



Network PTZ Camera Web 5.0

User Manual



Foreword

General

This manual introduces the functions and operations of the Network PTZ Camera (hereinafter referred to as "the Camera").



This manual is applicable to multiple models; some support only single-channel, while others support multi-channel.

Symbols

The following symbols might appear in the manual.

Symbol	Description
 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.
 ESD	Electrostatic Sensitive Devices. Indicates a device that is sensitive to electrostatic discharge.
 TIPS	Provides methods to help you solve a problem or save time.
 NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V3.0.1	Updated overlay settings, network settings, ANPR, and linkage track.	August 2026
V3.0.0	Updated AI function.	July 2026
V2.0.5	Added low power mode.	May 2026
V1.0.5	- Updated event configuration. - Updated app center.	March 2024
V1.0.4	- Updated event linkages for motion detection. - Updated illuminator. - Updated smart plan.	September 2023

Version	Revision Content	Release Time
V1.0.3	Added maintenance center.	August 2023
V1.0.2	Modified the function of setting splicing parameters.	May 2023
V1.0.1	- Added setting splicing parameters function. - Added snapshot by location. - Updated live view function bar and window adjustment bar.	January 2023
V1.0.0	First release.	August 2021

Privacy Protection Notice

As the device user, you might collect the personal data of individuals such as their names, email addresses, face images, audio and fingerprints. You shall be fully responsible for any activities associated with processing personal data. You commit to comply with your local privacy protection laws and regulations to protect the legitimate rights and interests of individuals, and shall implement measures which are required by applicable law, including but not limited to, providing clear and comprehensive information to individuals before processing their personal data, obtaining consent from individuals when necessary, informing individuals of the existence of the surveillance area, and providing required contact information.

Intelligent Product Usage Statement

Intelligent products utilize AI technology to effectively enhance security. The intelligent recognition and alarm functions of the product might be affected by factors such as environmental lighting, camera angles, object obstructions, and network delays, potentially leading to false alarms, missed alerts, or response delays. This intelligent product is solely intended to be used as a security assistance tool. The results from performing identification are for reference only and do not constitute absolute guarantee of personal or property safety. Users need to combine these products with necessary physical security measures to enhance overall protection. Except as otherwise provided by laws or in the event of intentional or gross negligence on the part of the company, the company shall not be liable for any losses caused by the aforementioned factors not attributable to the company.

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

- This manual is provided for general reference only. Discrepancies might exist between the product and this manual, including but not limited to printed, electronic, or any other editions.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. Specifications and documentation are subject to change without prior notice. For the latest versions, as well as legal notices, consult the printed manual, the product webpage, our official website, or scan the QR code to access the electronic edition.
- The manual will be updated as necessary to reflect product changes and applicable legal requirements. These updates will not diminish your statutory rights, nor will they remove or weaken the safety information or essential instructions provided at the time of purchase.
- Although we make every effort to ensure accuracy, errors or deviations in descriptions of functions, operations, or technical data might occur. If there is any uncertainty or controversy, we reserve the right of final explanation.
- All trademarks, registered trademarks and company names referenced in this manual are the property of their respective owners.

Table of Contents

Foreword.....	I
1 Overview.....	1
1.1 Introduction.....	1
1.2 Functions.....	1
1.2.1 Basic functions.....	1
1.2.2 AI Functions.....	2
2 Configuration Flow.....	6
3 Device Initialization.....	7
4 Setting.....	11
4.1 Device Login.....	11
4.2 Local.....	14
4.3 Camera.....	16
4.3.1 Setting Image Parameters.....	16
4.3.2 Setting Splicing Parameters.....	35
4.3.3 Setting Encode Parameters.....	35
4.3.4 Audio.....	50
4.4 Network.....	53
4.4.1 TCP/IP.....	53
4.4.2 Port.....	56
4.4.3 PPPoE.....	58
4.4.4 DDNS.....	59
4.4.5 Email.....	60
4.4.6 UPnP.....	63
4.4.7 SNMP.....	64
4.4.8 Bonjour.....	67
4.4.9 Multicast.....	68
4.4.10 Auto Registration.....	70
4.4.11 QoS.....	71
4.4.12 Cellular Network.....	71
4.4.13 Platform Access.....	78
4.4.14 Wi-Fi.....	81
4.4.15 Basic Services.....	84
4.5 PTZ.....	85
4.5.1 Configuring Presets.....	86
4.5.2 Configuring Tour.....	86
4.5.3 Configuring Scan.....	88
4.5.4 Configuring Pattern.....	88

4.5.5	Configuring Pan.....	89
4.5.6	Configuring PTZ Speed.....	90
4.5.7	Configuring Idle Motion.....	91
4.5.8	Configuring PowerUp.....	91
4.5.9	Configuring PTZ Rotation Limit.....	92
4.5.10	Configuring Scheduled Task.....	93
4.5.11	Configuring PTZ Maintenance.....	94
4.5.12	Configuring Protocol.....	94
4.6	Event.....	95
4.6.1	Setting Alarm Linkage.....	95
4.6.2	Setting Exception.....	104
4.6.3	Setting Video Detection.....	107
4.6.4	Setting Audio Detection.....	111
4.6.5	Setting Smart Motion Detection.....	113
4.6.6	Setting One-click Disarm.....	114
4.6.7	Auto Upload of Events.....	115
4.7	Storage.....	116
4.8	System.....	116
4.8.1	General.....	117
4.8.2	Power Consumption Mode.....	119
4.8.3	Account.....	121
4.8.4	Peripheral Management.....	129
5	Low Power Mode.....	131
5.1	Low Power Mode (General).....	131
5.2	Low Power Mode (AOV).....	132
6	Water Level Detection.....	135
7	Live.....	137
7.1	Live Page.....	137
7.2	Configuring Encoding.....	138
7.3	Live View Function Bar.....	138
7.4	Window Adjustment Bar.....	140
7.4.1	Adjustment.....	140
7.4.2	PTZ Control.....	140
7.4.3	PTZ Function.....	141
7.4.4	Image Adjustment.....	142
7.4.5	Peripheral Management.....	143
7.5	Display Mode.....	144
8	Record.....	148
8.1	Playback.....	148
8.1.1	Playing Back Video.....	148

8.1.2	Clipping Video.....	150
8.1.3	Downloading Video.....	151
8.2	Setting Record Control.....	152
8.3	Setting Record Plan.....	153
8.4	Storage.....	155
8.4.1	Local Storage.....	156
8.4.2	Network Storage.....	157
9	Picture.....	161
9.1	Playback.....	161
9.1.1	Playing Back Picture.....	161
9.1.2	Downloading Picture.....	163
9.2	Setting Snapshot Parameters.....	164
9.3	Setting Snapshot Plan.....	165
9.4	Snapshot by Location.....	167
9.5	Storage.....	168
9.5.1	Local Storage.....	169
9.5.2	Network Storage.....	169
10	AI.....	173
10.1	Configuring Smart Plan.....	173
10.2	Configuring AcuPick.....	177
10.3	Configuring People Counting.....	178
10.3.1	Global Configuration.....	179
10.3.2	People Counting.....	179
10.3.3	Queue People Counting.....	182
10.4	Configuring Face Recognition.....	184
10.4.1	Configuring Face Recognition Rule.....	185
10.4.2	Configuring Face Database.....	188
10.4.3	Configuring Arm Alarm.....	195
10.4.4	Viewing Face Detection Result.....	197
10.5	Configuring Face Detection.....	197
10.5.1	Configuring Face Detection Rule.....	197
10.5.2	Viewing Face Detection Results.....	200
10.6	Configuring IVS.....	200
10.6.1	Global Configuration.....	201
10.6.2	Rule Configuration.....	209
10.7	Configuring Construction Monitoring.....	216
10.7.1	Configuring Global Solution.....	216
10.7.2	Configuring Preset Solution.....	223
10.8	Configuring Video Metadata.....	228
10.8.1	Global Configuration.....	229

10.8.2	Rule Configuration.....	230
10.8.3	Viewing Video Metadata Results.....	233
10.9	Panoramic Linkage.....	233
10.9.1	Linkage Track.....	233
10.9.2	Main/Sub Calibration.....	235
10.10	Configuring Smart Traffic.....	237
10.10.1	Configuring Global Plan.....	237
10.10.2	Configuring Illegal Parking Snapshot.....	237
10.10.3	Configuring E-Police.....	249
10.10.4	Configuring Road Events.....	261
10.10.5	Configuring ANPR.....	271
10.10.6	Configuring Littering.....	283
10.10.7	Configuring Traffic Event.....	290
10.11	Configuring Classroom Behavior Analysis.....	302
10.12	Configuring Exam Behavior Analysis.....	303
10.13	Configuring Stereo Analysis.....	305
10.14	Configuring Violation Snapshot.....	306
10.14.1	Scene Setting.....	306
10.14.2	Configuring Area Event.....	310
10.14.3	Configuring Lane Event.....	313
10.14.4	Configuring Violation Code.....	319
10.14.5	Configuring Original Picture OSD.....	319
10.14.6	Configuring Combination Picture OSD.....	322
10.14.7	Configuring File Parameter.....	323
10.14.8	Configuring Cutout.....	324
10.14.9	Advanced configuration.....	324
10.15	Configuring Tour Plan.....	325
11	Security.....	327
11.1	Security Status.....	327
11.2	System Service.....	328
11.2.1	802.1x.....	328
11.2.2	HTTPS.....	330
11.3	Attack Defense.....	331
11.3.1	Firewall.....	331
11.3.2	Account Lockout.....	332
11.3.3	Anti-DoS Attack.....	332
11.4	CA Certificate.....	333
11.4.1	Installing Device Certificate.....	333
11.4.2	Installing Trusted CA Certificate.....	336
11.5	A/V Encryption.....	337

11.6 Security Warning.....	338
12 Report.....	340
12.1 Video Metadata Report.....	340
12.2 People Counting Report.....	340
12.3 Traffic Data Report.....	341
12.4 Picture Query.....	342
12.5 Video Query.....	343
13 Maintenance Center.....	344
13.1 One-click Diagnosis.....	344
13.2 System Information.....	345
13.2.1 Viewing Version Information.....	345
13.2.2 Viewing Online User.....	345
13.2.3 Viewing Durability Statistics.....	345
13.2.4 Viewing Legal Information.....	345
13.3 Log Information.....	346
13.3.1 Viewing Local Log.....	346
13.3.2 Setting Remote Log.....	347
13.4 Manager.....	347
13.4.1 Requirements.....	347
13.4.2 Maintenance.....	348
13.4.3 Import/Export.....	349
13.4.4 Default.....	349
13.5 Update.....	350
13.6 Advanced Maintenance.....	351
13.6.1 Export.....	351
13.6.2 Packet Capture.....	351
13.6.3 Run Log.....	352
14 App Center.....	353
14.1 Application Overview.....	353
14.2 Application.....	353
Appendix 1 Security Commitment and Recommendation.....	355

1 Overview

1.1 Introduction

The Camera is a combination of traditional camera and network technology. You can remotely connect to the Camera through the network for configuration and management.

Before accessing the PTZ Camera through the network, you need its IP address, which can be searched by ConfigTool.

Figure 1-1 Connected through network cable

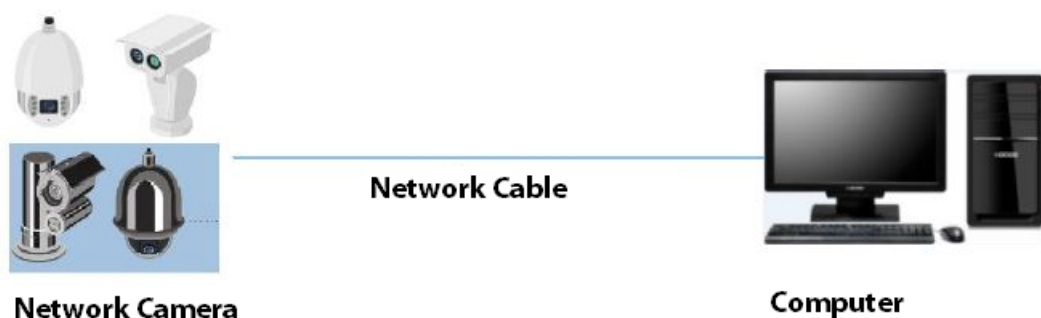


Figure 1-2 Connected through network router or switch



1.2 Functions

Functions might be different depending on the model.

1.2.1 Basic functions

Real-time Monitoring

- Live view.
- Displays human face, human body, non-motor vehicle, motor-vehicle and other metadata during live view.
- When watching the live view, you can enable audio, and talk to people in the monitoring area to quickly process exceptions.
- Adjust the image to the proper position by PTZ.

- Take a snapshot or three snapshots of the exceptional monitoring image for subsequent viewing and processing.
- Record the exceptional 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 video when alarms are triggered.

Account Management

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

1.2.2 AI Functions

Alarm

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

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.

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.

Smart Traffic Management

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

Panorama Linkage

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

Stereo Analysis

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

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.

Face detection

- Supports human face detection and displaying 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.

Classroom Behavior Analysis

- Supports reading and writing, hands up, checking mobile phone, listening to teacher, lying on the table and turning detection.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending, and snapshot.

Exam Behavior Analysis

- Supports hands up, delivery, down peep, standing up, looking back, picking up, checking mobile phones and writing detection.
- When an alarm is triggered, the system performs linkages such as video recording, alarm output, email sending, and snapshot.

People Counting

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

Video Metadata

- Supports detecting people, non-motor vehicles, and motor vehicles in the captured video, and displaying 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 snapshots.

AcuPick

Achieve accurate and quick search on the select NVR.

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

Illegal Parking and ANPR Capture

- Supports dual PTZ; Panorama Camera and Detail Camera can be adjusted remotely to realize flexible deployment.
- Supports illegal parking capture, A/B/C/D illegal parking capture. You can configure the number, time, and type of snapshots to form an effective law enforcement evidence chain.
- Supports the following traffic event detection: ANPR, crossing solid white or yellow line, wrong-way driving, illegal lane change, vehicle queue jumping, vehicle in lane, disobeying the lane direction sign, speeding, trucks in prohibited area, driving slow, driver not wearing seatbelt, and traffic congestion.
- Supports motor vehicle attribute recognition, including vehicle type, vehicle color, vehicle logo, vehicle series, license plate, license plate color and more.

2 Configuration Flow

Configure the Camera as needed.

Figure 2-1 Configuration flow

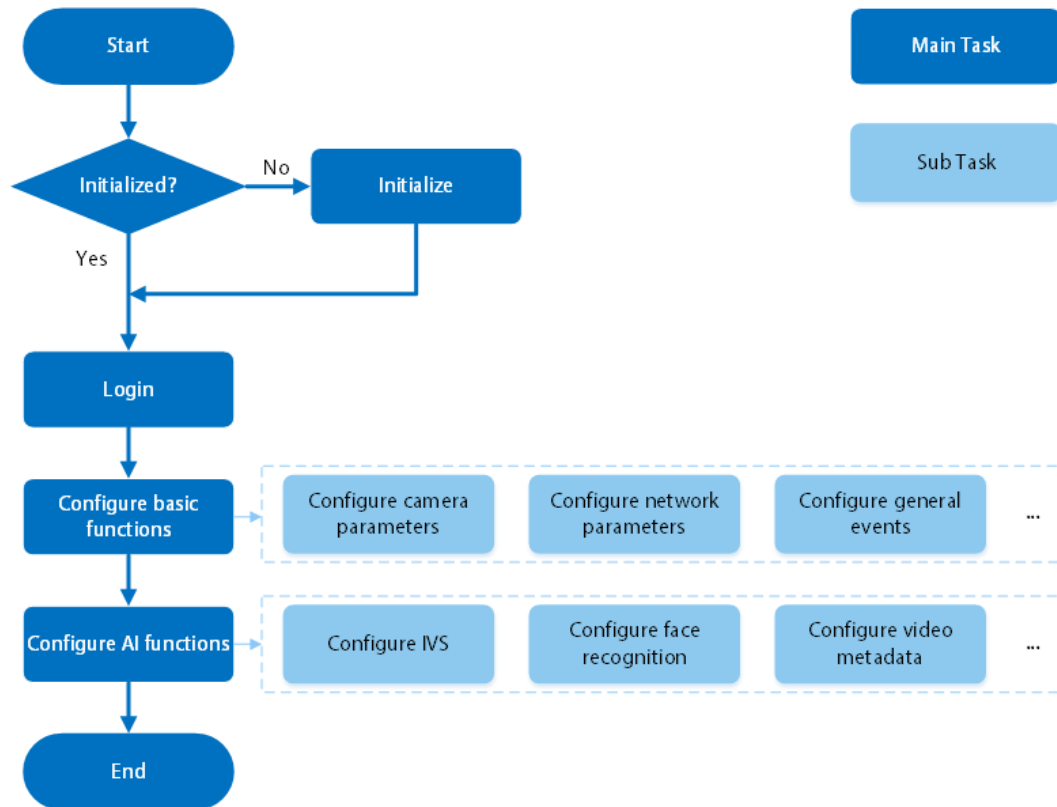


Table 2-1 Flow description

Configuration	Description	Reference
Initialization	Initialize the Camera when you use it for the first time.	"3 Device Initialization"
Login	Open the browser and enter the IP address to log in to the 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.	"10 AI"

3 Device Initialization

Background Information

Device initialization is required for the first-time use. This section focuses on web-based operations. You can also initialize the Camera through ConfigTool, NVR (Network Video Recorder), or platforms such as DSS Pro.



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

Procedure

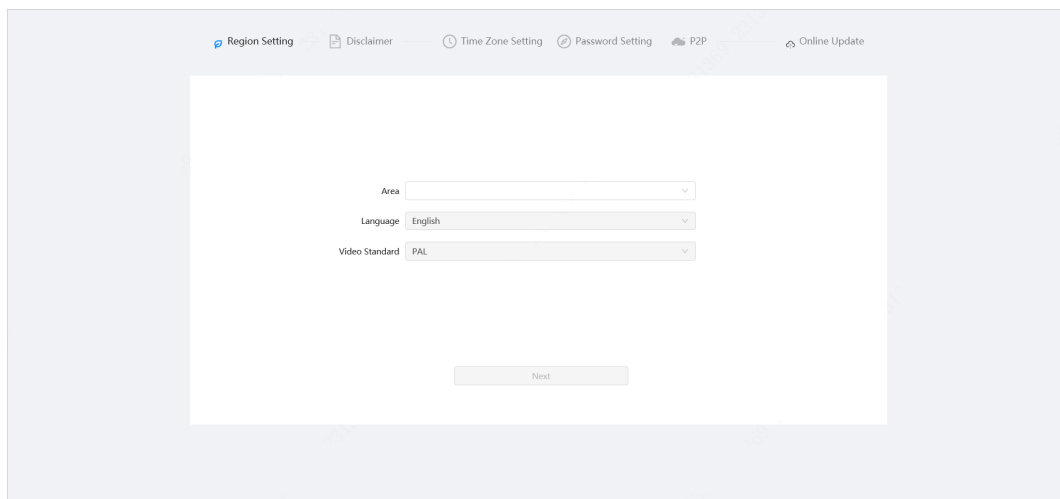
- Step 1** Open the browser, enter the IP address of the Camera in the address bar, and then press the Enter key.



The IP is 192.168.1.108 by default.

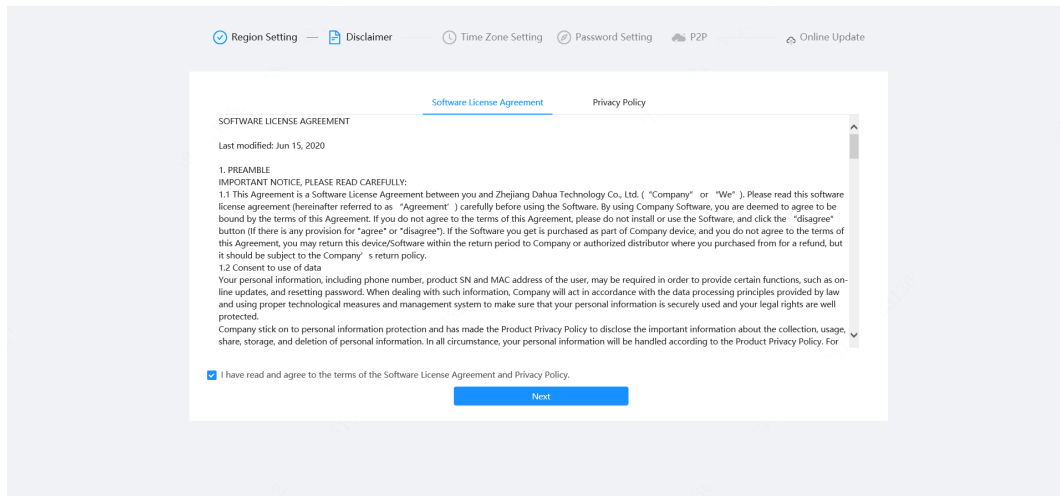
- Step 2** Select the area, language, and video standard according to your location, and then click **Next**.

Figure 3-1 Region setting



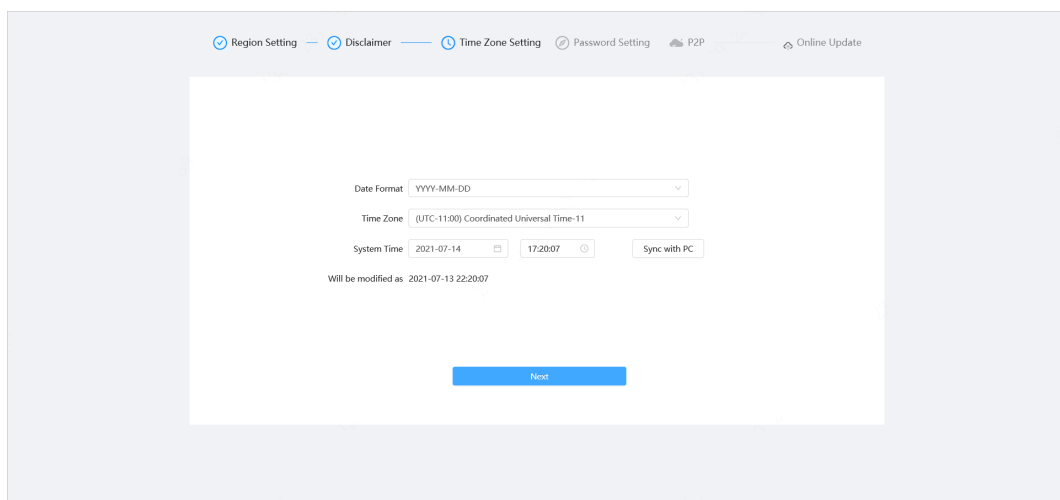
- Step 3** Select the **I have read and agree to the terms of the Software License Agreement and Privacy Policy** checkbox, and then click **Next**.

Figure 3-2 Disclaimer



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

Figure 3-3 Time zone setting



Step 5 Set the password for admin account, and then click **Next**.

Figure 3-4 Password setting

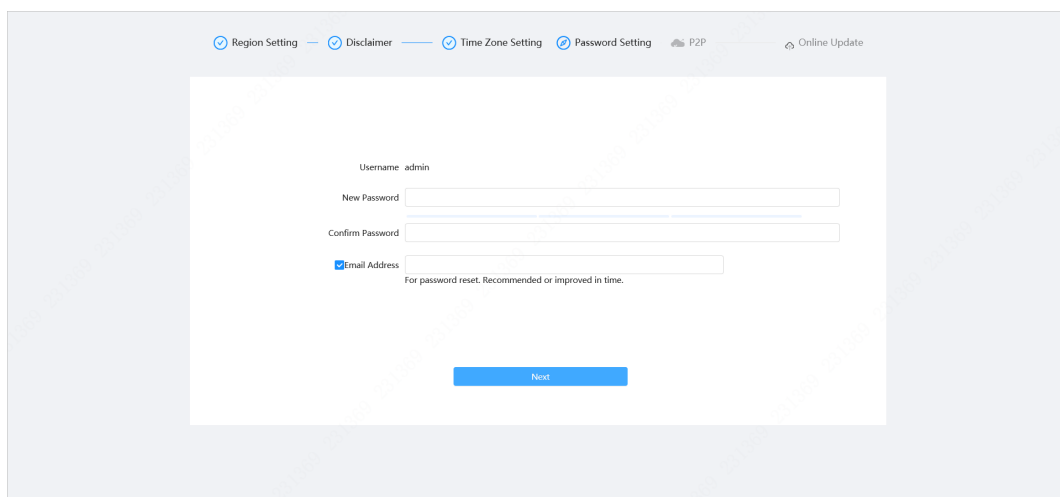


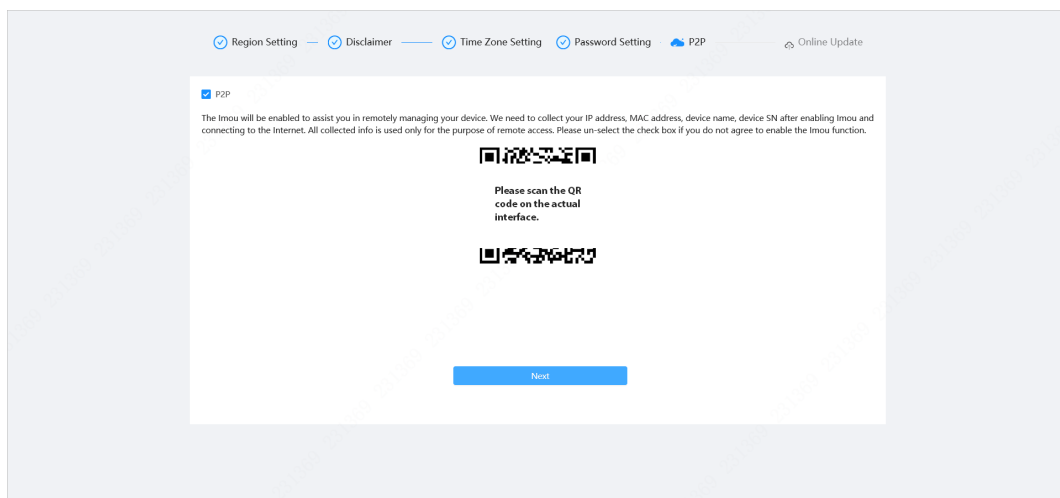
Table 3-1 Description of password configuration

Parameter	Description
Username	The default user name 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. The Email Address checkbox is selected by default. When you need to reset the password of the admin account, a security code for password reset will be sent to the reserved email address.

Step 6 Enable **P2P** , and then click **Next**.

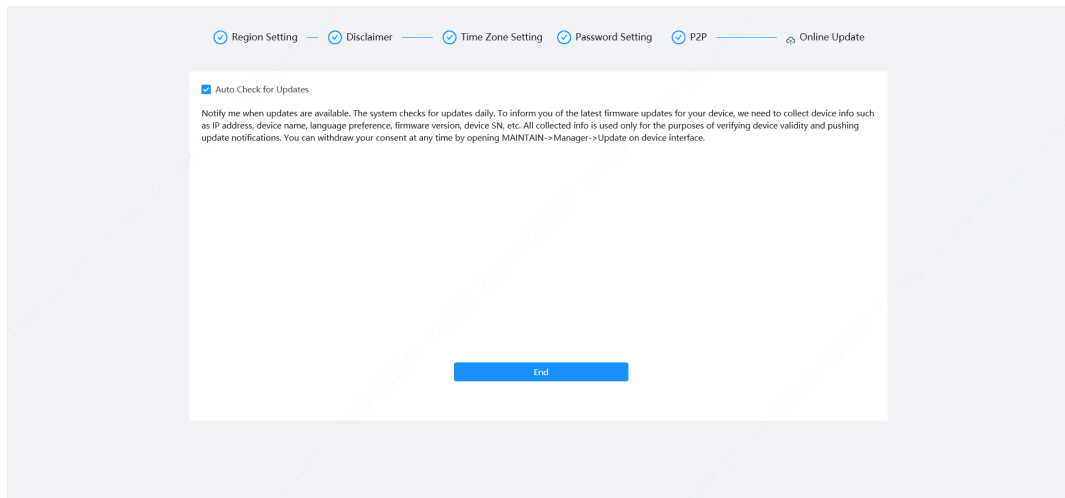
You can scan the QR code on the actual page to download the app. Register an account, and then you can add the Camera to the app.

Figure 3-5 P2P



Step 7 Enable **Auto Check for Updates** , and then click **End** to complete initialization.

Figure 3-6 Online update



4 Setting

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

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

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

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

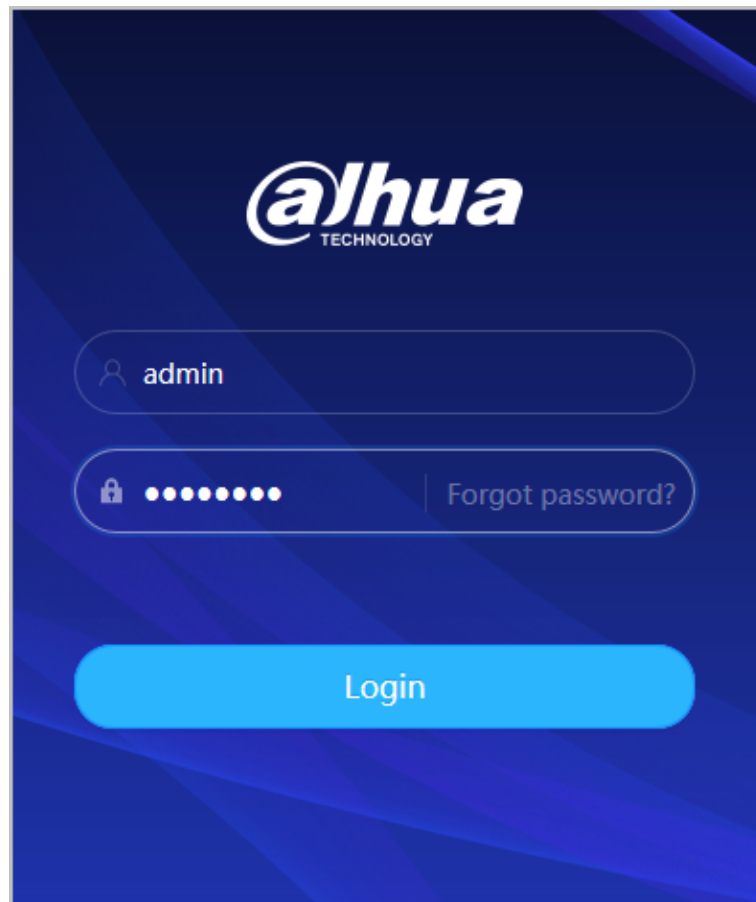
Step 2 Enter the user name and password.

The user name is admin by default.



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

Figure 4-1 Login

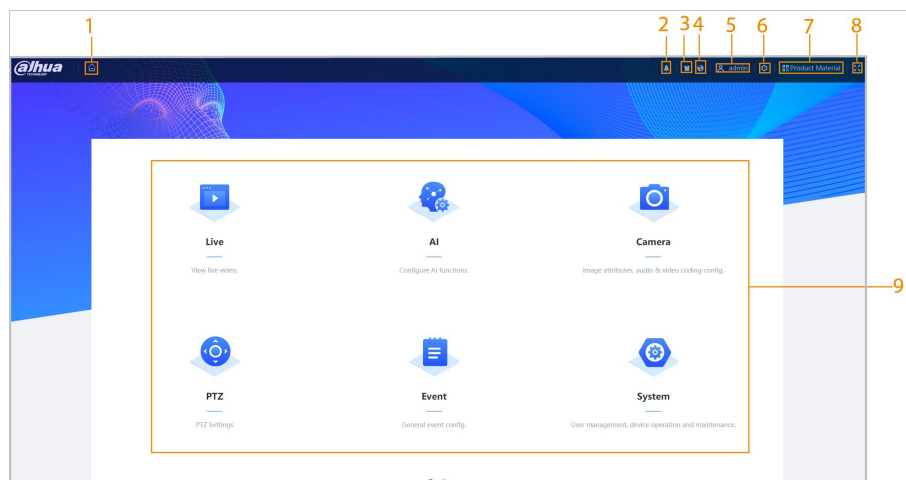


Step 3 Click **Login**.

The **Live** page is displayed. For details, see "7.1 Live Page".

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

Figure 4-2 Main page



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

Table 4-1 Description of main page

No.	Button	Description
1		Display the main page.
2		Subscribe to alarm. For details, see "4.6.1.3.2 Subscribing Alarm Information".
3		Set the skin.
4		Set the language.
5	 admin	- Click and select Restart to restart the Camera. - Click and select Logout to go back to the login page.
6		Configure the basic parameters. For details, see "4 Setting".
7	 Product Material	Scan the QR code to obtain the product material.
8		- Click the button to enter full screen mode. - Click  to exit full screen mode.

No.	Button	Description
9	Main Page	The main page includes the following modules. Click   on the bottom of the page to switch between multiple pages. • Live : View real-time monitoring images. The live view page supports multi-channel display. • App Center : Configure application installation, updates and management. • AI : Configure camera AI functions. • Smart Traffic Management : Configure global plans for manual illegal parking capture and the preset plans for E-Police, illegal parking snapshots, road events, ANPR and litter detection. • Camera : Configure camera parameters, including image parameters, encoder parameters, and audio parameters. • PTZ : Configure PTZ functions. • Event : Configure alarm linkage parameters for 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 recording functions, and play back or download recorded videos. When playing back multi-channel recordings, choose the channel No. to play back. • Picture : Configure picture functions, and play back or download image files. When playing back multi-channel images, choose channel No. to play back. • Report : Search the AI event report and system report.  Functions might be different depending on the model.

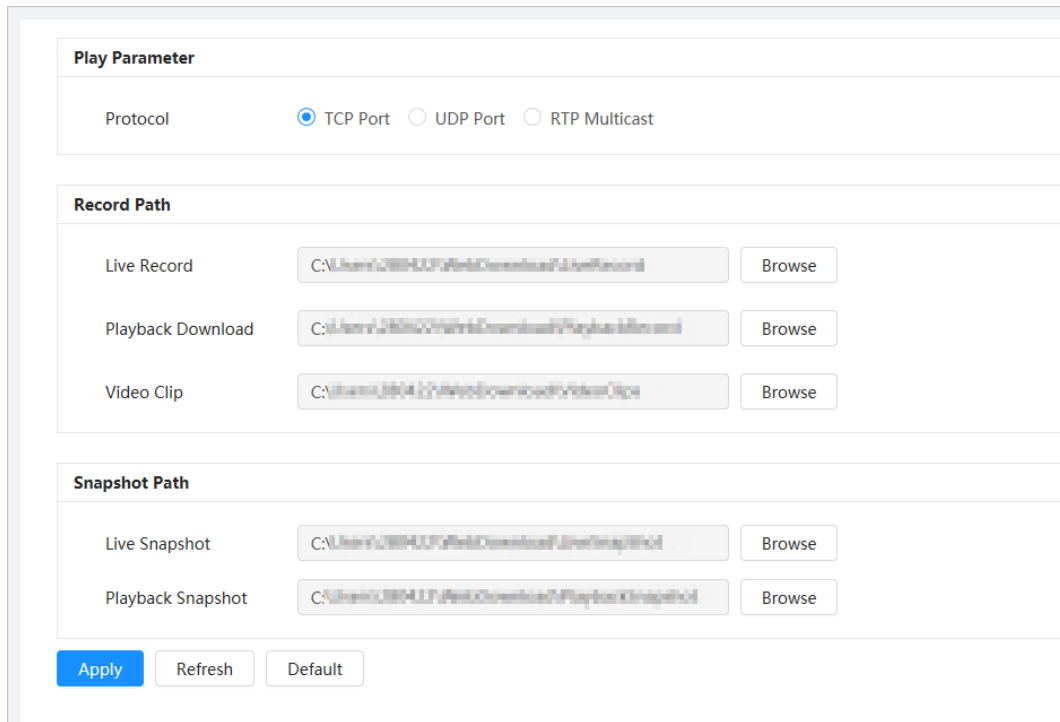
4.2 Local

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

Procedure

Step 1 Select  > **Local**.

Figure 4-3 Local



The screenshot shows a web interface for configuring local parameters. It is divided into three main sections: Play Parameter, Record Path, and Snapshot Path. At the bottom, there are buttons for Apply, Refresh, and Default.

Play Parameter

Protocol: ☒ TCP Port ☐ UDP Port ☐ RTP Multicast

Record Path

Live Record: C:\Users\ADMIN\Downloads\LiveRecord Browse

Playback Download: C:\Users\ADMIN\Downloads\PlaybackDownload Browse

Video Clip: C:\Users\ADMIN\Downloads\VideoClip Browse

Snapshot Path

Live Snapshot: C:\Users\ADMIN\Downloads\LiveSnapshot Browse

Playback Snapshot: C:\Users\ADMIN\Downloads\PlaybackSnapshot Browse

Buttons: Apply Refresh Default

Step 2 Configure play parameters.

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



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

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

Table 4-2 Description of local parameters

Parameter	Description	
Protocol	You can select the network transmission protocol, including TCP , UDP and Multicast.  Before selecting Multicast , make sure that you have set the Multicast parameters.	
Live Record	The recorded video of live page. The default path is C:\Users\<i>admin</i> \WebDownload\LiveRecord.	 <i>admin</i> in the path refers to the account being used.

Parameter	Description	
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.	

Step 4 Click **Apply**.

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, splicing parameters, encoder parameters, and audio parameters.



Camera parameters might be different depending on the model.

4.3.1 Setting Image Parameters

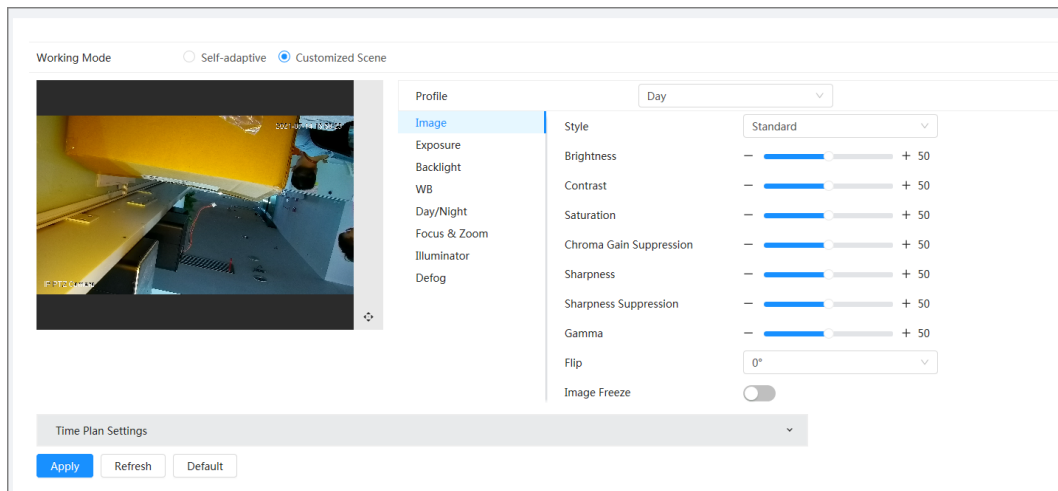
Configure image parameters according to the actual situation, including image, exposure, backlight, white balance, Day/Night, and more.

4.3.1.1 Page Layout

Configure camera parameters to improve the image clarity, and ensure that surveillance goes well.

Camera supports 2 working modes: **Self-adaptive** and **Customized scene**. You can select the type of **Profile**, including day, night, general and front light, to view and adjust the corresponding parameters and effects. These parameters include settings such as image, exposure and backlight.

Figure 4-4 Camera conditions (common camera)



4.3.1.2 Configuring Operating Mode

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

Procedure

- Step 1** Click  on the upper-right corner of the page, and then select **Camera** > **Image**.
- Step 2** Select the channel 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**.
- Step 3** Select configuration file type.
Configure file types, including **general**, **day**, **night**, **front light**, **backlight**, to view and set the configuration parameters and effects. The corresponding parameters include settings such as image, exposure and backlight.
- Step 4** Set time plans.
Supports setting daily schedule by month.

Figure 4-5 Time plan settings



1. Click **Time Plan Settings** or  to open the time plan.
2. Click to configure the file type, for example **general** , left-drag on the timeline to set the time period using **general** type.

In the same way, you can set up separate time periods when applying other file types, including **Day** , **Night** and **Front Light**.



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

3. (Optional) Click **Copy** , select a month, and then click **Apply**.

Time plan for the current month can be quickly copied to other months.

Step 5 Click **Apply**.

4.3.1.3 Adjusting Image

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

Procedure

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

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

Figure 4-6 Image settings

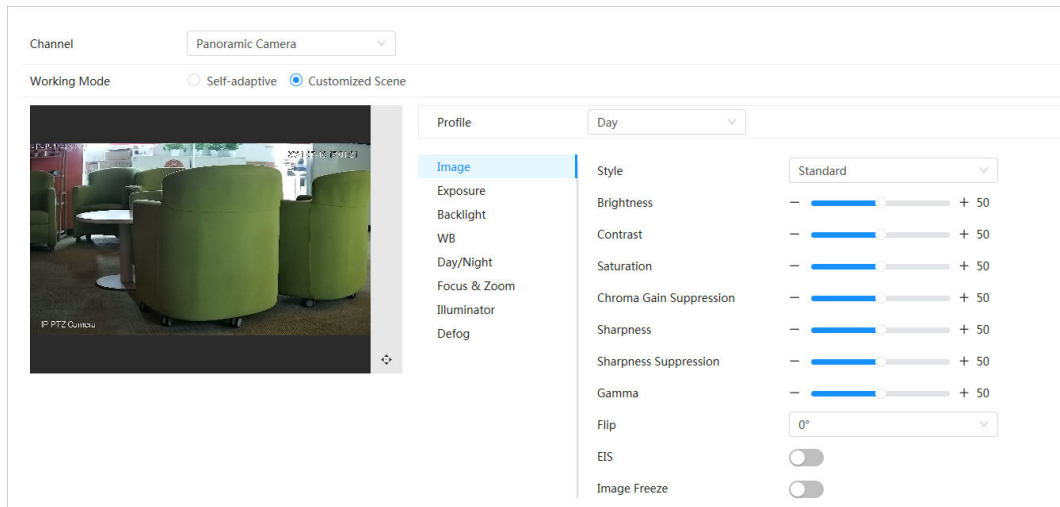


Table 4-3 Description of image parameters

Parameter	Description
Style	Select the image style from soft, standard and vivid. - Standard: Default image style, displays the actual color of the image. - Soft: The hue of the image is weaker than the actual one, and contrast is smaller. - Vivid: The image is more vivid than the actual one.
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	Changes the contrast of the image. The higher the value is, the greater the contrast will be 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	Reduces the image color and prevents it from being too strong. The higher the value, the stronger the effect.  This parameter takes effect only when the Camera is in an environment with low luminance.
Sharpness	Changes the sharpness of picture edges. The higher the value, the clearer the picture edges. If the value is too big, image noise is more likely to appear.

Parameter	Description
Sharpness Suppression	Change the sharpness NCT level of the Camera. The bigger the value, the stronger the sharpness CNT.  This parameter takes effect only when the Camera is in an environment with low luminance.
Gamma	Changes the 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.  This function is available on select models.
OIS	Optical Image Stabilization (OLS) is used to effectively solve the problem of image shaking during use through ISP algorithm and optical technology, thus presenting clearer images. It is On by default.  • This function is available on select models. • Optical image stabilization and electronic image stabilization cannot be enabled at the same time.
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 camera is in an environment with low luminance. • This function is available on select models. • Optical image stabilization and electronic image stabilization cannot be enabled at the same time.
Image Freeze	After this function is enabled, the image at the called preset is displayed directly if you call a preset or tour, and no images during the rotation of the camera are displayed.  This function is available on select models.

Step 3 Click **Apply**.

4.3.1.4 Exposure

Configure iris and shutter to improve image clarity.

Background Information



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

Procedure

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

Figure 4-7 Exposure

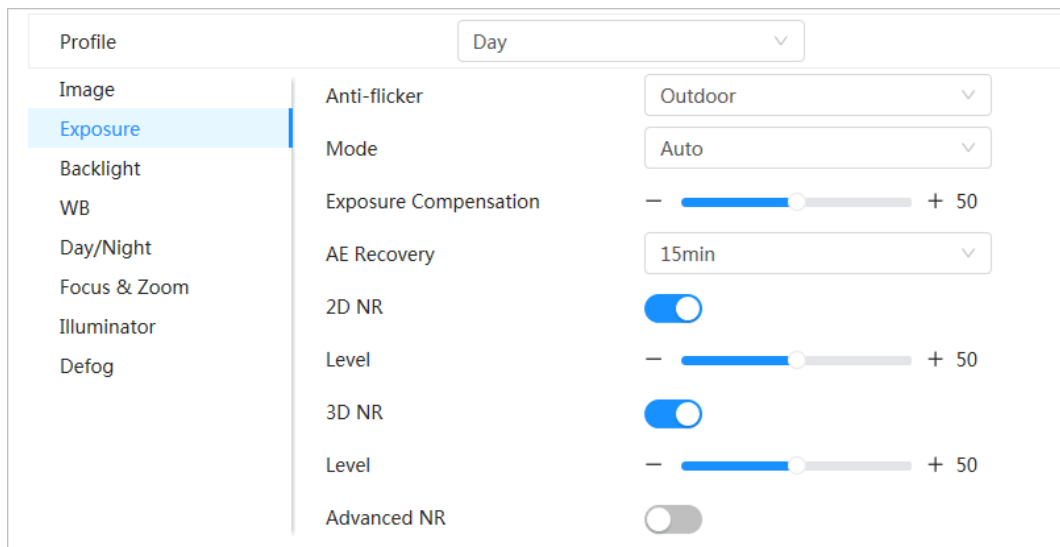


Table 4-4 Description of exposure parameters

Parameter	Description
Anti-flicker	You can select 50Hz , 60Hz, or Outdoor from the list. 50Hz : When the electric supply is 50 Hz, the system adjusts the exposure according to ambient light automatically to ensure that stripes do not appear. 60Hz : When the electric supply is 60 Hz, 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, Iris Priority. Different devices support different exposure modes.

Parameter	Description
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 enough and the shutter value has reached its upper or lower limit, the system adjusts gain value automatically to ensure the image is at an ideal brightness. • Shutter Priority : You can customize the shutter range. The camera automatically adjusts the aperture and gain according to the scene brightness. • Gain Priority : Gain value and exposure compensation value can be adjusted manually.
Gain	If you select Gain Priority or Manual, you can set gain range to automatically increase the gain of the device when the illumination is low, thus obtaining a clear image.
Shutter	Set the effective exposure time. The smaller the value, the shorter the exposure time.
Shutter range	If you select Shutter Priority or Manual, and set Shutter as Custom, you can set the shutter range in milliseconds.
Iris	You can set the camera luminous flux. The larger the Iris value, the brighter the image.
Exposure Compensation	You can set the exposure compensation value. The value ranges from 0 to 100. The higher the value, the brighter the image.
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 pictures by expending the automatic exposure time effectively reduces image noise, but pictures of moving objects might be blurred.

Parameter	Description	
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 hours.  This function is available on select models.	
2D NR	Average the pixel of a single frame image with other pixels to reduce image noise. The higher the level, the lower the noise, and the blurrier the images appear.	
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, the lower the noise, and the larger the trailing smear.	
Level	Noise reduction grade. The value ranges from 0 to 100. The larger the value, the less the noise.	
Advanced NR	You can suppress noise in the time-domain and space-domain based on the video filter method.	 Some models do not support advanced noise reduction, time domain grade, or space domain grade.
Time domain grade	You can set the time domain grade. The value ranges from 0 to 100.	
Space domain grade	You can set the space domain grade. The value ranges from 0 to 100.	

Step 3 Click **Apply**.

4.3.1.5 Backlight

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

Procedure

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

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

Figure 4-8 Backlight mode

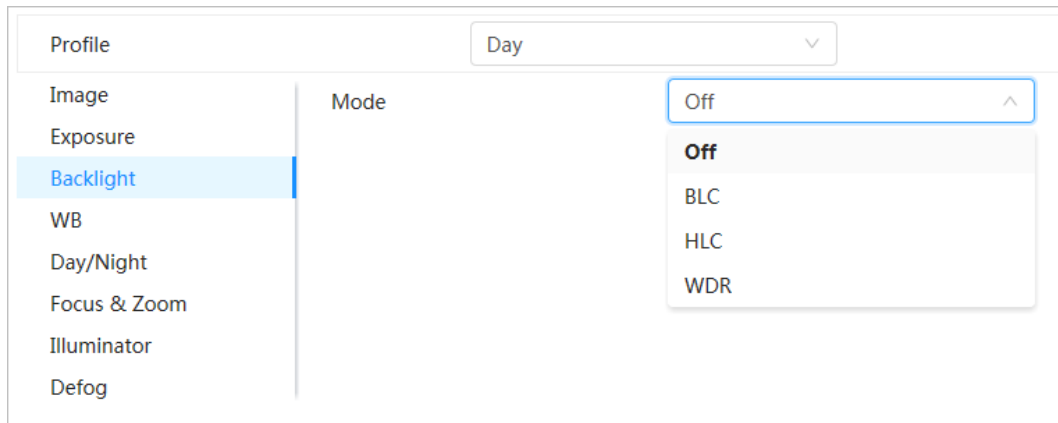


Table 4-5 Description of backlight parameters

Parameter	Description
BLC	Enable Backlight Compensation (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	Enable Wide Dynamic Range (WDR). The Camera dims bright areas and compensates for dark areas to ensure the clarity of all areas. The higher the value, the darker the image, but the more visible the noise.  There might be a few seconds of video loss when the device is switching to WDR mode from other modes.
HLC	Enable Highlight Compensation (HLC). When extremely strong light is in the environment (such as a toll station or parking lot), the Camera will dim 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, the more obvious the HLS effect.

Step 3 Click **Apply**.

4.3.1.6 White Balance

White Balance (WB) function makes the image color display precisely as it is. In WB mode, white objects are displayed in a white color depending on the environment.

Procedure

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

Figure 4-9 White balance

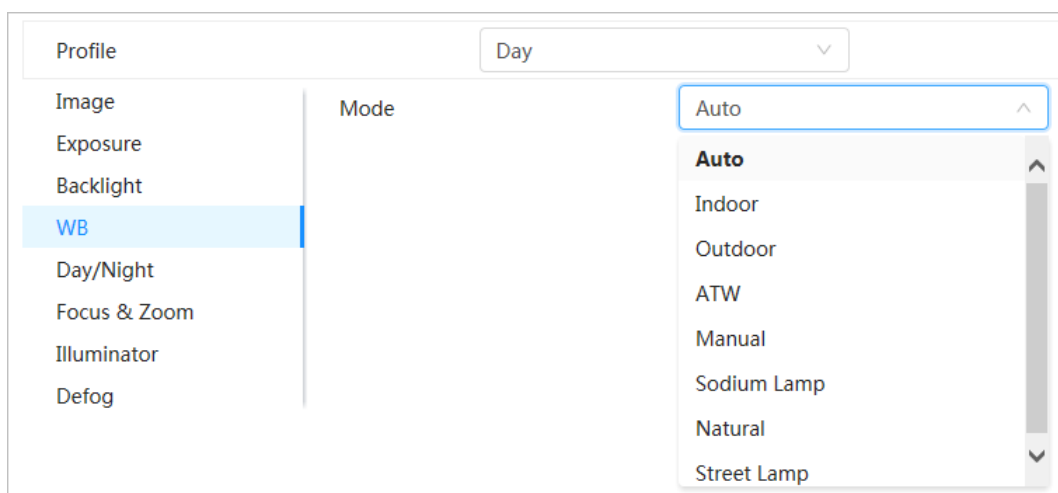


Table 4-6 Description of white balance parameters

Parameter	Description
Auto	The system compensates WB according to color temperature to ensure color precision.
Indoor	The system compensates WB for the general situation of indoor lighting to ensure color precision.
Outdoor	The system auto compensates WB to most outdoor environments with natural or artificial light to ensure color precision.
ATW	Auto Tracking White Balance (ATW) function. 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.

Parameter	Description
Street Lamp	The system compensates WB to outdoor night scenes to ensure color precision.

Step 3 Click **Apply**.

4.3.1.7 Day/Night

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

Procedure

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

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

Figure 4-10 Day/Night mode

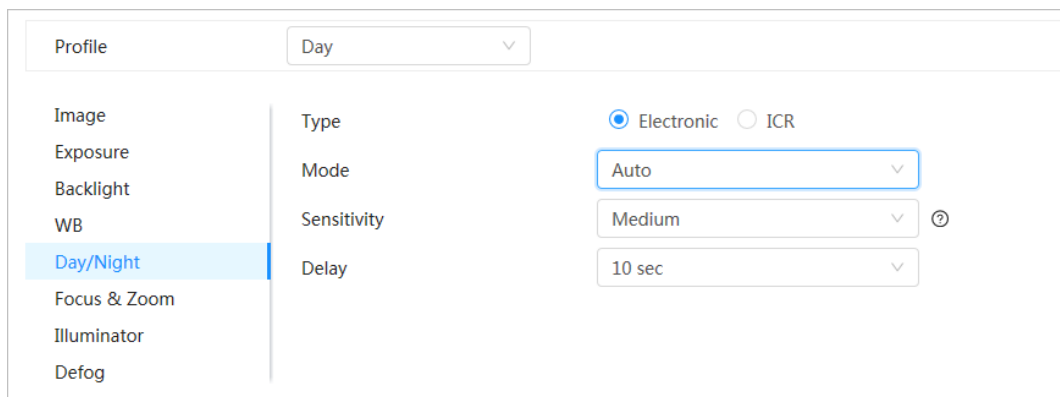


Table 4-7 Description of Day/Night mode parameters

Parameter	Description
Type	Select the type from Electronic and ICR . ICR is selected by default. Electrical image processing method is used for day & night switch. ICR is used for day and night switch.
Mode	You can select device display mode from Color , Auto , and B/W .  Day/Night configuration is independent from Profile management configuration. Color: The system displays the image in color. Auto: The system switches between color and black-and-white according to actual conditions. B/W: The system displays black-and-white image.

Parameter	Description
Sensitivity	This configuration is available only when you set Auto in Mode . You can configure camera sensitivity when switching between color and black-and-white mode. The higher the sensitivity, the easier it is for the switch to be triggered.
Delay	This configuration is available only when you set Auto in Mode . You can configure the delay when camera switching between color and black-and-white mode. The lower the value is, the faster the camera switches between color and black-and-white mode.

Step 3 Click **Apply**.

4.3.1.8 Focus & Zoom

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

Background Information



For some models, this function is only supported on the detail channel.

Procedure

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

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

Figure 4-11 Focus & Zoom

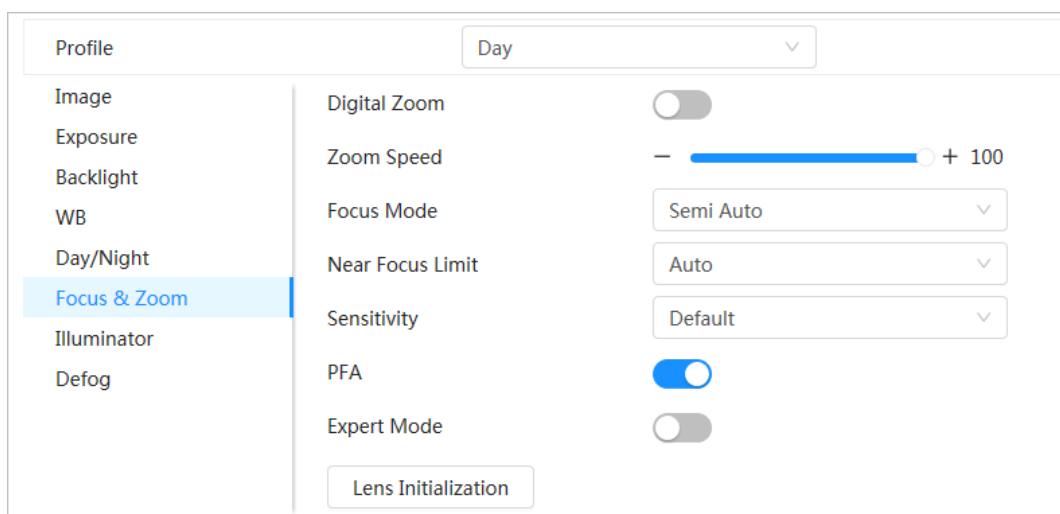


Table 4-8 Description of focus & zoom parameters

Parameter	Description
Digital Zoom	Click  to enable digital zoom function. You can use the digital zoom to continue zooming operation even if the optical zoom is at its maximum value.
Zoom Speed	Adjust the zoom speed of the Camera. The larger the value, the faster the zoom speed.
Focus Mode	Select the 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. It will also focus automatically 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 picture.
Expert Mode	Enable Expert mode . Train the Camera to rotate and focus on the specified route.
Lens Initialization	Click Lens Initialization , and then the lens will be initialized automatically. The lens will be extended to calibrate the zoom and focus.

Step 3 (Optional) Configure expert mode.

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

Figure 4-12 Expert mode

Add
Clear
Refresh

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

Start Scene Focusing Training
Stop Training

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



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

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

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

Step 4 Click **Apply**.

4.3.1.9 Illuminator

This configuration is available only when the device is equipped with the illuminator. Common illuminator lights are classified into infrared (IR) lights, white light, laser lights, and full-spectrum lights. Different device models support different types of illuminator lights.

Procedure

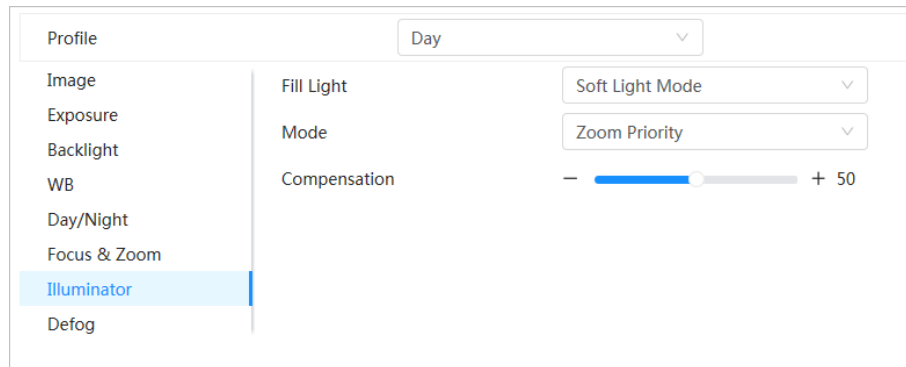
- Step 1 Click  on the upper-right corner of the page, and then select **Camera > Image > Illuminator**.



This manual is for reference only, and might differ from the actual page.

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

Figure 4-13 Illuminator (1)



Profile: Day

Image

Exposure

Backlight

WB

Day/Night

Focus & Zoom

Illuminator

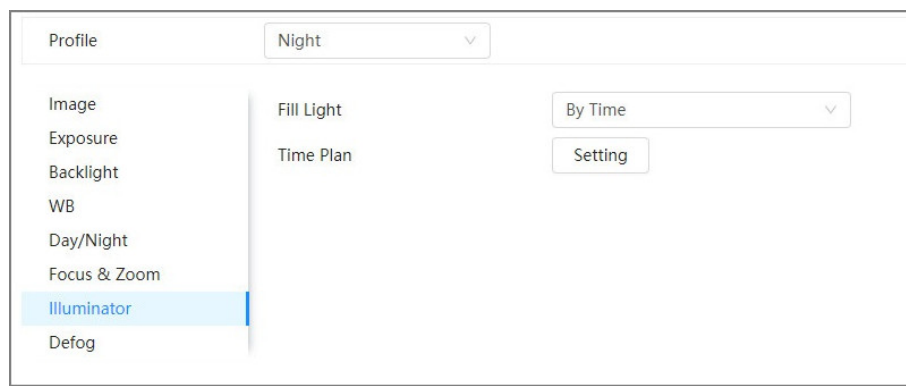
Defog

Fill Light: Soft Light Mode

Mode: Zoom Priority

Compensation: - 50

Figure 4-14 Illuminator (2)



Profile: Night

Image

Exposure

Backlight

WB

Day/Night

Focus & Zoom

Illuminator

Defog

Fill Light: By Time

Time Plan: Setting

Figure 4-15 Time plan settings



Time Plan Settings

● Smart Illumination ● Warm Light Mode ● IR Mode

Delete Default

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Sun																									Copy	
Mon																									Copy	
Tue																									Copy	
Wed																									Copy	
Thu																									Copy	
Fri																									Copy	
Sat																									Copy	

Cancel OK

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, Warm 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 the two 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.  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.

Parameter		Description
	Auto	The system adjusts the illuminator intensity according to the ambient lighting condition. Some devices support setting the brightness upper limit and sensitivity of the illuminator. • Sensitivity: The higher the sensitivity setting, the higher the brightness can turn on the illuminator when the actual scene darkens. When the actual scene becomes bright, a higher brightness is required to turn off the illuminator. • Brightness upper limit: If the filling light is too bright, the center of the image might be overexposed. We recommend adjusting to adjust the brightness upper limit according to the actual scene. The value range is 0-100, and the default is 100.
	SmartIR	The system adjusts the illumination intensity according to the ambient lighting condition.  Only IR illuminator supports the smart IR mode.
	Zoom Priority	The system adjusts the illuminator intensity automatically according to the change of the ambient light. You can configure light Compensation manually to fine-tune the brightness of the illuminator. • When the ambient light turns darker, the system turns on the low beam lights first, if the brightness is still not enough, it turns on the high beam lights. • When the ambient light turns brighter, the system dims high beam lights until they are off, and then the low beam lights. • When the focus reaches certain wide angle, the system will not turn on high beam light in order to avoid over-exposure in short distance.  Some devices support setting the sensitivity of the illuminator.
	Off	Illuminator is off.
Illuminator Delay		The duration of the illuminator.  When selecting Smart Illumination in the drop-down list next to Fill Light, you need to set Illuminator Delay.

Parameter	Description
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, as shown in Figure 4-15 .  • 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.

Step 3 Click **Apply**.

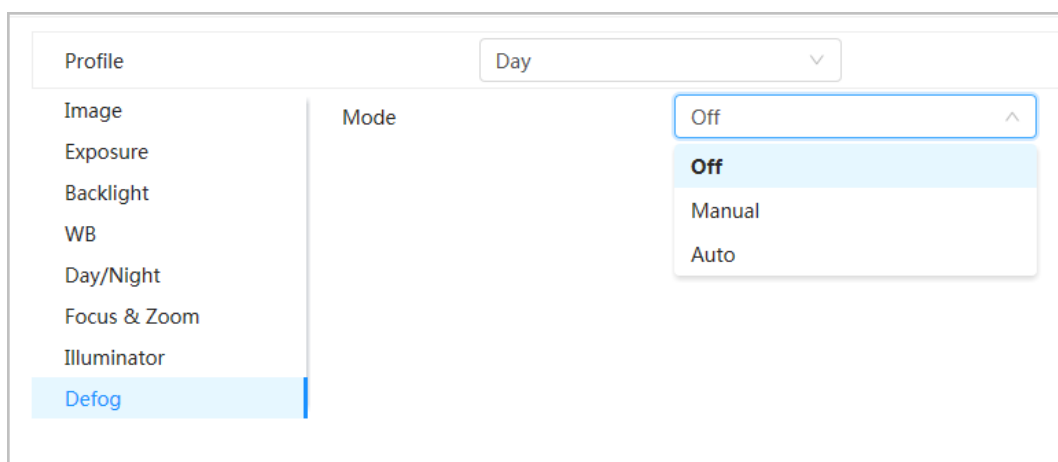
4.3.1.10 Defog

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

Procedure

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

Figure 4-16 Defog



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

Table 4-10 Description of defog parameters

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

Step 3 Click **Apply**.

4.3.1.11 LDC

Configure Lens Distortion Correction (LDC) to remove lens-induced distortions in images.

Prerequisites

This function is only available for the panoramic camera.

Procedure

Step 1 Select **Panoramic Camera** from the **Channel** drop-down list.

Step 2 Click  on the upper-right corner of the page, and then select **Camera** > **Image** > **LDC**.

Step 3 Click  to enable the LDC function.

Step 4 Configure the LDC parameters.

Figure 4-17 LDC

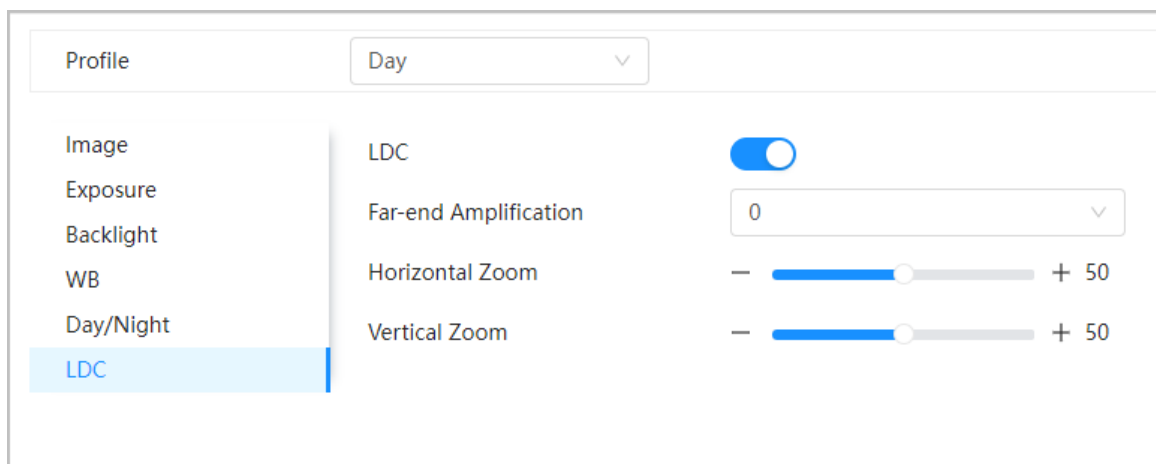


Table 4-11 Description of LDC parameters

Parameter	Description
Far-end Amplification	Adjust the enhancement of details in the outer areas of an image. You can select 0 , 1 , 2 , and 3 . The larger the number, the greater the correction range. The default value is 0.
Horizontal Zoom	Zoom in on the image horizontally. Drag the bar to adjust the zooming range from 0 to 100. The default value is 50.
Vertical Zoom	Zoom in on the image vertically. Drag the bar to adjust the zooming range from 0 to 100. The default value is 50.

Step 5 Click **Apply**.

4.3.2 Setting Splicing Parameters

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

Procedure

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

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



- Wait patiently. After the splicing completes, the image is displayed.
- Repeat this step until the image meets your requirements.

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

4.3.3 Setting Encode Parameters

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



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

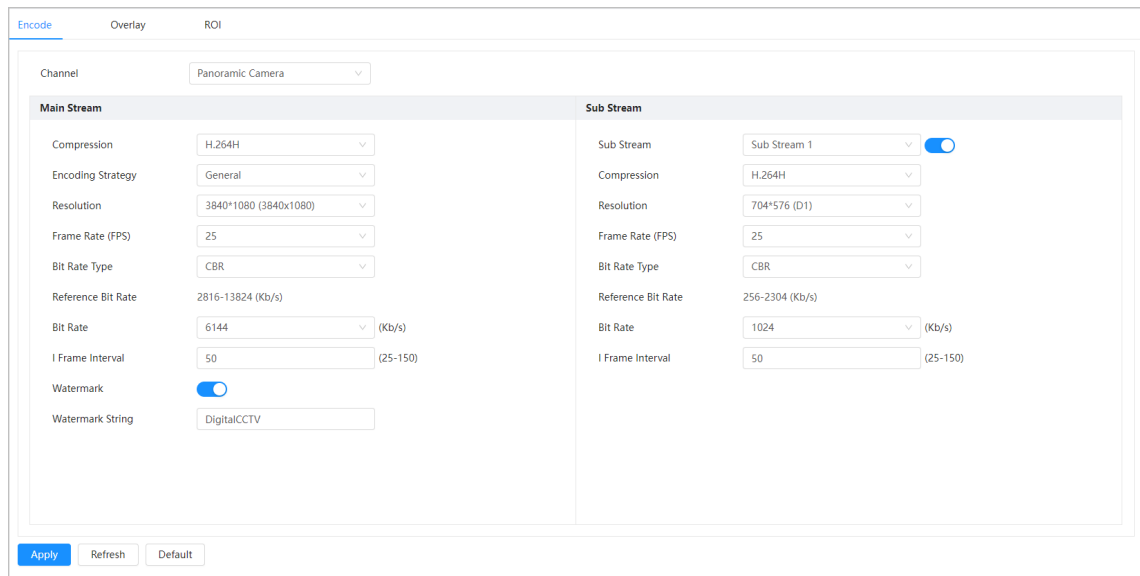
4.3.3.1 Encode

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

Procedure

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

Figure 4-18 Encode



Step 2 Configure encode parameters.

Table 4-12 Description of encode parameters

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

Parameter	Description
Encoding Strategy	Select the encoding strategy.  When you enabling smart codec, it can improve video compressibility and save storage space. After smart codec is enabled, the device would stop supporting the third bit stream, ROI and smart event detection.
Output Mode	You can select from Single Stream or Flex Stream .
Resolution	The resolution of the video. The higher the value is, the clearer the image will be, but the bigger the required bandwidth will be.
Frame Rate (FPS)	The number of frame in one second of video. The higher the value is, the clearer and smoother the video will be.
Bit Rate Type	The bit rate control type during video data transmission. You can select bit rate type from: • CBR (Constant Bit Rate): The bit rate changes a little and keeps close to the defined bit rate value. • VBR (Variable Bit Rate): The bit rate changes as monitoring scene changes.  The Bit Rate Type can only be set as CBR when Encode Mode is set as MJPEG.
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.

Parameter	Description
I Frame Interval	The number of P frames between two I frames, and the I Frame Interval range changes as FPS changes. We recommend you 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.
Watermark String	

Step 3 Click **Apply**.

4.3.3.2 Overlay

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

4.3.3.2.1 Privacy Masking

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

Procedure

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

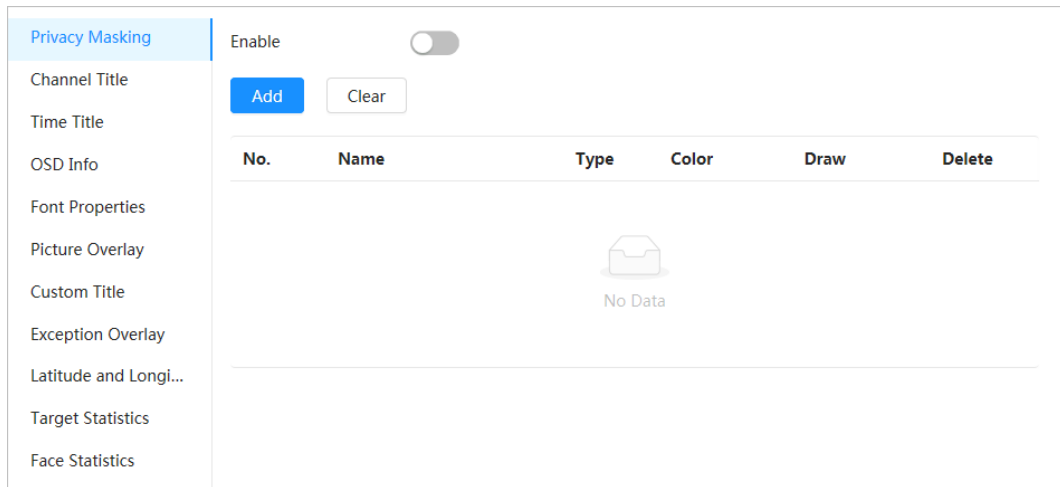
Step 2 Select **Enable**.

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



- Up to 8 mosaic blocks can be added to the same screen.
- Click **Clear** to delete all blocks.
- Select the block you want to delete, and then click  to delete the corresponding block.

Figure 4-19 Privacy masking



Step 4 Adjust the block size to protect the privacy.

Step 5 Click **Apply**.

4.3.3.2.2 Channel Title

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

Procedure

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

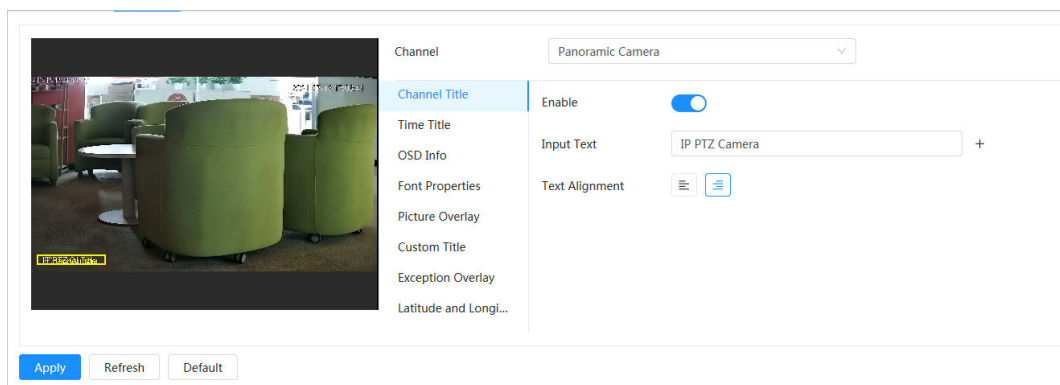
Step 2 Select **Enable**.

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



Click **+** to add the channel title, and you can add a maximum of one line.

Figure 4-20 Channel title



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

Step 5 Click **Apply**.

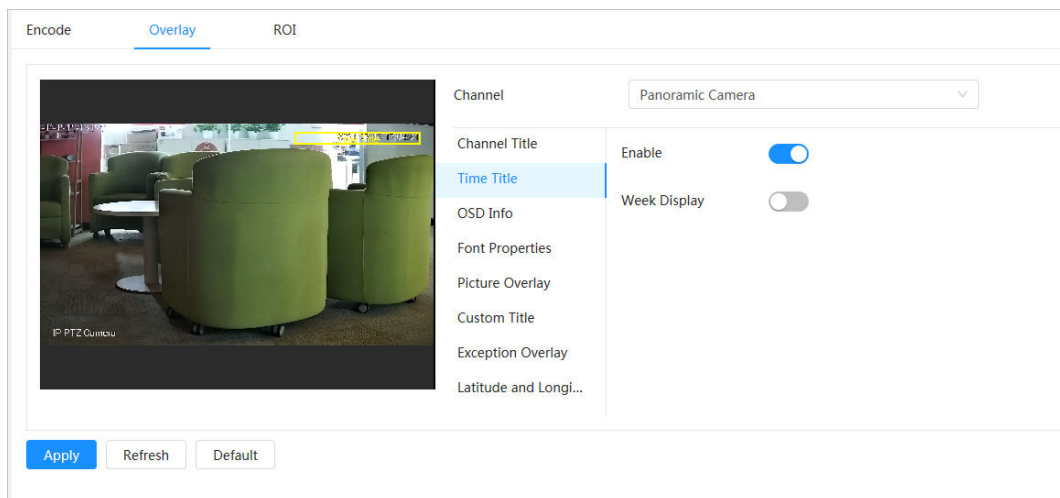
4.3.3.2.3 Time Title

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

Procedure

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

Figure 4-21 Time title



- Step 5 Click **Apply**.

4.3.3.2.4 Location

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

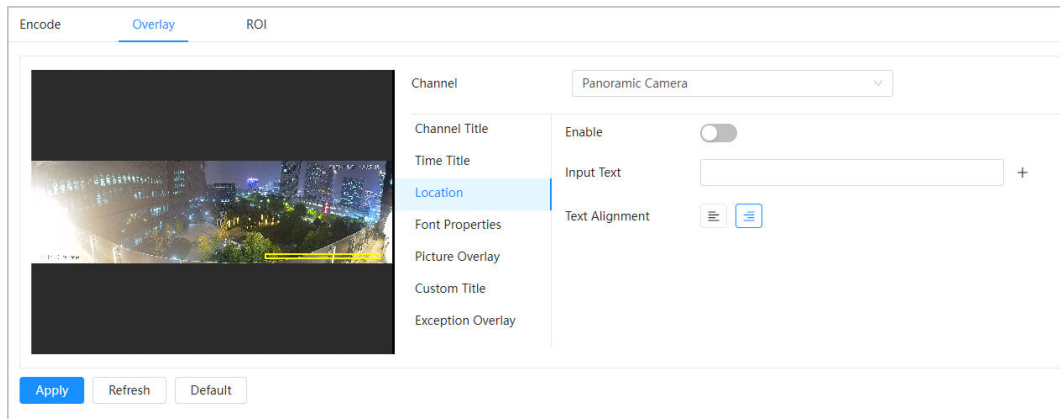
Procedure

- Step 1 Select  > **Camera** > **Encode** > **Overlay** > **Location**.
- Step 2 Select **Enable**.
- Step 3 Configure the location information, and then select the text alignment.



Click + to add the location, and you can add 13 lines at most.

Figure 4-22 Location



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

Step 5 Click **Apply**.

4.3.3.2.5 Battery Information

You can enable this function when you need to display the battery information on the live page.

Prerequisites

This function is available only when you connect an external battery.

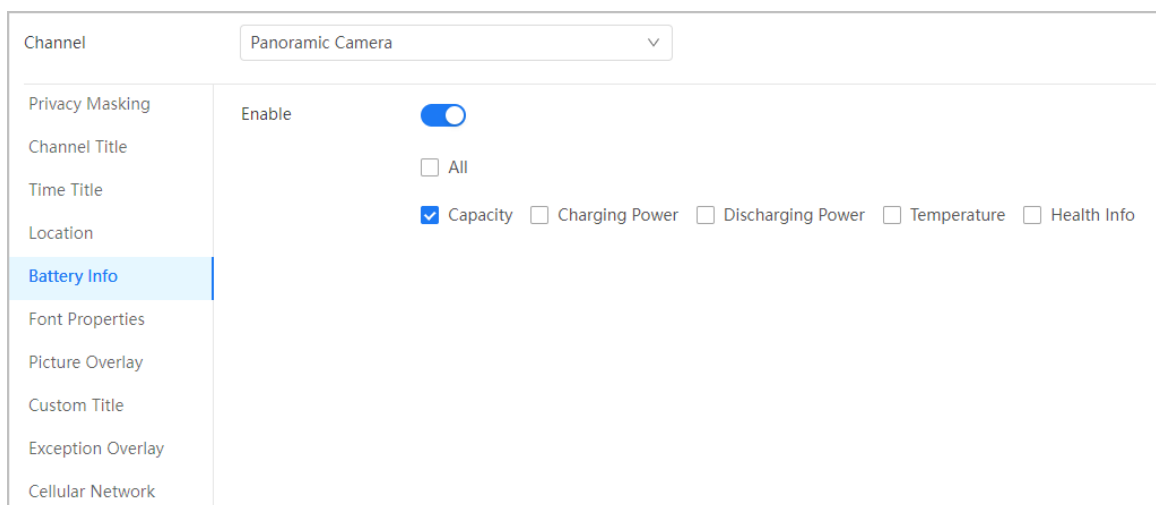
Procedure

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

Step 2 Select **Enable**.

Step 3 Choose the battery information you want to display on the live page, including **All**, **Capacity**, **Charging Power**, **Discharging Power**, **Temperature** and **Health Info**.

Figure 4-23 Battery information



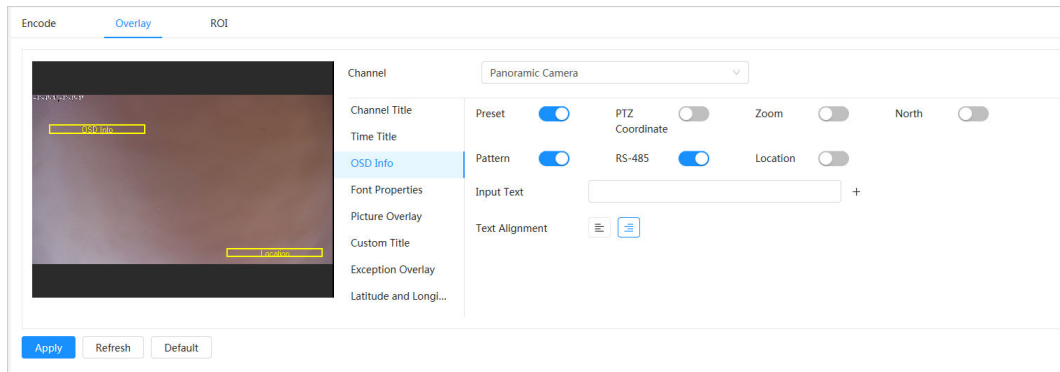
4.3.3.2.6 OSD Information

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

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

Figure 4-24 OSD information



Step 2 Configure OSD Information.

