Dual-PTZ Camera Web 3.0

User's Manual

V1.0.0

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.

Foreword

General

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

Safety Instructions

The following categorized signal words with defined meaning might appear in the Manual.

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

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	October 2019

About the Manual

- The manual is for reference only. If there is inconsistency between the manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the manual.
- The manual would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or

errors in print. If there is any doubt or dispute, please refer to our final explanation.

- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the Camera.
- If there is any uncertainty or controversy, please refer to our final explanation.

Important Safeguards and Warnings

The manual will help you to use the Camera properly. Read the manual carefully before using the Camera, and keep it well for future reference.

- Avoid heavy stress, violent vibration, and water splash during transportation, storage, and installation. Complete package is necessary during the transportation. We will assume no responsibility for any damage or problem caused by the incomplete package during the transportation.
- Protect the Camera from falling down or heavy vibration.
- Buckle the safety hook before installing the Camera if it is included.
- Keep the Camera away from devices that generate electromagnetic field like televisions, radio transmitters, electromagnetic devices, electric machine, transformers, and speakers; otherwise image quality will be influenced.
- Keep the Camera away from smoke, vapor, heat, and dust.
- Do not install the Camera near heating furnace, spotlight, and other heat sources. If it is installed on ceiling, in kitchen or near boiler room, the Camera temperature might rise.
- Do not dissemble the Camera; otherwise it might cause dangers or device damage. Contact your local retailer or customer service center for internal setup or maintenance requirement.
- Make sure that there is no metal, or inflammable, explosive substance in the Camera; otherwise it might cause fire, short-circuit, or other damage. Power off the Camera and disconnect the power cord immediately if there is water or liquid falling into the Camera. And contact your local retailer or customer service center. Avoid sea water or rain eroding the Camera.
- Avoid the lens aiming at intense light source, including sunlight, and incandescent light; otherwise the lens might be damaged.
- Clean the enclosure with soft cloth. To remove the dirt, you can dip the soft cloth in proper detergent, wring the soft cloth out, and then dry the enclosure with soft cloth. Do not use gasoline, paint thinner, or other chemicals to clean the enclosure; otherwise it might result in enclosure transfiguration or paint flake. Read all the manuals included before using chemical cloth. Avoid long time touch between the plastic or rubber material and the enclosure; otherwise it may result in device damage and paint flake.
- It is recommended to use the Camera with a lightning-proof device for better lightning-proof effect.
- To avoid damage, protect the Camera from falling down and heavy vibration. Arrange more than one person to move the Camera when necessary.

- All installation and operations shall conform to local electrical safety regulations.

- The power source shall conform to the requirements of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited Power Source requirements according to IEC60950-1. Note that the power supply requirement is subject to the Camera label.
- Use the power adapter recommended by the manufacturer.
- For the Camera that supports laser, do not aim the laser directly at eyes. And keep a proper distance from the flammable to avoid fire.
- Do not connect several Cameras to one power adapter; otherwise it might result in overheat or fire if it exceeds the rated load.
- Make sure that the power is off when you connect the cables, install or uninstall the Camera.
- Power off the Camera and disconnect the power cord immediately if there is any smoke, disgusting smell, or noise from the Camera. And contact your local retailer or customer service center.
- Contact your local retailer or customer service center if the Camera is abnormal. Do not disassemble or repair the Camera by yourself. We will assume no responsibility for any problems caused by unauthorized modifications, disassembly or repair, incorrect installation or use, and overuse of certain components.

Requirements

Installation and maintenance personnel

They need to have certificates or experiences related to installation and maintenance of the closed-circuit television (CCTV), and to engage in relevant work (such as working at height). They also need to meet the following requirements:

- Have basic knowledge and installation skills of CCTV system.
- Have basic knowledge and operation skills of low voltage wiring and low voltage electronic circuit wire connection.
- Have the ability to read and understand the manual.

Lifting the Camera

- Use secure lifting equipment suitable for the installation place and the camera installation mode.
- Make sure that the selected equipment reaches the installation height.
- Make sure that the selected equipment has high safety performance.

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1 Network Configuration

1.1 Network Connection

There are mainly two connection modes between the Camera and PC. See Figure 1-1 and Figure 1-2.

Figure 1-1 Direct connection over a network cable

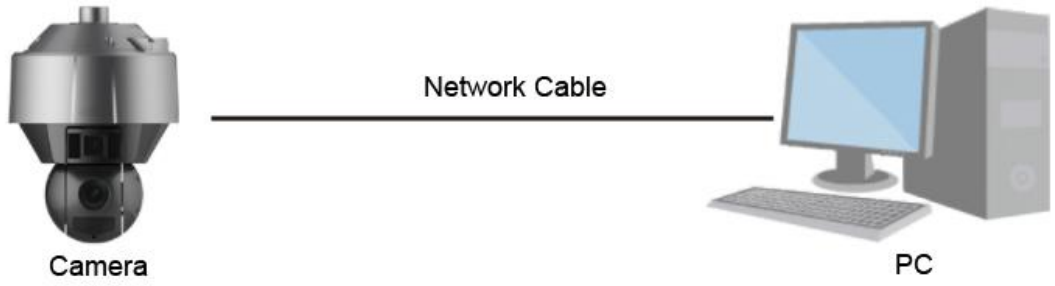
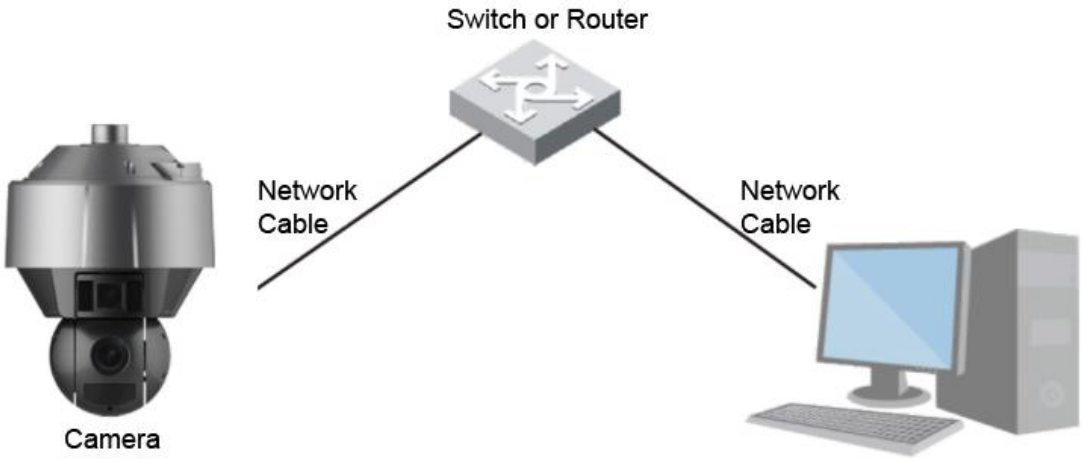


Figure 1-2 Connection over a switch or router



All cameras have the same IP address (192.168.1.108 by default) after they are delivered out of factory. To make the Camera get access to network smoothly, plan available IP segment reasonably according to practical network environment.

1.2 Logging in to the Web Interface

1.2.1 Device Initialization

For first usage, you need to initialize the Camera by performing the following steps:

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

The **Device Initialization** interface is displayed. See Figure 1-3. For the parameter description, see Table 1-1.

Figure 1-3 Device initialization

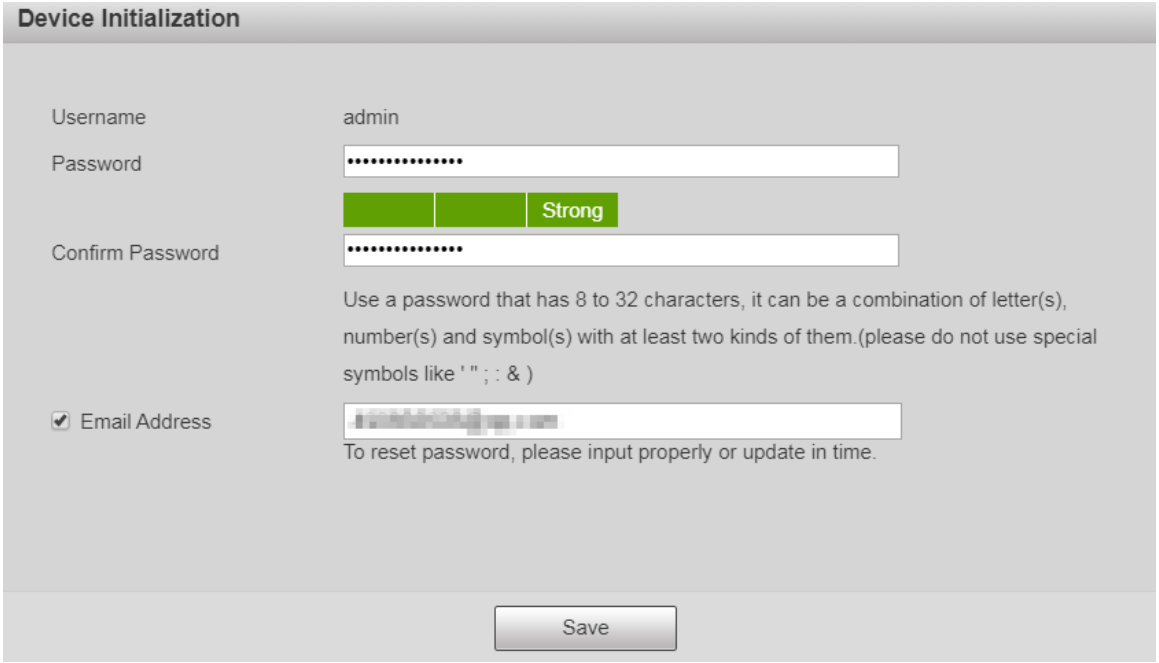


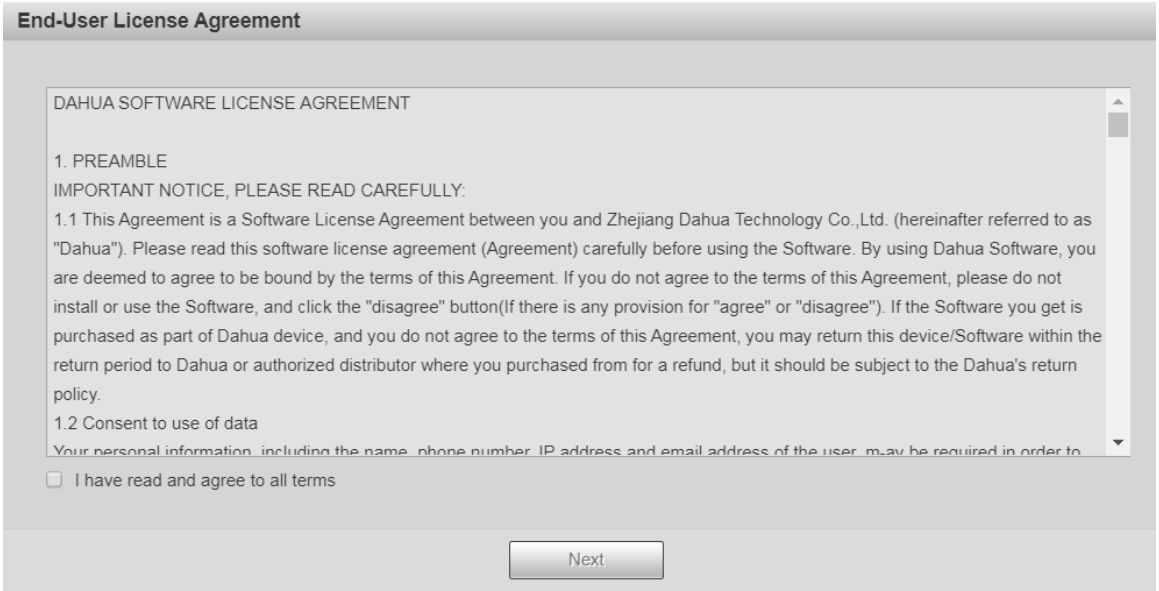
Table 1-1 Device initialization parameter description

Parameter	Description
Username	It is admin by default.
Password	The password should consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special characters (excluding ' " ; : &). Set a high security password according to the prompt of password strength. Make sure that the new password is the same as the confirmed password.
Confirm Password	Enter the confirming password that shall be the same as the password you entered.
Email Address	Set the email address which is used to reset password. Email address is enabled by default. You can disable the function as needed.

Step 2 Click **Save**.

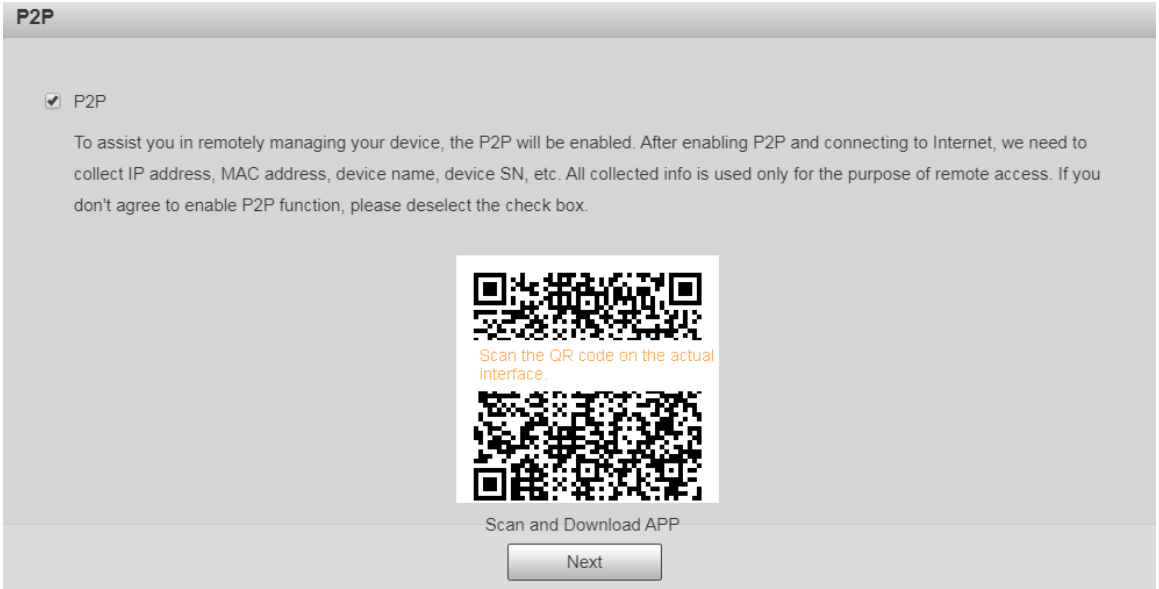
The **End-User License Agreement** interface is displayed. See Figure 1-4.

Figure 1-4 End-user license agreement



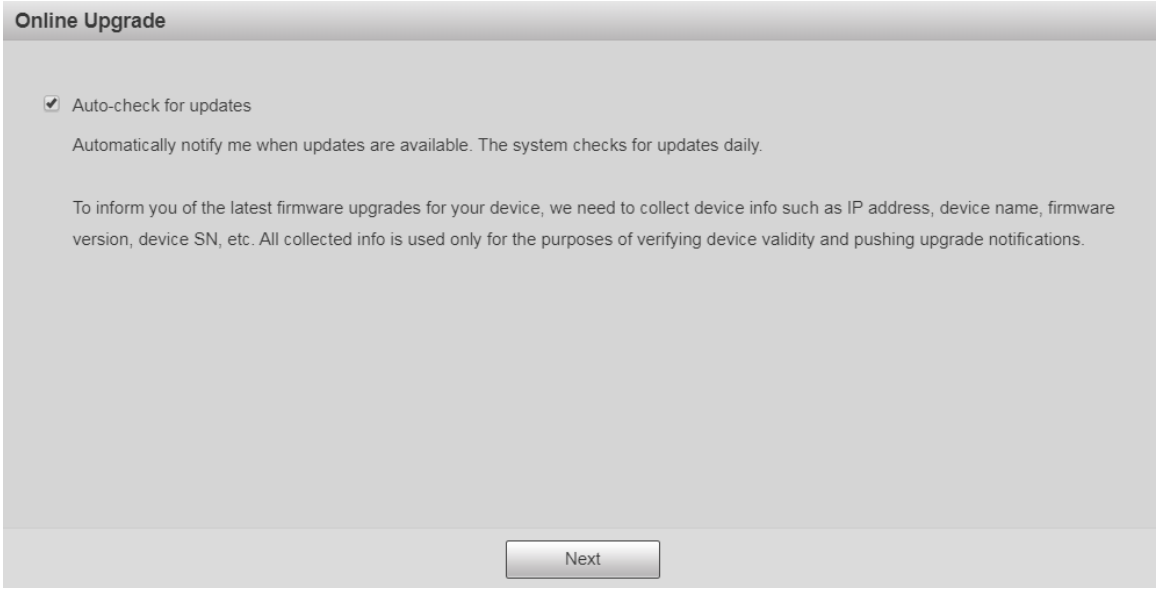
Step 3 Select **I have read and agree to all terms** check box, and then click **Next**.
The **P2P** interface is displayed. See Figure 1-5.

Figure 1-5 P2P



Step 4 Scan the QR code on the interface, download the app, and then finish configurations according to the instructions on your mobile device. After that, Click **Next**.
The **Online Upgrade** interface is displayed.

Figure 1-6 Online upgrade



Step 5 Select **Auto-check for updates** check box as needed.

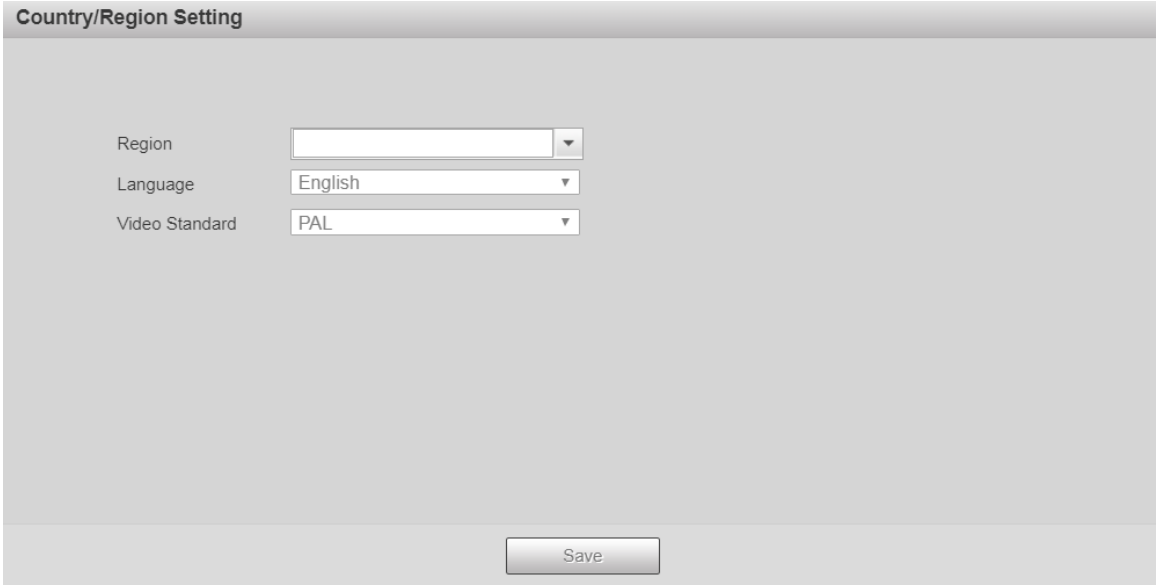
After the function is enabled, the Camera will check for updates once a day automatically. There will be system notice if any update is available.

Step 6 Click **Next**.

The **Country/Region Setting** interface is displayed.

Set the **Region**, **Language** and **Video Standard** as needed. See Figure 1-7.

Figure 1-7 Country/region setting interface



Step 7 Click **Save**, and the **Login** interface is displayed. See Figure 1-8.

Figure 1-8 Login interface

1.2.2 First Time Login

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

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

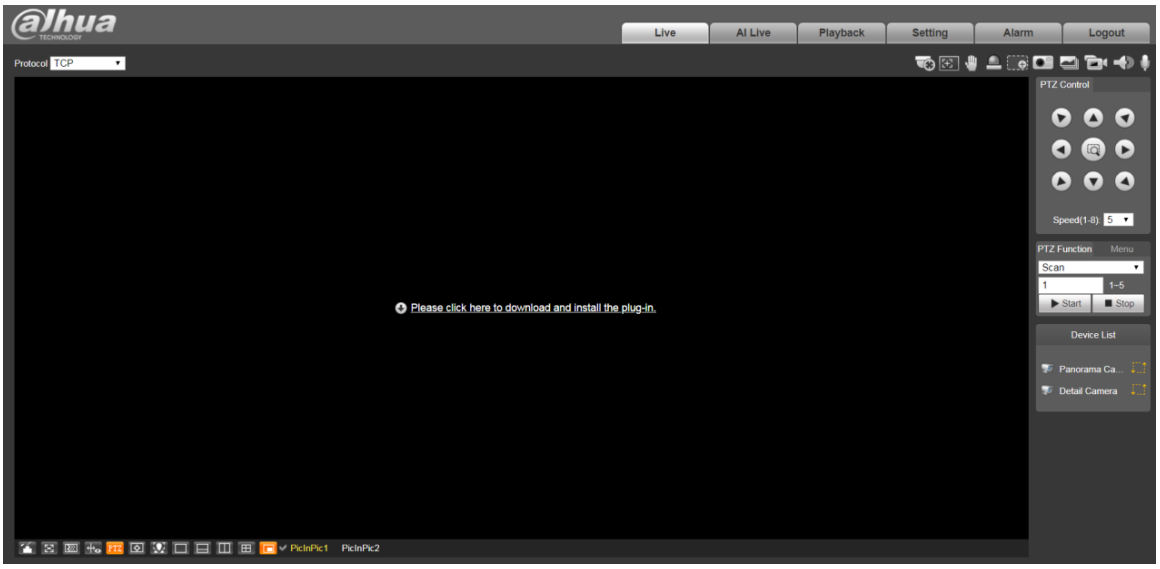
Step 2 Enter the username and password, and then click **Login**.

The web interface is displayed.

- If you enter the wrong password for 5 times, the account will be locked for 5 minutes. After the locked time, you can log in to the web interface again.
- You can set the number of allowed password attempts and locked time in "5.4.9.3 Illegal Access."

