, and then you can configure the smart plan.



Intelligent

Manufacturer [redacted]
Application Version [redacted]
Occupied Capacity 90.72M
Effective 2106-02-06 16:36:27 Update

Instance Info-Intelligent

No.	Video Channel	Running Status	Operation
1	CAM 1	● Running	■ ⚙

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 from Dahua on how to create a more secured security system.

Mandatory actions to be taken for basic device 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 device (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 device 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 device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device 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 device (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 device 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 device, 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 device 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 device, 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 device 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.

More information

Please visit official website security emergency response center for security announcements and the latest security recommendations.

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