Table 4-13 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 s later.  It is enabled by default.
PTZ Coordinates	Select Enable, and the PTZ coordinates information is displayed on the image.  It is enabled by default.
Zoom	Select Enable and the zoom information is displayed on the image.  It is enabled by default.
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.

Parameter	Description
Pattern	Select Enable, and the pattern information is displayed on the image.  It is enabled by default.
Temperature	Select Enable , and then the temperature 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.
Input Text	Enter the text, and then the text is displayed on the image. Click + to expand the texts.  You can add up to 13 lines of text.
Text Alignment	Set the alignment mode of the displayed information on the image.

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

Step 4 Click **Apply**.

4.3.3.2.7 Font Properties

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

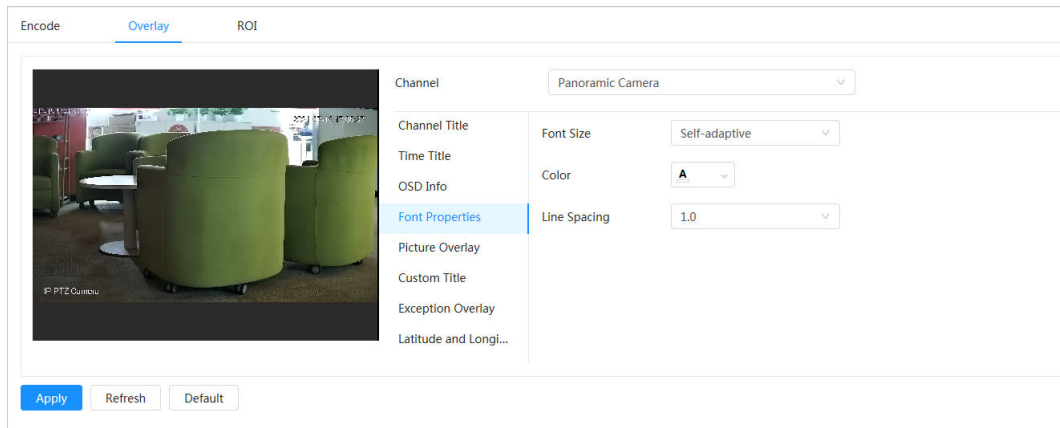
Procedure

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

Step 2 Select the font color and size.

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

Figure 4-25 Font properties



Step 3 Click **Apply**.

After saving the settings, the font color and size in the video image will update accordingly.

4.3.3.2.8 Picture Overlay

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

Background Information



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

Procedure

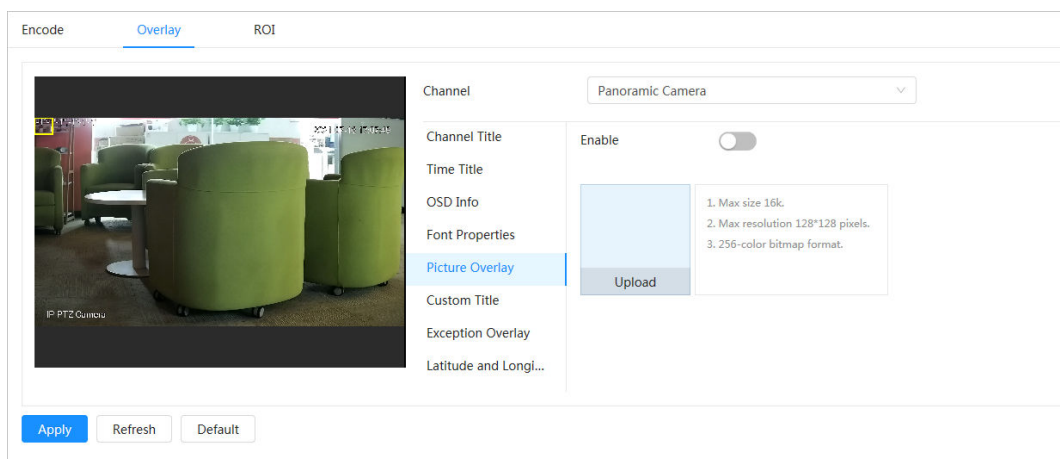
Step 1 Select  > **Camera** > **Encode** > **Overlay** > **Picture Overlay**.

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

Step 3 Click **Upload**, and then select the overlaid picture.

The picture is shown in the **Picture Preview**.

Figure 4-26 Picture overlay



Step 4 You can move the overlaid picture to the position you want in the image.

Step 5 Click **Apply**.

4.3.3.2.9 Custom Title

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

Procedure

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

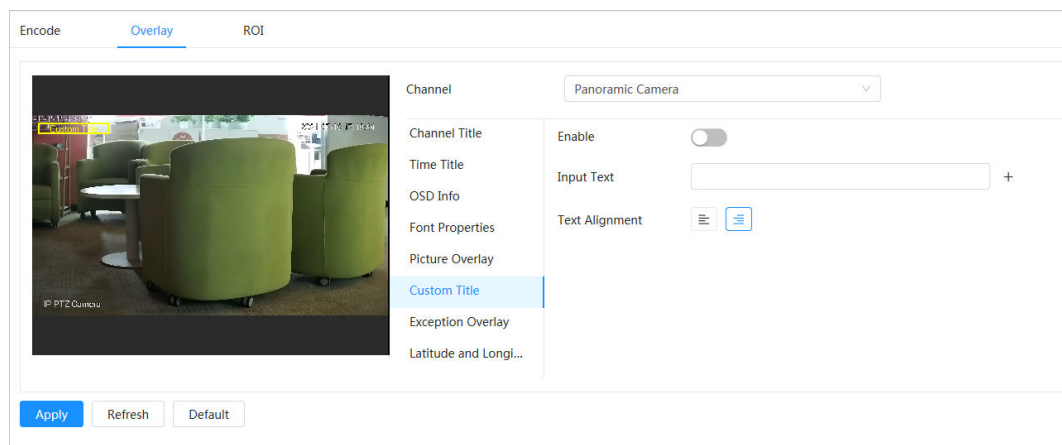
Step 2 Select **Enable**.

Step 3 Configure custom overlay and then select the text alignment.



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

Figure 4-27 Custom title



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

Step 5 Click **Apply**.

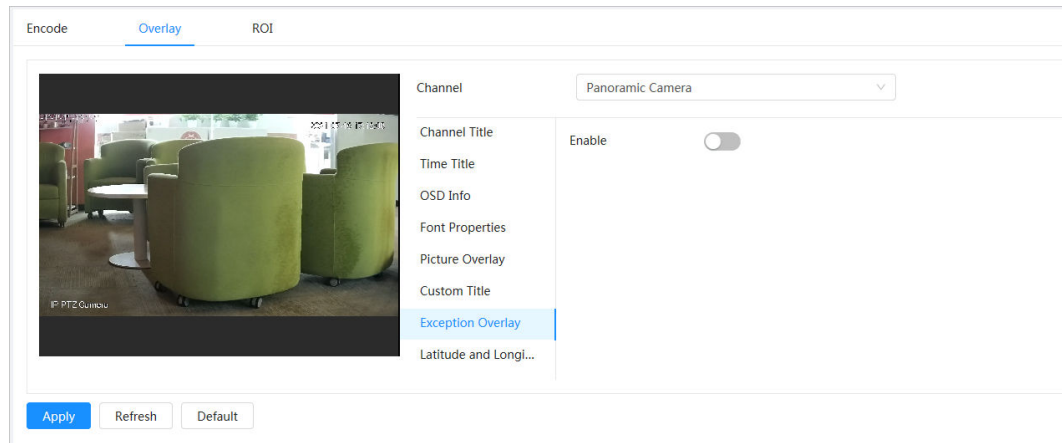
4.3.3.2.10 Exception Overlay

You can enable this function to display the overlaid abnormal information of the cameras in the video image.

Procedure

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

Figure 4-28 Exception overlay



Step 2 Select **Enable**.

Step 3 Click **Apply**.

4.3.3.2.11 Cellular Network

After you configure the cellular network, the Device's mobile network information will be overlaid on the live page. This function is only available on some models.

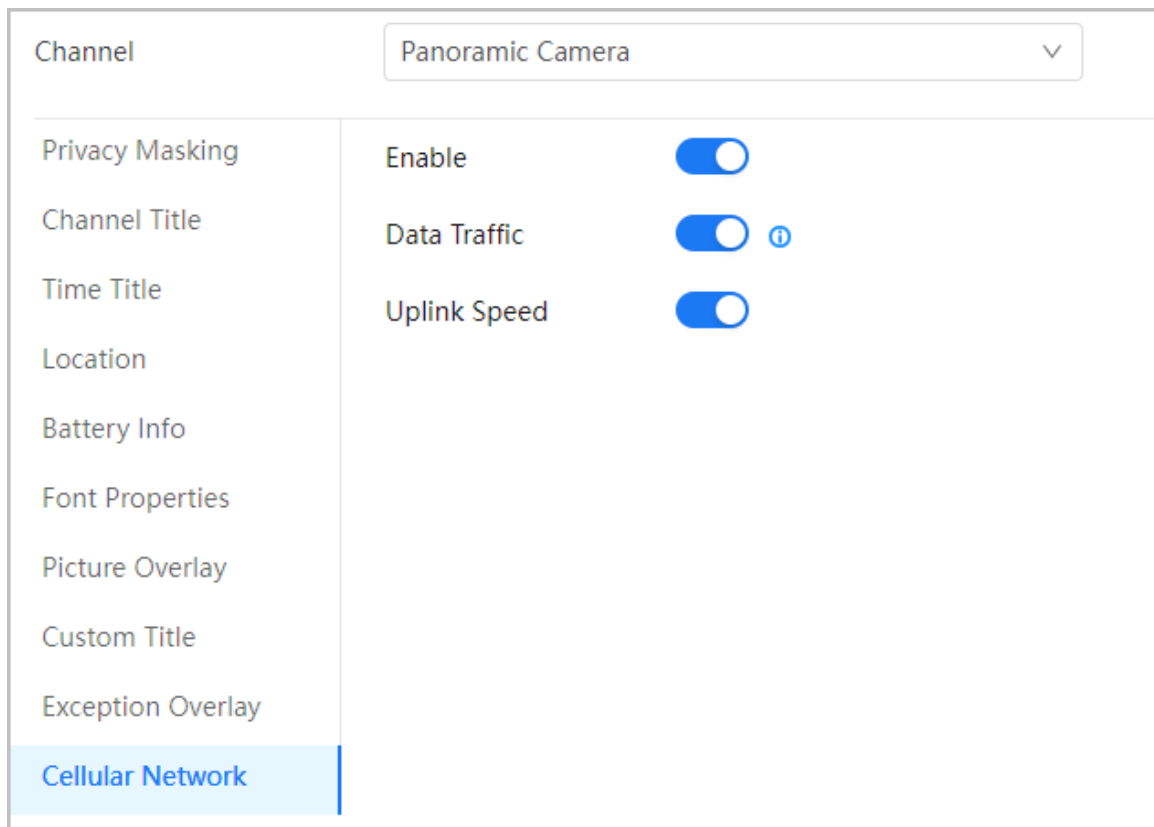
Procedure

Step 1 Select  > **Camera** > **Encode** > **Overlay** > **Cellular Network**.

Step 2 Select **Enable** and choose the following information as needed.

- **Data Traffic** : Overlay the traffic usage statistics.
- **Uplink Speed** : Overlay the uplink speed statistics.

Figure 4-29 Cellular network



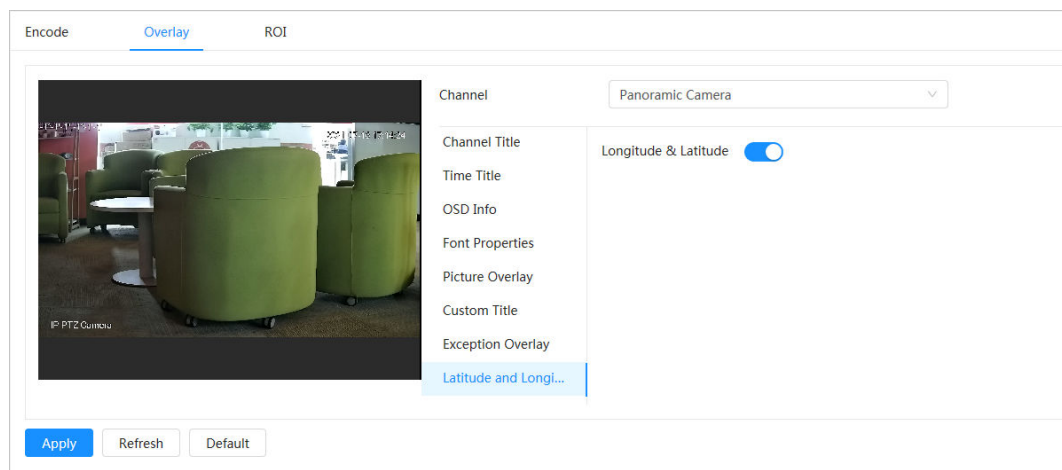
4.3.3.2.12 Longitude & Latitude

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

Procedure

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

Figure 4-30 Longitude & latitude



Step 2 Enable **Longitude & Latitude**.

Step 3 Click **Apply**.

4.3.3.2.13 Target Statistics

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

Procedure

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

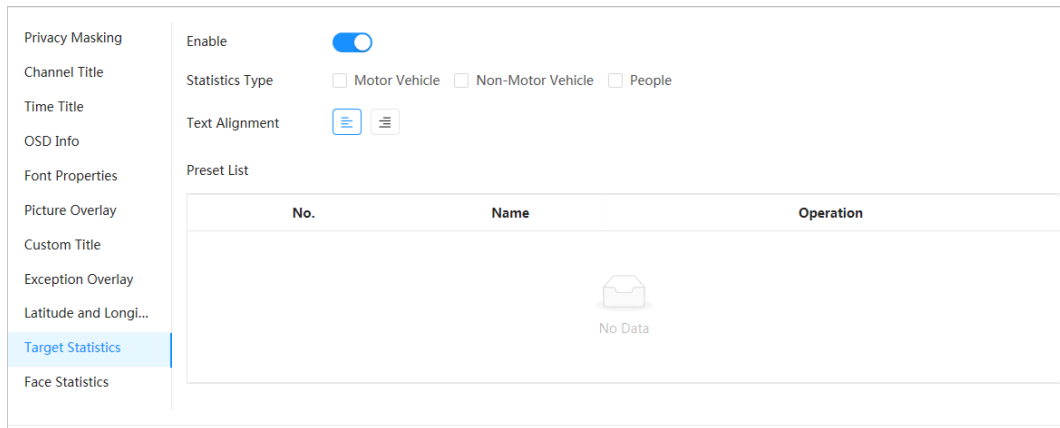
Step 2 Select **Enable**.

Step 3 Select the statistics type, and then select the text alignment.



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

Figure 4-31 Target statistics



No.	Name	Operation
No Data		

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

Step 5 Click **Apply**.

The overlaid information will be displayed after enabling the video metadata function.

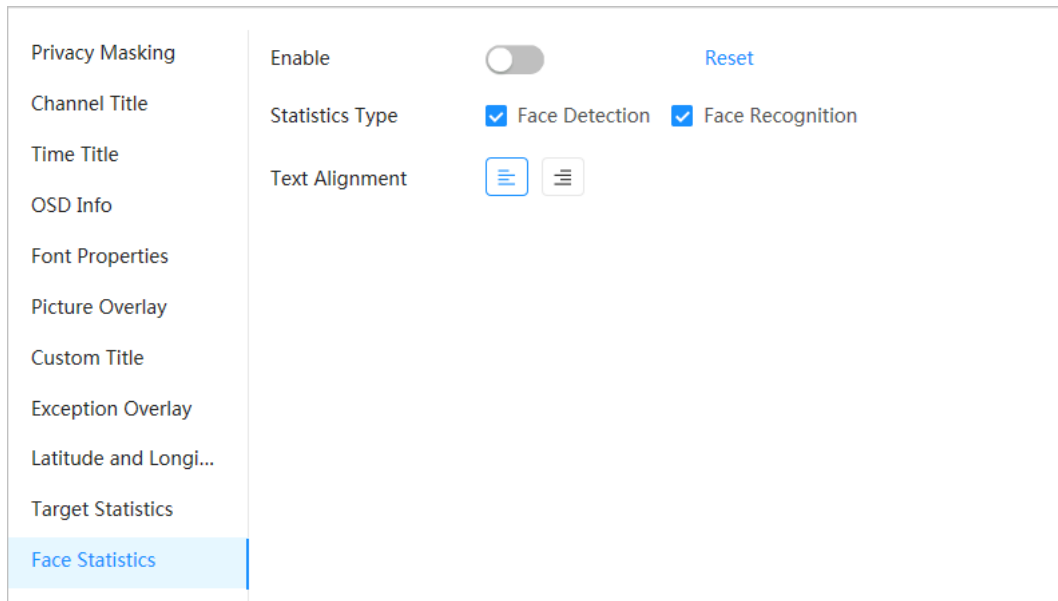
4.3.3.2.14 Face Statistics

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

Procedure

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

Figure 4-32 Face statistics



Step 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.

Step 3 Move the face statistics box to the position that you want in the image.

Step 4 Click **Apply**.

Related Operations

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

4.3.3.3 ROI

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

Procedure

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

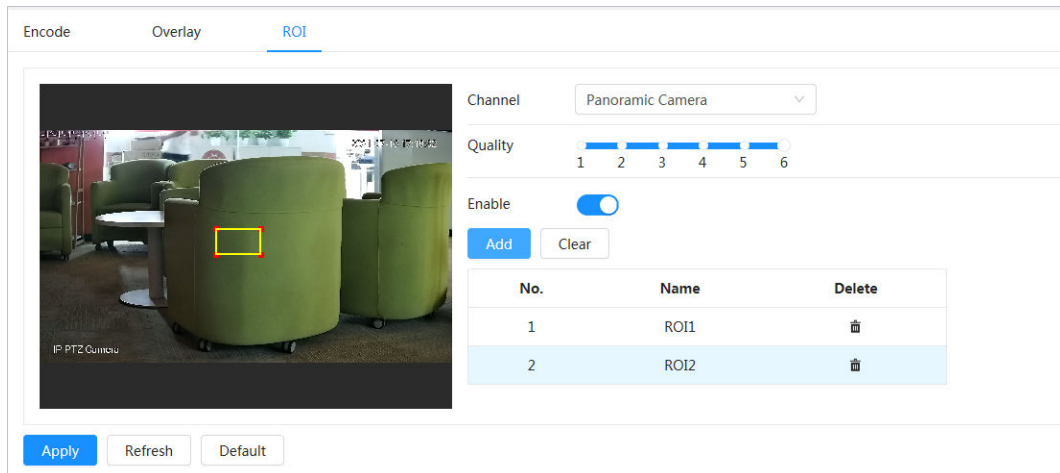
Step 2 Select channel, and then select **Enable**.

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



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

Figure 4-33 ROI



Step 4 Click **Apply**.

4.3.4 Audio

You can configure audio parameters and alarm audio.



The function is available on select models.

4.3.4.1 Configuring Audio Parameters

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

Background Information



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

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

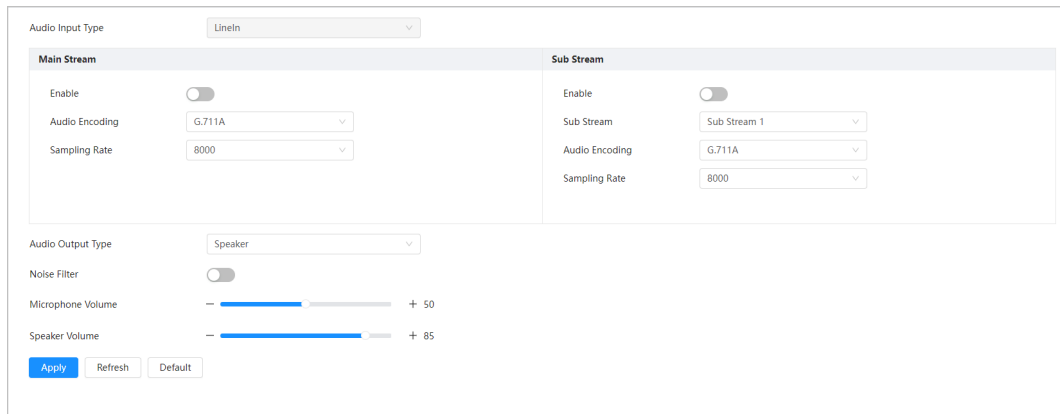
Step 2 Select **Main Stream** or **Sub Stream** to enable audio encoding.

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



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

Figure 4-34 Audio



Step 3 Configure audio parameters.

Table 4-14 Description of audio parameters

Parameter	Description
Audio Encoding	Configure audio encoding. The configured audio encode mode applies to both audio and intercom. The default value is recommended.
Sampling Rate	Sampling number per second. The higher the sampling rate is, the more samples per second, and the higher the accuracy of the restored signal.
Audio Output Type	Select the audio output type of the Camera. LineOut : The Camera outputs audio signals through an external audio device. Speaker : The Camera outputs audio signals through its speaker.
Noise Filter	Enable this function, and then the system auto filters ambient noise.
Microphone Volume	Adjusts microphone volume.
Speaker Volume	Adjusts speaker volume.

Step 4 Click **Apply**.

4.3.4.2 Configuring Alarm Tone

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

Procedure

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

Figure 4-35 Alarm tone

Audio					
Alarm Tone					
Add					
	Name	Play	Download	Edit	Delete
☐	Danger no climbing.wav	▶	⬇	✎	🗑
☐	Danger zone keep away.wav	▶	⬇	✎	🗑
☐	Deep water be cautious.wav	▶	⬇	✎	🗑
☐	No parking here.wav	▶	⬇	✎	🗑
☐	Private land no entry.wav	▶	⬇	✎	🗑
☐	Sidewalk only no vehicles.wav	▶	⬇	✎	🗑
☐	Valuables Don't touch.wav	▶	⬇	✎	🗑
☐	Vehicle lane only no pedestrians.wav	▶	⬇	✎	🗑
☐	Warning zone keep off.wav	▶	⬇	✎	🗑
☐	You are under surveillance.wav	▶	⬇	✎	🗑
☒	alarm.wav	▶	⬇	✎	🗑

Step 2 Click **Add**.

Figure 4-36 Add audio tone

Add
✕

☒ Record
☐ Upload

File
.pcm

Record

Step 3 Configure the audio file.

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



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

Step 4 Select the audio file that you need.

Related Operations

- Play audio: Click  to play the alarm audio.

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

4.4 Network

This section introduces network configuration.

4.4.1 TCP/IP

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

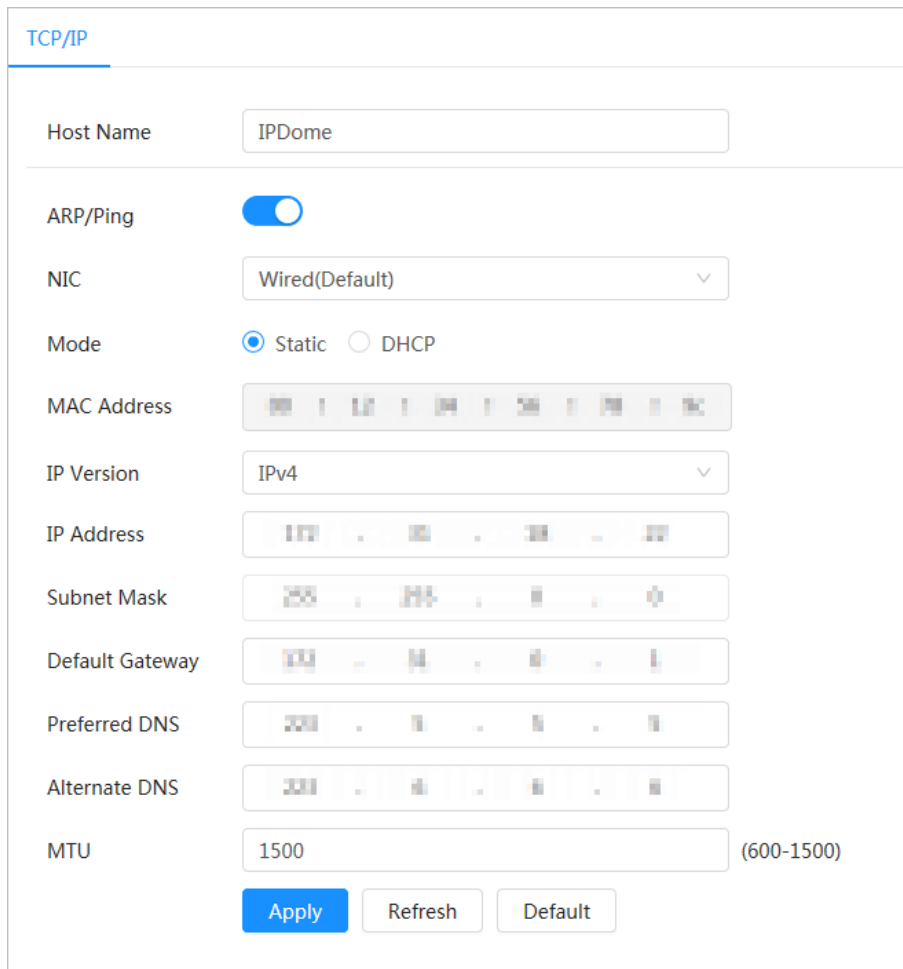
Prerequisites

The Camera has connected to the network.

Procedure

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

Figure 4-37 TCP/IP



The screenshot displays the TCP/IP configuration page. At the top, there is a tab labeled 'TCP/IP'. Below it, the 'Host Name' is set to 'IPDome'. The 'ARP/Ping' feature is enabled with a toggle switch. The 'NIC' is set to 'Wired(Default)'. Under 'Mode', 'Static' is selected with a radio button, while 'DHCP' is unselected. The 'MAC Address' is shown as a series of hexadecimal digits. The 'IP Version' is set to 'IPv4'. The 'IP Address', 'Subnet Mask', and 'Default Gateway' are each represented by a row of four input fields with dropdown arrows. The 'Preferred DNS' and 'Alternate DNS' are also represented by rows of four input fields. The 'MTU' is set to '1500' with a range '(600-1500)' indicated. At the bottom, there are three buttons: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Step 2 Configure TCP/IP parameters.

Table 4-15 Description of TCP/IP parameters

Parameter	Description
Host Name	Enter the host name.  The maximum length is 15 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/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 needs to be configured, and the default one is Wired(Default) .
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 : When there is DHCP (Dynamic Host Configuration Protocol) 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 that you need.  • IPv6 does not have subnet mask. • The default gateway must be on the same network segment with the IP address.
Subnet Mask	
Default Gateway	
Preferred DNS	IP address of the preferred DNS.
Alternate DNS	IP address of the alternate DNS.

Parameter	Description
MTU	Set NIC MTU value. The default setup is 1500 bytes. We recommend you to check the MTU value of the gateway first, and then set the MTU value of the Device equal to or smaller than the gateway value, which helps to reduce the packets slightly and enhance network transmission efficiency.  Please be advised that changing MTU value might result in NIC restart, network offline and affect current running operation.

Step 3 Click **Apply**.

Related Operations

Configuring IP address with ARP/Ping.

1. Keep the Camera that needs to be configured and the computer 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 computer, and then enter the following command.

Figure 4-38 Edit command

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

4. Restart the Camera.
5. Check the computer command line, if information such as **Reply from 192.168.0.125...** is displayed, the configuration succeeds, and you can turn it off then.

6. Enter `http://IP address` in the browser address bar to log in.

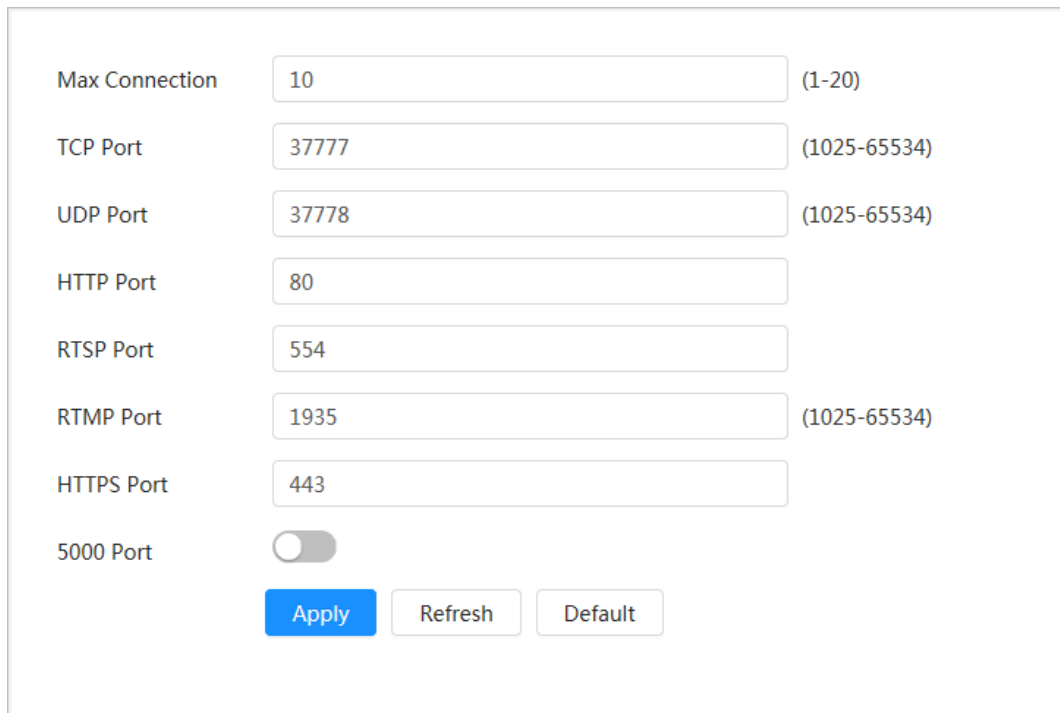
4.4.2 Port

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

Procedure

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

Figure 4-39 Port



Max Connection	10	(1-20)
TCP Port	3777	(1025-65534)
UDP Port	3778	(1025-65534)
HTTP Port	80	
RTSP Port	554	
RTMP Port	1935	(1025-65534)
HTTPS Port	443	
5000 Port	☐	

Apply Refresh Default

Step 2 Configure port parameters.



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

Table 4-16 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 Camera simultaneously. The value is 10 by default.

Parameter	Description
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.
RTSP Port	Real Time Streaming Protocol Port. The value is 554 by default. - If you play live view with QuickTime, VLC (Video LAN Client) or Blackberry smart phone, the following URL format is available. - When the URL format requires RTSP, you need to specify channel number and bit stream type in the URL (Uniform Resource Locator) , and also user name 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 (Common Intermediate Format). URL format example: rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0 Among that: - Username: The username, such as admin. - Password: The password, such as admin. - IP: The device IP, such as 192.168.1.112. - Port: Leave it as default (554). - Channel: The channel number, which starts from 1. For example, if you are using channel 2, then the channel=2. - Subtype: The bit stream type; 0 means main stream (Subtype=0) and 1 means sub stream (Subtype=1). Example: If you require the sub stream of channel 2 from a certain device, then the URL should be: rtsp://admin:admin@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	RTMP (Real Time Messaging Protocol) provides service. It is 1935 by default.
HTTPS Port	HTTPS (Hyper Text Transfer Protocol Secure) port. It is 443 by default.

Parameter	Description
5000 Port	The port is disabled by default. If you need to connect the Camera to intelligent transportation box through 5000 port, enable this port.  There might be network risk if the port is enabled. Please be cautious.

Step 3 Click **Apply**.

4.4.3 PPPoE

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

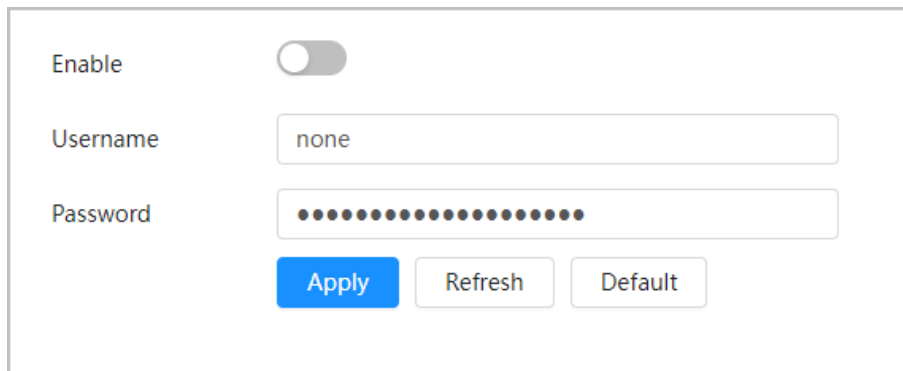
Prerequisites

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

Procedure

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

Figure 4-40 PPPoE



Step 2 Click , and then enter username and password.



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

Step 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 visit the camera with the same domain name no matter how the IP address changes.

Prerequisites

Check the type of DNS server supported by the Camera.

Procedure

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



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

Step 2 Click  to enable the function.

Step 3 Configure DDNS parameters.

Figure 4-41 DDNS

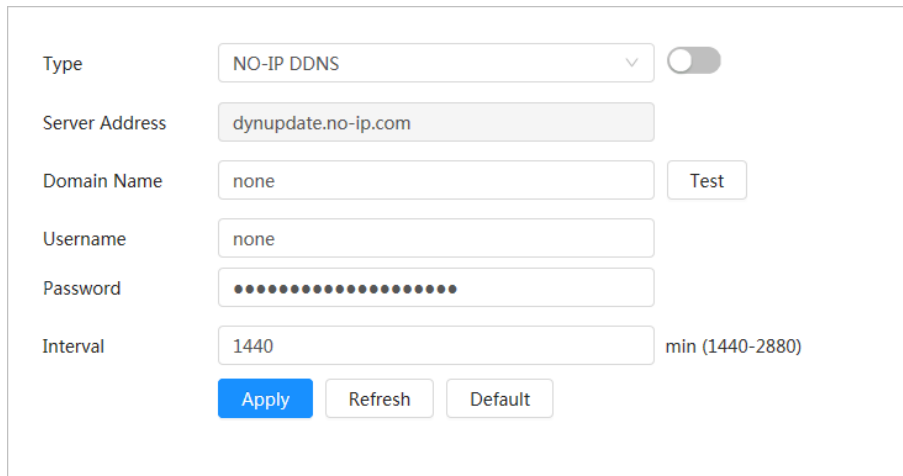


Table 4-17 Description of DDNS parameters

Parameter	Description
Type	Select the DDNS service provider from the list below for the corresponding web addresses.
Server Address	• CN99 DDNS web address: www.3322.org • NO-IP DDNS web address: dynupdate.no-ip.com • Dyndns DDNS web address: members.dyndns.org
Domain Name	The domain name you registered on the DDNS website.

Parameter	Description
Test	Only when selecting NO-IP DDNS type, you can click Test to check whether the domain name registration is successful.
Username	Enter the user name and password that are provided from the DDNS server provider.
Password	 You must first register an account (includes user name and password) on the DDNS server provider's website.
Interval	The update cycle of the connection between the Camera and the server. The time is 10 minutes by default.

Step 4 Click **Apply**.

Results

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

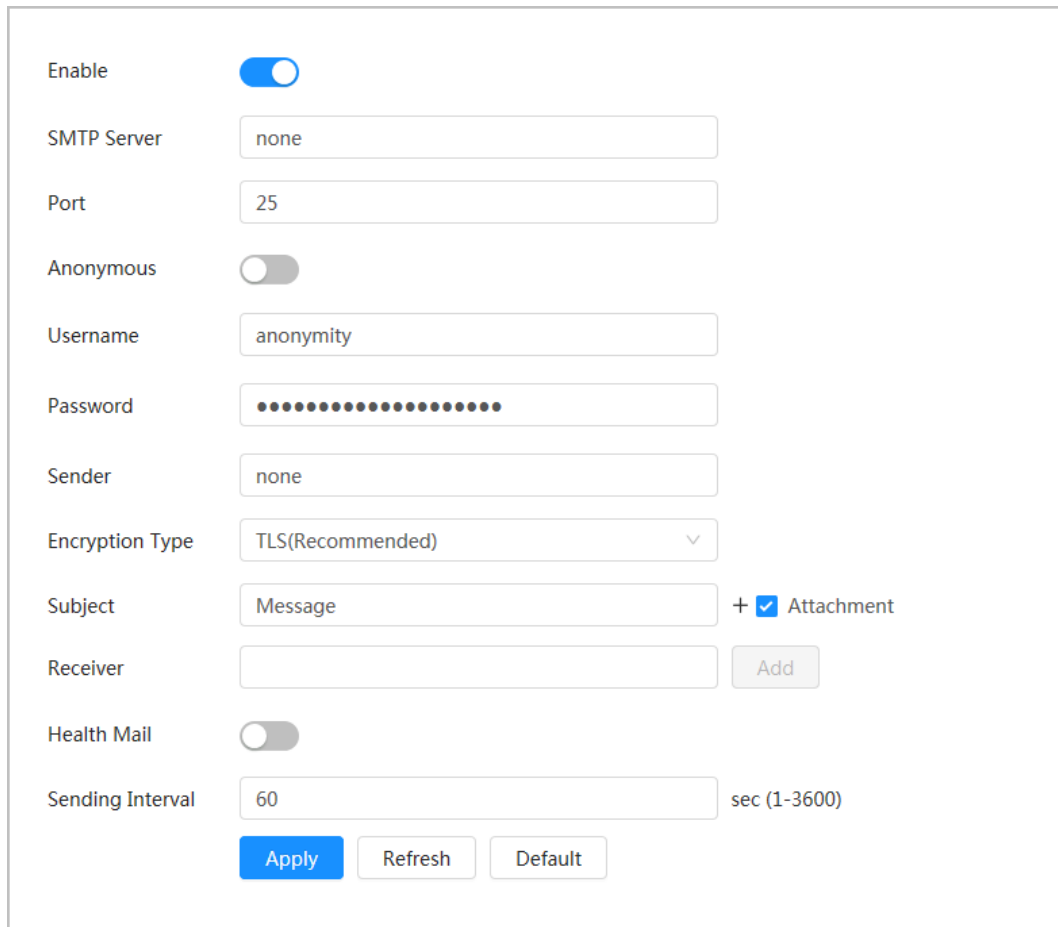
4.4.5 Email

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

Procedure

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

Figure 4-42 Email



The image shows a web-based configuration interface for email settings. It includes the following fields and controls:

- Enable:** A toggle switch that is currently turned on (blue).
- SMTP Server:** A text input field containing the value "none".
- Port:** A text input field containing the value "25".
- Anonymous:** A toggle switch that is currently turned off (grey).
- Username:** A text input field containing the value "anonymity".
- Password:** A password input field with masked characters (dots).
- Sender:** A text input field containing the value "none".
- Encryption Type:** A dropdown menu showing "TLS(Recommended)".
- Subject:** A text input field containing the value "Message". To its right is a checkbox labeled "Attachment" which is checked.
- Receiver:** An empty text input field with an "Add" button to its right.
- Health Mail:** A toggle switch that is currently turned off (grey).
- Sending Interval:** A text input field containing the value "60", with a unit label "sec (1-3600)" to its right.

At the bottom of the form are three buttons: "Apply" (blue), "Refresh" (grey), and "Default" (grey).

Step 2 Click  to enable the function.

Step 3 Configure email parameters.

Table 4-18 Description of email parameters

Parameter	Description	
SMTP Server	SMTP (Simple Mail Transfer Protocol) server address.	 For details, see Table 4-19 .
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.	

Parameter	Description
Encryption Type	Select from None , SSL and TLS.  For details, see Table 4-19 .
Subject	Enter maximum 63 characters in Chinese, English, and numerals. Click + to select title type, including Device Name , Device ID , and Event Type . 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  , configure the Sending Interval, and then the system sends test mail as the set interval.  Sending interval of health mail ranges from 1 second to 3,600 seconds.
Sending Interval	

Table 4-19 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	

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

Step 4 Click **Apply**.

4.4.6 UPnP

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

Prerequisites

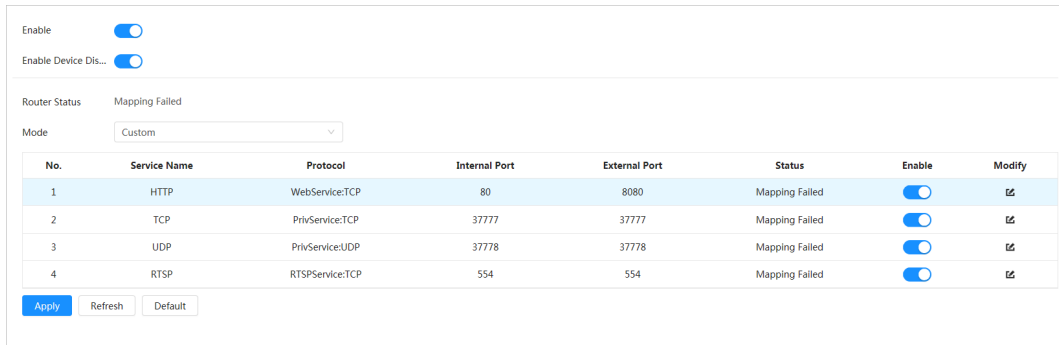
- Make sure the UPnP service is installed in the system.
- Log in to the router, and configure WAN IP address to set up internet connection.
- Enable UPnP in the router.
- Connect your device to the LAN port of the router.

- Select  > **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

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

Figure 4-43 UPnP



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

Router Status: Mapping Failed
Mode: Custom

Step 2 Click ☐ next to **Enable**, and then select the mapping mode.

There are two mapping modes: **Custom** and **Default**.

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

Step 3 Click **Apply**.

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

4.4.7 SNMP

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

Prerequisites

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

Procedure

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

Step 2 Select SNMP version to enable SNMP.

- Select **V1**, and then the system can only process information of V1 version.

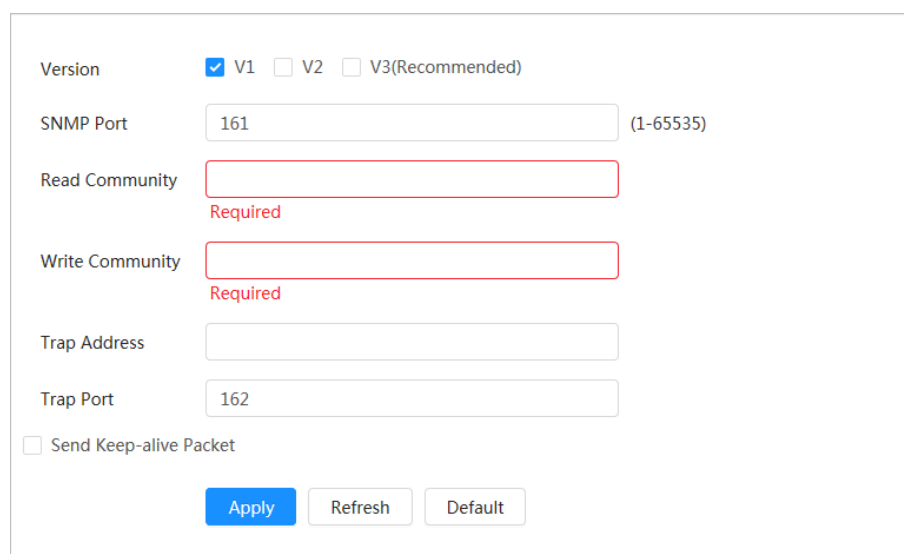
- Select **V2**, and then the system can only process information of V2 version.
- Select **V3 (Recommended)**, and then **V1** and **V2** become unavailable. You can configure user name, password and authentication type. It requires corresponding user name, password and authentication type to visit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



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

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

Figure 4-44 SNMP (1)



The image shows a web-based configuration form for SNMP. It includes the following fields and controls:

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

Figure 4-45 SNMP (2)

Version
☐ V1
☐ V2
☒ V3(Recommended)

SNMP Port
(1-65535)

Read Community

Write Community

Trap Address

Trap Port

☐ Send Keep-alive Packet

Read-Only User...

Authentication Type
☒ MD5
☐ SHA

Authentication P...

Encryption Type
☒ CBC-DES
☐ CFB-AES

Encryption Passw...

Read/Write User...

Authentication Type
☒ MD5
☐ SHA

Authentication P...

Encryption Type
☒ CBC-DES
☐ CFB-AES

Encryption Passw...

Table 4-20 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.  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.

Parameter	Description
Trap Port	The target port of the Trap information sent by the software agent in the device.
Read-only Username	Set the read-only user name to access the device. It is public by default.  You can enter number, letter, and underline to form the name.
Read/Write Username	Set the read/write username access device, and it is private by default.  You can enter number, letter, and underline to form the name.
Authentication Type	You can select from MD5 and SHA . The default type is MD5 .
Authentication Password	It should be no less than 8 digits.
Encryption Type	The default is CBC-DES.
Encryption Password	It should be no less than 8 digits.

Step 4 Click **Apply**.

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



Use 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

Enable this function, and the OS and clients that support Bonjour would find the Camera automatically. You can quickly access the camera using the Safari browser.

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

Background Information



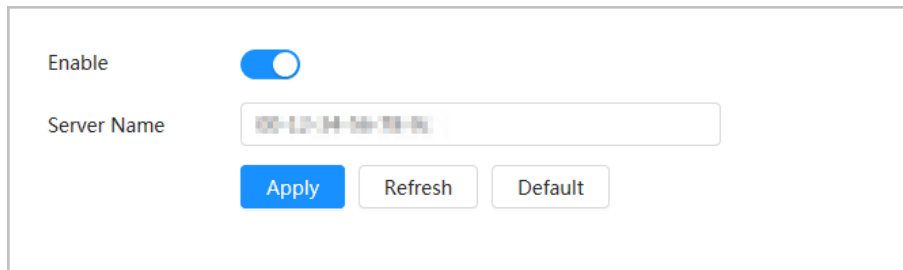
Bonjour is enabled by default.

Procedure

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

Step 2 Click , and then configure the server name.

Figure 4-46 Bonjour



Step 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

When multiple users are viewing the device video image simultaneously through network, it might fail due to limited bandwidth. You can solve this problem by setting up a multicast IP (224.0.1.0–238.255.255.255) for the Camera and adopt the multicast protocol.



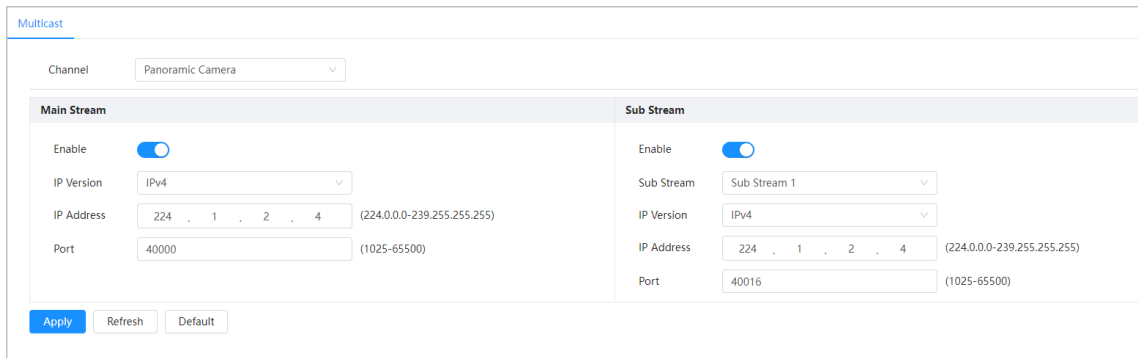
Certain models support 2 multicast protocols: RTP and TS. RTP is enabled by default for both the main stream and sub stream, while TS is disabled by default.

4.4.9.1 RTP

Procedure

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

Figure 4-47 Multicast



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

Table 4-21 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: - Channel 1: The multicast port of corresponding stream: Main Stream : 40000; Sub Stream1: 40016; Sub Stream2: 40032. - Channel 2: The multicast port of corresponding stream: Main Stream : 40048; Sub Stream1: 40064; Sub Stream2: 40080. - Channel 3: The multicast port of corresponding stream: Main Stream : 40096; Sub Stream1: 40112; Sub Stream2: 40128. - Channel 4: The multicast port of corresponding stream: Main Stream : 40144; Sub Stream1: 40160; Sub Stream2: 40176.

Step 3 Click **Apply**.

Results

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

4.4.9.2 TS

Background Information



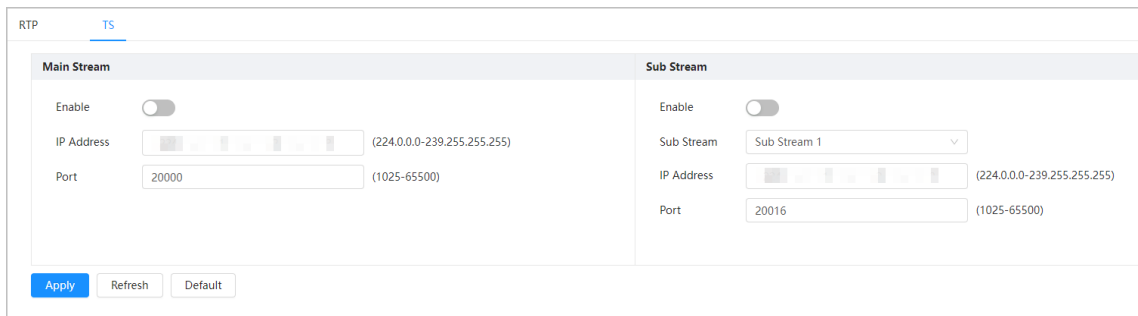
This function is available on select models.

Procedure

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

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

Figure 4-48 TS



The screenshot shows the 'TS' configuration page under 'RTP'. It is divided into two columns: 'Main Stream' and 'Sub Stream'. Both columns have an 'Enable' toggle switch, an 'IP Address' field with a range of (224.0.0.0-239.255.255.255), and a 'Port' field with a range of (1025-65500). The 'Main Stream' port is set to 20000, and the 'Sub Stream' port is set to 20016. At the bottom, there are 'Apply', 'Refresh', and 'Default' buttons.

Step 3 Click **Apply**.

4.4.10 Auto Registration

After you enable this function, when the Camera is connected to the internet, it will report the current location to the specified server, which allowing client software to easily access the Camera via the relay server.

Procedure

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

Figure 4-49 Auto registration



The screenshot shows the 'Auto Registration' configuration page. It has an 'Enable' toggle switch, a 'Server Address' field with the value 0.0.0.0, a 'Port' field with the value 7000 and a range of (1025-65535), and a 'Sub-Device ID' field with the value none. At the bottom, there are 'Apply', 'Refresh', and 'Default' buttons.

Step 2 Click , and then configure server name.

Table 4-22 Description of auto registration parameters

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

Step 3 Click **Apply**.

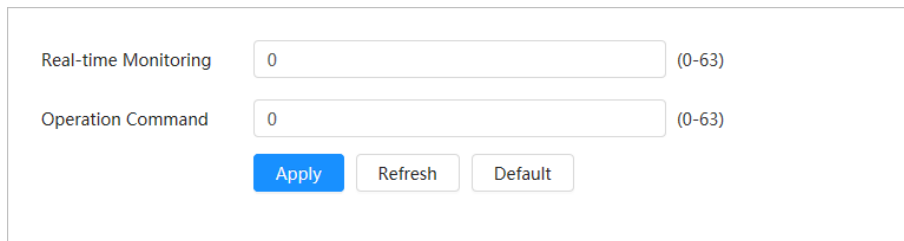
4.4.11 QoS

You can solve problems such as network delay and congestion with this function. It helps to assure bandwidth, reduce transmission delay, packet loss rate, and delay jitter to improve experience. The priority level ranges from 0 to 63, representing 64 levels, with 0 being the lowest and 63 the highest.

Procedure

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

Figure 4-50 QoS



Step 2 Configure QoS parameters.

Table 4-23 Description of QoS parameters

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

Step 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.



After the device enables multi-streaming functionality and is added to a back-end device (e.g., NVR), the services corresponding to each stream—such as video live view, recording storage, intelligent analysis, and alarm subscriptions—will independently generate data consumption. Additionally, when multiple services are used together, it might lead to duplicate data consumption. In a 4G/5G network environment, if there is no need for simultaneous access to multiple streams, we recommend you enable only a single stream to save on data costs.

4.4.12.1 Dial-up Settings

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

Procedure

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



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

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

Figure 4-51 Dial-up setting

Dial-up
Mobile

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

Network Status
Dial-up Status
Offline
SIM Status
Not Exst
Working Mode
NOService
Frequency Band
IMSI
IP Address
Subnet Mask
Default Gatew...
IMEI
ICCID

Network Signal
RSRP
Signal Strength
SINR

Apply
Refresh
Default

Step 3 Configure dial-up parameters.



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

Table 4-24 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).

Parameter		Description
APN		For ordinary cards, the APN (Access Point Name) of telecom is ctnet, 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	

Step 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

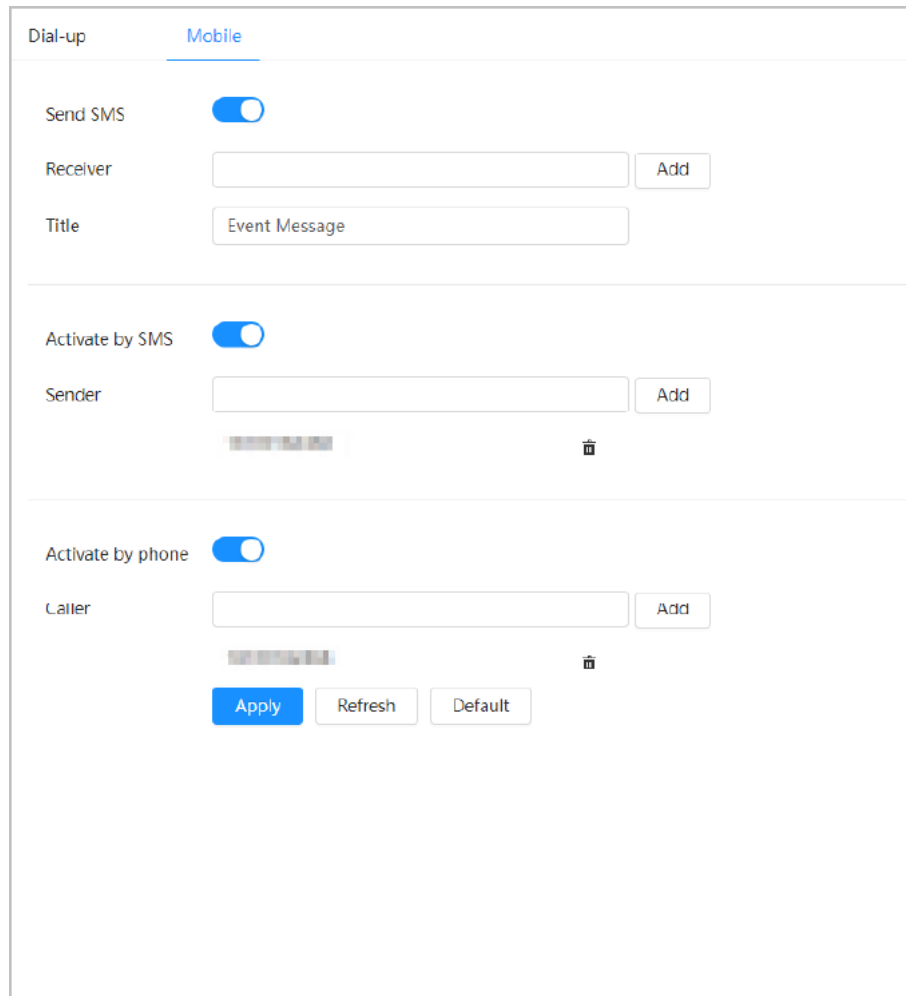
- Send SMS (Short Message Service): Set the mobile phone number of the receiver, and then all kinds of alarms can be configured to send SMS messages to the receiver through the platform.
- Activate by SMS: Set the mobile phone number of the sender, and the sender can send an activation command SMS to 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

Step 1 Select  > **Network Settings** > **Cellular Network** > **Mobile**.

Step 2 Enable **Send SMS** , **Activation by SMS**, or **Activation by phone** according to actual needs.

Figure 4-52 Mobile Setting



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



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

Step 4 Click **Apply**.

4.4.12.3 Advanced Parameters

It is suitable for reference by 4G/5G device debugging personnel.

Procedure

Step 1 Select  > **Network Settings** > **Cellular Network** > **Advanced Parameters**.
The advanced parameters will be displayed.



In the cellular parameter fluctuation list, the device records RSRP and SINR network parameters over a two-day operation period, with data logged every minute. The data can be refreshed.

Table 4-25 Advanced parameters

Parameter	Description
Cell Type	The type of the cell.
PCI	Physical Cell Identity (PCI): Used to distinguish the radio signals of different cells and ensure that no two cells within the relevant coverage area are assigned the same PCI.
CELLID	The ID of the cell.
PLMN	PLMN (Public Land Mobile Network): Identifies a public mobile communication network operated by a telecommunications service provider.
BAND	Frequency band: Identifies the standardized radio frequency band used by the cellular network.
EARFCN	Absolute Radio Frequency Channel Number (ARFCN): Represented by 16 bits, with a value range of 0 to 65,535.
RSRP	Reference Signal Received Power (RSRP): A measurement of the received power level of an LTE cell. It represents the average power measured over the resource elements carrying reference signals. A higher RSRP value indicates better signal quality.
SINR	Signal-to-Interference-plus-Noise Ratio (SINR): The ratio of the strength of the received desired signal to the strength of the received interference and noise.

Step 2 Configure **Network Lock Type**.

Figure 4-53 Configure advanced parameters

Cell Type

PCI

CELLID

PLMN

BAND

EARFCN

RSRP

SINR

Serving Cell

--

--

--

-

--

-

-

Network Lock Type

Close

Apply

Refresh

Default

2000-01-01Cellular Parameter Fluctuation

No data

Table 4-26 Parameter descriptions of the network lock type

Parameter	Description
Close	Do not use the network lock function.
Lock Band	You can configure the frequency band.
Lock Frequency Point	You can configure the frequency band and frequency point.
Lock Physical Cell	You can configure the frequency band, frequency point, physical cell and subcarrier spacing.

Step 3 Click **Apply**.

Step 4 Click  to refresh the data of the cellular parameter fluctuation.

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

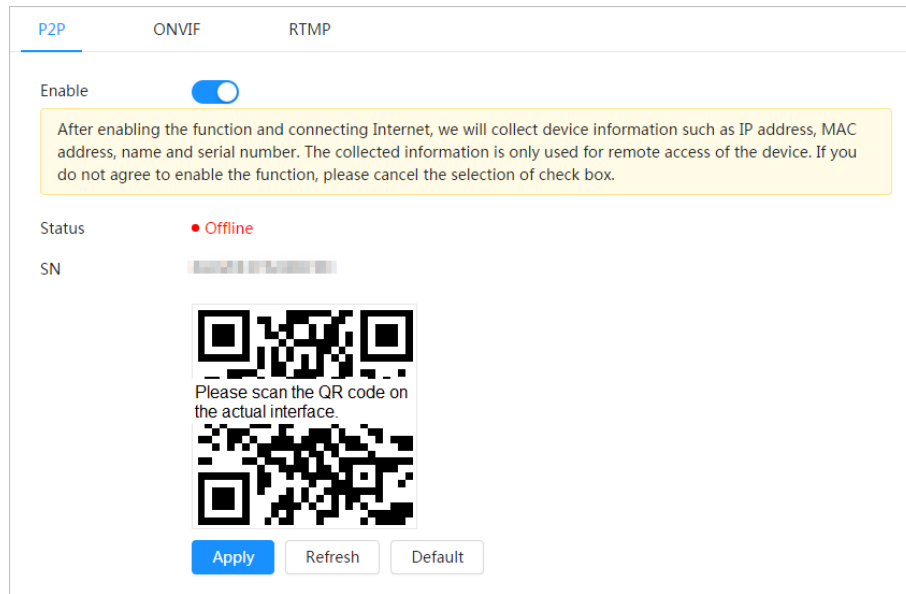
Scan the QR code with your smartphone, and then you can add and manage more devices on the mobile phone client.

Procedure

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

- When P2P is enabled, remote management on device is supported.
- When P2P is enabled and the device accesses 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 clear the **Enable** selection to reject the collection.

Figure 4-54 P2P



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

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

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

Step 5 Follow the instructions to finish the settings.

4.4.13.2 ONVIF

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

Background Information

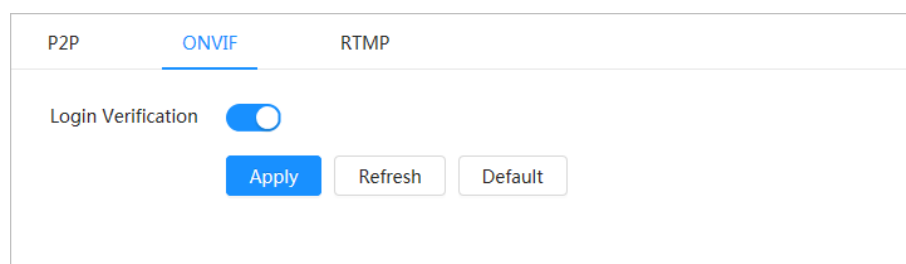


ONVIF is enabled by default.

Procedure

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

Figure 4-55 ONVIF



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

Step 3 Click **Apply**.

4.4.13.3 RTMP

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

Background Information

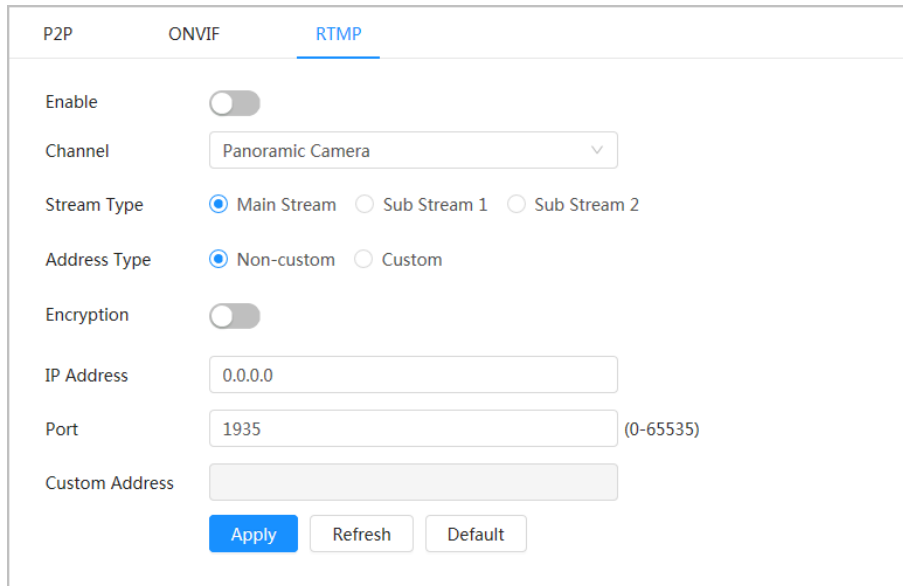


- RTMP can be configured by admin only.
- RTMP supports the H.264, H.264 B and H.264H video formats, and the AAC (Advanced Audio Coding) audio format only.

Procedure

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

Figure 4-56 RTMP



Step 2 Click  next to **Enable**.



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

Step 3 Configure RTMP parameters.

Table 4-27 Description of RTMP parameters

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

Parameter	Description
IP Address	When selecting Non-custom , you need to enter server IP address and port. IP address : Support IPv4 or domain name. Port : Keep the default value.
Port	
Custom Address	When selecting Custom , you need to enter the path allocated by the server.

Step 4 Click **Apply**.

4.4.14 Wi-Fi

Background Information



This function is only available on select models.

4.4.14.1 Configuring Wi-Fi

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

Background Information

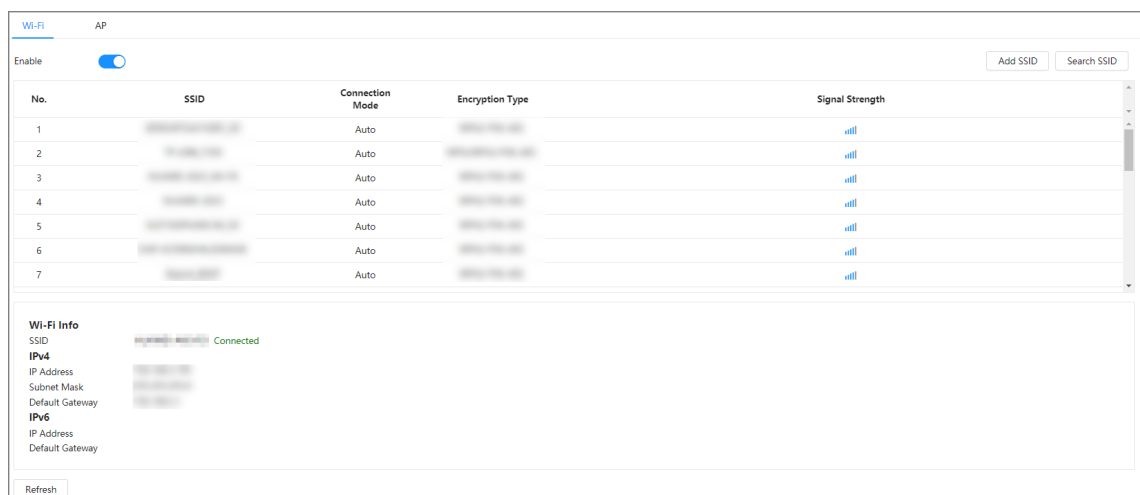
SSID (Service Set Identifier) technology divides a wireless local area network into multiple subnets requiring authentication, each subnet requires independent authentication. Only an authenticated user can enter a corresponding subnet.

Procedure

Step 1 Click  on the upper-right corner of the page, and then select **Network Settings > Wi-Fi > Wi-Fi**.

Step 2 Click  to enable the function.

Figure 4-57 Wi-Fi



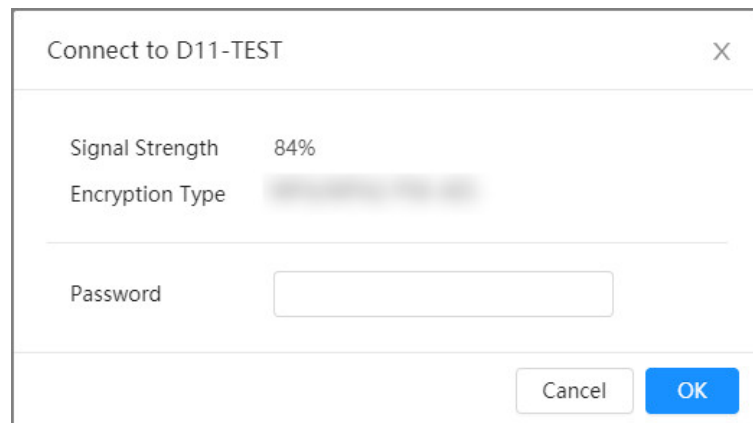
Step 3 Connect to a wireless network.

- Connect to the wireless network through search.
 1. Click **Search SSID**, and then 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.



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

Figure 4-58 Connect to Wi-Fi (search SSID)



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**.

Figure 4-59 Manually add wireless network



3. Enter the Wi-Fi password.



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

4. Click **OK**.

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

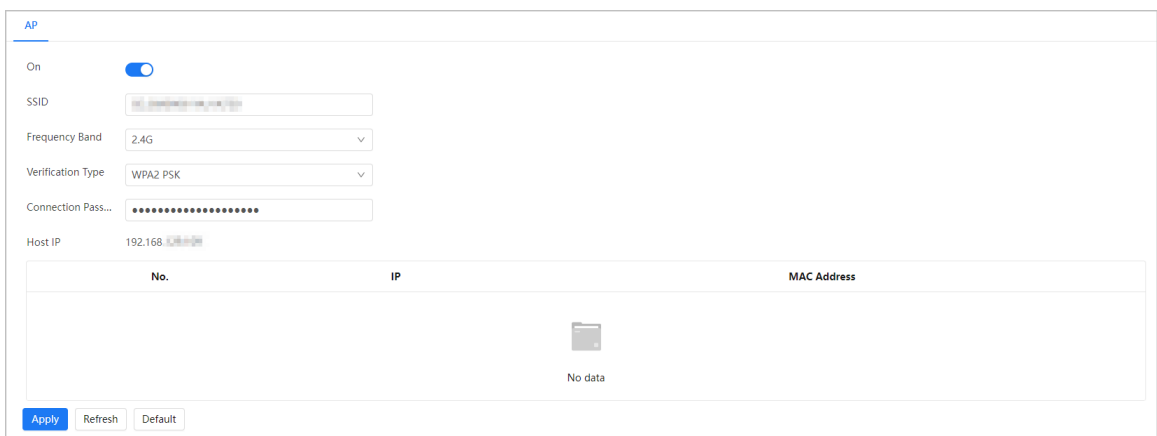
4.4.14.2 Configuring AP

Use the device as a wireless AP (Access Point). Other wireless terminal devices (such as mobile phones) can connect to the device by searching for its network name, and then log in to the device via a browser for management. Up to 5 users can log in simultaneously. The AP and Wi-Fi functions cannot be enabled at the same time, and the AP function is disabled by default.

Procedure

Step 1 Click  on the upper-right corner of the page, and then select **Network Settings > Wi-Fi > AP**.

Figure 4-60 AP



Step 2 Click  to enable the function, and then configure the AP information.

Table 4-28 Configure AP information

Parameter	Description
SSID	You can configure the SSID's name. It is the device serial number by default.
Frequency Band	Supports 2.4GHz and 5GHz operating frequency bands.
Verification Type	The default setting is WPA2 PSK and cannot be modified.
Connection Password	Set a connection password. Other wireless terminal devices must enter the connection password to connect to the device. The default password is 12345678.
Host IP	Displays the AP address of AP.

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

Results

1. Open a wireless terminal device, search for the AP's network name in the list of wireless signals, and connect to the wireless network. After a successful connection, the IP address and MAC address of the wireless terminal device will be displayed on the AP page.

2. Open a browser on the wireless terminal device and enter the host IP from the AP page or the IP address from the TCP/IP page to access the login page.
3. Enter the username and password to log in to the device. Some wireless terminal devices do not support displaying a live view.

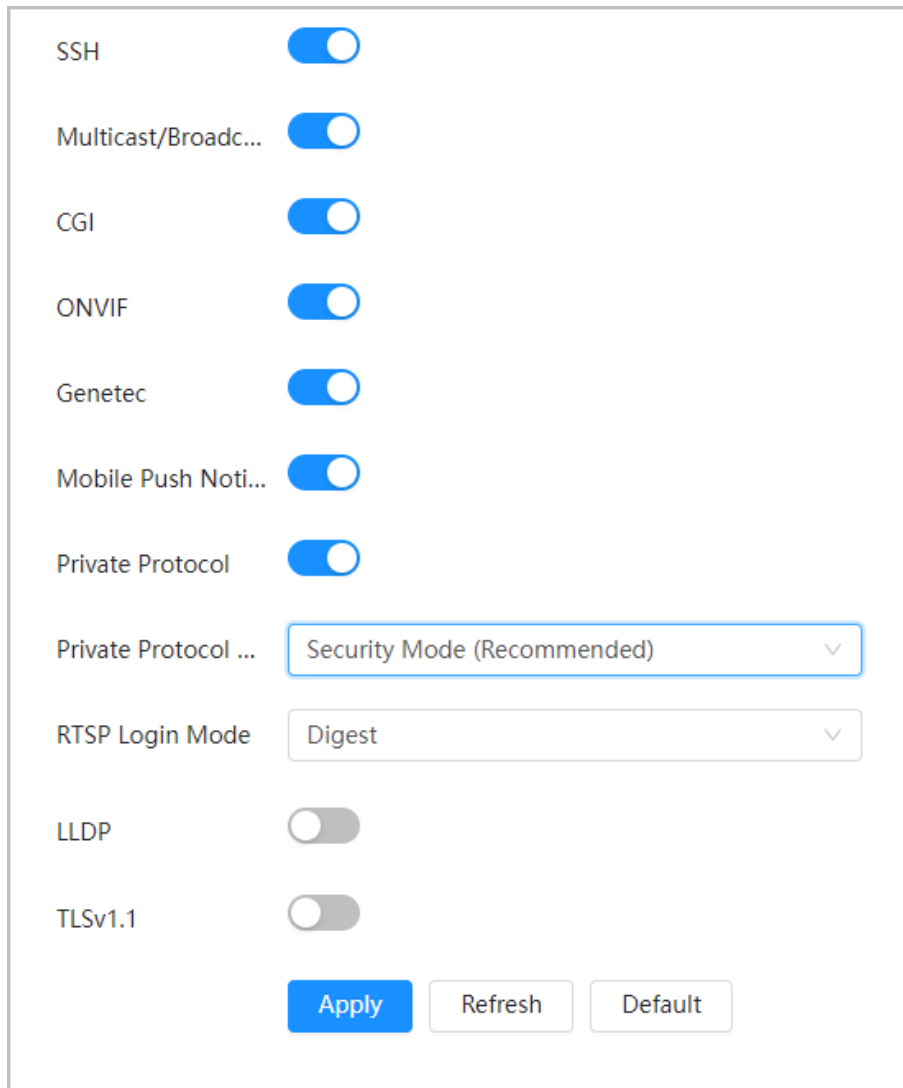
4.4.15 Basic Services

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

Procedure

Step 1 Select  > **Network Setting** > **Basic Services**.

Figure 4-61 Basic services



SSH	☒
Multicast/Broadcast	☒
CGI	☒
ONVIF	☒
Genetec	☒
Mobile Push Noti...	☒
Private Protocol	☒
Private Protocol ...	Security Mode (Recommended) ▼
RTSP Login Mode	Digest ▼
LLDP	☐
TLSv1.1	☐

Apply Refresh Default

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

Table 4-29 Description of basic service parameters

Parameter	Description
SSH	You can enable SSH (Secure Shell) authentication to perform safety management. The function is closed by default. SSH: Secure Shell.
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 to allow 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 the system will send the snapshot that was taken when alarm is triggered to your phone. This is enabled by default.
Private Protocol	Select to whether to enable private protocol function.
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.
LLDP	After LLDP is enabled, the network is accessed using the LLDP protocol.
TLSv1.1	After TLSv1.1 is enabled, communication is conducted using the Secure Transfer Protocol TLSv1.1.

Step 3 Click **Apply**.

4.5 PTZ

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



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

The device supports 2 ways to access the **PTZ** page. The following content of the chapter uses the button entry from the upper right corner of the page as an example.

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

4.5.1 Configuring Presets

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

Procedure

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

Step 2 Set step length and click the direction buttons to adjust PTZ Direction. Click     to adjust zoom, focus and iris to set the Camera to the desired position.

Step 3 Click **Add Preset**.

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

Figure 4-62 Add preset

Add Preset

Clear

Refresh

No.	Name	Apply	Delete
1	Preset1		
2	Preset2		
3	Preset3		

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

Step 5 Click  to save the preset.

Related Operations

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

4.5.2 Configuring Tour

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

Prerequisites

You need to setup several preset points in advance.

Procedure

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

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

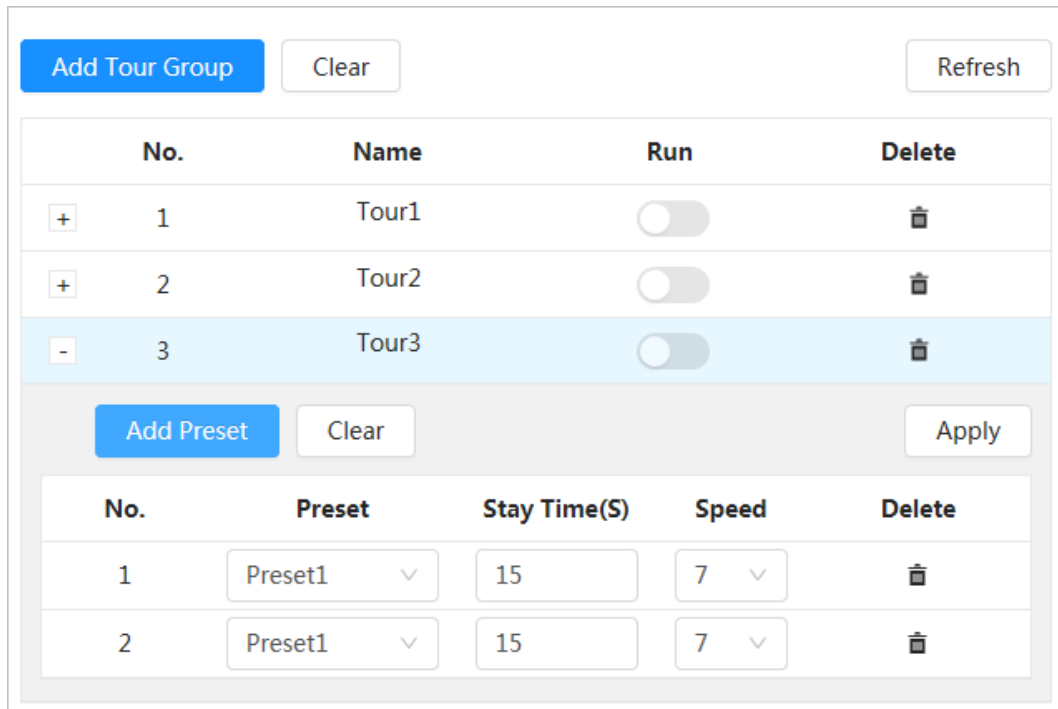
Step 3 Select tour group, and then click **Add Tour Group** . Select the presets from the **Preset Point** drop-down list on the left.

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

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

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

Figure 4-63 Tour group



No.	Name	Run	Delete
+ 1	Tour1	☐	
+ 2	Tour2	☐	
- 3	Tour3	☐	

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

Step 5 Select tour mode.

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



This function is available on select models.

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

Step 7 Click  to start tour.

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

Related Operations

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

4.5.3 Configuring Scan

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

Procedure

- Step 1** Click , and then select **PTZ** > **Scan**.
- Step 2** Click **Add Scan**, and then double click **Name** to change the name of scan.
- Step 3** Configure the left and right boundaries of the scan.
1. Adjust the direction of the Camera to the left edge of the scan, and then 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 then click  on the **Right Limit** to set the current position to the **Right Limit** of the Camera.

Figure 4-64 Scan

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

- Step 4** Click ☒ to start scanning.
Click ☐ to stop scanning.

Related Operations

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

4.5.4 Configuring Pattern

Pattern means a record of a series of operations performed on the Camera. The operations include horizontal and vertical movements, zoom and preset calling. Record and save the operations, and then you can call the pattern path directly.

Procedure

- Step 1** Click , and then select **PTZ** > **Pattern**.
- Step 2** Click **Add Pattern**, and then double click **Name** to change the name of pattern.

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

Step 4 Click || to complete the recording.

Figure 4-65 Pattern

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

Step 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.

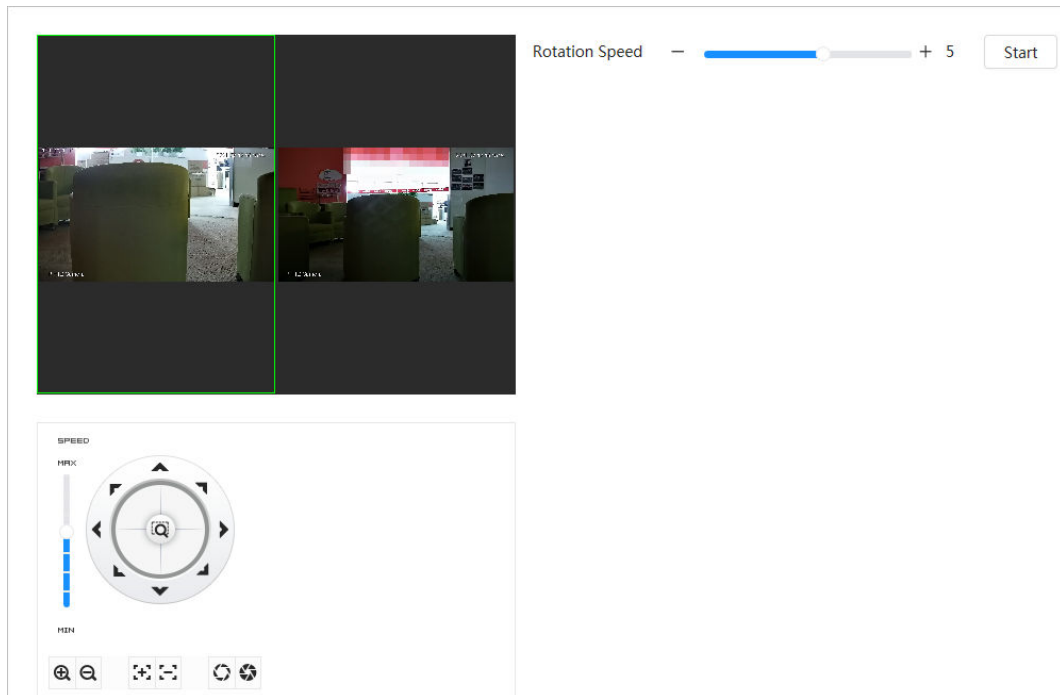
Procedure

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

Step 2 Configure the rotation speed.