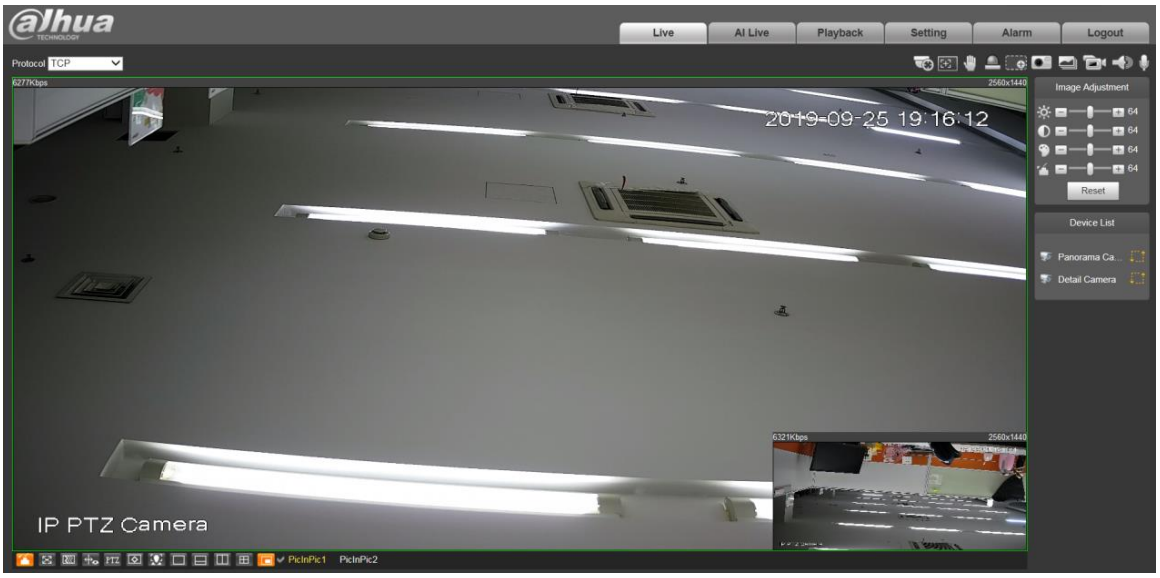
Step 3 Download and install the plug-in according to the on-screen instruction after logging in to the web interface. See Figure 1-9.

Figure 1-9 Installing the plug-in



Step 4 After the plug-in is installed, the web interface will be refreshed automatically, and the video is displayed in **Live** interface. See Figure 1-10.

Figure 1-10 Live interface



The **Live** interface shown in the manual is for reference only, and the actual interface shall prevail.

1.2.3 Device Login

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

The **Login** interface is displayed. See Figure 1-11.

Figure 1-11 Device Login

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

The web interface is displayed, and the video is displayed in **Live** interface.

- If you enter the wrong password for 5 times, the account will be locked for 5 minutes. After the locked time, you can log in to the web interface again.
- You can set the number of allowed password attempts and locked time in "5.4.9.3 Illegal Access."

1.2.4 Resetting Password

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

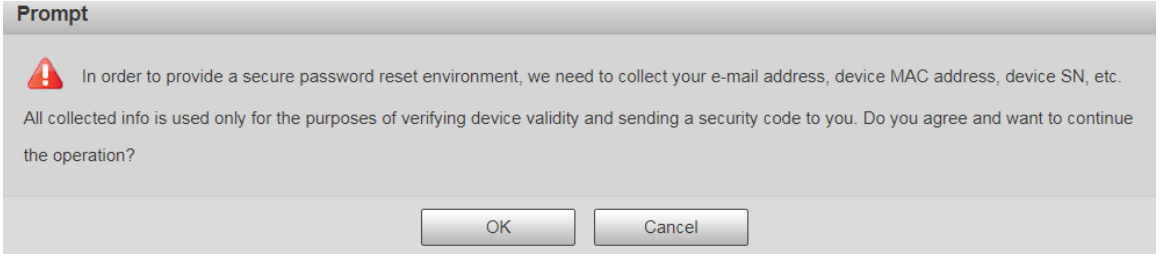
Step 1 Open the browser, enter the IP address of the Camera in the address bar, and then press the Enter button.

The **Login** interface is displayed. See Figure 1-12.

Figure 1-12 Login

Step 2 Click **Forgot password?**, and the **Prompt** interface is displayed. See Figure 1-13.

Figure 1-13 Prompt



Step 3 Click **OK** to reset the password. The **Reset the password (1/2)** is displayed.

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

Figure 1-14 Resetting the password (1)

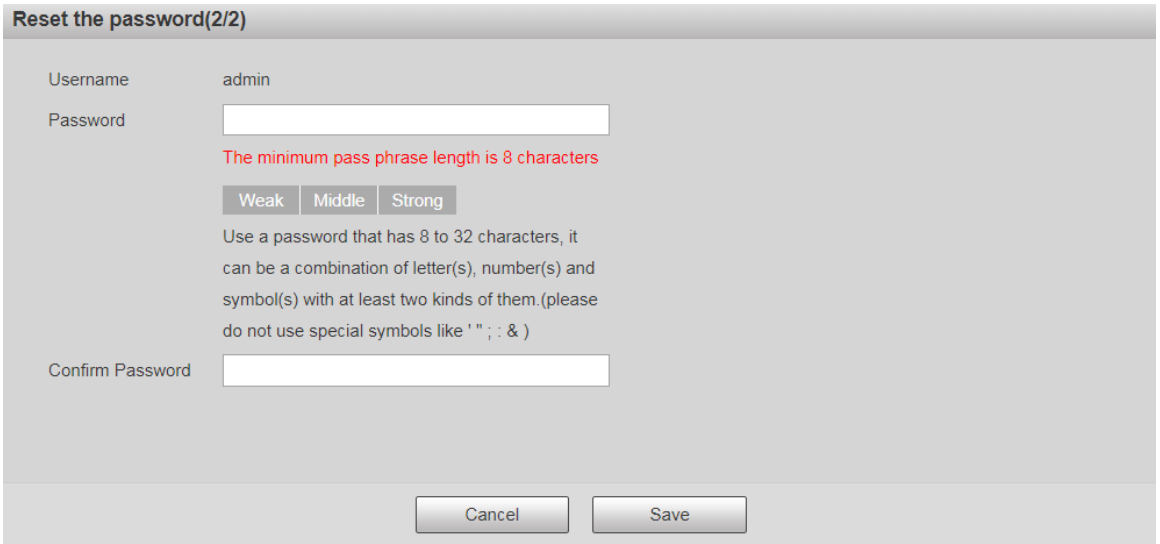
Step 4 Scan the QR code on the actual interface according to the instructions, and then enter the security code received in the mailbox.

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

Step 5 Click **Next**.

The **Reset the password (2/2)** interface is displayed. See Figure 1-15.

Figure 1-15 Resetting the password (2)



Step 6 Set the password of the admin user again.

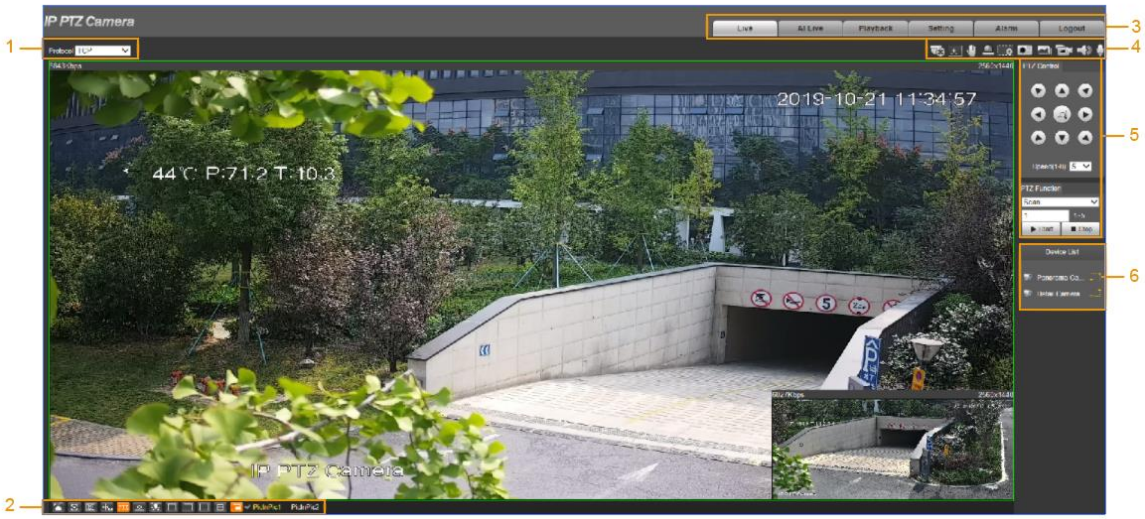
The password should consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special characters (excluding ' " ; : &). Set a high security password according to the prompt of password strength.

Step 7 Click **Save**.

2 Live

Click the **Live** tab, and the **Live** interface is displayed..

Figure 2-1 Live interface



For function discription on the **Live** interface, see Table 2-1.

Table 2-1 Function bar description

No.	Description
1	Encoding setting
2	Video window adjustment
3	System menu
4	Video window functions
5	PTZ configuration
6	PTZ status

2.1 Encoding Setting

The supported protocols include **TCP** (Transmission Control Protocol), **UDP** (User Datagram Protocol), and **Multicast**.

Figure 2-2 Encoding setting

Before selecting **Multicast**, make sure that you have set the multicast parameters. For details, see "5.2.9 Multicast."

2.2 Video Window Adjustment

For the video window adjustment bar, see Figure 2-3. For parameter descriptions, see Table 2-2.

Figure 2-3 Video Window Adjustment

Table 2-2 Video window adjustment parameter description

No.	Parameter	Description
1	Image Adjustment	Click this button, and the **Image Adjustment** interface is displayed on the right side of the **Live** interface. You can adjust parameters such as brightness, contrast, hue, and saturation.
2	Full Screen	Click this button, and the video is displayed in full screen. To exit full screen, double-click the screen or press the Esc button.
3	Fluency	Click this button, and you can select **Realtime**, **General**, or **Fluent**. **General** is selected by default.
4	Rules Info	Click this button, and smart rules are displayed on the **Live** interface. The function is enabled by default.
5	PTZ	Click this button, and **PTZ** configurations are displayed on the **Live** interface.
6	Anti-aliasing	Click this button, and aliasing can be avoided when video windows are small after anti-aliasing is enabled.
7	Face	Click this button, and face previews are displayed on the interface. See Figure 2-5.
8	1 Split	Click this button, and select Panorama Camera or Detail Camera to view the image of the corresponding camera channel.
9	2 Splits (up and down)	Click this button, and you can view the images of both Panorama Camera channel and Detail Camera channel.
10	2 Splits (right and left)	
11	4 Splits	Click this button, and the **Live** interface will be divided into four images.
12	PicInPic	Click this button, and then select the picture-in-picture mode. The two camera channels will be set as main image and auxiliary image respectively. **PicInPic 1**: Panorama Camera channel will be set as main image, and Detail Camera channel will be set as auxiliary image. **PicInPic 2**: Detail Camera channel will be set as main image, and Panorama Camera channel will be set as auxiliary image.

Image Adjustment

For **Image Adjustment** interface, see Figure 2-4. For parameter description, see Table 2-3.

Figure 2-4 Image adjustment

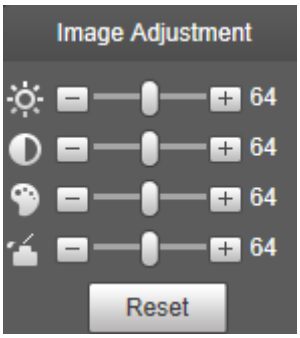


Table 2-3 Image adjustment parameter description

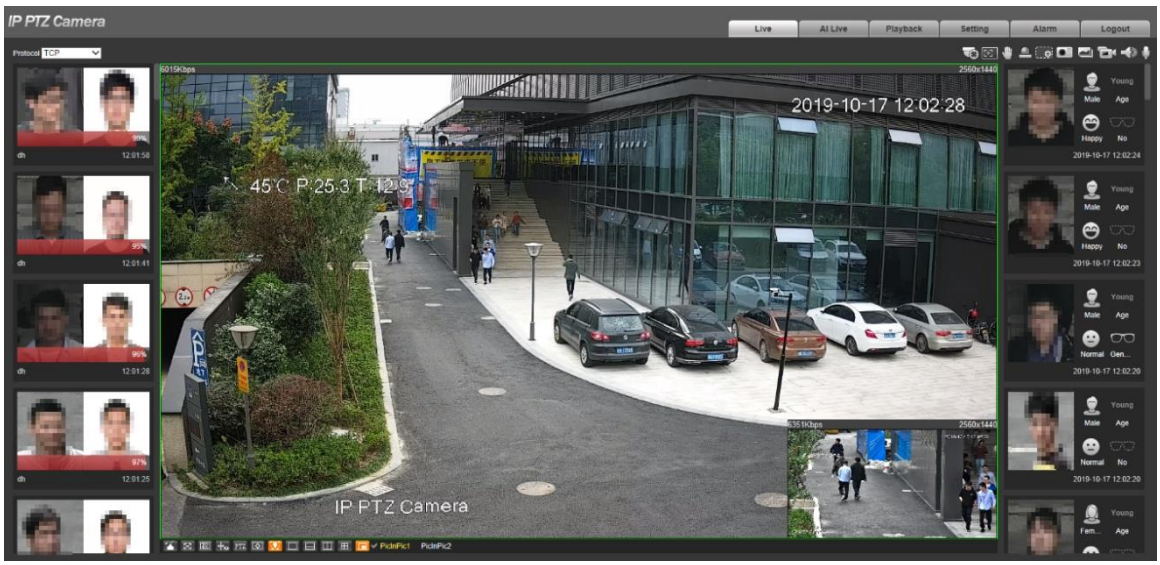
Parameter	Description
	Adjust the image brightness.
	Adjust the image contrast.
	Adjust the image hue.
	Adjust the image saturation.
Reset	Restore brightness, contrast, saturation and hue to default values.

Only brightness, contrast, hue, and saturation of live view image on the web interface can be adjusted with this function. To adjust the brightness, contrast, hue, and saturation of the Camera, you can go to **Setting** > **Camera** > **Conditions**.

Face

For the **Face** interface, see Figure 2-5. Face recognition results are displayed on the left side, and the captured face pictures and attributes are displayed on the right side.

Figure 2-5 Face



- Face recognition result display area: Displays the captured small face pictures, the corresponding face pictures in the database, and the similarities between them. After you click the picture, the attributes and details are displayed. See Figure 2-6.

Figure 2-6 Face recognition result display

- Face and attributes display area: Displays the captured small face pictures and information such as gender, age, and expression. After you click the picture, the details are displayed. See Figure 2-7.

Figure 2-7 Face and attributes display

1 Split/2 Splits/4 Splits/PicInPic

You can view the image in several modes, including 1 Split, 2 Splits, 4 Splits, and PicInPic.

1 Split

In 1 Split mode, you can switch between Panorama Camera and Detail Camera to view the image. See Figure 2-8 and Figure 2-9.

Figure 2-8 1 Split—Panorama Camera

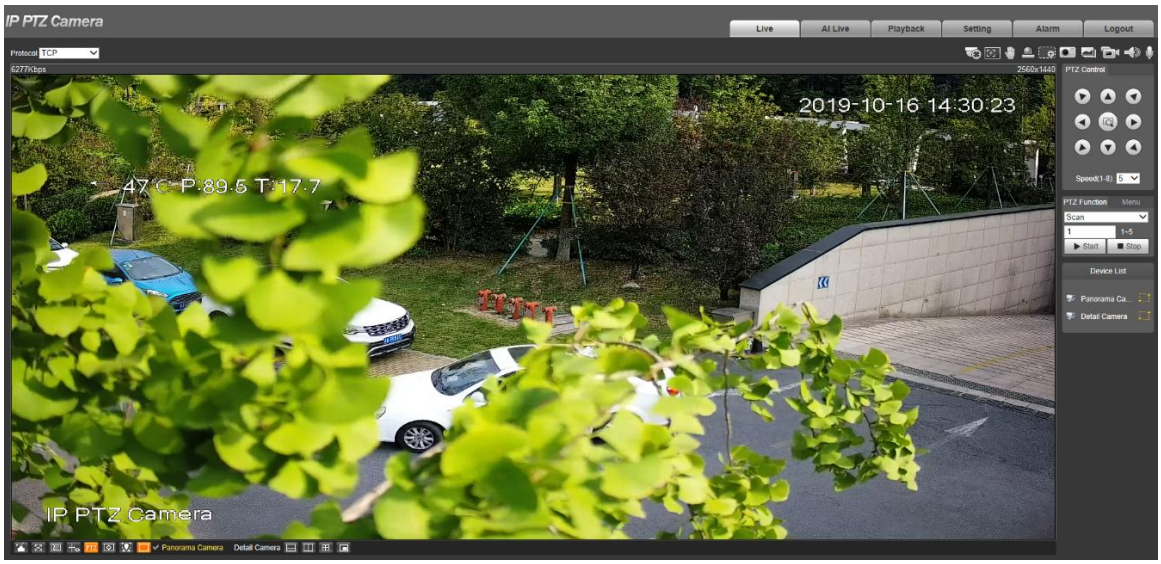
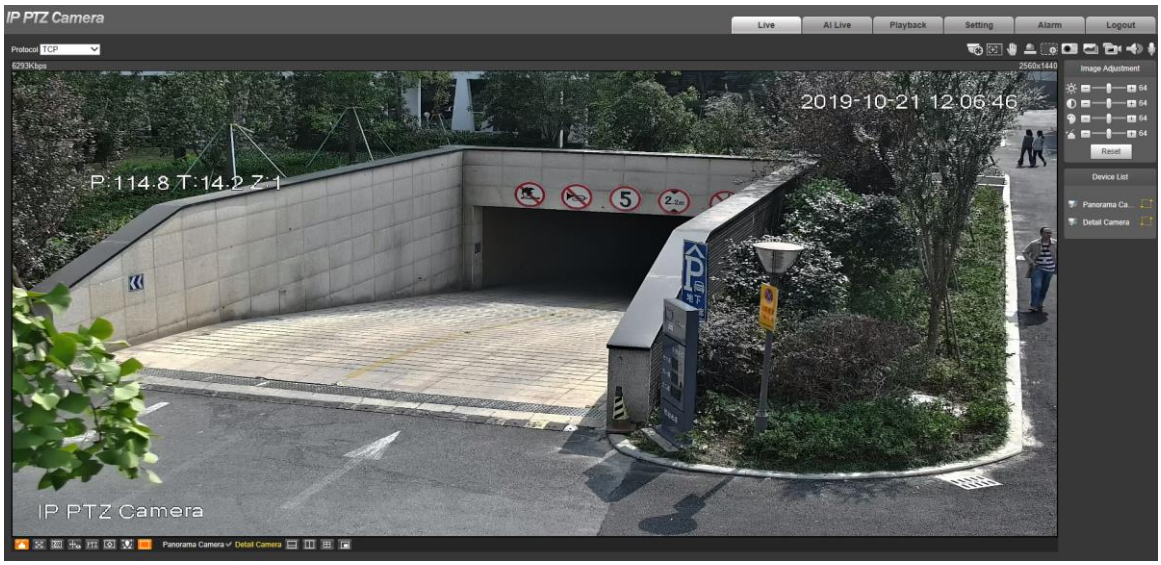


Figure 2-9 1 Split—Detail Camera



2 Splits

In 2 Splits mode, you can view the monitoring images of both Panorama Camera channel and Detail Camera channel. See Figure 2-10 and Figure 2-11.

Figure 2-10 2 Splits (up and down)

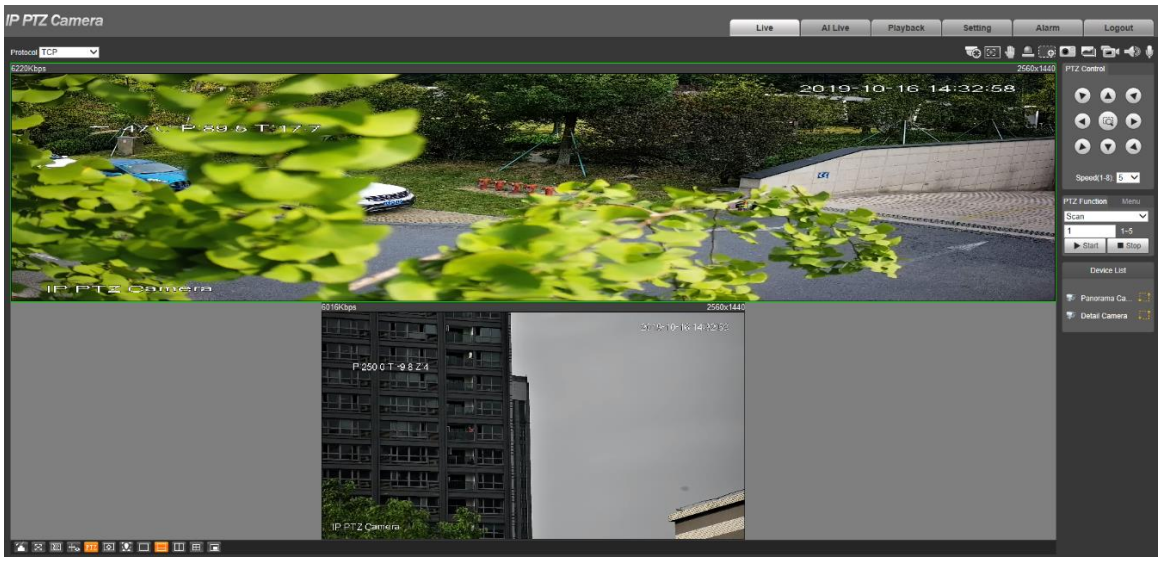
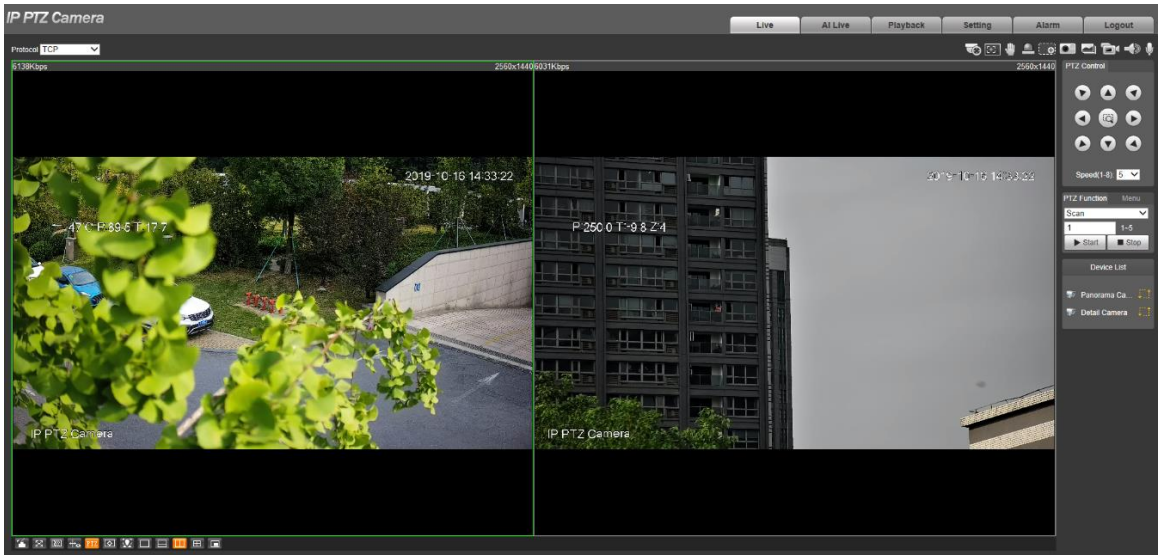


Figure 2-11 2 Splits (right and left)

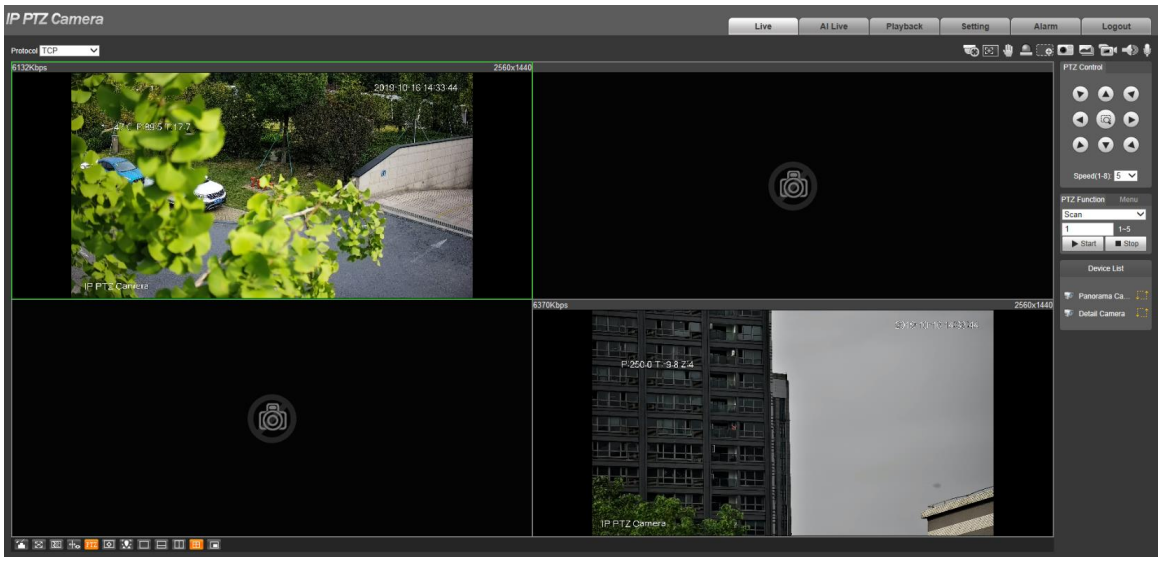


4 Splits

In 4 Splits mode, the live view is divided into four images. And the live video is displayed in two images among them. See Figure 2-12.

Press and hold the left mouse button to change its position on the screen.

Figure 2-12 4 Splits



PicInPic

PicInPic is the default mode of **Live** interface. The monitoring images of Panorama Camera channel and Detail Camera channel can be displayed in the live view at the same time, one large and one small. There are two PicInPic modes for you to choose.

- **PicInPic 1**: Panorama Camera channel will be set as large image, and Detail Camera channel will be set as small image. See Figure 2-13.
- **PicInPic 2**: Detail Camera channel will be set as large image, and Panorama Camera channel will be set as small image. See Figure 2-14.

Press and hold the left mouse button on the small image to change the position of the image. Drag the four corners of the small image to adjust the image size.

Figure 2-13 PicInPic 1

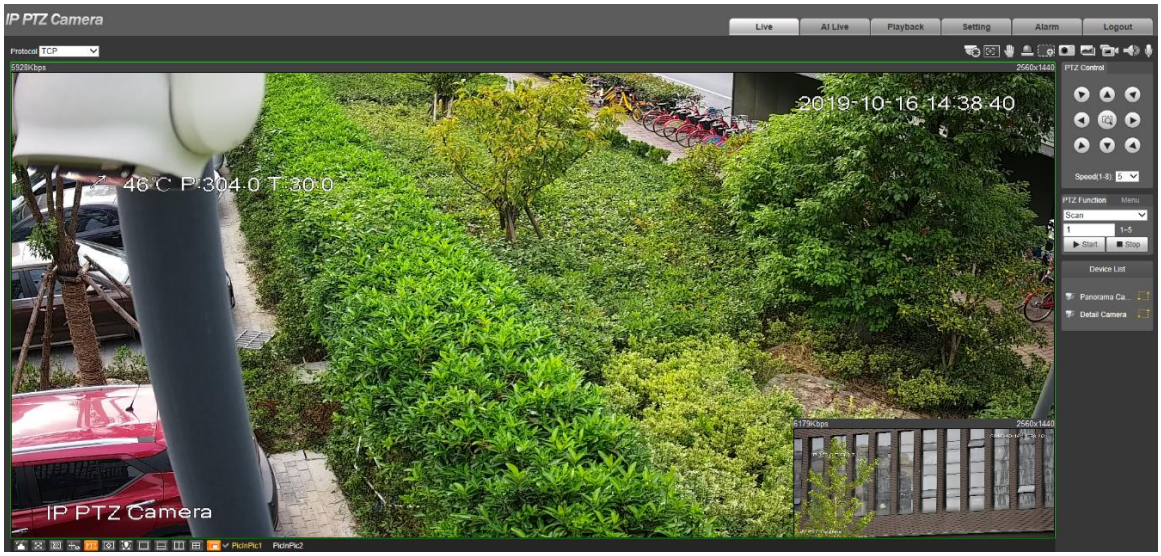


Figure 2-14 PicInPic 2

2.3 System Menu

To access an interface, click the corresponding tab on the system menu.

Figure 2-15 System menu

2.4 Video Window Function Buttons

For the video window function buttons, See Figure 2-16. For the parameter description, see Table 2-4.

Figure 2-16 Video window function buttons

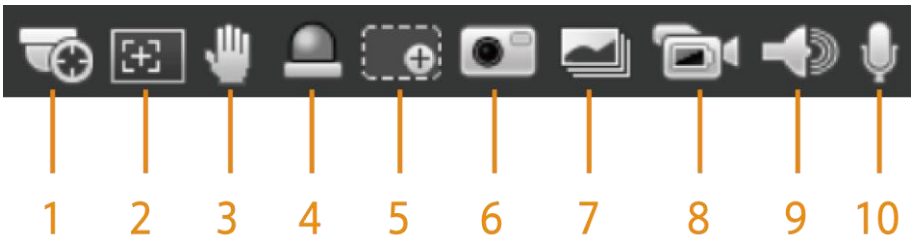


Table 2-4 Video window function button description

No.	Parameter	Description
1	Manual Position	Click the button, draw a box with the mouse on the screen, and then the Camera will automatically collect information in this area. The function only works in Detail Camera channel.
2	Regional Focus	Click the button, draw a box with the mouse on the screen, and then the Camera will automatically focus on the area in the box.
3	Gesture Control	Click the button, and you can drag the live view by pressing and holding the left mouse button to control PTZ; and you can also zoom in or out through the mouse wheel. The function only works in Detail Camera channel.
4	Relay-out	Click the button, and an alarm will be triggered. You can click the button to cancel alarms if any. When an alarm is triggered, the button turns red; and when an alarm is canceled, the button turns gray.
5	Digital Zoom	● Click the button, and then select an area in the live view to zoom in; right-click on the image to restore to the original status. In zoomed-in status, drag the image to check other areas. ● Click the button, and then scroll the mouse wheel in the live view to zoom in or out.
6	Snapshot	Click the button to capture one picture of the current image, and it will be saved to the storage path set in "5.1.2.5 Path."
7	Triple Snapshot	Click the button, and three pictures of the current image are captured with one snapshot per second. These snapshots will be saved to the storage path set in "5.1.2.5 Path."
8	Record	Click the button to record videos. The recording will be saved to the storage path set in "5.1.2.5 Path."
9	Audio	Click the button to enable or disable audio output of the monitoring stream. Before using the function, you need to enable the audio of the corresponding stream in **Setting > Camera > Audio** first.
10	Talk	Click this button to enable or disable the intercom.

2.5 PTZ Configuration

You can control PTZ by using the **PTZ Control** panel. You can also set preset, scanning, and other functions in the **PTZ Function** area.

2.5.1 PTZ Control

For PTZ control panel, See Figure 2-17. For parameter description, see Table 2-5.

Figure 2-17 PTZ control

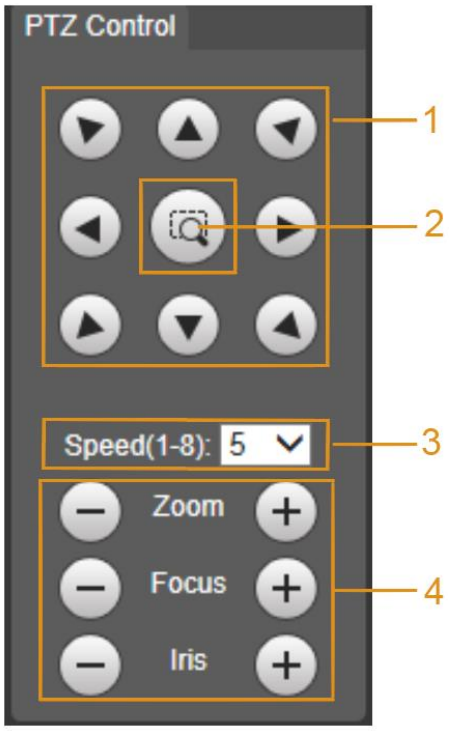
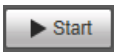


Table 2-5 PTZ control parameter description

No.	Parameter	Description
1	Direction buttons	There are 8 directions: up, down, left, right, top left, top right, bottom left, and bottom right.
2	Position	In Detail Camera live view, click or select an area in the live image, and the PTZ will rotate to and focus on the selected area quickly.
3	Speed	The changing speed of PTZ direction. The higher the value, the faster the speed.
4	Zoom/Focus/Iris	Click  to increase the value, and click  to decrease the value. The function only works in Detail Camera channel.

2.5.2 PTZ Function

For detailed description of PTZ functions, see "5.3 PTZ Settings."

There are seven options: **Scan**, **Preset**, **Tour**, **Pattern**, **Pan**, **Assistant**, and **Go to**. Select a function, click 

to start using the function, and then click 

to stop using the function. For the configuration interface, See Figure 2-18. For the supported functions and settings, see Table 2-6.

Figure 2-18 PTZ function

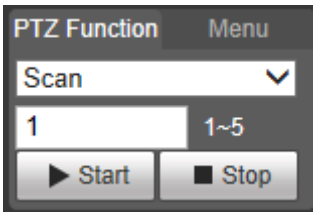


Table 2-6 PTZ function description

Parameter	Description
Scan	Select **Scan** from the list, enter a scan number, and then click **Start**. The PTZ starts scanning, and the default number is 1.
Preset	Select **Preset** from the list, enter a preset number, and then click **Go to**. The PTZ will rotate to the preset position.
Tour	Select **Tour** from the list, enter a tour number, and then click **Start**. The PTZ starts to tour.
Pattern	Select **Pattern** from the list, enter a pattern number, and then click **Start**. The PTZ starts to pattern.
Assistant	Reserved for special requirements. If necessary, enable this function under the guidance of professionals.
Pan	Select **Pan** from the list, and then click **Start**. The PTZ starts to pan.
Go to	● Select **Go to** from the list, enter horizontal angle value and vertical angle value, and then click **Go to**. The Camera will turn to the position you want. ● One unit of the horizontal angle value or vertical angle value you enter equals 0.1 degree.

2.5.3 Menu

For the menu interface, see Figure 2-19. For the parameter description, see 0.

Figure 2-19 Menu interface

Table 2-7 Menu parameter description

Parameter	Description
Direction buttons	Click the up and down buttons to select parameters, and click the left and right buttons to select parameter values.
OK	Confirmation button.
Open	Open the OSD menu.
Close	Close the OSD menu.

Click **Open** to open the OSD menu. The OSD menu is displayed on the live view. See Figure 2-20.

You can change the location of the OSD menu as described in "5.1.2.3 Overlay."

Figure 2-20 OSD menu

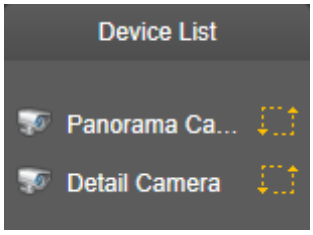
You can finish the following settings through the menu:

- Camera settings: See "5.1 Camera."
- PTZ settings: See "5.3 PTZ Settings."
- System management: See "5.6 System Management."

2.6 Device List

For the **Device List** interface, See Figure 2-21.

Figure 2-21 Device list



- Click the corresponding  of the Camera to switch video streams. See Figure 2-22.

   is Sub Stream 1,  is Sub Stream 2.

- Click the stream button, and it turns yellow, indicating that the stream is selected. Click the button again, and it turns gray, indicating that the stream is closed.

Figure 2-22 Video stream

3 AI Live

You can check the information of the detected human faces, human bodies, motor vehicles, and non-motor vehicles.

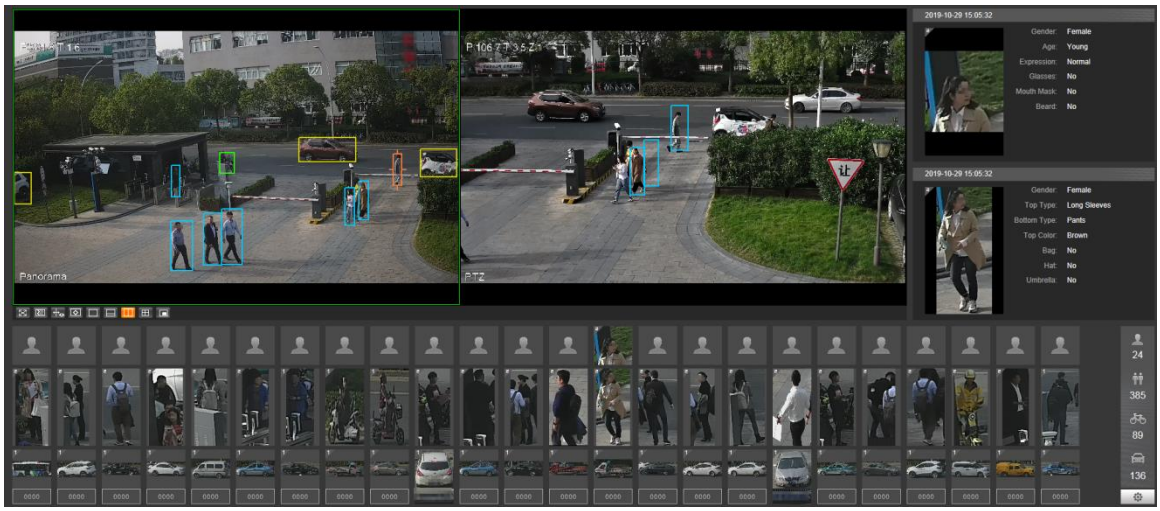
You need to enable the video structuralization function. For the methods to enable the function, see "5.4.4 Smart Plan". For the operations, see "5.4.7 Video Structuralization."

3.1 Setting Detection Attributes

Step 1 Click the **AI Live** tab. The **AI Live** interface is displayed. See Figure 3-1.

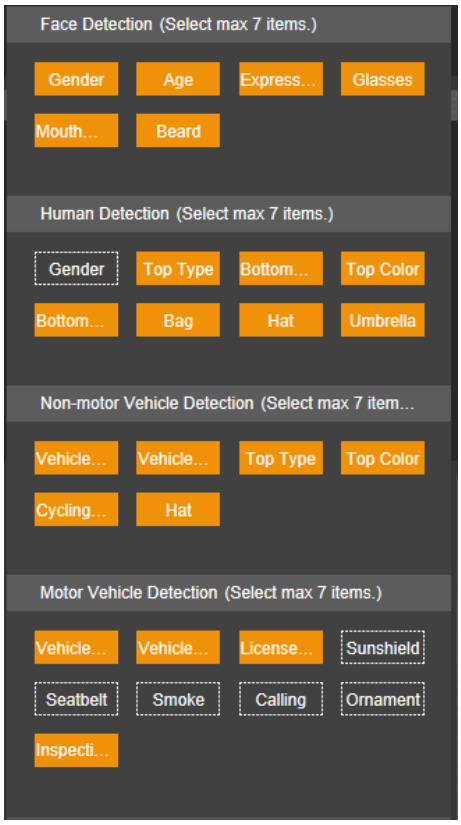
- The information display area of detected targets is on the right side.
- The snapshot display area is on the bottom.
- The statistics area of the detected targets is on the lower right corner.

Figure 3-1 AI Live interface



Step 2 Click  to select the detection attributes of the targets. See Figure 3-2.

Figure 3-2 Detection attributes selection interface



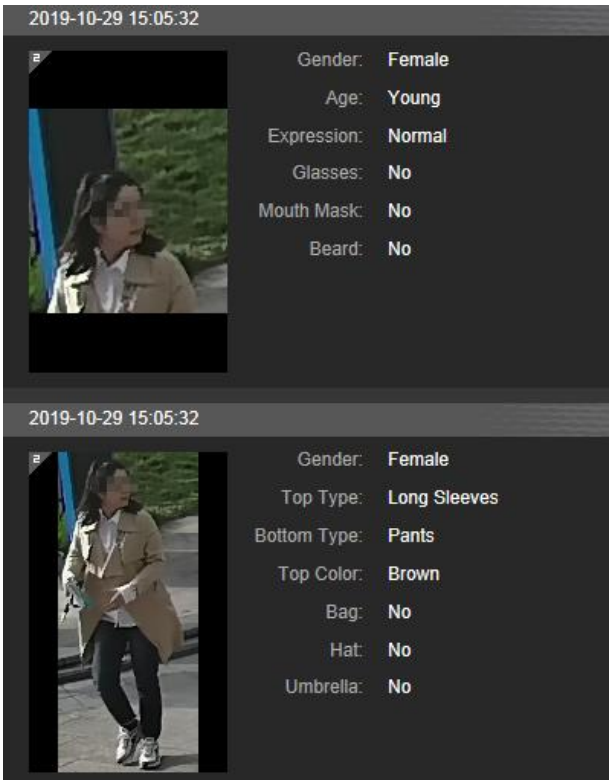
Step 3 Click 

.

3.2 Information Display Area of Detected Targets

Display the information of the captured target in real time. See Figure 3-3.

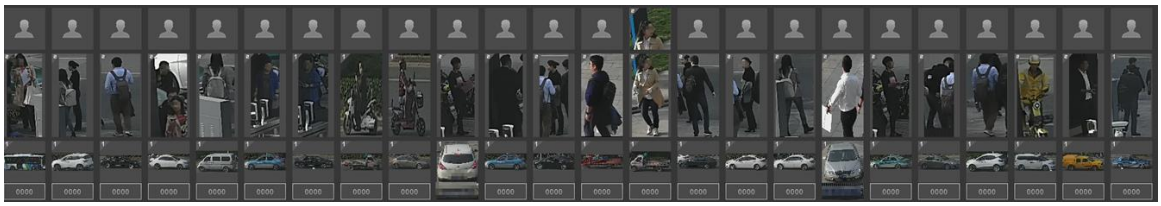
Figure 3-3 Information display area of detected targets



3.3 Snapshot Display Area

Display the snapshots of the detected targets. Click any snapshot to view the information of the detected target in information display area.

Figure 3-4 Snapshot display area



3.4 Statistics Area of the Detected Targets

Display the number of the captured target in real time. See Figure 3-5.

Figure 3-5 Statistics area of the detected targets

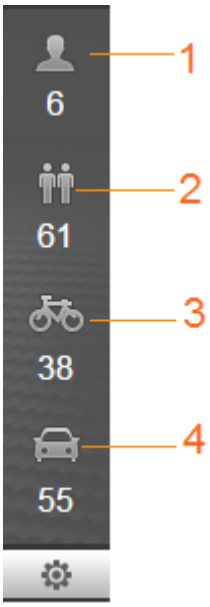


Table 3-1 Description of the detected targets statistics area

No.	Description
1	Face detection
2	Human body detection
3	Non-motor vehicle detection
4	Motor vehicle detection

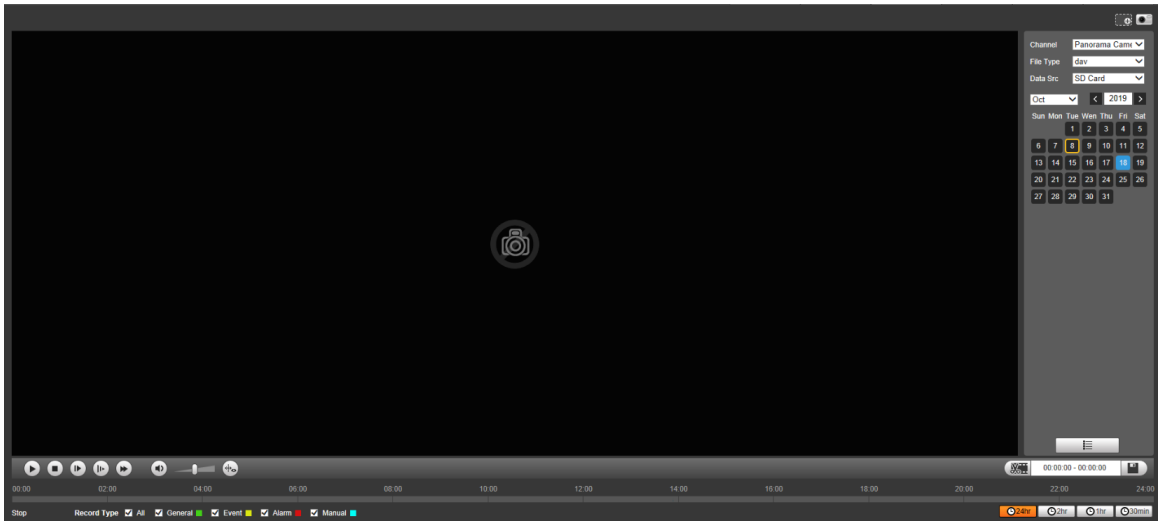
4 Playback

You can watch the saved pictures and videos on the **Playback** interface.

Before using the function, you need to set the schedule, storage method, and record control of the recording and snapshot first. For details, see "5.5 Storage."

Click the **Playback** tab, and the **Playback** interface is displayed. See Figure 4-1.

Figure 4-1 Playback interface



4.1 Video Playback

Select **dav** from the **File Type** list, and the video playback interface is displayed. See Figure 4-2. For interface description, see Table 4-1.

Figure 4-2 Video playback

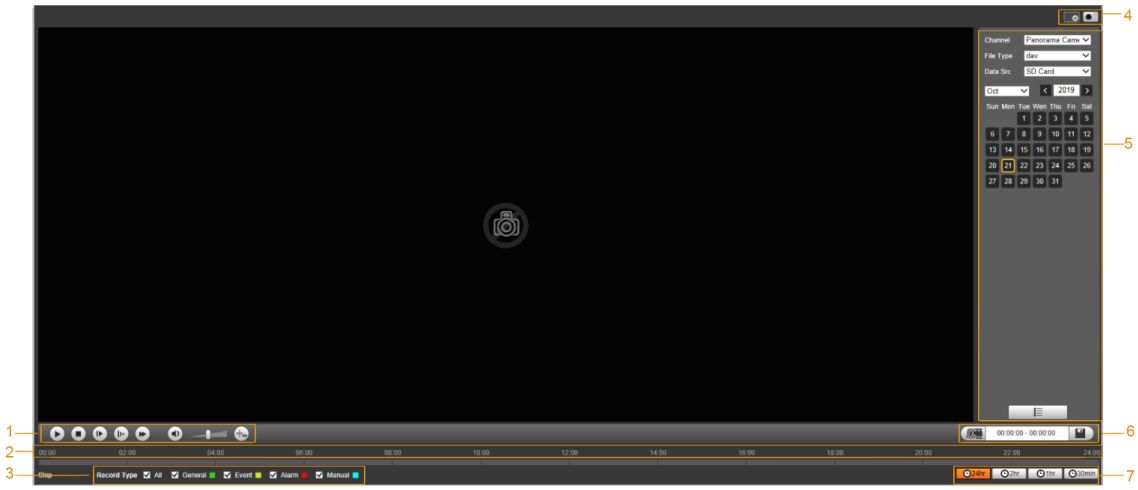


Table 4-1 Video playback parameter description

No.	Description
1	Video playing function bar
2	Progress bar
3	Recording types
4	Auxiliary functions
5	Video playback file search and display area
6	Video clipping area
7	Progress bar time formats

4.1.1 Video Playing Function Bar

For the video playing function bar, see Figure 4-3. For the parameter description, see Table 4-2.