- Click **Start**, and then the PTZ's horizontal rotation begins.
- Click **Stop** to stop the pan.

Figure 4-66 Pan



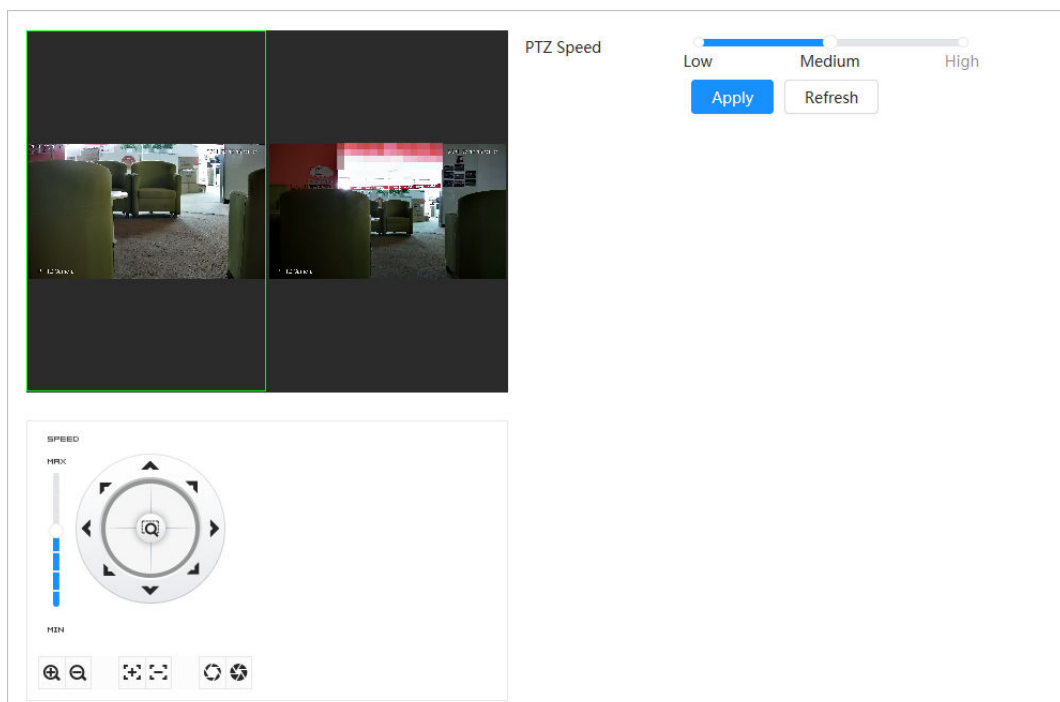
4.5.6 Configuring PTZ Speed

Configure the rotation speed when manually controlling the PTZ.

Procedure

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

Figure 4-67 PTZ speed



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

4.5.7 Configuring Idle Motion

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

Prerequisites

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

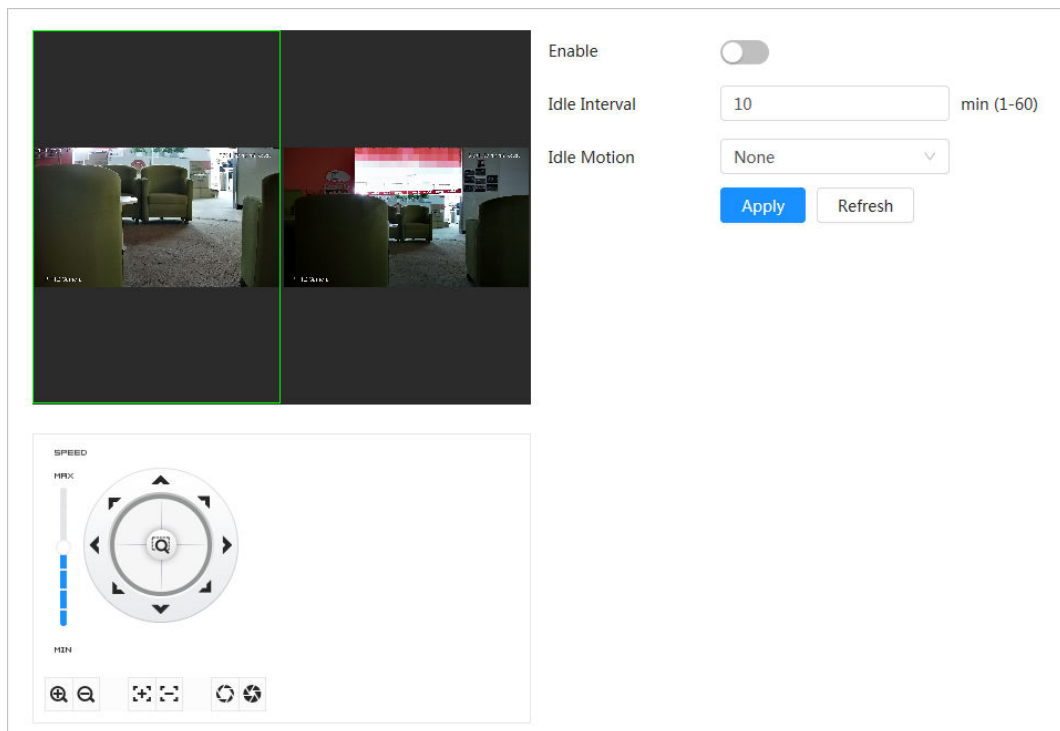
Procedure

Step 1 Click , and then select **PTZ > Idle Motion**.

Step 2 Click  to enable idle motion.

Step 3 Configure idle interval, and then select **Idle Motion**.

Figure 4-68 Idle motion



Step 4 Click **Apply**.

4.5.8 Configuring PowerUp

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

Prerequisites

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

Procedure

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

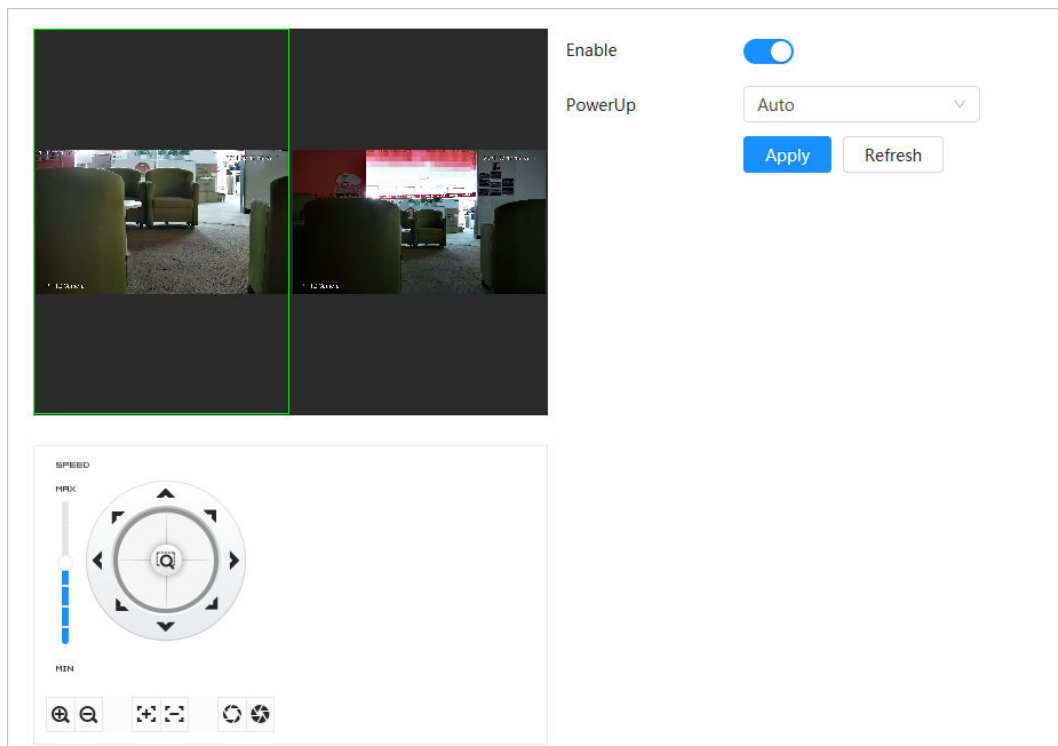
Step 2 Click  to enable PowerUp.

Step 3 Select PowerUp.



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

Figure 4-69 PowerUp



Step 4 Click **Apply**.

4.5.9 Configuring PTZ Rotation Limit

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

Procedure

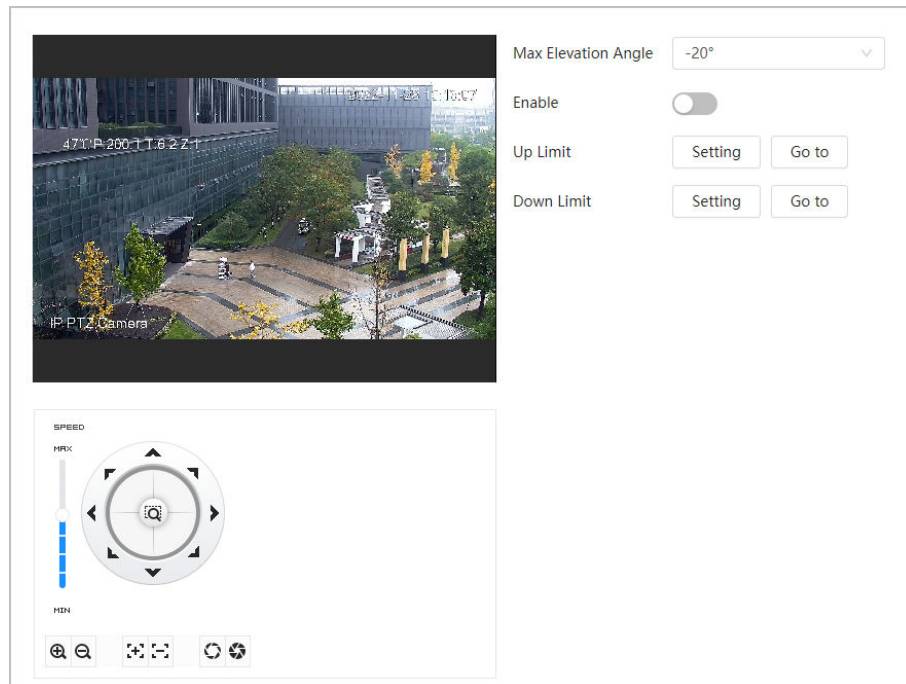
Step 1 Click , and then select **PTZ > PTZ Rotation Limit**.

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

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

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

Figure 4-70 PTZ rotation limit



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



This function is available on select models.

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

4.5.10 Configuring Scheduled Task

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

Prerequisites

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

Procedure

Step 1 Click , and then select **PTZ > Scheduled Task**.

Step 2 Click **Add Scheduled Task**.

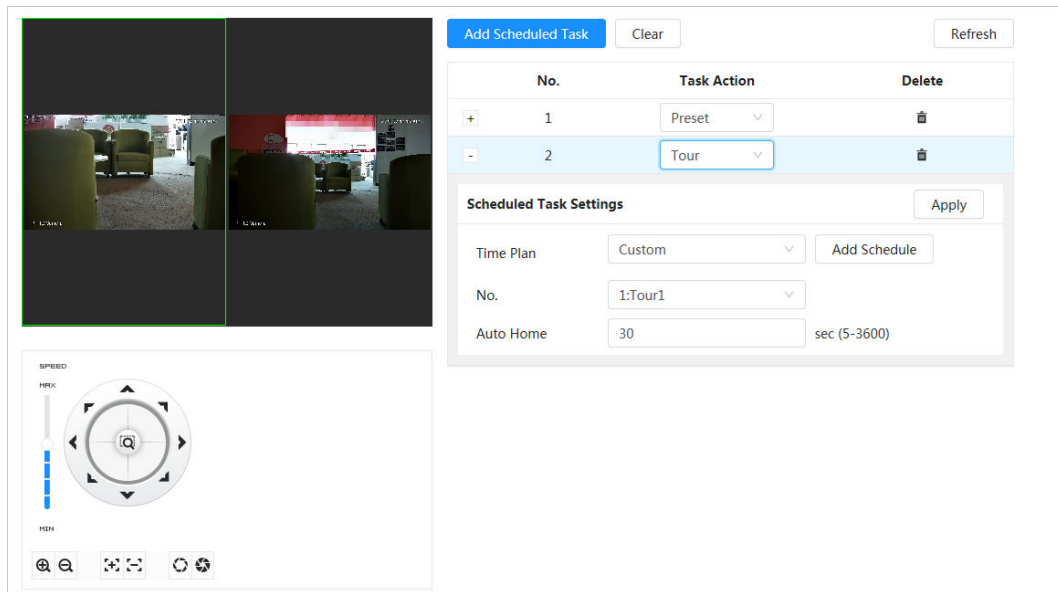
Step 3 Select **Task Action**.

Some task actions need to select corresponding action number.

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

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

Figure 4-71 Scheduled task



No.	Task Action	Delete
1	Preset	
2	Tour	

Scheduled Task Settings

Time Plan: Custom Add Schedule

No.: 1:Tour1

Auto Home: 30 sec (5-3600)

Apply

Step 5 Set the time for "Auto Home".

"Auto Home": When the scheduled task is interrupted by a manual PTZ command, the device will automatically resume the scheduled task after the auto home time.

Step 6 Click **Apply**.

4.5.11 Configuring PTZ Maintenance

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

Procedure

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

Step 2 Click **PTZ Restart** to restart PTZ or click **Default** to restore Camera to its default settings.



Default PTZ will restore the Camera to defaults. Proceed with caution.

4.5.12 Configuring Protocol

Configure parameters for RS-485.

Procedure

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

Step 2 Configure parameters.

Figure 4-72 Configure protocol

RS-485

Address

1

Baud Rate

9600

▼

Data Bit

8

▼

Stop Bit

1

▼

Parity

None

▼

Apply

Refresh

Default

Step 3 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 2 methods. This following section uses method 1 as an example.

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

4.6.1 Setting Alarm Linkage

4.6.1.1 Setting Alarm-in

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

Procedure

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

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

Figure 4-73 Alarm linkage

Enable

☐

Alarm-in Port

Alarm1

Schedule

Full Time

Add Schedule

Anti-dither

0

sec (0-100)

Sensor Type

NO

+Event Linkage

Record | Enabled

Channel

1 2

Post-Record

10

sec (10-300)

Send Email | Enabled

Snapshot | Enabled

Channel

1 2

PTZ Linkage | Enabled

Linkage Operation

None

Alarm-out Port | Enabled

Post-alarm

10

sec (10-300)

Apply

Refresh

Default

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

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

Step 4 (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.

Figure 4-74 PIR alarm

Enable
☐

Sensitivity

-
+
80

+ Event Linkage

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)

Apply

Refresh

Default

Step 5 Select the schedule and arming periods and alarm linkage action. For details, see "4.6.1.2 Alarm Linkage".

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

Step 6 Click **Apply**.

4.6.1.2 Alarm Linkage

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

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

Figure 4-75 Alarm linkage

Enable

☐

Alarm-in Port

Alarm1

Schedule

Full Time

Add Schedule

Anti-dither

0

sec (0-100)

Sensor Type

NO

+ Event Linkage

Record | Enabled

Channel

1 2

Post-Record

10

sec (10-300)

Send Email | Enabled

Snapshot | Enabled

Channel

1 2

PTZ Linkage | Enabled

Linkage Operation

None

Alarm-out Port | Enabled

Post-alarm

10

sec (10-300)

Apply

Refresh

Default

4.6.1.2.1 Adding Schedule

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

Procedure

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

Step 2 Click **Time Plan Table**.

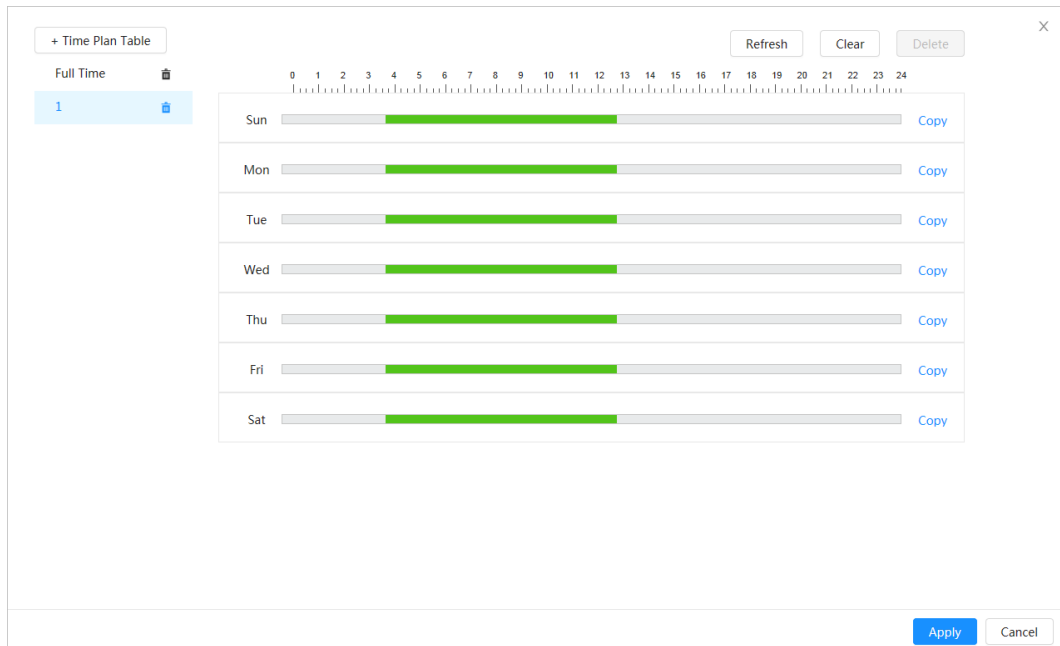
You can set up multiple time plan tables for selection.

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

Step 4 Configure arming periods.

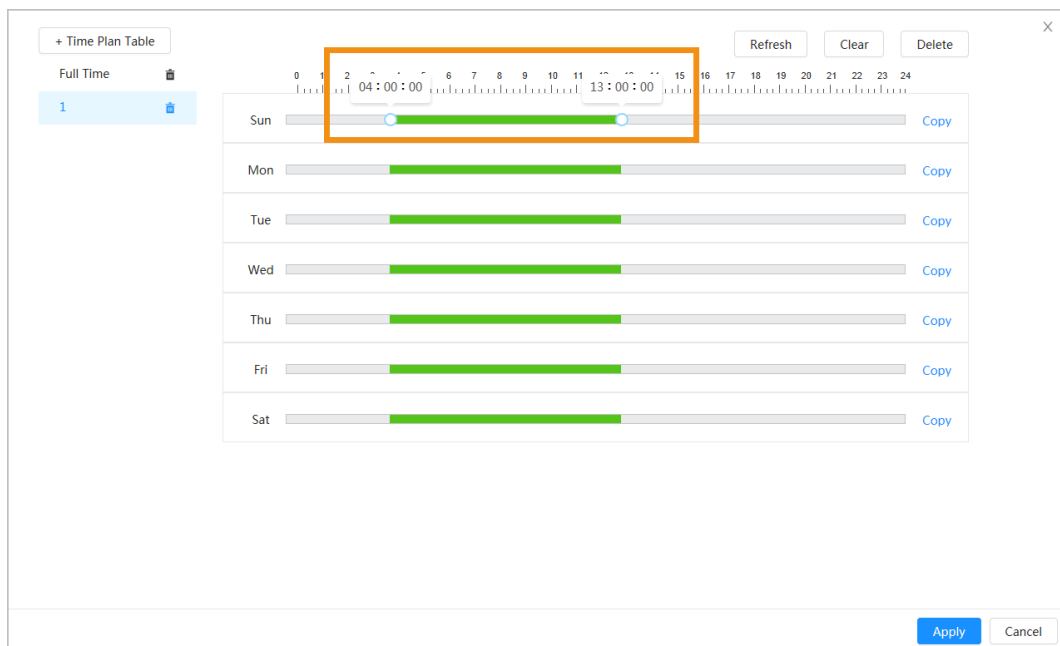
1. Press and drag the left mouse button on the timeline to set arming periods.
The green area on the timeline means that this time period has been armed.

Figure 4-76 Configure arming period



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

Figure 4-77 Configure exact arming period



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

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

Step 6 Click **Apply**.

4.6.1.2.2 Record Linkage

The system can link record channel when an alarm event occurs. After the alarm ends, the system continues recording for an extended period according to the **Post-Record** setting.

Prerequisites

- After the corresponding alarm type (**Normal** , **Motion**, or **Alarm**) is enabled, the record channel links recording. For details, see "8.3 Setting Record Plan".
- Enable auto record mode, the record linkage will take effect. For details, see "8.2 Setting Record Control".

Setting Record Linkage

On the **Alarm** page, click  to enable record linkage, select the channel as needed, and then set **Post-Record** to set alarm linkage and record delay. After **Post-Record** is configured, alarm recording continues for an extended period after the alarm ends.

Click  to delete record function.

Figure 4-78 Record linkage



Record	Enabled	
Channel	1 2	
Post-Record	10	sec (10-300)

4.6.1.2.3 Snapshot Linkage

After snapshot linkage is configured, the system will trigger an alarm and automatically capture snapshots when an event occurs.

Prerequisites

After the corresponding alarm type (**Normal** , **Motion**, or **Alarm**) is enabled, the snapshot channel links capturing picture. For details, see "8.3 Setting Record Plan".

Setting Snapshot Linkage

On the **Alarm** page, click  to enable snapshot linkage, and select the channel as needed.

Click  to delete snapshot function.

Figure 4-79 Snapshot linkage

Snapshot	Enabled	
Channel	1 2	

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 as needed, and then configure **Post alarm**.

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



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

Figure 4-80 Alarm-out linkage

Alarm-out Port	Enabled	
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 users.

Prerequisites

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

Setting Email Linkage

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



Click  to delete email linkage function.

Figure 4-81 Email linkage

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

4.6.1.2.6 PTZ Linkage

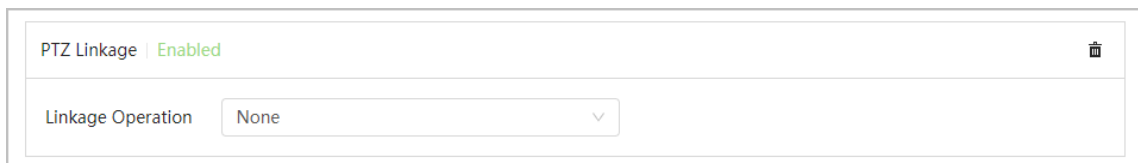
When an alarm is triggered, the system will automatically link PTZ devices.

On the **Alarm** page, click **Event Linkage**, select **PTZ Linkage**, and then select the **Linkage Operation**.



Click  to delete PTZ linkage function.

Figure 4-82 PTZ linkage



4.6.1.3 Subscribing Alarm

4.6.1.3.1 Alarm Types

Following are the alarm types and preparations of alarm events.

Table 4-30 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.	The SD card no space function 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 "11.6 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".

Alarm Type	Description	Preparation
AI Event	The alarm is triggered when the AI system detects an event.	Enable IVS, crowd map, face detection or people counting, and other intelligent functions.
Scene Changing	The alarm is triggered when the device monitoring scene changes.	Scene changing detection is enabled. 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.	Security status detection is enabled. For details, see "11.1 Security Status".

4.6.1.3.2 Subscribing Alarm Information

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

Background Information



Function might be different depending on the model.

Procedure

- Step 1** Click  on the upper-right corner of the webpage.
- Step 2** Click  next to **Alarm** to enable alarm subscription, and then the system prompts and records alarm information according to actual conditions.
- When the subscribed alarm event is triggered and the alarm subscription page is not displayed, a number is displayed on , and the alarm information is recorded automatically. Click  to view the details 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.

Figure 4-83 Alarm (subscription)

Alarm

☒

Alarm Subs... ^

☐ All Types

☐ Motion...
 ☐ Disk Full
 ☐ Disk Error
 ☐ Video T...

☐ External...
 ☐ Security...
 ☐ Audio D...
 ☐ AI Event

☐ Scene C...
 ☐ net.Arou...

Play Alarm Tone

☐

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

Clear

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

4.6.2 Setting Exception

Abnormalities include SD card, network, illegal access, voltage detection, and security exception.



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

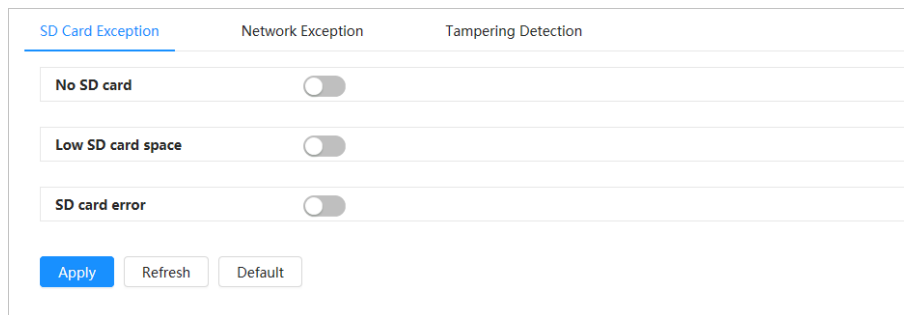
4.6.2.1 Setting SD Card Exception

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

Procedure

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

Figure 4-84 SD card exception



Step 2 Click  to enable the SD card detection functions.

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

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

Step 4 Click **Apply**.

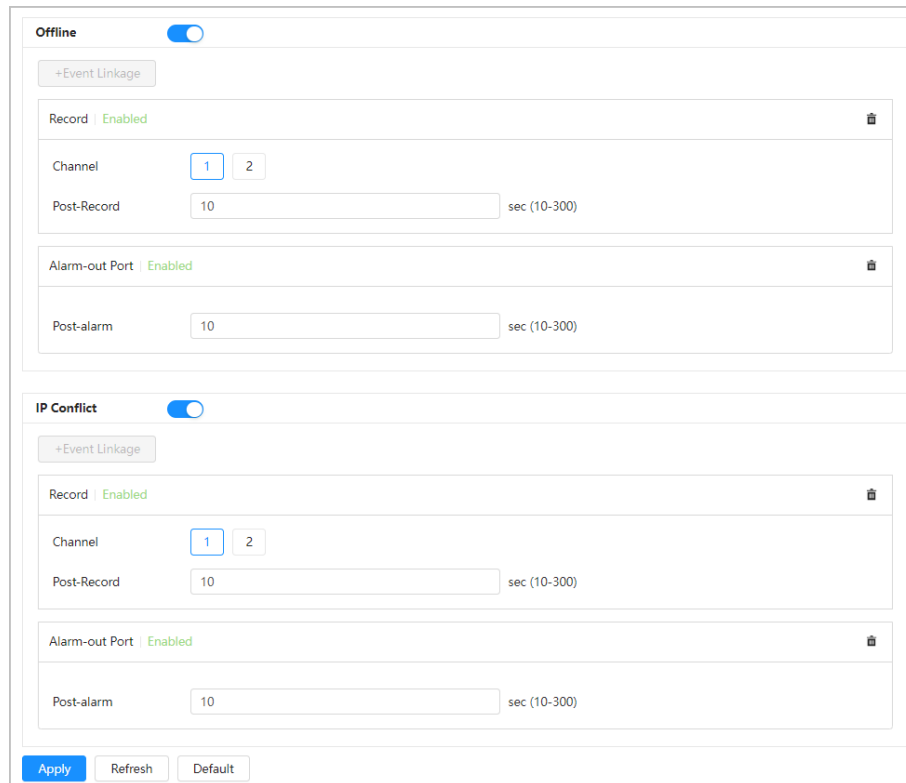
4.6.2.2 Setting Network Exception

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

Procedure

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

Figure 4-85 Network exception



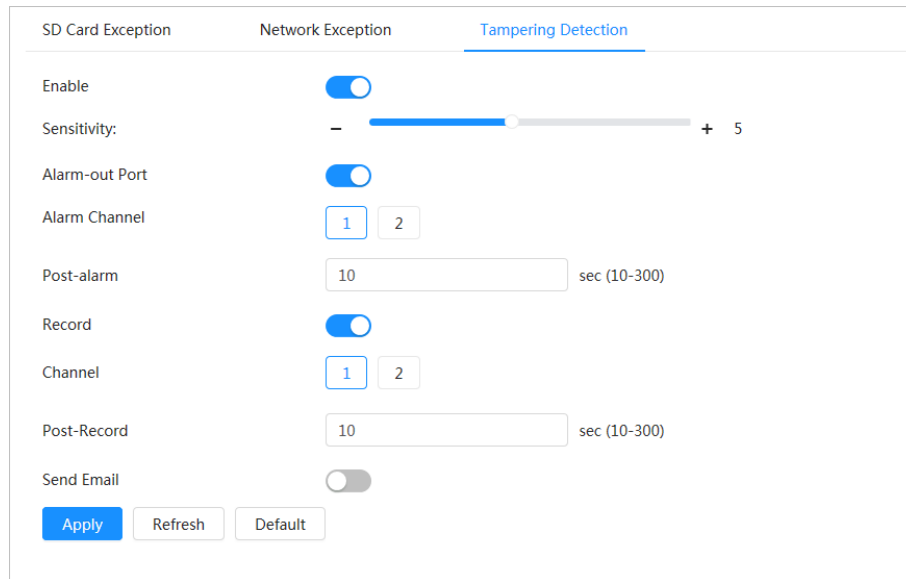
- Step 2** Click  to enable the network detection function.
- Step 3** Set alarm linkage actions. For details, see "4.6.1.2 Alarm Linkage".
- Step 4** Click **Apply**.

4.6.2.3 Setting Tampering Detection

Procedure

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

Figure 4-86 Set tampering detection



Step 4 Click **Apply**.

4.6.3 Setting Video Detection

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

4.6.3.1 Setting Motion Detection

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

Background Information



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

Procedure

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

Figure 4-87 Motion detection

Motion Detection
Video Tampering
Scene Changing

Channel
Detail Camera

Enable
☐
*Invalid when linkage mode is configured.

Schedule
Full Time
Add Schedule

Anti-dither
5
sec (0-100)

Area
Setting

PTZ movement trig...
☒

+Event Linkage

Record
Enabled

Channel
2

Post-Record
10
sec (10-300)

Snapshot
Enabled

Channel
2

Alarm-out Port
Enabled

Post-alarm
10
sec (10-300)

Audio Linkage
Enabled

Play Count
1
(1-3)

File
alarm.wav

Warning Light
Enabled

Mode
Flicker

Flicker Frequency
Medium

Stay Time
10
sec (5-30)

Apply
Refresh
Default

Step 2 Select the camera from **Channel**.

Step 3 Click ☐ to enable the motion detection function.

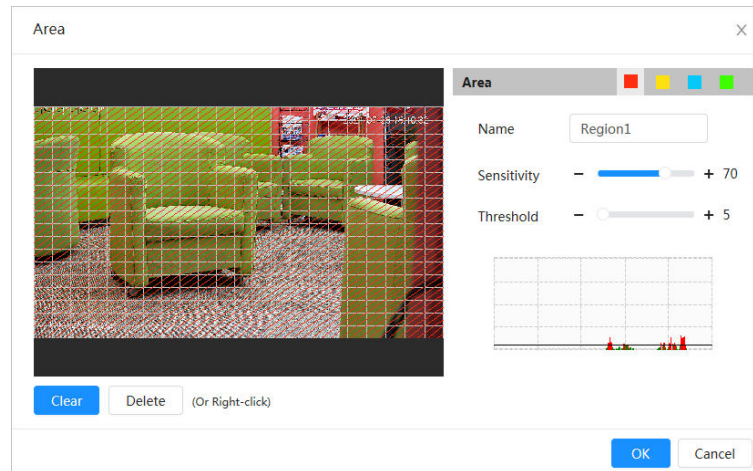


You cannot enable the motion detection function when linkage mode is configured.

Step 4 Set the area for motion detection.

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

Figure 4-88 Area



2. Select a color and set the region name.

Select a color on  to set different detection parameters for each region.

3. Select an effective area for motion detection in the image and set **Sensitivity** and **Threshold**.

- **Sensitivity**: Sensitive degree of outside changes. The higher sensitivity is, the easier to trigger the alarm.
- **Threshold**: Effective area threshold for the motion detection. The smaller the threshold is, the easier the alarm is triggered.
- The whole video image is the effective area for the motion detection by default.
- The red line in the waveform indicates that the motion detection is triggered, and the green one indicates that there is no motion detection. Adjust sensitivity and threshold according to the waveform.

4. Click **OK**.

Step 5 Set arming periods and alarm linkage action.

For some devices, you can set warning light linkage and audio linkage for the motion detection. For details of other linkages, see "4.6.1.2 Alarm Linkage".

- **Warning Light Linkage** : When an alarm is triggered, the warning light will automatically flicker.

The default mode is **Flicker** , you can configure **Flicker Frequency** and **Stay time** to set the frequency and duration of the warning light.

- **Audio Linkage** : When an alarm is triggered, the system will automatically activate an audio alarm.

You can configure **Play Count** to the set the number of playbacks for audio, and select an audio file from **File** as needed.

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

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

Step 6 Click **Apply**.

4.6.3.2 Setting Video Tampering

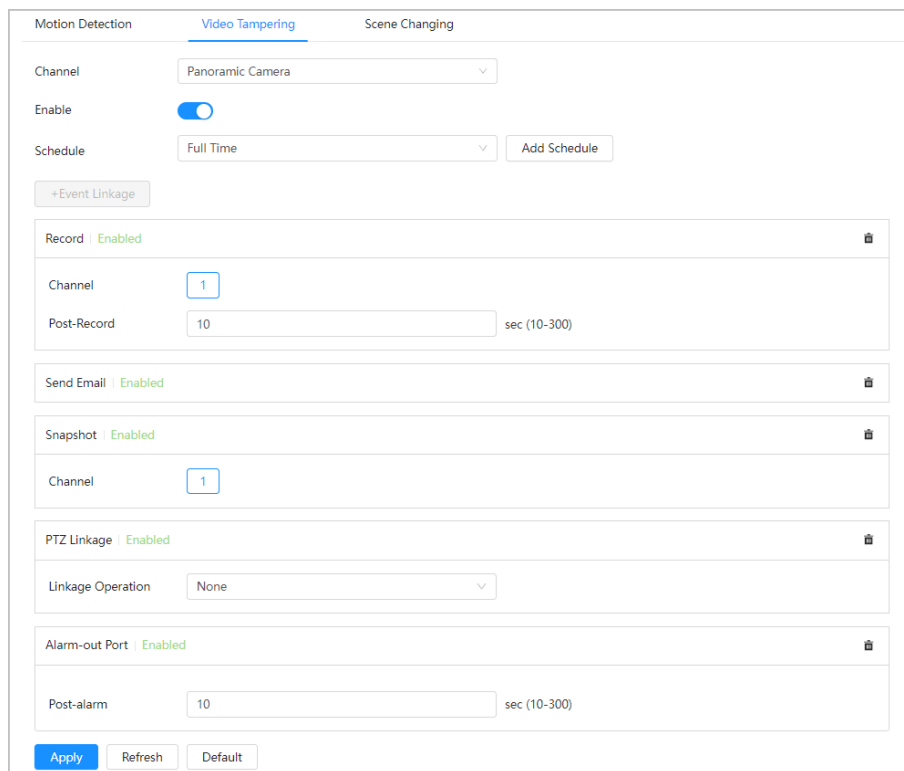
The system performs alarm linkage when the lens is covered or video output is mono-color caused by light and other reasons.

Procedure

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

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

Figure 4-89 Video Tampering



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

If the existing schedules cannot meet the scene requirement, you can click **Add Schedule** to add 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 video tampering detection event in the period.

Step 4 Click **Apply**.

4.6.3.3 Setting Scene Changing

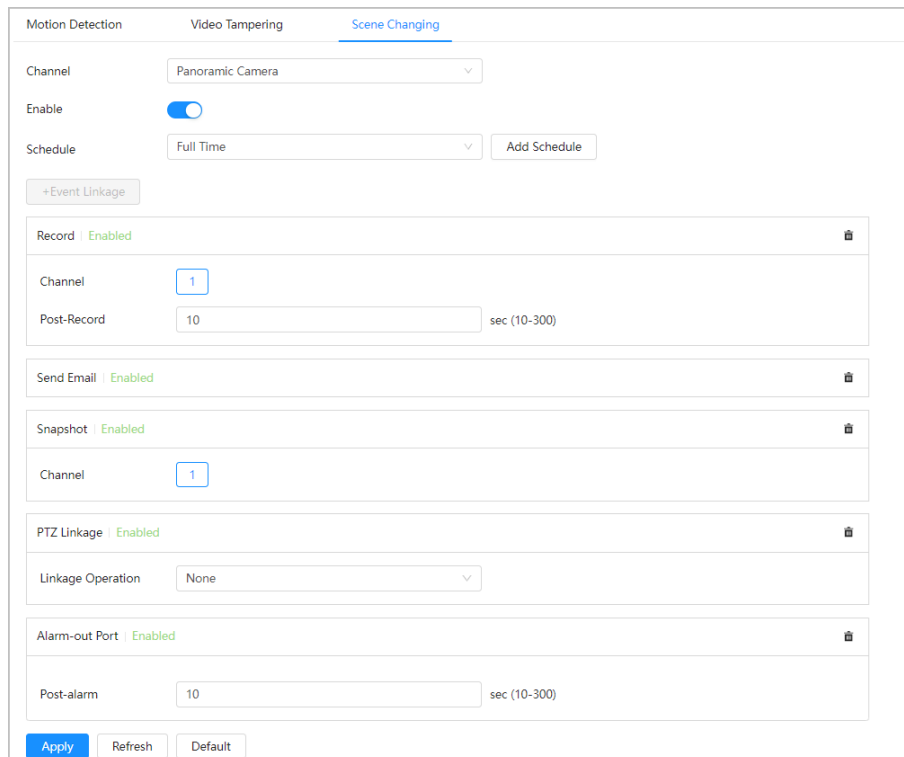
The system performs alarm linkage when the image switches from the current scene to another one.

Procedure

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

Step 2 Select **Channel** , and then click **Enable** to enable the scene changing detection.

Figure 4-90 Scene changing



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

If the existing schedules cannot meet the scene requirement, you can click **Add Schedule** to add 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 scene changing event in the period.

Step 4 Click **Apply**.

4.6.4 Setting Audio Detection

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

Procedure

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

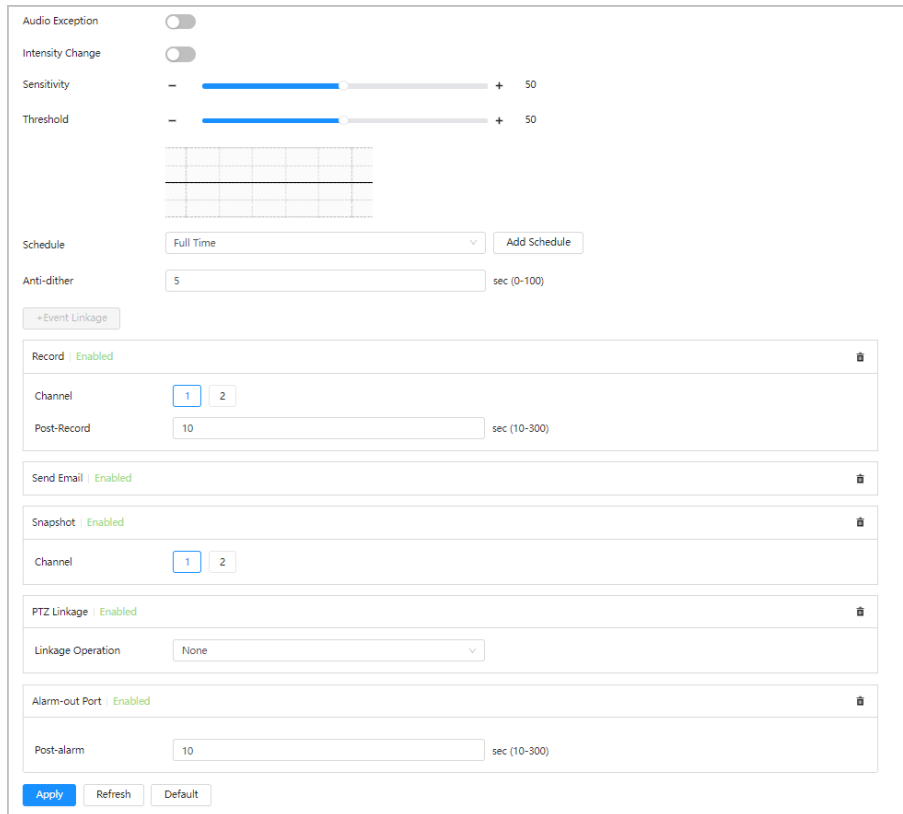
Step 2 (Optional) Select audio channels.

When the camera supports multiple audio channels, it supports the selection of different audio channels.

Step 3 Configure parameters of audio detection.

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

Figure 4-91 Audio detection



The screenshot shows the 'Audio Detection' configuration page. At the top, there are two toggle switches: 'Audio Exception' and 'Intensity Change', both currently turned off. Below these are two horizontal sliders for 'Sensitivity' and 'Threshold', both set to 50. A waveform graph is displayed below the sliders. The 'Schedule' section has a dropdown menu set to 'Full Time' and an 'Add Schedule' button. The 'Anti-dither' section has a text input set to '5' and a unit label 'sec (0-100)'. Below this is an 'Event Linkage' section with several expandable items: 'Record' (Enabled), 'Send Email' (Enabled), 'Snapshot' (Enabled), 'PTZ Linkage' (Enabled), and 'Alarm-out Port' (Enabled). Each item has a trash icon. The 'Record' item shows 'Channel' set to 1 and 2, and 'Post-Record' set to 10 sec (10-300). The 'PTZ Linkage' item shows 'Linkage Operation' set to 'None'. The 'Alarm-out Port' item shows 'Post-alarm' set to 10 sec (10-300). At the bottom, there are three buttons: 'Apply', 'Refresh', and 'Default'.

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

If the existing schedules cannot meet the scene requirement, you can click **Add Schedule** to add 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 audio detection event in the period.

Step 5 Click **Apply**.

4.6.5 Setting Smart Motion Detection

After you set smart motion detection, when the human, non-motor vehicles and motor vehicles appear and move fast enough to reach the preset sensitivity value, the alarm linkage actions will be performed. The function can help you to avoid the alarms triggered by natural environment change.

Prerequisites

- Select  > **Event** > **Video Detection** > **Motion Detection**, and then enable the motion detection function.
- Set the arming period and detection area. The sensitivity of each region is larger than 0, and the threshold is not equal to 100.

Background Information

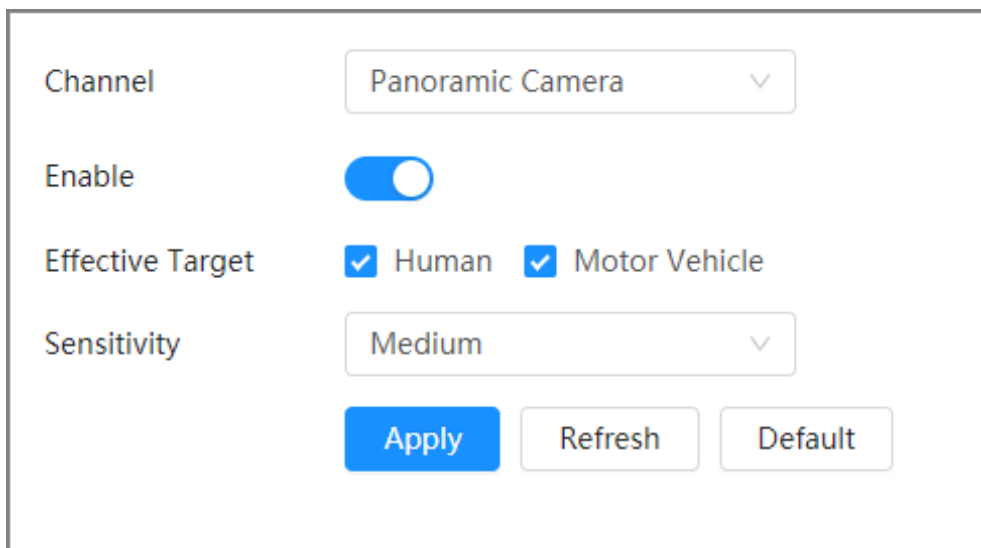


- The function depends on the result of motion detection, and all other parameters (except sensitivity) of motion detection function are used, including arming period, area settings, and linkage configurations. If no motion detection is triggered, smart motion detection will not be triggered.
- If motion detection is not enabled, when smart motion detection is enabled, motion detection will also be enabled. If both functions are enabled, when motion detection is disabled, smart motion detection will also be disabled.
- When smart motion detection is triggered and recording is linked, back-end devices can filter recording with human or vehicles through smart search function. For details, see the corresponding user manual.

Procedure

Step 1 Select  > **Event** > **Smart Motion**.

Figure 4-92 Smart motion detection



The interface shows the configuration for Smart Motion Detection. It includes a dropdown menu for 'Channel' set to 'Panoramic Camera', a toggle switch for 'Enable' which is turned on, checkboxes for 'Effective Target' with 'Human' and 'Motor Vehicle' both selected, and a dropdown menu for 'Sensitivity' set to 'Medium'. At the bottom, there are three buttons: 'Apply' (highlighted in blue), 'Refresh', and 'Default'.

Step 2 Select the camera from **Channel**.



When you select **Detail Camera**, smart motion detection is invalid when linkage mode is configured.

Step 3 Click ☐ to enable the motion detection function.

Step 4 Select the target type.

You can select human, motor vehicle, or both.

Step 5 Select the sensitivity.

The higher sensitivity is, the easier to trigger the alarm.

Step 6 Click **Apply**.

4.6.6 Setting One-click Disarm

You can disarm some or all alarm linkage events as needed through one-click.

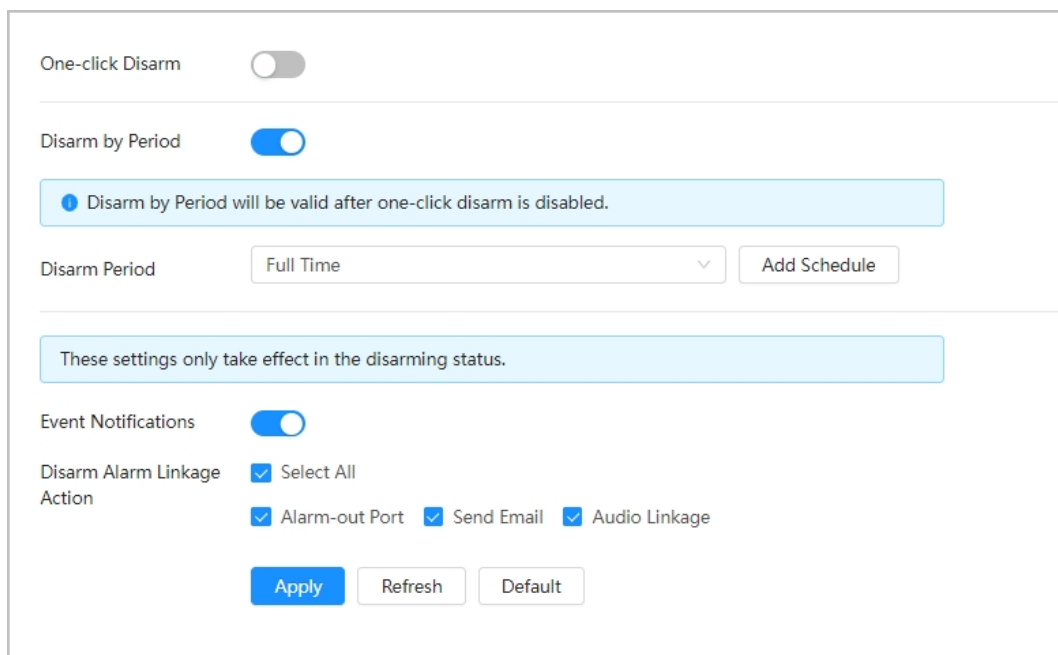
Procedure

Step 1 Select  > **Event** > **One-click Disarm**.

Step 2 Enable or disable the function of one-click disarm as needed.

- Click ☐ next to **One-click Disarm** to enable the one-click disarm. After this function is enabled, execute step 3.
- Click ☒ next to **One-click Disarm** to disable the disarm by period. After this function is disabled, execute step 4.

Figure 4-93 Set one-click disarm



One-click Disarm ☐

Disarm by Period ☒

Disarm by Period will be valid after one-click disarm is disabled.

Disarm Period Full Time Add Schedule

These settings only take effect in the disarming status.

Event Notifications ☒

Disarm Alarm Linkage Action ☒ Select All ☒ Alarm-out Port ☒ Send Email ☒ Audio Linkage

Apply Refresh Default

Step 3 Enable the function of disarm by period and configure the disarm period.

- Click ☐ next to **Disarm by Period** to enable the function.

2. Configure the **Disarm Period**.

If the added period fails to meet your need, you can click **Add Schedule** to newly add the arming period. For details, see "4.6.1.2.1 Adding Schedule".

Step 4 Select the disarm alarm linkage action. You can select the **Alarm-out Port** , **Send email**, **Audio Linkage** or **Select All**.

- Selected linkage actions: no actions triggered during the alarm.
- Unselected linkage actions: actions triggered during the alarm.

Step 5 Click **Apply**.

4.6.7 Auto Upload of Events

Select the upload mode, enable it, and then configure parameters. The Camera will upload reports of AI functions to a defined server periodically.

Procedure

Step 1 Select  > **Event** > **Auto Upload**.



The **Upload Mode** is **HTTP** by default.

Step 2 Click  to enable the function.

Step 3 Click **Add**, and then configure parameters of HTTP upload method.



- You can add 2 pieces of server information at most.
- If **HTTP** is enabled, you have to download the CA certificate and upload it to the server.

Figure 4-94 Image upload



No.	IP/Domain Name	Port	Path	Event Type	Test	Delete
1	Example: 172.168.1.108	Example: 80	Example: /example/	Alarm	Test	
2	Example: 172.168.1.108	Example: 80	Example: /example/	None	Test	

Table 4-31 Description of HTTP mode parameters

Parameter	Description
IP/Domain name	The IP address and port number of the server which the report will be uploaded to.
Port	
Path	The storage path of the server for the report.
Event type	Select the event type from the drop-down list. You can select more than one types at the same time.
Test	Test the network connection between the camera and the server.

Step 4 Click **Apply**.

4.7 Storage

Displays the information of the local SD card. You can set it as read only or read & write; you can also hot swap and format SD card.

Background Information



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

Procedure

Step 1 Select  > **Storage**.

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

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

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

Figure 4-95 Storage

Format Read-Only Read/Write Hot Swap Refresh					
☒	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 and time, account, peripheral management, manager and upgrade.

You can go to the **System** page through 2 methods. This following section uses method 1 as an example.

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

4.8.1 General

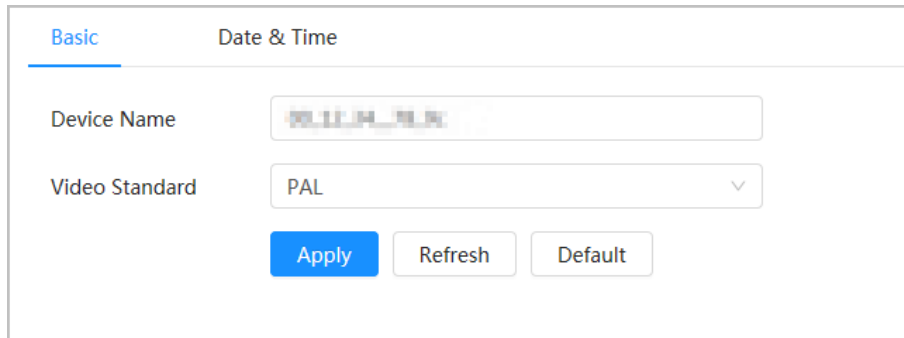
4.8.1.1 Basic

You can configure device name, language and video standard.

Procedure

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

Figure 4-96 Basic



Step 2 Configure general parameters.

Table 4-32 Description of general parameters

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

Parameter	Description
Analog Output	This function is available only for devices that support analog output.  - 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.

Step 3 Click **Apply**.

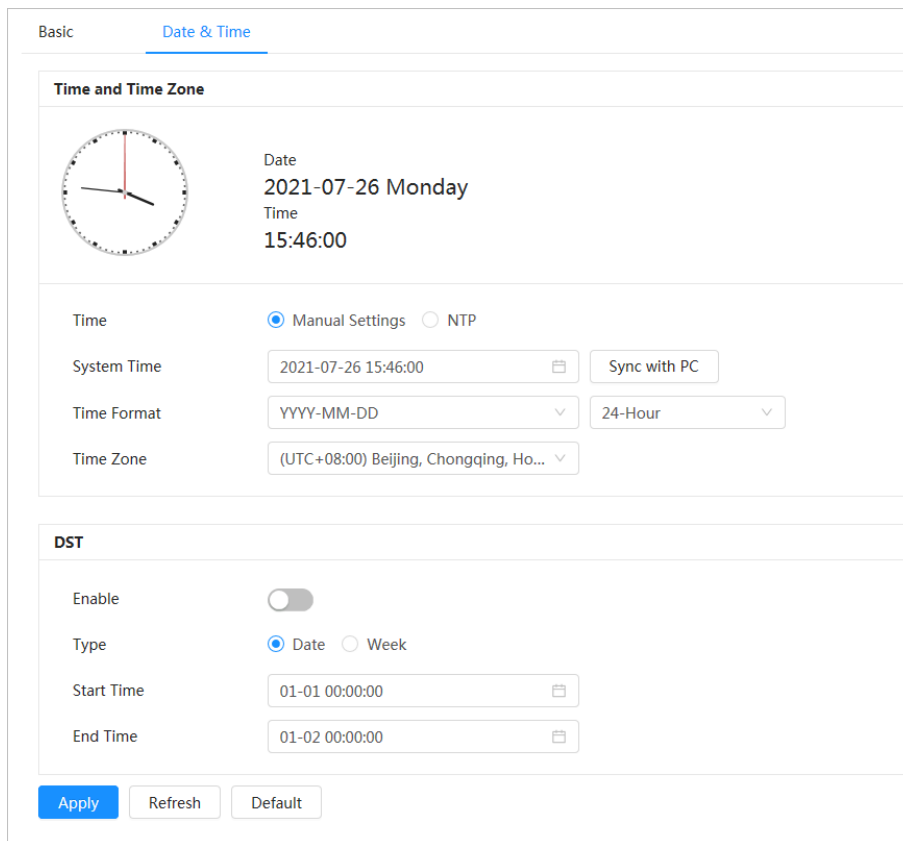
4.8.1.2 Date & Time

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

Procedure

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

Figure 4-97 Date and time



Step 2 Configure date and time parameters.

Table 4-33 Description of date and time parameters

Parameter	Description
Time	• Manually Settings : Configure the parameters manually. • NTP : When selecting NTP, the system then syncs time with the internet server in real time. You can also enter the IP address, time zone, port, and interval of a PC which installed 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. You can select from 12-Hour or 24-Hour .
Time Zone	Configure the time zone for the camera.
DST	Enable DST as needed. Click  , and then configure start time and end time of DST with Date or Week .

Step 3 Click **Apply**.

4.8.2 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 operating in low-power mode, 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.

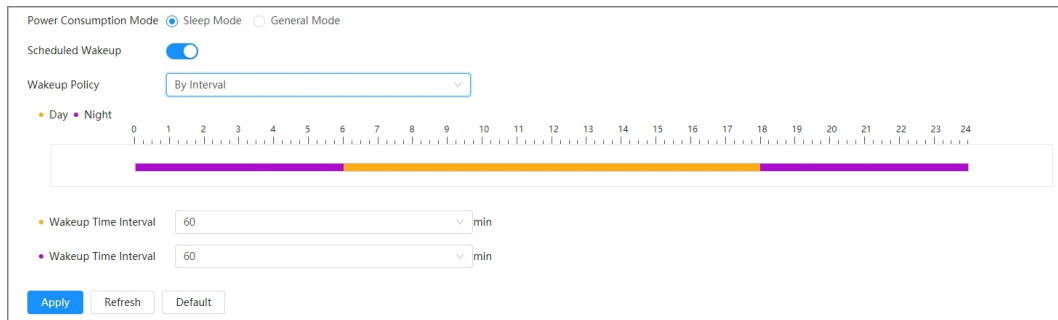
Procedure

Step 1 Select  > **System** > **Power Consumption Mode** > **Sleep Mode**.

Step 2 Enable **Scheduled Wakeup** if you need to, set the **Wakeup Policy** to **By Duration** or **By Interval**, and then configure the parameters.

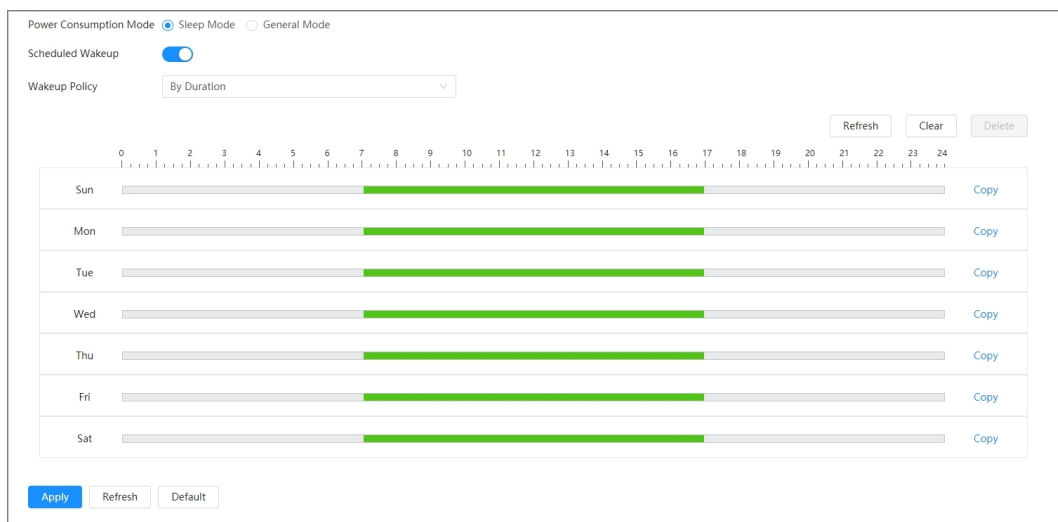
- By interval:
 1. Set the daytime and nighttime by clicking and dragging on the timeline or by entering the specific numbers in the text box.
 2. Set the wakeup time interval for the day and night respectively.

Figure 4-98 Wake up by interval



- 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**.

Figure 4-99 Wake up by duration



Step 3 Click **Apply**.

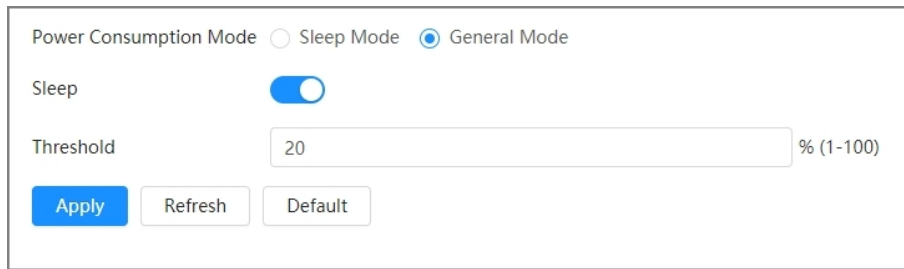
4.8.2.2 General Mode

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

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

Figure 4-100 General Mode



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

The default threshold of the battery level is 20%.

Step 3 Click **Apply**.

4.8.3 Account

You can manage users, such as adding, deleting, or editing. Users include admin, added users and ONVIF users.

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

- The max length of the user or group name is 31 characters which consist of number, letter, underline, dash, dot and @.
- The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' " ; : &).
- You can have up to 18 users (excluding the admin user) and 1 anonymous user, and you can have 6 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 own authorities within 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**, and then you can log in with other username.

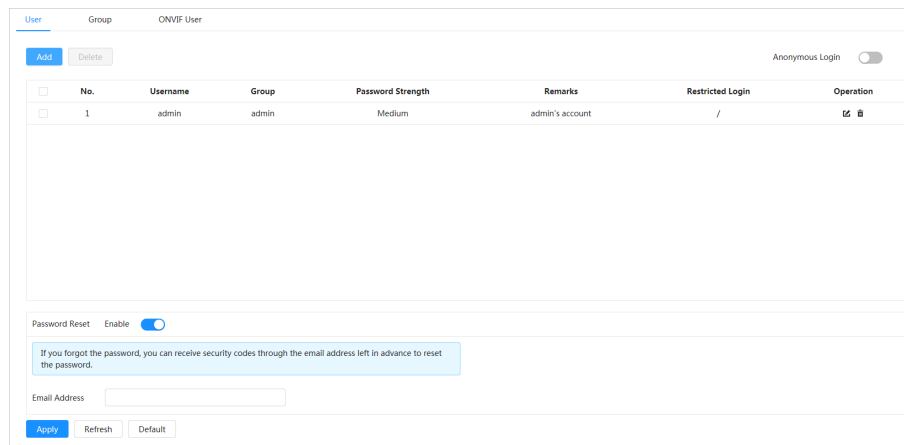
4.8.3.1 Adding User

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

Procedure

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

Figure 4-101 User

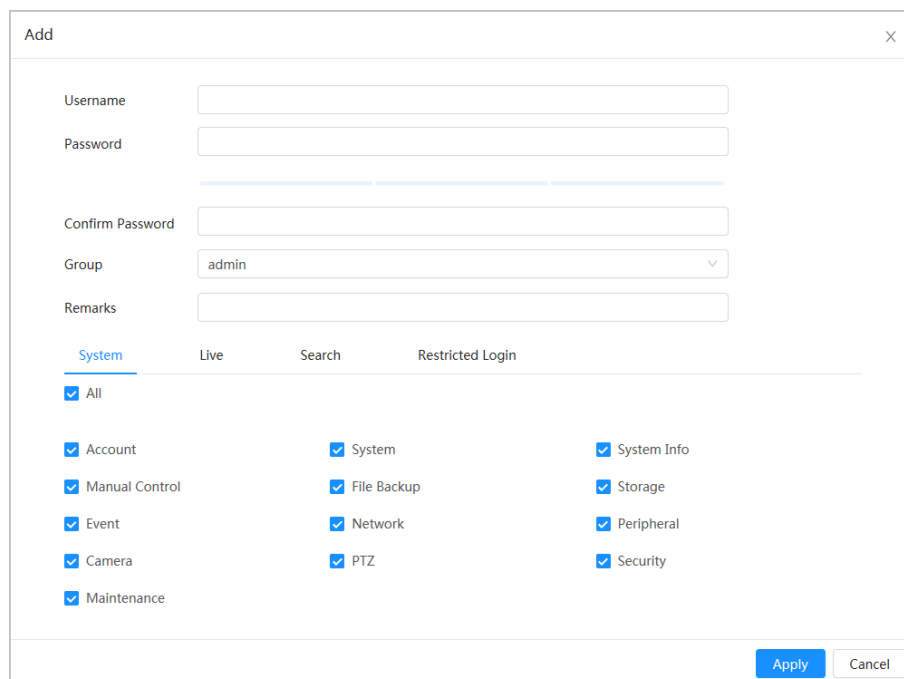


The screenshot shows the 'User' management page. At the top, there are tabs for 'User', 'Group', and 'ONVIF User'. Below the tabs are 'Add' and 'Delete' buttons. A table lists users with columns: No., Username, Group, Password Strength, Remarks, Restricted Login, and Operation. The table contains one entry for 'admin'. Below the table, there is a 'Password Reset' section with an 'Enable' toggle and a text box for email address. At the bottom, there are 'Apply', 'Refresh', and 'Default' buttons.

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

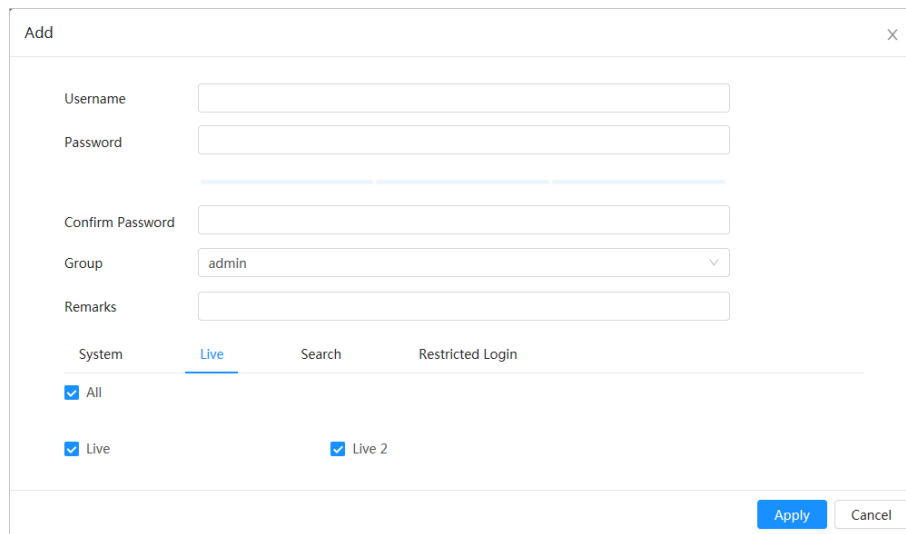
Step 2 Click **Add**.

Figure 4-102 Add user (system)



The screenshot shows the 'Add' user dialog box. It has fields for 'Username', 'Password', 'Confirm Password', 'Group' (set to 'admin'), and 'Remarks'. Below these fields are tabs for 'System', 'Live', 'Search', and 'Restricted Login'. The 'System' tab is selected, showing a list of permissions with checkboxes: All, Account, Manual Control, Event, Camera, Maintenance, System, File Backup, Network, PTZ, System Info, Storage, Peripheral, and Security. At the bottom right, there are 'Apply' and 'Cancel' buttons.

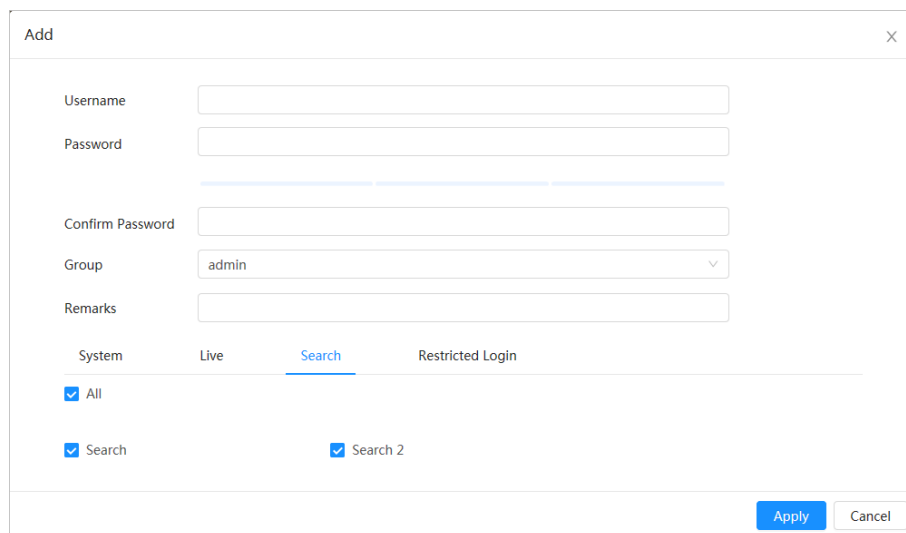
Figure 4-103 Add user (live)



The 'Add' dialog box contains the following fields and options:

- Username:
- Password:
- Confirm Password:
- Group:
- Remarks:
- System: **Live** (selected), Search, Restricted Login
- ☒ All
- ☒ Live ☒ Live 2
- Buttons: Apply, Cancel

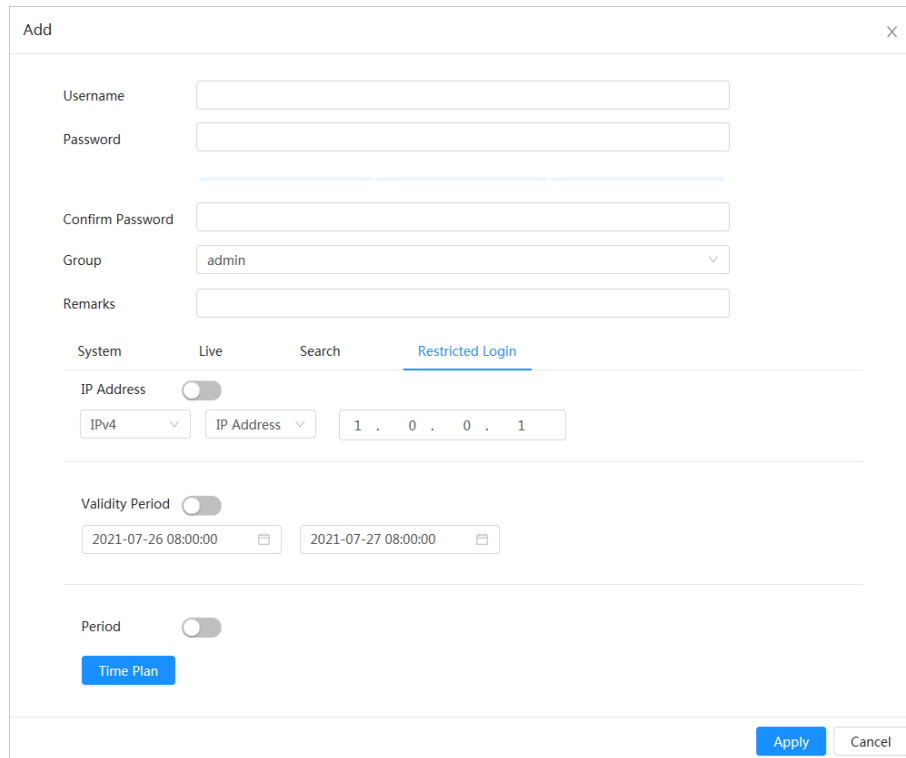
Figure 4-104 Add user (search)



The 'Add' dialog box contains the following fields and options:

- Username:
- Password:
- Confirm Password:
- Group:
- Remarks:
- System: Live, **Search** (selected), Restricted Login
- ☒ All
- ☒ Search ☒ Search 2
- Buttons: Apply, Cancel

Figure 4-105 Add user (restricted log)



Step 3 Configure user parameters.

Table 4-34 Description of user parameters

Parameter	Description
Username	User's unique identification. You cannot use existing username.
Password	Enter password and confirm it again.
Confirm Password	The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' " ; : &).
Group	The group that users belong to. Each group has different authorities.
Remarks	Describe the user.
System	Select authorities as needed.  It is recommended to give fewer authorities to normal users than premium users.
Live	Select the live view authority for the user to be added.
Search	Select the search authority for the user to be added.

Parameter	Description
Restricted Login	Set the 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. - IP address: You can log in to web through the computer with the set IP. - Validity period: You can log in to web in the set validity period. - Time range: You can log in to web in the set time range.

Step 4 Click **Apply**.

The newly added user is displayed in the user name list.

Related Operations

- click  to edit password, group, memo or authorities.



For admin account, you can only edit the password.

- Click  to delete the added users.



The admin account cannot be deleted.

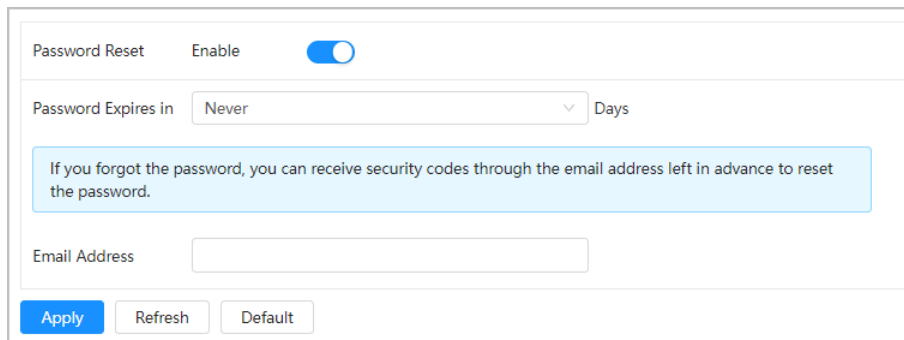
4.8.3.2 Resetting Password

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

Procedure

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

Figure 4-106 Reset password



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

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

Step 3 Set the password expiration days, and then enter the reserved email address.

Step 4 Click **Apply**.

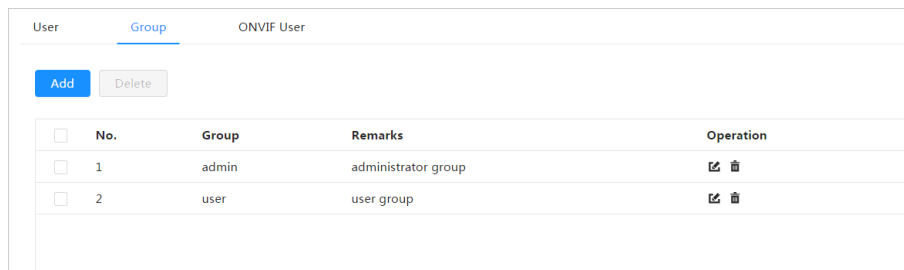
4.8.3.3 Adding User Group

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

Procedure

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

Figure 4-107 Group name



No.	Group	Remarks	Operation
1	admin	administrator group	 
2	user	user group	 

Step 2 Click **Add**.

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

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

Figure 4-108 Add group

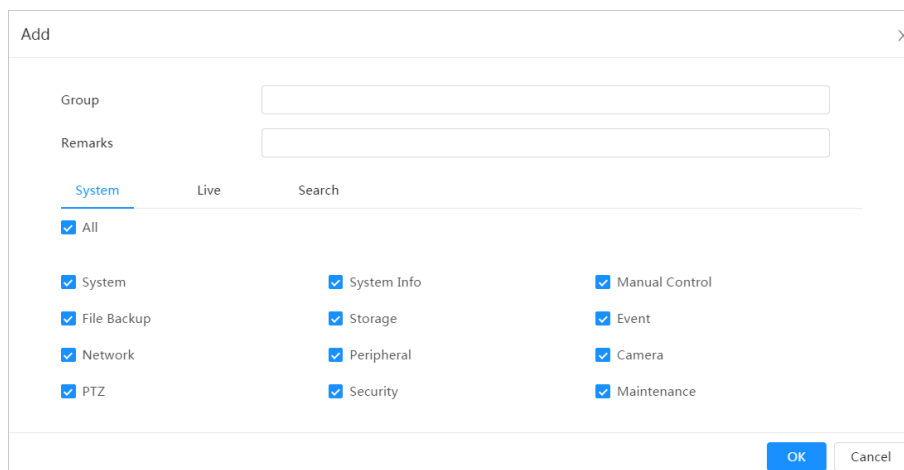


Table 4-35 Description of user group parameters

Group Authority	Admin	User	Functions
System	YES	NA	System time setting and more.
System Info	YES	NA	Version information, system logs and more.

Group Authority	Admin	User	Functions
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.



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

Step 4 Click **OK** to finish the configuration.

The newly added group displays in the group name list.

Related Operations

- Click  to edit password, group, remarks or authorities.



For admin account, you can only edit the password.

- Click  to delete the added users.



The admin account cannot be deleted.

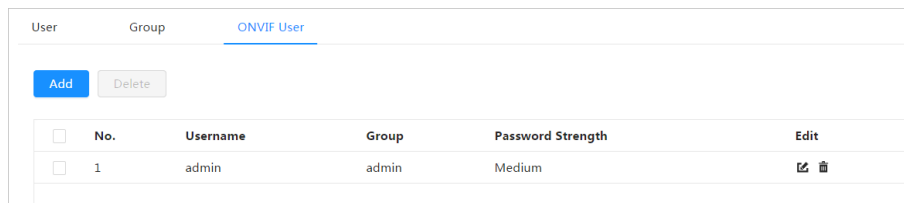
4.8.3.4 ONVIF User

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

Procedure

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

Figure 4-109 ONVIF user



No.	Username	Group	Password Strength	Edit
1	admin	admin	Medium	 

Step 2 Click **Add**.

Figure 4-110 Add ONVIF user



Step 3 Configure user parameters.

Table 4-36 Description of ONVIF user parameters

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

Step 4 Click **OK**.

The newly added user is displayed in the username list.

Related Operations

- Click  to edit password, group, remarks or authorities.



For admin account, you can only edit the password.

- Click  to delete the added users.



The admin account cannot be deleted.

4.8.4 Peripheral Management

4.8.4.1 Configuring Wiper

Procedure

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

Step 2 Configure working mode of wipers.

Figure 4-111 Wiper

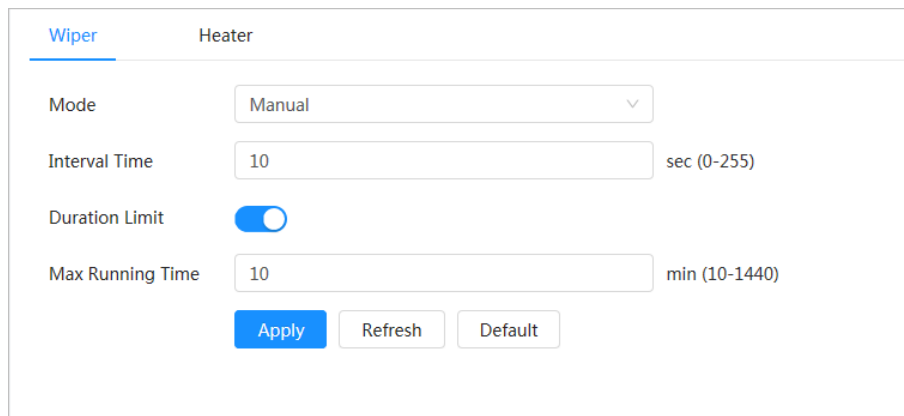


Table 4-37 Description of wiper parameters

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	When you enable Duration Limit and configure Max Running Time , the wiper will automatically turn off after running for the specified duration.
Max Running Time	

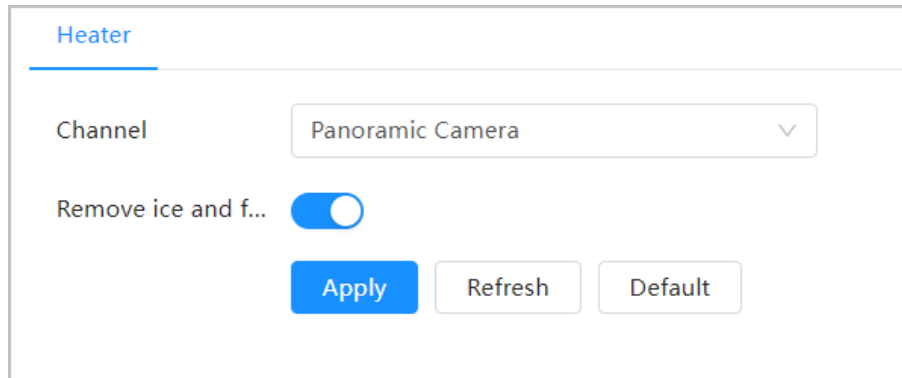
Step 3 Click **Apply**.

4.8.4.2 Configuring Heater

Procedure

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

Figure 4-112 Heater



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

5 Low Power Mode

5.1 Low Power Mode (General)

When the device is in low power mode, it can reduce the device's power consumption.

Procedure

Step 1 Click **Low Power Mode** on the main page, and then set **Threshold** for **Low Battery Alarm**.



- An alarm will be triggered when the device's battery level falls below the set threshold.
- **Low Battery Alarm** is turned on by default.