Figure 4-3 Video playing function bar

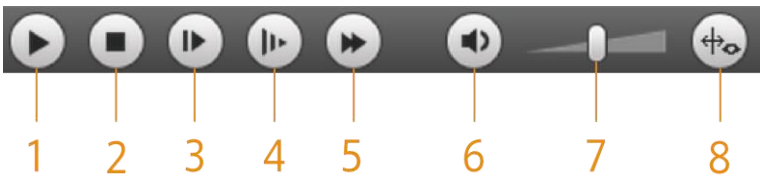


Table 4-2 Video playing function bar description

No.	Parameter	Description
1	Play	Play the video.
2	Stop	Stop playing the video.
3	Next Frame	Play the next frame. You need to pause the playback before playing the next frame.
4	Slow	Slow down video playing.
5	Fast	Speed up video playing.
6	Sound	Mute or unmute the sound.
7	Volume	Adjust the volume.
8	Rules Info	Click this button, and smart rules will be displayed on the video playback interface if the smart rules are enabled.

4.1.2 Recording Types

Select a recording type, and then only files of the selected types will be displayed in progress bar and file list. See Figure 4-4.

Figure 4-4 Record type

4.1.3 Auxiliary Functions

For the auxiliary function bar, see Figure 4-5. For the parameter description, see Table 4-3.

Figure 4-5 Auxiliary function bar

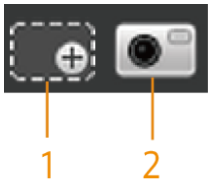


Table 4-3 Auxiliary function parameter description

No.	Parameter	Description
1	Digital Zoom	● Click the button, and then select an area in the live view to zoom in; right-click on the image to restore to the original status. In zoomed-in status, drag the image to check other areas. ● Click the button, and then scroll the mouse wheel in the live view to zoom in or out.
2	Snapshot	Click this button, and then you can take snapshots of the video in playback, and save them in the path set in "5.1.2.5 Path."

4.1.4 Video Playback File Search and Display Area

There are videos and snapshots on days with blue shading. For the parameter description, see Table 4-4.

Figure 4-6 Playback file (1)

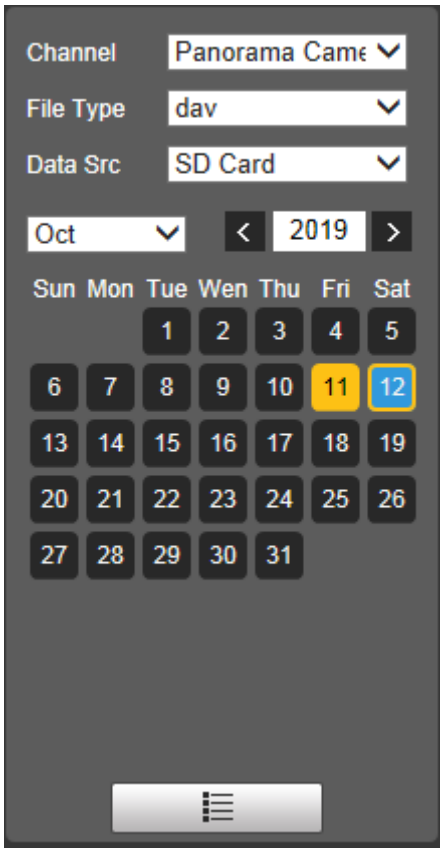


Table 4-4 Playback file parameter description (1)

Parameter	Description
Channel	Slect **Panorama Camera** or **Detail Camera**.
File Type	● To play back a recording, select **dav**. ● To play back a picture, select **jpg**.
Data Src	The **SD Card** is selected by default.
	File list. Click this button, and the recording files on the selected day will be displayed in the list.

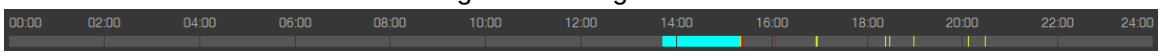
Displaying File List

Step 1 Click a day with blue shading, and recording file progress bar with different colors is displayed on the time axis.

- Green: Represents general videos.
- Yellow: Represents motion detection videos.
- Red: Represents alarm videos.
- Blue: Represents manually recorded videos.

Step 2 Click anywhere on the progress bar, and the video will be played from that time. For the progress bar, see Figure 4-7.

Figure 4-7 Progress bar



Step 3 Click  , and videos recorded on the selected day will be displayed in a list.

Step 4 For the playback file list, see Figure 4-8. For the parameter description, see Table 4-5. To play back a file on the list, double-click the file.

Figure 4-8 Playback file (2)

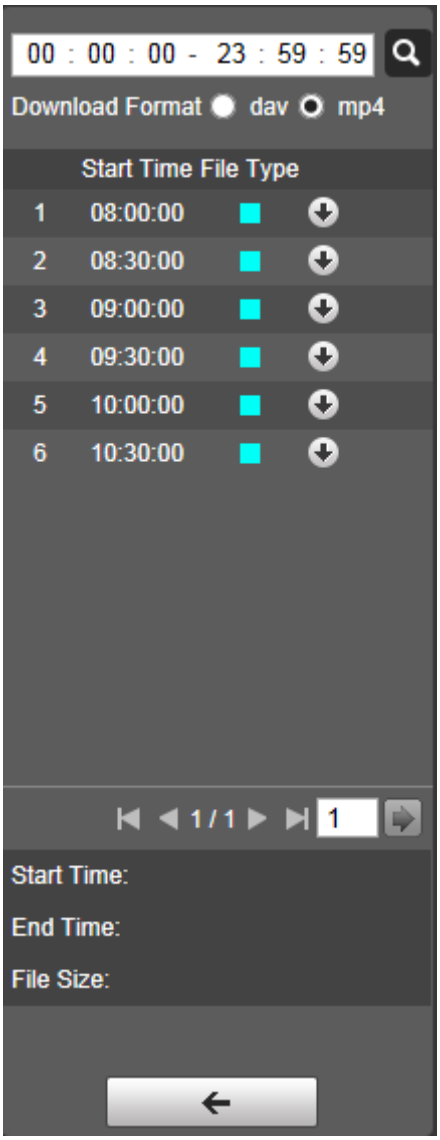


Table 4-5 Playback file parameter description (2)

Parameter	Description
	Search all the recorded files from the start time to the end time on the selected date.
Download Format	There are two options: **dav** and **mp4**.
	Clicking the download button, and the files will be saved to the storage path set in "5.1.2.5 Path." Downloading and playing video at the same time is not supported.
	Click the button to go back to the calendar interface.

4.1.5 Video Clipping Area

You can clip the videos in this area.

Figure 4-9 Video clipping

Step 1 Click the time axis to select the start time for video clipping. The time must be within the progress bar range.

Step 2 Hover over , and then **Select start time** is displayed.

Step 3 Click to set the start time for video clipping.

Step 4 Click the time axis to select the end time for video clipping. The time must be within the progress bar range.

Step 5 Hover over , and then **Select end time** is displayed.

Step 6 Click to set the end time for video clipping.

Step 7 Click , and the clipped video will be saved in the path set in "5.1.2.5 Path".

4.1.6 Progress Bar Time Formats

For the progress bar time format, see Figure 4-10. For the parameter description, see Table 4-6.

Figure 4-10 Progress bar time format

Table 4-6 Progress bar time format description

Parameter	Description
24hr	24 hour. Click the button, and then the progress bar displays the recordings in 24-hour mode.
2hr	2 hour. Click the button, and then the video within the 2-hour period in which this video was recorded is displayed.
1hr	1 hour. Click the button, and then the video within the 1-hour period in which this video was recorded is displayed.
30min	30 mins. Click the button, and then the video within the 30-minute period in which this video was recorded is displayed.

4.2 Picture Playback

Select **jpg** from the **File Type** list. For the picture playback interface, see Figure 4-11. For the parameter description, see Table 4-7.

Figure 4-11 Picture playback

Table 4-7 Picture playback parameter description

No.	Description
1	Picture playing functions
2	Snapshot types
3	Picture playback file search and display area

4.2.1 Picture Playing Functions

For the picture playing buttons, see Figure 4-12.

Figure 4-12 Picture playing buttons

The status button is displayed as  by default, indicating the picture play is paused or no picture is being played.

- To play the picture, click  , and the button is switched to  .
- To pause the picture play, click  .

4.2.2 Picture Playback File Search and Display Area

For the playback file interface, see Figure 4-13 and Figure 4-14. For the description of buttons on the interface, see Table 4-8.

Figure 4-13 Playback file (1)

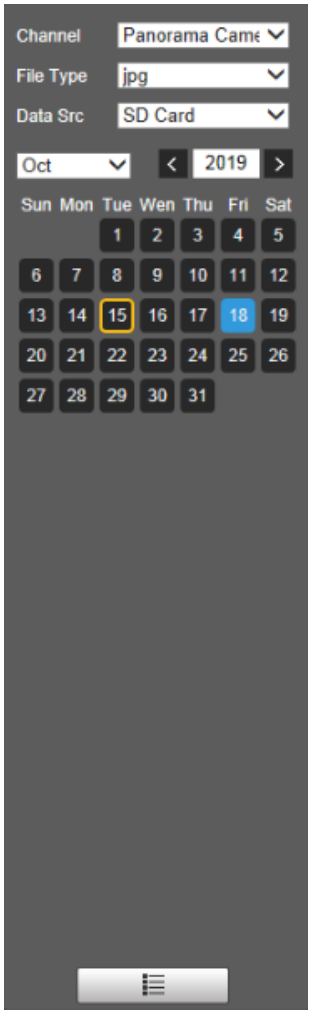
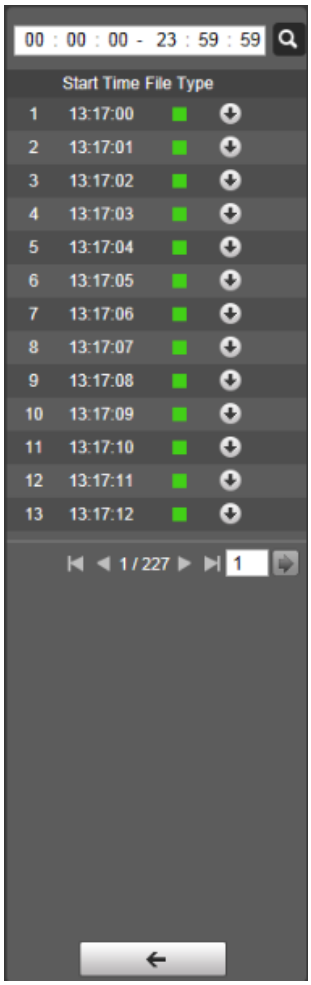


Table 4-8 Button description

Parameter	Description
File Type	Select **jpg** from the **File Type** list, and the picture will be played.
Data Src	The **SD Card** is selected by default.
	File list. Click this button, and the recording files on the selected day will be displayed in the list.

Figure 4-14 Playback file (2)



Step 1 Click , and the snapshots on a selected day will be displayed in a list.

Step 2 To play back a snapshot, double-click the corresponding file. For the parameter description, see Table 4-9.

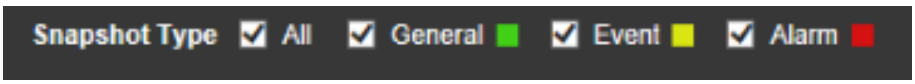
Table 4-9 Playback file parameter description

Parameter	Description
	Search all the snapshots from the start time to the end time on the selected date.
	Click the button to download the snapshot to local storage.
	Click the button to go back to the calendar interface.

4.2.3 Snapshot Types

After you select a snapshot type, only the files of the selected type are displayed on the file list. You can also select the snapshot type to be displayed from the drop-down list above the file list. For snapshot types, See Figure 4-15.

Figure 4-15 Snapshot type



5 Setting

5.1 Camera

5.1.1 Conditions

This section describes how to set camera attributes and manage profiles.

5.1.1.1 Conditions

5.1.1.1.1 Picture

Set camera attributes and picture parameters to achieve the best display effect. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > Conditions > Picture**.

The **Picture** interface is displayed. See Figure 5-1 and Figure 5-2.

Figure 5-1 Picture interface (Panorama Camera)

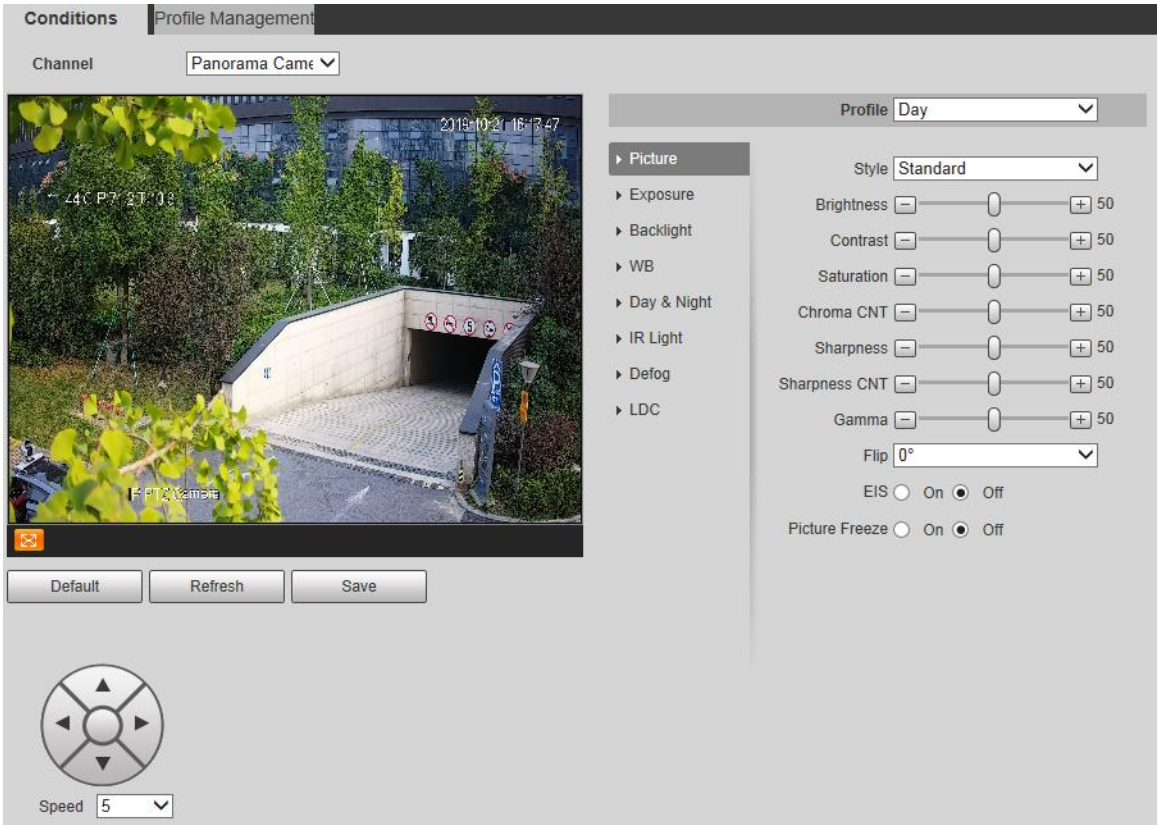
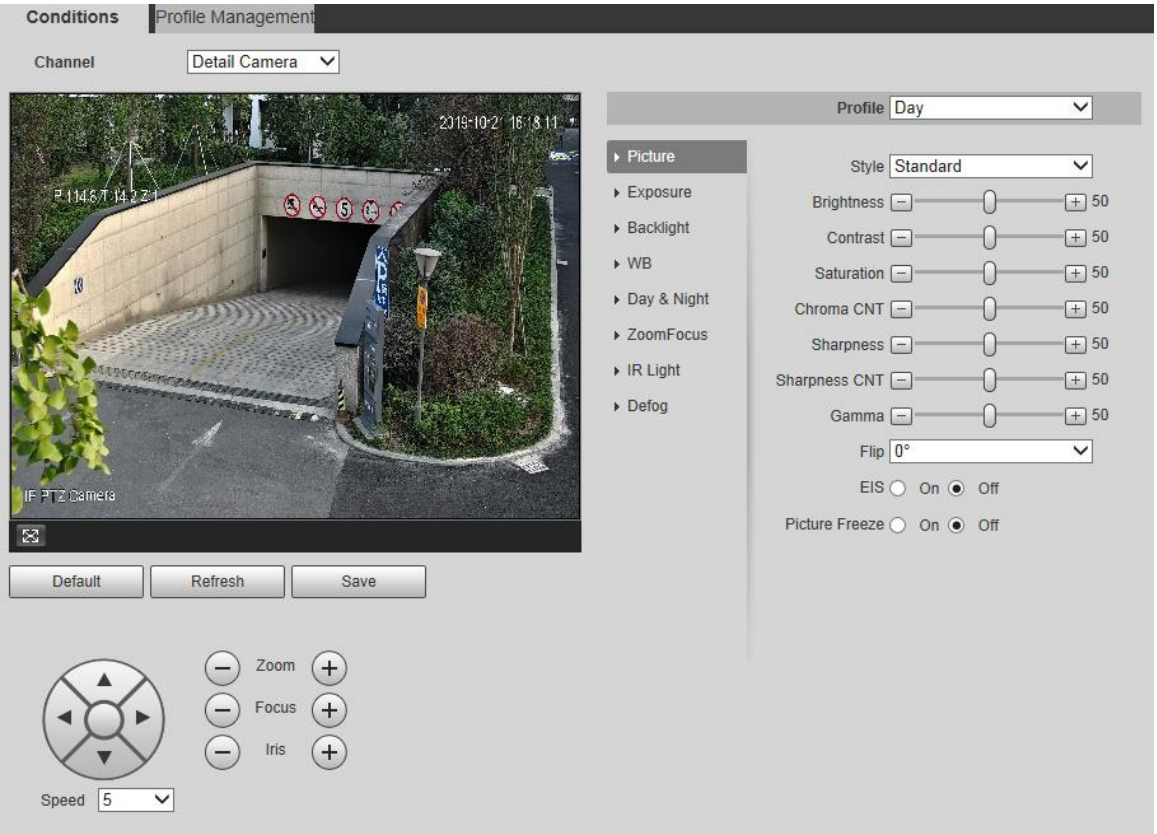


Figure 5-2 Picture interface (Detail Camera)



Step 2 Configure parameters as needed. For parameter description, see Table 5-1.

Table 5-1 Picture setting parameter description

Parameter	Description
Profile	There are three options: **General**, **Day**, and **Night**. You can view the configurations and the effect of the selected mode. **Day** is selected by default.
Style	Set the image display style. There are three options: **Soft**, **Standard**, and **Vivid**. **Standard** is selected by default.
Brightness	Set the overall image brightness. The larger the value is, the brighter the image will be. The value ranges from 0 to 100.
Contrast	Set the image contrast. The larger the value is, the greater the contrast will be. The value ranges from 0 to 100.
Saturation	Set the intensity of colors. The larger the value is, the brighter the colors will be. The value ranges from 0 to 100.
Chroma CNT	The larger the value, the higher suppression on image colors. The value ranges from 0 to 100. This parameter takes effect only when the Camera is in the environment with low luminance.
Sharpness	Set the sharpness of picture edges. The larger the value is, the more obvious the edge will be. The value ranges from 0 to 100. If the value is too large, there might be image noise. Set the value according to the actual condition.

Parameter	Description
Sharpness CNT	The larger the value is , the stronger the sharpness CNT will be. The value ranges from 0 to 100. This parameter takes effect only when the Camera is in the environment with low luminance.
Gamma	Change image brightness through non-linear tuning to expand the dynamic display range of images. The larger the value is, the brighter the image will be. The value ranges from 0 to 100.
Flip	Monitoring videos can be flipped over. There are two options: ● **0°**: The monitoring video is normally displayed. It is **0°** by default. ● **180°**: The monitoring video is flipped over.
EIS	Electronic image stabilization is implemented through an algorithm 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 the environment with low luminance. ● Optical image stabilization and electronic image stabilization cannot be enabled at the same time.
Picture Freeze	After you select **On**, 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.

Step 3 Click **Save**.

5.1.1.1.2 Exposure

You can control the amount of light per unit area reaching the electronic image sensor by adjusting values of parameters on the **Exposure** interface. The exposure modes supported by the Panorama Camera and Detail Camera are different.

- Panorama Camera: Supported modes include **Auto**, **Shutter Priority**, **Gain Priority**, and **Manual**.
- Detail Camera: Supported modes include **Auto**, **Aperture Priority**, **Shutter Priority**, **Gain Priority** and **Manual**.

Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > Exposure**.

The **Exposure** interface is displayed. See the following figures.

Figure 5-3 Exposure—auto mode (Panorama Camera)

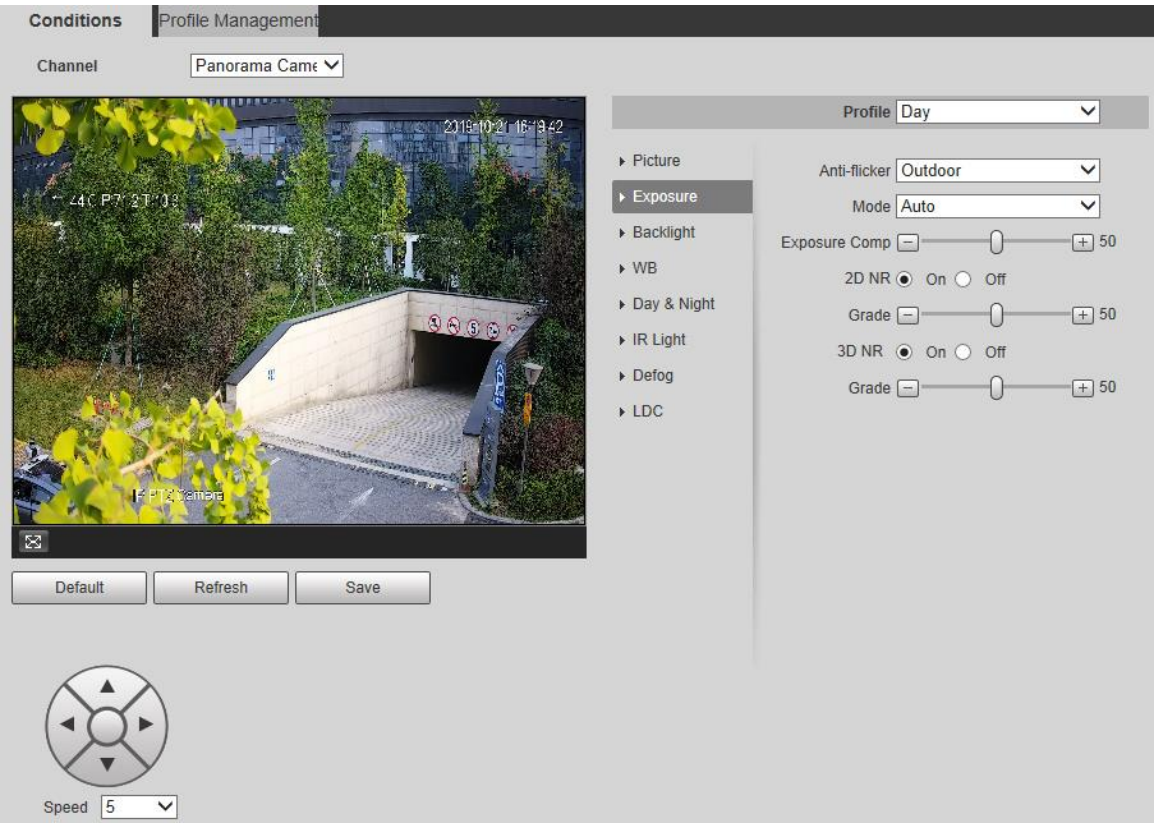


Figure 5-4 Exposure—auto mode (Detail Camera)

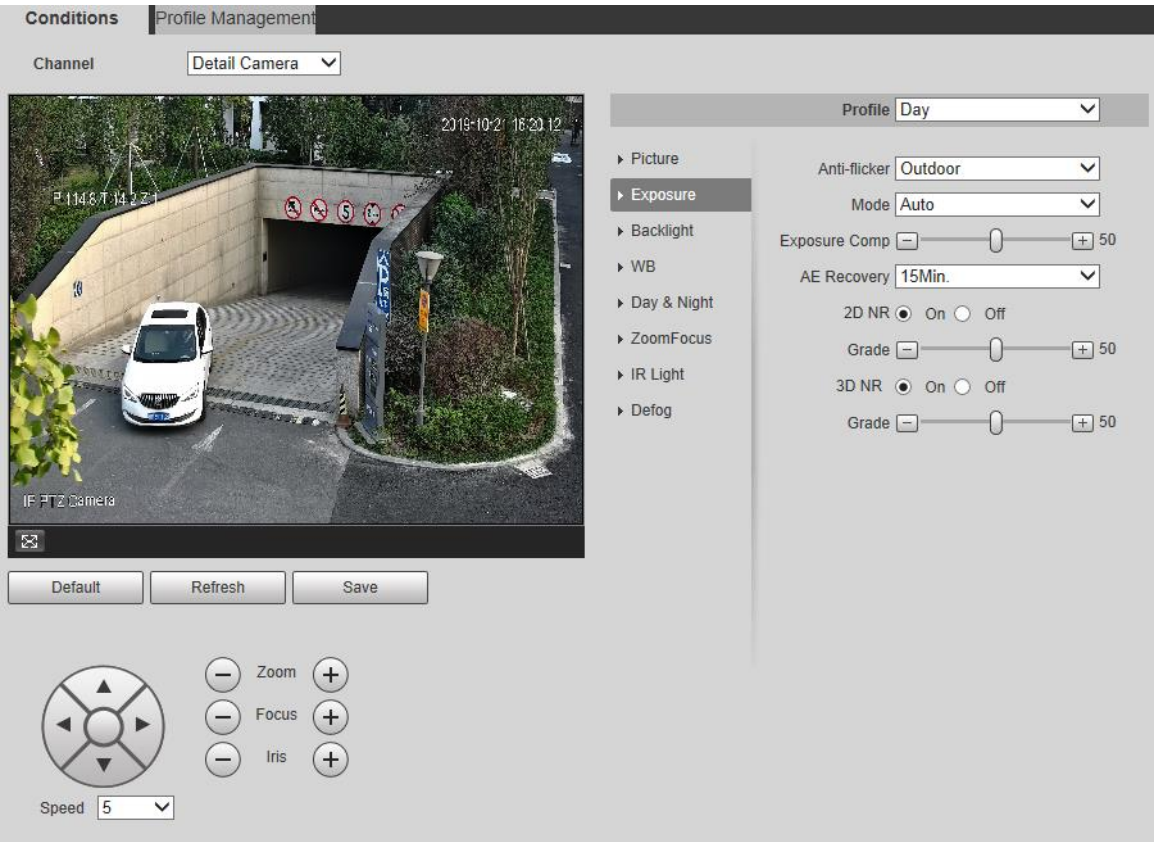


Figure 5-5 Exposure—aperture priority mode (Detail Camera)

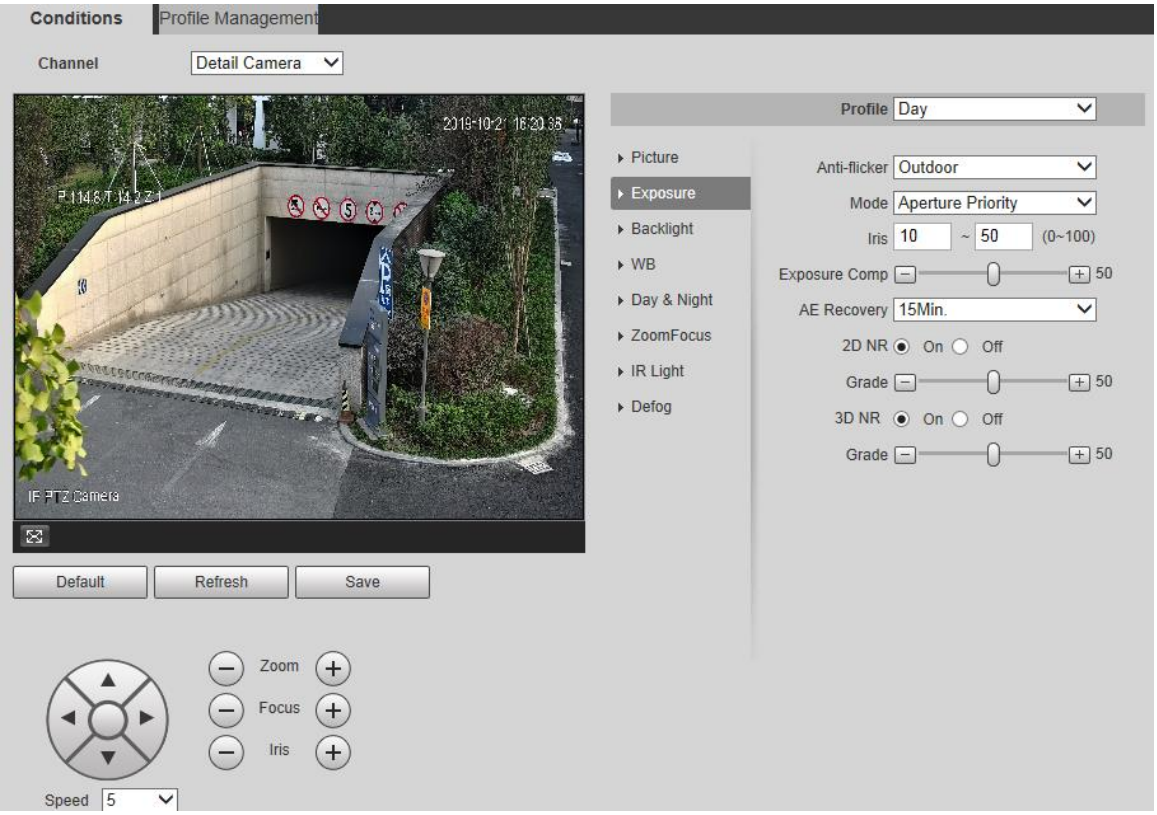


Figure 5-6 Exposure—shutter priority mode (Panorama Camera)

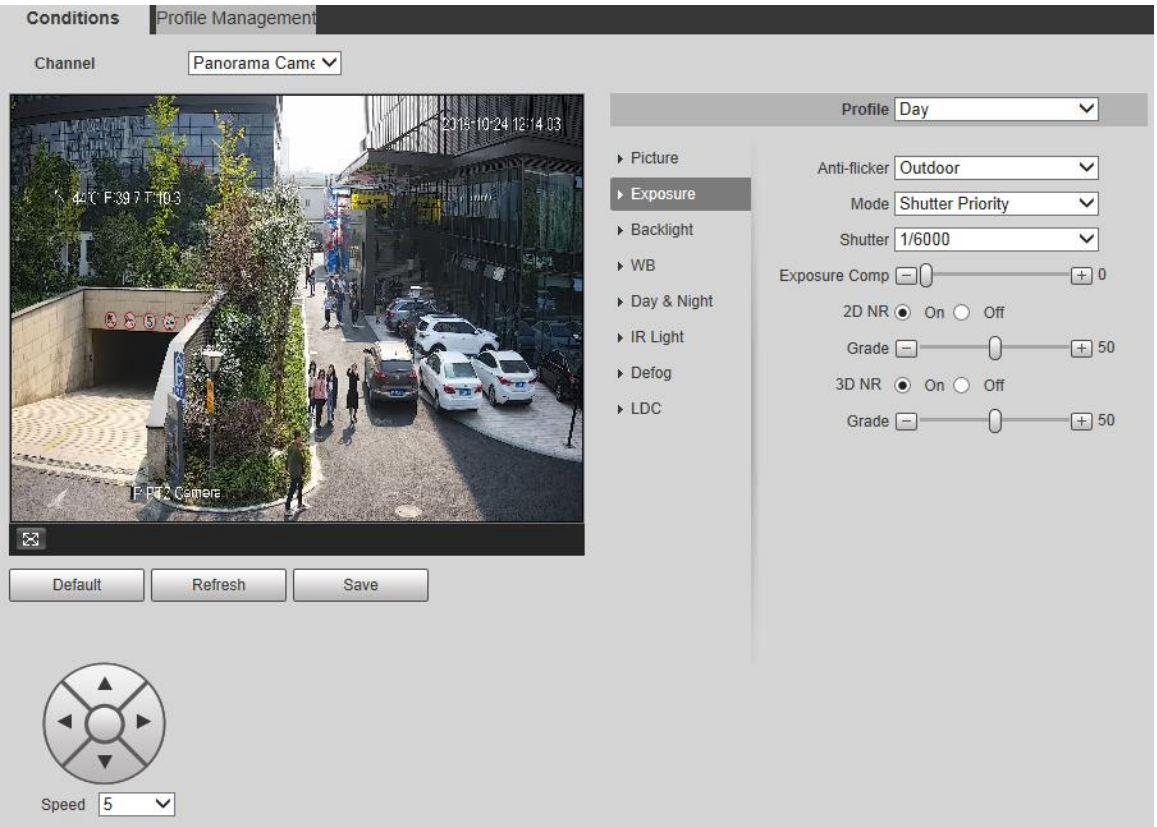


Figure 5-7 Exposure—shutter priority mode (Detail Camera)

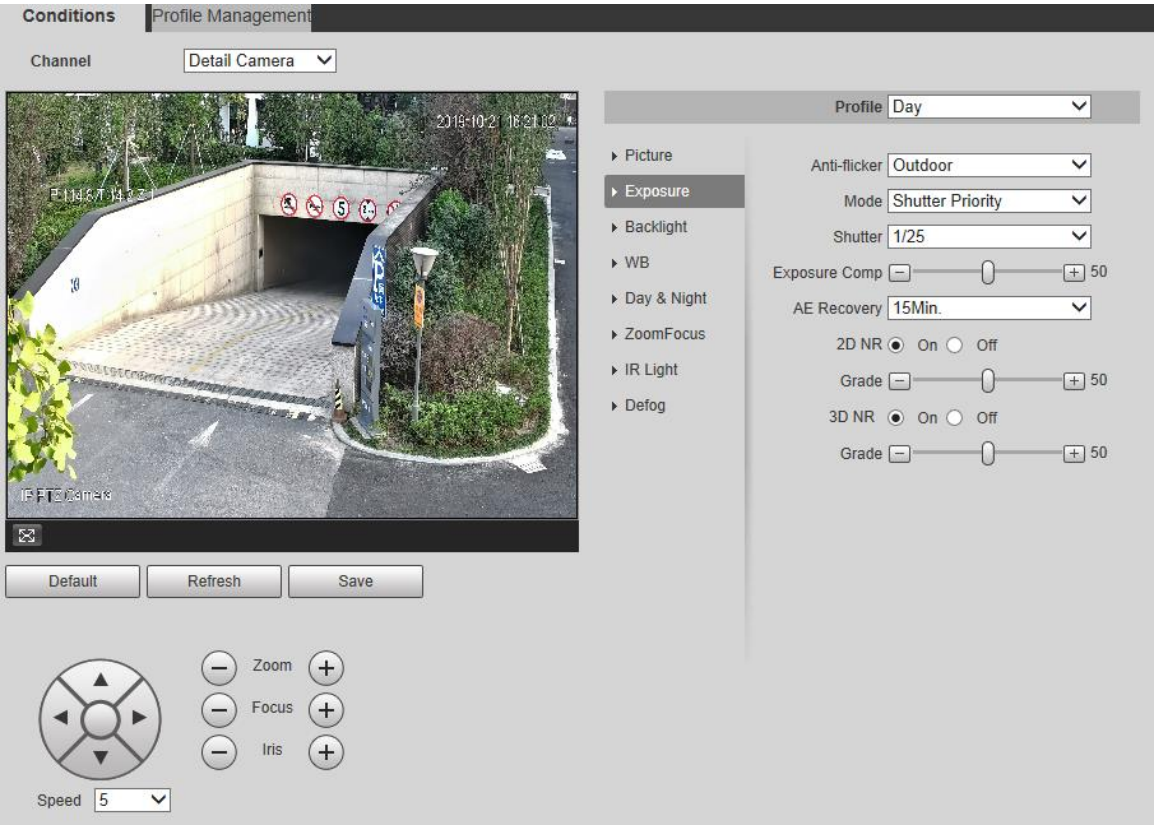


Figure 5-8 Exposure—gain priority mode (Panorama Camera)

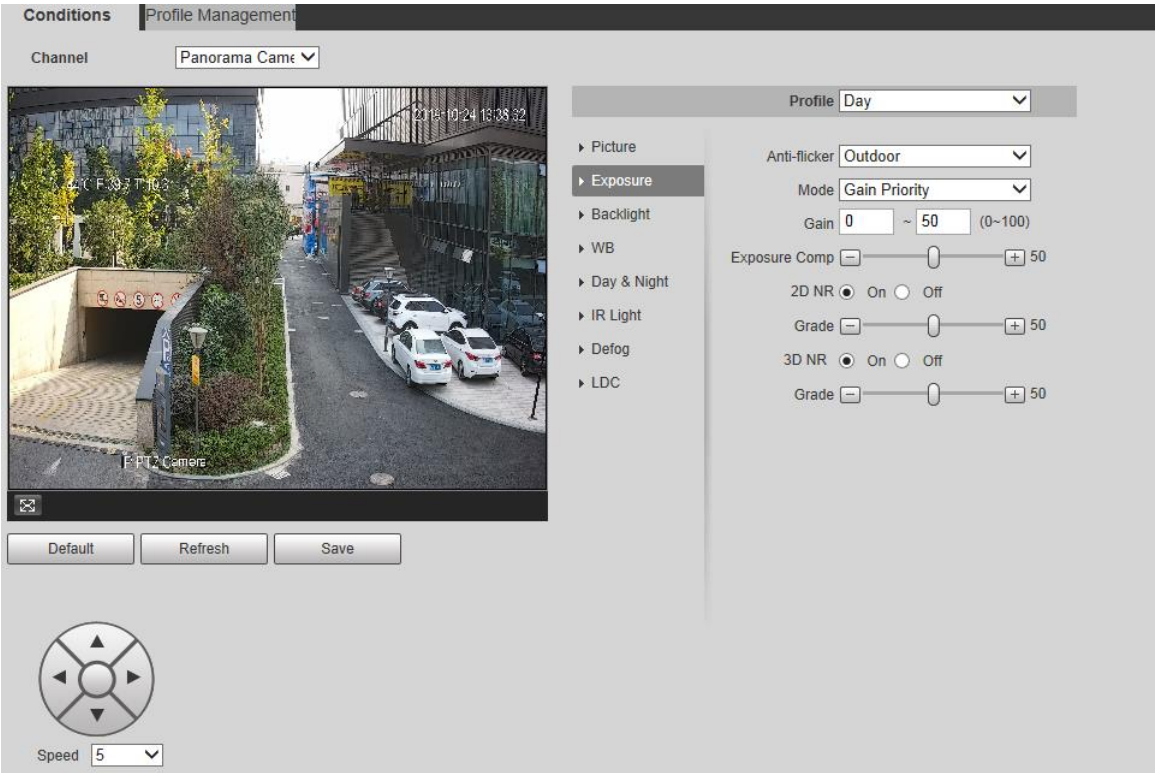


Figure 5-9 Exposure—gain priority mode (Detail Camera)

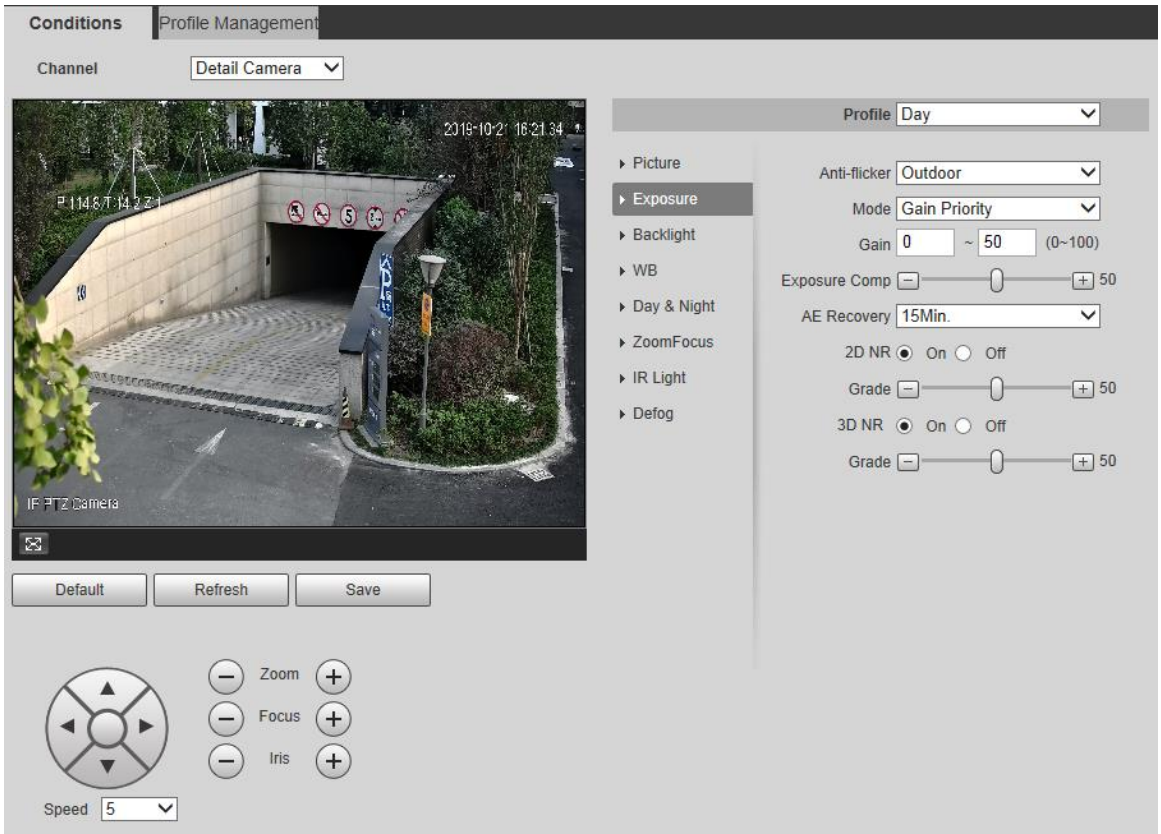


Figure 5-10 Exposure—manual mode (Panorama Camera)

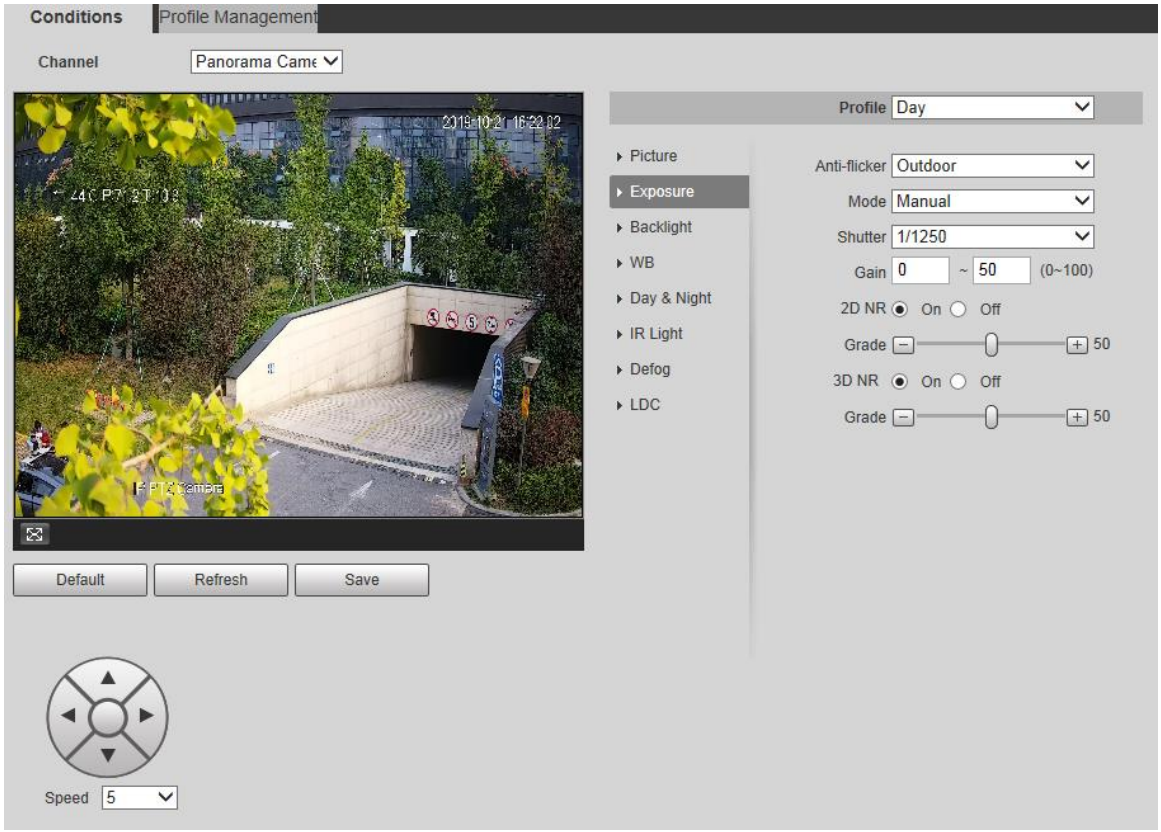
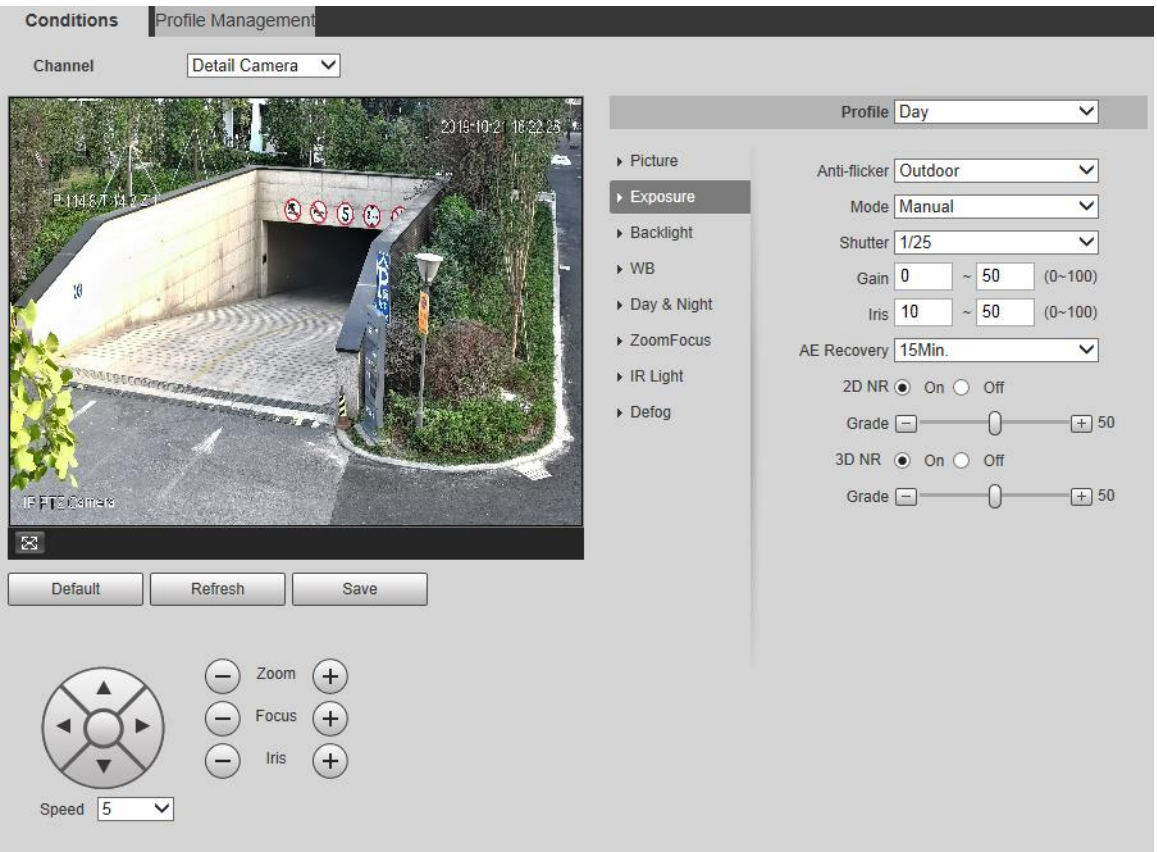


Figure 5-11 Exposure—manual mode (Detail Camera)



Step 2 Configure parameters as needed. For parameter description, see Table 5-2.