Figure 5-1 Low battery alarm



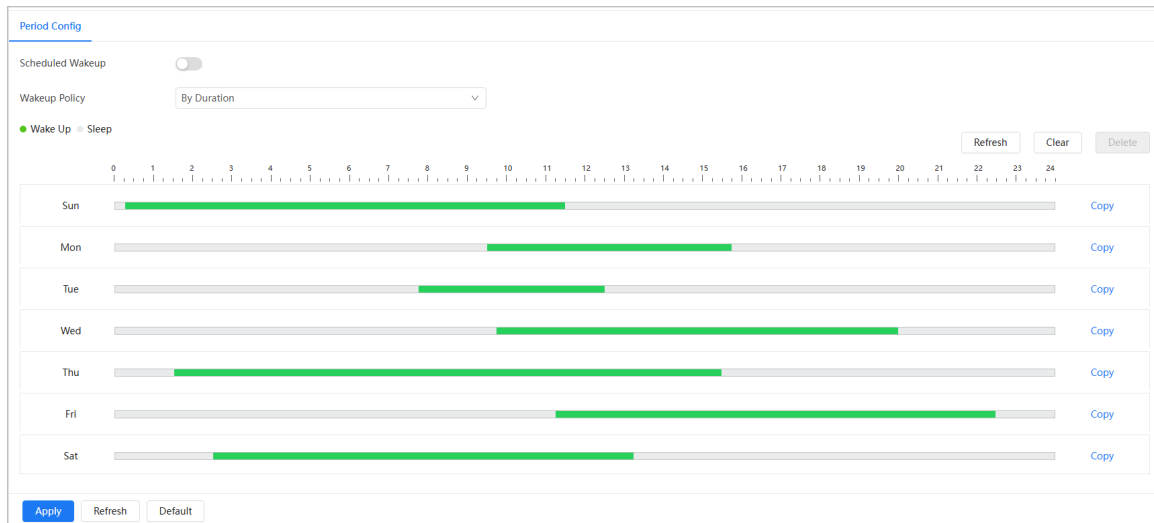
Step 2 Select the power consumption mode.



- You can click  to view the difference between performance mode and AOV mode.
- Enable AOV mode only after all configurations are completed, to prevent the device from going to sleep and affecting normal configuration.

Step 3 (Optional) If you select AOV mode, set the frame rate, alarm interval and work period after alarm.

Figure 5-2 Period configuration



1. Select the **Period Config** tab.
2. Enable the scheduled wakeup function and wakeup policy according to your actual needs.
3. Set a wake-up plan, with green indicating wake-up and gray indicating sleep. On the timeline, press and hold the left mouse button and drag to select the wake-up period, click the selected period, and then enter the specific value in the start time field.
 - 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**.

5.2 Low Power Mode (AOV)

Enable low power mode to reduce device power consumption.

Background Information



This function is only available on select models. The page might vary by models; please refer to the actual webpage.

Procedure

- Step 1** Click **Low Power Mode** on the main page, and then set **Threshold** for **Low Battery Alarm**.



- An alarm will be triggered when the device's battery level falls below the set threshold.

- **Low Battery Alarm** is turned on by default.

Figure 5-3 Low battery alarm

Low Battery Alarm

☒

Threshold

20

%(1-100)

Step 2 Select the power consumption mode.

You can select **Performance Mode** , **AOV Mode**, and **Standby Mode**.



You can click  to view the difference between performance mode and AOV mode.

In AOV mode, configure the power consumption settings and wake-up schedule. Green indicates wake, while gray indicates sleep.

1. Configure the frame rate, alarm interval, and work period after alarm.

Figure 5-4 Period configuration

Period Config

Scheduled Wakeup

☐

Wakeup Policy

By Duration

Wake Up

Sleep

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

Sun



Copy

Mon



Copy

Tue



Copy

Wed



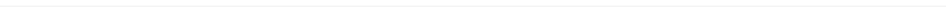
Copy

Thu



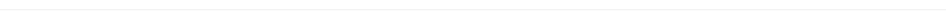
Copy

Fri



Copy

Sat



Copy

Apply

Refresh

Default

- **Frame Rate** : The recording frame rate. You can select 1, 2, 3, 5, or 10 **Second per Frame**.
 - **Alarm Interval** : The interval between triggered alarm events. You can select 10, 20, 30, 40, 50, or 60 **sec**.
 - **Work Period After Alarm** : The duration of the alarm. You can select 10, 20, 30, 40, 50, or 60 **sec**.
2. Configure the period.
Enable **Scheduled Wakeup**.
 3. Select wakeup policy. You can select **By Duration** or **By Interval**.
 - **By Duration** : On the timeline, click and drag to select a wake-up period. Click the selected period, then enter the exact start time in the text box.

- ◇ Click **Clear** to clear all configured wake-up schedules.
- ◇ Click **Delete** to delete the corresponding wake-up schedule.
- ◇ Click **Copy**, select the days of the week, and then click **Apply** to quickly copy the current day's schedule to the selected days.
- **By Interval** : Set the wake-up intervals for the daytime and nighttime periods.

Step 3 Click **Apply**.

6 Water Level Detection

The camera detects water level height using a radar sensor and provides alarms and event responses.

Background Information



This function is only available on select models. The page might vary slightly among different models. Refer to the actual page.

Procedure

- Step 1** Click **Water Level Detection** on the main webpage to enter the **Water Level Detection** page.
- Step 2** Enable the **Radar** function and configure the parameters.
Click **OSD Info** to navigate to the video overlay page and configure the water level information overlay.

Figure 6-1 Water level detection

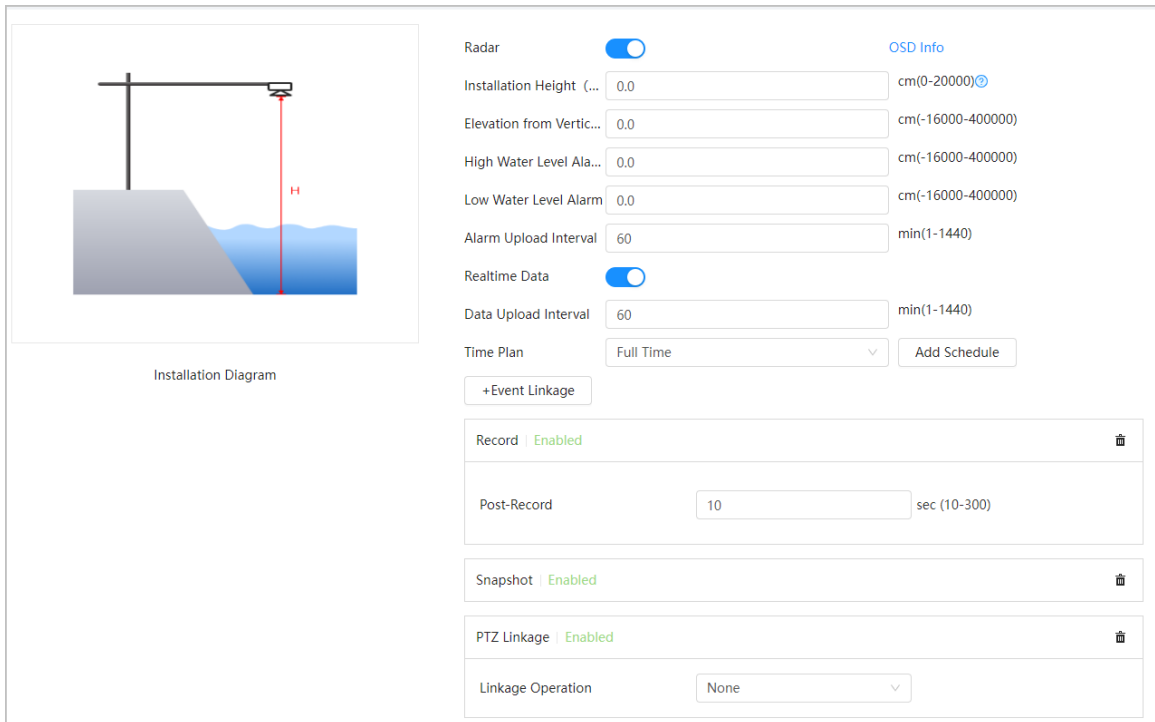


Table 6-1 Description of water level detection

Parameter	Description
Installation Height (H)	Set the radar installation height (the distance from the radar installation position to the water bottom), ranging from 0 cm to 20,000 cm.
Elevation from Vertical Datum	Set the elevation height of the regional zero water level, ranging from -16,000 cm to 400,000 cm.

Parameter	Description
High Water Level Alarm	Water level height value that triggers a high alarm: -16,000 cm to 400,000 cm.
Low Water Level Alarm	Water level height value that triggers a low alarm: -16,000 cm to 400,000 cm.
Alarm Upload Interval	Interval time for alarm-triggered uploads: 1 minute to 1,440 minutes.
Realtime Data	If enabled, real-time data will be displayed.
Data Upload Interval	Time interval for data uploads: 1 minute to 1,440 minutes.

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

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

Step 4 Click **Apply**.



To view alarm information by clicking  at the upper-right corner, you must first subscribe to the alarm event.

7 Live

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

7.1 Live Page

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



Pages might vary with different models.

Figure 7-1 Live page

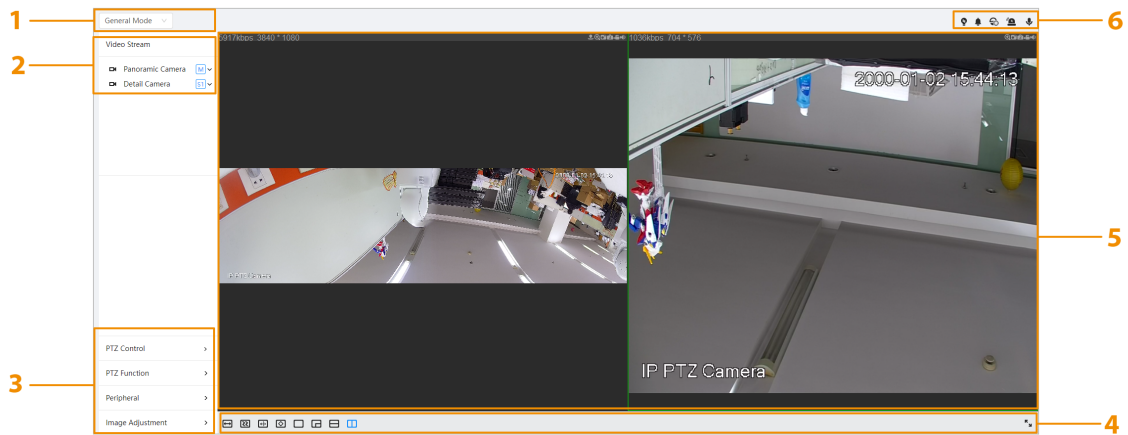


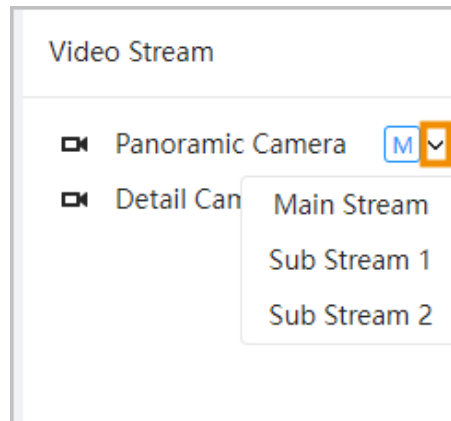
Table 7-1 The description of live page

No.	Function	Description
1	Display mode	Switch the video display mode. It includes general mode, face mode and metadata mode. For details, see "7.5 Display Mode".
2	Channel list	Displays all channels. You can select the channel as needed and set the stream type.
3	Image adjustment	Adjust the images in the live view. For details, see "7.4 Window Adjustment Bar".
4		
5	Live view	Displays the real-time monitoring image.
6	Live view function bar	Displays the shortcut for available functions. Among them, some shortcut buttons of multi-channel devices are in the upper right corner of the channel screen. For details, see "7.3 Live View Function Bar".

7.2 Configuring Encoding

On the live page, click  on the right side of the video channel to select the video stream.

Figure 7-2 Configure video stream



- **Main Stream** : It has large bit stream value and image with high resolution, but also requires large bandwidth. This option can be used for storage and monitoring. For details, see "4.3.3.1 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 "4.3.3.1 Encode".
 -  means the current stream is main stream;  means the current stream is sub stream 1;  means the current stream is sub stream 2.
- Click this icon to choose whether to display the video image.

7.3 Live View Function Bar

This section introduces the shortcuts supported when viewing the live video.

- The icons of **Force Alarm** , **Aux Focus** and **Talk** are all above **Live** page.
- Icons for other functions are on the top of the **Live** page.



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

Table 7-2 Description of live view function bar

Icon	Function	Description
	Warning Light	Displays the status of warning light. Click this icon to forcibly turn on or off the warning light.
	Alarm	Displays the status of alarm sound. Click this icon to forcibly turn on or off the alarm sound.

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 video 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 picture of the current image, and it will be saved to the configured storage path.  About viewing or configuring storage path, see "4.2 Local".
	Triple Snapshot	Capture three pictures of the current image, and they will be saved to the configured storage path.  About viewing or configuring storage path, see "4.2 Local".
	Record	Record video, and it will be saved to the configured storage path.  About 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.

7.4 Window Adjustment Bar

7.4.1 Adjustment

This section introduces the adjustment of image.

Table 7-3 Description of adjustment bar

Icon	Function	Description
	Original Size	Click this icon and when the icon changes to  , the actual size of the screen is displayed. Click the icon again to restore the screen to the appropriate size.
	W:H	Click the icon to resume original ratio or change ratio. It supports Original and Adaptive .
	Fluency Adjustment	Click the icon to adjust the fluency of the image. It supports Realtime , Fluent and General . Realtime: Guarantees the real time of the image. When the bandwidth is not enough, the image might not be smooth. Fluent: Guarantees the fluency of the image. There might be delay between live view image and real-time image. General: It is between Realtime and Fluent.
	AI Rule	Click the icon, and then select Enable to display AI rules and detection box; select Disable to stop the display. It is enabled by default.
	Anti-aliasing	Click this icon to enable or disable anti-aliasing function.
	Multi-channel screen display	This icon is displayed only on multi-channel devices. Click the icon to select the channel screen display mode.

7.4.2 PTZ Control

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

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

Figure 7-3 PTZ Control

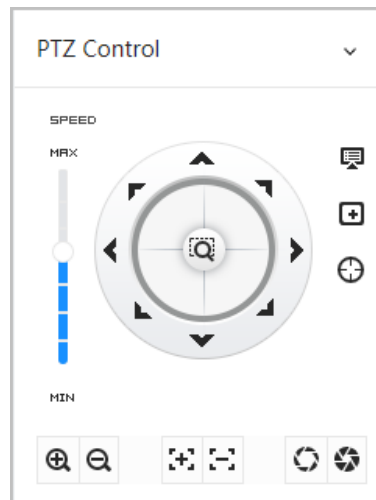


Table 7-4 Description of PTZ control functions

Icon	Description
	Control device toward eight directions, including up, down, left, right, left up, right up, left down and right down. Click  , draw a rectangle in the monitor frame, and the PTZ will quickly rotate and zoom to the selected 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 the rotation with a speed of 1.
	Zoom : Adjust the zooming of images.
	Focus : Adjust the degree of camera focus.
	Iris : Adjust the iris of images.
	PTZ Menu : Click to enter PTZ menu, and then configure the camera setting, PTZ setting, system management and other functions according to the actual page.
	Area Focus : Focus on the selected area. Select the Live page, click the icon, and select the area on the Live page. Then the device will automatically focus on this area.
	Manual Track : Click the icon, select the tracking target in the Live page, and then the Camera tracks the selected target.

7.4.3 PTZ Function

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



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

Figure 7-4 PTZ function

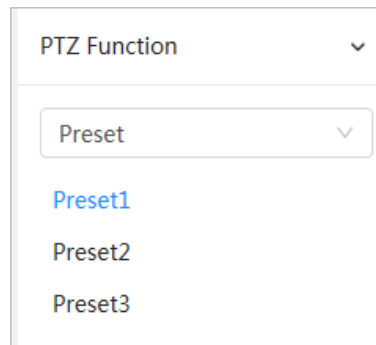


Table 7-5 Description of PTZ function

Parameter	Description
Scan	Configure the scan number. Click Start , and the Camera 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 Camera 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 Camera 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 Camera 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 angle and zoom. Click Go to to move the camera to the specified location.

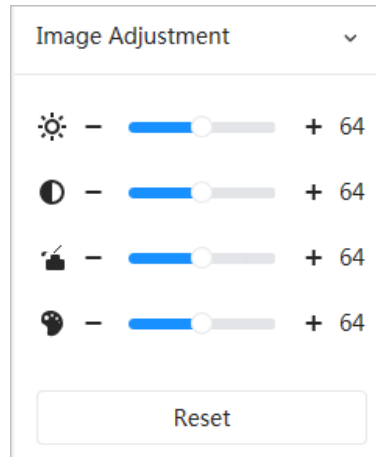
7.4.4 Image Adjustment

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



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

Figure 7-5 Image adjustment



- ☀ (Brightness adjustment): Adjust 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): Change the value when the image brightness is proper but contrast is not enough.
- 🎨 (Saturation adjustment): Adjust the image saturation, this value does not change image brightness.
- 🧠 (Hue adjustment): Make the color deeper or lighter. The default value is made by the light sensor, and it is recommended.

Click **Reset** to restore all parameters to default values.

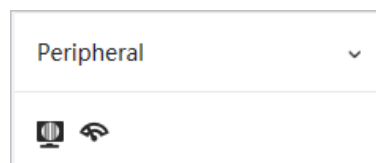
7.4.5 Peripheral Management

Configure the peripheral devices of PTZ Camera.

Background Information

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

Figure 7-6 Peripheral management



- 💧: Water removal. Click the icon, enter the max running time, and then click **Apply**.
- 🧽: Click the icon to enable or disable the wiper function.

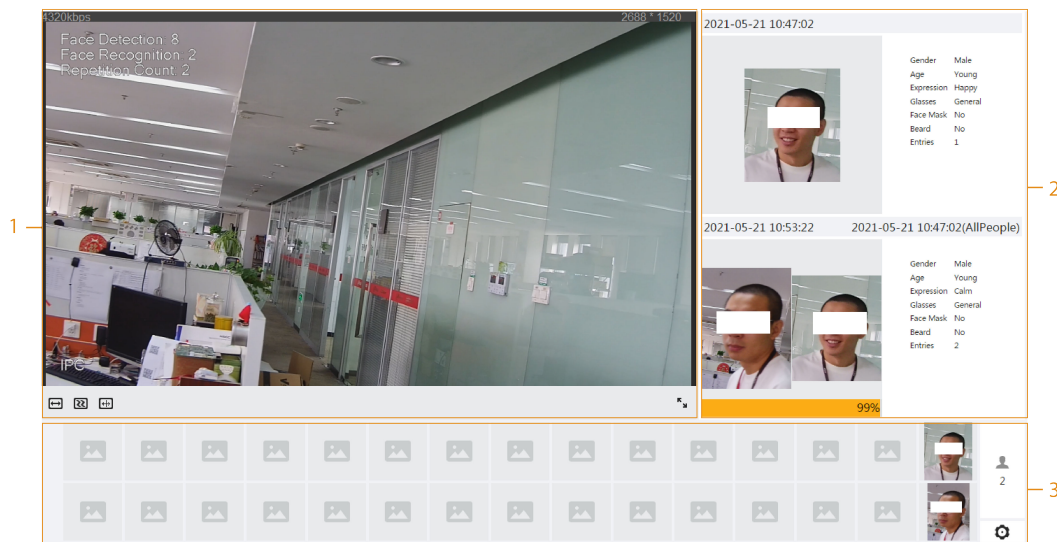
7.5 Display Mode

It includes general mode, face mode, traffic event mode and metadata mode. For general mode, see "7.1 Live Page". Before previewing with face mode and metadata mode, configure the corresponding AI functions in advance.

Preview Mode

- Select **Face Mode** in the upper-left corner of the **Live** page, and then the **Live** page changes to **Face Mode**.

Figure 7-7 Face mode page



- Select **Metadata Mode** in the upper-left corner of the **Live** page, and then the **Live** page changes to **Metadata Mode**.

Figure 7-8 Metadata mode page

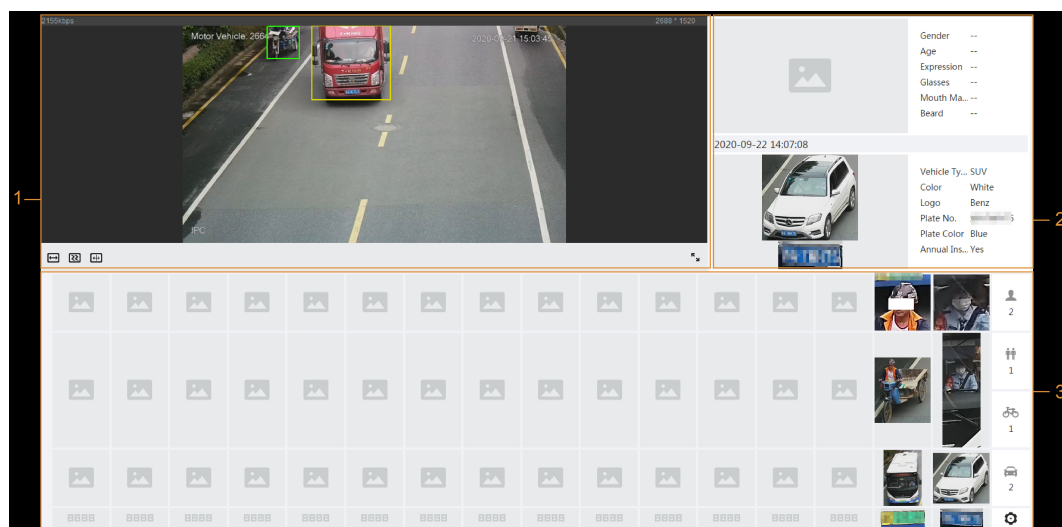


Table 7-6 Description of display mode

No.	Function	Description
1	Live view	Displays the real-time monitoring image. For details, see "7.4.1 Adjustment".
2	Details	Displays the captured image and details.
3	Captured image	Displays statistics for human 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".

- Select **Traffic Event Mode** in the upper-left corner of the **Live** page, and then the page changes to traffic event mode.

Figure 7-9 Traffic event mode (1)

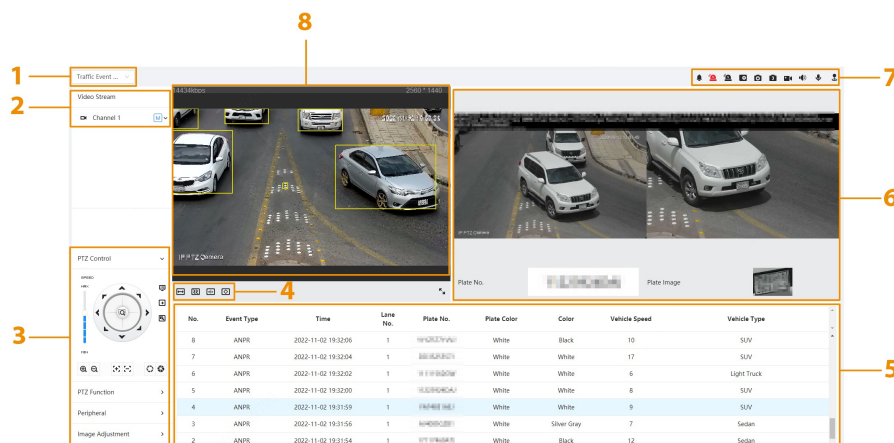


Figure 7-10 Traffic event mode (2)

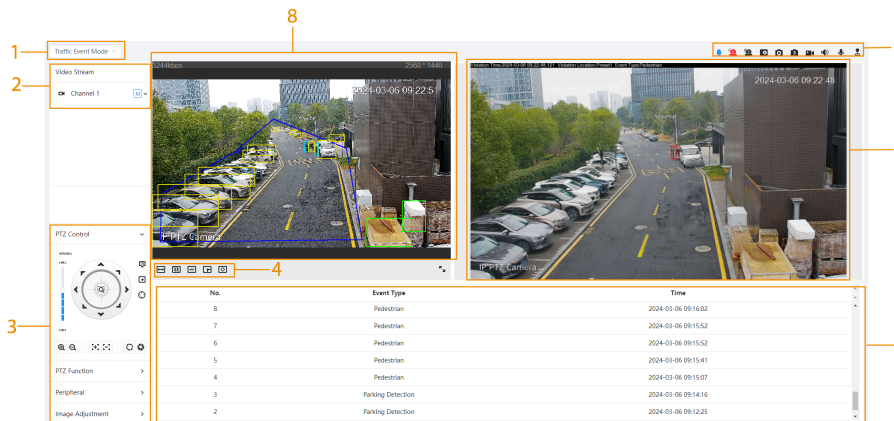


Table 7-7 Description of traffic event mode

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

Configuring Display Properties

Under face mode or metadata mode, click  on the lower-right corner of the page. 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 might vary depending on different modes.

Figure 7-11 Configure detection properties (face mode)

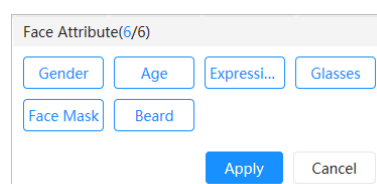


Figure 7-12 Configure detection properties (metadata mode)

AI Attribute Settings(4/4)

 Face

 Human Body

 Non-Motor Vehicle

 Motor Vehicle

Face Attribute(6/6)

Gender

Age

Expressi...

Glasses

Face Mask

Beard

Human Body Attribute(7/7)

Gender

Top

Bottom

Top Color

Bottom...

Bag

Hat

Umbrella

Non-motor Vehicle Attribute(6/6)

Vehicle...

Color

Number...

Top

Top Color

Hat

Motor Vehicle Attribute(5/7)

Vehicle...

Color

Plate No.

Plate Co...

Annual I...

Sunshield

Ornament

Seatbelt

Calling

Smoking

Apply

Cancel

8 Record

This chapter introduces the functions and operations of video playback.

8.1 Playback

8.1.1 Playing Back Video

This section introduces the operation of video playback.

Prerequisites

- This function is available on the Camera with SD card. Query and playback video files stored in the SD card.
- Before playing back video, configure record time range, record storage method, record schedule and record control. For details, see "8.2 Setting Record Control", "8.3 Setting Record Plan", and "8.4 Storage".

Procedure

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

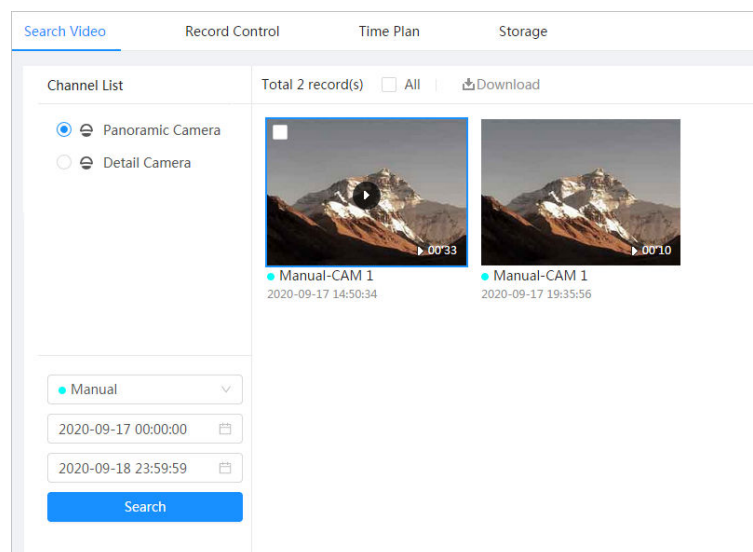
Step 2 Select the channel, the record type, and record time, and then click **Search**.

- Click **All**, and then select the record type from the drop-down list. You can select from **All**, **General**, **Event**, **Alarm**, and **Manual**.

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

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

Figure 8-1 Search video



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

Figure 8-2 Video playback

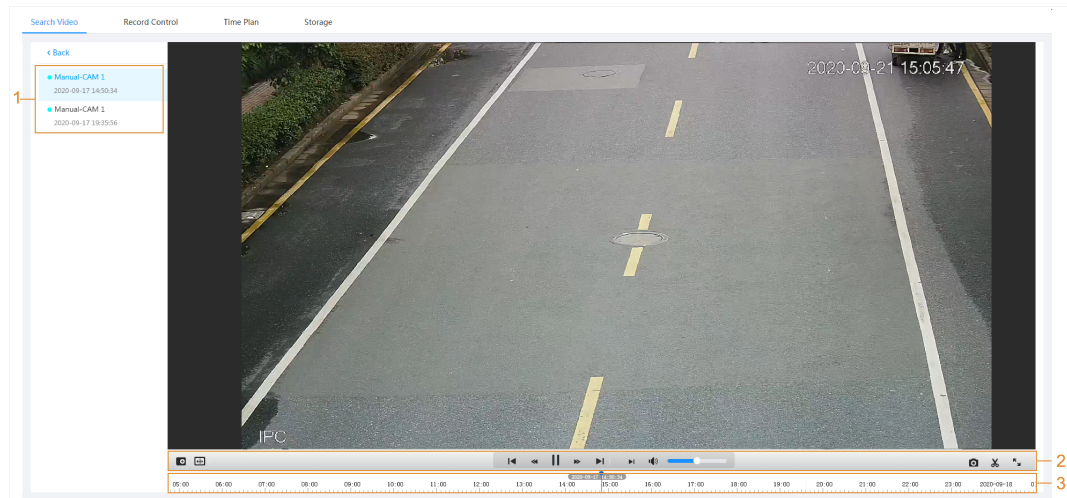


Table 8-1 Description of video playback page

No.	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  , and then select Enable to display AI rules and detection box; select Disable to stop displaying AI rules. It is disabled by default.  AI rules are valid only when you enabled the rule during recording.

No.	Function	Description
	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 picture of the current image, and it will be saved to the configured storage path. 📖 About viewing or configuring storage path, see "8.4.1 Local Storage".
	Video clip	Click ✂, and clip a certain recorded video and save it. For details, see "8.1.2 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.

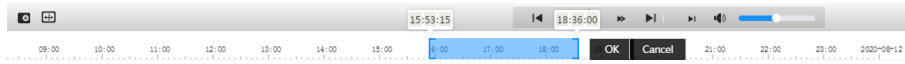
8.1.2 Clipping Video

Procedure

Step 1 Click 📄 below the video during playback.

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

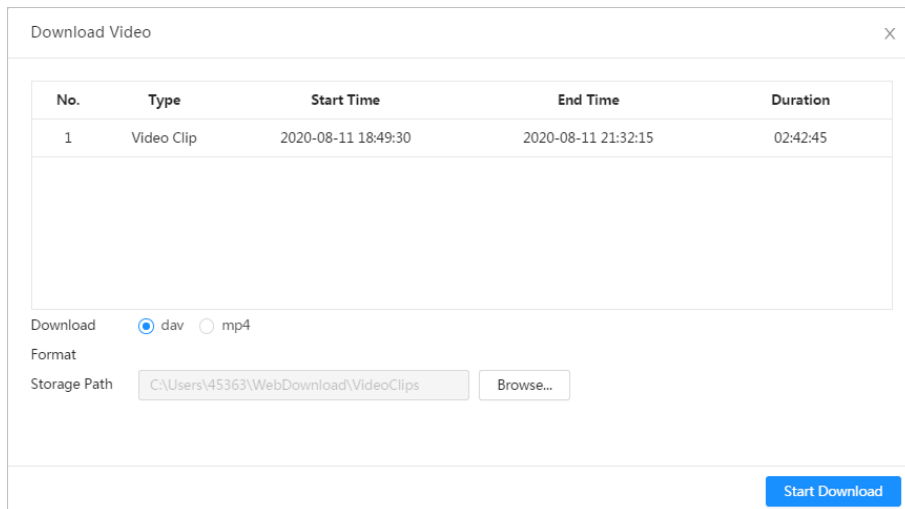
Figure 8-3 Clipping video



- Step 3** Click **OK** to open the download settings page.

- Step 4** Select the download format and storage path.

Figure 8-4 Clipping video



- Step 5** Click **Start Download**.

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

8.1.3 Downloading Video

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

Background Information



- Playback and downloading 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

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

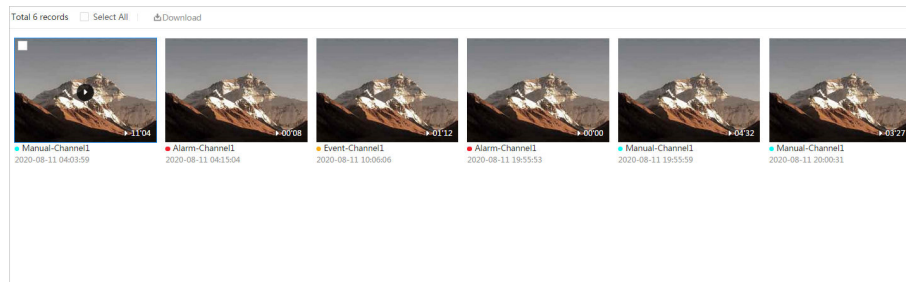
- Step 2** Select the channel, the record type, and record time, and then click **Search**.

- Step 3** Select videos to be downloaded.

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

- Select ☐ next to **Select All** to select all searched videos.

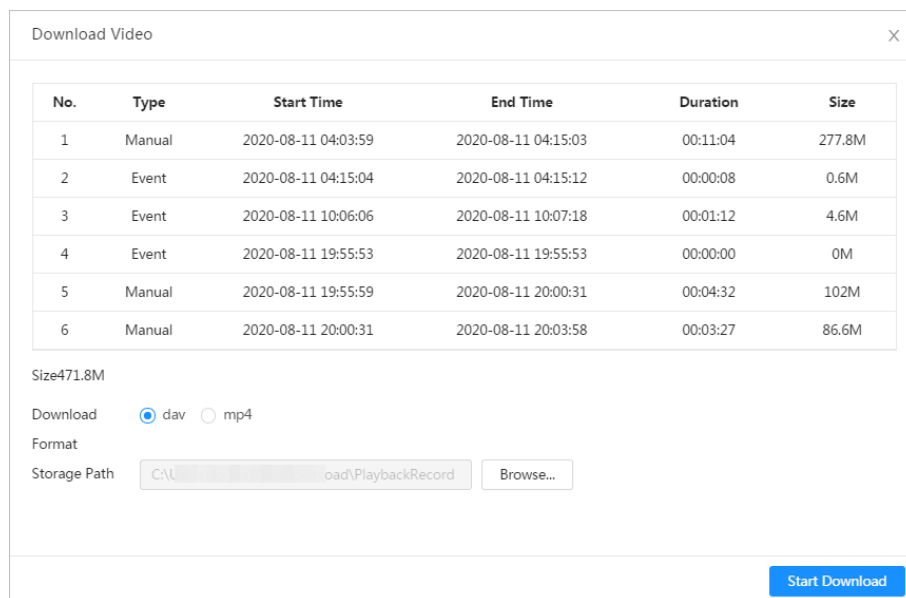
Figure 8-5 Select video file



Step 4 Click **Download**.

Step 5 Select the download format and storage path.

Figure 8-6 Download video



Step 6 Click **Start Download**.

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

8.2 Setting Record Control

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

Background Information

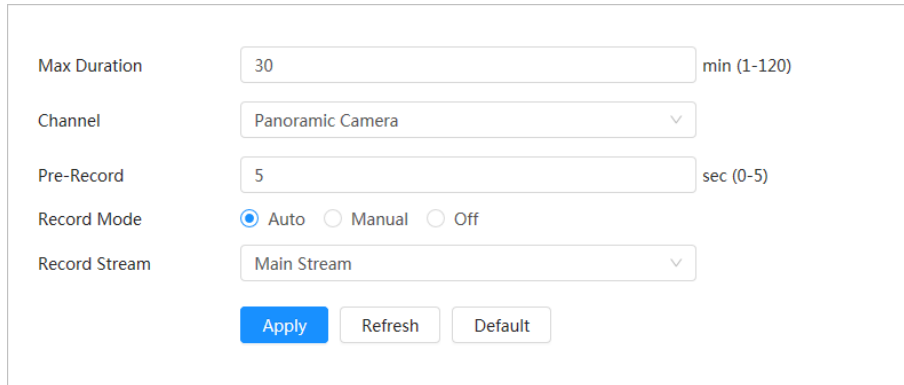


When a smart SD card is inserted into a device that supports smart SD card, make sure that the SD card has been authenticated before using the video recording function. For details, see "4.2 Local".

Procedure

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

Figure 8-7 Record control



Step 2 Set parameters.

Table 8-2 Description of record control parameters

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

Step 3 Click **Apply**.

8.3 Setting Record Plan

Background Information

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

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

Procedure

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

Step 2 Select record channel and then set record plan.

- Green represents normal record plan (such as timing recording).
- Yellow represents motion record plan (such as recording triggered by intelligent events).
- Red represents alarm record plan (such as recording triggered by alarm-in).

1. Select a record type, and left-click and drag on the timeline to set the recording period of each event.

Figure 8-8 Configure through timeline



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

Figure 8-9 Configure accurate time period

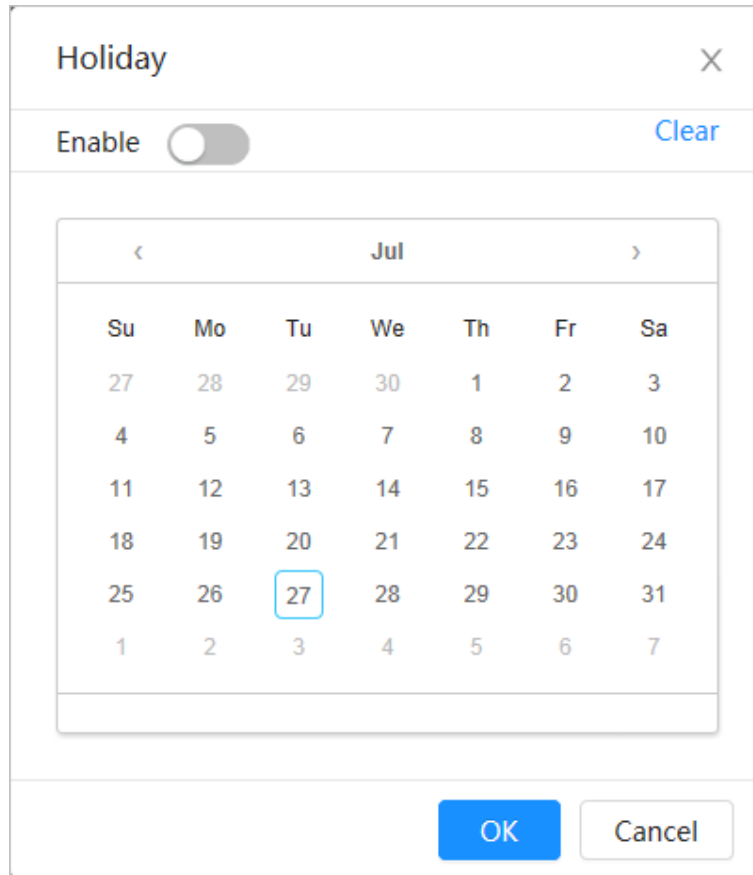


- Click **Copy**, and select the days that you want to copy to in the prompt page.
- Select the **Select All** check box to select all day to copy the configuration.
- You can set 6 time periods per day.

Step 3 Click **Apply**.

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

Figure 8-10 Holiday plan



1. Click  to enable the holiday plan, and select the days that you need to set as holidays.
2. Click **Clear** to cancel the selection.



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

Step 5 Click **OK**.

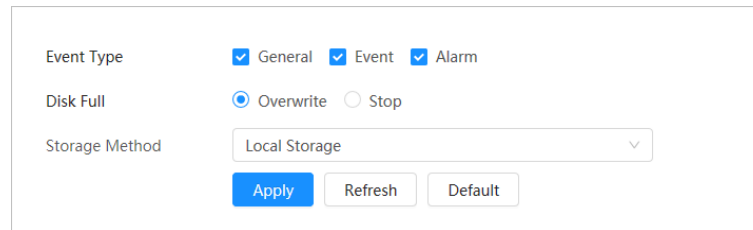
8.4 Storage

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

Procedure

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

Figure 8-11 Live



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

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 : Overwrite the earliest video when the disk is full. Stop : Stop recording when the disk is full.
Storage Method	Select from Local storage and Network storage . Local storage : Save the recorded videos in the internal SD card.  Local storage is displayed only on models that support SD card. Network storage : Save the recorded videos on the FTP server or NAS.

Step 3 Click **Apply**.

8.4.1 Local Storage

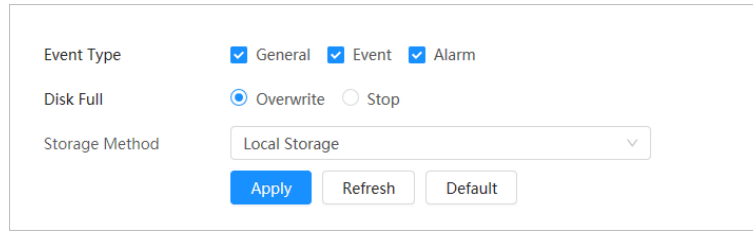
Procedure

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

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

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

Figure 8-12 Local storage



Step 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 backup.

8.4.2.1 FTP

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

Procedure

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

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

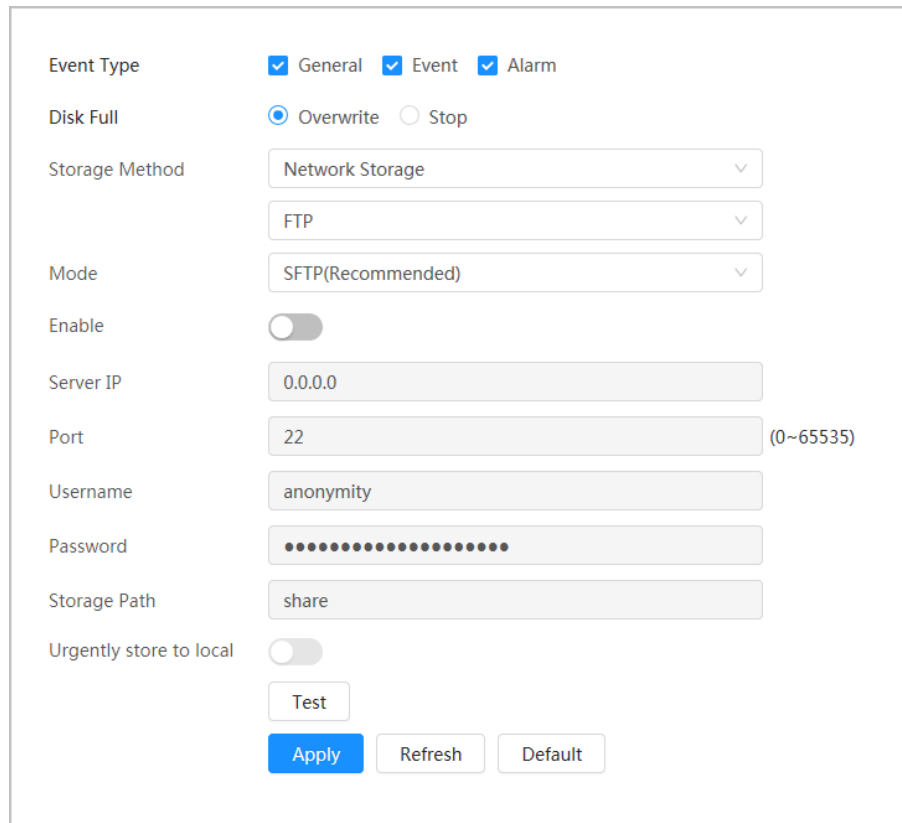
- **Overwrite** : Cyclically overwrite the earliest recorded video when the disk is full.
- **Stop** : Stop recording when the disk is full.

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

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

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

Figure 8-13 FTP



Event Type ☒ General ☒ Event ☒ Alarm

Disk Full ☒ Overwrite ☐ Stop

Storage Method

Mode

Enable ☐

Server IP

Port (0~65535)

Username

Password

Storage Path

Urgently store to local ☐

Step 5 Configure FTP parameters.

Table 8-4 Description of FTP parameters

Parameter	Description
Server IP	The IP address of the FTP server.
Port	The port number of the FTP server.
Username	The username to log in to the FTP server.
Password	The password to log in to the FTP server.
Storage Path	The destination 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 is unavailable, all the files are saved to the internal SD card.

Step 6 Click **Apply**.

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

8.4.2.2 NAS

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

Procedure

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

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

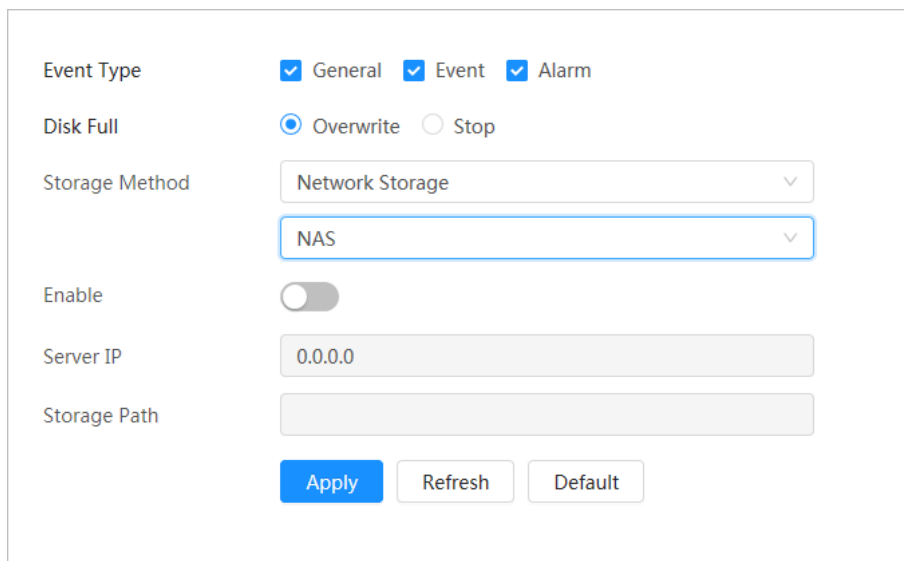
- **Overwrite** : Cyclically overwrite the earliest recorded video when the disk is full.
- **Stop** : Stop recording when the disk is full.

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

Step 4 Select NAS protocol type.

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

Figure 8-14 NAS



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

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

Step 5 Select **Enable**, 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.
Password	Password for logging in to the NAS server.  This is required when the protocol type is SMB.

Parameter	Description
Username	Username for logging in to the NAS server.
	 This is required when the protocol type is SMB.

Step 6 Click **Apply**.

9 Picture

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

9.1 Playback

This section describes playing back pictures and downloading pictures.

9.1.1 Playing Back Picture

This section introduces the operation of picture playback.

Prerequisites

- This function is available on the camera with SD card.
- Before playing back picture, configure snapshot time range, snapshot storage method, snapshot plan. For details, see "9.2 Setting Snapshot Parameters", "9.3 Setting Snapshot Plan" and "9.5 Storage".

Procedure

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

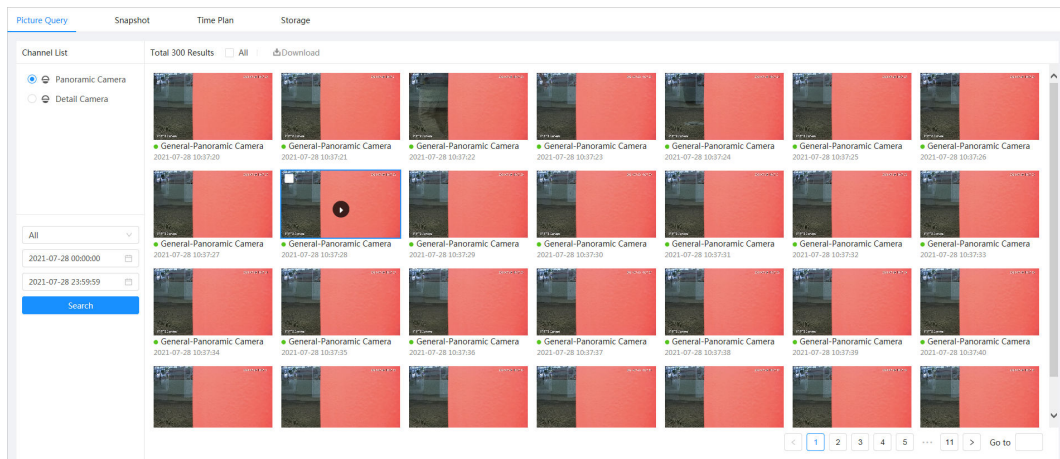
Step 2 Select the channel, the snapshot type, and snapshot time, and then click **Search**.

- Click **All** to open the drop-down list, and then select a type from **All**, **General**, **Event**, and **Alarm**. (General, Event, or Alarm).

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

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

Figure 9-1 Picture query



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

Figure 9-2 Picture playback



Table 9-1 Description of playback page

No.	Function	Description
1	Snapshot list	Displays all searched snapshots. Click any files to play back them. Click Back at the upper-left corner to go to the Picture Query page.
2	Manual display	- Click  to display the previous snapshot in the snapshot list. - Click  to display the next snapshot in the snapshot list.
3	Slide show	Click  to display the snapshots list one by one in slide show mode.
4	Full screen	Click  , and the snapshot is displayed in full-screen mode; double-click the image or press Esc button to exit full-screen mode.

9.1.2 Downloading Picture

Download pictures to a defined path. You can download a single picture or multiple pictures in batches.

Background Information



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

Procedure

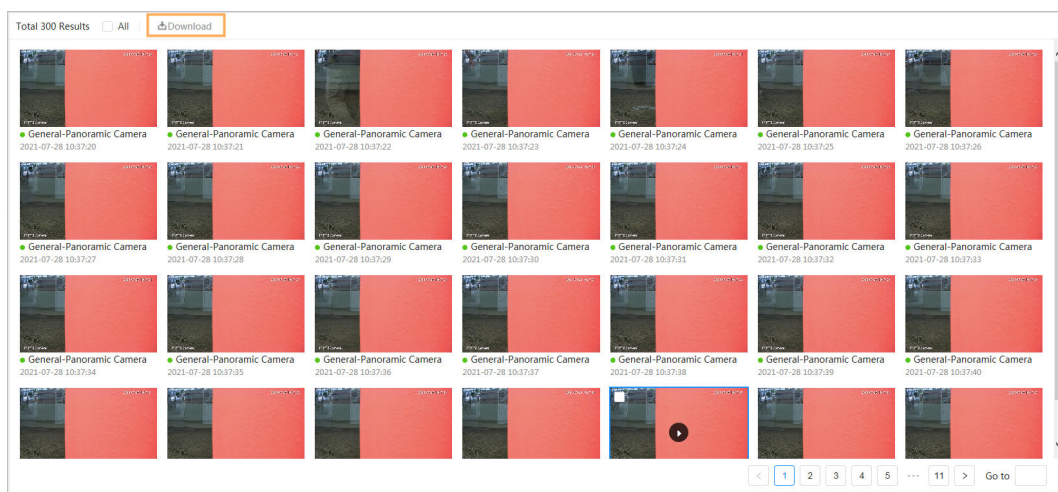
Step 1 Select **Picture** > **Picture Query**.

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

Step 3 Select the pictures to be downloaded.

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

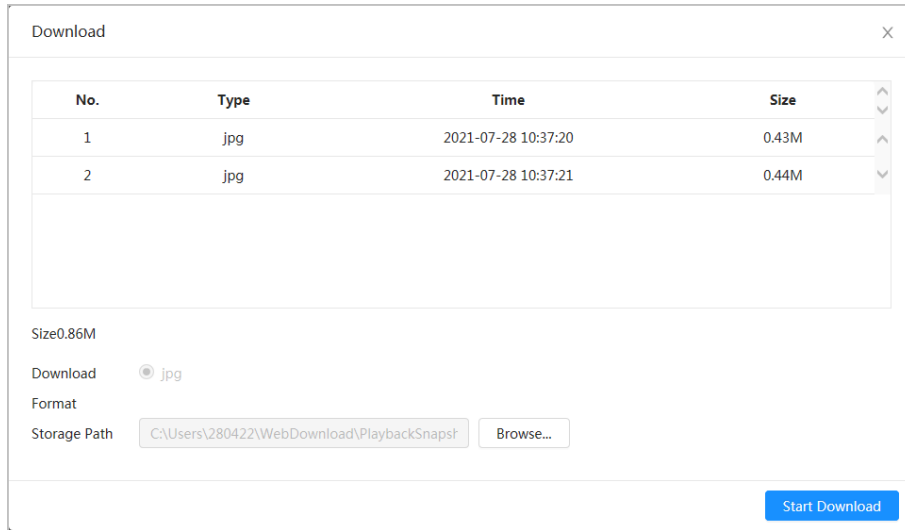
Figure 9-3 Select picture file



Step 4 Click **Download**.

Step 5 Select the download format and storage path.

Figure 9-4 Download picture



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

Size 0.86M

Download ☒ jpg

Format

Storage Path

Step 6 Click **Start Download**.

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

9.2 Setting Snapshot Parameters

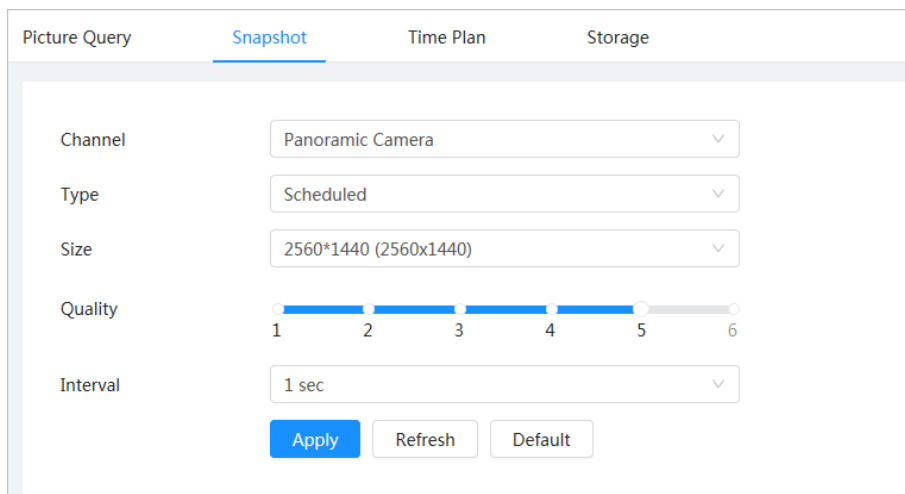
Set the snapshot parameters, including type, size, quality and interval.

Procedure

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

Step 2 Select the channel and set the parameters.

Figure 9-5 Snapshot



Picture Query **Snapshot** Time Plan Storage

Channel

Type

Size

Quality

Interval

Table 9-2 Description of snapshot parameters

Parameter	Description
Type	You can select from Scheduled and Event. • Scheduled : Capture images in the defined period. For details, see "9.3 Setting Snapshot Plan". • Event : Capture images when configured event is triggered, such as Motion Detection, Video Tamper and Scene Changing.  Make sure that you have enabled the corresponding event detection and the snapshot function.
Size	Matches 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 as needed.

Step 3 Click **Apply**.

9.3 Setting Snapshot Plan

According to the configured snapshot plan, the system enables or disables snapshot at corresponding time.

Background Information

After the corresponding alarm type (**General** , **Event**, and **Alarm**) is enabled, the camera channel links snapshot.

Procedure

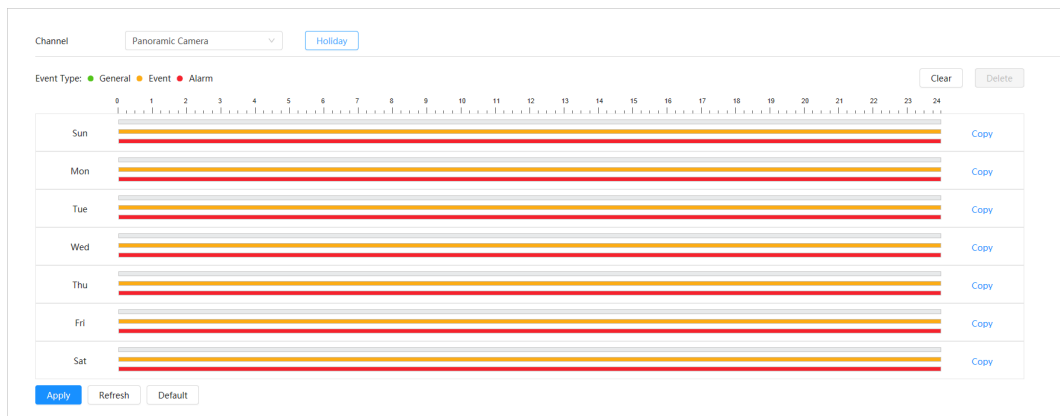
Step 1 Click **Picture** on the webpage, and then click the **Time Plan** tab.

Step 2 Select camera 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 directly press and drag the left mouse button to set the time period for normal snapshot on the timeline.

Figure 9-6 Configure through timeline



2. Click the selected time range and then enter a specific time in the time text box to configure an accurate start and end time.

Figure 9-7 Configure accurate time period

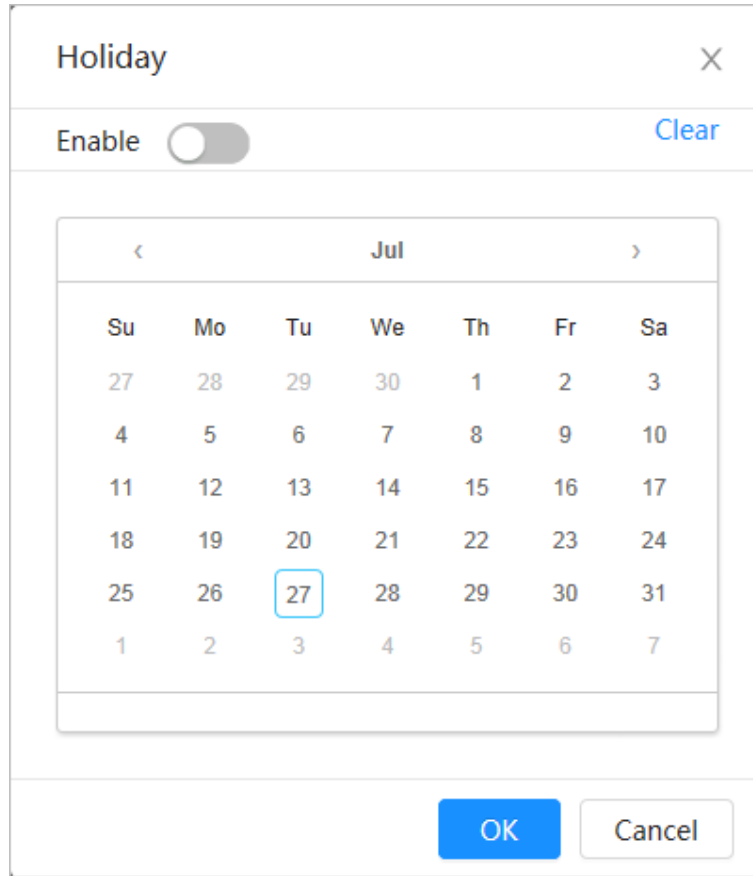


- Click **Copy** next to a day. On the prompt page, select the target days to copy the configuration. Select the **Select All** check box to select all days to copy the configuration.
- You can set 6 time periods per day.

Step 3 Click **Apply**.

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

Figure 9-8 Holiday plan



1. Click  to enable the holiday configuration, and select the days that you need to set as holiday.
2. Click **Clear** to cancel the selection.



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

Step 5 Click **OK**.

9.4 Snapshot by Location

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

Prerequisites

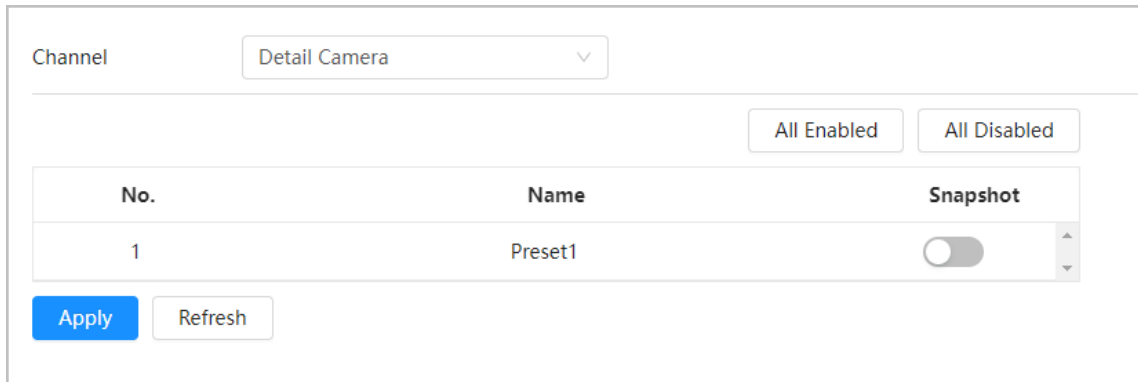
Add the presets in advance. For details of adding presets, see "4.5.1 Configuring Presets".

Procedure

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

- Step 2** Click ☐ corresponding to the preset point to enable its capture function, or click **All Enabled** to enable the capture function of all preset points.
- Click **All Disabled** to disable the capture function of all preset points.

Figure 9-9 Snapshot by location



- Step 3** Click **Apply**.

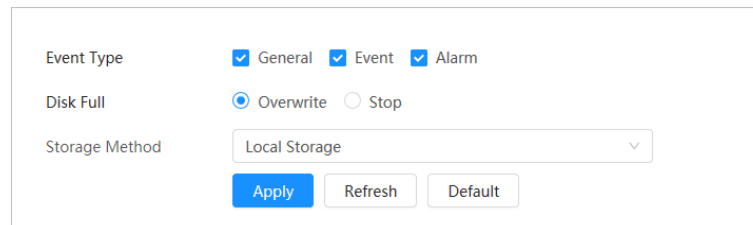
9.5 Storage

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

Procedure

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

Figure 9-10 Live



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

Table 9-3 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 recorded video when the disk is full. Stop : Stop recording when the disk is full.

Parameter	Description
Storage Method	Select from Local storage and Network storage. Local storage : Save the snapshots on the internal SD card.  Local storage is displayed only on models that supports an SD card. Network storage : Save the snapshots to the FTP server or NAS.

Step 3 Click **Apply**.

9.5.1 Local Storage

Procedure

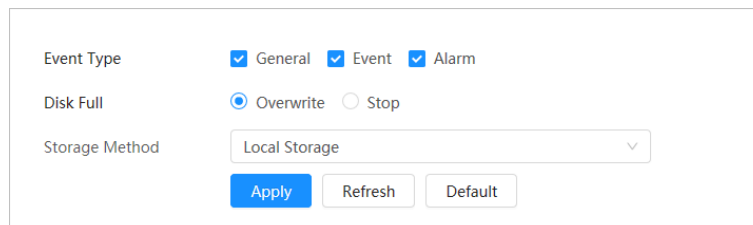
Step 1 Select **Picture** > **Storage**.

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

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

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

Figure 9-11 Local storage



Step 4 Click **Apply**.

9.5.2 Network Storage

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

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

9.5.2.1 FTP

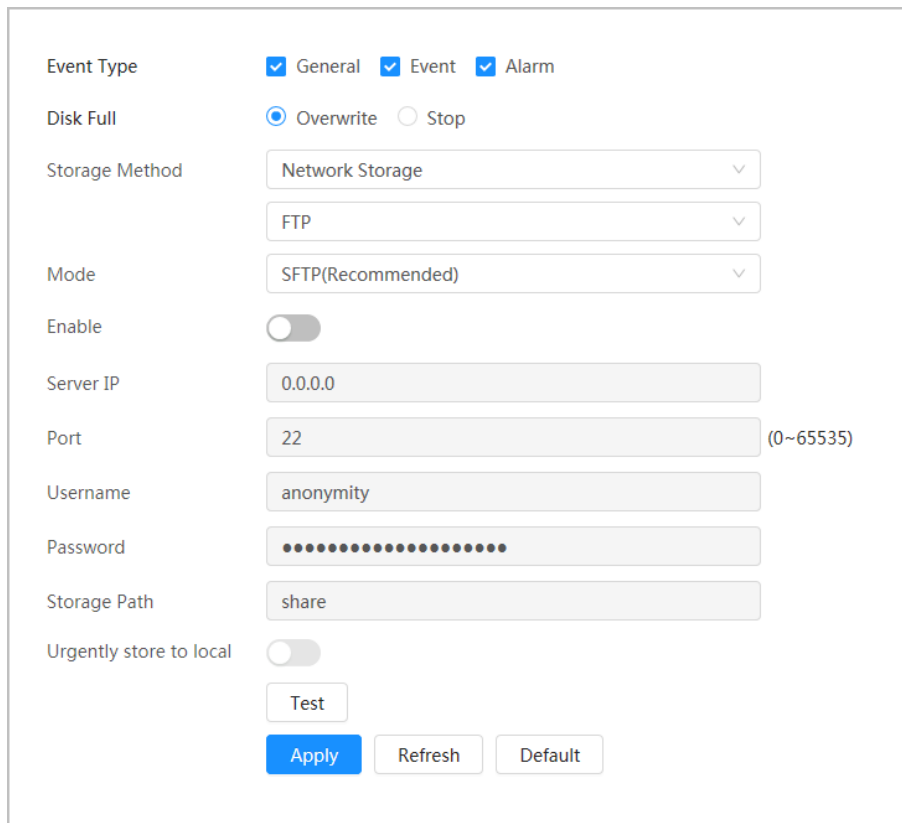
Enable this function, and you can save all the files in the FTP server.

Procedure

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

- Step 2** Select the snapshot strategy in **Disk Full**.
- **Overwrite** : Cyclically overwrite the earliest snapshot when the disk is full.
 - **Stop** : Stop snapshot when the disk is full.
- Step 3** Select **Network storage** in **Storage Method**, and select **FTP** to save the snapshots in FTP server.
- Select **FTP** or **SFTP** from the drop-down list. **SFTP** is recommended.
- Step 4** Click ☐ next to **Enable** to enable the FTP function.

Figure 9-12 FTP



Event Type ☒ General ☒ Event ☒ Alarm

Disk Full ☒ Overwrite ☐ Stop

Storage Method

Mode

Enable ☐

Server IP

Port (0~65535)

Username

Password

Storage Path

Urgently store to local ☐

- Step 5** Configure FTP parameters.

Table 9-4 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 destination path in the FTP server.
Directory Structure	Select a directory level for the storage path and then set the directory name for the level.

Parameter	Description
Urgently store to local	Click ☐ , and when the FTP server does not work, all the files are saved to the internal SD card.

Step 6 Click **Apply**.

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

9.5.2.2 NAS

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

Procedure

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

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

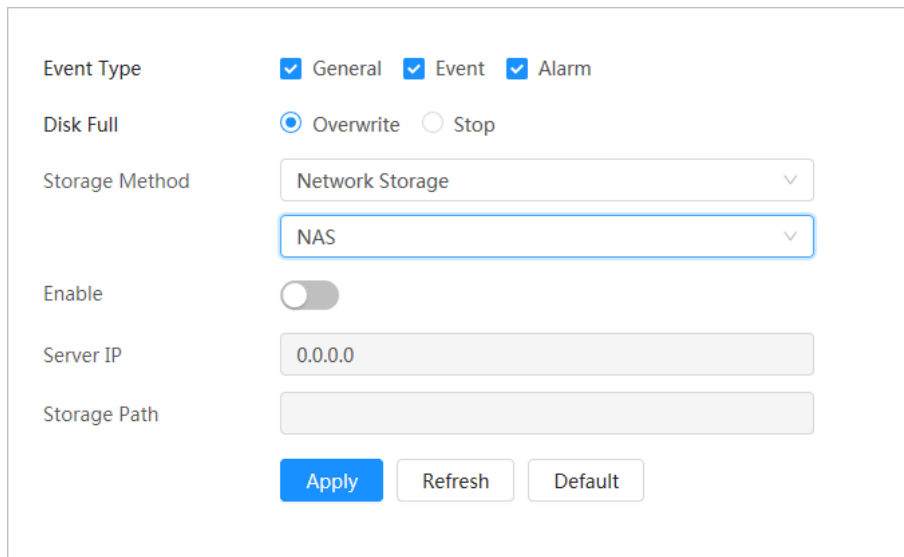
- **Overwrite** : Cyclically overwrite the earliest snapshot when the disk is full.
- **Stop** : Stop snapshot when the disk is full.

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

Step 4 Select NAS protocol type.

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

Figure 9-13 NAS



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

Step 5 Select **Enable**, and then configure NAS parameters.

Table 9-5 Description of NAS parameters

Parameter	Description
Server IP	The IP address of the NAS server.

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

Step 6 Click **Apply**.

10 AI

This chapter describes how to configure device AI events, including smart plan, panoramic linkage and tour plan.



Some models support panoramic camera channel or detail camera channel. Snapshots and functions in this section are for reference only, and might differ from the actual models.

10.1 Configuring Smart Plan

Smart plans include face detection, intelligence behavior analysis, video metadata and more. The smart functions of the Camera cannot take effect until the smart plan has been enabled.

Background Information



- Smart plans of different devices might vary in actual page.
- Calibrate the Camera before configuring the smart plans. For details, see "10.9 Panoramic Linkage".

Procedure

Step 1 Select **AI** > **AI Config** > **Smart Plan**.

Step 2 (Optional) Select intelligence mode.

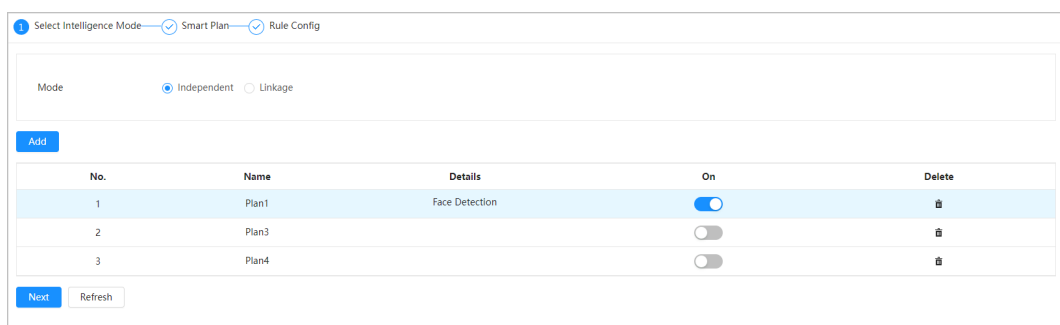
- Independent mode: Each camera channel operates independently without any linkage between them.



The tour of the detail camera does not affect or interrupt the AI detection of the panoramic camera.

1. Click **Add**, and then double-click the plan to change the name.

Figure 10-1 Select intelligence mode



No.	Name	Details	On	Delete
1	Plan1	Face Detection	☒	
2	Plan3		☐	
3	Plan4		☐	

2. Click ☐ to enable the plan, and then click **Next**.

- Linkage mode: The panoramic camera detects during multi-scene tours, triggering the detail cameras to zoom in for recognition and capture.

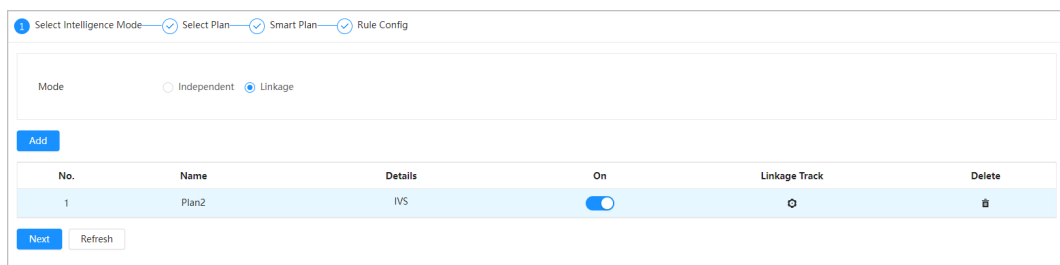
For some devices, **Linkage** is referred as **TiOC Linkage Mode**.



Some panorama camera supports adding multiple presets and some detail camera only supports recognition and snapshot.

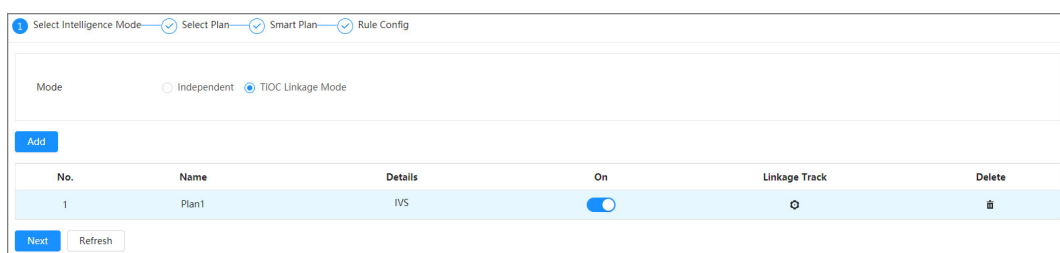
- Click **Add**, and then double click the plan to change the name of the plan.

Figure 10-2 Select linkage mode (1)



No.	Name	Details	On	Linkage Track	Delete
1	Plan2	IVS	☒		

Figure 10-3 Select linkage mode (2)

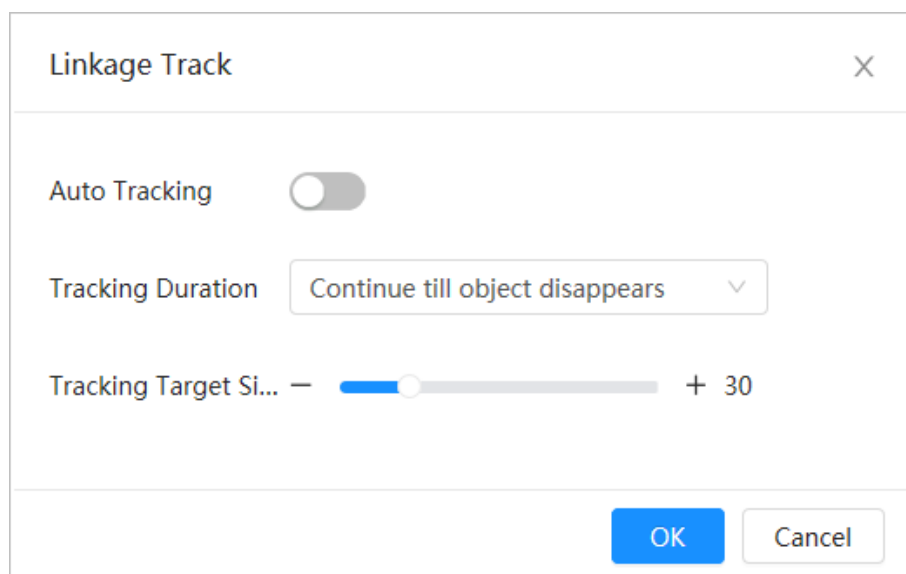


No.	Name	Details	On	Linkage Track	Delete
1	Plan1	IVS	☒		

- Click  to configure linkage track parameters.

Different devices might vary in the actual page.

Figure 10-4 Configure linkage track



Linkage Track

Auto Tracking ☐

Tracking Duration Continue till object disappears

Tracking Target Si... — + 30

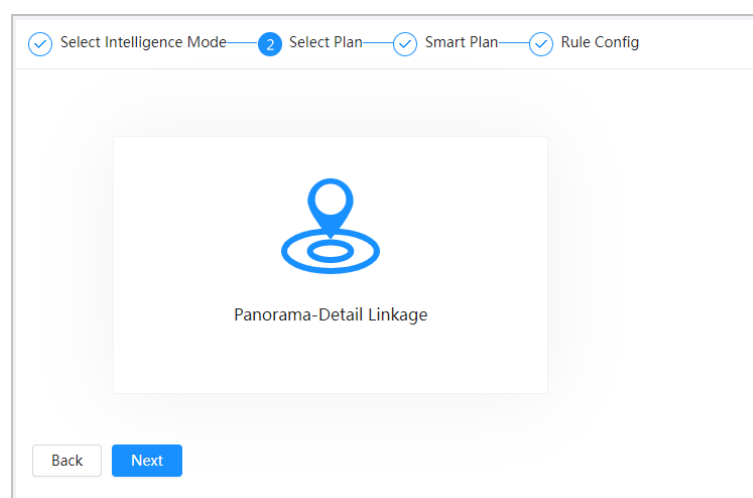
OK Cancel

Table 10-1 Description of linkage track parameters

Parameter	Description
Auto Tracking	Enable Auto Tracking based on the actual situation. After this function is enabled, the detail camera will track and capture the target.
Tracking Duration	You can select the tracking duration as needed. ◇ Continue till object disappears : When this mode is selected, the detail camera will follow the target until it is no longer detectable. ◇ Custom : When this mode is selected, the time setting bar is displayed. Set the tracking time as required. ◇ Track until objects captured by panorama camera disappear : When this mode is selected, the panorama camera will follow the target until it is no longer detectable. ◇ Track until objects captured by detail camera disappear : When this mode is selected, the detail camera will follow the target until it is no longer detectable.
Tracking Target Size Ratio	Set the proportion of the tracked object in the detail camera screen. The proportion is the proportion of the tracked object to the camera screen.

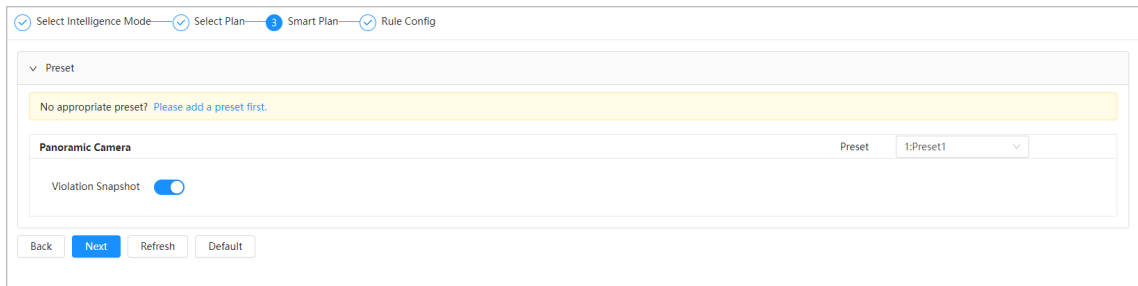
3. Click **OK**.
4. Select the smart plan, and then click **Next**.
5. Select **Panorama-Detail Linkage** and click **Next**.

Figure 10-5 Select the plan



6. Select the preset, enable the **Violation Snapshot** function, and then click **Next**.

Figure 10-6 Enable violation snapshot (linkage mode)



- Combination mode: Supports the panoramic camera and the detail camera to perform different intelligent function independently.

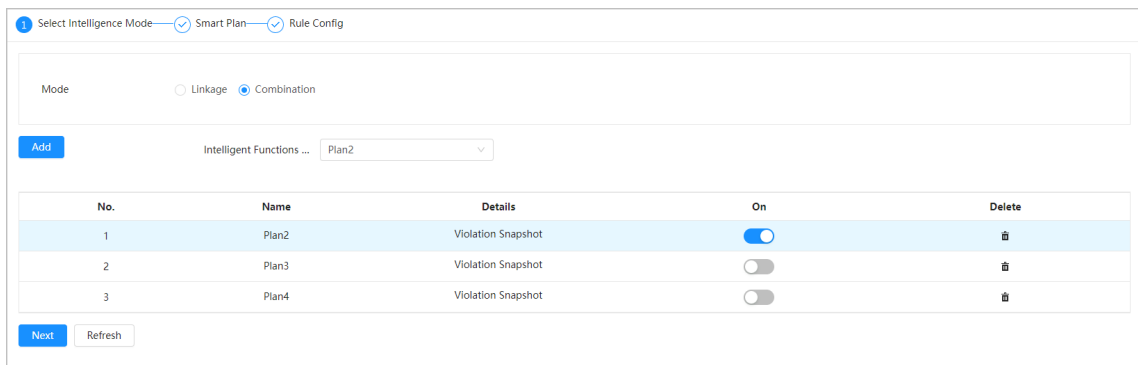
The panoramic camera supports the simultaneous detection of ANPR and illegal parking, and during the illegal parking detection, it can link detail camera to capture the license plate.

The detail camera supports violation snapshot (it can tour independently, but when the detail camera is on a panoramic linkage, it performs panoramic linkage first).

- Click **Add**, and double-click the plan to change the name of the plan.

Click  to delete the plan.

Figure 10-7 Combination mode



No.	Name	Details	On	Delete
1	Plan2	Violation Snapshot	☒	
2	Plan3	Violation Snapshot	☐	
3	Plan4	Violation Snapshot	☐	

- Click ☒ to enable the plan, and then click **Next**.
- (Optional) Select the plan from the **Intelligent Functions Linked to** drop-down list.

The **Intelligent Functions Linked to** function only takes effect when touring 2 or more combination mode smart plans.