Table 5-2 Exposure setting parameter description

Parameter	Description
Anti-flicker	You can select **50Hz**, **60Hz**, or **Outdoor** from the list. ● **50Hz**: When the alternating current is 50Hz, the exposure is automatically adjusted to make sure that there are no stripes on images. ● **60Hz**: When the alternating current is 60Hz, the exposure is automatically adjusted to make sure that there are no stripes on images. ● **Outdoor**: You can switch the modes to achieve the effect you want. Only **Outdoor** can be selected if the channel is Panorama Camera.

Parameter	Description
Mode	Set the exposure modes. You can select **Auto**, **Manual**, **Aperture Priority**, **Shutter Priority**, or **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. ● **Aperture Priority**: You can set the iris to a fixed value, and the Camera adjusts shutter value then. If the image brightness is not enough and the shutter value has reached upper or lower limit, the system adjusts gain value automatically to ensure the image is at 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	You can set the exposure gain. The value ranges from 0 to 100.
Shutter	You can adjust the exposure time of the Camera. The larger the shutter value, the brighter the image.
Iris	You can set the camera luminous flux. The larger the Iris value, the brighter the image.
Exposure Comp	You can set the exposure compensation value. The value ranges from 0 to 100.
AE Recovery	Automatic exposure is an automated digital camera system that adjusts the aperture and 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**, **5Min**, **15Min**, **1Hour**, and **2Hour**.
2D NR	2D noise reduction is the process of removing noise from a signal. The higher the grade is, the less the noise will be, and images appear to be blurrier.
3D NR	3D noise reduction is the process of removing noise from a signal. The higher the grade is, the less the noise will be, and images appear to be blurrier.
Grade	Noise reduction grade. The value ranges from 0 to 100. The larger the value is, the less the noise will be.

Step 3 Click **Save**.

5.1.1.1.3 Backlight

The backlight function cannot be configured if defog function is enabled. There will be a prompt on the interface.

You can use this function to adjust the backlight compensation mode of the monitoring screen. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > Backlight**.

The **Backlight** interface is displayed. See Figure 5-12 and Figure 5-13.

Figure 5-12 Backlight setting (Panorama Camera)

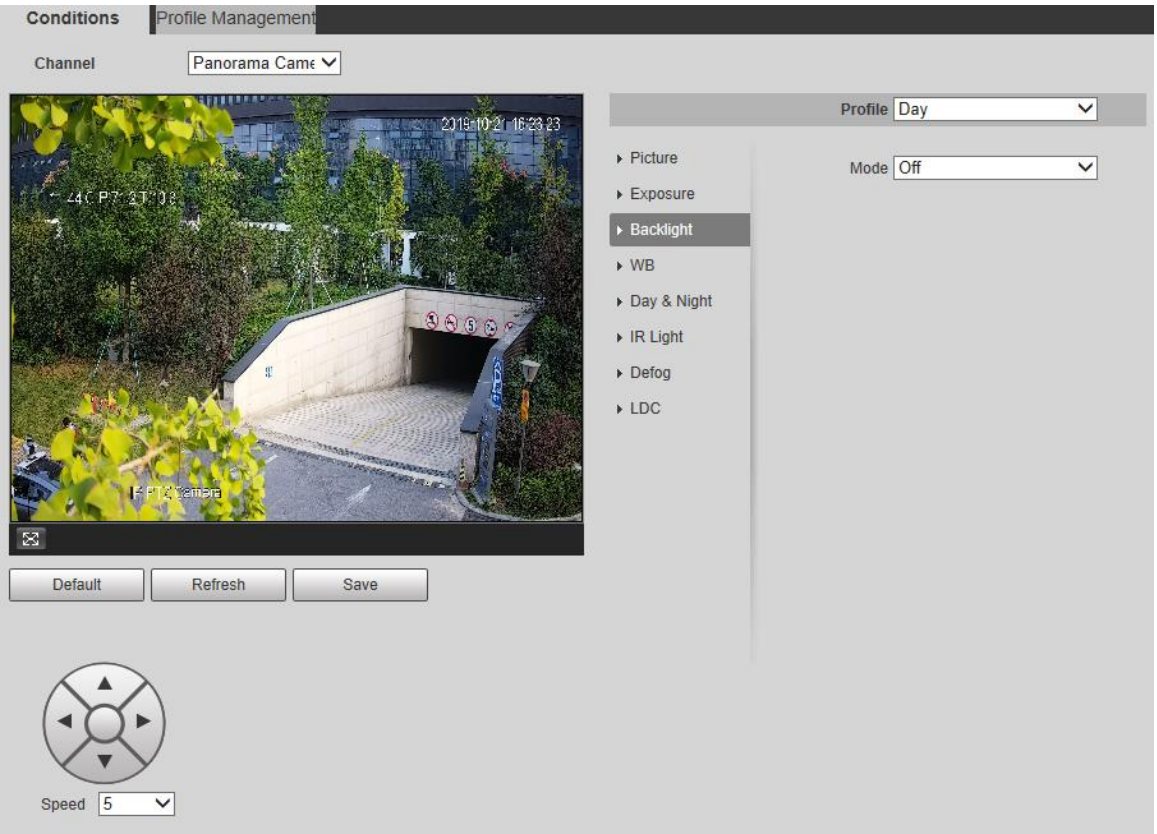
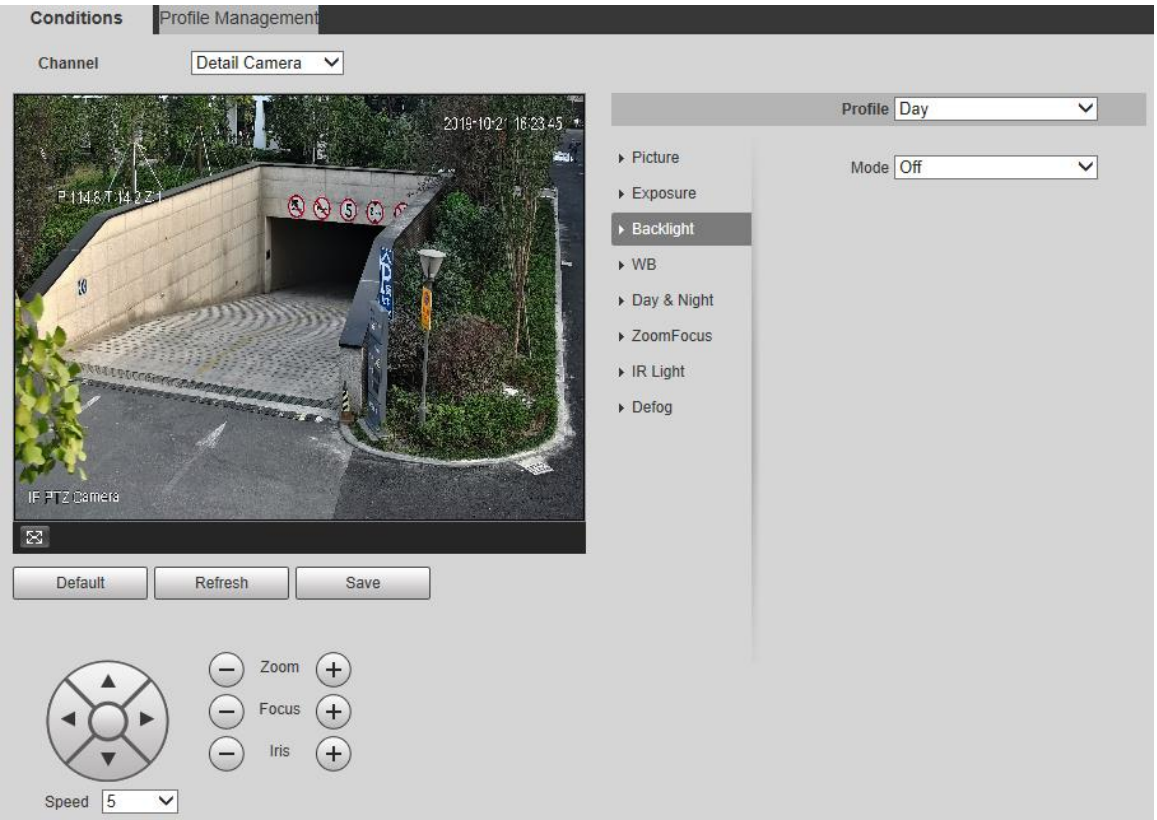


Figure 5-13 Backlight setting (Detail Camera)



Step 2 Select a backlight mode from the list.

There are 4 options: **Off**, **BLC**, **HLC**, and **WDR**.

- **Off**: Backlight is disabled.
- **BLC**: Backlight compensation corrects regions with extremely high or low levels of light to maintain a normal and usable level of light for the object in focus.
- **WDR**: When in WDR (Wide Dynamic Range) mode, the Camera constrains over bright areas and compensates dark areas to improve the image clarity.
- **HLC**: Highlight compensation dims strong light, so that the Camera can capture details of faces and license plates in extreme light conditions. It is applicable to the entrance and exit of toll stations or parking lots.

Step 3 Click **Save**.

If you select **Off**, other backlight mode configurations will not be effective.

5.1.1.1.4 WB

In this mode, you can make an white object displaying itself clearly on the video image in all environments. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > WB**.

The **WB** interface is displayed. See Figure 5-14 and Figure 5-15.

Figure 5-14 WB setting (Panorama Camera)

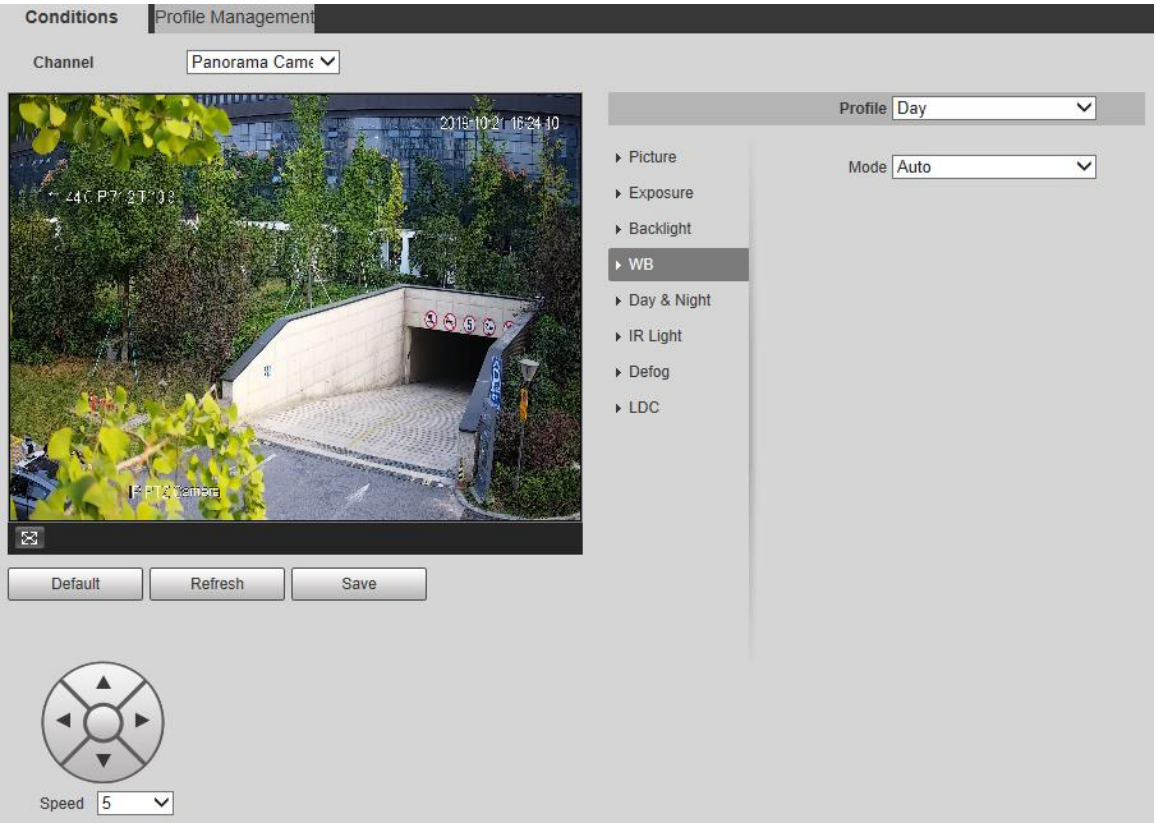
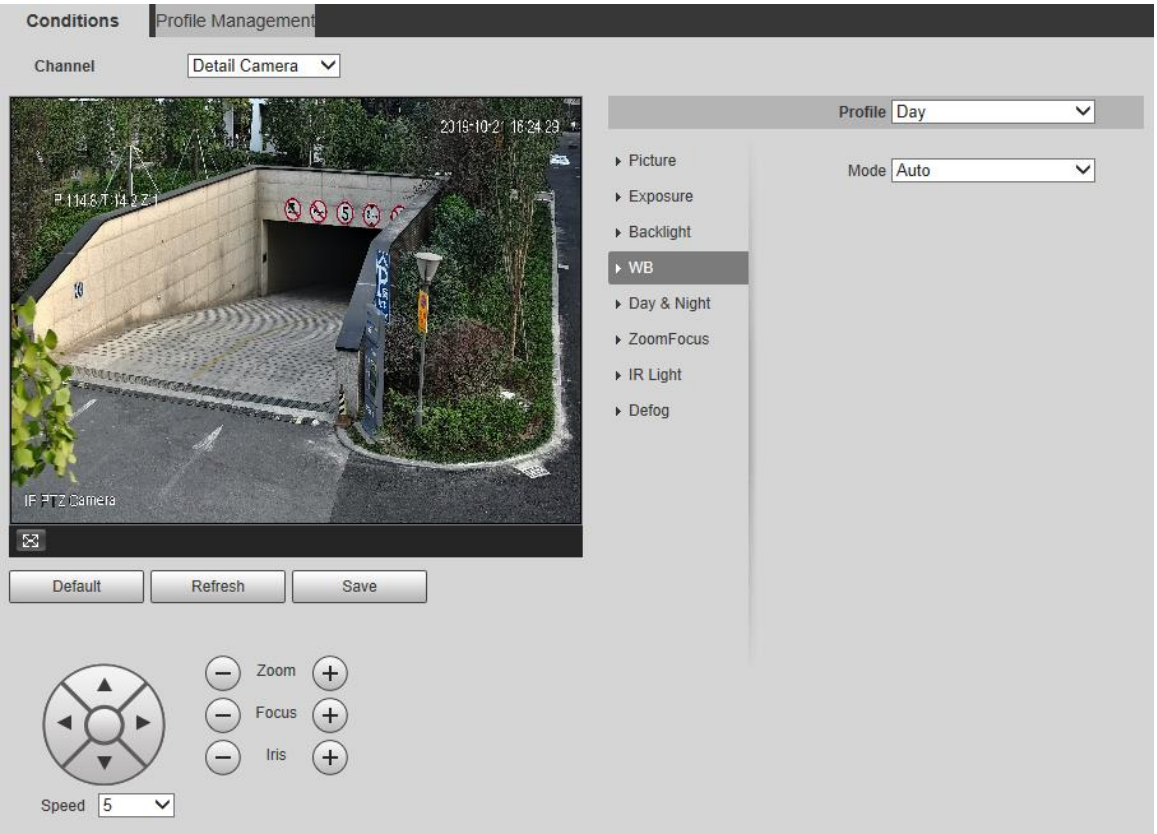


Figure 5-15 WB setting (Detail Camera)



Step 2 Select WB mode from the list.

You can select from **Auto**, **Indoor**, **Outdoor**, **ATW**, **Manual**, **Sodium Lamp**, **Natural**, and **Street Lamp**. **Auto** is selected by default.

Step 3 Click **Save**.

5.1.1.1.5 Day & Night

Defog function cannot be configured if **Day & Night** function is enabled. There will be a prompt on the interface.

This function allows you to switch between the color mode and the black & white mode, ensuring clear monitoring screen in a dim environment. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > Day & Night**.

The **Day & Night** interface is displayed. See Figure 5-16 and Figure 5-17.

Figure 5-16 Day & night setting (Panorama Camera)

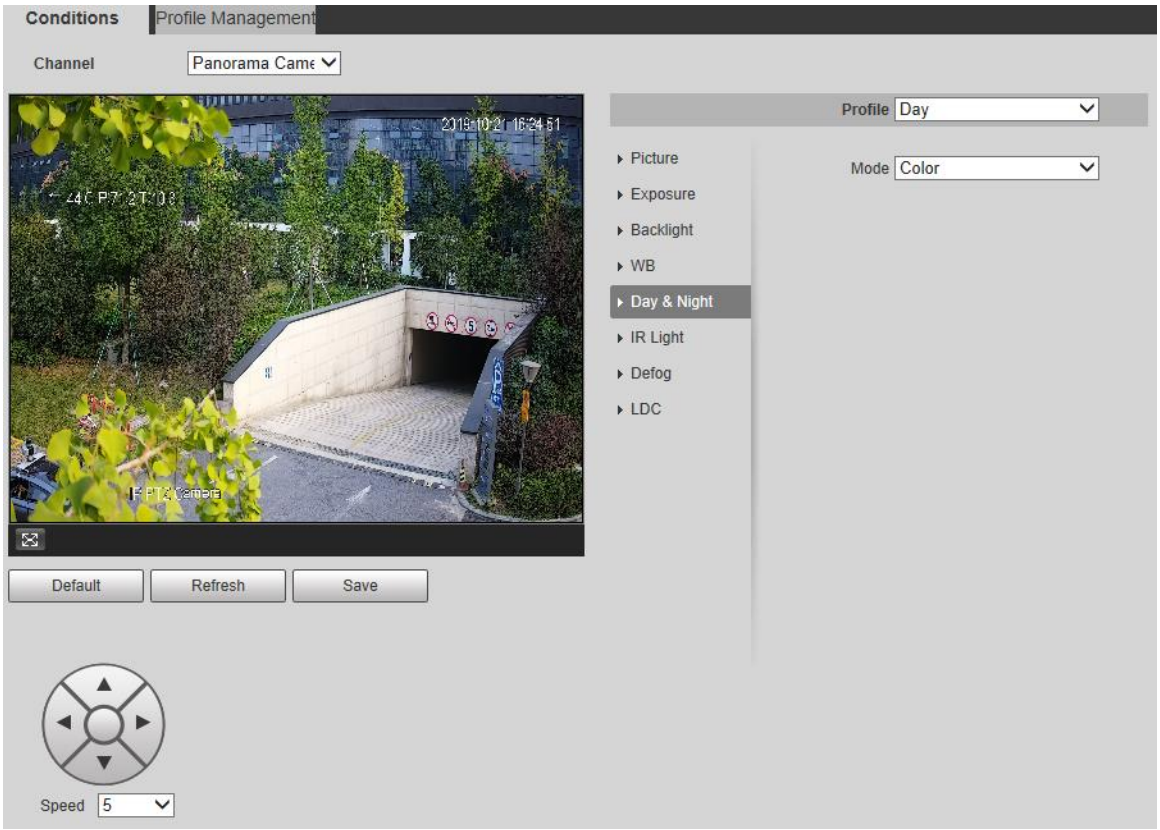
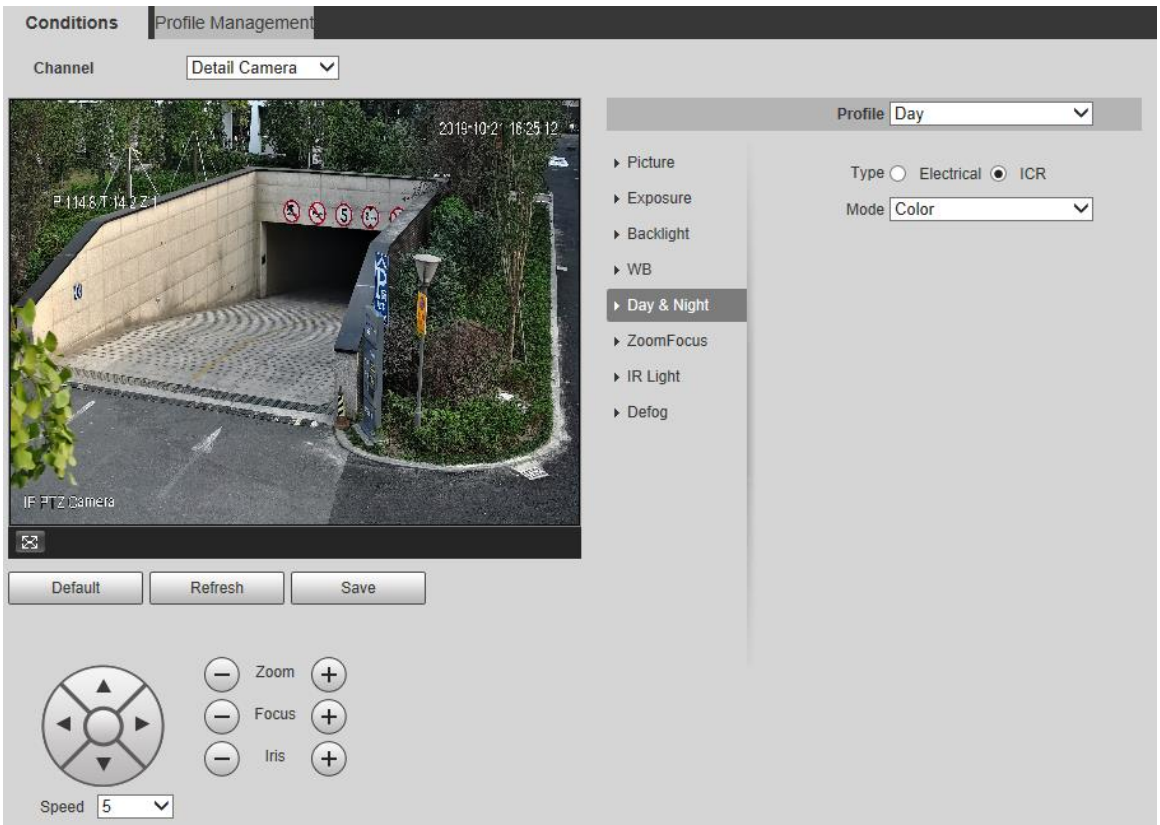


Figure 5-17 Day & night setting (Detail Camera)



Step 2 Configure parameters as needed. For parameter description, see Table 5-3.

Table 5-3 Day & night parameter description

Parameter	Description
Type	There are two options: **Electrical** and **ICR**. **ICR** is selected by default. ● **ICR**: IR filter are used for day & night switch. ● **Electrical**: Image processing method is used for day & night switch.
Mode	Select a mode from the list (Your selection is independent from the profile). **Auto** is selected by default. ● **Color**: The Camera only outputs color images. ● **Auto**: The Camera outputs color images or black and white images according to ambient conditions. ● **B/W**: The camera only outputs black-and-white images.
Sensitivity	Adjust the sensitivity to switch between different modes. There are three options: **Low**, **Middle**, and **High**. You can set sensitivity only when **Day & Night** mode is set to **Auto**.
Delay	Adjust the delay time to switch between different modes. The value ranges from 2 s to 10 s. You can set **Delay** only when **Day & Night** mode is set to **Auto**.

Step 3 Click **Save**.

5.1.1.1.6 Zoom Focus

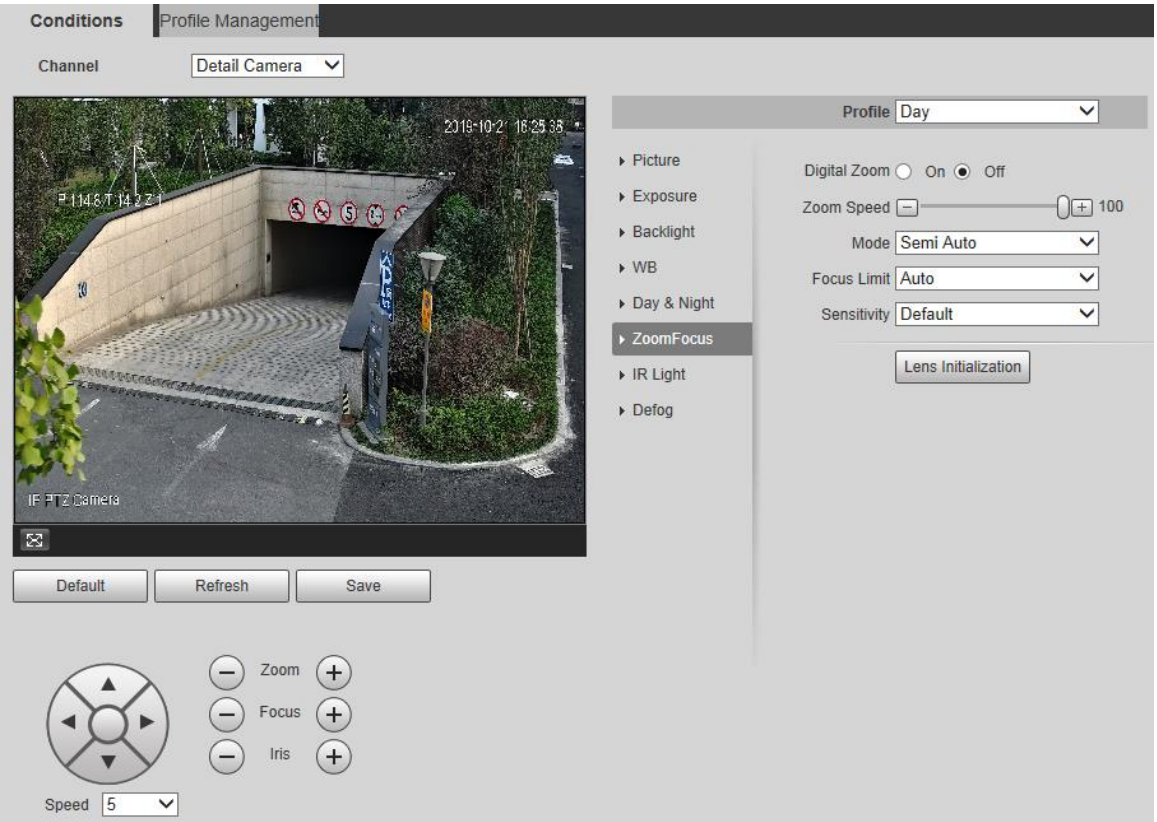
The function is only supported by Detail Camera.

Digital zoom refers to capturing a part of the image to magnify it. The higher the magnification is, the blurrier the images will become. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > Zoom Focus**.

The **Zoom Focus** interface is displayed. See Figure 5-18.

Figure 5-18 Zoom Focus



Step 2 Configure parameters as needed. See Table 5-4.

Table 5-4 Zoom and focus parameter description

Parameter	Description
Digital Zoom	Select **On** or **Off** to enable or disable digital zoom. **Off** is selected by default.
Zoom Speed	The larger the value is, the faster the camera zooms.
Mode	Select the focus triggering mode. There are three options: **Semi Auto**, **Auto**, and **Manual**. ● **Semi Auto**: The Camera focuses automatically when zoom or ICR switch are detected. ● **Auto**: The Camera focuses automatically when scene changes, zoom, or ICR switch are detected. ● **Manual**: The Camera cannot focus automatically. You need to adjust the focus manually.
Focus Limit	You can select the shortest focus distance, which means the Camera will focus on objects farther than the shortest focus distance. If you select **Auto**, the Camera will select an appropriate shortest distance according to the zoom times.
Sensitivity	Sensitivity is the capacity of resisting interference of the Camera when focusing. The smaller the value is, the more capable the Camera can resist interference when focusing.

Step 3 Click **Save**.

5.1.1.1.7 IR Light

IR light ensures the brightness and definition of video images when ambient light is dark.

Perform the following steps to set IR light.

Step 1 Select **Setting > Camera > Conditions > IR Light**.

The **IR Light** interface is displayed. For details, see the following figures.

Figure 5-19 IR light—manual mode (Panorama Camera)

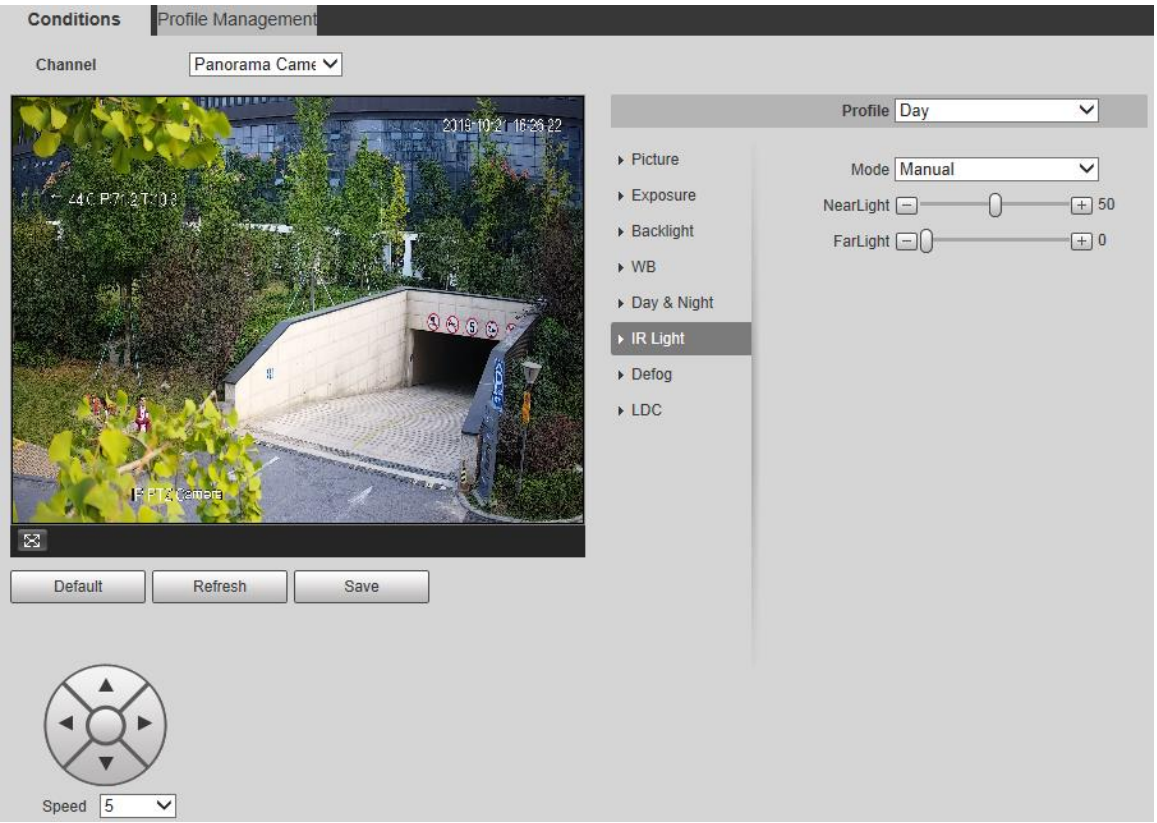


Figure 5-20 IR light—manual mode (Detail Camera)

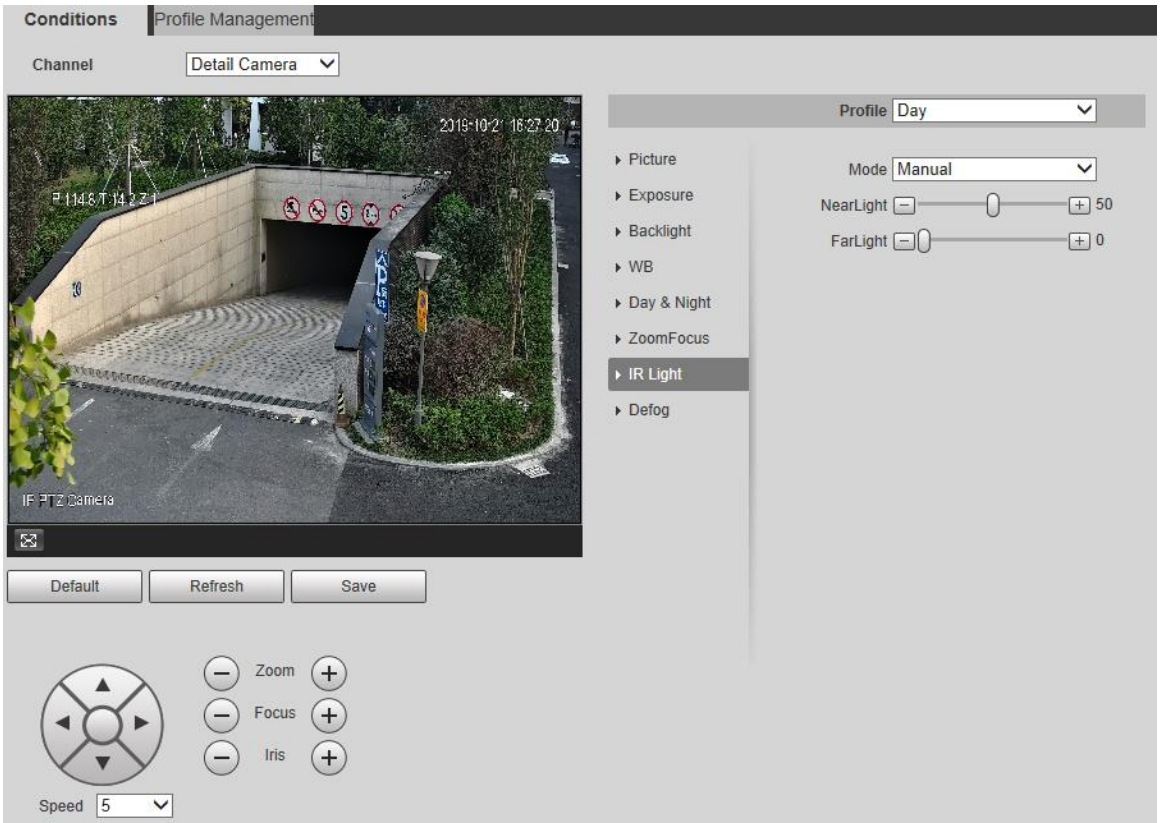


Figure 5-21 IR light—SmartIR mode (Panorama Camera)

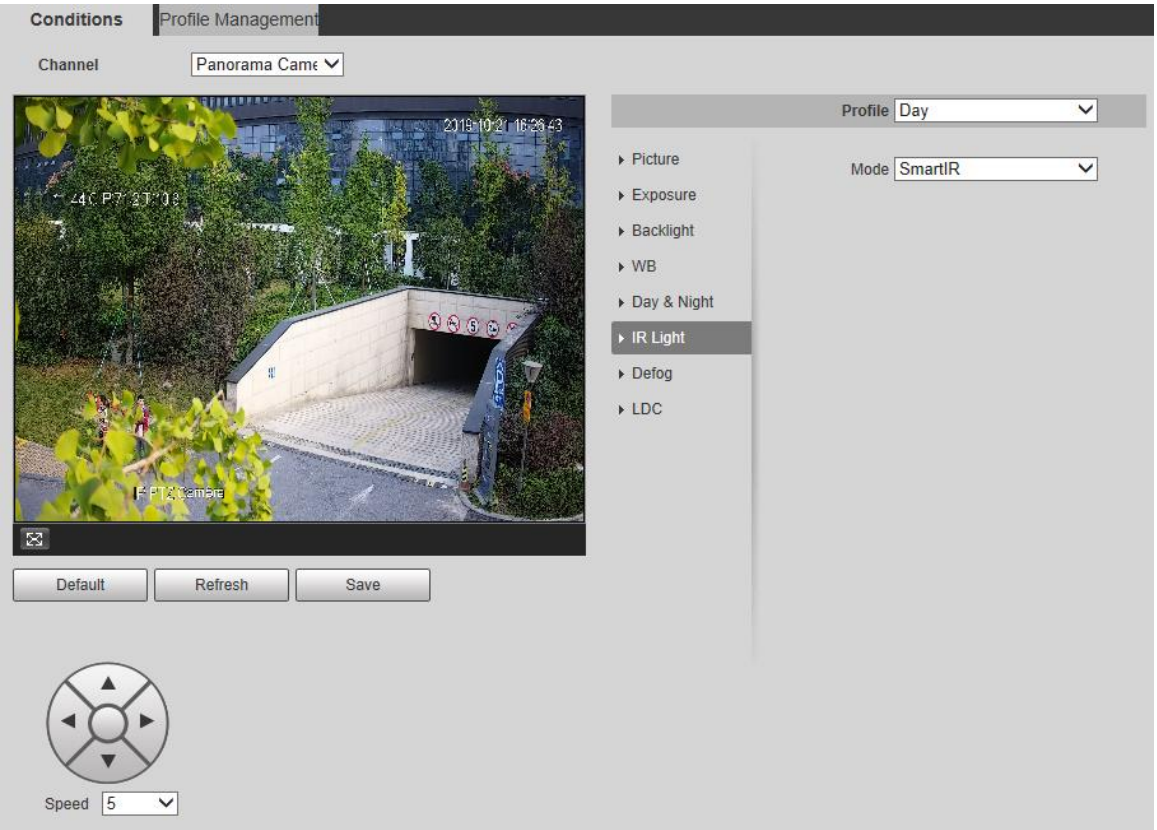


Figure 5-22 IR light—SmartIR mode (Detail Camera)

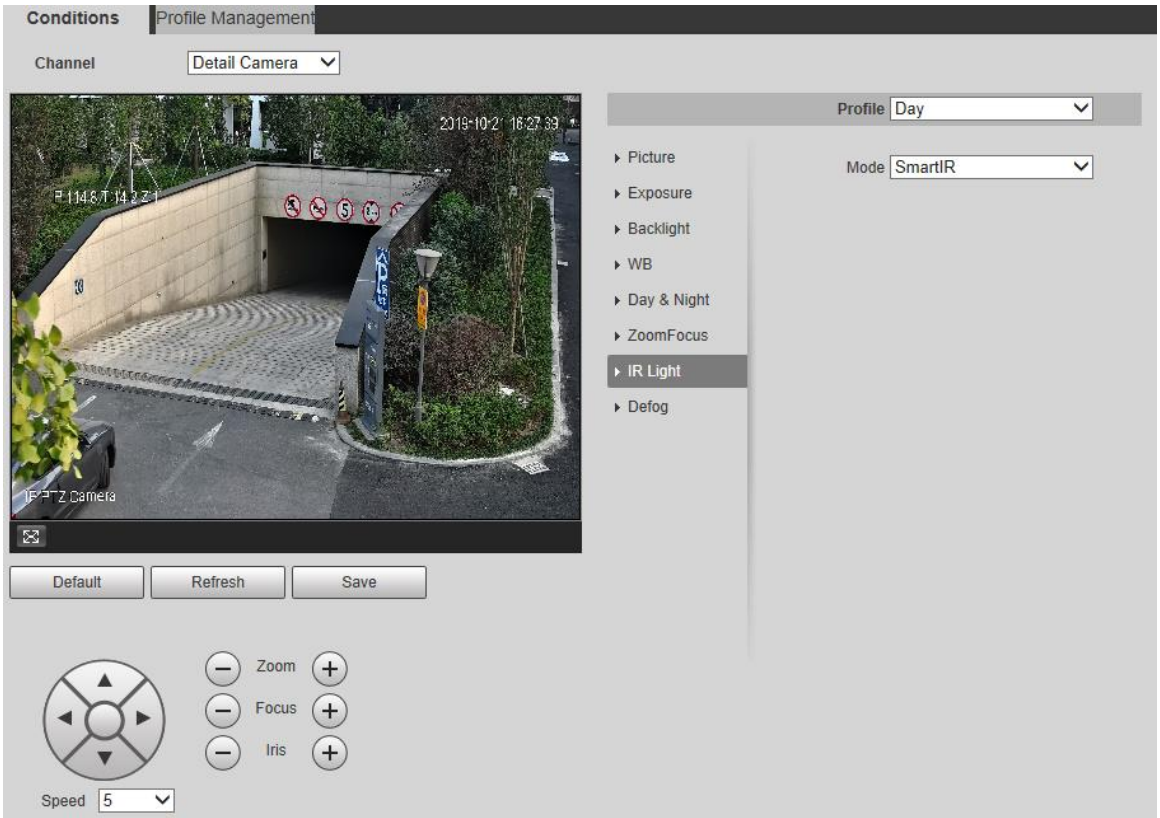


Figure 5-23 IR light—ZoomPrio mode (Detail Camera）

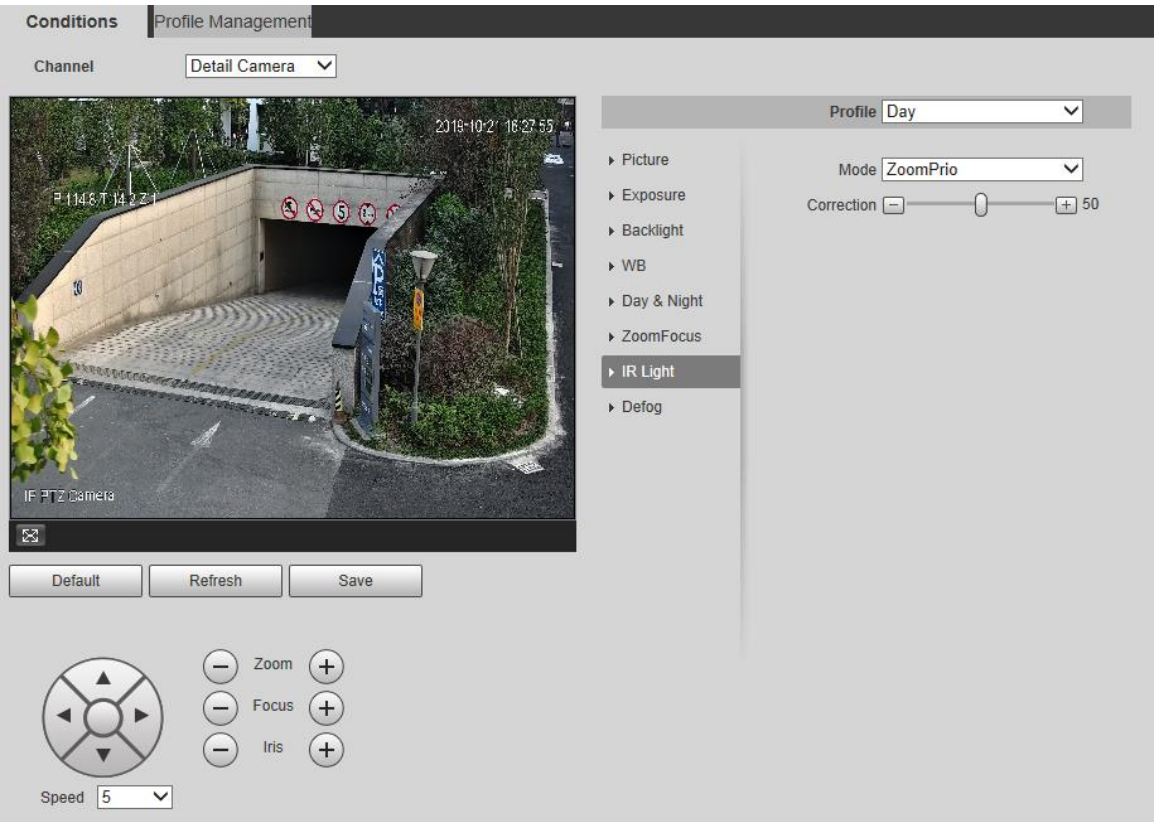


Table 5-5 IR light parameter description

Parameter	Description
Mode	There are 4 options: **Manual**, **SmartIR**, **ZoomPrio**, and **Off**. ● **ZoomPrio**: The system adjusts the IR light brightness automatically according to the zoom times. ● **SmartIR**: The system controls the IR light intensity according to actual conditions. ● **Manual**: Set IR light brightness manually. ● **Off**: Turn off the IR light. **ZoomPrio** is only supported by Detail Camera.
Correction	Compensate for the brightness of the IR light. The value ranges from 0 to 100.
Near Light	Set the brightness of the near light. The value ranges from 0 to 100.
Far Light	Set the brightness of the far light. The value ranges from 0 to 100.

Step 2 Click **Save**.