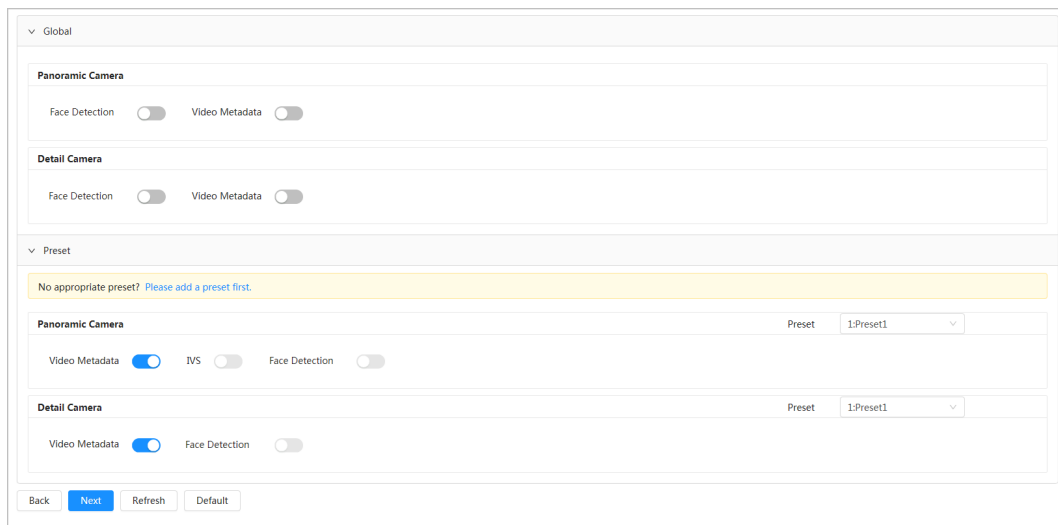
After selecting the plan to which the intelligent function is linked, the panoramic function of the plan is the same as the linked plan. During the tour, when switching to a certain plan and the plan has been linked with other plans, the panoramic intelligence continues to use the linked panoramic smart plan.

For example, you add plan 1, plan 2 and plan 3 to the tour plan successively, and set plan 2 intelligently linked to plan 3. When the device switches from plan 1 to plan 2, the panoramic camera will directly use plan 3 for detection, and the detail camera will normally switch from plan 1 to plan 2.

4. Click **Next**.

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

Figure 10-8 Enable AI function



The screenshot shows the AI configuration interface. It is divided into two main sections: 'Global' and 'Preset'. Under 'Global', there are two camera types: 'Panoramic Camera' and 'Detail Camera'. Each has two toggle switches: 'Face Detection' and 'Video Metadata'. In the 'Preset' section, there is a message 'No appropriate preset? Please add a preset first.' followed by two camera types: 'Panoramic Camera' and 'Detail Camera'. Each has a 'Preset' dropdown menu set to '1:Preset1' and three toggle switches: 'Video Metadata', 'IVS', and 'Face Detection'. At the bottom, there are four buttons: 'Back', 'Next', 'Refresh', and 'Default'.

Step 4 Configure smart function rule as required.

10.2 Configuring AcuPick

Enable the AcuPick function to achieve accurate and quick search on the connected NVR.

Background Information



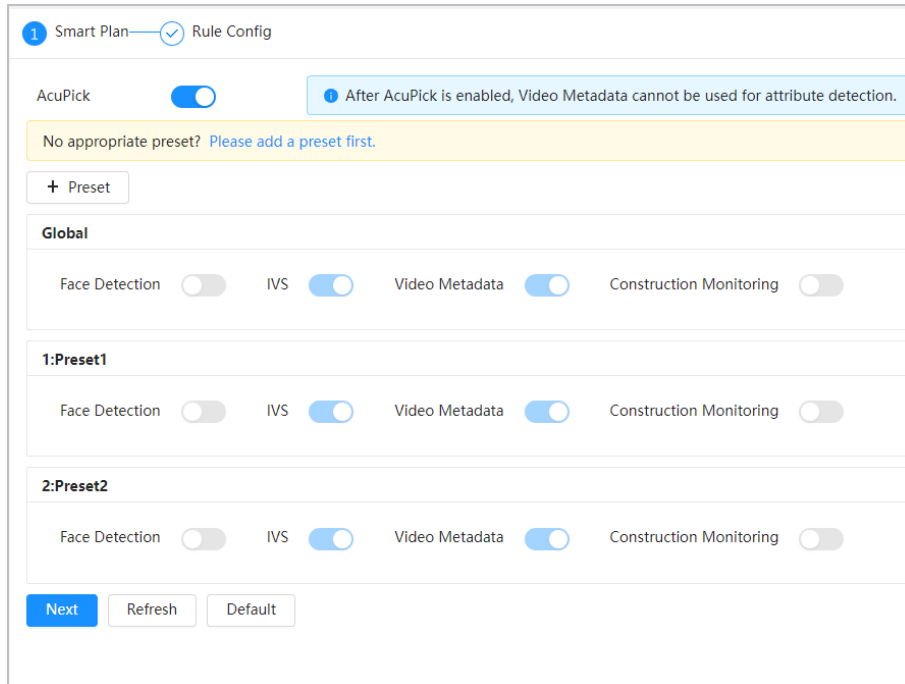
- Make sure that the connected NVR supports the AcuPick mode.
- AcuPick is enabled by default. When you enable or disable this function, the Device restarts automatically.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click ☐ next to **AcuPick**, and then click **Next** to enable the function.

Figure 10-9 Enable AcuPick



Step 3 Configure **IVS** as needed.

Step 4 Configure **Video Metadata**.

The AcuPick supports **People Detection**, **Motor Vehicle Detection** and **Animal Detection**.



- Only when you enable rules will the Camera push the corresponding information to the connected NVR.
- After **AcuPick** is enabled, animal detection is supported by default; When **AcuPick** is turned off, animal detection is not supported.
- After **AcuPick** is enabled, an alarm is triggered (with a flashing red box) when animal targets enter or appear in the image, and then a green box will track the targets.
- In terms of the people detection and motor vehicle detection, you can select the effective target in smart plan.

Step 5 Click **Apply**.

10.3 Configuring People Counting

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



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

10.3.1 Global Configuration

Set the sensitivity of people counting.

Procedure

- Step 1 Select **AI > AI Config > Smart Plan**.
- Step 2 Click **Rule Config**, and then select **People Counting**.
- Step 3 Click **Global Config** tab, and then select a preset in the **Preset** list.
- Step 4 Set **Sensitivity**.
When the sensitivity is high, it is easier to trigger an alarm.
- Step 5 Click **Apply**.

10.3.2 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 **AI > AI Config > Smart Plan**.

Procedure

- Step 1 Select **AI > AI Config > Smart Plan**.
 - Step 2 Click **Rule Config**, and then select **People Counting**.
 - Step 3 Click **People Counting** tab, and then select a preset in the **Preset** list.
 - Step 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.

Figure 10-10 Add a people counting rule

- 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.



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

- Configure parameters of people counting.

Table 10-2 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.

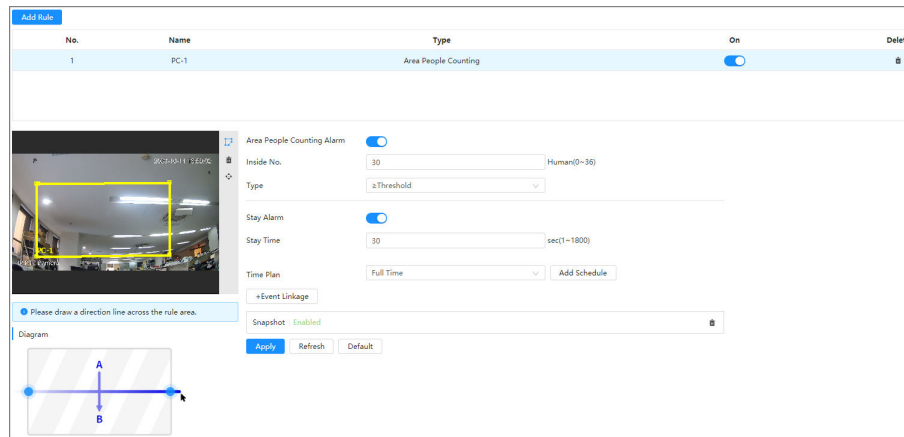
- Area People Counting: The system counts the people in the detection area and the duration that people stay in the area. When the counted number of people in the detection area or the stay duration exceeds the configured value, an alarm will be triggered, and the system performs an alarm linkage.



Only available on select models.

- 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.

Figure 10-11 Add an area people counting rule



- Configure parameters of area people counting.

Table 10-3 Description of area people counting parameters

Parameters	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.
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	

Step 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**.

Step 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 Alarm Linkage".

Step 7 Click **Apply**.



If you need to click  on the top right corner of the page to view alarm information, please subscribe to the alarm event first.

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.

Figure 10-12 Counting result



10.3.3 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.

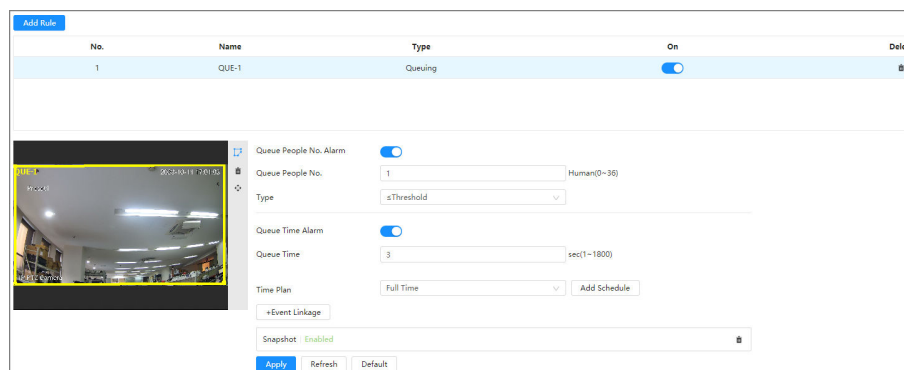
Prerequisites

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

Procedure

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

Figure 10-13 Add a queuing rule



- Step 6** Configure parameters of queuing.

Table 10-4 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 .
Queue People No.	
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. - Click  next to Queue People No. Alarm to enable the function. - Set the number of people inside the detection area. - Select the counting type. ≤ threshold ≥ threshold
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	

- Step 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**.

Step 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 Alarm Linkage".

Step 9 Click **Apply**.



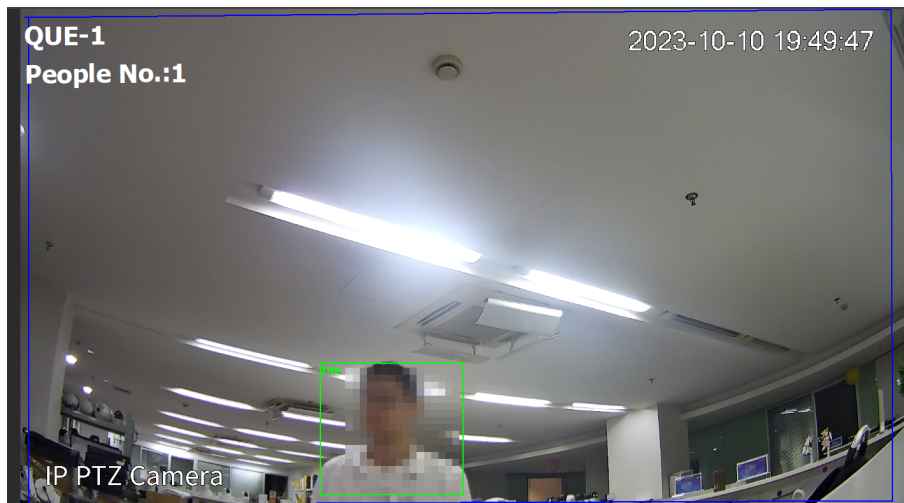
If you need to click  on the top right corner of the page to view alarm information, please subscribe to the alarm event first.

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.

Figure 10-14 Queuing result

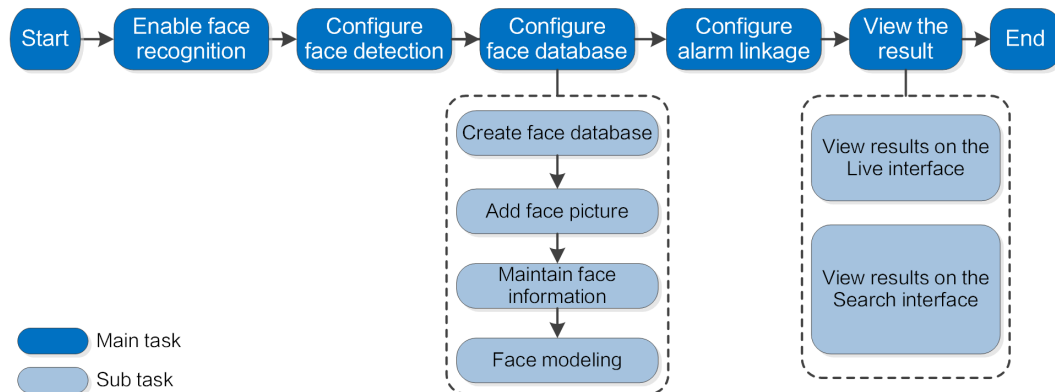


10.4 Configuring Face Recognition

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 recognized 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.

Figure 10-15 Face recognition flowchart



10.4.1 Configuring Face Recognition Rule

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Face Recognition**.

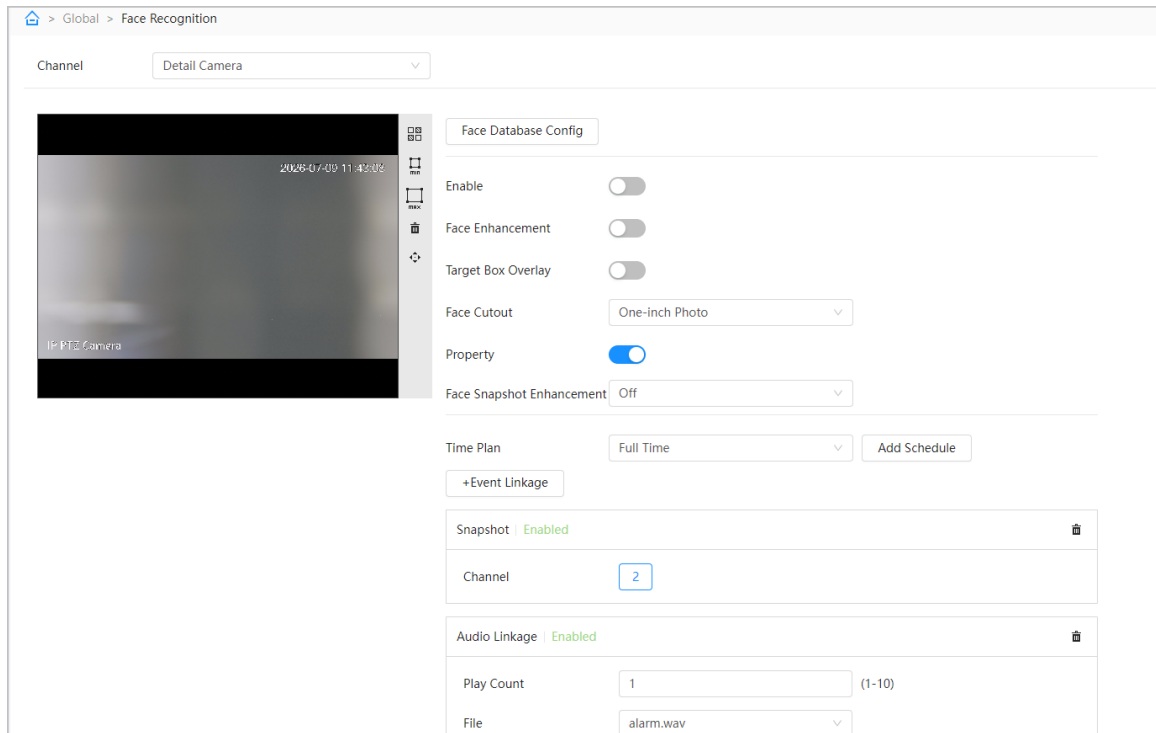
Step 3 Select the camera to be configured from the channel drop-down list.

Step 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 detection area in the image, and right-click to finish the drawing.
- Click  to draw an exclusion area for face detection in the image, and right-click to finish the drawing.
- Click  to draw the minimum size of the target, and click  to draw the maximum size of the target. Only when the target size is between the maximum size and the minimum size, can the alarm be triggered.
- Click , and then press and hold the left mouse button to draw a rectangle, the pixel size is displayed.
- Click  to delete the detection line.
- Click  to adjust the monitoring screen through the PTZ control panel.

Step 5 Configure parameters of face recognition.

Figure 10-16 Configuring face recognition rule



The screenshot shows the 'Face Recognition' configuration page in the Dahua web interface. The left sidebar contains a video feed of a camera labeled 'IP-PTZ Camera' with a timestamp of '2008-07-09 11:43:02'. The main configuration area on the right is titled 'Face Database Config' and includes the following settings:

- Channel:** Detail Camera
- Face Database Config:**
 - Enable: ☐
 - Face Enhancement: ☐
 - Target Box Overlay: ☐
 - Face Cutout: One-inch Photo
 - Property: ☒
 - Face Snapshot Enhancement: Off
- Time Plan:** Full Time
- +Event Linkage:** Add Schedule
- Snapshot:** Enabled
- Channel:** 2
- Audio Linkage:** Enabled
- Play Count:** 1 (1-10)
- File:** alarm.wav

Table 10-5 Description of face detection parameters

Parameter	Description
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 picture to highlight the face. The captured face picture is saved in SD card or the Snapshot Path . For the Snapshot Path see "4.2 Local".

Parameter	Description
Face Cutout	Set a range for the captured face image, including face, one-inch picture, and custom. 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.
Property	Click Property to enable the properties display during face detection.
Time Plan	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. For details, see Step 6.
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.  The quality threshold and optimized duration are configured in Advanced below.
Snapshot	You can enable or disable the snapshot function manually.
Audio Linkage	When an alarm is triggered, the system will automatically activate an audio alarm. You can configure Play Count to set the number of playbacks for audio, and select an audio file from File as needed.

Parameter	Description
Advanced	• Quality Threshold : Set the quality threshold of the captured image. • Optimized Duration : Set a time period to capture the clearest picture after the camera detects face.

Step 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 Alarm Linkage".

Step 7 Click **Apply**.

10.4.2 Configuring Face Database

By setting a face database, the information within it can be used to compare against captured facial images. The configuration process includes creating face database, adding face picture, and face modeling.

Background Information

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

10.4.2.1 Creating Face Database

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Face Recognition**.

Step 3 Click **Face Database Config** to enter the face database configuration page.

Step 4 Click **Add** to configure the name of face database.

Figure 10-17 Add face database



Step 5 Click **OK**.

The added face database information is displayed on the page.

Figure 10-18 Face database

Add Refresh		Free Space 100%					
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 "10.4.3 Configuring Arm Alarm".
- Managing 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.

10.4.2.2 Adding Face Pictures

Add face pictures to the created face database. You can add them one by one or in batches.

Requirements on face pictures:

- A single face picture size is 50 KB–150 KB in JPEG format. The resolution is lower than 1920 × 1080.
- Face size is 30%–60% of the whole picture. 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.

10.4.2.2.1 Single Adding

Add face pictures one by one. Select this method when you need to add a small number of face pictures.

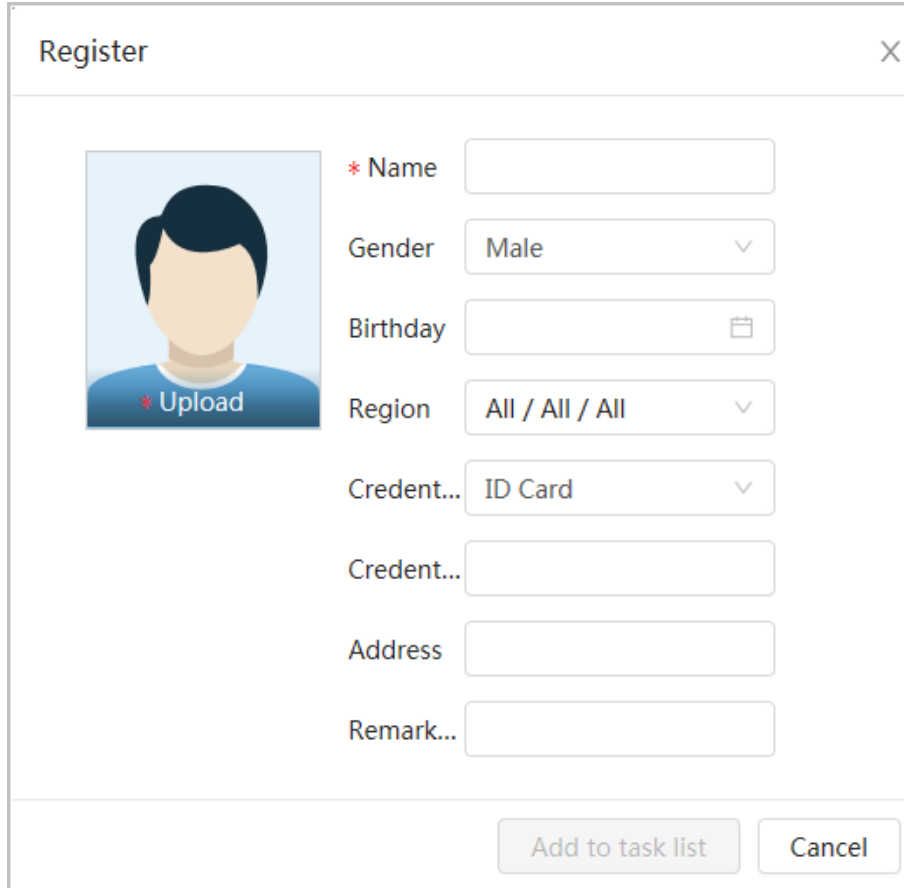
Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Face Recognition**.
- Step 3** Click **Face Database Config** to enter the face database configuration page.
- Step 4** Click next to the face database to be configured.
- Step 5** Click **Register**.
- Step 6** Click **Upload** to select the face picture you want to upload, and then click **Open**.



After uploading the picture, select a face area, and then click **OK** to save the face picture. If there are multiple faces in a picture, select the target face and click **OK** to save the face picture.

Figure 10-19 Add pictures



Step 7 Enter the information about face picture according to the actual situation, and then click **Add to task list**.

Step 8 Click  on the upper-right corner, and then click **Operation**.

- If picture 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 Table 10-6 .
- If picture modeling fails, the error code is displayed on the page. Please modify the picture and remodel the picture. For details on face modeling operation, see "10.4.2.4 Face Modeling".

Table 10-6 Description of error code

Error Code	Error	Description
0x1134000C	Picture importing error	The picture is too large, and the upper limit is 150K.

Error Code	Error	Description
0x1134000E		The quantity of the added pictures has reached the upper limit.
0x11340019		The space of the face database exceeds the upper limit.
1	Picture modeling error	The picture format is not correct. Import the picture in JPG format.
2		No face in the picture or the face is not clear. Change the picture.
3		Multiple faces in the picture. Change the picture.
4		Failed to decode the picture. Change the picture.
5		The picture is not suitable to be imported to the face database. Change the picture.
6		Database operation error. Restart the camera and model faces again.
7		Fails to get the picture. Import the picture again.
8		System error. Restart the camera and model faces again.

10.4.2.2.2 Batch Importing

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

Prerequisites

Before importing pictures in batches, name face pictures 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").



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

Table 10-7 Description of batch importing parameters

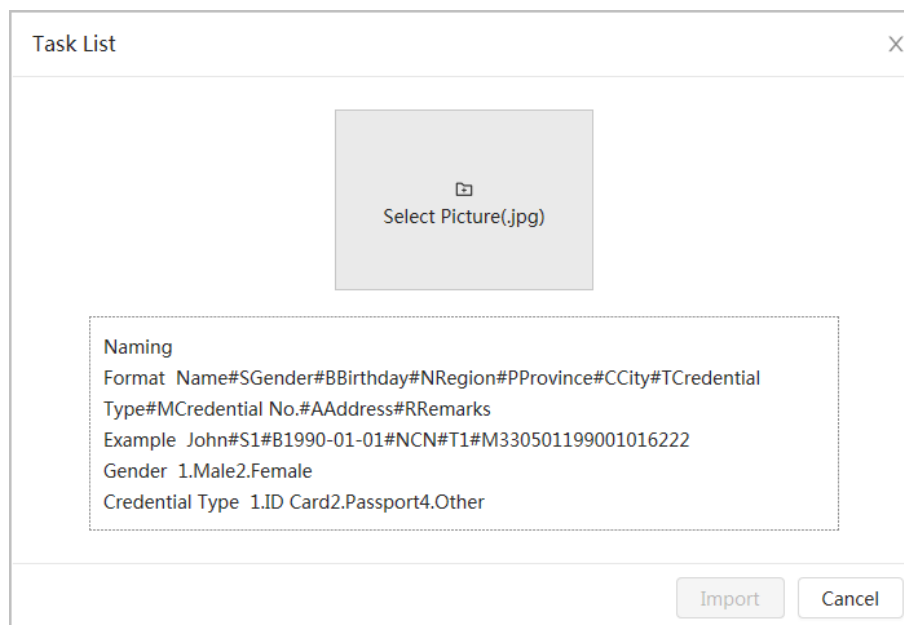
Parameter	Description
Name	Enter the corresponding name.
Gender	"1" is male and "2" female.
Date of Birth	Format: yyyy-mm-dd, such as 2020-10-23.
Region	Enter the abbreviation name of the country or region, such as CN (for China), BR (for Brazil).

Parameter	Description
Province	Enter the corresponding name of the province. Supports letters with the first letter capitalized, 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 No.

Procedure

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

Figure 10-20 Task list



Task List

Select Picture(.jpg)

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

Import Cancel

- Step 7 Click **Import** to import the face pictures.
- After the importing is completed, the result will be displayed.
- If the picture is imported successfully, click **Next** to do modeling operation.
 - If the picture importing failed, click **Query** to view the details of the pictures and error code. For details, see Table 10-6 .
- Click **Export** to export the error details. Modify and reimport the face picture according to the error prompt.
- Step 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 the picture according to the failure reason.
For modeling details, see "10.4.2.4 Face Modeling".

10.4.2.3 Managing Face Pictures

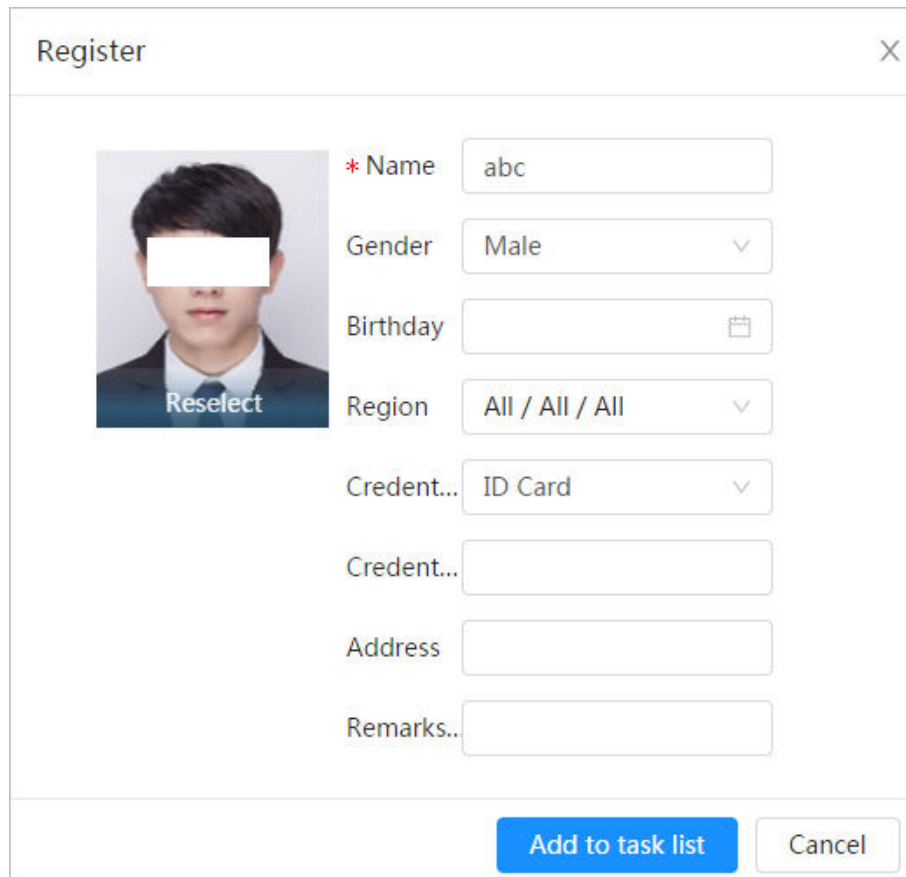
Add face pictures to the face database, and then manage them to ensure the information is correct.

10.4.2.3.1 Modifying Face Information

Procedure

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

Figure 10-21 Face information registration



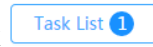
The 'Register' dialog box contains the following fields and controls:

- Face Image:** A placeholder image of a person with a 'Reselect' button below it.
- * Name:** Text input field with 'abc' entered.
- Gender:** Dropdown menu with 'Male' selected.
- Birthday:** Date picker field.
- Region:** Dropdown menu with 'All / All / All' selected.
- Credent...:** Dropdown menu with 'ID Card' selected.
- Credent...:** Empty text input field.
- Address:** Empty text input field.
- Remarks..:** Empty text input field.
- Buttons:** 'Add to task list' (blue) and 'Cancel' (white) buttons at the bottom right.

Step 8 Click , and then click **Operation**.

10.4.2.3.2 Deleting Face Data

Procedure

- Step 1 Select **AI > AI Config > Smart Plan**.
- Step 2 Click **Rule Config**, and then select **Face Recognition**.
- Step 3 Click **Face Database Config** to enter the face database configuration page.
- Step 4 Click  next to the face database to be configured.
- Step 5 Click **Query**, and then set the search criteria as needed. Click **Search**, and then select the face information that needs to be deleted and delete it.
 - Single delete: Select the row where the face picture or the personnel information is located, and then click  to delete the face picture.
 - Delete in batches: Select ☐ on the upper-right corner of the face picture or ☐ of the row where the personnel information is located. Select the information, click **Delete**, and then click . Click **Operation** to delete the selected face pictures.
 - Delete all: When viewing face pictures in a list, click ☐ of the row where the serial number is located; When viewing by thumbnail, select **All** to select all face pictures. Click **Delete**, click , and then click **Operation** to delete all face pictures.

10.4.2.4 Face Modeling

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

Background Information



- The more face pictures 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

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



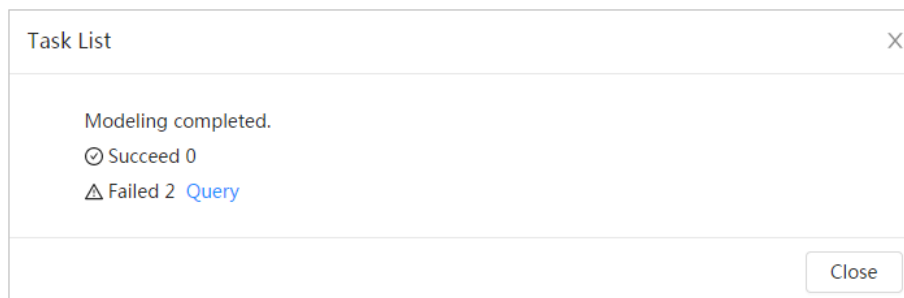
If there are many face pictures in the face database, you can set search criteria to select the pictures that need to be modeled.

- Modeling all pictures: Click **Modeling All**, and the face pictures in invalid state in the face database are modeled.

Step 6 View the modeling result.

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

Figure 10-22 Modeling result



Click  to view the face picture in list format; click  to view the face picture 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. Hover over the modeling status in the list to view the details of the failure. Change the pictures according to the details.

Figure 10-23 Modeling status (list)

Register

Batch Register

Modeling All

Modeling

Delete

Task List

▼ Query

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

<

1

>

10.4.3 Configuring Arm Alarm

When face detection succeeds or fails, the Camera outputs alarms.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Face Recognition**.

Step 3 Click **Face Database Config** to enter the face database configuration page.

Step 4 Click  next to the face database to be configured.

Step 5 Arm face database.

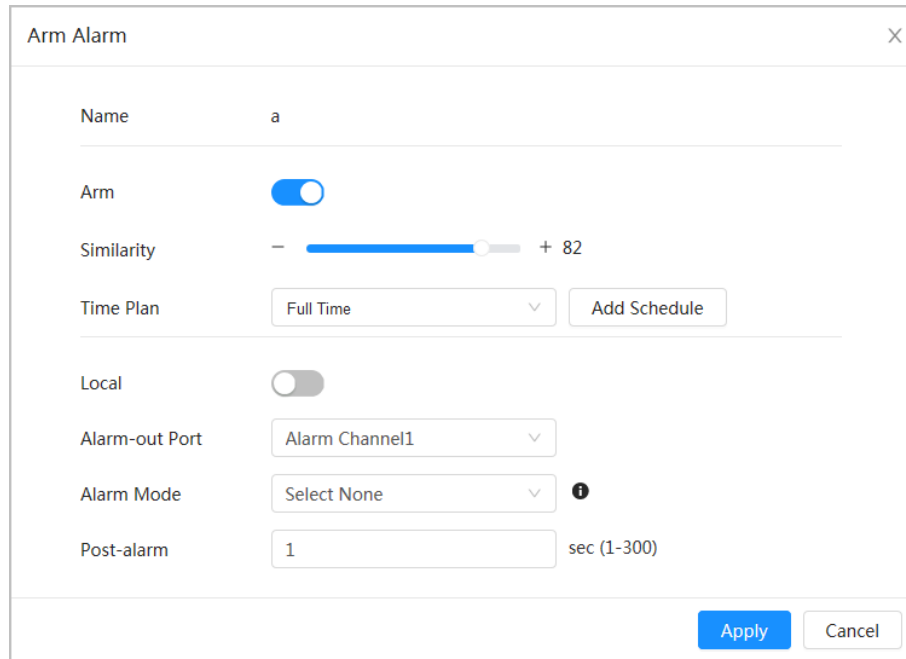
1. Click **Arm**.

The snapshot will be compared to the pictures in the armed face database after this function is enabled.

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.

Figure 10-24 Arm alarm



Step 6 Select **Alarm Mode**.

- **All** : The Camera outputs alarms no matter the comparison result of the detected face and that in the face database.
- **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 no matter the comparison result of the detected face and that in the face database.

Step 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 Alarm Linkage".

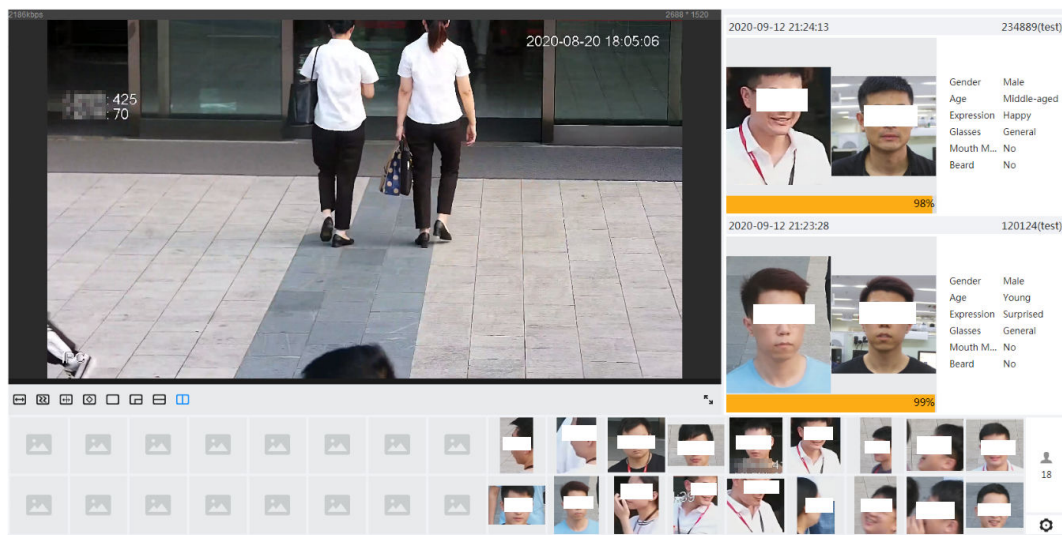
Step 8 Click **Apply**.

10.4.4 Viewing Face Detection Result

Select **Face Mode** from the display mode drop-down list at the upper-right corner to view the live page of face detection.

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

Figure 10-25 Face detection result



10.5 Configuring Face Detection

10.5.1 Configuring Face Detection Rule

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

Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Face Detection**.
- Step 3** Click  to enable the function.
- Step 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**.

Step 5 Configure parameters for face detection.

Figure 10-26 Configuring face detection rule

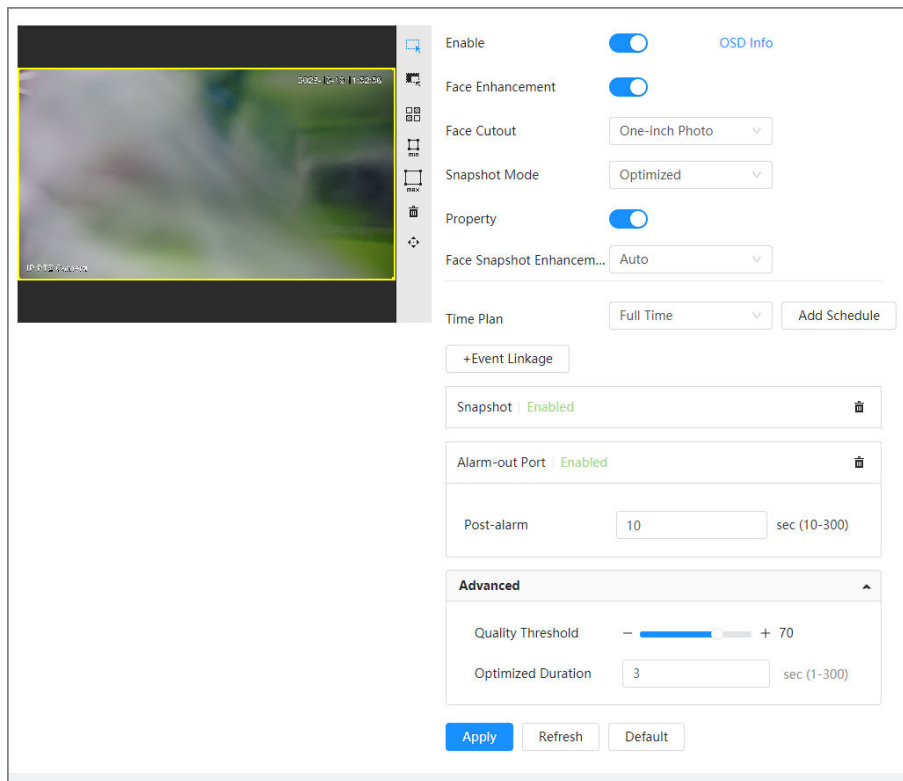


Table 10-8 Description of face recognition parameters

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 "4.3.3.2.14 Face Statistics".

Parameter	Description
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.  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.

Parameter	Description
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.

Step 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 Alarm Linkage".

Step 7 Click **Apply**.

10.5.2 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.

10.6 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 be 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 than its width and no less than 15 pixels (CIF image) at the same time.
- Reduce the complexity of surveillance scene as much as you can. Intelligent analysis functions are not recommended to be used in scene with dense targets and frequent illumination change.
- Avoid areas such as glass, reflective ground, water surface, and areas interfered by branches, shadows or insects. Avoid backlight scene and direct light.

10.6.1 Global Configuration

10.6.1.1 Creating Experience Database

The experience database is the management center for false alarm data. Once the target in the experience database is tracked again, an alarm will not be triggered.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config > IVS > Global Config**.

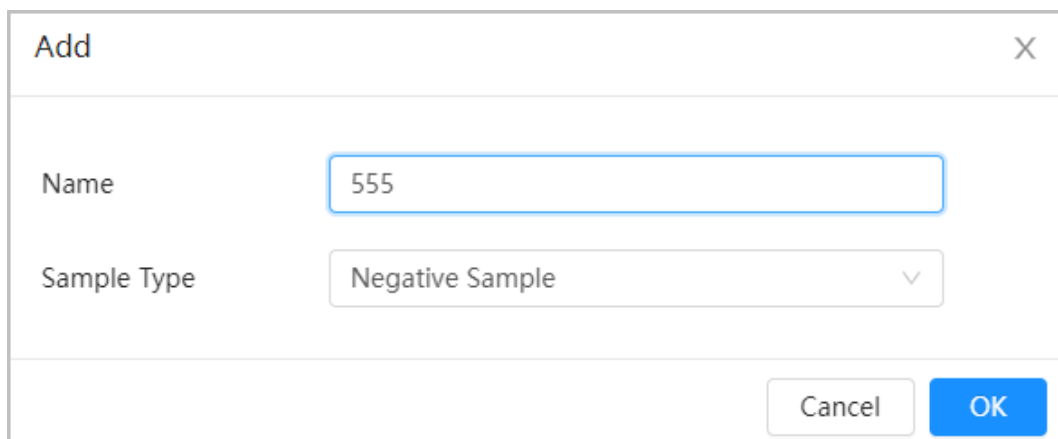
Step 3 Click **Experience Database** to enter the experience database configuration page.

Step 4 Click **Add** to set the name and sample type.



Only **Negative Sample** can be selected.

Figure 10-27 Add experience database



Step 5 Click **OK**.

The added experience database information is displayed on the page.

Figure 10-28 Experience database

Free Space/Total Space 1019MB / 1024MB								
No.	Name	Sample Type	Registered Images	Similarity	Arm Status	Arming Alarm	Details	Delete
1	111	Negative Sample	31	80	Connected	🔔	🔍	🗑️
2	222	Negative Sample	37	80	Connected	🔔	🔍	🗑️
3	333	Negative Sample	29	80	Connected	🔔	🔍	🗑️
4	444	Negative Sample	30	80	Connected	🔔	🔍	🗑️
5	555	Negative Sample	0	80	Connected	🔔	🔍	🗑️

Related Operations

- Change the name of experience database.

Click the text box under **Name** to change the name of experience database.

- Arm alarm.

Click  to configure relevant parameters of experience database.

- Manage experience database.

Click  to manage experience database.

- Delete the experience database.

Click  to delete experience database.

10.6.1.2 Managing Experience Database

10.6.1.2.1 Configuring Arming Alarm

You can enable the arming alarm and configure the sensitivity for each experience database you add.

Procedure

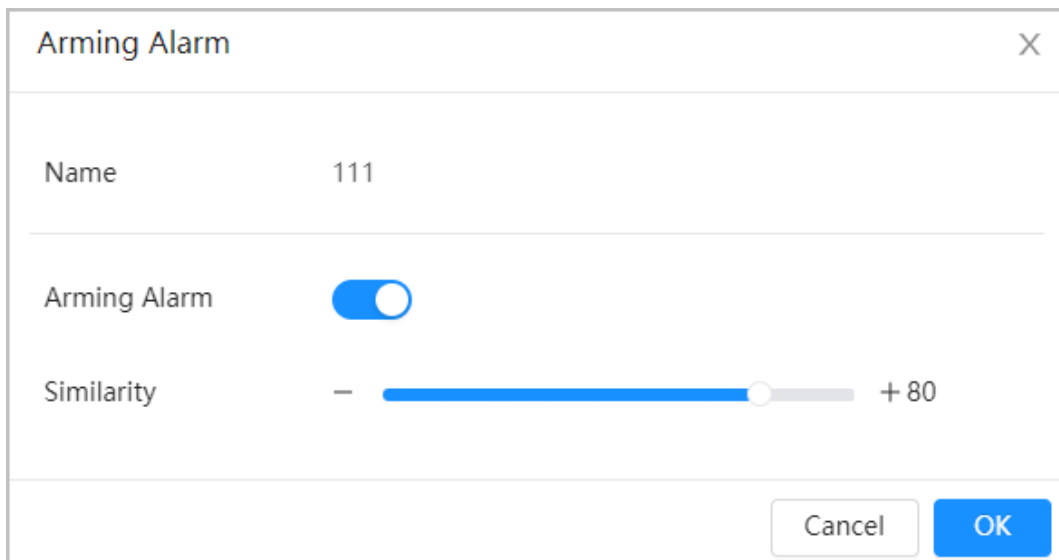
Step 1 Select **AI** > **AI Config** > **Smart Plan**.

Step 2 Click **Rule Config** > **IVS** > **Global Config**.

Step 3 Click **Experience Database** to enter the experience database configuration page.

Step 4 Click  under **Arming Alarm** to configure the parameters of arming alarm.

Figure 10-29 Configure arming alarm



The dialog box titled "Arming Alarm" contains the following settings:

- Name:** 111
- Arming Alarm:** A toggle switch that is currently turned on (blue).
- Similarity:** A slider control ranging from 0 to 100, with the current value set at 80.
- Buttons:** "Cancel" and "OK" buttons at the bottom right.

Step 5 Enable the function of arming alarm and configure the similarity.



The higher the similarity value is, the more similar the targets in the experience database are to the actual targets.

Step 6 Click **OK**.

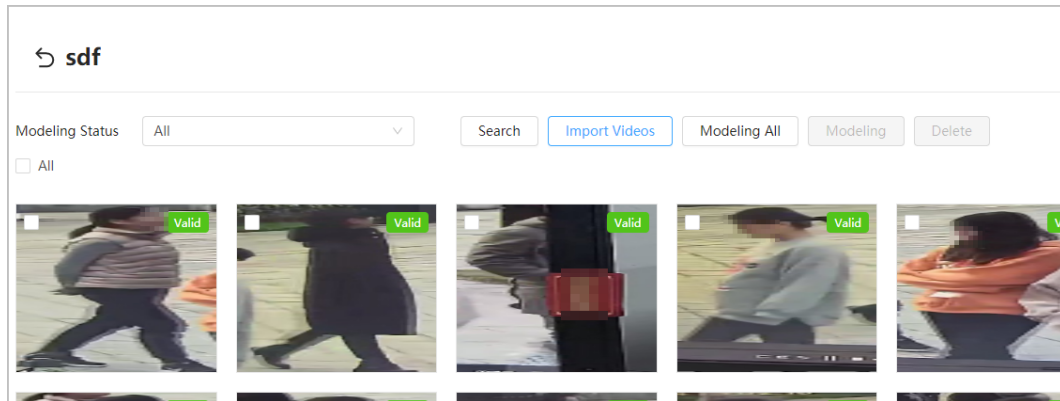
10.6.1.2.2 Importing Target Images

You can import target images to the experience database by importing videos.

Procedure

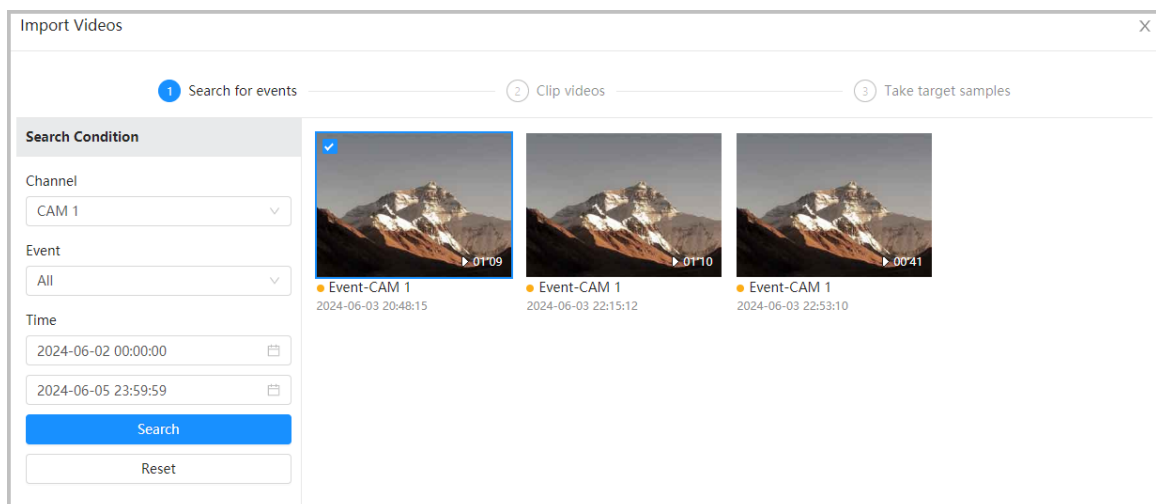
- Step 1 Select **AI > AI Config > Smart Plan**.
- Step 2 Click **Rule Config > IVS > Global Config**.
- Step 3 Click **Experience Database** to enter the experience database configuration page.
- Step 4 Click  under **Details**.
- Step 5 Click **Search**, and then select the video you want.

Figure 10-30 Import videos



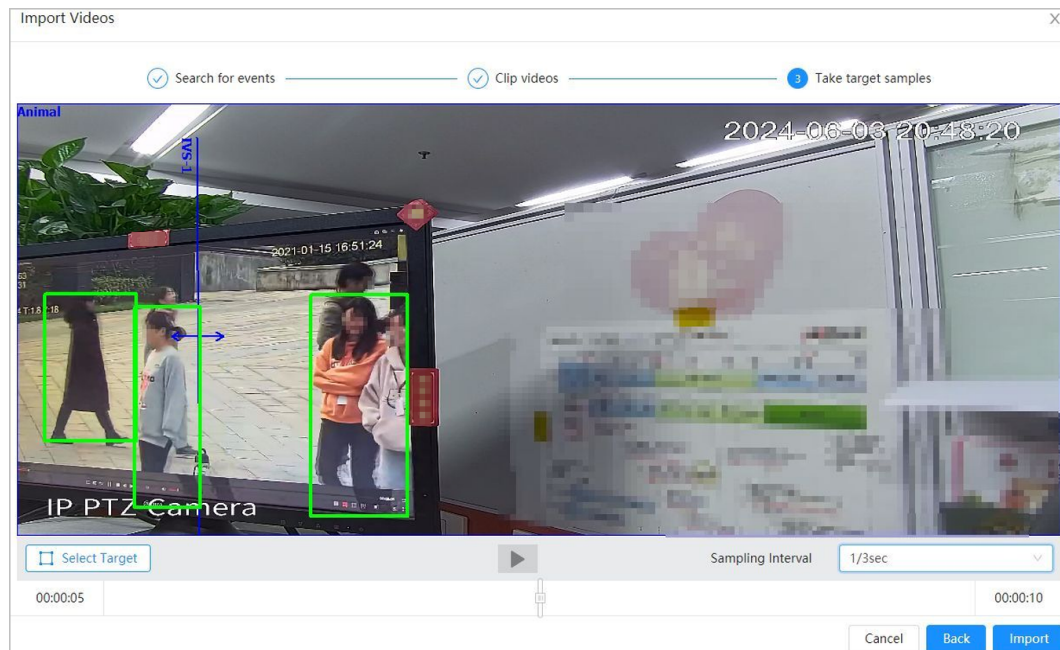
- Step 6 Click **Import Videos**, and then select the event and time.

Figure 10-31 Search for events



- Step 7 Clip no more than 10 seconds of the video and click **Next**.
- Step 8 Click **Select Target**, select the target box, and then click **Import**.

Figure 10-32 Take target samples



Step 9 Click **OK**.

10.6.1.3 Configuring IVS Rule

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 vehicles 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

Step 1 Select **AI > AI Config > Smart Plan**.

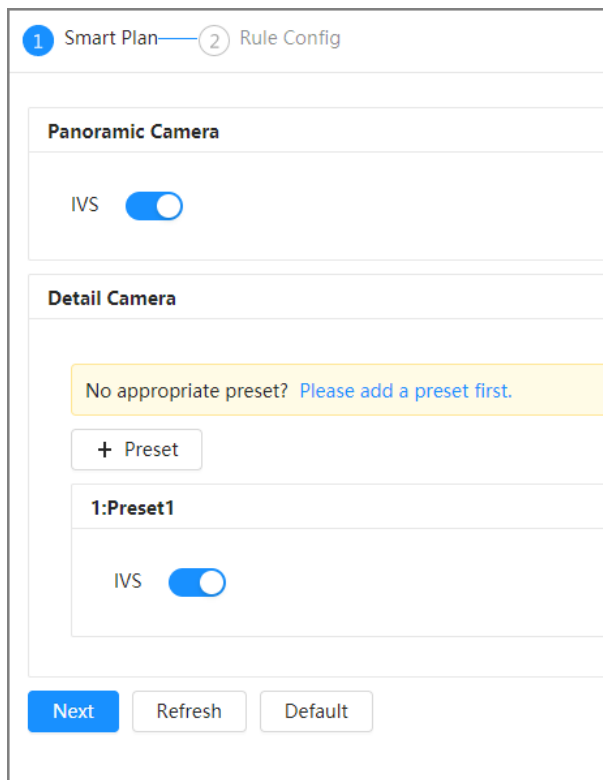
Step 2 Click **Rule Config** , and then select **IVS**.

For some models, select **IVS** in the **Panoramic Camera** tab and **Detail Camera** tab as needed in **AI > AI Config > Smart Plan** to enable the IVS function, and then click **Next**.



In the **Detail Camera** tab, add a preset first if there is no appropriate preset.

Figure 10-33 Configure smart plan (IVS)



Step 3 Click **Global Config**.

Step 4 Select the camera to be configured from the channel drop-down list.



Only the detailed camera supports selecting the preset.

Figure 10-34 Global configuration for IVS (1)

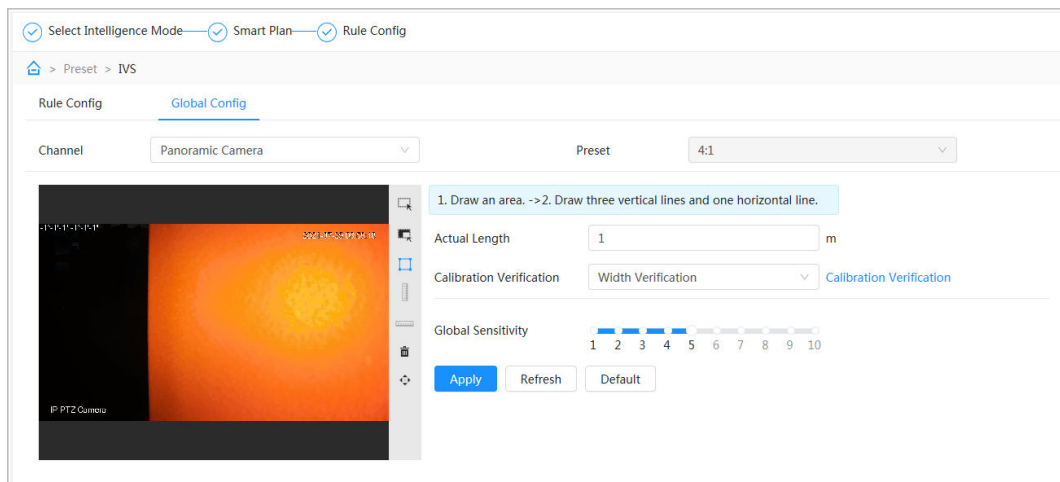
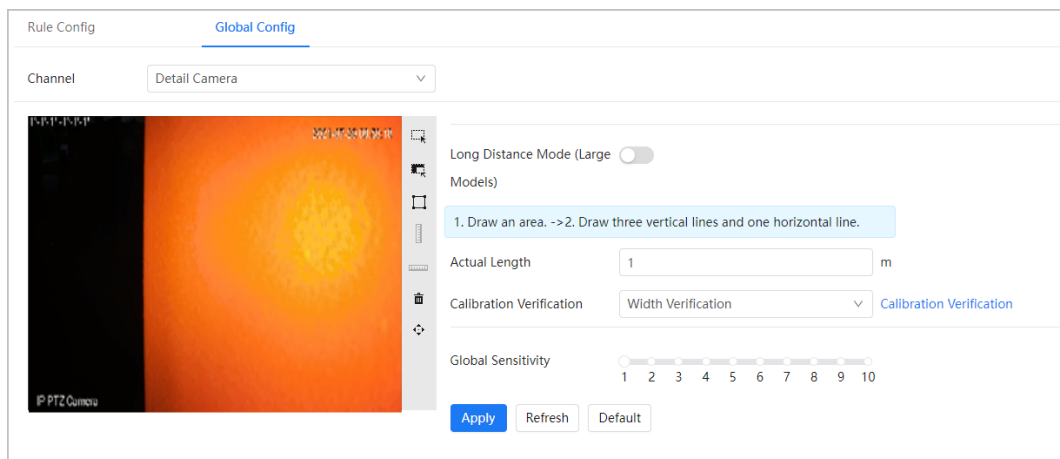


Figure 10-35 Global configuration for IVS (2)



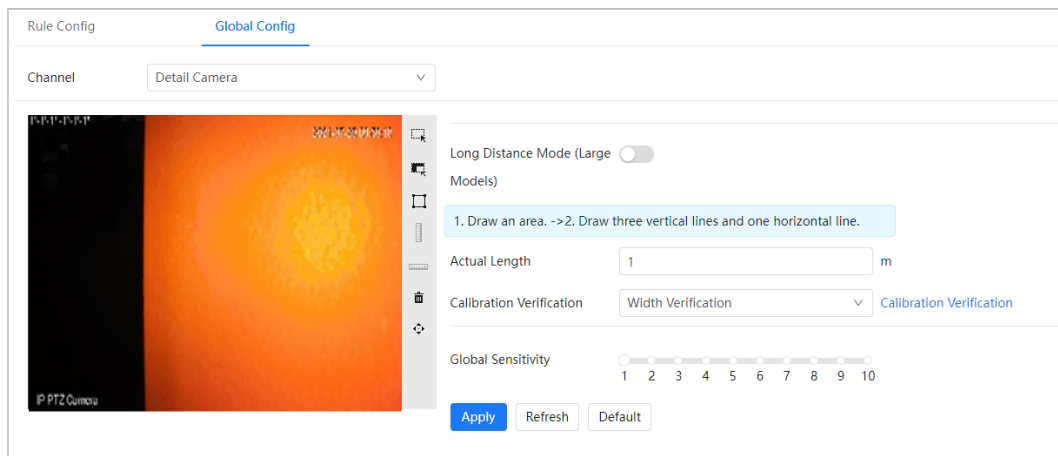
Step 5 Configure calibration area and rulers on the left screen.

1. Click  and then 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.

Step 6 Configure parameters for IVS of global configuration.

Sensitivity: Adjust the global 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.

Figure 10-36 Global configuration (IVS)



Step 7 (Optional) Enable **Long Distance Mode (Large Models)**.

Step 8 Click  to enable the function of **Feature Database**.



- Only rules of tripwire, intrusion, fast moving, loitering detection and parking detection are supported.
- A maximum of 5 databases can be imported.

Step 9 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.

10.6.1.4 Modeling in Experience Database

Extract and import the relevant information of images through modeling, and create a feature model for IVS detection.

Background Information



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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

Step 3 Click **Global Config** to enter the experience database configuration page.

Step 4 Click  under **Details**.

Step 5 Start modeling.

- Modeling some images: Select the images to be modeled, and then click **Modeling**.

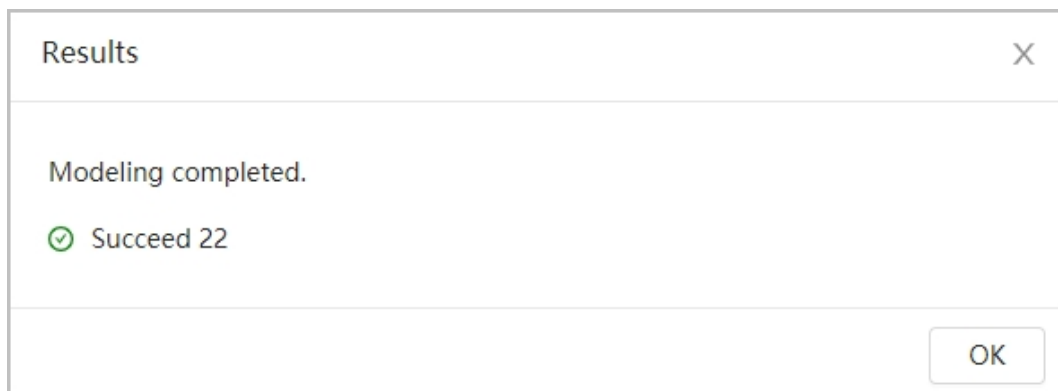


If there are many images in the experience database, you can set search criteria to select the images that need to be modeled.

- Modeling all images: Click **Modeling All**, and the images in invalid state in the experience database are modeled.

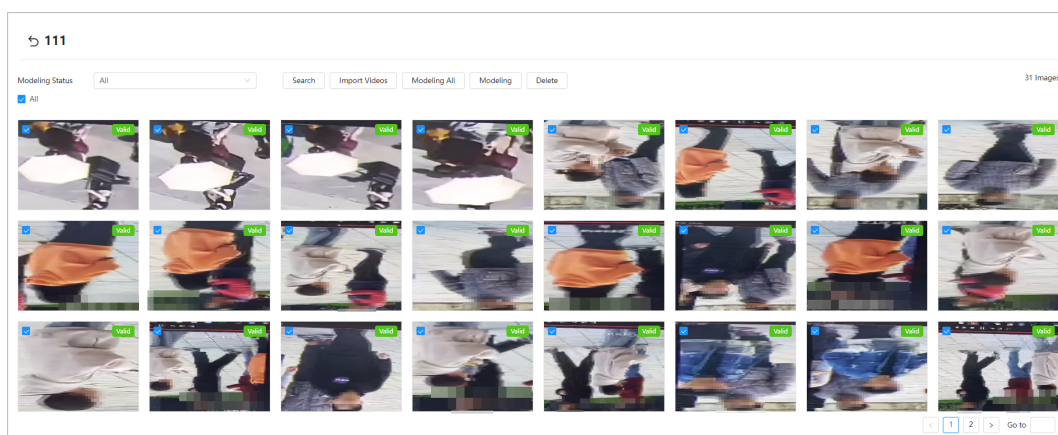
Step 6 View the modeling result.

Figure 10-37 Modeling result



- When the modeling status is **Valid** at the upper-right corner of the thumbnail, it means the modeling is successful.
- When the modeling status is **Invalid** at the upper-right corner of the thumbnail, it means the modeling failed.

Figure 10-38 Modeling status



10.6.2 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 10-9 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.	
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.

Rule	Function	Applicable Scene
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.
Stay Detection	When the target stay in the detection area over the defined time, an alarm is triggered, and the system performs configured alarm linkages.	Scenes such as park and hall.
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

Step 1 Select **AI > AI Config > Smart Plan**.

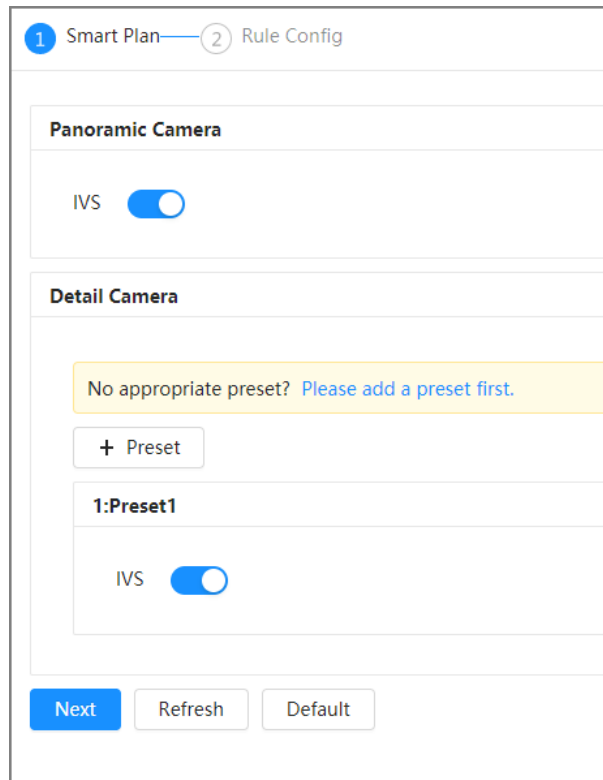
Step 2 Click **Rule Config**, and then select **IVS**.

For some models, select **IVS** in the **Panoramic Camera** tab and **Detail Camera** tab as needed in **AI > AI Config > Smart Plan** to enable the IVS function, and then click **Next**.



In the **Detail Camera** tab, add a preset first if there is no appropriate preset.

Figure 10-39 Configure smart plan (IVS)



Step 3 Click **Rule Config**.

Step 4 Select the camera to be configured from the channel drop-down list.

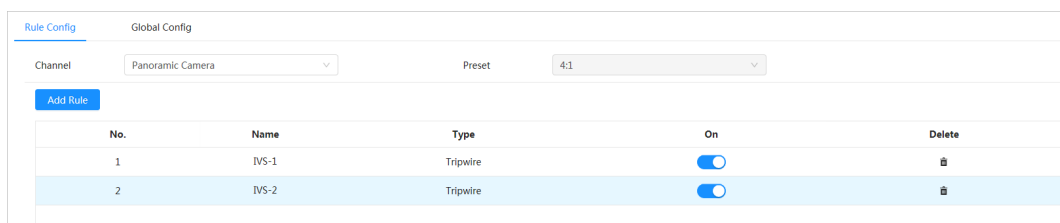


Only the detailed camera supports selecting the preset.

Step 5 Click **Add Rule** on the **Rule Config** page, and then select **Tripwire** from the drop-down list.

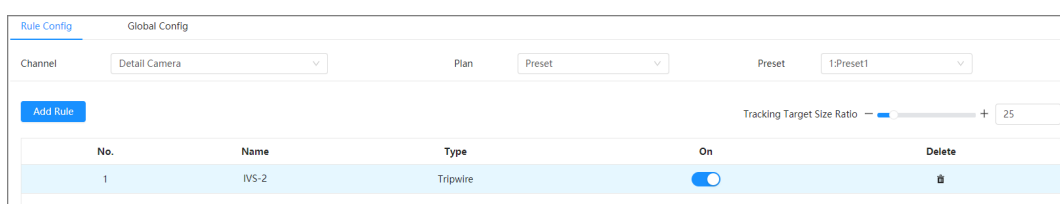
The added rules are displayed in the drop-down list. Click the name, and you can edit the rule name; the rule is enabled by default.

Figure 10-40 Tripwire (1)



No.	Name	Type	On	Delete
1	IVS-1	Tripwire	☒	
2	IVS-2	Tripwire	☒	

Figure 10-41 Tripwire (2)



No.	Name	Type	On	Delete
1	IVS-2	Tripwire	☒	

- Step 6** 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.

Figure 10-42 Drawing rule

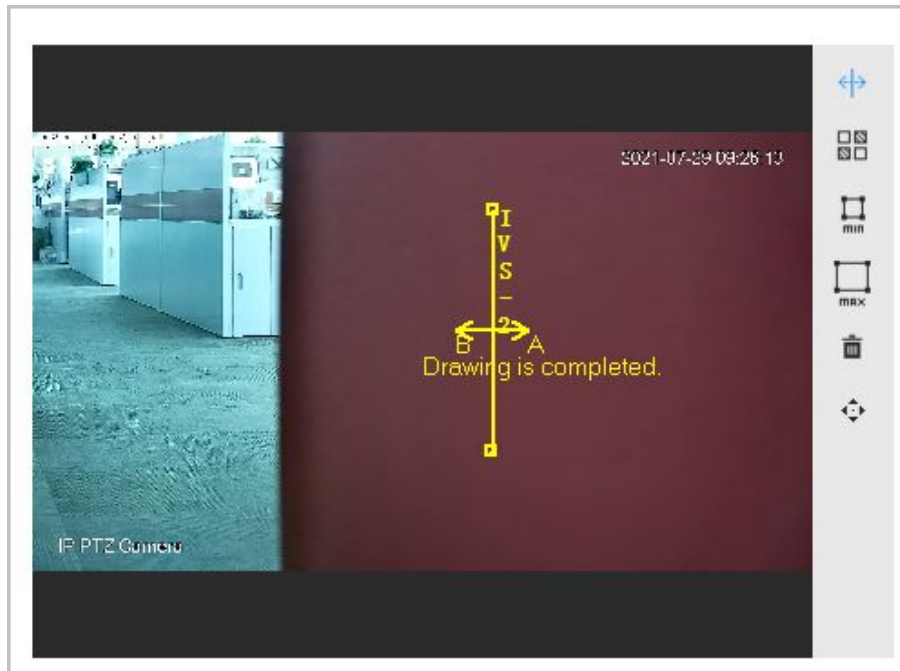


Table 10-10 Description of IVS analysis drawing rules

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	

- Step 7** (Optional) Click other icons at the right side of the image to filter targets in the image.

- Click  to draw the minimum size of the 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.

- 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.
- Click  to adjust the live page through the PTZ control panel, and then click **Apply**.
- Click  to lock the PTZ function when drawing the rule lines. The longest lock time is 180 seconds.

Step 8 Configure parameters for IVS of rule configuration.

Figure 10-43 IVS parameters

Direction

Both

Target Filter

☒

Effective Target

☒ Human ☒ Motor Vehicle

Time Plan

Full Time

Add Schedule

+Event Linkage

Record | Enabled

Channel

1

Post-Record

30

sec (10-300)

Send Email | Enabled

Snapshot | Enabled

Channel

1

Alarm-out Port | Enabled

Post-alarm

10

sec (10-300)

Audio Linkage | Enabled

Play Count

1

(1-3)

File

alarm.wav

Warning Light | Enabled

Mode

Flicker

Flicker Frequency

Medium

Stay Time

10

sec (5-30)

Apply

Refresh

Default

Table 10-11 Description of IVS parameters

Parameter	Description
Tracking Target Size Ratio	Set the tracking target size ratio. The default is 25.
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.

Parameter	Description
Auto Tracking	According to the actual situation, click  to enable Auto Tracking , and then configure Tracking Duration .
Tracking Duration	After enabling the auto tracking function, the Camera will track and capture the target until reaching the tracking duration.  Only some devices support the function.
Target Filter	After Target filter is enabled, effective targets are not detected and alarms will not be triggered. This function is currently supported by tripwire, intrusion and fast moving.
Effective Target	 Effective targets include Human and Motor Vehicle. Among them, non-motor vehicle belongs to the category of People.
Action	When setting intrusion action, select Appears or Cross .
Auto Patrol	After Auto Patrol is enabled, the Camera can patrol the surroundings automatically according to presets.
Preset	
Scan	The function is not enabled by default. • Select Preset from the Linkage Operation drop-down list and select the preset rule from the Preset. • Select Scan from the Linkage Operation drop-down list and select the scan rule from the Scan.  • You can select one or more presets or not select the preset. • If multiple presets are configured, the patrol will be executed in the order of the presets. • Supports selecting up to 5 presets. • After presets are configured, Smart Motion Detection is automatically opened if you enable SMD in advance. • All IVS rules support the scan linkage.  You have to configure preset and scan rules in PTZ in advance.

Parameter	Description
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.

Step 9 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 Alarm Linkage".

Step 10 Click **Apply**.

If you need to click  on the upper-right corner of the page to view alarm information, you need to subscribe to the relevant alarm event.

10.7 Configuring Construction Monitoring

Configure the global solution and preset solution for construction monitoring.



This function is only available on select models.

10.7.1 Configuring Global Solution

10.7.1.1 Area Configuration

Prerequisites

Enable the **Construction Monitoring** function in **AI > AI Config > Smart Plan > Global**.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

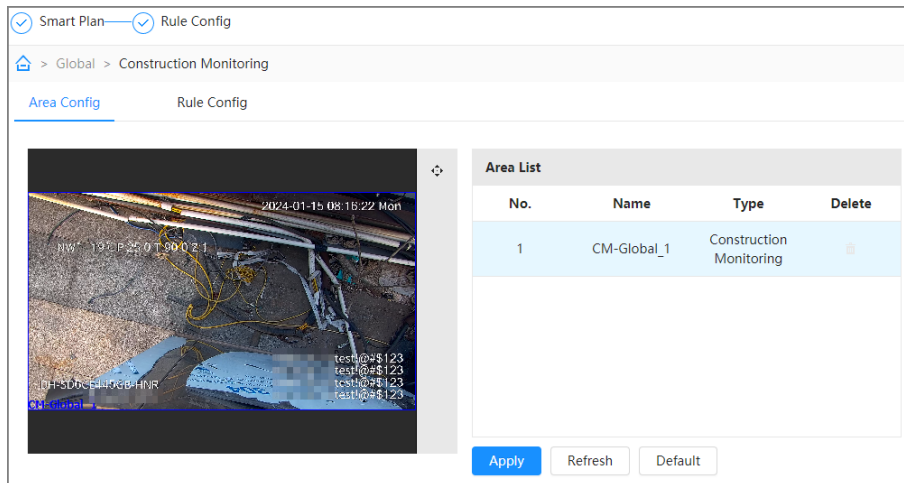
Step 2 Click **Rule Config**, and then select **Construction Monitoring** in the **Global** section.

Step 3 Click **Area Config** to configure the **Construction Monitoring** function.

The entire area is set as the detection area by default, and you cannot modify the detection area.

- Click the name of the area under **Name** to change it.
- Click  to adjust the image through the PTZ control panel, and then click **Apply**.

Figure 10-44 Area configuration



Step 4 Click **Apply**.

10.7.1.2 Rule Configuration

Prerequisites

- Enable the **Construction Monitoring** function in **AI > AI Config > Smart Plan > Global**.
- Complete the area configuration of the preset solution for the construction monitoring.

Background Information

The functions and application scenarios of various rules are as follows. The following steps take **PPE Detection** as an example to introduce rule configurations of construction monitoring.

Table 10-12 Functions and scenarios of construction monitoring

Rule	Function	Application scenarios
PPE Detection	When the detected personnel dress improperly, including improper wearing of hats, workwear, face masks, and shoe covers, the system will trigger an alarm.	Construction sites and other construction scenarios.
Absence Detection	When no personnel are detected working in the image during a continuous period of time, the system will trigger an alarm.	

Rule	Function	Application scenarios
Lone Working Detection	When it is detected that only one person is working in the image during a continuous period of time, the system will trigger an alarm.	

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

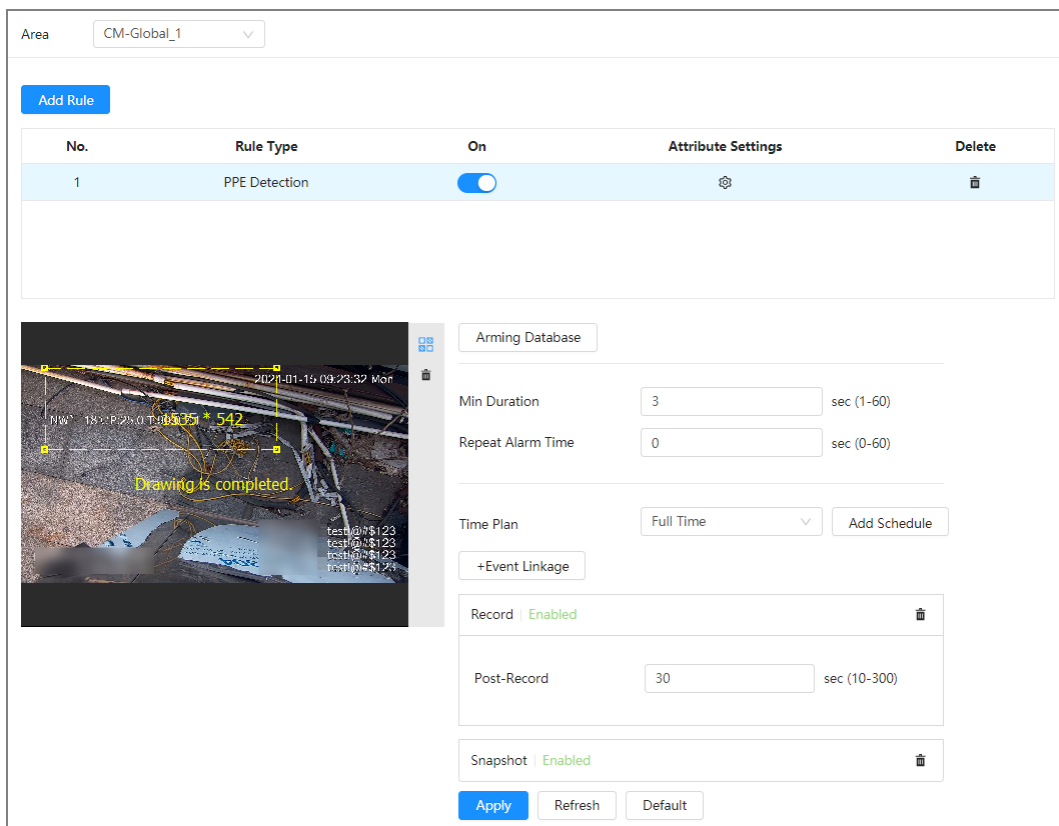
Step 2 Click **Rule Config**, and then select **Construction Monitoring** in the **Global** section.

Step 3 Click **Rule Config**, and then select the preset from the **Preset** list and select the area from the **Area** list.

Support adding 3 rules at the same time. The added rules are enabled as default.

- Click , and then press and hold the left mouse button to draw a rectangle. Then, the pixel size is displayed.
- Click  to delete the drawn rectangle.

Figure 10-45 Rule configuration



Area: CM-Global_1

Add Rule

No.	Rule Type	On	Attribute Settings	Delete
1	PPE Detection	☒		

Video Preview: 2021-01-15 09:23:32 Mon
Drawing is completed.
test015123
test015123
test015123
test015123

Configuration Settings:

- Arming Database: ☐
- Min Duration: 3 sec (1-60)
- Repeat Alarm Time: 0 sec (0-60)
- Time Plan: Full Time (Add Schedule)
- +Event Linkage: ☐
- Record: Enabled
- Post-Record: 30 sec (10-300)
- Snapshot: Enabled

Buttons: Apply, Refresh, Default

Step 4 Click **Add Rule**, and then select **PPE Detection** to add the rule.

Support adding 3 rules at the same time. The added rules are enabled as default.

- Click , and then press and hold the left mouse button to draw a rectangle. Then, the pixel size is displayed.
- Click  to delete the drawn rectangle.

Figure 10-46 Rule configuration

Area Config

Rule Config

Preset

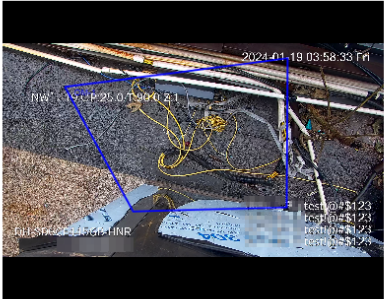
1:Preset1

Area

OM-1

Add Rule

No.	Rule Type	On	Attribute Settings	Delete
1	PPE Detection	☒		



Arming Database

Min Duration

3

sec (1-60)

Repeat Alarm Time

0

sec (0-60)

Time Plan

Full Time

Add Schedule

+Event Linkage

Record

Enabled



Post-Record

30

sec (10-300)

Audio Linkage

Enabled



Play Count

1

(1-10)

File

alarm.wav

Apply

Refresh

Default

Step 5 Configure parameters.

Table 10-13 Description of rule configuration parameters

Parameter	Description
Min Duration	Set the minimum duration. An alarm will be triggered when the Camera detects an event that does not comply with rules and the duration exceeds the minimum duration. For example, setting the minimum duration of PPE detection to 5 seconds, an alarm will be triggered when the Camera continuously detects the personnel dressing improperly for more than 5 seconds during a continuous period of time.

Parameter	Description
Repeat Alarm Time	Set the repeat alarm time. If the alarm state persists, when reaching the repeat alarm time, the alarm is triggered again.

Step 6 Click **Arming Database** to add the arming database.

1. Click **Add**, and then configure **Name** and **Optimal Plan**.

Optimal Plan includes **Full Body** and **Half Body**.

2. Click **OK**.

The page will display the added arming database.

Figure 10-47 Adding the arming database

Add Refresh		Free Space 100%						
No.	Name	Optimal Plan	Register No.	Similarity	Arm Status	Arming Alarm	Details	Delete
1	Hat	Full Body	0	75	Unconnected			
2	Workwear	Half Body	0	75	Unconnected			

3. Click  under **Details** to configure the arming database.

- Import pictures.

The imported picture requires the size of no more than 3 M and the resolution of 1080P. If the picture does not meet requirements, the import will be fail. Upload workwear pictures from at least 4 angles: front, back, left, and right.

- ◇ Click **Import** to import a single picture in .jpg format.
- ◇ Click **Batch Import** to import pictures in .jpg format in a batch. Supports importing up to 40 pictures at a time.

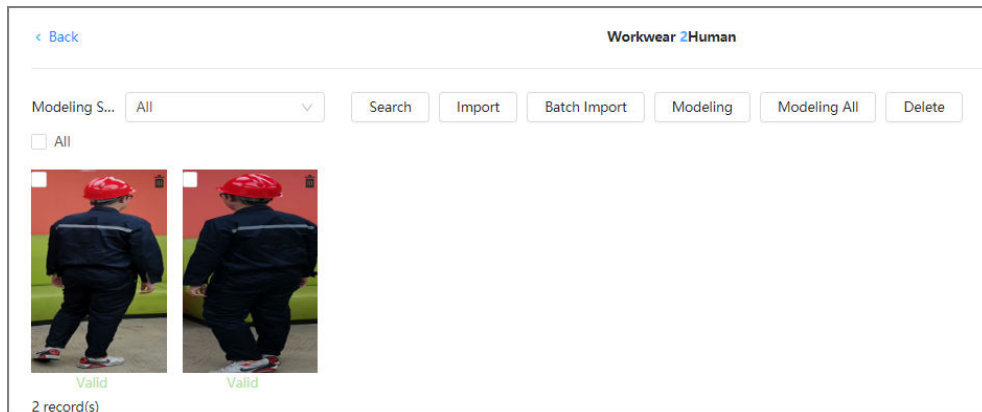
- Modeling.

After upgrading the Camera, invalid images in the arming database will be modeled using the modeling function.

- ◇ Click **Modeling** to model the selected pictures.
- ◇ Click **Modeling All** to model all pictures in the arming database.

- Screen the modeling: select **All**, **Invalid**, and **Valid** from the drop-list of **Modeling Status**.

Figure 10-48 Configure detailed information



4. Click under **Arming Alarm**, configure arming alarm parameters, and then click **OK**.
 - Arm: Click to enable the function, and then **Arm Status** will be displayed as **Connected**. The arming database is valid.
 - Similarity: Supports setting from 1 to 100. The higher the value, the higher the matching degree of the requirements for tooling inspection.

Step 7 Click under **Attribute Settings** to configure attributes for the PPE detection, and then click **Apply**.



Supports enabling up to 3 attributes.

Figure 10-49 Attribute settings

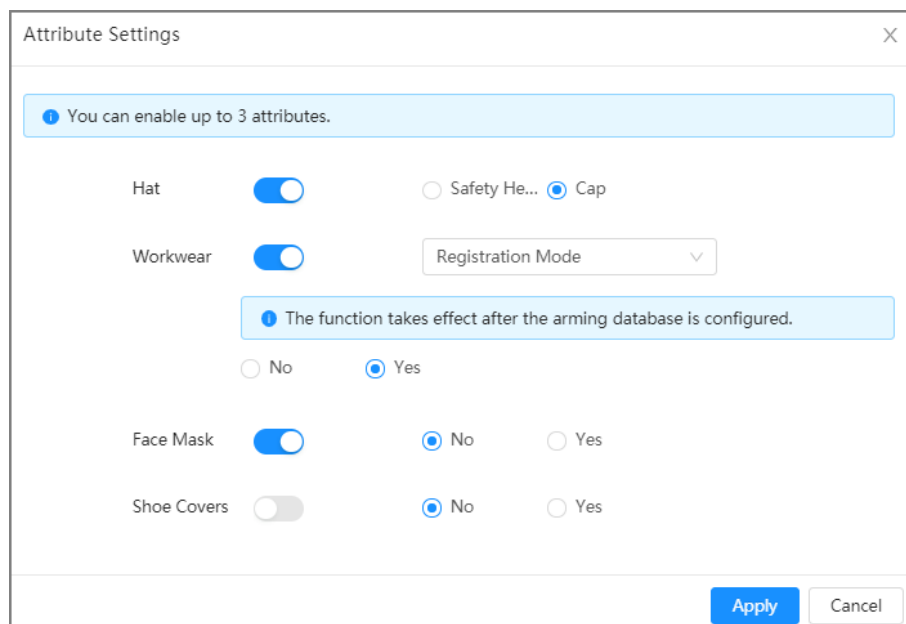


Table 10-14 Configuring attributes for the PPE detection

Attribute	Description
Hat	Select Safety Helmet or Cap. The Camera will detect whether the detected personnel wear the hat after enabling Hat. You can select the color of the safety helmet when selecting Safety Helmet from Hat. - If no color is selected, an alarm will be triggered when the Camera detects that the detected personnel are not wearing the safety helmet. - If one or more or all colors are selected, an alarm will be triggered when the Camera detects that the detected personnel are not wearing the safety helmet of the selected color.
Workwear	Select Registration Mode or Detect by Attribute. The Camera will detect whether the detected personnel are wearing the workwear correctly according to the selected manner after enabling Workwear. - For Registration Mode, if you select Yes, an alarm will be triggered when the detected personnel are not wearing the workwear correctly. - For Detect by Attribute, if one or more or all colors are selected, an alarm will be triggered when the Camera detects that the detected personnel are not wearing the workwear of the selected color.  ◇ All colors are selected by default. ◇ Suitable for situations where the color of the upper and lower parts is consistent.
Face Mask	The Camera will detect whether the detected personnel are wearing the face mask after enabling Face Mask. If Yes is selected, an alarm will be triggered when the detected personnel are not wearing the face mask.
Shoe Covers	The Camera will detect whether the detected personnel are wearing the shoe covers after enabling Shoe Covers. If Yes is selected, an alarm will be triggered when the detected personnel are not wearing the shoe covers.

Step 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 Alarm Linkage".

Audio Linkage : Select the alarm file corresponding to the rule, and then configure **Play Count**.

Step 9 Click **Apply**.

10.7.2 Configuring Preset Solution

10.7.2.1 Area Configuration

Prerequisites

Enable the **Construction Monitoring** function of the preset in **AI > AI Config > Smart Plan**.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config** , and then select **Construction Monitoring** in the **Preset** section.

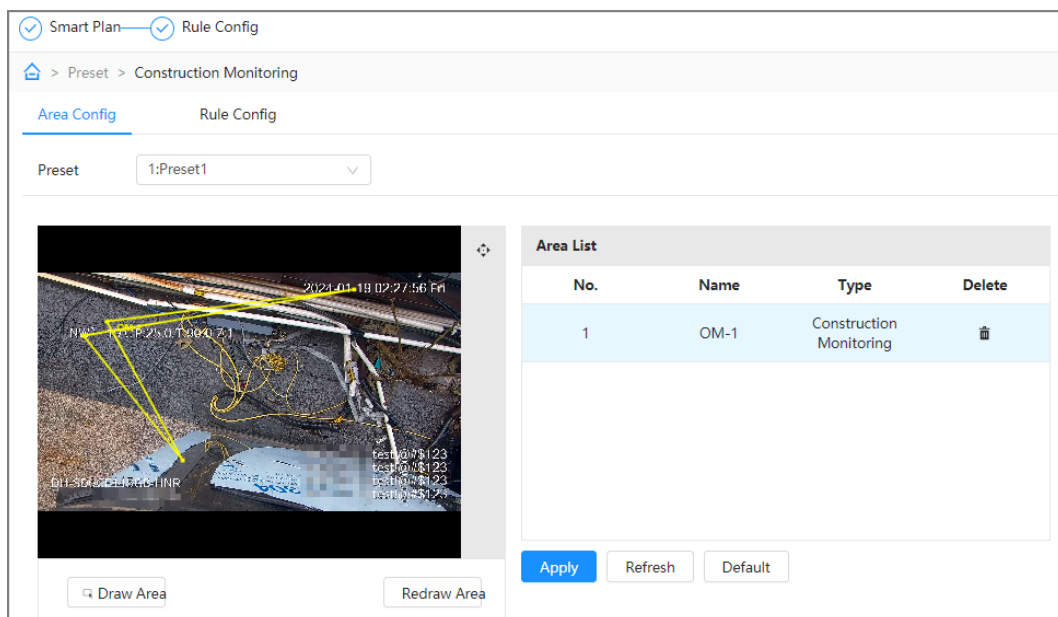
Step 3 Click **Area Config** , and then select the preset from the **Preset** drop-list.

Step 4 Click **Draw Area** to draw a detection area on the live page. Click **Redraw Area** to redraw the detection area.

Supports drawing multiple detection areas, with rules enabled by default after drawing.

- Click the name of the area under **Name** to change it.
- Click  to adjust the image through the PTZ control panel, and then click **Apply**.

Figure 10-50 Area configuration



Step 5 Click **Apply**.

10.7.2.2 Rule Configuration

Prerequisites

Enable the **Construction Monitoring** function in **AI > AI Config > Smart Plan > Global**.

Background Information

The functions and application scenarios of various rules are as follows. The following steps take **PPE Detection** as an example to introduce rule configurations of construction monitoring.

Table 10-15 Functions of construction monitoring

Rule	Function	Application scenarios
PPE Detection	When the detected personnel dress improperly, including improper wearing of hats, workwear, face masks, and shoe covers, the system will trigger an alarm.	Construction sites and other construction scenarios.
Absence Detection	When no personnel are detected working in the image during a continuous period of time, the system will trigger an alarm.	
Lone Working Detection	When it is detected that only one person is working in the image during a continuous period of time, the system will trigger an alarm.	

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Construction Monitoring** in the **Global** section.

Step 3 Click **Rule Config**, click **Add Rule**, and then select **PPE Detection** to add a rule. The system supports adding 3 rules at the same time. The added rules are enabled as default.

- Click , and then press and hold the left mouse button to draw a rectangle. Then, the pixel size is displayed.
- Click  to delete the drawn rectangle.

Figure 10-51 Rule configuration

Area
CM-Global_1

Add Rule

No.	Rule Type	On	Attribute Settings	Delete
1	PPE Detection	☒		

Arming Database

Min Duration
sec (1-60)

Repeat Alarm Time
sec (0-60)

Time Plan

+Event Linkage

Record
☒ Enabled

Post-Record
sec (10-300)

Snapshot
☒ Enabled

Step 4 Configure parameters.

Table 10-16 Description of rule configuration parameters

Parameter	Description
Min Duration	Set the minimum duration. An alarm will be triggered when the Camera detects an event that does not comply with rules and the duration exceeds the minimum duration. For example, setting the minimum duration of PPE detection to 5 seconds, an alarm will be triggered when the Camera continuously detects the personnel dressing improperly for more than 5 seconds during a continuous period of time.
Repeat Alarm Time	Set the repeat alarm time. If the alarm state persists, when reaching the repeat alarm time, the alarm is triggered again.

Step 5 Click **Arming Database** to add the arming database.

1. Click **Add**, and then configure **Name** and **Optimal Plan**.

Optimal Plan includes **Full Body** and **Half Body**.

2. Click **OK**.

The page will display the added arming database.

Figure 10-52 Adding the arming database

Add Refresh		Free Space 100%						
No.	Name	Optimal Plan	Register No.	Similarity	Arm Status	Arming Alarm	Details	Delete
1	Hat	Full Body	0	75	Unconnected			
2	Workwear	Half Body	0	75	Unconnected			

3. Click  under **Details** to configure the arming database.

- Import pictures.

The imported picture requires the size of no more than 3 M and the resolution of 1080P. If the picture does not meet requirements, the import will be fail. Upload workwear pictures from at least 4 angles, front, back, left, and right.

- ◇ Click **Import** to import a single picture in .jpg format.
- ◇ Click **Batch Import** to import pictures in .jpg format in a batch. Supports importing up to 40 pictures at a time.

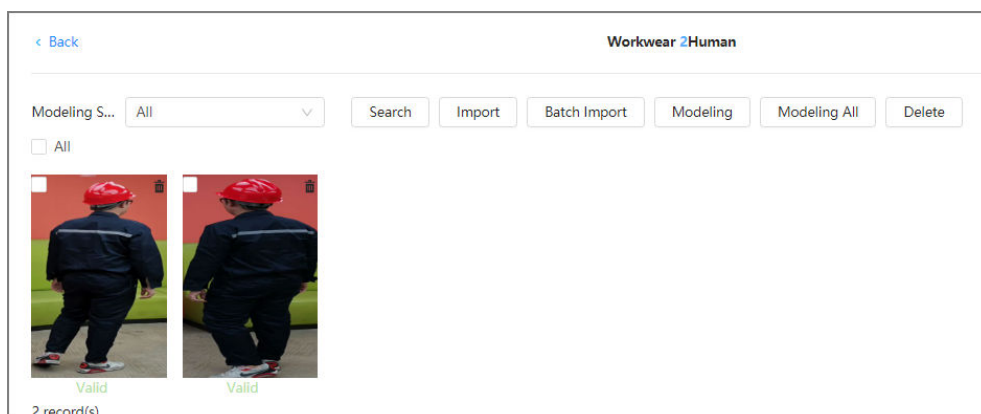
- Modeling.

After upgrading the Camera, invalid images in the arming database will be modeled using the modeling function.

- ◇ Click **Modeling** to model the selected pictures.
- ◇ Click **Modeling All** to model all pictures in the arming database.

- Screen the modeling: select **All** , **Invalid**, and **Valid** from the drop-list of **Modeling Status**.

Figure 10-53 Configure detailed information



4. Click  under **Arming Alarm** , configure arming alarm parameters, and then click **OK**.

- Arm: Click  to enable the function, and then **Arm Status** will be displayed as **Connected**. The arming database is valid.
- Similarity: Supports setting from 1 to 100. The higher the value, the higher the matching degree of the requirements for tooling inspection.

Step 6 Click  under **Attribute Settings** to configure attributes for the PPE detection, and then click **Apply**.



Supports enabling up to 3 attributes.

Figure 10-54 Attribute settings

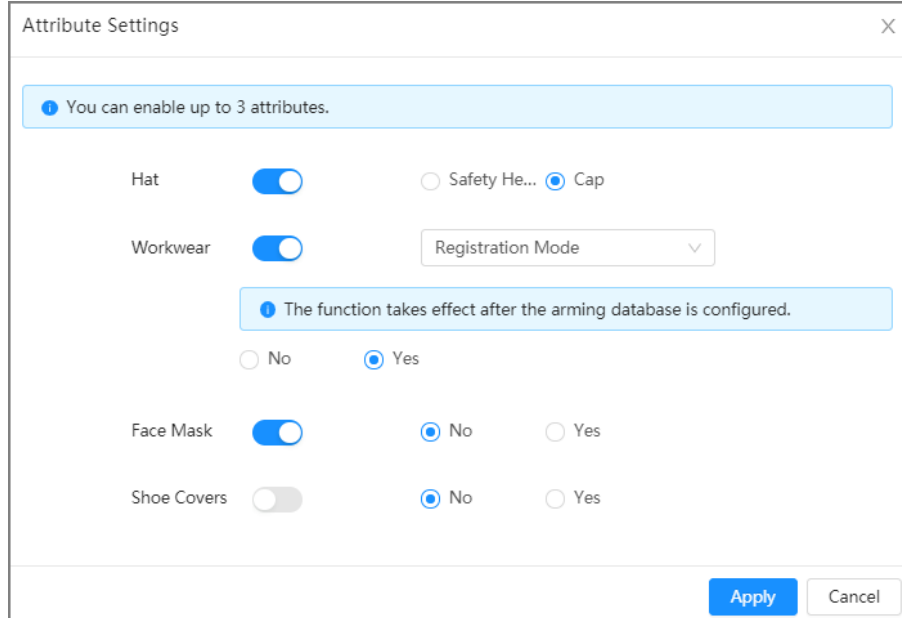


Table 10-17 Configuring attributes for the PPE detection

Attribute	Description
Hat	Select Safety Helmet or Cap. The Camera will detect whether the detected personnel wear the hat after enabling Hat. You can select the color of the safety helmet when selecting Safety Helmet from Hat. - If no color is selected, an alarm will be triggered when the Camera detects that the detected personnel are not wearing the safety helmet. - If one or more or all colors are selected, an alarm will be triggered when the Camera detects that the detected personnel are not wearing the safety helmet of the selected color.

Attribute	Description
Workwear	Select Registration Mode or Detect by Attribute. The Camera will detect whether the detected personnel are wearing the workwear correctly according to the selected manner after enabling Workwear. - For Registration Mode, if you select Yes, an alarm will be triggered when the detected personnel are not wearing the workwear correctly. - For Detect by Attribute, if one or more or all colors are selected, an alarm will be triggered when the Camera detects that the detected personnel are not wearing the workwear of the selected color.  ◇ All colors are selected by default. ◇ Suitable for situations where the color of the upper and lower parts is consistent.
Face Mask	The Camera will detect whether the detected personnel are wearing the face mask after enabling Face Mask. If Yes is selected, an alarm will be triggered when the detected personnel are not wearing the face mask.
Shoe Covers	The Camera will detect whether the detected personnel are wearing the shoe covers after enabling Shoe Covers. If Yes is selected, an alarm will be triggered when the detected personnel are not wearing the shoe covers.

Step 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".
- Click **Event Linkage** to set the linkage action and configure linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Audio Linkage : Select the alarm file corresponding to the rule, and then configure **Play Count**.

Step 8 Click **Apply**.

10.8 Configuring Video Metadata

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

10.8.1 Global Configuration

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Video Metadata**.

Step 3 Click **Global Config**.

Step 4 Select the camera to be configured from the channel drop-down list.



Some cameras support selecting preset.

Step 5 Configure global configuration parameters.

Figure 10-55 Global configuration

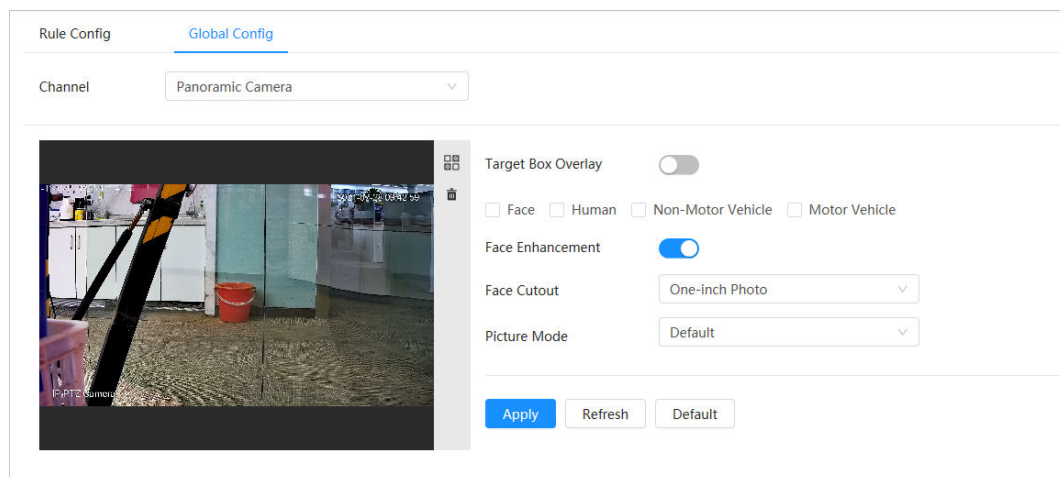


Table 10-18 Description of global configuration parameters

Parameter	Description
Target Box Overlay	Overlay target box on the captured pictures to mark the target position. Four types of target boxes are supported. Select the target box as needed. The captured pictures are stored in SD card or the configured storage path. For details, see "4.2 Local".
Face Enhancement	Enable Face Enhancement to ensure clear facial images at low bitrates.
Face Cutout	Set a range for matting face image, including face picture and one-inch picture.

Parameter	Description
Picture mode	• Default : Apply default image parameters to capture pictures. • Number Plate Priority : Apply the image parameters corresponding to the number plate to capture the picture. • Face Priority : Apply the image parameters corresponding to the face to capture the picture.

Step 6 Click **Apply**.

10.8.2 Rule Configuration

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

Prerequisites

Global configuration for **Video Metadata** has been completed.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Click **Rule Config**, and then select **Video Metadata**.

Step 3 Click **Rule Config**.

Step 4 Select the camera to be configured from the channel drop-down list.

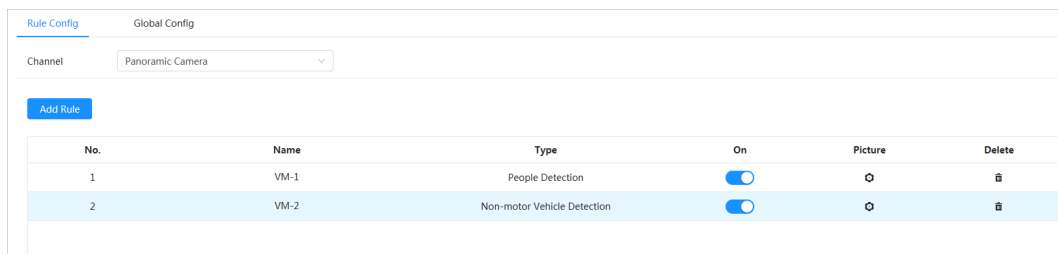


Some cameras support selecting preset.

Step 5 Click **Add Rule**, and then select the 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.

Figure 10-56 Rule configuration (Video Metadata)



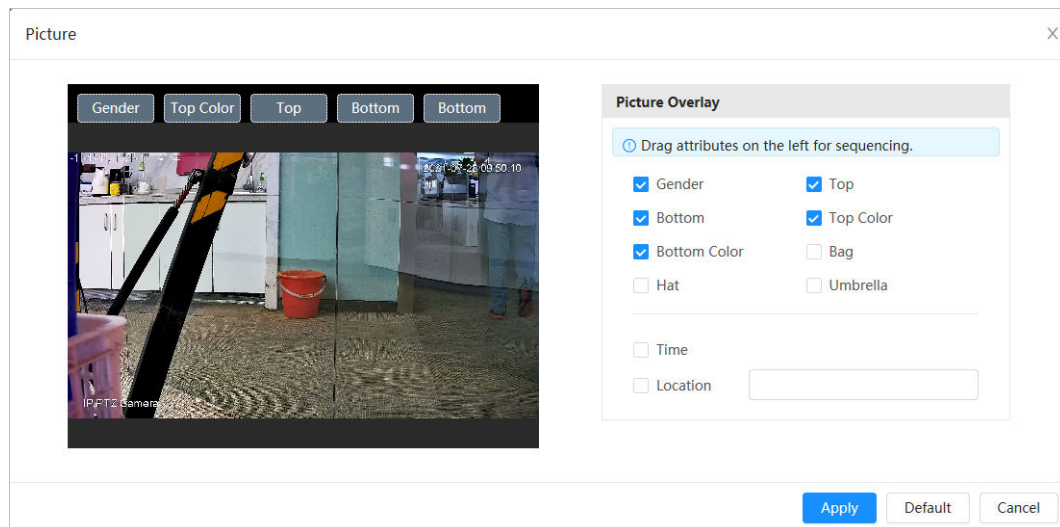
Rule Config		Global Config			
Channel		Panoramic Camera			
		Add Rule			
No.	Name	Type	On	Picture	Delete
1	VM-1	People Detection	☒		
2	VM-2	Non-motor Vehicle Detection	☒		

Step 6 Configure image information.

1. Click the  after the corresponding rule.
2. Configure the overlay information and adjust its position.

This section takes the configuration of non-motor vehicles as an example.

Figure 10-57 Configure picture parameters (non-motor vehicle)



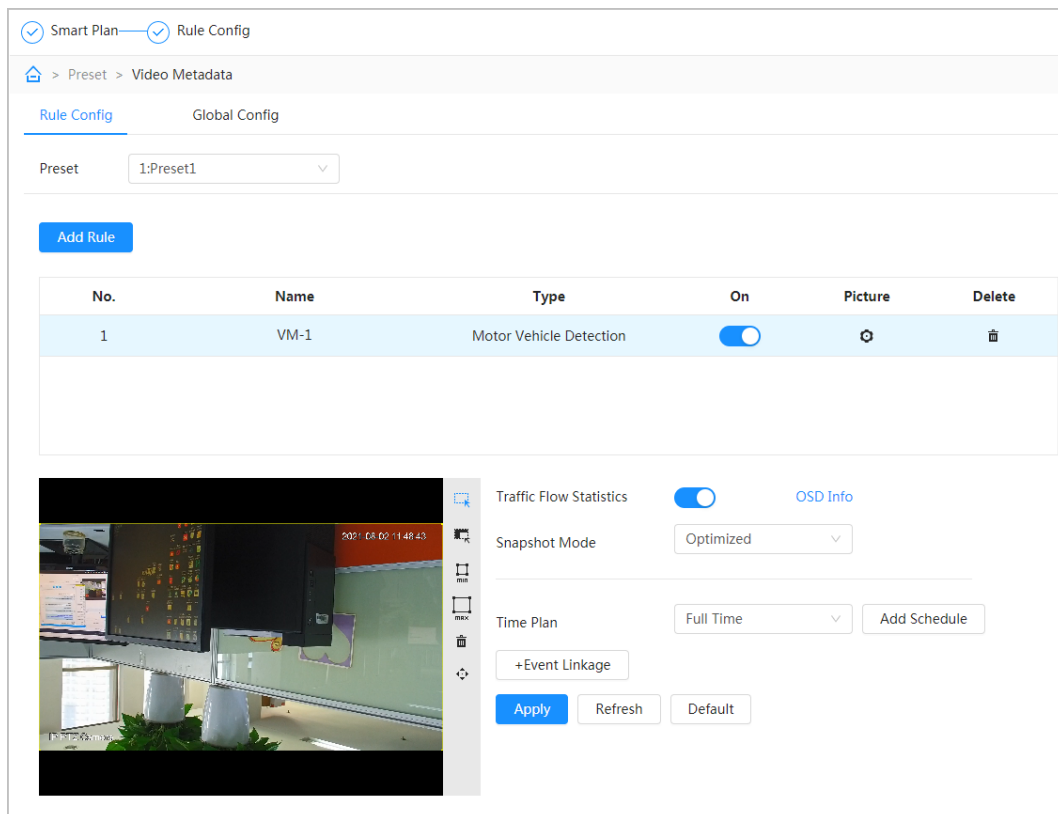
3. Click **Apply**.

Step 7 (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 drag any corner of the box to adjust the size of the area.
- Click , to draw an 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.
- Click  to adjust the monitoring screen through the PTZ control panel.

Step 8 Configure the rule parameters of video metadata.

Figure 10-58 Configure rule parameters (traffic flow statistics)



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 10-19 Description of video metadata parameters

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 pictures until the vehicle disappears from the image, and report the clearest picture. Tripwire : Capture the pictures when the vehicle triggers tripwire as the configured direction. The steps are as follows: - Select Tripwire. - Select the direction from A to B , B to A, and Both. - Adjust the position of rule line as needed.

Step 9 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 Alarm Linkage".

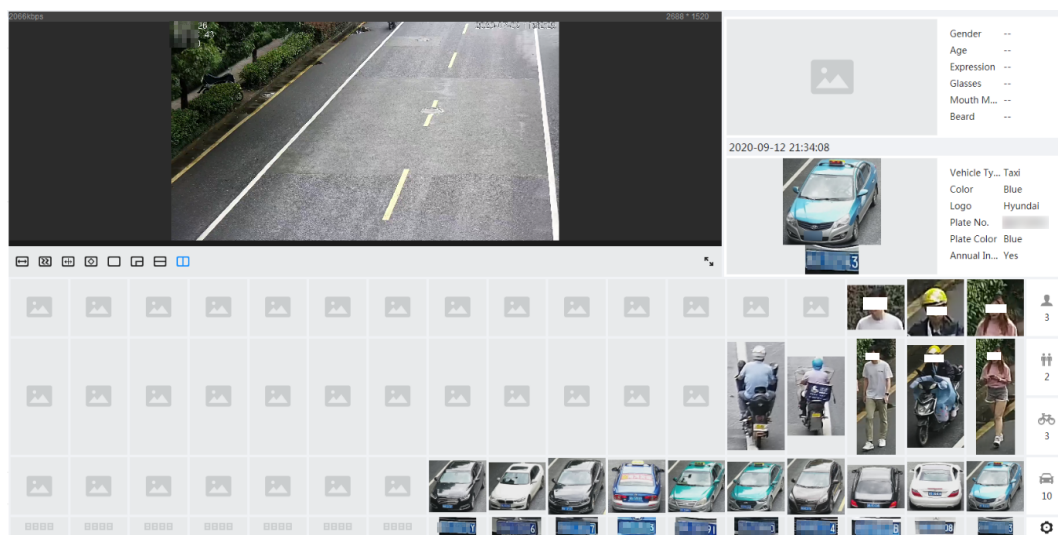
Step 10 Click **Apply**.

10.8.3 Viewing Video Metadata Results

Select **Metadata Mode** on the upper-left corner of the **Live** page to view the live video picture 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 capture statistics and capture thumbnails.
- Click  to change the attributes shown in the picture. For details, see "Configuring Display Properties".

Figure 10-59 Video metadata results



10.9 Panoramic Linkage

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

You can configure the linkage track and calibration for the panoramic linkage.

10.9.1 Linkage Track

After you set the main and sub calibration, when the panoramic camera's smart rules trigger an alarm, the detail camera will automatically link to the corresponding position

and track the object until it goes out of the detection range or reaches the set tracking time.

Procedure

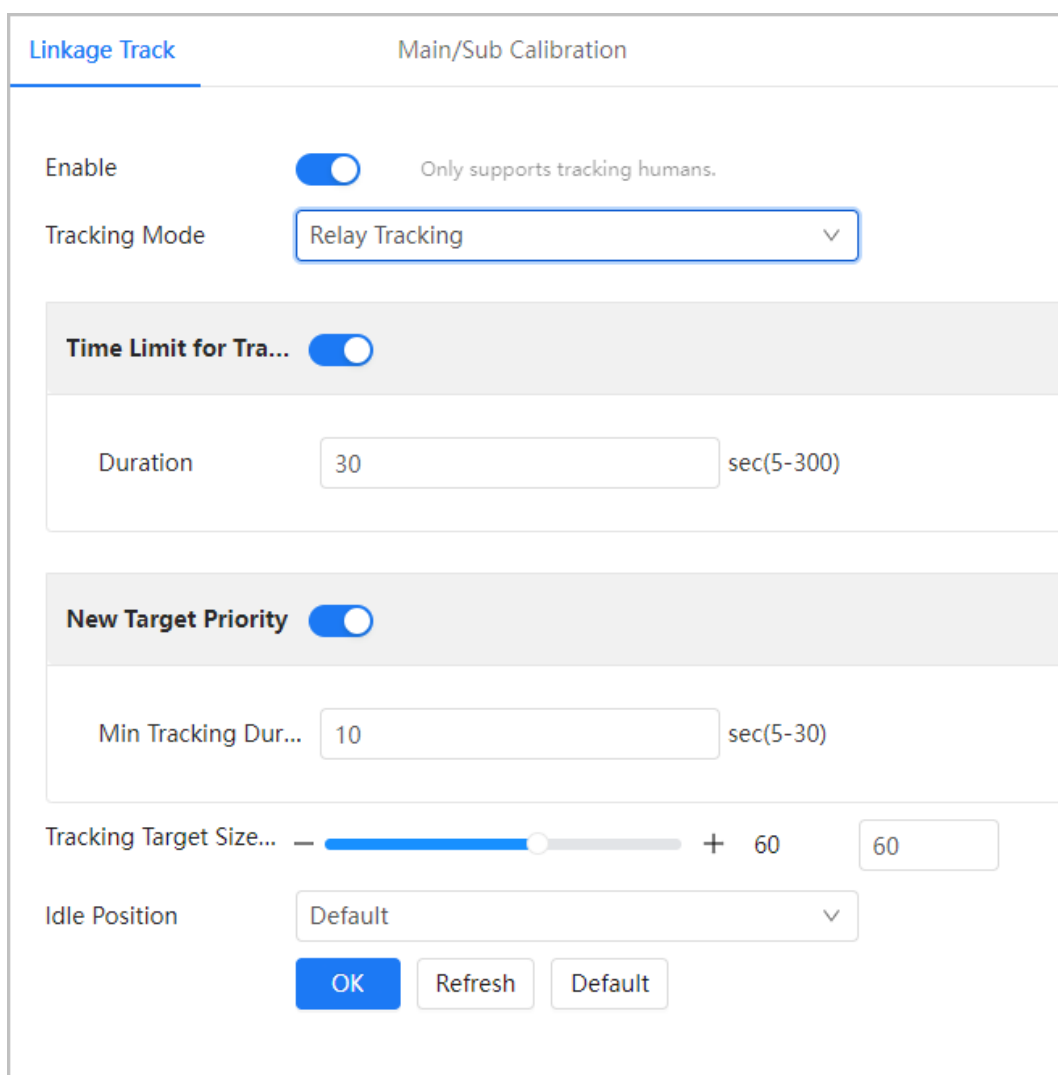
Step 1 Select **AI > Panoramic Linkage > Linkage Track**.

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



- Only when linkage track is enabled can manual position and manual linkage take effect.
- This function only supports tracking humans on select models.

Figure 10-60 Linkage track



Step 3 Select the tracking mode.

- **Linkage Track** : When the target disappears from the image range of the panoramic camera, the detail camera does not continue tracking.
- **Relay Tracking** : When the target disappears from the image range of the panoramic camera, the detail camera continues tracking.

Step 4 Configure the parameters.

Table 10-20 Description of linkage track parameters

Parameter	Description
Time Limit for Tracking	Enable the time limit for tracking, and then you can configure the duration of linkage track from 5 to 30 seconds.
New Target Priority	Enable the function, and when the device detects a new target, it will prioritize that target for linkage. You can configure the minimum tracking duration from 5 to 30 seconds.
Tracking Target Size Ratio	Set the ratio of the tracked object's size in the detail camera's image. The ratio refers to the proportion of the tracked object in the camera image.
Idle Position	In the idle position, the detail camera remains stationary. • None : After the linkage track ends, the detail camera stops moving and remains fixed at the last tracked location. • Default : After the linkage track ends, the detail camera returns to the forward position. • Preset : After setting up the presets, the idle position will include the option of the corresponding presets. After the linkage track ends, the detail camera returns to the corresponding presets.

Step 5 Click **OK**.

10.9.2 Main/Sub Calibration

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

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

10.9.2.2 Auto Calibration

Procedure

Step 1 Select **AI** > **Panoramic Linkage**.

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

Step 3 Click **Start Calibration**.

Wait for the calibration progress to complete.



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

Step 4 Click **Apply**.

10.10 Configuring Smart Traffic

10.10.1 Configuring Global Plan

The global plan is used for manual capture of illegal parking snapshots. You do not need to draw the detection area. For details, see "10.10.2 Configuring Illegal Parking Snapshot".

- To manually capture snapshots at preset points, you can apply the configurations in "10.10.2 Configuring Illegal Parking Snapshot".
- To manually capture snapshots at non-preset points, you can apply the configurations of the global plan.

10.10.2 Configuring Illegal Parking Snapshot

10.10.2.1 Area Configuration (Illegal Parking Snapshot)

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

Prerequisites

Smart plans for illegal parking snapshot have been configured.

Procedure

Step 1 Select **AI** > **AI Config** > **Smart Plan**.

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

Step 3 Click the **Preset** list to select the preset to be configured with illegal parking snapshot rule.

Step 4 Configure **Horizontal Ratio after Positioning**.

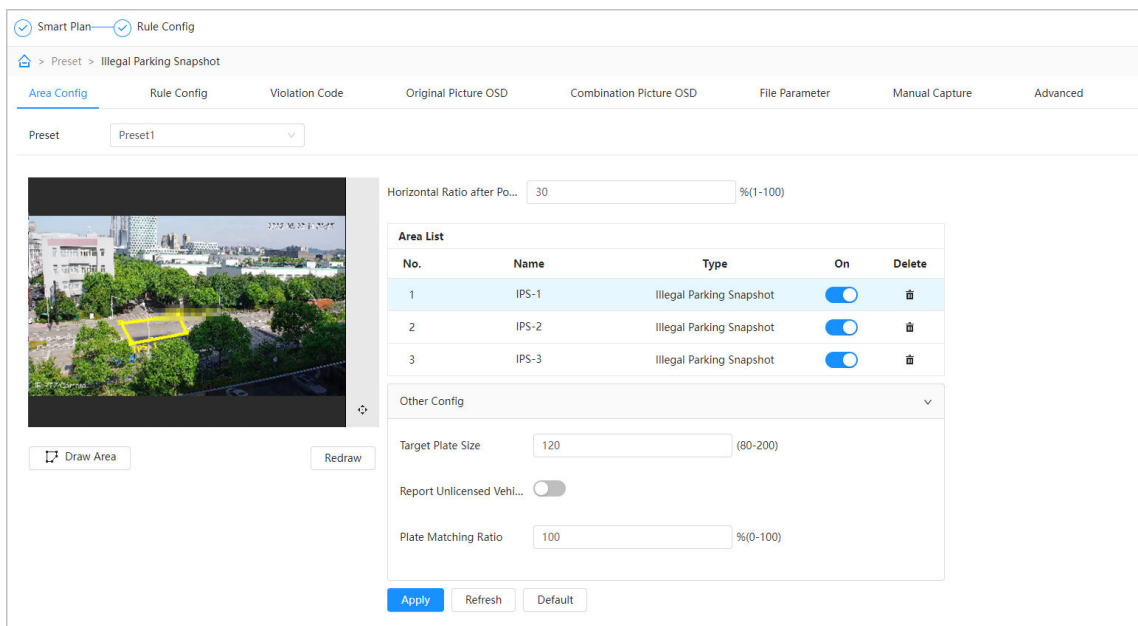
This parameter means the horizontal ratio of the target vehicle to the monitoring screen after the first zoom in or out of the Camera. The default value is 30%.

Step 5 Click **Draw Area** to draw an area where the rule take effect on the live view page, and then right-click to finish the drawing.

You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.

- Click  in the area list to delete the drawn detection area of the filtering rule.
- Click  to adjust the monitoring screen through the PTZ control panel.
- Click the name in the area list to modify the name of the rule.

Figure 10-62 Area configuration



The screenshot shows the 'Area Config' tab for the 'Illegal Parking Snapshot' rule. It includes a live view with a yellow detection area, a list of three areas (IPS-1, IPS-2, IPS-3), and configuration parameters for 'Other Config' including Target Plate Size (120), Report Unlicensed Vehicle (disabled), and Plate Matching Ratio (100).

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

Table 10-21 Description of area configuration parameters

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

Step 7 Click **Apply**.

10.10.2.2 Rule Configuration (Illegal Parking Snapshot)

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

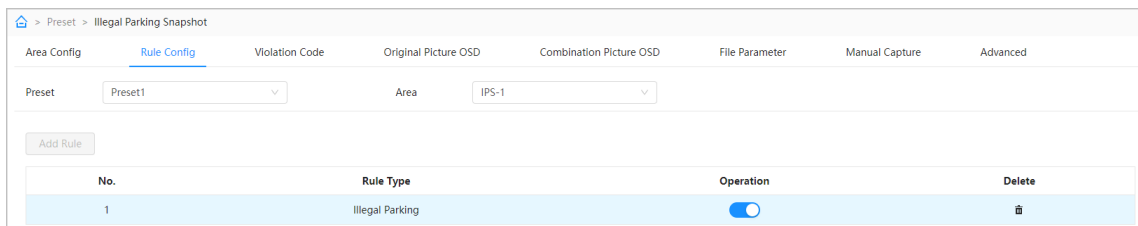
Step 3 Click **Rule Config** tab, and then select the preset and configured area from the drop-down list.

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

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

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

Figure 10-63 Illegal parking



No.	Rule Type	Operation	Delete
1	Illegal Parking	☒	

Step 5 Configure parameters for illegal parking snapshot.



The parameters might vary depending on different rules.

Figure 10-64 Configure illegal parking snapshot

Zoom Snapshot ☒

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

Min Duration sec(5-300)

Alarm Filter Duration min(0-1440)

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

Time Plan

Snapshot Enabled

☐ Snapshot

☐ Reset after 24:00

Snapshot Quantity

Violation Time OSD

☐ Replace Private Picture

Please configure the private pictures in "File Parameter".

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

Alarm-out Port Enabled

Alarm Channel

Post-alarm sec (10-300)

Audio Linkage Enabled

Play Count (1-3)

File

Table 10-22 Description of illegal parking snapshot parameters

Parameter	Description
Zoom Snapshot	This function is enabled by default. If the picture type of the snapshot is a close shot or license plate close-up shot, the Camera performs zoom snapshot.
Sensitivity	Set the sensitivity of zoom snapshot.
Min Duration	The minimum time between the detection of triggering the rule and the first evidence chain.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.

Parameter	Description
Save locally	Select the storage location of the videos. You can select Save locally or FTP Upload .
FTP Upload	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Snapshot	Select the checkbox, and then no secondary capture will occur or license plate close-up shots.
Reset after 24:00	Select the checkbox, and then the uploading interval of the combination picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots. Click Snapshot Setting to set the Camera capture distant view, medium view, close view or plate feature, and the snapshot interval between two pictures.
Snapshot Setting	 Non-motor vehicle violations only support capturing 1 picture.
Violation Time OSD	Set the time of one snapshot as the illegal time according to the number of snapshots. The value ranges from 1 to 4.
Replace Private Picture	Select the checkbox, select the picture number in the list, and then the picture with the number will be replaced by the picture uploaded by the user.
Single picture uploaded in advance	Select the picture number, and then the picture can be uploaded to the platform in advance.  - The image must be a close shot or a license plate close-up shot. - After capturing, the system will report the event as an imminent illegal parking event to the platform, triggering early warning actions such as sending SMS.

Step 6 Set arming periods and alarm linkage action.

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

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event.

10.10.2.3 Violation Code (Illegal Parking Snapshot)

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

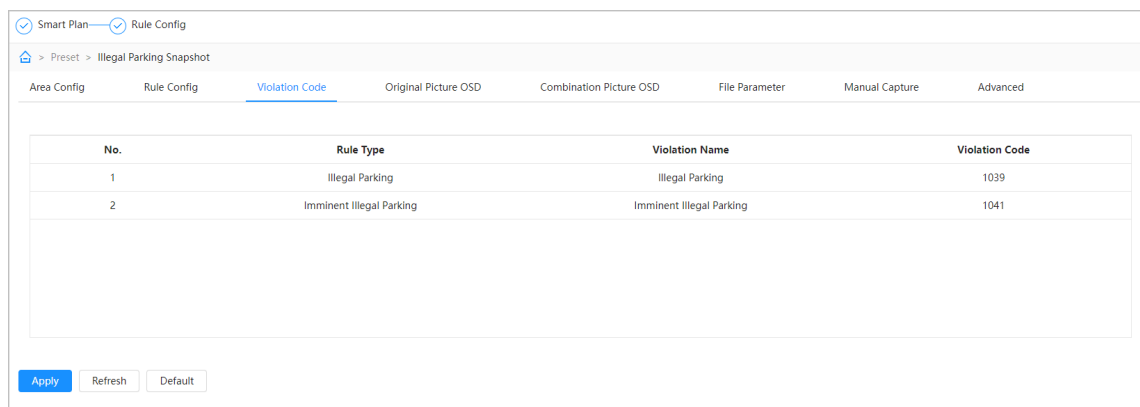
Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Illegal Parking Snapshot**.
- Step 3** Click **Violation Code** tab.
- Step 4** Click **Violation Name** and **Violation Code** to modify the name and code.



An impending parking violation event is called imminent illegal parking.

Figure 10-65 Violation code (illegal parking snapshot)



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

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

10.10.2.4 Original Picture OSD (Illegal Parking Snapshot)

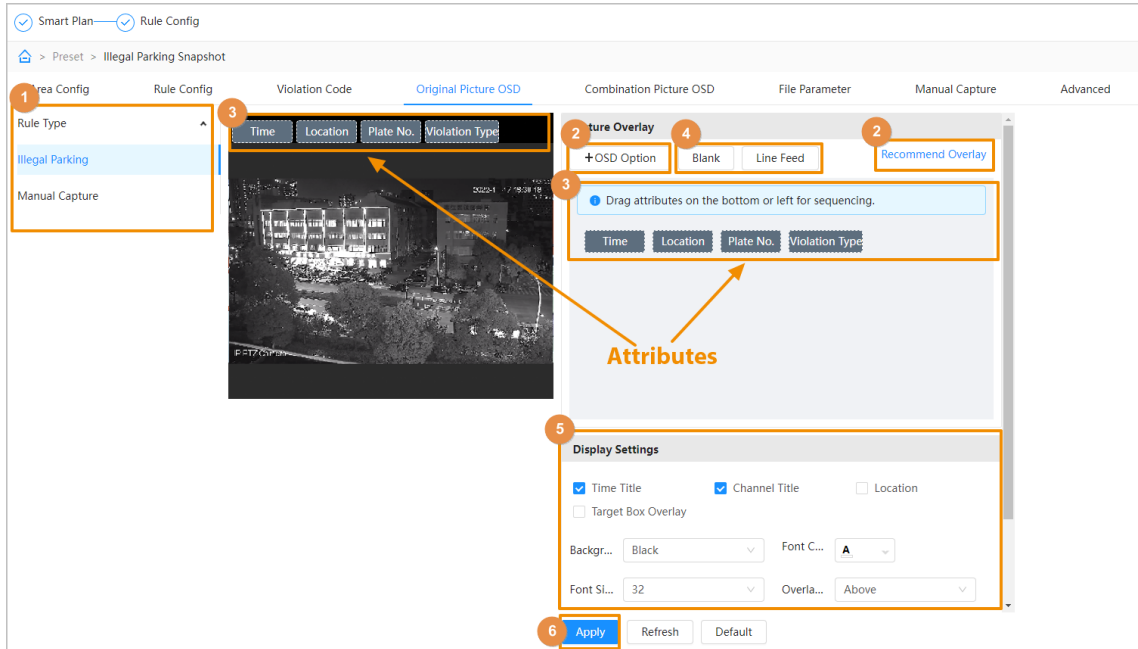
You can set the content and style of the OSD information of the original snapshot.

Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Illegal Parking Snapshot**.
- Step 3** Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.
- Step 4** Click **Recommend Overlay** or click **OSD Option** to select overlay information.
Recommend Overlay indicates a combination of common OSD options is generated automatically.
- Step 5** Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.
 - Hover over the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.

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

Figure 10-66 Original picture OSD (illegal parking snapshot)



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

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



The parameters might vary depending on different rule types.

Table 10-23 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Location	Select to display the location on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	

Parameter	Description
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the picture be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

10.10.2.5 Combination Picture OSD (Illegal Parking Snapshot)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

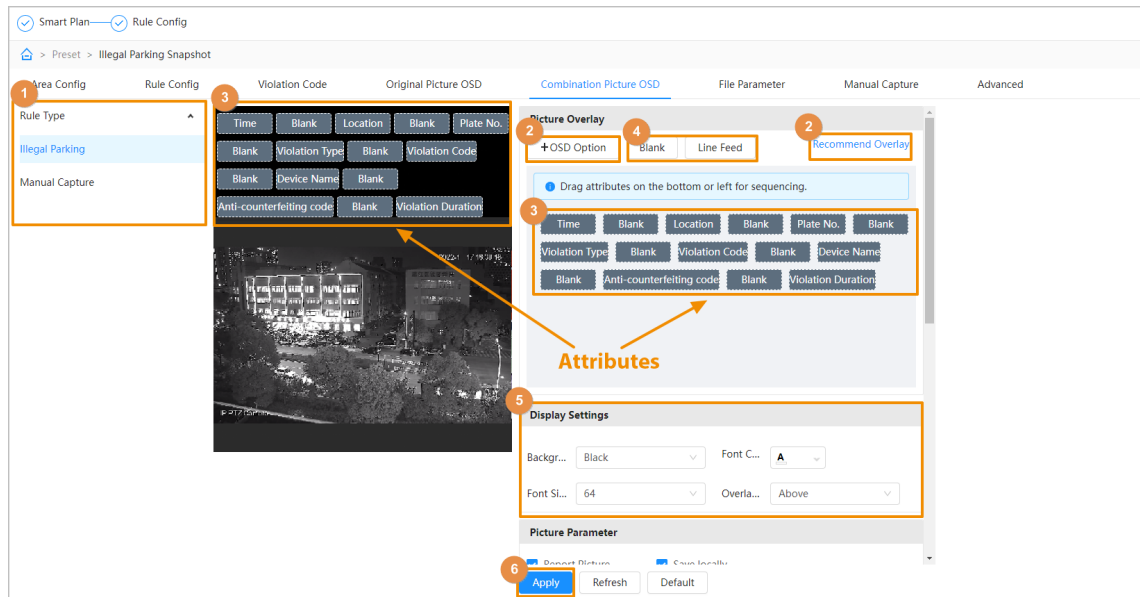
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

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

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

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

Figure 10-67 Combination picture OSD (illegal parking snapshot)



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

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

The parameters might vary depending on different rule types.

Table 10-24 Description of combination picture OSD parameters

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

Step 8 Click **Apply**.

10.10.2.6 File Parameter (Illegal Parking Snapshot)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

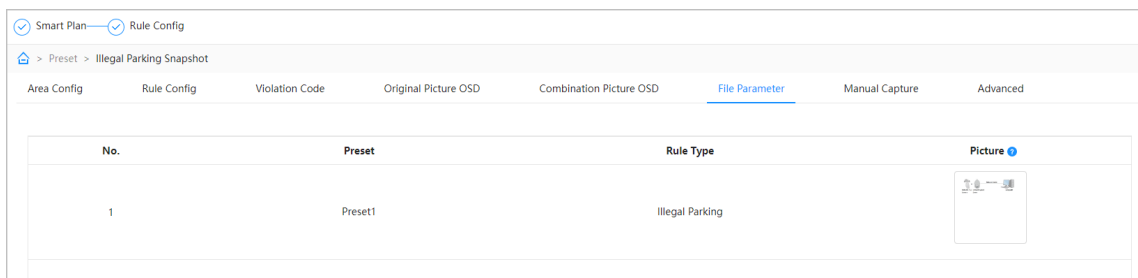
Step 2 Click **Rule Config**, and then select **Illegal Parking Snapshot**.

Step 3 Click **File Parameter** tab, and then click **Upload Picture**. Select a picture from local computer, and then click **Open**.



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

Figure 10-68 File parameters



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

10.10.2.7 Manual Capture (Illegal Parking Snapshot)

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

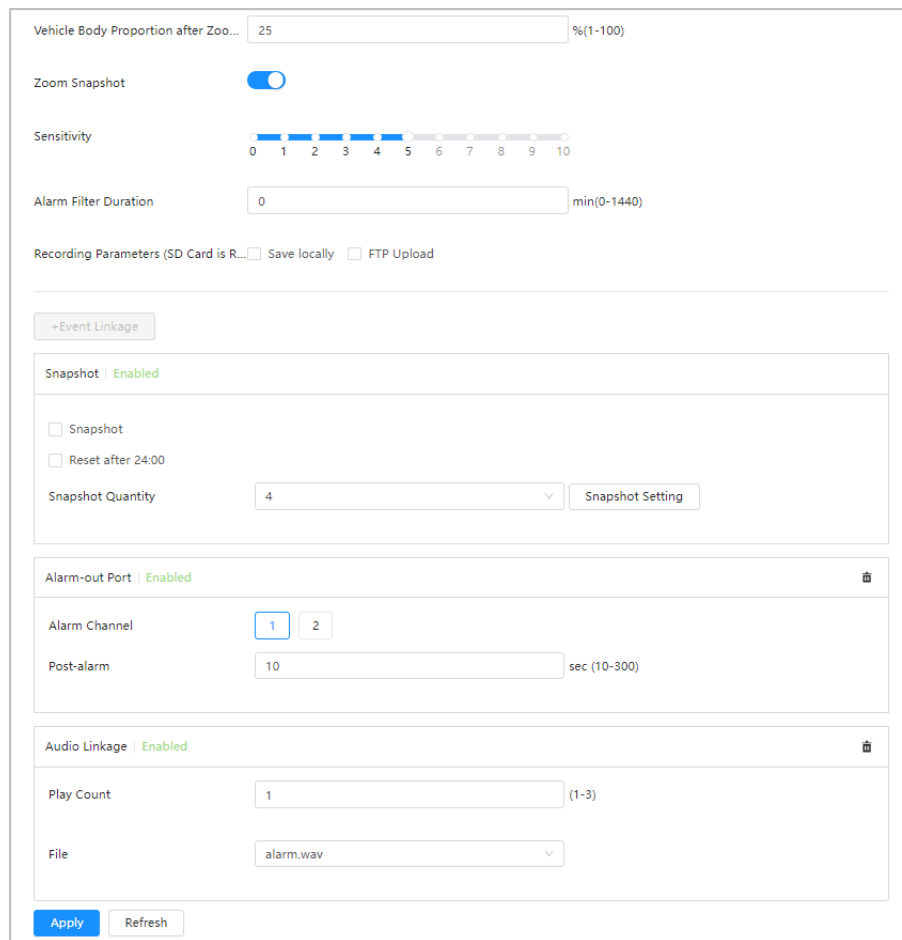
Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

Step 3 Click **Manual Capture** tab, and then configure manual capture parameters.

Figure 10-69 Manual capture



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

Zoom Snapshot ☒

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

Alarm Filter Duration 0 min (0-1440)

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

+ Event Linkage

Snapshot | Enabled

☐ Snapshot

☐ Reset after 24:00

Snapshot Quantity 4 Snapshot Setting

Alarm-out Port | Enabled

Alarm Channel 1 2

Post-alarm 10 sec (10-300)

Audio Linkage | Enabled

Play Count 1 (1-3)

File alarm.wav

Apply Refresh

Table 10-25 Description of manual capture parameters

Parameter	Description
Vehicle Body Proportion after Zoom	Set the proportion of the vehicle body in the live view after zooming and taking snapshots.
Zoom Snapshot	This function is enabled by default. If the picture type of the snapshot is a close shot, license plate features or others, the Camera performs zoom snapshot.
Sensitivity	Set the sensitivity of zoom snapshot.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.

Parameter	Description
Save locally	Select the storage location of the videos. You can select Local Save or FTP Upload .
FTP Upload	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Snapshot	Select the checkbox, and then a second change will not be made when capturing close shots or license plate close-up shots.
Reset after 24:00	Select the checkbox, and then the uploading interval of the combination picture will be cleared at 0 o'clock everyday.
Snapshot Quantity	Set the number of snapshots. Click Snapshot Setting to set the Camera capture distant view, medium view, close view or plate features , and the snapshot interval between two pictures.
Snapshot Setting	 Non-motor vehicle violations only support capture 1 picture.

Step 4 Set arming periods and alarm linkage action.

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

Step 5 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event.

10.10.2.8 Advanced Parameters (Illegal Parking Snapshot)

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

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



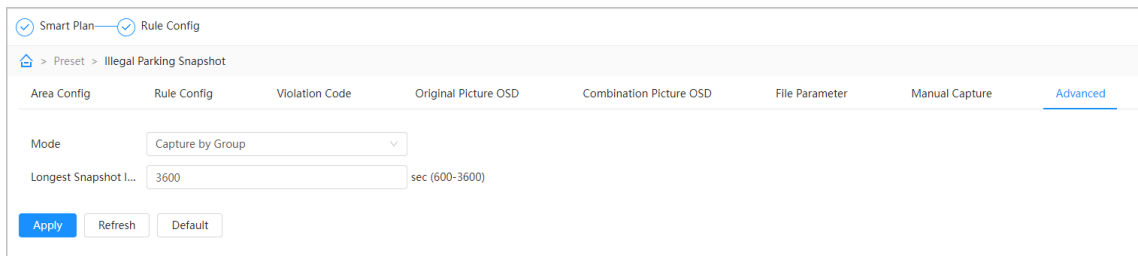
You need to configure multi-scene tour before capturing by group, and this function only takes effect when the quantity of the snapshots is 4 to 6.

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



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

Figure 10-70 Advanced parameters



Step 4 Set the longest snapshot interval.

This function is enabled when you select **Capture by Group** as the mode. You can set the longest time of the image cache. Images exceeding this time will be cleared from the cache, and the corresponding snapshot will be removed.

Step 5 Click **Apply**.

10.10.3 Configuring E-Police

10.10.3.1 Lane Configuration (E-Police)

Prerequisites

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

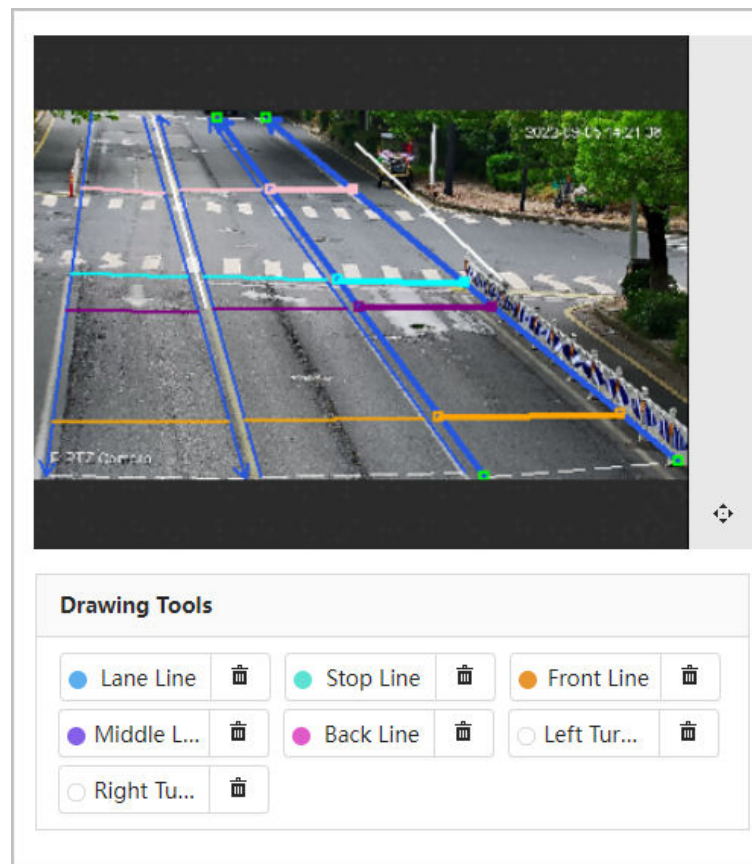
Step 2 Click **Rule Config**, and then select **E Police**.

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

Step 4 Click **Lane Line** in the **Drawing Tool**, and then draw the lane line on monitoring screen.

After finishing drawing the lane line, select other line types, and then draw them in turn.

Figure 10-71 Lane configuration



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

Table 10-26 Description of line type parameters

Parameter	Description
Lane Line	The drawn lane line should be consistent with the actual length and tilt angle of the lane line in the picture. Each lane is composed of two lane lines, which are shown as blue lines with arrows. The arrows of lane lines indicate the direction of vehicles.
Stop Line	The stop line of the vehicle in the actual road.
Front Line	Front line is recommended to be drawn at one-vehicle-length away from the stop line at the bottom.
Middle Line	The middle line is recommended to be drawn below the stop line to ensure that when the vehicle crosses the middle line, the vehicle front wheel has crossed the stop line.

Parameter	Description
Back Line	The back line is recommended to be drawn above the area. If there is no waiting area, draw it near the top 1/3 of screen. It is the judgment line of whether the motor vehicle is going straight or not, and the third snapshot position of going straight without following the guiding arrow.
Left Turn Division Line	The left turn division line is the judgment line of whether the motor vehicle is turning left or not, and the third snapshot position of turning left without following the guiding arrow.
Right Turn Division Line	The right turn division line is the judgment line of whether the motor vehicle is turning right or not, and the third snapshot position of turning right without following the guiding arrow.

Step 5 Configure lane parameters.

Figure 10-72 Configuring lane parameters

Lane List

Lane1

Enable

☒

Name

Lane Line1

Lane Direction

☒ Vehicle Head
 ☐ Vehicle Tail

Lane No.

1

Left Lane Line

Solid White Line

Right Lane Line

Solid White Line

Lane Type

Lanes for Small-sized Vehicle

Road Direction

Straight ×

Passing Direction

South to North

Statistical Cycle

1

min (1-10080)

1

ms (1-59999)

Other Config

☒ Unlicensed Vehicle Snapshot

☐ Non-motor Vehicle Snapshot

Apply

Refresh

Table 10-27 Description of lane parameters

Parameter	Description
Enable	Enabled by default.
Lane Direction	You can select Vehicle Head or Vehicle Tail . The direction of the lane arrow is changed simultaneously when you select the lane direction. The default selection is Vehicle Head .
Lane No.	You can configure from 1-16. The default number starts with 1.
Left Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Right Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Lane Type	You can select from Lanes for Small-sized Vehicle , Bus Lane and Non-motor Vehicle Lane . The default is Lanes for Small-sized Vehicle .
Road Direction	You can select from Left Rotation , Straight , Right Turn and U Turn . You can select multiple road directions at a time.
Passing direction	You can select from South to North , West to East , North to South and East to West . The default is South to North .
Statistical Cycle	Set the statistical cycle for collecting traffic data.

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

Table 10-28 Description of other configuration parameters

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

Step 7 Click **Apply**.

10.10.3.2 Rule Configuration (E-Police)

Prerequisites

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

Procedure

Step 1 Select **AI** > **AI Config** > **Smart Plan**.

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

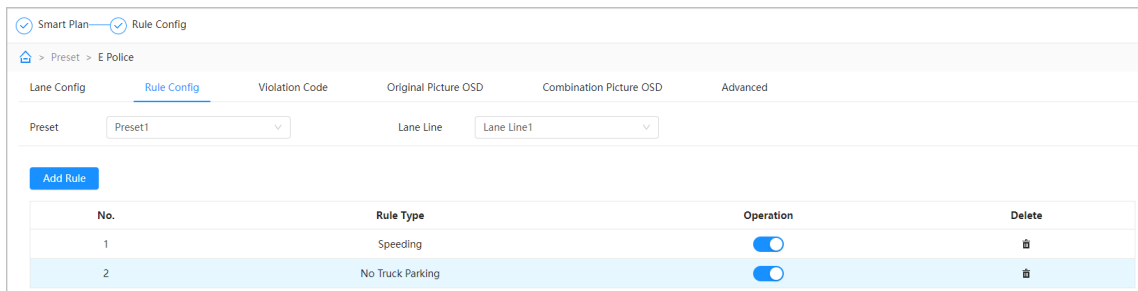
Step 3 Click **Rule Config** tab, and then select the preset and lane line from the drop-down list.

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

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

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

Figure 10-73 Adding rules



The screenshot shows the 'Rule Config' tab in the 'E Police' section. It displays a table of added rules with the following data:

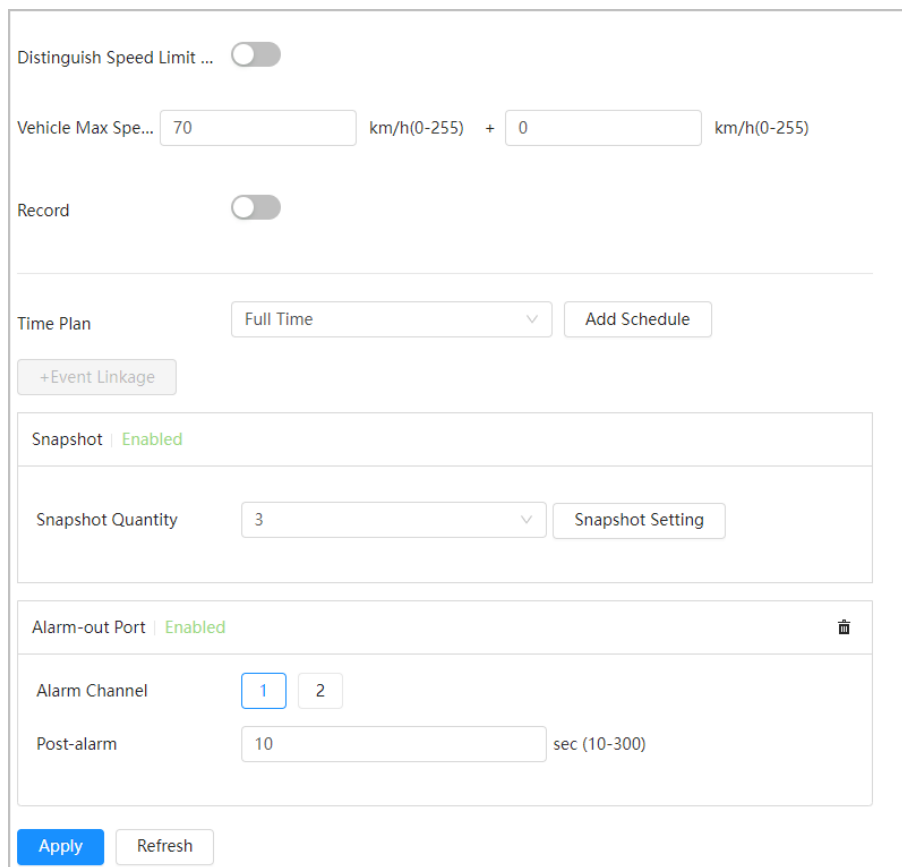
No.	Rule Type	Operation	Delete
1	Speeding	☒	
2	No Truck Parking	☒	

2. Configure rule parameters for lane events.

The parameters might vary depending on different rule types.

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

Figure 10-74 Rule configuration (speeding)



The screenshot shows the 'Rule configuration (speeding)' interface with the following settings:

- Distinguish Speed Limit ...**: ☐
- Vehicle Max Spe...**: 70 km/h(0-255) + 0 km/h(0-255)
- Record**: ☐
- Time Plan**: Full Time (dropdown), Add Schedule (button)
- +Event Linkage**: (button)
- Snapshot**: Enabled (status)
- Snapshot Quantity**: 3 (dropdown), Snapshot Setting (button)
- Alarm-out Port**: Enabled (status), 
- Alarm Channel**: 1, 2 (dropdowns)
- Post-alarm**: 10 sec (10-300)
- Buttons**: Apply, Refresh

Figure 10-75 Rule configuration (no truck parking)

Capture Blue Plate Trucks ☐

Vehicle Type ☒ General Vehicle ☐ Special Vehicle

Truck Type

Heavy Truck x Medium Truck x

Light Truck x Pickup x

Record ☐

Time Plan

Full Time

Add Schedule

+Event Linkage

Snapshot Enabled

Snapshot Quantity

3

Snapshot Setting

Alarm-out Port Enabled

Alarm Channel

1 2

Post-alarm

10

sec (10-300)

Apply

Refresh

Table 10-29 Description of rule configuration parameters

Rule Type	Parameter	Description
Speeding	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the highest speed limit of small-sized vehicle and large-sized vehicle. Small-sized Vehicle Highest Speed Limit : Set the maximum speed limit for small-sized vehicle. Large-sized Vehicle Highest Speed Limit : Set the maximum speed limit for large-sized vehicle.
	Vehicle Max Speed Limit	Set the maximum speed limit for the vehicle.
No Truck Parking	Capture Blue Plate Trucks	Enable capturing blue plate trucks function.
	Vehicle type	You can select from General Vehicle and Special Vehicle .

Rule Type	Parameter	Description
	Truck Type	Select one or more truck types to be queried. - When you select General Vehicle as Vehicle Type, you can select Heavy Truck, Medium Truck, Light Truck and Pickup as the Truck Type. - When you select Special Vehicle as Vehicle Type, you can select Dangerous Goods Vehicle, Tank Truck, Construction Truck, Mixer Truck, Engineering Truck, Powder Material Truck and Sewage Suction Truck as the Truck Type.

Step 5 Configure snapshot parameters.

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

Step 6 Set arming periods and alarm linkage action.

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

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event.

10.10.3.3 Violation Code (E-Police)

You can set the violation name and violation code of E-Police, and you can overlay the violation information on the combination picture.

Procedure

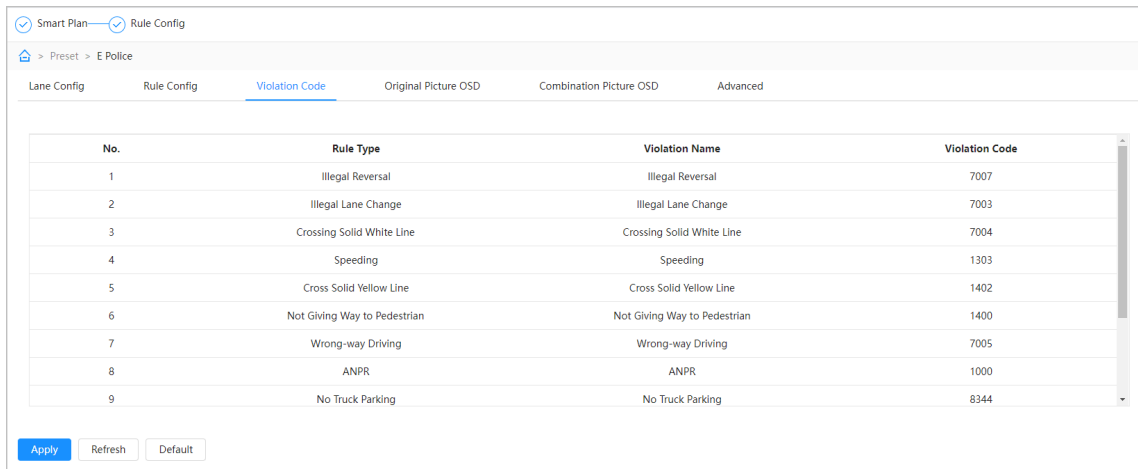
Step 1 Select **AI > AI Config > Smart Plan**.

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

Step 3 Click **Violation Code** tab.

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

Figure 10-76 Violation code (E-Police)



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

Step 5 Click **Apply**.

10.10.3.4 Original Picture OSD (E-Police)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

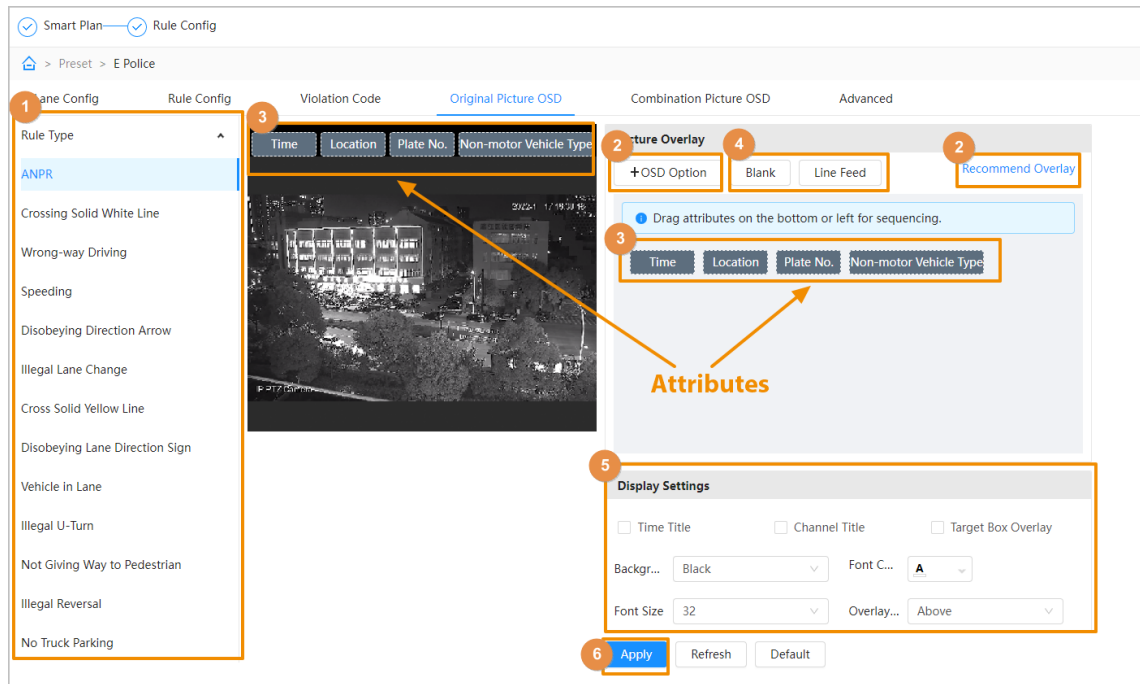
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

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

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

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

Figure 10-77 Original picture OSD (E-Police)



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

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



The parameters might vary depending on different rule types.

Table 10-30 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	

Parameter	Description
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

10.10.3.5 Combination Picture OSD (E-Police)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

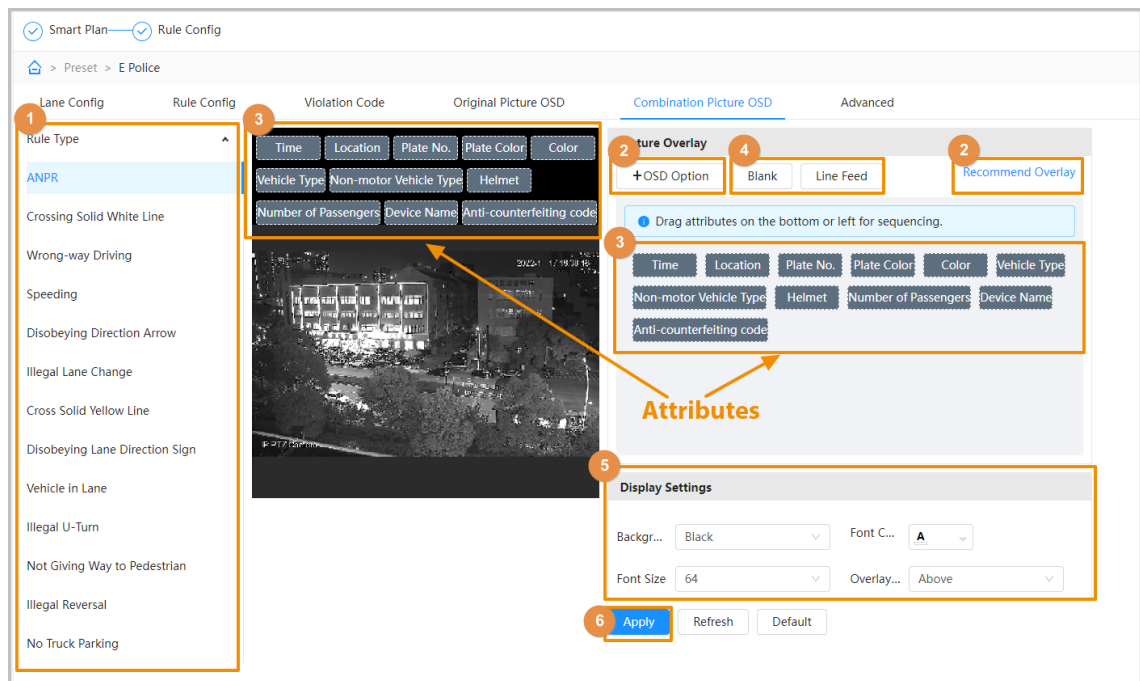
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

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

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

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

Figure 10-78 Combination picture OSD



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

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

The parameters might vary depending on different rule types.

Table 10-31 Description of combination picture OSD parameters

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

Step 8 Click **Apply**.

10.10.3.6 Advanced Configuration (E-Police)

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

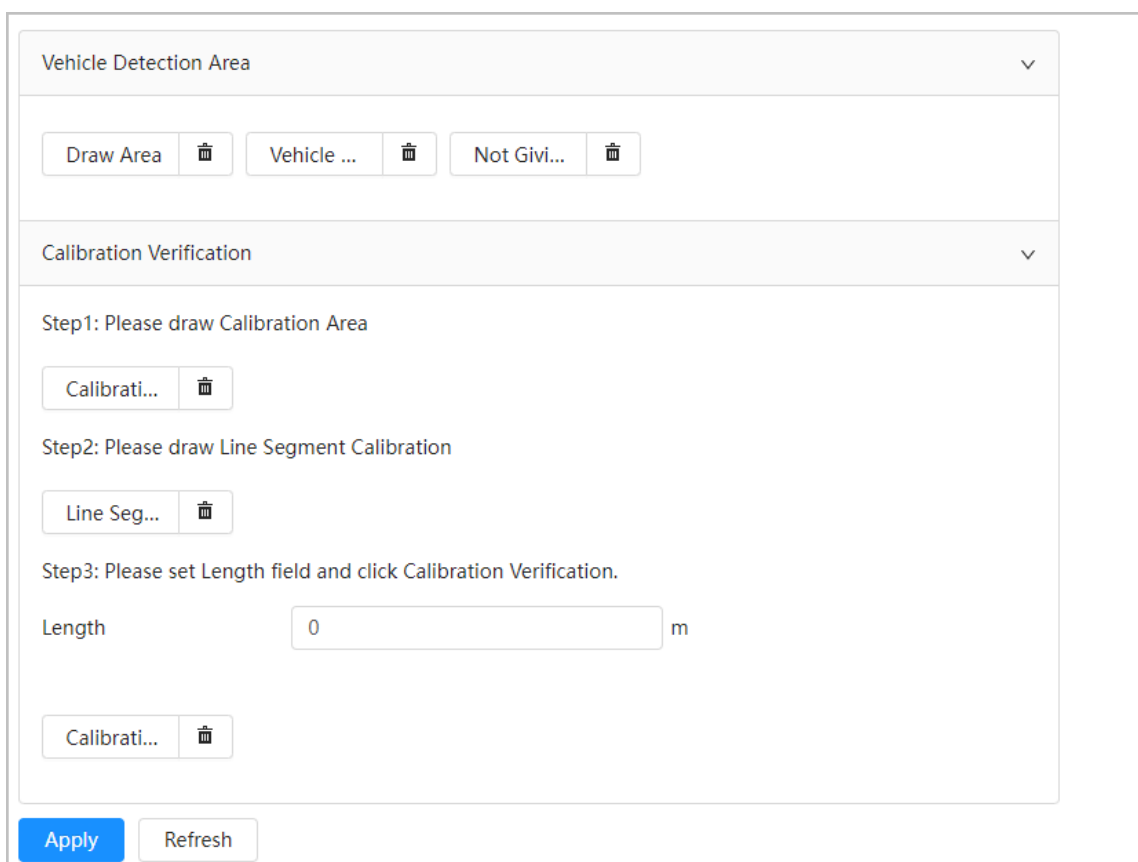
Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

Figure 10-79 Advanced configuration



Step 4 Draw the vehicle detection area.

Click  to delete the drawn area.

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

Step 5 Configure calibration verification.

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

Step 6 Click **Apply**.

10.10.4 Configuring Road Events

10.10.4.1 Area Configuration (Road Event)

Prerequisites

The smart plan of the road event has been configured.

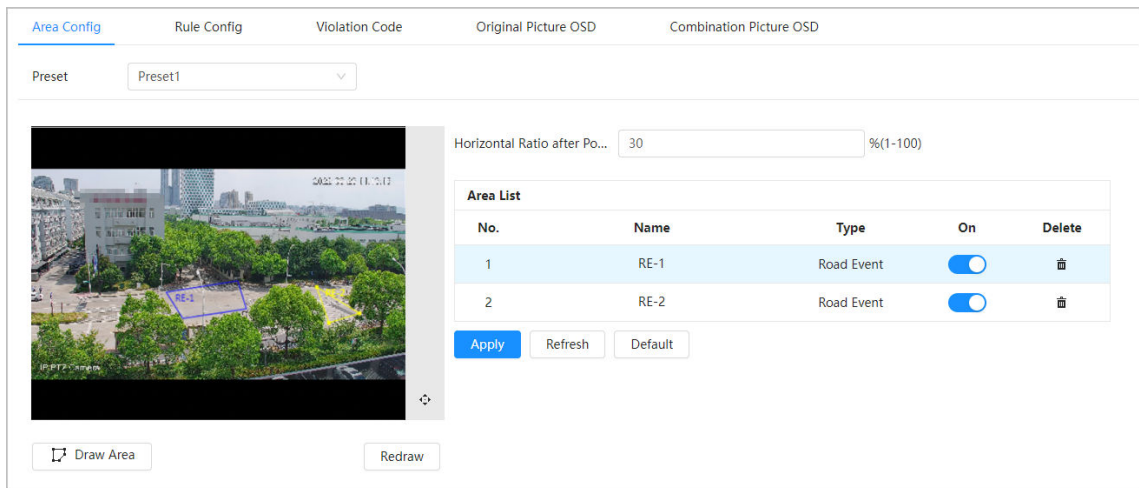
Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

Figure 10-80 Area configuration (road event)



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

Step 4 Set the horizontal ratio after positioning.

Set the proportion of the target object in the horizontal direction of the picture after positioning.

Step 5 Click **Draw Area** to draw an area where the rule takes effect on the live view page, and then right-click to finish the drawing.

You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.

Step 6 Click **Apply**.

10.10.4.2 Rule Configuration (Road Event)

Prerequisites

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

You can add one or multiple road event rules for different areas of a single preset point.

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

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

Figure 10-81 Adding rules (road event)

Area Config	Rule Config	Violation Code	Original Picture OSD	Combination Picture OSD
Preset	Preset1	Area	RE-4	
Add Rule				
No.	Rule Type	Operation	Delete	
1	Fog Detection	☒		
2	Accident	☒		
3	Pedestrian	☒		

Table 10-32 Description of rule type parameters

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

2. Configure rule parameters.

The parameters might vary depending on different rule types.

Figure 10-82 Fog detection

Min Duration
sec(5-300)

Alarm Filter Duration
min(0-1440)

Alarm Threshold

Fog Blue Alert

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

Time Plan

Full Time

Add Schedule

+Event Linkage

Snapshot | Enabled

☐ Reset after 24:00

Snapshot Quantity

Alarm-out Port | Enabled

Alarm Channel

1

2

Post-alarm
sec (10-300)

Audio Linkage | Enabled

Play Count
(1-3)

File

alarm.wav

Apply

Refresh

Table 10-33 Description of rule configuration parameters (fog detection)

Parameter	Description
Min Duration	When the fog is detected to exceed the minimum duration, the fogging event is judged to have triggered.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.
Alarm threshold	Set the alarm threshold type, which is used to distinguish the meteorological level of fog in different weather. The corresponding level of fog gradually increases: Fog Blue Alert > Fog Yellow Alert > Fog Orange Alert > Fog Red Alert .

Parameter	Description
Save locally	Select the storage location of the videos. You can select Local Save or FTP Upload .
FTP Upload	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots.

Figure 10-83 Accident

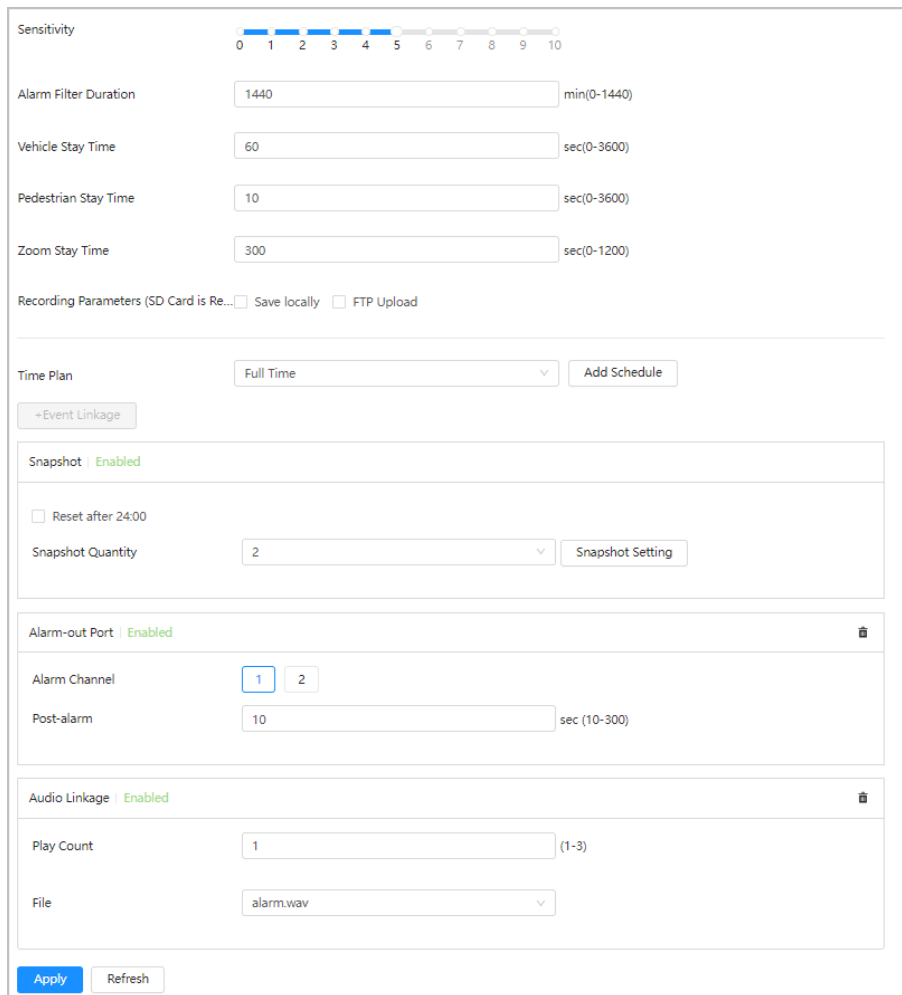


Table 10-34 Description of rule configuration parameters (accident)

Parameter	Description
Sensitivity	Set the sensitivity of area event snapshot.

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

Figure 10-84 Description of rule configuration parameters (pedestrian)

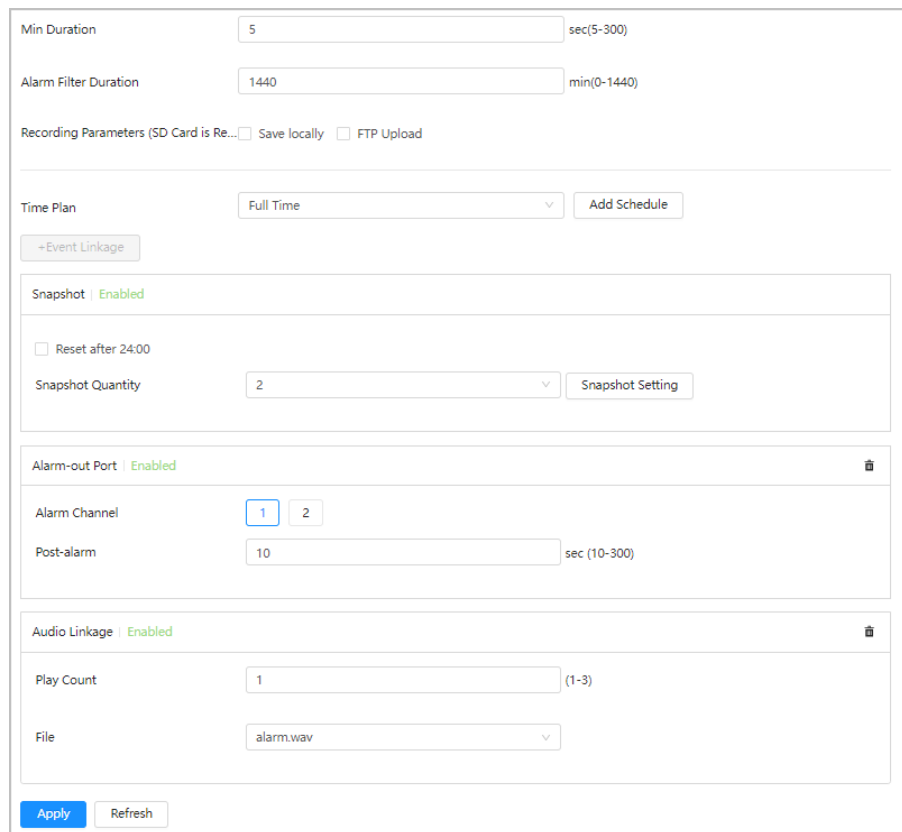


Table 10-35 Description of rule configuration parameters (pedestrian)

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

Step 4 Set arming periods and alarm linkage action.

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

Step 5 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event.

10.10.4.3 Violation Code (Road Event)

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

Procedure

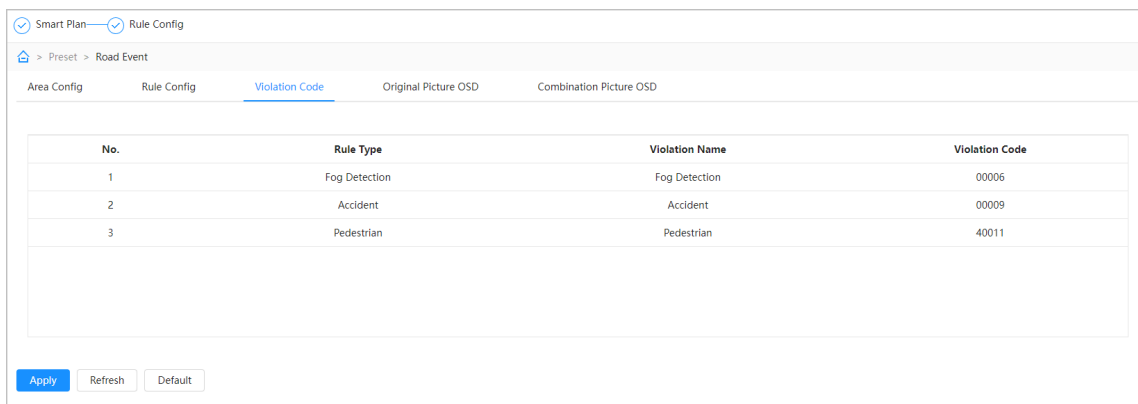
Step 1 Select **AI > AI Config > Smart Plan**.

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

Step 3 Click **Violation Code** tab.

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

Figure 10-85 Violation code (road event)



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

Step 5 Click **Apply**.

10.10.4.4 Original Picture OSD (Road Event)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

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

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

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

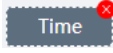
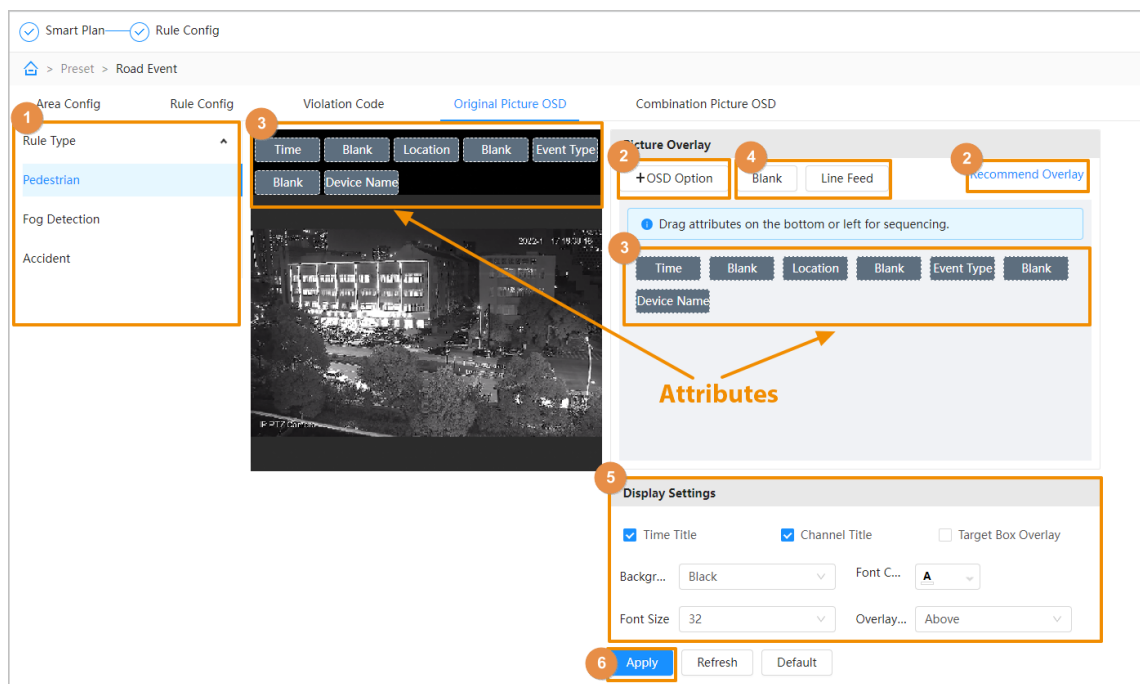
- Hover over the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.
- Click the attribute, and then you can configure the prefix, suffix and delimiter quantity of the attribute.

Figure 10-86 Original picture OSD (road event)



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

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 10-36 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.

Parameter	Description
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	
Report Picture	Select to save the pictures to local computer or upload to the platform.  Only when an SD card has been formatted and installed on the device can the video be saved locally.
Save locally	
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

10.10.4.5 Combination picture OSD (Road Event)

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

Procedure

Step 1 Select **AI** > **AI Config** > **Smart Plan**.

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

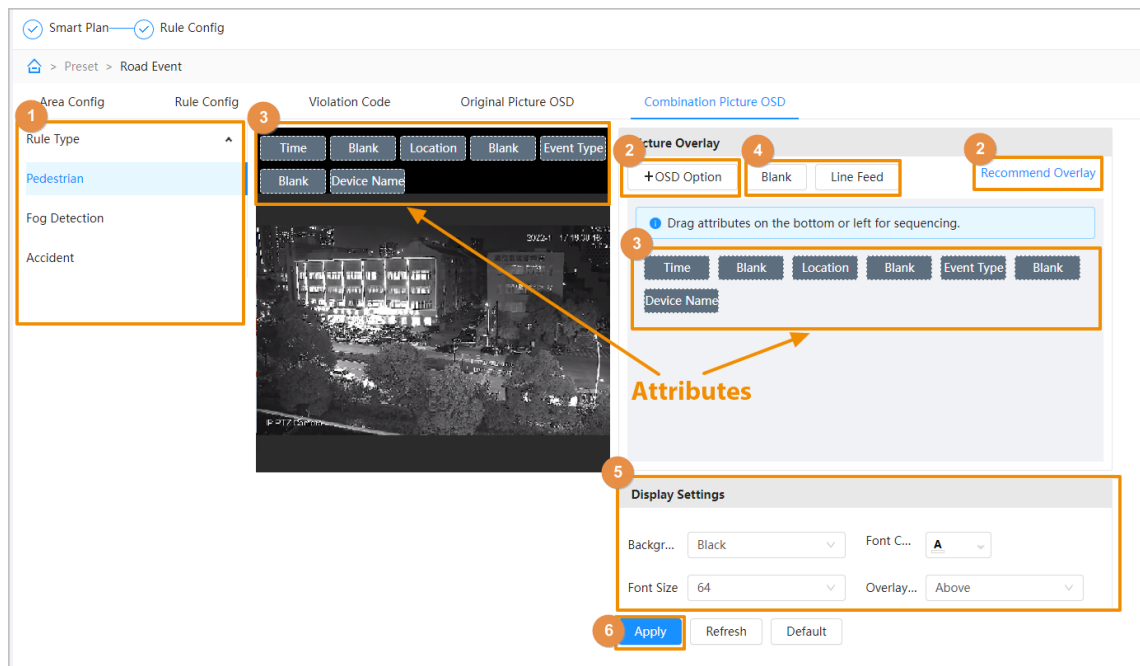
Step 3 Click **Combination OSD** tab, and then select the rule type from the left side of the page.

Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.
Recommend Overlay indicates a combination of common OSD options is generated automatically.

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

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

Figure 10-87 Combination picture OSD (road event)



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

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 10-37 Description of combination picture OSD parameters

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

Step 8 Click **Apply**.

10.10.5 Configuring ANPR



For some devices, enabling the ANPR function at night requires you to first enable the white light function for fill light and the number plate priority function for illumination overexposure remover in **Camera > Image > Illuminator**.

10.10.5.1 Lane Configuration (ANPR)

Prerequisites

The smart plan of the ANPR has been configured.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

Step 4 Configure lanes.

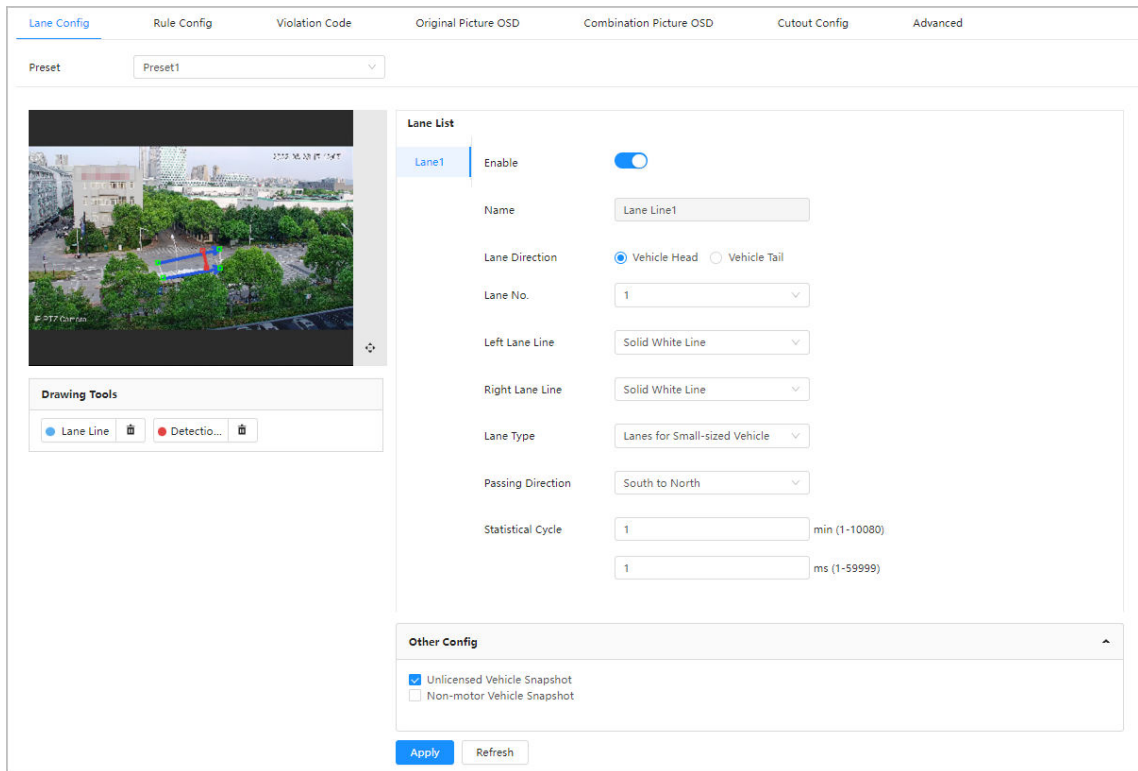
1. Click **Lane Line** and **Detection Line** respectively, and then draw lines in the monitoring screen.

You can draw up to 4 lanes, and the lanes are enabled by default after

drawing. Click  to delete the lane line or detection line.

- **Lane Line** : Draw lines of the lanes to be detected according to the actual traffic situation. Two lane lines are required for each lane. A blue line with arrow will be displayed when drawing a lane line, and the direction of arrow indicates the direction of vehicles.
- **Detection Line** : Draw the detection line which triggers video capture, it is as functional as the line in real traffic. It will trigger and take snapshot when the vehicle crosses the detection line. The detection line is shown as a red line, and only displays within the range of drawn lane lines. Lines outside the range will not be displayed.

Figure 10-88 Configure lane



2. Configure lane parameters.

Table 10-38 Description of lane parameters

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

Parameter	Description
Passing direction	You can select from South to North , West to East , North to South and East to West . The default is South to North .
Statistical Cycle	Set the statistical cycle for collecting traffic data.

Step 5 Configure parameters in **Other Config** area.

Table 10-39 Description of other configuration parameters

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

Step 6 Click **Apply**.

10.10.5.2 Rule Configuration (ANPR)

Prerequisites

The lane line is drawn in the Lane Config.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

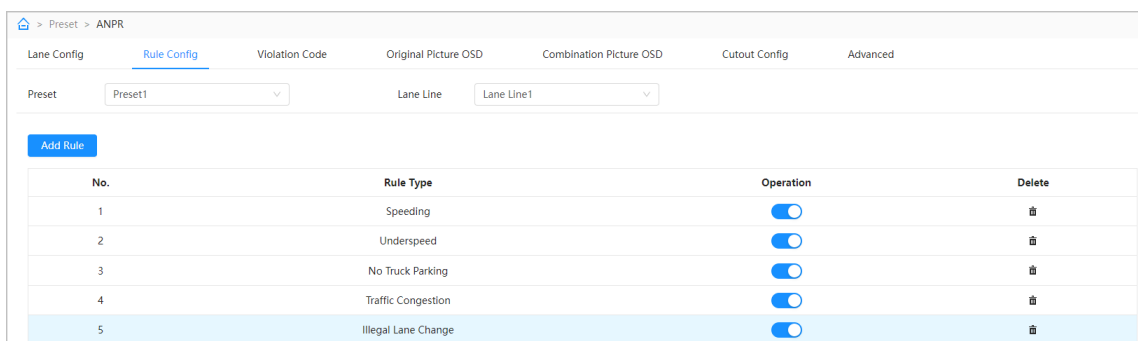
Step 3 Click **Rule Config** tab, and then select the preset and lane line from the drop-down list.

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

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

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

Figure 10-89 Add rules (ANPR)



Preset > ANPR						
Lane Config		Rule Config	Violation Code	Original Picture OSD	Combination Picture OSD	Cutout Config
Advanced						
Preset	Preset1	Lane Line	Lane Line1			
Add Rule						
No.	Rule Type	Operation	Delete			
1	Speeding	☒				
2	Underspeed	☒				
3	No Truck Parking	☒				
4	Traffic Congestion	☒				
5	Illegal Lane Change	☒				

2. Configure rule parameters for lane events.



The parameters might vary depending on different rule types.

Table 10-40 Description of rule configuration parameters

Rule Type	Parameter	Description
-	Sensitivity	Set the sensitivity of lane event snapshot.
-	Record	Enable the local recording function.
Underspeed	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the lowest speed limit for small-sized vehicle and large-sized vehicle. Small-sized Vehicle Lowest Speed Limit : Set the lowest speed limit for small-size vehicles. Large-sized Vehicle Lowest Speed Limit : Set the lowest speed limit for large-size vehicles.
	Vehicle Min Speed Limit	Set the minimum speed limit for the vehicle.
Speeding	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the highest speed limit for small-sized vehicle and large-sized vehicle. Small-sized Vehicle Highest Speed Limit : Set the highest speed limit for small-sized vehicle. Large-sized Vehicle Highest Speed Limit : Set the highest speed limit for large-sized vehicle.
	Vehicle Max Speed Limit	Set the maximum speed limit for the vehicle.
No Truck Parking	Capture Blue Plate Trucks	Enable capturing blue plate trucks function.
	Vehicle type	You can select from General Vehicle and Special Vehicle .

Rule Type	Parameter	Description
	Truck Type	Select one or more truck types to be queried. - When you select General Vehicle as the Vehicle Type, you can select Heavy Truck, Medium Truck, Light Truck and Pickup as the Truck Type. - When you select Special Vehicle as the Vehicle Type, you can select Dangerous Goods Vehicle, Tank Truck, Construction Truck, Mixer Truck, Engineering Truck, Powder Material Truck and Sewage Suction Truck as the Truck Type.
Traffic Congestion	Alarm Time	Set the duration for traffic congestion to trigger the alarm. When the traffic congestion time exceeds this value, the alarm will be triggered.
	Threshold	Set the ratio of traffic congestion to the total length of the drawn lanes. If the upper limit of the range is exceeded, the alarm will be triggered. When the congestion team drops to the lower limit of the set threshold, the alarm will be cancelled.

Step 5 Configure snapshot parameters.

- Channel: the default snapshot channel is 2.
- Snapshot Quantity** : Set the number of snapshots.
- Click **Snapshot Setting** , and then set the **Cutout Proportion**. This function is only supported on select rules.

Step 6 Set arming periods and alarm linkage action.

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

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

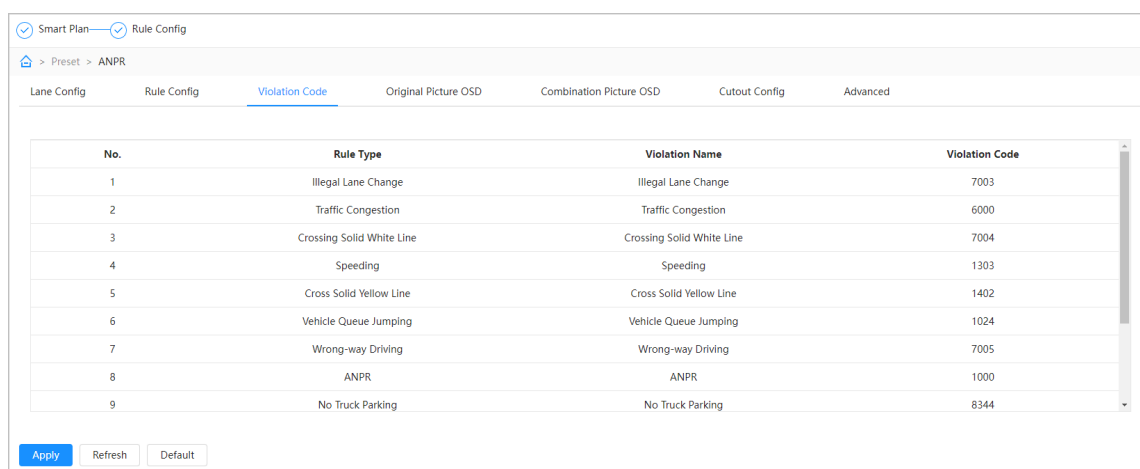
10.10.5.3 Violation Code (ANPR)

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

Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config** , and then select **ANPR**.
- Step 3** Click **Violation Code** tab.
- Step 4** Click **Violation Name** and **Violation Code** to modify the name and code.

Figure 10-90 Violation code



No.	Rule Type	Violation Name	Violation Code
1	Illegal Lane Change	Illegal Lane Change	7003
2	Traffic Congestion	Traffic Congestion	6000
3	Crossing Solid White Line	Crossing Solid White Line	7004
4	Speeding	Speeding	1303
5	Cross Solid Yellow Line	Cross Solid Yellow Line	1402
6	Vehicle Queue Jumping	Vehicle Queue Jumping	1024
7	Wrong-way Driving	Wrong-way Driving	7005
8	ANPR	ANPR	1000
9	No Truck Parking	No Truck Parking	8344

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

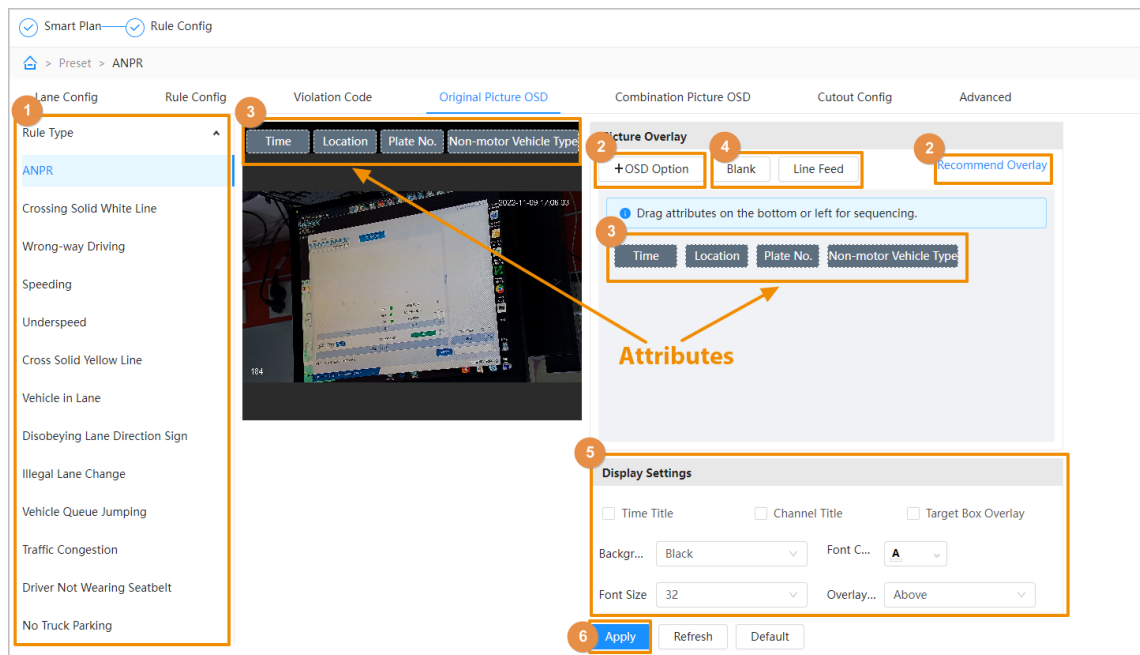
10.10.5.4 Original Picture OSD (ANPR)

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

Procedure

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

Figure 10-91 Original picture OSD (road event)



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

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 10-41 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	

Parameter	Description
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

10.10.5.5 Combination Picture OSD (ANPR)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

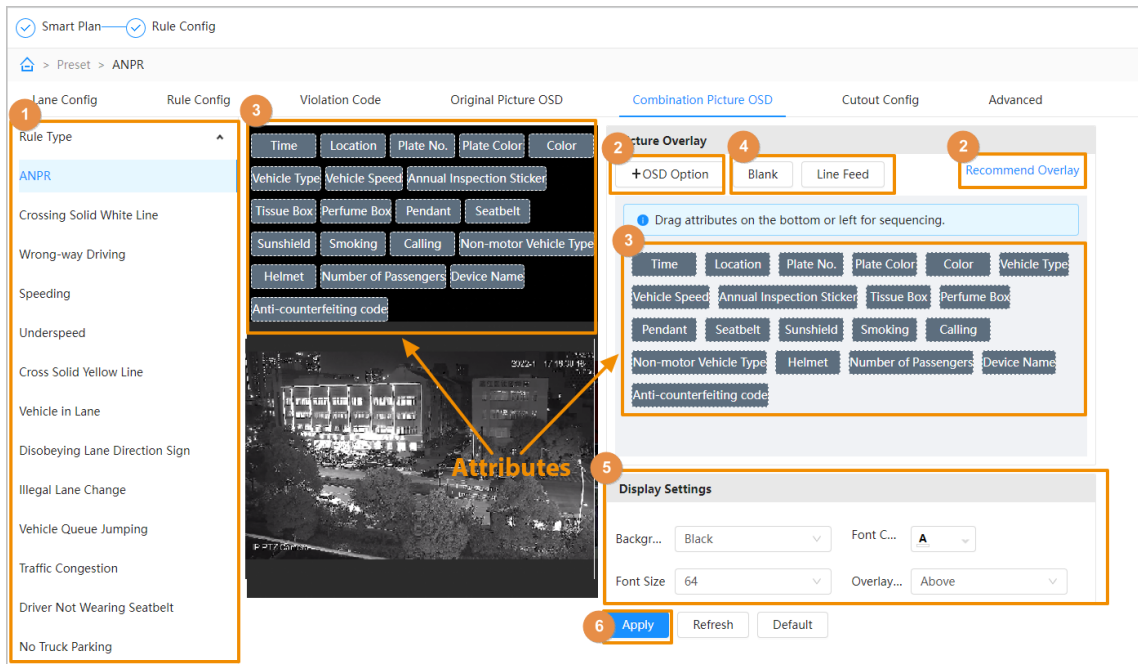
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

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

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

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

Figure 10-92 Combination picture OSD



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

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 10-42 Description of combination picture OSD parameters

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

Step 8 Click **Apply**.

10.10.5.6 Allowlist and Blocklist Configuration (ANPR)

You can add plates to the allowlist and blocklist database and configure event linkage for them.

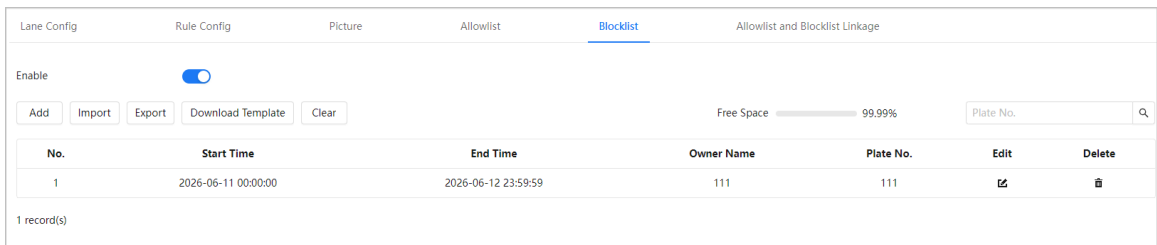
Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

Step 3 Click the **Allowlist** or **Blocklist** tab, and then enable the corresponding function.

Figure 10-93 Allowlist (blocklist)

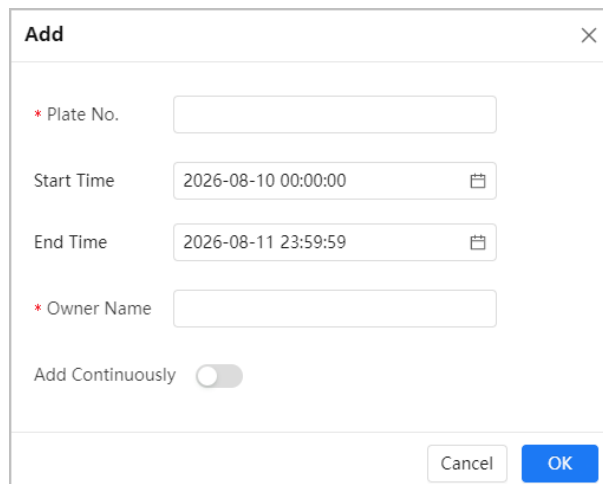


No.	Start Time	End Time	Owner Name	Plate No.	Edit	Delete
1	2026-06-11 00:00:00	2026-06-12 23:59:59	111	111		

Step 4 Configure the allowlist or blocklist database.

1. Click **Add** to enter the allowlist or blocklist information including plate number, start time, end time and owner name.

Figure 10-94 Add plates



Enable **Add Continuously**, and you can add plates continuously without closing the window.

2. Click **OK**.

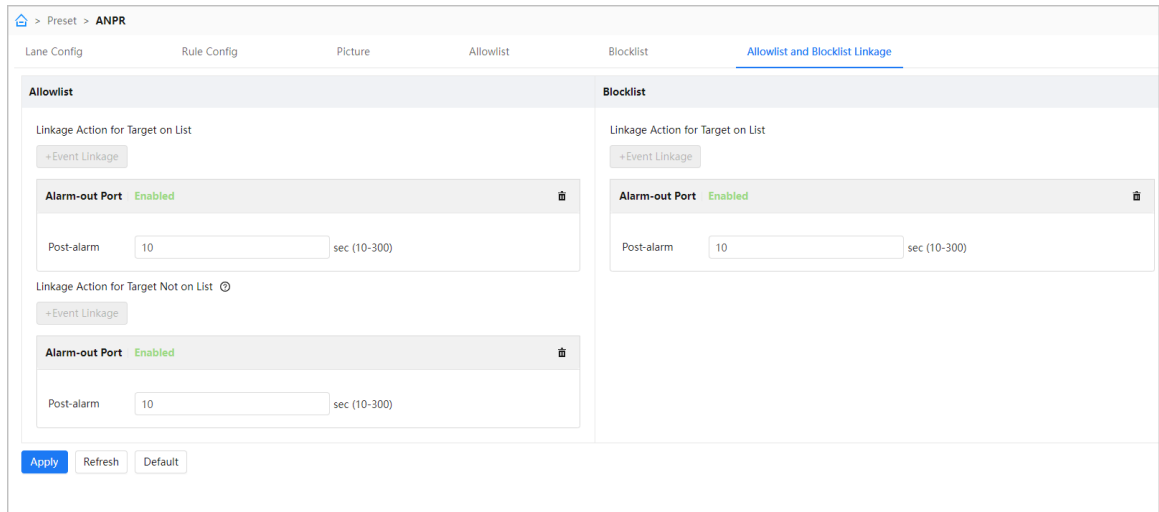
- Click **Download Template**, and then the system will download the traffic import allowlist or blocklist template to your computer. You can open it to enter the information, and then click **Import** to import it to the system.

- Click **Export** to export the allowlist/blocklist information on the system to your computer.
- Click **Clear** to clear all information in the allowlist or blocklist database.

Step 5 Click **Allowlist and Blocklist Linkage** to enter the linkage page.

Step 6 Click **Event Linkage**, add linkage actions, and then set linkage parameters to configure them. For details, see "4.6.1.2 Alarm Linkage".

Figure 10-95 Allowlist and blocklist linkage



Step 7 Click **Apply**.

10.10.5.7 Cutout Configuration (ANPR)

Configure the cutout of the driver and front seat passenger, and overlay the face information from the rules of ANPR and driver not wearing seat belts on the picture.

Procedure

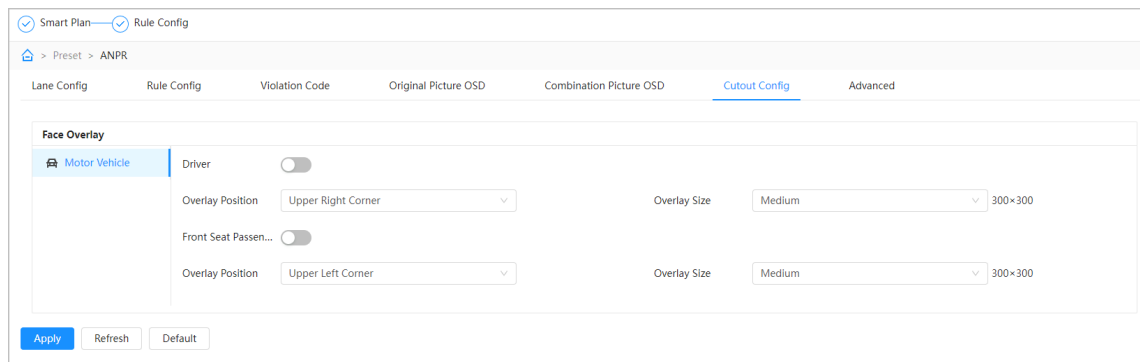
Step 1 Select **AI > AI Config > Smart Plan**.

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

Step 3 Click **Cutout Config** tab, and then configure cutout overlay parameters.

- **Driver** : Click ☐ to enable driver cutout function.
- **Front Seat Passenger** : Click ☐ to enable front seat passenger cutout function.
- **Overlay Position** : Set the overlay position of the cutout.
- **Overlay Size** : Set the overlay size of the cutout.

Figure 10-96 Cutout configuration



Step 4 Click **Apply**.

10.10.5.8 Advanced Configuration (ANPR)

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

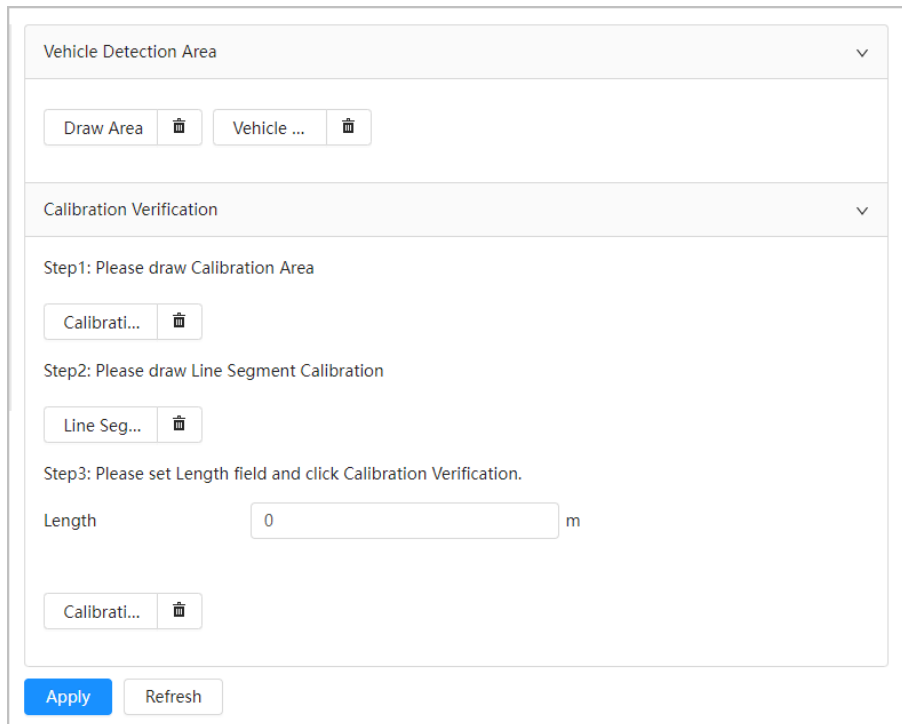
Step 3 Click **Advanced** tab, and then select the preset from the drop-down list.

Step 4 Draw the vehicle detection area.

Click  to delete the drawn area.

- **Draw Area** : It is used for the detection area of all rules. Only targets in the detection area will be detected.
- **Vehicle Area** : It is used for the collection and statistics of traffic data, such as traffic flow and occupancy rate.

Figure 10-97 Advanced configuration



The screenshot shows a web-based configuration interface. At the top, there is a section titled 'Vehicle Detection Area' with a dropdown arrow. Below it are two buttons: 'Draw Area' and 'Vehicle ...', each with a trash icon. The next section is 'Calibration Verification', also with a dropdown arrow. It contains three steps: 'Step1: Please draw Calibration Area' with a 'Calibrati...' button and trash icon; 'Step2: Please draw Line Segment Calibration' with a 'Line Seg...' button and trash icon; and 'Step3: Please set Length field and click Calibration Verification.' which includes a 'Length' input field with the value '0' and a unit 'm'. At the bottom of the calibration section are 'Calibrati...' and trash icons. At the very bottom of the interface are 'Apply' and 'Refresh' buttons.

Step 5 Configure calibration verification.

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

Step 6 Click **Apply**.

10.10.6 Configuring Littering

10.10.6.1 Area Configuration (Littering)

Prerequisites

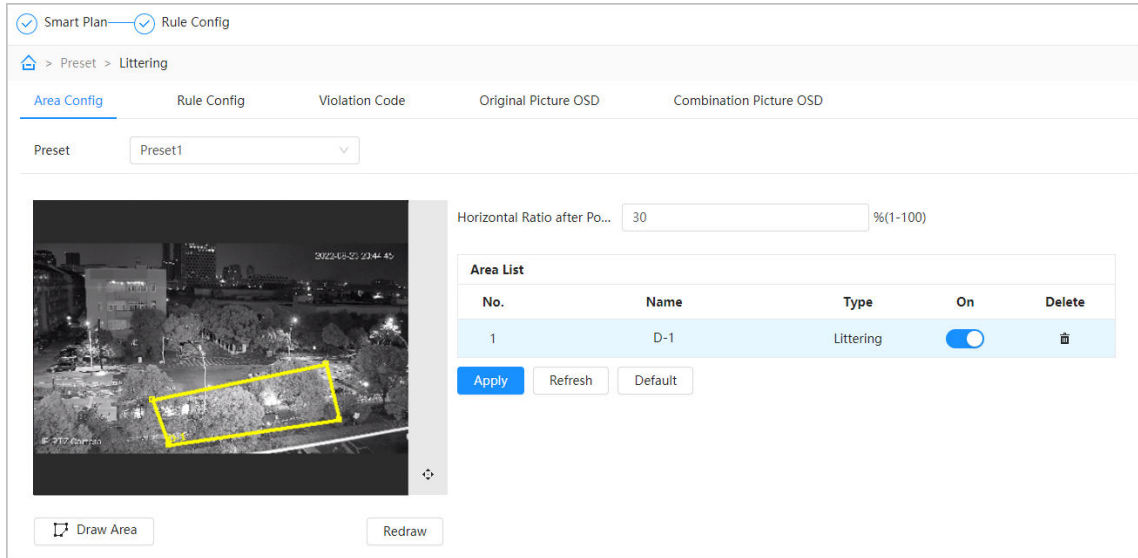
The smart plan of the littering has been configured.

Procedure

- Step 1 Select **AI > AI Config > Smart Plan**.
- Step 2 Click **Rule Config**, and then select **Littering**.
- Step 3 Click **Area Config** tab, and then select the preset from the drop-down list.
- Step 4 Set the horizontal ratio after positioning.

Set the proportion of the target object in the horizontal direction of the picture after positioning.

Figure 10-98 Area configuration



Step 5 Click **Draw Area** to draw an area where the rule take effect on the live view page, and then right-click to finish the drawing.

You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.

- Click  in the area list to delete the drawn detection area of the filtering rule.
- Click  to adjust the monitoring screen through the PTZ control panel.
- Click the **Name** in the area list to modify the name of the rule.

Step 6 Click **Apply**.

10.10.6.2 Rule Configuration (Littering)

Prerequisites

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

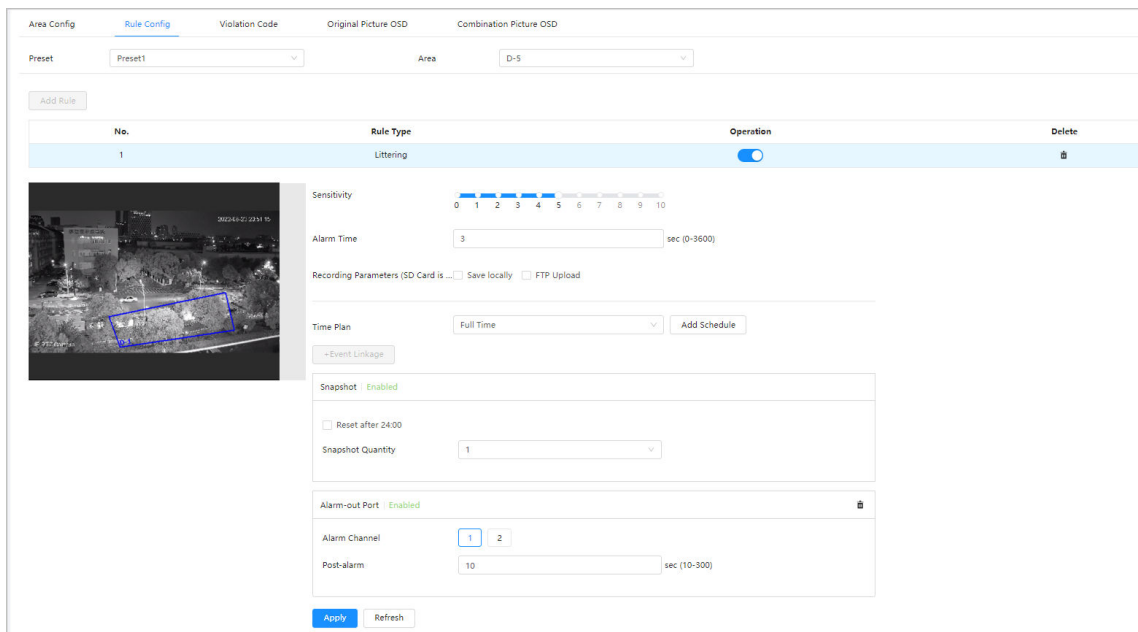
Step 2 Click **Rule Config**, and then select **Littering**.

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

Step 4 Click **Add Rule** to add the littering detection rule.

The rule is enabled by default. Click  to delete the added rule.

Figure 10-99 Add a rule



Step 5 Configure rule parameters.

Table 10-43 Description of rule configuration parameters

Parameter	Description
Sensitivity	Set the sensitivity of littering detection.
Alarm Time	Set the alarm time.
Save locally	Select the storage location of the videos. You can select Save locally or FTP Upload .
FTP Upload	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of snapshots.

Step 6 Set arming periods and alarm linkage action.

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

Step 7 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page by clicking , you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

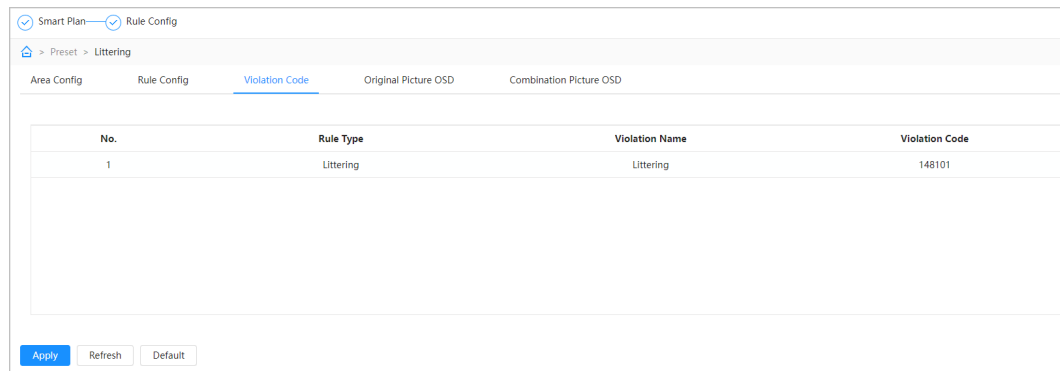
10.10.6.3 Violation Code (Littering)

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

Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Littering**.
- Step 3** Click **Violation Code** tab.
- Step 4** Click **Violation Name** and **Violation Code** to modify the name and code.

Figure 10-100 Violation code



No.	Rule Type	Violation Name	Violation Code
1	Littering	Littering	148101

Apply Refresh Default

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

10.10.6.4 Original Picture OSD (Littering)

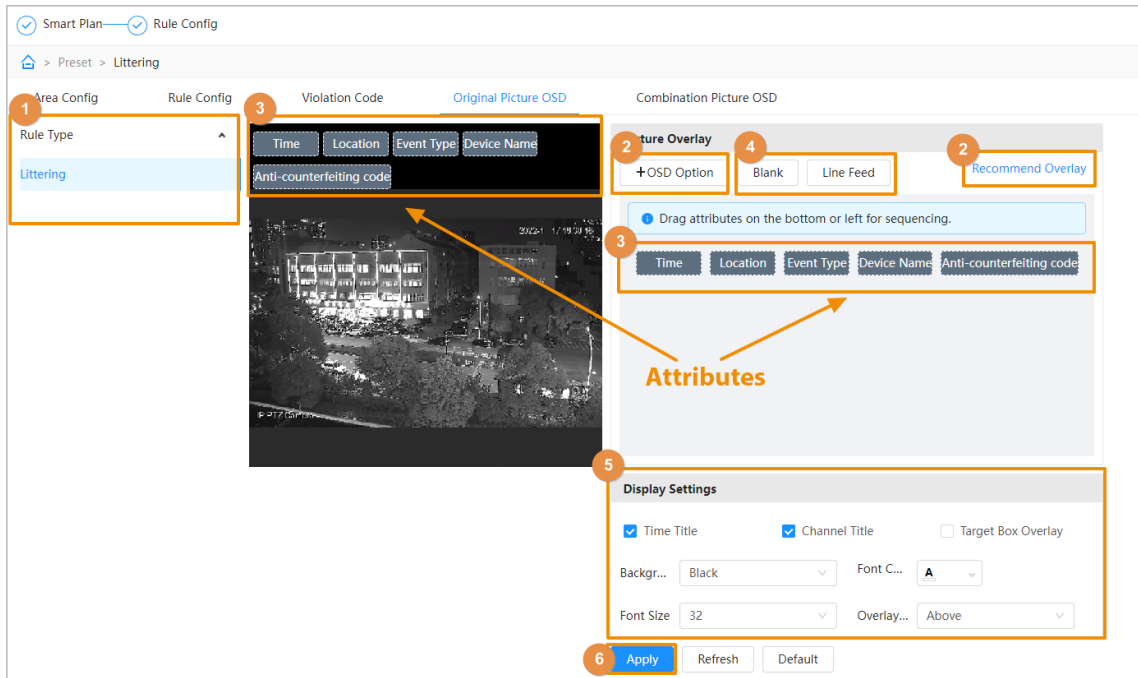
You can set the content and style of the OSD information of the original snapshot.

Procedure

- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Click **Rule Config**, and then select **Littering**.
- Step 3** Click **Original Picture OSD** tab, and then select the rule type from the left side of the page.
- Step 4** Click **Recommend Overlay** or click **OSD Option** to select overlay information.
Recommend Overlay indicates a combination of common OSD options is generated automatically.
- Step 5** Drag attributes above the live view screen or in the picture overlay area to adjust the sequence.
 - Hover over the attribute, and then a red × appears in the upper-right corner of the attribute, for example . Click × to delete the attribute.

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

Figure 10-101 Original picture OSD (littering)



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

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 10-44 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.
Channel Title	Select to display the channel title on the OSD information.
Target Box Overlay	Select to enable the target box overlay function on the OSD information.
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position of the OSD information from Above , Below or None . When you select None , the OSD Location is displayed on the page, and you can select from Top Left , Top Right , Bottom Left and Bottom Right .
OSD Location	

Parameter	Description
Report Picture	Select to save the pictures to local computer or upload to the platform.
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or i .
Quality	Set the picture quality. The larger the value, the better the picture quality.

Step 8 Click **Apply**.

10.10.6.5 Combination Picture OSD (Littering)

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

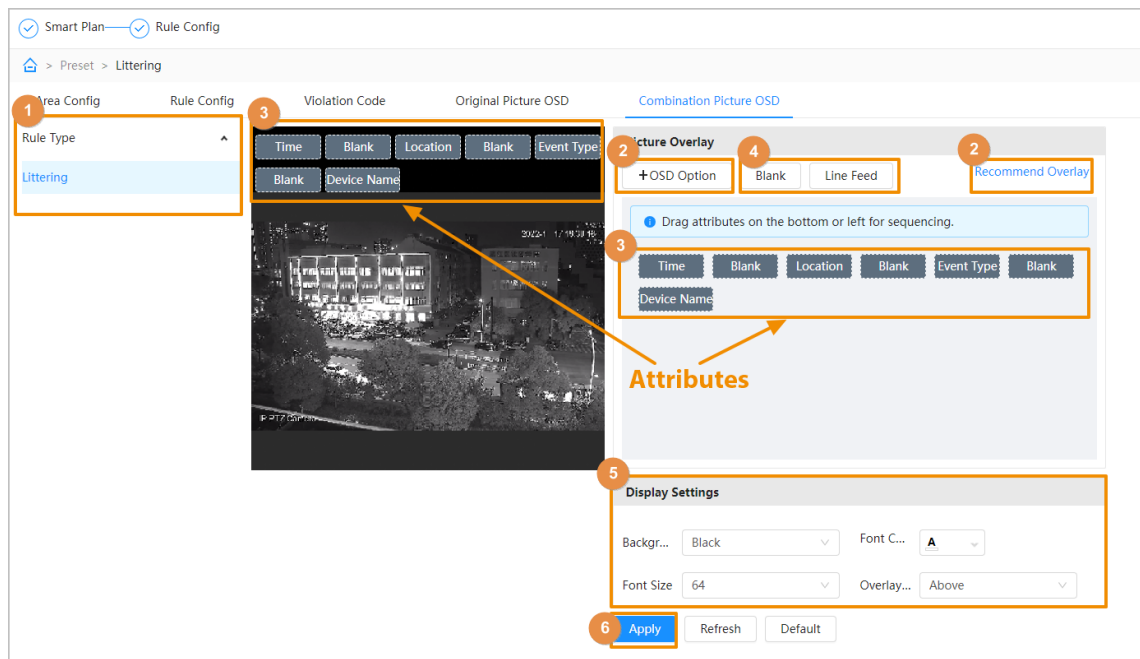
Step 4 Click **Recommend Overlay** or click **OSD Option** to select overlay information.

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

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

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

Figure 10-102 Combination picture OSD (littering)



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

Step 7 Configure parameters.

The parameters might vary depending on different rule types.

Table 10-45 Description of combination picture OSD parameters

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

Step 8 Click **Apply**.

10.10.7 Configuring Traffic Event

10.10.7.1 Scene Setting (Traffic Event)

Prerequisites

The smart plan of the traffic event has been configured.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

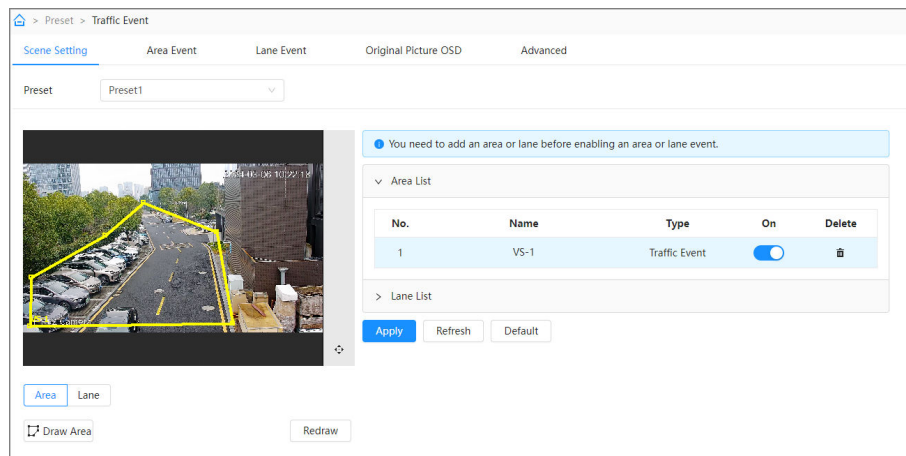
Step 3 Click **Scene Setting** tab, and then select the preset from the drop-down list.

Step 4 Click **Draw Area** to draw an area where the rule takes effect on the live view page, and then right-click to finish the drawing.

You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.

- Click  in the area list to delete the drawn detection area of the filtering rule.
- Click  to adjust the monitoring screen through the PTZ control panel.
- Click **Name** in the area list to modify the name of the rule.

Figure 10-103 Area configuration



Step 5 Configure lanes.

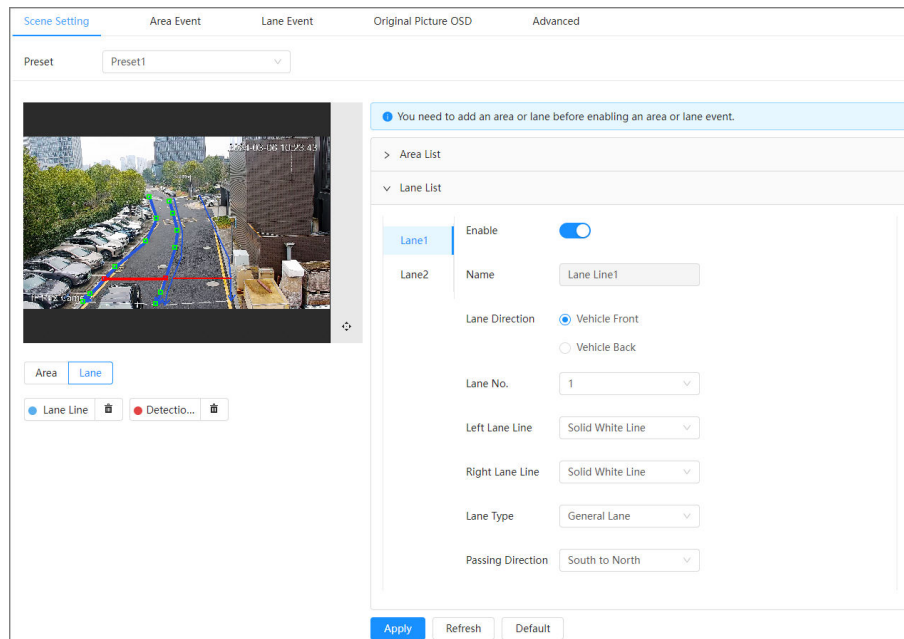
- Click **Lane Line** and **Detection Line** respectively, and then draw lines in the monitoring screen.

The lanes are enabled by default after drawing. Click  to delete the lane line or detection line.

- Lane Line:** Draw lines of the lanes to be detected according to the actual traffic situation. Two lane lines are required for each lane. A blue line with arrow will be displayed when drawing a lane line, and the direction of arrow indicates the direction of vehicles.

- **Detection Line:** Draw the detection line which triggers video capture, it is as functional as the line in real traffic. It will trigger or take snapshot when the vehicle crosses the detection line. The detection line is shown as a red line, and only displays within the range of drawn lane lines. Lines outside the range will not be displayed.

Figure 10-104 Lane configuration



2. Configure lane parameters.

Table 10-46 Description of lane parameters

Parameter	Description
Lane Direction	You can select Vehicle Front or Vehicle Back . The direction of the lane arrow is changed simultaneously when you select the lane direction. The default is Vehicle Front .
Lane No.	You can configure from 1-16. The default number starts with 1.
Left Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Right Lane Line	You can select from Solid White Line , White Dotted Line and Solid Yellow Line . The default is Solid White Line .
Lane Type	You can select from General Lane and Emergency Lane . The default is General Lane .
Passing direction	You can select from South to North , West to East , North to South and East to West . The default is South to North .

Step 6 Click **Apply**.

10.10.7.2 Area Event (Traffic Event)

Prerequisites

The detection area is drawn in **Scene Setting**.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

You can add one or multiple traffic event rules for different areas of a single preset point.

1. Click **Add Rule**, and then select the rule type.

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



- Click  corresponding to the added rule to copy the configuration to all presets and areas that contain this rule.
- Click  to delete a rule.

Figure 10-105 Adding rules (traffic event)

Scene Setting				
Area Event				
Lane Event				
Original Picture OSD				
Advanced				
Preset	Preset1	Area	VS-1	
Add Rule				
No.	Rule Type	Operation	Copy	Delete
1	Animal			
2	Parking Detection			
3	Heat Detection			
4	Smoke Detection			
5	Pedestrian			
6	Accident			

Table 10-47 Rule type description

Rule Type	Description
Animal	When the animal with four legs is detected within the rule area and reaches the set duration, an alarm is triggered.
Parking Detection	When the motor vehicle stops within the rule area and reaches the set duration, an alarm is triggered.
Accident	When the accident is detected within the rule area, and the parking duration and pedestrian stay time reach the set threshold, an alarm is triggered.
Heat Detection	When the heat is detected within the rule area, an alarm is triggered.

Rule Type	Description
Smoke Detection	When the smoke is detected within the rule area, an alarm is triggered.
Wrong-way Driving	When the motor vehicle drives in an abnormal driving direction and reaches the set duration, an alarm is triggered.
Littering	When the object left by the vehicle or pedestrian is detected in the rule area, an alarm is triggered.  The object can be the box, case or other rectangular objects with a three-dimensional sense.
Pedestrian	When the pedestrian is detected in the rule area, an alarm is triggered.

2. Configure rule parameters for traffic events.



The parameters might vary depending on different rule types.

Table 10-48 Description of rule configuration parameters

Rule Type	Parameter	Description
Animal	Sensitivity	Set the sensitivity of animal detection. The larger the value, the higher the sensitivity.
	Alarm Duration Threshold	Set the alarm duration. The default is 3 seconds. An alarm is triggered when the time the animal appears in the detection area reaches the set alarm duration threshold.
Wrong-way Driving	Sensitivity	Set the sensitivity of wrong-way driving. The larger the value, the higher the sensitivity.
	Normal Driving Direction	Click Draw to draw the normal driving direction.
	Duration Threshold for Wrong-way Driving	Set the duration threshold for wrong-way driving. An alarm is triggered when the wrong-way driving time exceeds the set threshold.
	Deviation Threshold for Wrong-way Driving	Set the deviation threshold for wrong-way driving. An alarm is triggered when the wrong-way driving deviation exceeds the set threshold.

Rule Type	Parameter	Description
Parking Detection	Sensitivity	Set the sensitivity of parking detection. The larger the value, the higher the sensitivity.
	Parking Duration	Set the parking duration. The default is 10 seconds. An alarm is triggered when the parking duration exceeds the set duration.
	Congestion Threshold for Parking Vehicles	Set the threshold for the number of vehicles stopping in a congested state. The default is 10 seconds. No alarm will be triggered when the number exceeds the set threshold.
	Suppress Repeated Alarms	Enable the function to reduce repeated alarms for the same target.
	Suppress Missed Alarms	Enable the function to reduce missed alarms.
	Filter Static Vehicles	Enable the function to capture the target in motion. The function is not enabled by default.
	Repeatedly Capture Multiple Illegal Parking	After the function is enabled, when the same target stops multiple times in the same detection area, it will be captured for multiple times.
Accident	Monitoring Duration after Target Disappears	Set the duration for which the target disappears from the detection area and cannot be detected.
	Sensitivity	Set the sensitivity of accident detection. The larger the value, the higher the sensitivity.
	Parking Duration Threshold	Set the parking duration threshold. The default is 50 seconds. An alarm is triggered when the parking duration exceeds the set threshold.
	Pedestrian Stay Time Threshold	Set the pedestrian stay time threshold. The default is 3 seconds. An alarm is triggered when the pedestrian stay time exceeds the set time threshold.

Rule Type	Parameter	Description
	Alarm Interval	Set the alarm interval. The default is 600 seconds. After setting the alarm interval, an alarm is triggered according to the set interval if the accident is ongoing.
	Congestion Threshold for Parking Vehicles	Set the threshold for the number of vehicles stopping in a congested state. The default is 14 seconds. No alarm will be triggered when the number exceeds the set threshold.
Heat Detection	Sensitivity	Set the sensitivity of heat detection. The larger the value, the higher the sensitivity.
	Alarm Duration Threshold	Set the alarm duration. The default is 4 seconds. An alarm is triggered when the fire appears in the detection area, and reaches the set alarm duration threshold.
	Filter Alarms from Same Location	Enable the function to filter the alarm when the target that triggers an alarm is at the same location.
	Repeat Alarm Time	Set the repeat alarm time. After an alarm is triggered, a repeat alarm is triggered when the fire appears in the detection area, and reaches the set repeat alarm time.
	Threshold for Overlapped Area Ratio	Set the threshold for overlapped area ratio. The larger the value, the more easily the alarm is triggered.
Smoke Detection	Sensitivity	Set the sensitivity of smoke detection. The larger the value, the higher the sensitivity.
	Alarm Duration Threshold	Set the alarm duration. The default is 4 seconds. An alarm is triggered when the smoke is detected in the detection area and reaches the set alarm duration threshold.
	Filter Alarms from Same Location	Enable the function to filter the alarm when the target that triggers an alarm is at the same location.

Rule Type	Parameter	Description
	Repeat Alarm Time	Set the repeat alarm time. After an alarm is triggered, a repeat alarm is triggered when the smoke appears in the detection area and reaches the set repeat alarm time.
	Threshold for Overlapped Area Ratio	Set the threshold for overlapped area ratio. The larger the value, the more easily the alarm is triggered.
Pedestrian	Sensitivity	Set the sensitivity of pedestrian detection. The larger the value, the higher the sensitivity.
	Alarm Duration Threshold	Set the alarm duration threshold. The default is 3 seconds. An alarm is triggered when the pedestrian appears in the detection area and reaches the set alarm duration.
	Target Type	Select the non-vehicle as the target type. After enabling the function, the non-motor vehicle within the detection area is regarded as the pedestrian.
Littering	Sensitivity	Set the sensitivity of littering detection. The larger the value, the higher the sensitivity.
	Alarm Duration Threshold	Set the alarm duration. The default is 6 seconds. An alarm is triggered when a target object appears in the detection area and reaches the set alarm duration threshold.
	Repeat Alarm Time	Set the repeat alarm time. After an alarm is triggered, a repeat alarm is triggered when the target object appears in the detection area and reaches the set repeat alarm time.

Step 4 Set arming periods and alarm linkage action.

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

Traffic Flow Statistics do not support setting the event linkage.

Step 5 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

10.10.7.3 Lane Event (Traffic Event)

Prerequisites

The lane line and detection line are drawn in **Scene Setting**.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

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

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

You can add one or multiple lane event rules for different lane lines of a single preset point.

1. Click **Add Rule**, and then select the rule type.

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



- Click  corresponding to the added rule to copy the configuration to all presets and lanes that contain this rule.
- Click  to delete a rule.

Figure 10-106 Adding rules (traffic event)

Smart Plan

Rule Config

> Preset > Traffic Event

Scene Setting

Area Event

Lane Event

Original Picture OSD

Advanced

Preset

Preset1

Lane Li...

Lane Line1

Add Rule

No.	Rule Type	Operation	Copy	Delete
1	Traffic Congestion			
2	Traffic Flow Statistics			

Table 10-49 Rule type description

Rule Type	Description
Traffic Congestion	When the traffic congestion occurs in the lane, an alarm is triggered.
Traffic Flow Statistics	Count the traffic flow in the lane.

2. Configure rule parameters for traffic events.



The parameters might vary depending on different rule types.

Table 10-50 Description of rule configuration parameters

Rule Type	Parameter	Description
Traffic Congestion	Sensitivity	Set the sensitivity of traffic congestion. The larger the value, the higher the sensitivity.
	Queue Length Threshold	Set the queue length threshold. The default is 50. An alarm is triggered after the time of traffic congestion exceeds the set length threshold.
	Alarm Interval	Set the alarm interval. The default is 60 seconds. An alarm is triggered according to the set interval if traffic congestion is ongoing.
	Delay Time	Set the duration after an alarm is triggered. The default is 10 seconds. For example, if the delay time is 10 seconds, the alarm persists 10 seconds before ending.
	Discontinuous Time Threshold	Set the discontinuous time threshold. The default is 1 second. If the traffic is not congested within the set time threshold, the alarm is cancelled.
Traffic Flow Statistics	Statistical Cycle	Set the statistical cycle to count the traffic flow in the lane during the set cycle. The default is 10 minutes.

Step 4 Set arming periods and alarm linkage action.

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

Step 5 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

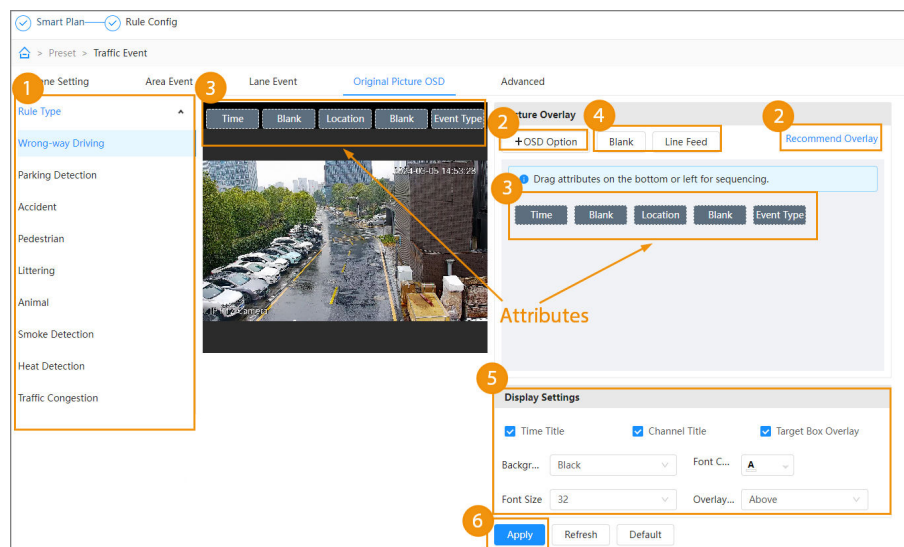
10.10.7.4 Original picture OSD (Traffic Event)

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

Procedure

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

Figure 10-107 Original picture OSD (traffic event)



- Step 6** Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.
- Step 7** Configure parameters.
The parameters might vary depending on different rule types.

Table 10-51 Description of original picture OSD parameters

Parameter	Description
Time Title	Select to display the time title on the OSD information.

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

Step 8 Click **Apply**.

10.10.7.5 Advanced Configuration (Traffic Event)

Procedure

Step 1 Select **Smart Traffic Management** > **AI Config** > **Smart Plan**.

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

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

Step 4 Click **Draw Area** to draw the vehicle detection area.

Draw Area : It is used for the detection area of all rules. Only targets in the detection area will be detected.

Click  to delete the drawn area.

Figure 10-108 Advanced configuration

Vehicle Detection Area

Draw Area

Calibration Verification

Step1: Please draw Calibration Area

Calibrati...

Step2: Please draw Line Segment Calibration

Line Seg...

Step3: Please set Length field and click Calibration Verification.

Length

0

m

Calibrati...

Apply

Refresh

Step 5 Configure calibration verification.

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

Step 6 Click **Apply**.

10.11 Configuring Classroom Behavior Analysis

When the system detects that a student is exhibiting behaviors such as reading and writing, reading, listening to the teacher, raising their hand, lying on the table, playing with their mobile phone, or turning around, an alarm linkage will be triggered.

Procedure

Step 1 Select **AI > AI Config > Smart Plan > Smart Plan**.

Step 2 Click  beside **Classroom Behavior Analysis** to enable this function and click **Next**.



Classroom behavior analysis and exam behavior analysis cannot be enabled at the same time.

Step 3 Click **Classroom Behavior Analysis** to enter the rule configuration page.

Step 4 Click **Add Rule** and configure the parameters.

Figure 10-109 Configure the rule of classroom behavior analysis

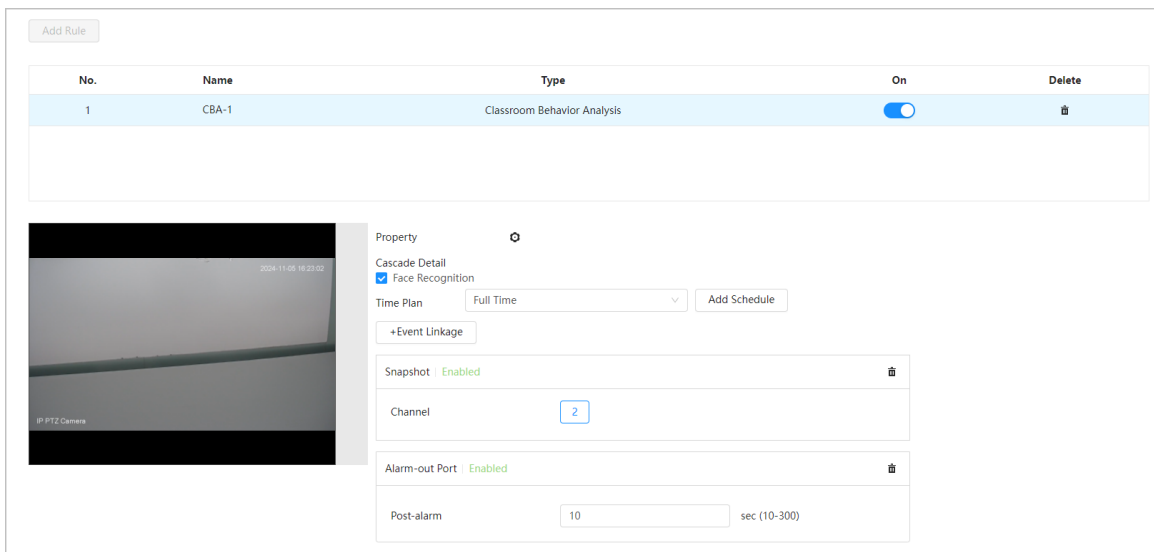


Table 10-52 Parameter description of classroom behavior analysis

Parameter	Description
Property	Click  to set the types of classroom behaviors to be detected, which include Read/Write , Hands Up, Play with Mobile Phone, Listen to Teacher, Lie on the Table and Turn .
Cascade Detail	Select Face Recognition . When the classroom behaviors are detected, if the face recognition is enabled, the faces associated with that behavior will be linked.

Step 5 Set arming periods and alarm linkage action.

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

Step 6 Click **Apply**.

If you need to click  on the upper-right corner of the page to view alarm information, you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

10.12 Configuring Exam Behavior Analysis

When the system detects that a student is exhibiting behaviors during the exam such as writing, peeping down, standing up, raising their hand, delivering something, picking up something, playing with their mobile phone, or looking back, an alarm linkage will be triggered.

Procedure

Step 1 Select **AI > AI Config > Smart Plan > Smart Plan**.

Step 2 Click  beside **Exam Behavior Analysis** to enable this function and click **Next**.



Exam behavior analysis and classroom behavior analysis cannot be enabled at the same time.

Step 3 Click **Exam Behavior Analysis** to enter the rule configuration page.

Step 4 Click **Add Rule** to select the detection type.

Step 5 (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 delete the detection line.

Step 6 Configure the parameters.

Figure 10-110 Configure the rule of exam behavior analysis

No.	Name	Rule Type	On	Delete
1	SI-1	Hands Up Detection	☒	
2	SI-2	Delivery Detection	☒	
3	SI-3	Stand Up Detection	☒	



Sensitivity

Duration sec (1-10)

Repeat Alarm Time sec (0-10)

Time Plan

Snapshot ☒ Enabled

Channel

Alarm-out Port ☒ Enabled

Post-alarm sec (10-300)

Table 10-53 Parameter description of exam behavior analysis

Parameter	Description
Sensitivity	Adjust the filter sensitivity. With higher value, it is easier to trigger an alarm, but the false detection rate is higher.
Duration	An alarm is triggered when the time a person exhibits this behavior (such as standing up) reaches the specified duration.
Repeat Alarm Time	When an alarm is triggered, if this status persists for a duration that reaches the repeat alarm time, another alarm will be triggered. A value of 0 indicates that the repeat alarm function is disabled.

Step 7 Set arming periods and alarm linkage action.

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

Step 8 Click **Apply**.

If you need to click  on the upper-right corner of the page to view alarm information, you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

10.13 Configuring Stereo Analysis

Configure the rules used on stereo analysis, namely stand detection.

Background Information

Stand detection is to trigger an alarm when it detects that there is exactly one person standing. This is applicable in classroom scenarios to monitor students.

Procedure

Step 1 Select **AI > AI Config > Smart Plan > Smart Plan**.

Step 2 Click  beside **Stereo Analysis** to enable this function and click **Next**.

Step 3 Click **Stereo Analysis** to enter the rule configuration page.

Step 4 Click **Add Rule** to select **Stand Detection**.

Step 5 (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 delete the detection line.

Step 6 Configure the parameters.

Figure 10-111 Configure the rule of stereo analysis

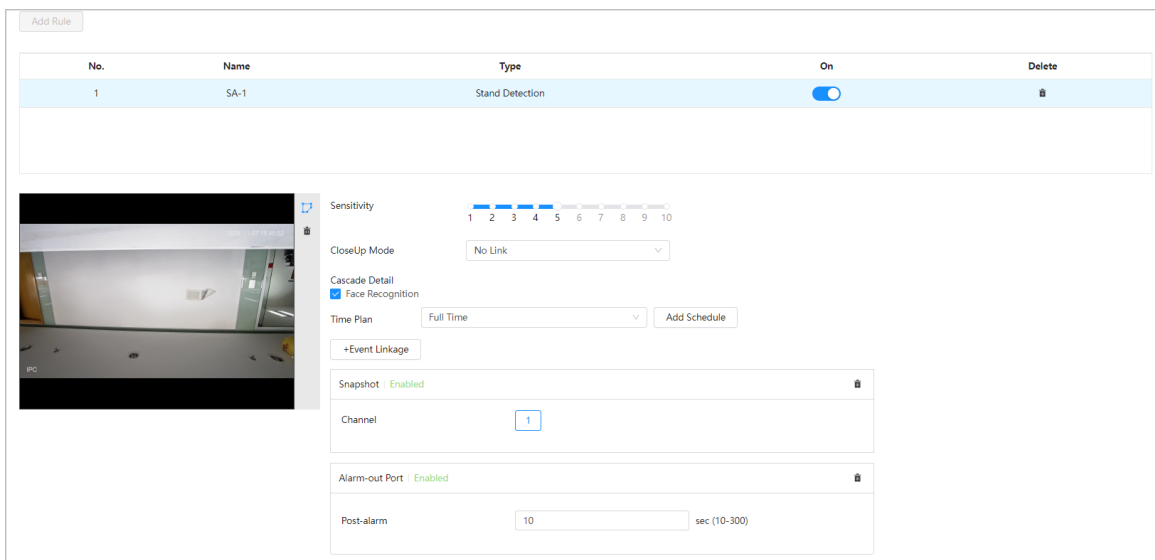


Table 10-54 Description of stereo analysis parameters

Parameter	Description
Sensitivity	Adjust the filter sensitivity. With higher value, it is easier to trigger an alarm, but the false detection rate is higher.

Parameter	Description
CloseUp Mode	• No Link : Close the closeup mode. • Track CloseUp : You can draw a rectangle that will be tracked closely. • Fixed Scale CloseUp : You can draw an irregular box and set the fixed enlarge scale from x1.0 to x5.0.  Right-click the mouse to complete the drawing.
Cascade Detail	Select Face Recognition . When the detected behaviors are triggered, if the face recognition is enabled, the faces associated with that behavior will be linked.



When you set up the stand detection function, it is recommended to draw the detection area where students are located.

Step 7 Set arming periods and alarm linkage action.

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

Step 8 Click **Apply**.

If you need to click  on the upper-right corner of the page to view alarm information, you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

10.14 Configuring Violation Snapshot

10.14.1 Scene Setting

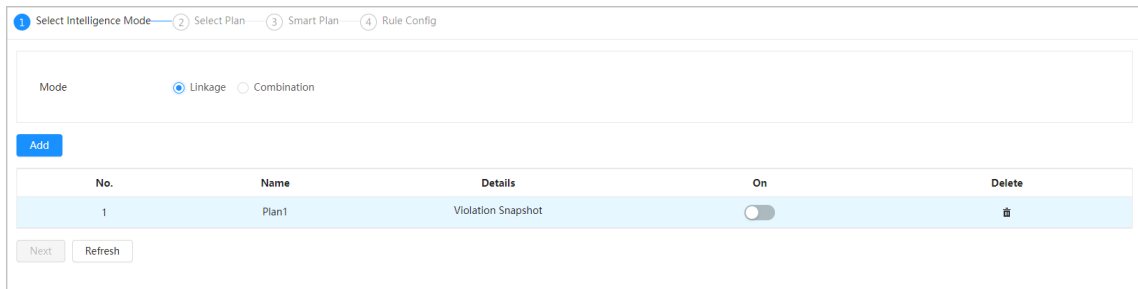
Configure the scenes of violation snapshot, including drawing area, setting horizontal ratio after positioning and snapshot parameters.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

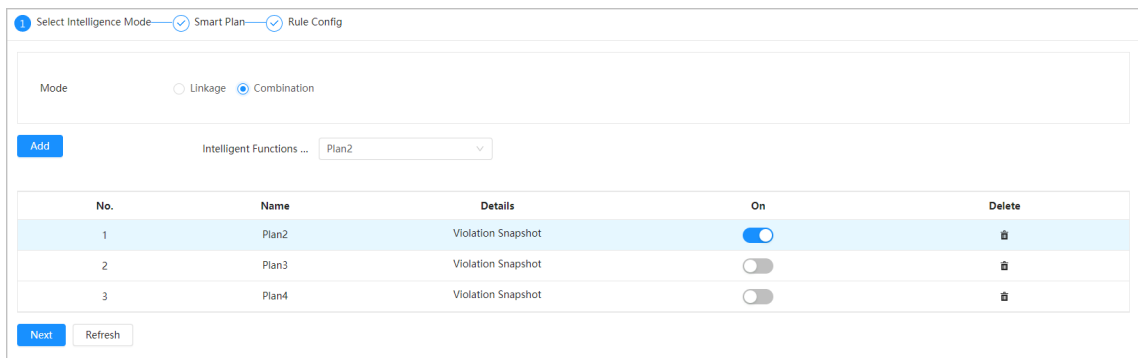
Step 2 Select the added plan that has been enabled, and then click **Rule Config**.

Figure 10-112 Select smart plan (linkage mode)



No.	Name	Details	On	Delete
1	Plan1	Violation Snapshot	☐	

Figure 10-113 Select smart plan (combination mode)



No.	Name	Details	On	Delete
1	Plan2	Violation Snapshot	☒	
2	Plan3	Violation Snapshot	☐	
3	Plan4	Violation Snapshot	☐	

Step 3 Click **Violation Snapshot** , and then click **Scene Setting** tab.

Step 4 Select channel from the drop-down list, and then click **Area** to configure the area.

1. Set the **Horizontal Ratio after Positioning**.

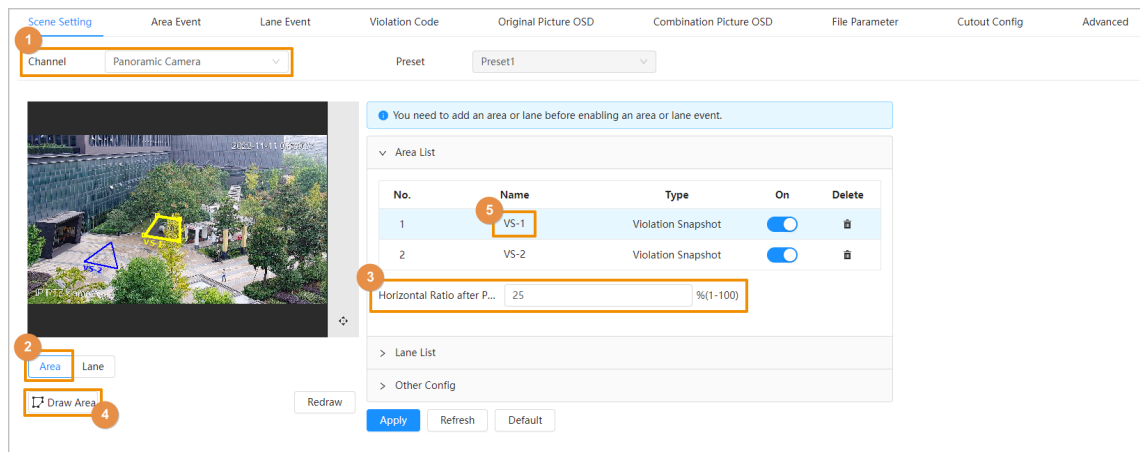
Horizontal Ratio After Positioning : Set the proportion of the target object in the horizontal direction of the picture after positioning.

2. Click **Draw Area** to draw an area where the rule takes effect on the live view page, and then right-click to finish the drawing.

You can draw multiple detection areas, and the function is enabled by default after the rule is drawn. Click **Redraw** to redraw the detection area.

- Click  in the area list to delete the drawn detection area of the filtering rule.
- Click  to adjust the monitoring screen through the PTZ control panel.

Figure 10-114 Configure the area



3. Click the **Name** in the area list to modify the name of the rule.

Step 5 Click **Lane** to configure the lanes.

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

You can draw multiple lanes, and the lanes are enabled by default after

drawing. Click  to delete the lane line or detection line.

- **Lane Line** : Draw lines of the lanes to be detected according to the actual traffic situation.

Two lane lines are required for each lane. A blue line with arrow will be displayed when drawing a lane line, and the direction of the arrow indicates the direction of vehicles.

- **Detection Line** : Draw the detection line which triggers video capture, it is as functional as the line in real traffic. It will trigger and take snapshot when the vehicle crosses the detection line.

The detection line is shown as a red line, and only displays within the range of drawn lane lines. Lines outside the range will not be displayed.

Table 10-56 Description of other configuration parameters

Parameter	Description
Non-motor Vehicle Snapshot	After enabling, the Camera can capture the non-motor vehicles.
Unlicensed Vehicle Snapshot	After enabling, when the license plate is not recognized or the vehicle has no license plate, it will be captured and reported as an unlicensed vehicle.
Target Plate Size	Set the pixel size of the target license plate.
Plate Matching Ratio	Set the matching ratio of two captured tight shots of the license plate. It is 100 by default.

Step 7 Click **Apply**.

10.14.2 Configuring Area Event

Set the illegal parking detection rules for different regions.

Prerequisites

The detection area is drawn in **Scene Setting**.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Select the added plan that has been enabled, and then click **Rule Config**.

Step 3 Click **Violation Snapshot**, and then click **Area Event** tab.

Step 4 Select the detection area from the **Area** drop-down list.

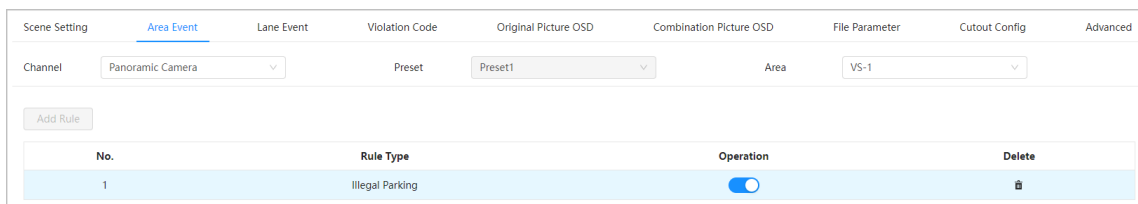
Only one detection rule can be added to an area where a preset point is specified for a channel.

Step 5 Click **Add Rule**, and then select the rule type.

The supported rule types include **Illegal Parking**, **Illegal Parking B**, **Illegal Parking C**, and **Illegal Parking D**.

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

Figure 10-116 Area event



No.	Rule Type	Operation	Delete
1	Illegal Parking	☒	

Step 6 Configure rule parameters for area events.

The parameters might vary depending on different rule types.

Figure 10-117 Configure area event

Sensitivity

0 1 2 3 4 5 6 7 8 9 10

Min Duration

5

sec(5-300)

Alarm Filter Duration

0

min(0-1440)

Recording Parameters (SD...
☒ Save Locally
☒ FTP Upload

Time Plan

Full Time

Add Schedule

+Event Linkage

Snapshot | Enabled

☐ Reset after 24:00

Snapshot Quantity

4

Snapshot Setting

Violation Time OSD

1

☐ Replace Private Picture

2

Please configure the private pictures in "File Parameter".

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

Alarm-out Port | Enabled

Post-alarm

10

sec (10-300)

Audio Linkage | Enabled

Play Count

1

(1-3)

File

wav

Apply

Refresh

Table 10-57 Description of rule configuration parameters (area event)

Parameter	Description
Sensitivity	Set the sensitivity of the area illegal parking snapshot or accident snapshot.
Min Duration	When the illegal parking is detected to exceed the minimum duration, the illegal parking is judged to have triggered.
Alarm Filter Duration	Set the uploading interval of the snapshot of the same vehicle. When the same alarm is triggered for several times within the set time, the system uploads only one alarm event. It is 1440 minutes (1 day) by default.

Parameter	Description
FTP Upload	Select the storage location of the videos. You can select Save locally or FTP Upload .
Save locally	 Only when an SD card has been formatted and installed on the device can the video be saved locally.
Reset after 24:00	Select the checkbox, and then the uploading interval of the composite picture will be cleared at 0 o'clock every day.
Snapshot Quantity	Set the number of the snapshot; the value ranges from 2 to 6. Set the number of snapshots. Click Snapshot Setting to set the Camera capture distant view, medium view, close view or plate feature, and the snapshot interval between two pictures.
Violation Time OSD	Set on which snapshot you want to overlay the illegal time. The value ranges from 1 to 4.
Replace Private Picture	Select the check box, select the picture number in the list, and then the picture with the number will be replaced by the picture uploaded by the user.
Single picture uploaded in advance	Select the picture number, and the picture can be uploaded to the platform in advance.
Post-alarm	When the alarm event is detected and links alarm output, you can set the Post-alarm time, and then the system keeps the alarm going for the set period after the alarm event.
Play Count	Set the number of times the alarm audio is played.
File	Select the alarm audio file.

Step 7 Set arming periods and alarm linkage action.

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

Step 8 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

10.14.3 Configuring Lane Event

Set the illegal parking detection rules for different regions.

Prerequisites

The lanes are drawn in **Scene Setting**.

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Select the added plan that has been enabled, and then click **Rule Config**.

Step 3 Click **Violation Snapshot**, and then click **Lane Event** tab.

Step 4 Select the channel, preset and lane line from the drop-down list.

Step 5 Click **Add Rule**, and then select the rule type.

You can add traffic congestion, illegal lane change and other 14 rules. The added rules are displayed in the drop-down list. The rule is enabled by default.

Figure 10-118 Lane event

Scene Setting	Area Event	Lane Event	Violation Code	Original Picture OSD	Combination Picture OSD	File Parameter	Cutout Config	Advanced
Channel	Panoramic Camera	Preset	Preset1	Lane Line	Lane Line1			
Add Rule								
No.	Rule Type		Operation		Delete			
1	Traffic Congestion		☒					
2	Speeding		☒					
3	Underspeed		☒					

Step 6 Configure rule parameters for lane events.

The parameters might vary depending on different rule types.

Figure 10-119 Lane event (underspeed)

Distinguish Speed Limit ... ☐

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

Record ☐

Time Plan

Snapshot | Enabled

Channel

Snapshot Quantity

Alarm-out Port | Enabled

Post-alarm sec (10-300)

Figure 10-120 Lane event (no truck parking)

Capture Blue Plate Trucks ☐

Vehicle Type ☒ General Vehicle ☐ Special Vehicle

Truck Type

Heavy Truck x Medium Truck x

Light Truck x Pickup x

Record ☐

Time Plan

Full Time v

Add Schedule

+Event Linkage

Snapshot | Enabled

Channel

1

Snapshot Quantity

3 v

Snapshot Setting

Alarm-out Port | Enabled 

Post-alarm

10

sec (10-300)

Apply

Refresh

Figure 10-121 Lane event (speeding)

Distinguish Speed Limit ... ☐

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

Record ☐

Time Plan

Snapshot | Enabled

Channel

Snapshot Quantity

Alarm-out Port | Enabled

Post-alarm sec (10-300)

Figure 10-122 Lane event (traffic congestion)

Alarm Time
sec (5-21600)

Threshold
 %~ % (0-100)

Record
☐

Time Plan
Add Schedule

+Event Linkage

Snapshot | Enabled

Channel

Snapshot Quantity

Alarm-out Port | Enabled

Post-alarm
sec (10-300)

Apply
Refresh

Table 10-58 Description of rule configuration parameters (lane event)

Rule Type	Parameter	Description
Underspeed	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the lowest speed limit for small-sized vehicle and large-sized vehicle. Small-sized Vehicle Lowest Speed Limit : Set the lowest speed limit for small-size vehicles. Large-sized Vehicle Lowest Speed Limit : Set the lowest speed limit for large-size vehicles.
	Vehicle Min Speed Limit	Set the minimum speed limit for the vehicle.
Speeding	Distinguish Speed Limit Between Large and Small Vehicle	After enabling, you need to set the highest speed limit of small-sized vehicle and large-sized vehicle. Small-sized Vehicle Highest Speed Limit : Set the highest speed limit for small-sized vehicle. Large-sized Vehicle Highest Speed Limit : Set the highest speed limit for large-sized vehicle.
	Vehicle Max Speed Limit	Set the maximum speed limit for the vehicle.

Rule Type	Parameter	Description
No Truck Parking	Capture Blue Plate Trucks	Enable capturing blue plate trucks function.
	Vehicle Type	You can select from General Vehicle and Special Vehicle .
	Truck Type	Select one or more truck types to be queried. - When you select General Vehicle as the Vehicle Type, you can select Heavy Truck, Medium Truck, Light Truck and Pickup as the Truck Type. - When you select Special Vehicle as the Vehicle Type, you can select Dangerous Goods Vehicle, Tank Truck, Construction Truck, Mixer Truck, Engineering Truck, Powder Material Truck and Sewage Suction Truck as the Truck Type.
Traffic Congestion	Alarm Time	Set the duration for traffic congestion to trigger the alarm. When the traffic congestion time exceeds this value, the alarm will be triggered.
	Threshold	Set the ratio of traffic congestion to the total length of the drawn lanes. If the upper limit of the range is exceeded, the alarm will be triggered. When the congestion team drops to the lower limit of the set threshold, the alarm will be cancelled.
Other rules (except underspeed , speeding, no truck parking and traffic congestion)	Sensitivity	Set the sensitivity of lane event snapshot.
	Record	Enable the local recording function.

Step 7 Configure snapshot parameters.

- **Channel** : The default snapshot channel is 1.
- **Snapshot Quantity** : Set the number of snapshots. You can set up to 4 snapshots. The number of snapshots might vary depending on different rules.
- Click **Snapshot Setting** , and then set the **Cutout Proportion**.

Step 8 Set arming periods and alarm linkage action.

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

- Click **Event Linkage**, add linkage actions, and then set linkage parameters. For details, see "4.6.1.2 Alarm Linkage".

Step 9 Click **Apply**.

If you need to view alarm information on the upper-right corner of the page through clicking , you need to subscribe to the relevant alarm event. For details, see "4.6.1.3.2 Subscribing Alarm Information".

10.14.4 Configuring Violation Code

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Select the added plan that has been enabled, and then click **Rule Config**.

Step 3 Click **Violation Snapshot**, and then click **Lane Event** tab to view the existing violation codes for area events and lane events.

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

Figure 10-123 Violation code

Scene Setting	Area Event	Lane Event	Violation Code	Original Picture OSD	Combination Picture OSD	File Parameter	Cutout Config	Advanced
Channel	Panoramic Camera							
No.	Rule Type	Violation Name	Violation Code					
1	Illegal Lane Change	Illegal Lane Change	7003					
2	Traffic Congestion	Traffic Congestion	6000					
3	Crossing Solid White Line	Crossing Solid White Line	7004					
4	Speeding	Speeding	1303					
5	Cross Solid Yellow Line	Cross Solid Yellow Line	1402					
6	Illegal Parking	Illegal Parking	1039					
7	Illegal Parking B	Illegal Parking Type B	1039					
8	Illegal Parking C	Illegal Parking Type C	1345					
9	Illegal Parking D	Illegal Parking Type D	6062					

Step 5 Click **Apply**.

10.14.5 Configuring Original Picture OSD

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

Step 2 Select the added plan that has been enabled, and then click **Rule Config**.

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

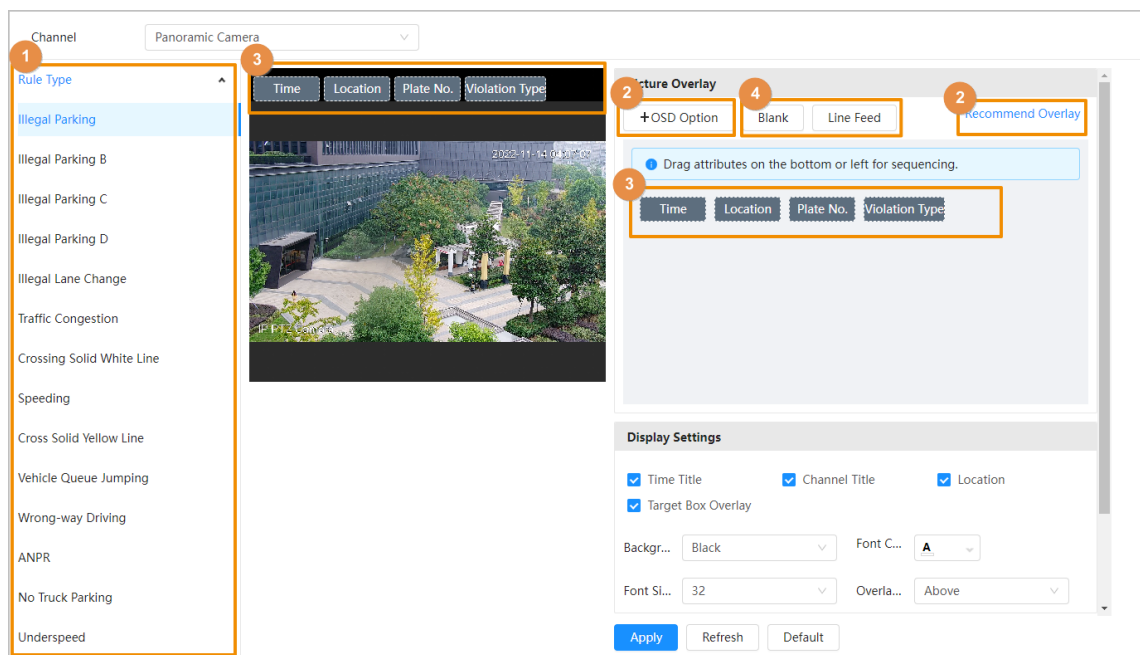
Step 4 Click **Recommend Overlay** or **OSD Option** to select overlay information.

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

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

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

Figure 10-124 Original picture OSD



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

Step 7 Configure the parameters in **Display Settings** and **Picture Parameter**. The parameters might vary depending on different rule types.

Figure 10-125 Display settings and picture parameters

Display Settings

☒ Time Title
☒ Channel Title
☒ Location

☒ Target Box Overlay

Backgr...

Black

Font C...

A

Font Si...

32

Overla...

Above

Picture Parameter

☒ Report Picture
☒ Save locally

Resolu...

Normal Proportion

Quality

5(best)

Table 10-59 Description of original picture OSD parameters

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

Step 8 Click **Apply**.

10.14.6 Configuring Combination Picture OSD

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

Procedure

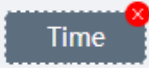
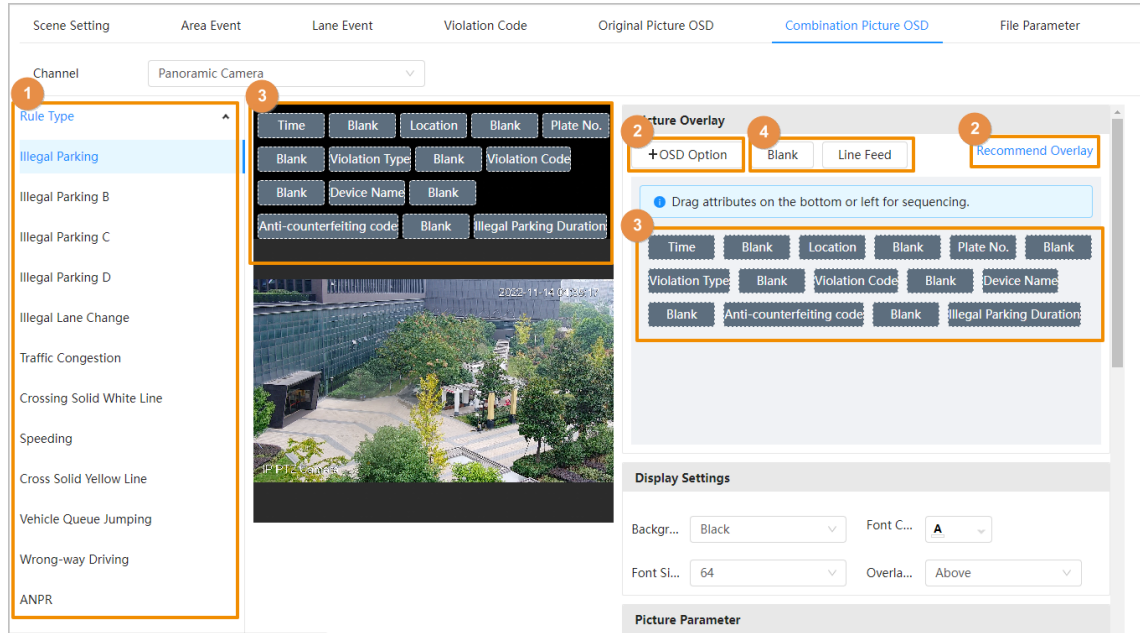
- Step 1** Select **AI > AI Config > Smart Plan**.
- Step 2** Select the added plan that has been enabled, and then click **Rule Config**.
- Step 3** Click **Combination Picture OSD** tab, and then select the rule type from the left side of the page.
- Step 4** Click **Recommend Overlay** or **OSD Option**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

Figure 10-126 Combination picture OSD



- Step 6** Click **Blank** or **Line Feed** to add a blank or line between different attributes to separate OSD information.
- Step 7** Configure the parameters in **Display Settings**, **Picture Parameter** and **Composite Picture Order**.

Table 10-60 Description of combination picture OSD parameters

Parameter	Description
Background Color	Set the background color of the OSD information.
Font Color	Set the font color of the OSD information.
Font Size	Set the font size of the OSD information.
Overlay Position	Select the overlay position from Above and Below .
Report Picture	Select to save the pictures to local computer or uploaded to the platform.
Save locally	
Resolution	Set the resolution of pictures. You can select Normal Proportion , 1/4 Size or 1/9 Size .
Quality	Set the picture quality. The larger the value, the better the picture quality.
Composite Picture Order	Select the splicing way of composite picture.

Step 8 Click **Apply**.

10.14.7 Configuring File Parameter

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

Procedure

Step 1 Select **AI > AI Config > Smart Plan**.

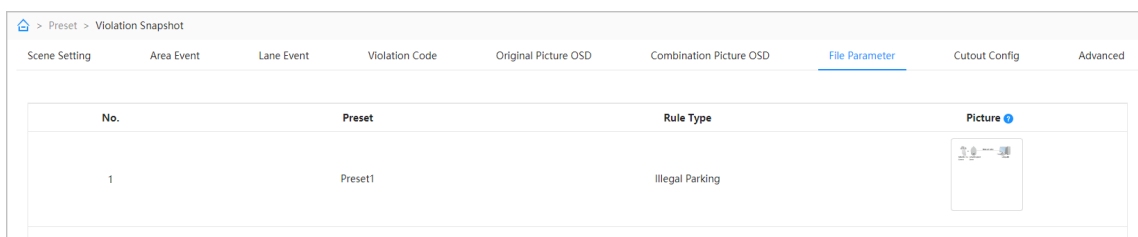
Step 2 Select the added plan that has been enabled, and then click **Rule Config**.

Step 3 Click **File Parameter** tab, and then click **Upload Picture**. Select a picture from local computer, and then click **Open**.



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

Figure 10-127 File parameters



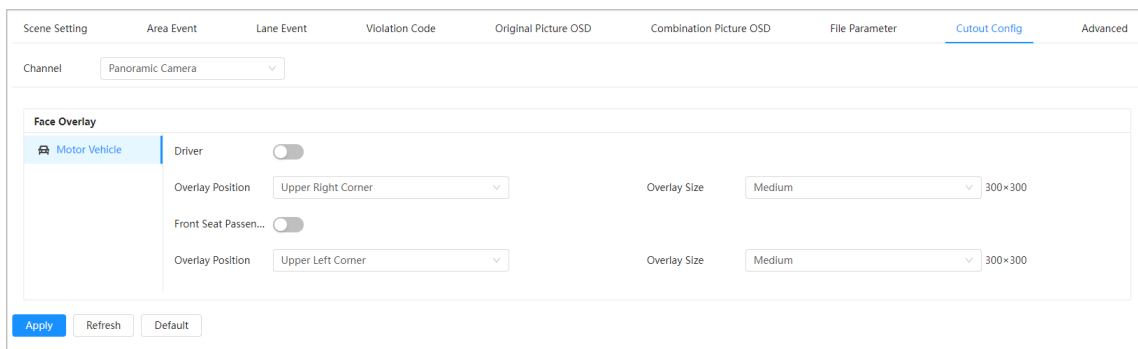
10.14.8 Configuring Cutout

Configure picture cutout to overlay face information on the original image.

Procedure

- Step 1 Select **AI > AI Config > Smart Plan**.
- Step 2 Select the added plan that has been enabled, and then click **Rule Config**.
- Step 3 Click **Cutouts Config** tab.

Figure 10-128 Cutout configuration



- Step 4 Configure **Face Overlay** parameters.
 - **Driver** : Click ☐ to enable driver cutout function.
 - **Front Seat Passenger** : Click ☐ to enable front seat passenger cutout function.
 - **Overlay Position** : Set the overlay position of the cutout.
 - **Overlay Size** : Set the overlay size of the cutout.
- Step 5 Click **Apply**.

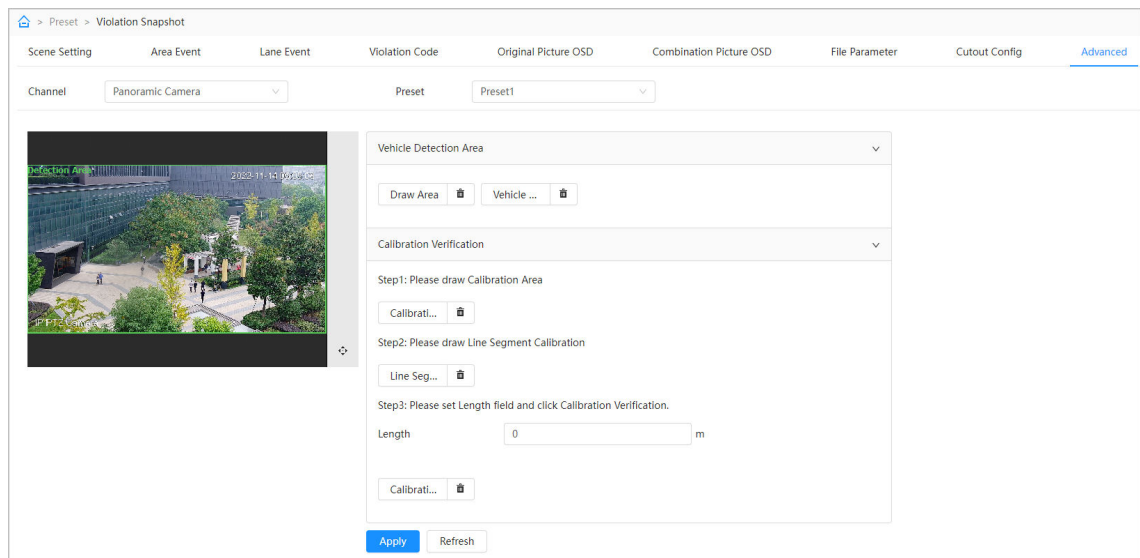
10.14.9 Advanced configuration

Configure advanced parameters for speed measurement.

Procedure

- Step 1 Select **AI > AI Config > Smart Plan**.
- Step 2 Select the added plan that has been enabled, and then click **Rule Config**.
- Step 3 Click **Advanced** tab, and then select channel and preset from the drop-down list.

Figure 10-129 Advanced configuration



Step 4 Draw the vehicle detection area.

- Click **Draw Area** to draw the detection area; click **Vehicle Area** to draw the vehicle detection area.
- Click  to delete the drawn area.

Step 5 Configure calibration verification.

1. Click **Calibration Area** to draw the calibration area.
2. Click **Line Segment Calibration** to draw the line segment calibration.
3. Configure the length.
4. Click **Calibration Verification**.

Step 6 Click **Apply**.

10.15 Configuring Tour Plan

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

Procedure

Step 1 Select **AI > Tour Plan**.

Step 2 Select **Enable** to enable tour plan function.

Step 3 Select tour mode and idle interval.

- Tour mode
 - ◇ **Scene Priority** : Tours according to the set duration of the scene.
 - ◇ **Detection Priority** : Detection is the priority. The PTZ rotates to another scene when no alarm events are detected in the current scene and the set scene switching time has reached.
- Idle interval: The time between the user manually operating the camera and the camera automatically rotates to the smart plan scene.

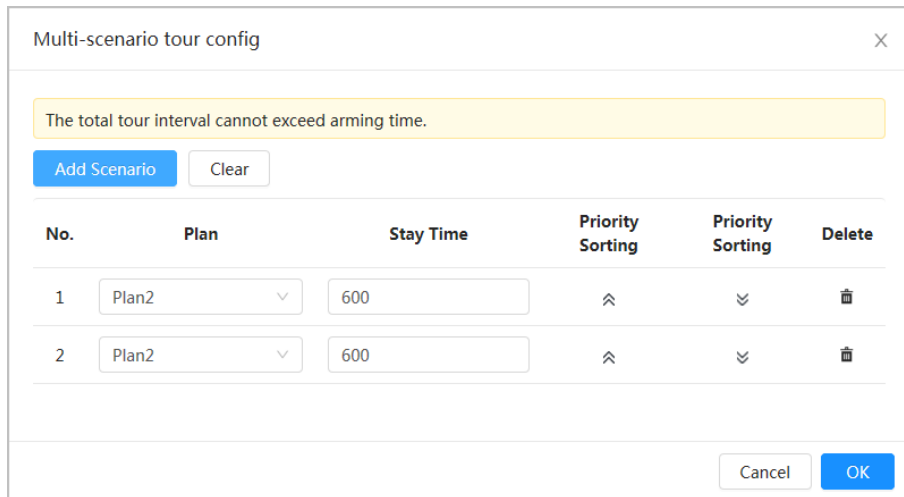


The tour mode might vary depending on different devices.

Step 4 Configure tour plan.

1. Set the start time and end time of the tour.
2. Select time period and then click **Setting** to configure multi-scenario tour.
3. Click **Add Scenario** to set multi-scenario tour.

Figure 10-130 Multi-scenario tour



No.	Plan	Stay Time	Priority Sorting	Priority Sorting	Delete
1	Plan2	600	⤴	⤵	🗑
2	Plan2	600	⤴	⤵	🗑

Table 10-61 Description of multi-scenario tour parameter

Parameter	Description
Stay Time	Set the time that the camera stays in the scene. Double-click 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.

4. Click **OK** to complete the configuration of multi-scenario tour.

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

Step 6 Click **OK**.

11 Security

11.1 Security Status

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.

Background Information

- User and service detection: Detect login authentication, user status, and configuration security to check whether the current configuration conforms to recommendation.
- Security modules scanning: Scan the running status of security modules, such as audio/video transmission, trusted protection, securing warning and attack defense, without detecting whether they are enabled.

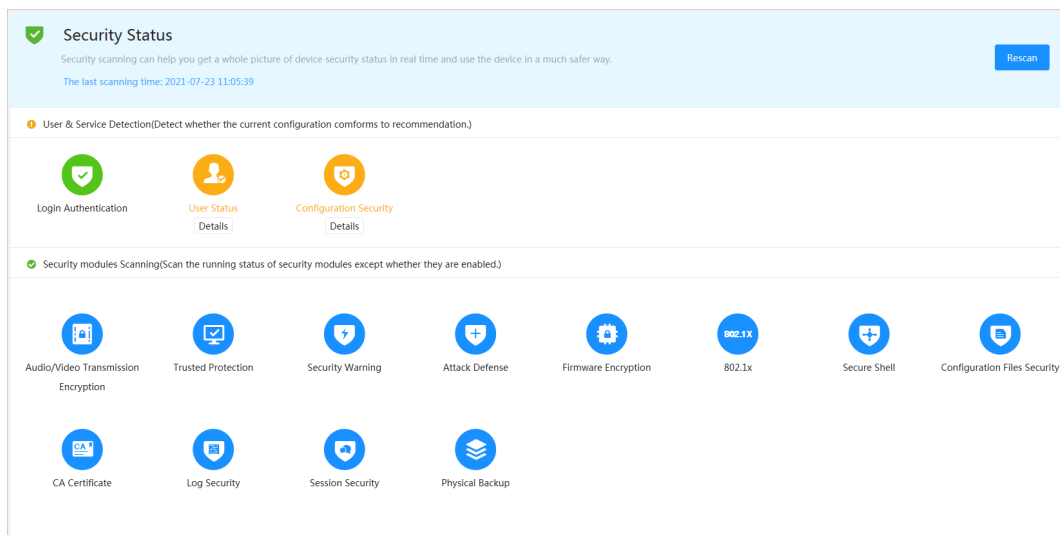
Procedure

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

Step 2 Click **Rescan** to scan the security status of the camera.

During the scanning, the icon is gray. When the icon turns blue, the scanning is complete.

Figure 11-1 Security status



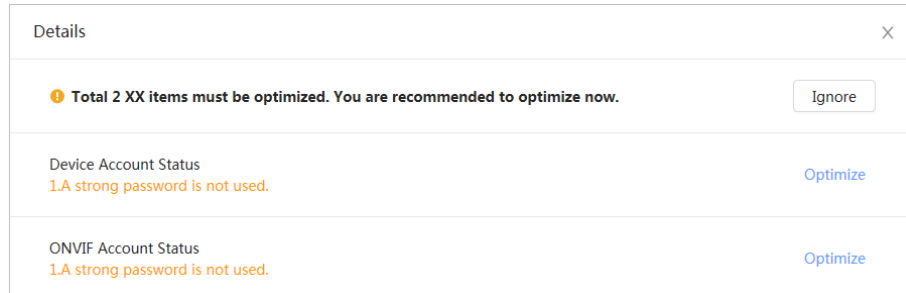
Related Operations

After scanning, different results will be displayed with different colors. Yellow indicates that the security modules are abnormal, and green indicates that the security modules are normal.

1. Click **Details** to view the details of the scanning result.
2. Click **Ignore** to ignore the exception, and it will not be scanned in next scanning.
Click **Joint Detection**, and the exception will be scanned in next scanning.

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

Figure 11-2 Security status



11.2 System Service

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

11.2.1 802.1x

Cameras can connect to LAN after passing 802.1x authentication.

Procedure

- Step 1 Select **Security** > **System Service** > **802.1x**.
- Step 2 Select the NIC name as needed, and click ☐ to enable it.
- Step 3 Select the authentication mode, and then configure parameters.
 - PEAP: Protected EAP protocol.
 1. Select PEAP as the authentication mode.
 2. Enter the username and password that has been authenticated on the server.
 3. (Optional) Click ☐ next to CA certificate, and select the trusted CA certificate in the list.



If there is no certificate in the list, click **Certificate Management** at the left navigation bar. For details, see "11.4.2 Installing Trusted CA Certificate".

11.2.2 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.



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

Procedure

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

Step 2 Click  to enable it.

Step 3 Select the certificate.



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

Figure 11-5 HTTPS

802.1x

HTTPS

Enable

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

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

*Select a device certificate

Certificate Management

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
1		00000000000000000000000000000000	2051-06-04 15:44:18	00:12:34:56:78:9c		HTTPS, RTSP over TLS

Apply

Refresh

Default

Download Root Certificate

Step 4 Click **Apply**.

Related Operations

Enter `https://(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.

11.3 Attack Defense

11.3.1 Firewall

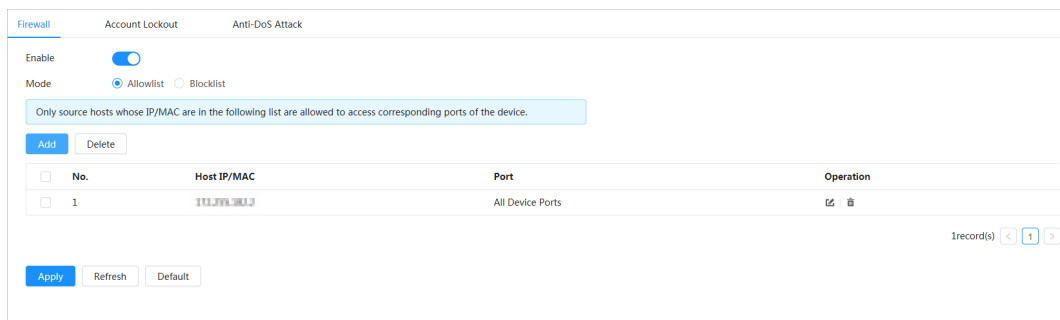
Configure firewall to limit access to the Camera.

Procedure

Step 1 Select **Security** > **Attack Defense** > **Firewall**.

Step 2 Click  to enable the firewall function.

Figure 11-6 Firewall



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.

No.	Host IP/MAC	Port	Operation
1	192.168.1.1	All Device Ports	 

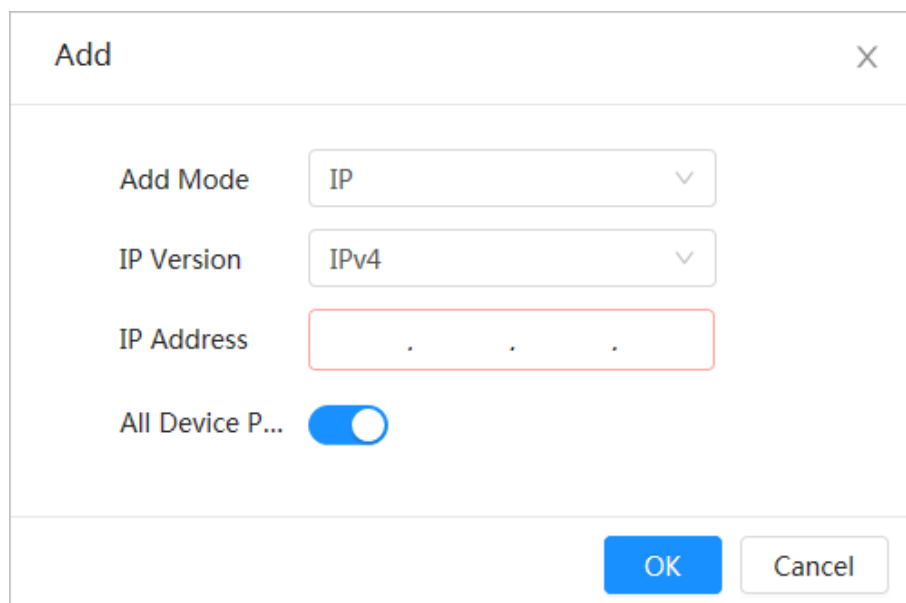
1 record(s)  

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

- **Allowlist** : Only the IP/MAC addresses in the allow list can access the Camera. The same port rules apply.
- **Blocklist** : The IP/MAC address is in the block list cannot access the Camera. The same port rules apply.

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

Figure 11-7 Firewall



Add

Add Mode

IP Version

IP Address

All Device P... ☒

Step 5 Click **Apply**.

Related Operations

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

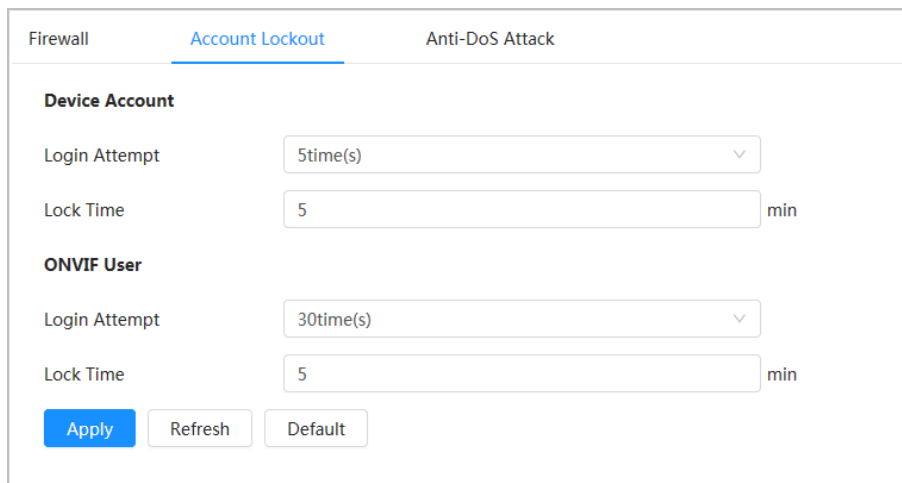
11.3.2 Account Lockout

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

Procedure

- Step 1** Select **Security** > **Attack Defense** > **Account Lockout**.
- Step 2** Configure the login attempt and lock time for device account and ONVIF user.
- **Login attempt** : Upper limit of login attempts. If you consecutively enter a wrong password more than the configured value, the account will be locked.
 - **Lock time** : The period during which you cannot log in after the login attempt count reaches the limit.

Figure 11-8 Account lockout



- Step 3** Click **Apply**.

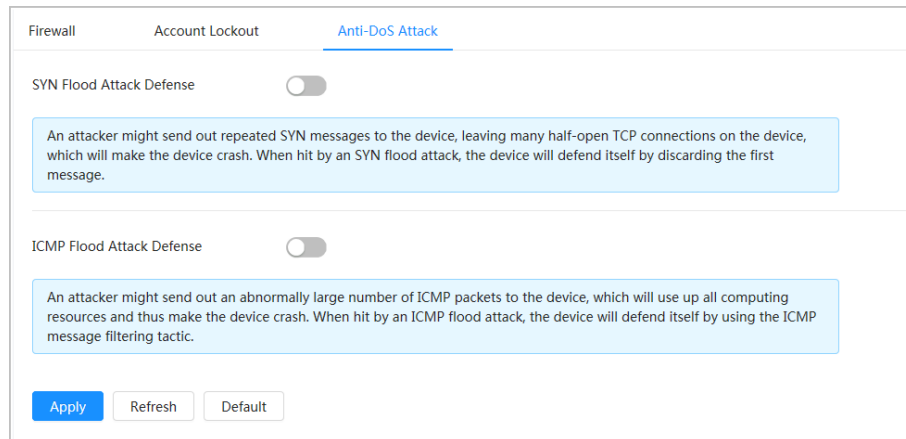
11.3.3 Anti-DoS Attack

You can enable **SYN Flood Attack Defense** and **ICMP Flood Attack Defense** to defend the Camera against DoS attacks.

Procedure

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

Figure 11-9 Anti-DoS attack



11.4 CA Certificate

11.4.1 Installing Device Certificate

Create a certificate or upload an authenticated certificate, and then you can log in through HTTPS from your computer.

11.4.1.1 Creating Certificate

Creating certificates for the Camera.

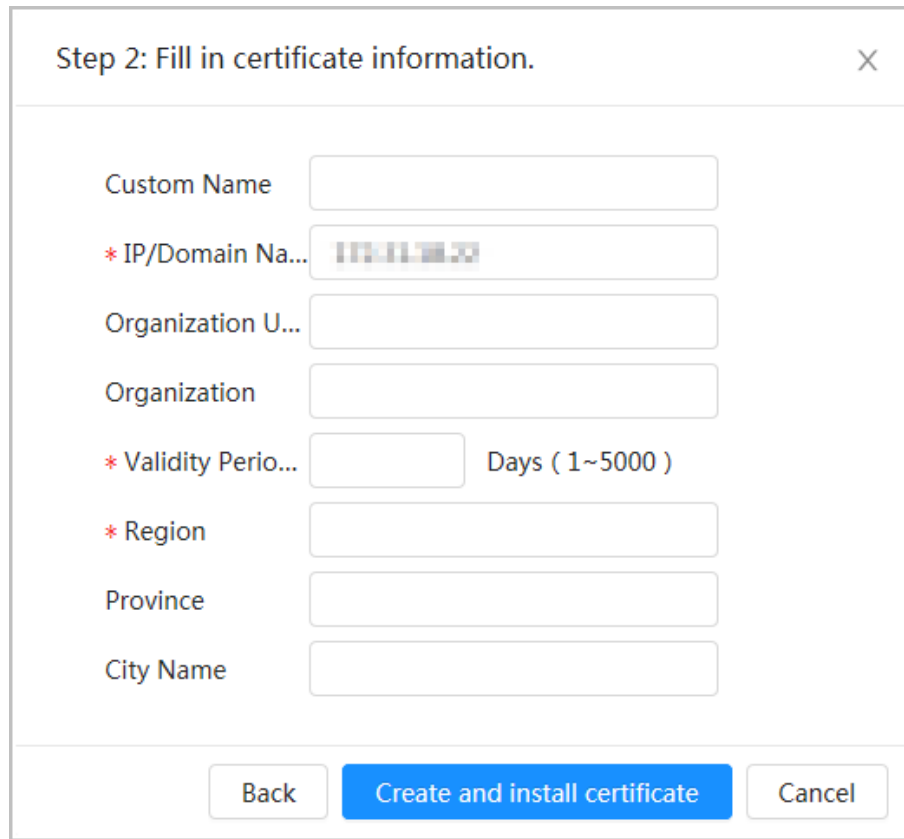
Procedure

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



IP/Domain Name : Enter the IP address or domain name of the Camera.

Figure 11-10 Certificate information (1)



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

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

Related Operations

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

11.4.1.2 Applying for and Importing CA Certificate

Import the third-party CA certificate to the Camera.

Procedure

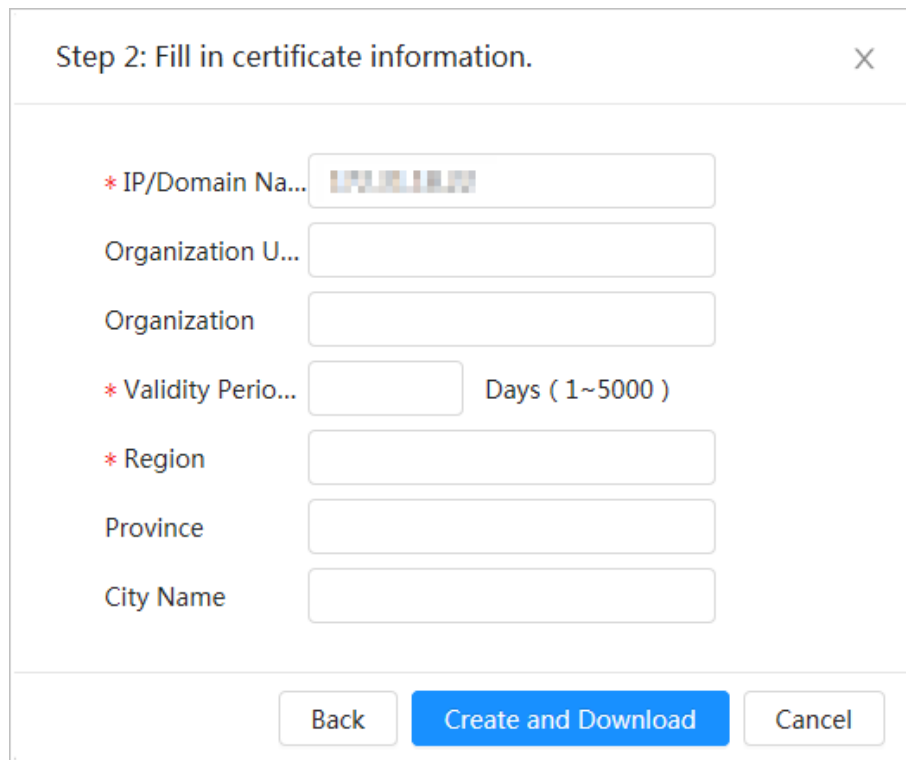
Step 1 Select **Security > CA Certificate > Device Certificate**.

Step 2 Select **Installing Device Certificate**.

Step 3 Click **Apply for CA Certificate and Import (Recommended)** , and then click **Next**.

Step 4 Enter the certificate information.

Figure 11-11 Certificate information (2)



Step 5 Click **Create and Download**.

Save the request file to your computer.

Step 6 Apply for a CA certificate from the third-party certificate authority.

Step 7 Import the signed CA certificate.

1. Save the CA certificate to the computer.
2. Select **Installing 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** to edit the custom name of the certificate.
- Click  to download the certificate.
- Click  to delete the certificate.

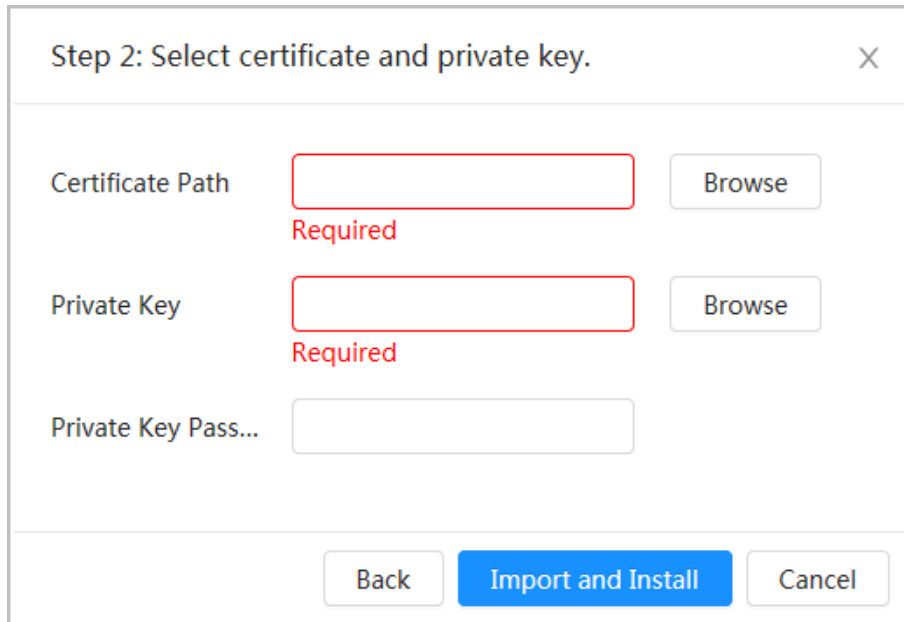
11.4.1.3 Installing Existing Certificate

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

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

Figure 11-12 Certificate and private key



- Step 5 Click **Import and Install**.

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

Related Operations

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

11.4.2 Installing Trusted CA Certificate

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

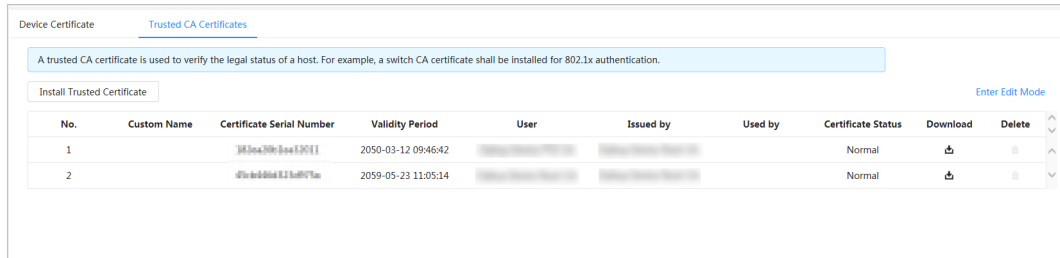
Procedure

- Step 1 Select **Security** > **CA Certificate** > **Trusted CA Certificates**.

Step 2 Select **Installing Trusted Certificate**.

Step 3 Click **Browse** to select the certificate.

Figure 11-13 Installing trusted certificate



Device Certificate Trusted CA Certificates

A trusted CA certificate is used to verify the legal status of a host. For example, a switch CA certificate shall be installed for 802.1x authentication.

Install Trusted Certificate [Enter Edit Mode](#)

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by	Certificate Status	Download	Delete
1		383ea39b-5ee13011	2050-03-12 09:46:42				Normal		
2		af1e4b4d8111b4d07e	2059-05-23 11:05:14				Normal		

Step 4 Click **OK**.

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

Related Operations

- Click **Enter Edit Mode** to edit the custom name of the certificate.
- Click to download the certificate.
- Click to delete the certificate.

11.5 A/V Encryption

The device supports audio and video encryption during data transmission.

Background Information



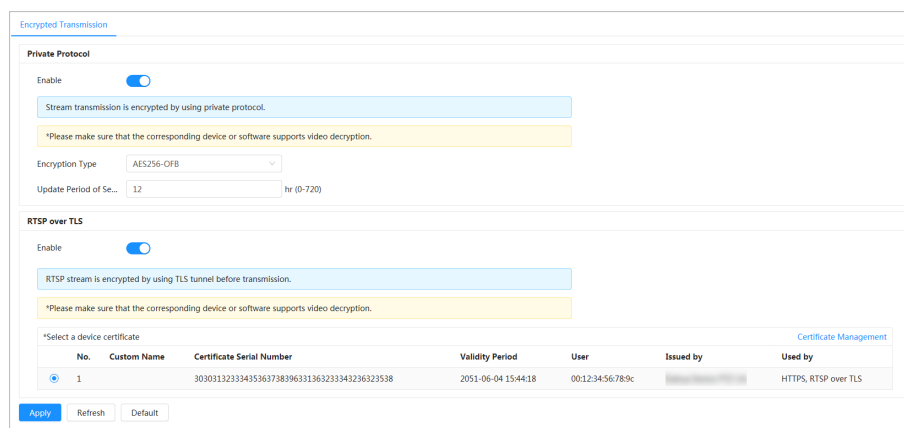
You are recommended to enable A/V Encryption function. There might be safety risk if this function is disabled.

Procedure

Step 1 Select **Security > A/V Encryption**.

Step 2 Configure the parameters.

Figure 11-14 A/V encryption



Encrypted Transmission

Private Protocol

Enable ☒

Stream transmission is encrypted by using private protocol.

*Please make sure that the corresponding device or software supports video decryption.

Encryption Type: AES256-CFB

Update Period of Se...: 12 hr (0-720)

RTSP over TLS

Enable ☒

RTSP stream is encrypted by using TLS tunnel before transmission.

*Please make sure that the corresponding device or software supports video decryption.

*Select a device certificate [Certificate Management](#)

No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by
1		30303132333435363738396331363233343236323538	2051-06-04 15:44:18	00:12:34:56:78:9c		HTTPS, RTSP over TLS

[Apply](#) [Refresh](#) [Default](#)

Table 11-1 A/V encryption parameter

Area	Parameter	Description
Private Protocol	Enable	Enables stream frame encryption by using private protocol.  There might be security risk if this service is disabled.
	Encryption Type	Use the default setting.
	Update Period of Secret Key	Secret key update period. Value range: 0–720 hours. 0 means never update the secret key. Default value: 12.
RTSP over TLS	Enable	Enables RTSP stream encryption by using TLS.  There might be safety risk if this service is disabled.
	Select a device certificate	Select a device certificate for RTSP over TLS.
	Certificate Management	For details about certificate management, see "11.4.1 Installing Device Certificate".

Step 3 Click **Apply**.

11.6 Security Warning

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

Procedure

Step 1 Select **Security** > **Security Warning**.

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

Step 3 Configure the parameters.

Figure 11-15 Security warning

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.

+Event Linkage

Alarm-out Port
Enabled

Alarm Channel

1

2

Post-alarm

10

sec (10-300)

Apply

Refresh

Default

Step 4 Set arming periods and alarm linkage action.

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

Step 5 Click **Apply**.

12 Report

12.1 Video Metadata Report

View the statistics result of video metadata in report form.

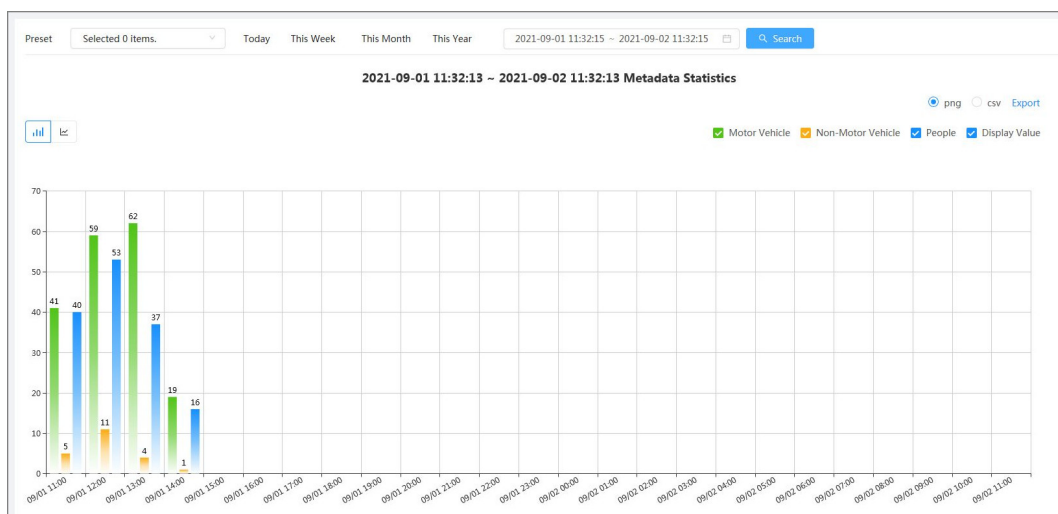
Procedure

Step 1 Select **Report** > **Report** > **Video Metadata**.

Step 2 Set the period for the report.

Step 3 Click **Search**.

Figure 12-1 Video metadata report



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.

12.2 People Counting Report

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

Prerequisites

Ensure the rule is configured before you search for the report.

Background Information



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 page.

Procedure

Step 1 Select **Report** > **Report** > **People Counting**.

Step 2 Select the preset and search time.

The **Rule** is set to **People Counting** and **Statistics Type** is set to **People No.** by default, and cannot be modified.

Step 3 Select the report name, and then click **Search**.



The report name corresponds to the name of people counting rule.

Figure 12-2 People counting report



Table 12-1 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	

12.3 Traffic Data Report

Procedure

Step 1 Select **Report** > **Report** > **Traffic Data**.

Step 2 Select the preset and lane.

You can select multiple presets and lanes at a time.

Step 3 Set the query time, click **Search**, and then the traffic data such as lane number, preset number, period, traffic flow and more are displayed on the page.

Click a report to view the details of the vehicle.



The traffic data of different devices might vary. Please refer to the actual page.

Figure 12-3 Traffic data report

Preset

Selected 2 Items.

Lane

Selected 4 Items.

Today

This Week

This Month

This Year

2022-11-01 19:38:33

2022-11-02 19:38:33

Search

Backup

No.	Start Time	Lane No.	Preset	Period(sec)	Traffic Flow	Speed(km/h)	Time Occupancy Rate	Space Occupancy Rate	Time Headway(sec/vehicle)	Space Headway(m/vehicle)	Queue Length(m)	Road Status
1	2022-11-02 19:30:06	1	1	0	0	-	0.00%	0.00%	-	0.00	0.00	Clear
2	2022-11-02 19:30:07	1	1	0	1	40.00	100.00%	100.00%	-	0.00	0.00	Slow
3	2022-11-02 19:30:08	1	1	0	1	12.00	100.00%	96.88%	-	0.00	0.00	Slow
4	2022-11-02 19:30:12	1	1	0	1	8.00	100.00%	86.45%	-	0.00	0.77	Slow
5	2022-11-02 19:30:13	1	1	0	2	4.50	100.00%	99.76%	-	0.00	0.00	Congested
6	2022-11-02 19:30:13	1	1	0	0	-	100.00%	98.00%	-	0.00	0.00	Congested
7	2022-11-02 19:30:15	1	1	0	1	3.00	100.00%	100.00%	-	0.00	0.00	Congested
8	2022-11-02 19:30:18	1	1	0	1	14.00	100.00%	99.98%	-	0.00	4.11	Slow
9	2022-11-02 19:30:20	1	1	0	0	-	100.00%	97.11%	-	0.00	7.47	Congested
10	2022-11-02 19:30:22	1	1	0	1	13.00	100.00%	99.59%	-	0.00	6.90	Slow
11	2022-11-02 19:30:24	1	1	0	1	24.00	100.00%	97.95%	-	0.00	5.81	Slow
12	2022-11-02 19:30:26	1	1	0	0	-	100.00%	99.72%	-	0.00	3.28	Congested
13	2022-11-02 19:30:28	1	1	0	0	-	100.00%	100.00%	-	0.00	3.91	Congested
14	2022-11-02 19:30:31	1	1	0	1	27.00	100.00%	100.00%	-	0.00	4.31	Slow
15	2022-11-02 19:30:33	1	1	0	0	-	100.00%	100.00%	-	0.00	3.34	Congested

220records()

1

2

3

4

Goto

Step 4 Click **Backup** to back up the report to the computer.

12.4 Picture Query

Query the pictures of the AI function. The following section uses the traffic event function as an example.

Procedure

Step 1 Select **Report** > **Report** > **Picture Query** > **Traffic Event**.

Step 2 Select the rule type and file type.

You can select multiple rule types and file types at a time.

Step 3 Set the query time, and then click **Search**.

Figure 12-4 Picture Query

Rule Type

Animal Detection

Heat Detection

Parking Detection

Smoke Detection

Accident

File Type

Original Image

Wrong-way Driving

Traffic Congestion

Pedestrian

Littering

Today

This Week

This Month

This Year

2024-03-01 10:35:21

~

2024-03-06 10:35:21

🔍 Search

Total 87 Results

Download

☐	No.	Plate No.	Time	Event Type	File Type	File Size
☐	1		2024-03-01 17:21:45	Pedestrian	Original Image	0.28M
☐	2		2024-03-01 17:22:44	Pedestrian	Original Image	0.27M
☐	3		2024-03-01 17:39:46	Pedestrian	Original Image	0.27M
☐	4		2024-03-01 17:39:52	Pedestrian	Original Image	0.27M
☐	5		2024-03-01 17:51:15	Pedestrian	Original Image	0.29M
☐	6		2024-03-01 17:55:54	Pedestrian	Original Image	0.29M
☐	7		2024-03-01 18:29:31	Pedestrian	Original Image	0.29M
☐	8		2024-03-01 18:30:35	Pedestrian	Original Image	0.29M
☐	9		2024-03-01 18:31:10	Pedestrian	Original Image	0.28M
☐	10		2024-03-01 18:31:57	Pedestrian	Original Image	0.29M
☐	11		2024-03-01 18:33:50	Pedestrian	Original Image	0.28M
☐	12		2024-03-01 18:35:32	Pedestrian	Original Image	0.29M
☐	13		2024-03-01 18:41:00	Pedestrian	Original Image	0.29M
☐	14		2024-03-01 18:44:37	Pedestrian	Original Image	0.29M
☐	15		2024-03-01 18:45:52	Pedestrian	Original Image	0.29M

Step 4 Click **Download** to download the picture to the computer.

12.5 Video Query

Query the videos of the AI function. The following section uses the ANPR function as an example.

Procedure

Step 1 Select **Report** > **Report** > **Search Video** > **ANPR**.

Step 2 Select the rule type and file type.

You can select multiple rule types and file types at a time.

Step 3 Set the query time, and then click **Search**.

Figure 12-5 Video Query

Rule Type	Illegal Lane Change x Wrong-way Driving x			File Type	Record x	
Today	This Week	This Month	This Year	2022-11-01 00:00:00 - 2022-12-02 20:17:50		
Search						
Total 43 Results Download						
☐	No.	Plate No.	Time	Event Type	File Type	File Size
☐	1	1234567890	2022-11-02 01:17:52	Wrong-way Driving	Record	0.79M
☐	2	1234567890	2022-11-02 01:17:56	Wrong-way Driving	Record	0.57M
☐	3	1234567890	2022-11-02 01:18:00	Wrong-way Driving	Record	0.34M
☐	4	1234567890	2022-11-02 01:18:02	Wrong-way Driving	Record	0.20M
☐	5	1234567890	2022-11-02 01:18:07	Wrong-way Driving	Record	0.22M
☐	6	1234567890	2022-11-02 01:18:09	Wrong-way Driving	Record	0.43M
☐	7	1234567890	2022-11-02 01:18:13	Wrong-way Driving	Record	0.26M
☐	8	1234567890	2022-11-02 01:18:17	Wrong-way Driving	Record	0.12M
☐	9	1234567890	2022-11-02 01:18:19	Wrong-way Driving	Record	0.12M
☐	10	1234567890	2022-11-02 01:18:21	Wrong-way Driving	Record	0.23M
☐	11	1234567890	2022-11-02 01:18:23	Wrong-way Driving	Record	0.12M
☐	12	1234567890	2022-11-02 01:18:27	Wrong-way Driving	Record	0.40M
☐	13	1234567890	2022-11-02 01:18:27	Wrong-way Driving	Record	0.12M
☐	14	1234567890	2022-11-02 01:18:29	Wrong-way Driving	Record	0.18M
☐	15	1234567890	2022-11-02 01:18:31	Wrong-way Driving	Record	0.10M

Step 4 Click **Download** to download the video to the computer.

13 Maintenance Center

13.1 One-click Diagnosis

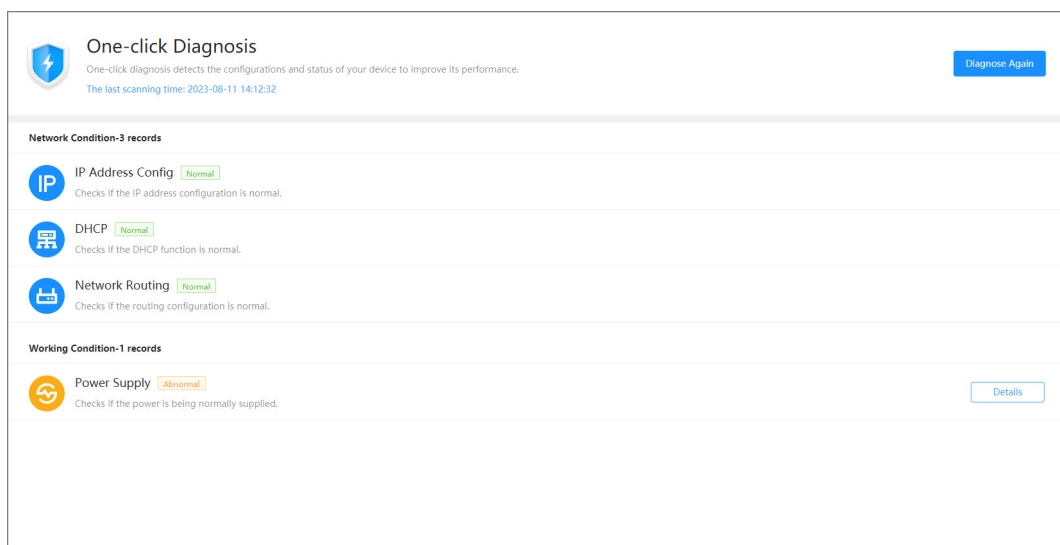
Procedure

Step 1 Select **Maintenance Center** > **One-click Diagnosis**.

Step 2 Click **Diagnose**.

Diagnosis information is generated and displayed on the page.

Figure 13-1 One-click diagnosis



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.

Figure 13-2 Details

Details
✕

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

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

Processed

13.2 System Information

13.2.1 Viewing Version Information

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

13.2.2 Viewing Online User

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

13.2.3 Viewing Durability Statistics

Select **Maintenance Center** > **System Info** > **Durability Statistics**. You can view the durability statistics of the Camera.

13.2.4 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.

13.3 Log Information

13.3.1 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, AI, 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

Step 1 Select **Maintenance Center** > **Log Info** > **Local Logs**.

Step 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.

Step 3 Click **Search**.

- Click  or click the desired log to view the detailed information in the **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.

Figure 13-3 Search local logs

Start Time	2023-08-01 09:33:00 ~ 2023-08-14 09:33:00	Type	Config	Search	Clear
Backup	☒ 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		
6	2023-08-11 15:14:47	System	Save Config		
7	2023-08-11 15:14:39	System	Save Config		
8	2023-08-11 14:46:22	System	Save Config		
9	2023-08-11 14:46:11	System	Save Config		
10	2023-08-11 14:30:38	System	Save Config		
11	2023-08-11 14:30:26	System	Save Config		
12	2023-08-11 14:23:14	admin	Save Config		
13	2023-08-11 10:35:06	System	Save Config		
14	2023-08-11 10:34:53	System	Save Config		
15	2023-08-11 10:34:28	System	Save Config		

13.3.2 Setting Remote Log

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

Procedure

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

Figure 13-4 Remote log

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.	
Apply Refresh Default	

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

13.4 Manager

13.4.1 Requirements

To make sure the system runs normally, follow these maintenance 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 address any abnormalities promptly.
- Back up the system configuration regularly.
- Restart the device and delete the old files regularly.
- Update firmware in time.

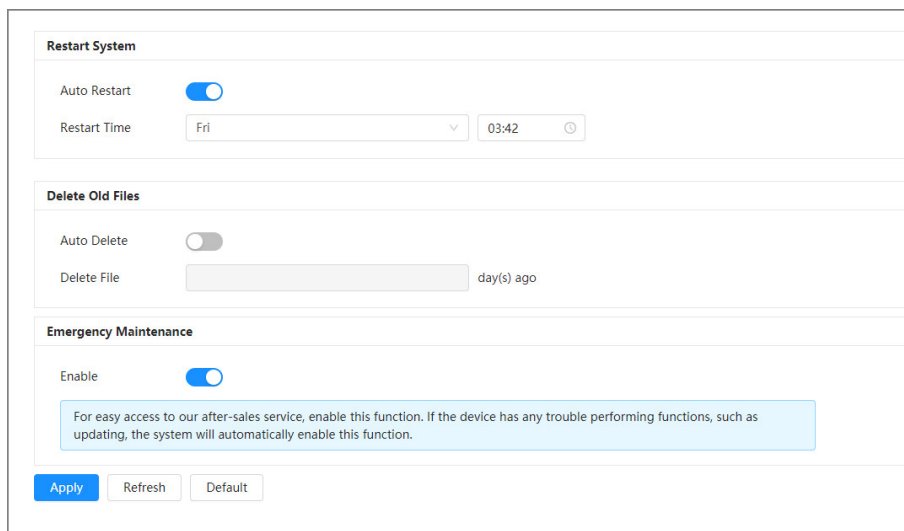
13.4.2 Maintenance

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

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

Figure 13-5 Maintenance



Step 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.



When you enable and confirm the **Auto Delete** function, the deleted files cannot be restored. Proceed with care.

Step 3 Click **Apply**.

13.4.3 Import/Export

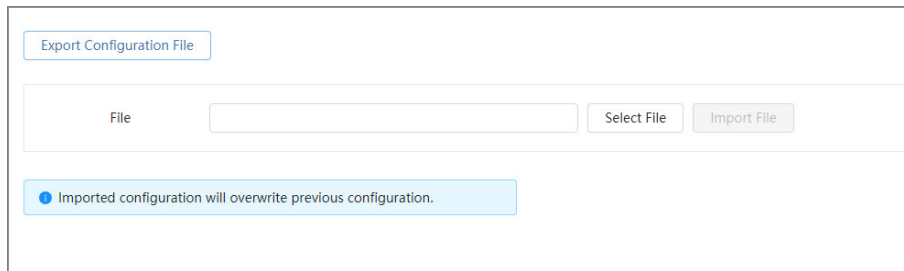
Background Information

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

Procedure

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

Figure 13-6 Import/export



Step 2 Import and export.

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

13.4.4 Default

Restore the device to default configuration or factory settings.

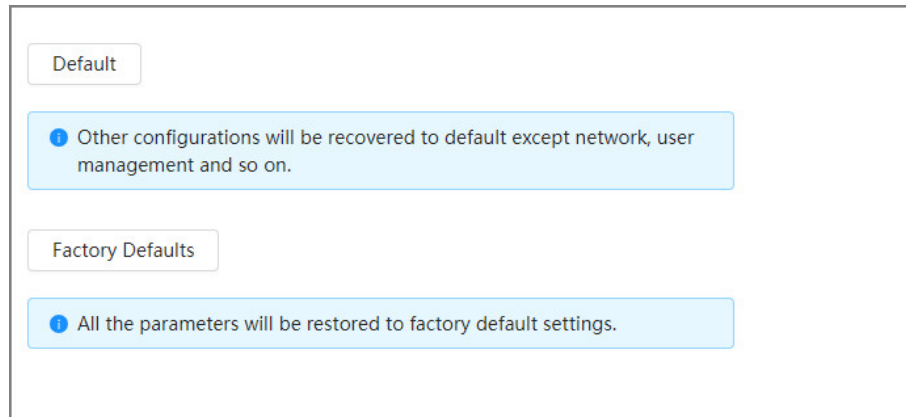


This function will restore the device to default configuration or factory settings. Operate it carefully.

Select **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.

Figure 13-7 Default



13.5 Update

Background Information

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

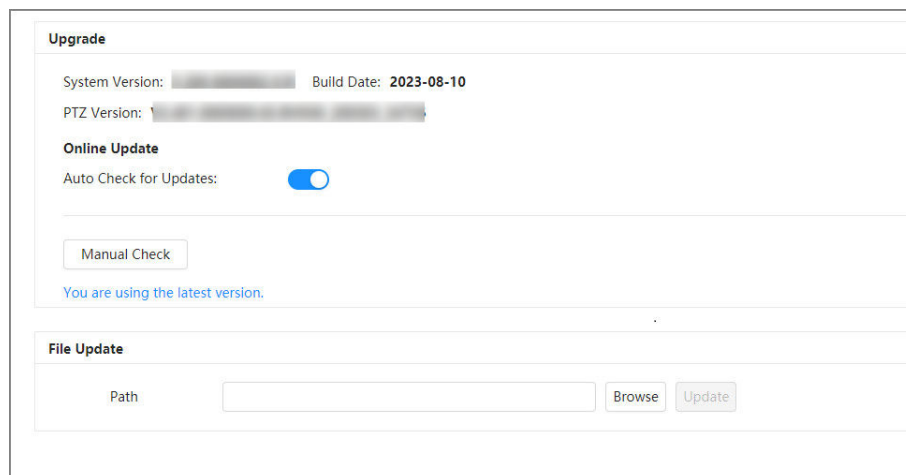


If an incorrect upgrade file is used, restart the device; otherwise some functions might not work properly.

Procedure

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

Figure 13-8 Upgrade



Step 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.

Step 3 Click **Upgrade**.

The upgrade starts.

13.6 Advanced Maintenance

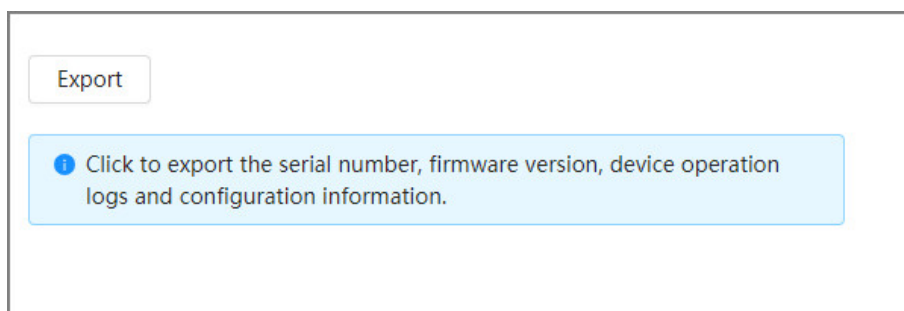
13.6.1 Export

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

Procedure

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

Figure 13-9 Export



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

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

13.6.2 Packet Capture

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

Procedure

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

Figure 13-10 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	0.00MB

Step 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.

Step 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.

13.6.3 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

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

Figure 13-11 Run log

Store Running Logs Lo... ☐				Export	Refresh	Delete
☐	No.	Date	Size	Download		
☐	1	SD_2023_08_26	0.019M	↓		
☐	2	2023_08_22	0.001M	↓		

Step 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 update the displayed information.
- Select one or more logs, and then click **Delete** to delete the log.



After deleting the log, it cannot be recovered.

14 App Center

This chapter introduces the basic information of the app center.

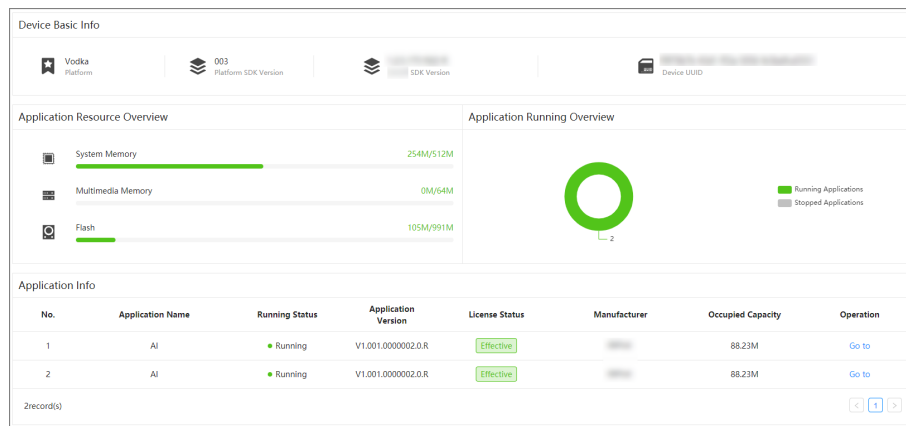
14.1 Application Overview

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



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

Figure 14-1 Application overview



14.2 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 configure the smart plan on the **Smart Plan** page.

Figure 14-2 Application

Application List

Refresh

AI

Running

AI

Running

AI

Manufacturer

Application Version

Occupied Capacity

Effective

2106-04-06 17:29:13

Update

Instance Info-AI

No.	Video Channel	Running Status	Operation
1	Panoramic Camera	Running	

Appendix 1 Security Commitment and Recommendation

Zhejiang Dahua Vision Technology Co., Ltd. (hereinafter referred to as "Dahua") attaches great importance to cybersecurity and privacy protection, and continues to invest special funds to comprehensively improve the security awareness and capabilities of Dahua employees and provide adequate security for products. Dahua has established a professional security team to provide full life cycle security empowerment and control for product design, development, testing, production, delivery and maintenance. While adhering to the principle of minimizing data collection, minimizing services, prohibiting backdoor implantation, and removing unnecessary and insecure services (such as Telnet), Dahua products continue to introduce innovative security technologies, and strive to improve the product security assurance capabilities, providing global users with security alarm and 24/7 security incident response services to better protect users' security rights and interests. At the same time, Dahua encourages users, partners, suppliers, government agencies, industry organizations and independent researchers to report any potential risks or vulnerabilities discovered on Dahua devices to Dahua PSIRT, for specific reporting methods, please refer to the cyber security section of Dahua official website.

Product security requires not only the continuous attention and efforts of manufacturers in R&D, production, and delivery, but also the active participation of users that can help improve the environment and methods of product usage, so as to better ensure the security of products after they are put into use. For this reason, we recommend that users safely use the device, including but not limited to:

Account Management

1. Use complex passwords

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters;
- Include at least two types of characters: upper and lower case letters, numbers and symbols;
- Do not contain the account name or the account name in reverse order;
- Do not use continuous characters, such as 123, abc, etc.;
- Do not use repeating characters, such as 111, aaa, etc.

2. Change passwords periodically

It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.

3. Allocate accounts and permissions appropriately

Appropriately add users based on service and management requirements and assign minimum permission sets to users.

4. Enable account lockout function

The account lockout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.

5. Set and update password reset information in a timely manner

Dahua device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

Service Configuration

1. Enable HTTPS

It is recommended that you enable HTTPS to access Web services through secure channels.

2. Encrypted transmission of audio and video

If your audio and video data contents are very important or sensitive, we recommend you to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.

3. Turn off non-essential services and use safe mode

If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.

If necessary, it is highly recommended to choose safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up complex passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up complex passwords.

4. Change HTTP and other default service ports

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

Network Configuration

1. Enable Allowlist

It is recommended that you turn on the allowlist function, and only allow IP in the allowlist to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allowlist.

2. MAC address binding

It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.

3. Build a secure network environment

In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
- According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
- Establish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

Security Auditing

1. Check online users

It is recommended to check online users regularly to identify illegal users.

2. Check device log

By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.

3. Configure network log

Due to the limited storage capacity of devices, the stored log is limited. If you need to save the log for a long time, it is recommended to enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

Software Security

1. Update firmware in time

According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

2. Update client software in time

We recommend you to download and use the latest client software.

Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such as placing the device in a dedicated machine room and cabinet, and

having access control and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).

ENABLING A SMARTER SOCIETY AND BETTER LIVING

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.

Address: No. 1399, Binxing Road, Binjiang District, Hangzhou, P. R. China | Website: www.dahuasecurity.com | Postcode: 310053

Email: dhoverseas@dhvisiontech.com | Tel: +86-571-87688888 28933188