5.1.1.1.8 Defog

The defog function cannot be configured if backlight function is enabled. There will be a prompt on the interface.

Image quality drops if the Camera is installed in foggy or hazy environment. You can enable defog to improve image quality.

Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > Defog**.

The **Defog** interface is displayed. For details, see the following figures.

Figure 5-24 Defog—manual (Panorama Camera)

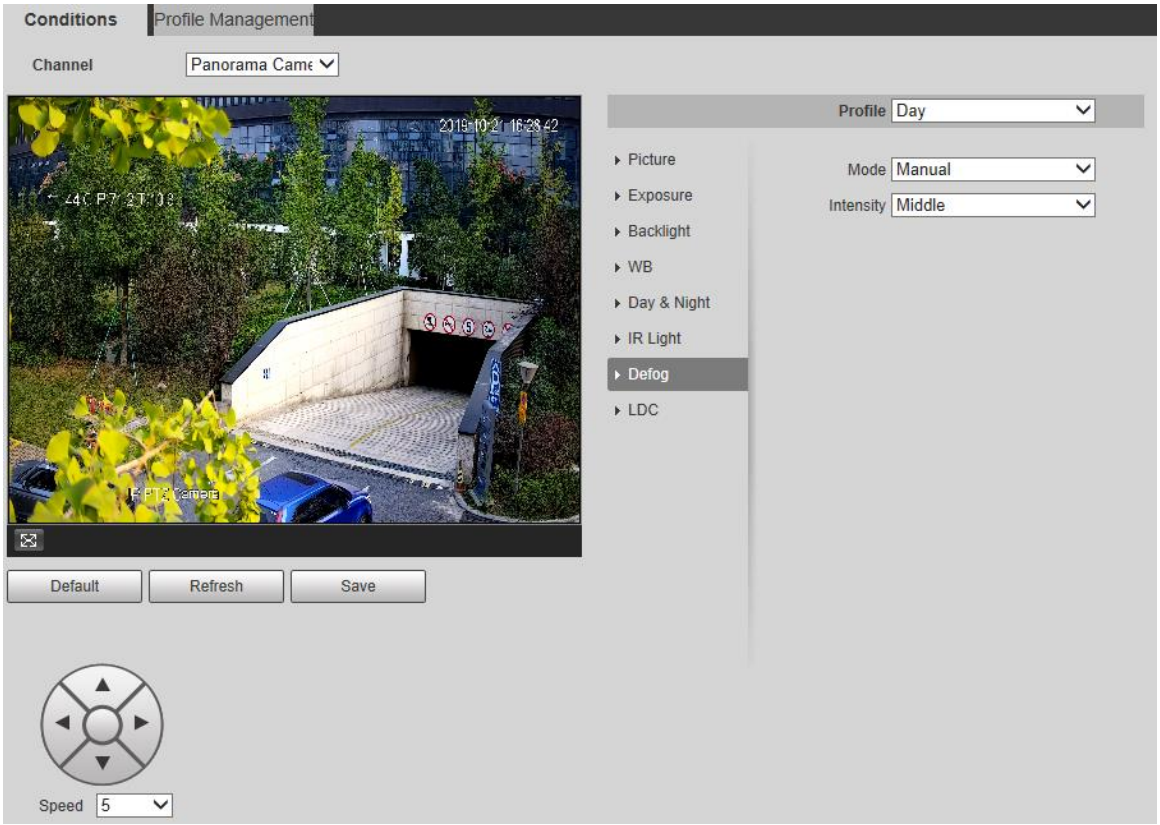


Figure 5-25 Defog—manual (Detail Camera)

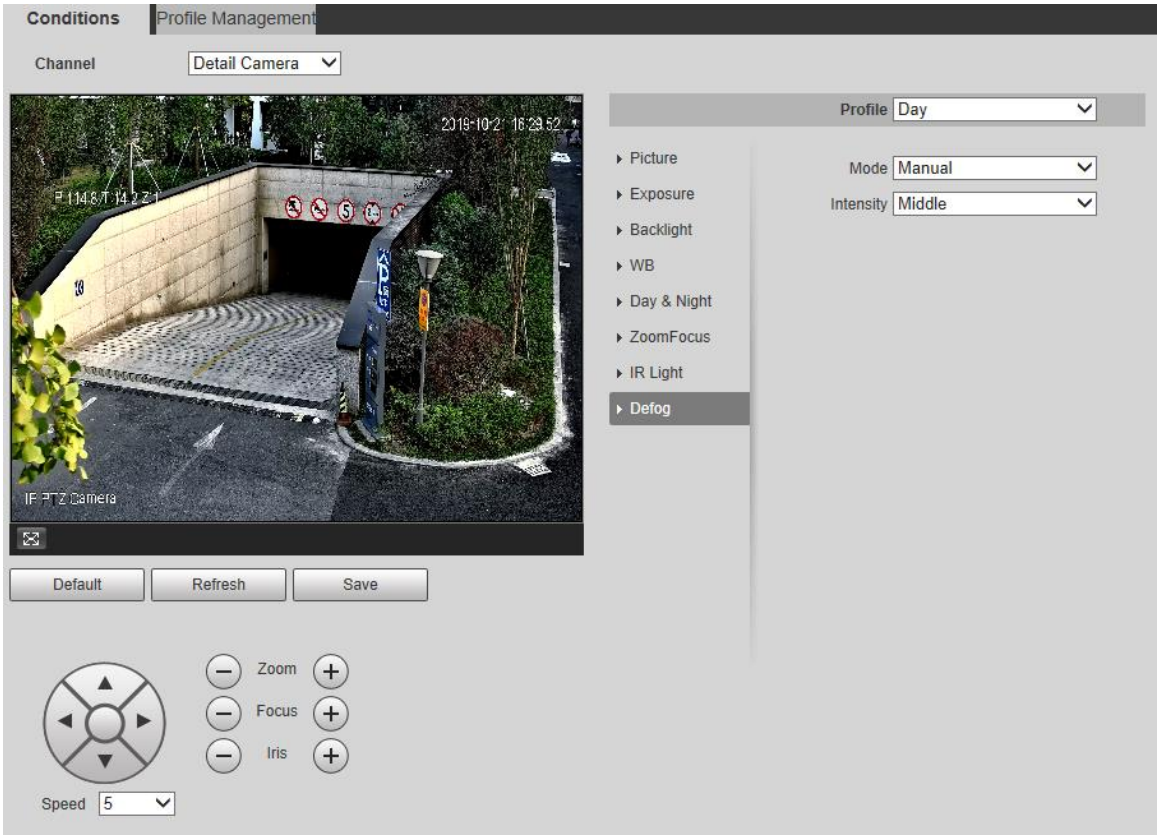


Figure 5-26 Defog—auto (Panorama Camera)

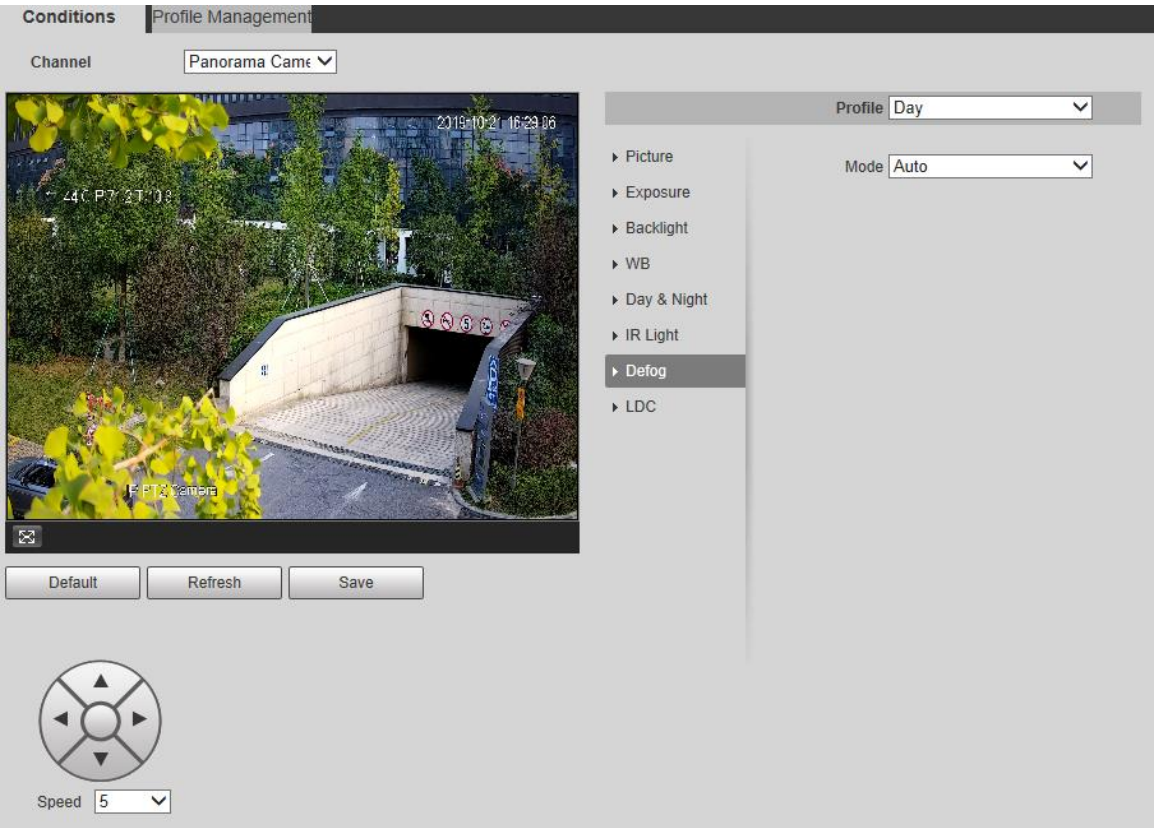
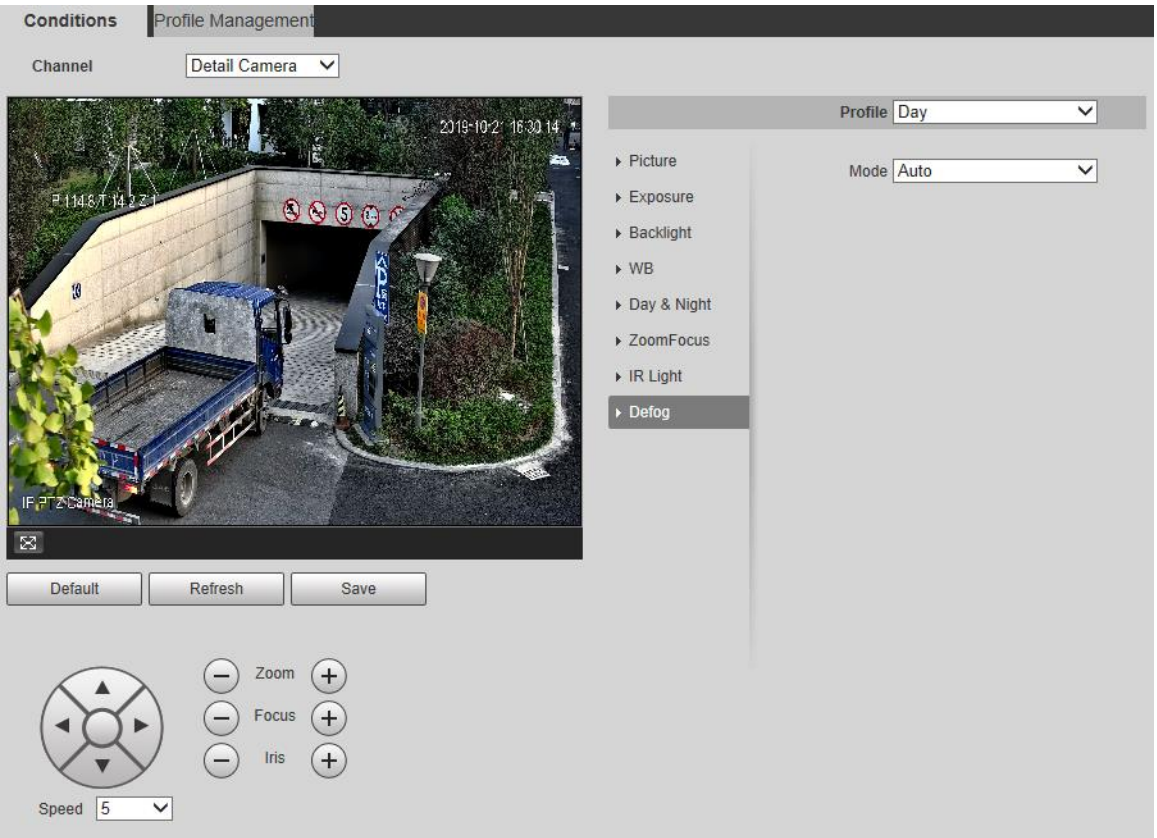


Figure 5-27 Defog—auto (Detail Camera)



Step 2 Configure parameters as needed. For parameter description, see Table 5-6.

Table 5-6 Defog parameter description

Parameter	Description
Mode	Select the defog mode of the Camera. You can select **Auto**, **Manual**, or **Off**. ● **Auto**: The system will correct the image automatically. ● **Manual**: Adjust the intensity according to the fog or haze level. There are three options: **Low**, **Middle**, and **High**. ● **Off** : Selected by default.
Intensity	Set the defog intensity of the Camera. You can select **Low**, **Medium**, or **High**. It is **High** by default.

Step 3 Click **Save**.

5.1.1.1.9 LDC

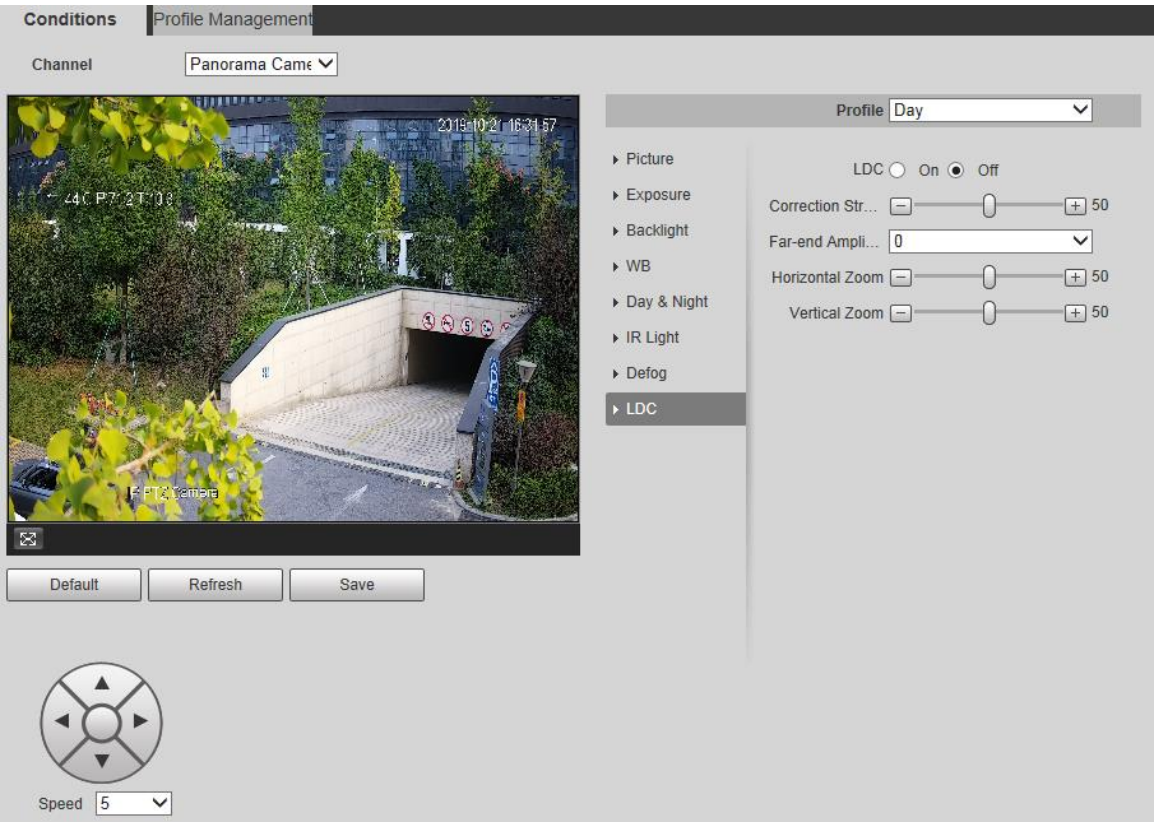
The function is only supported by Panorama Camera.

Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Conditions > LDC**.

The **LDC** interface is displayed. For details, see Figure 5-28.

Figure 5-28 LDC



Step 2 Configure parameters as needed. For parameter description, see Table 5-7.

Table 5-7 LDC parameter description

Parameter	Description
LDC	Correct lens distortion. You can select **On** or **Off**. It is **Off** by default.
Correction Strength	Set the correction strength value. The value ranges from 0 to 100. It is 50 by default.

Parameter	Description
Far-end Amplification	Correct lens distortion. You can select **0**, **1**, **2**, and **3**. **0** is the lowest correction level, and **3** is the highest correction level. **0** is selected by default.
Horizontal Zoom	The value ranges from 0 to 100. It is 50 by default.
Vertical Zoom	The value ranges from 0 to 100. It is 50 by default.

Step 3 Click **Save**.

5.1.1.2 Profile Management

Step 1 Select the **Channel** to modify the profile. You can select **Panorama Camera** or **Detail Camera**.

Step 2 Select profile management. There are three options: **General**, **Full Time** and **Schedule**. For details, see Table 5-8.

Table 5-8 Profile management

Parameter	Description
General	Monitoring is based on the general configuration of the Camera. See Figure 5-29.
Full Time	**Day** or **Night** are selectable, and the corresponding camera property profile is day or night. See Figure 5-30.
Schedule	Select one period for day configuration and another time period for night configuration. For the configuration interface, see Figure 5-31. For example, you can set the day-time configuration for 6:00 to 18:00, and set the night-time configuration for 18:00 to 6:00 on the next day.

Figure 5-29 Profile management—general (Panorama Camera/Detail Camera)

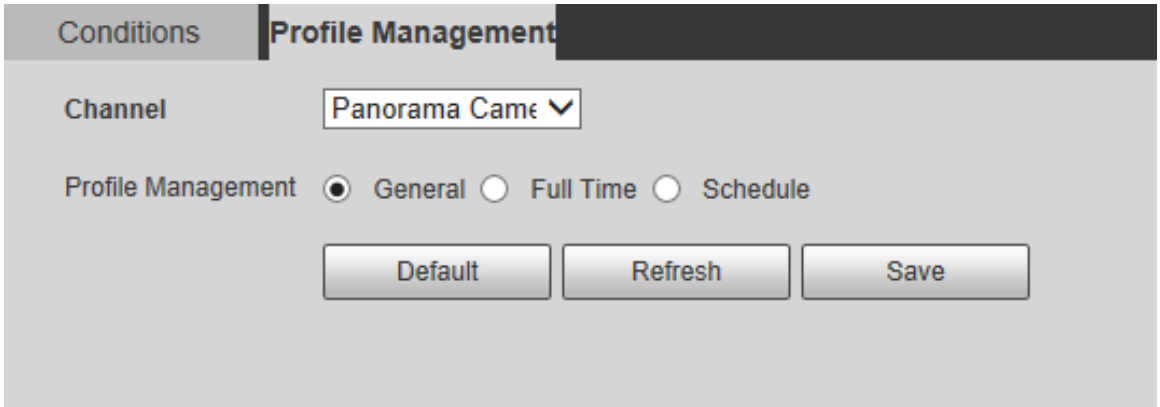


Figure 5-30 Profile Management—full time (Panorama Camera/Detail Camera)

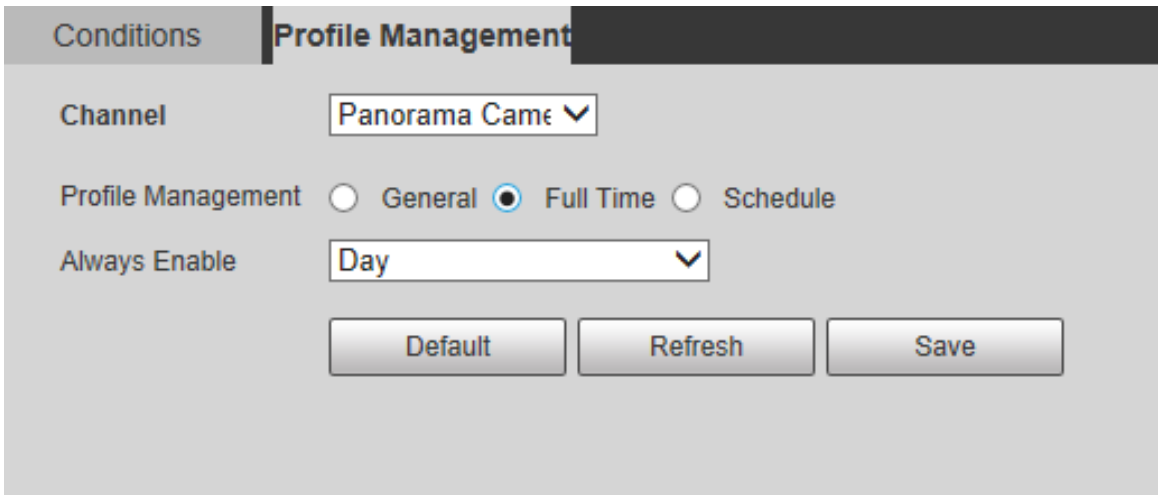
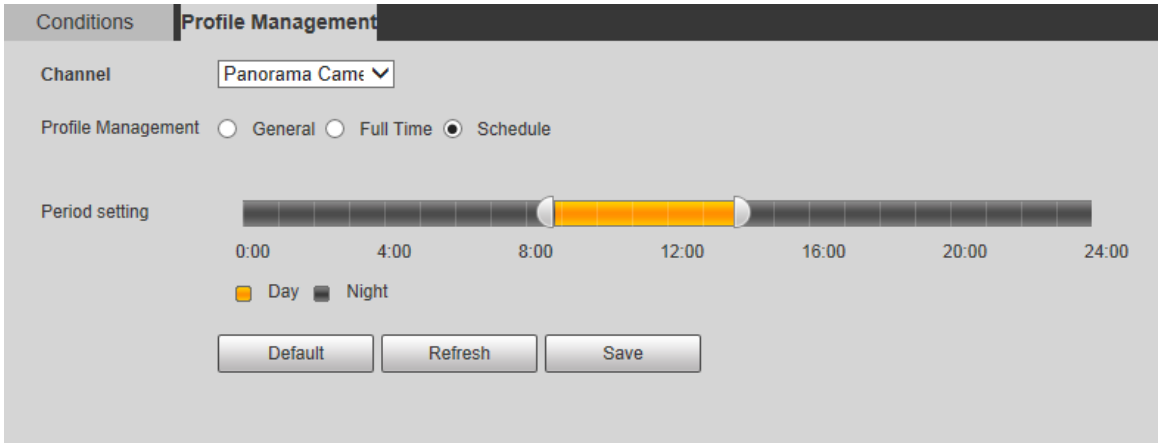


Figure 5-31 Profile Management—schedule (Panorama Camera/Detail Camera)



Step 3 Click **Save**.

5.1.2 Video

You can set the video stream, snapshot stream, video overlay, ROI, and storage path of the Camera.

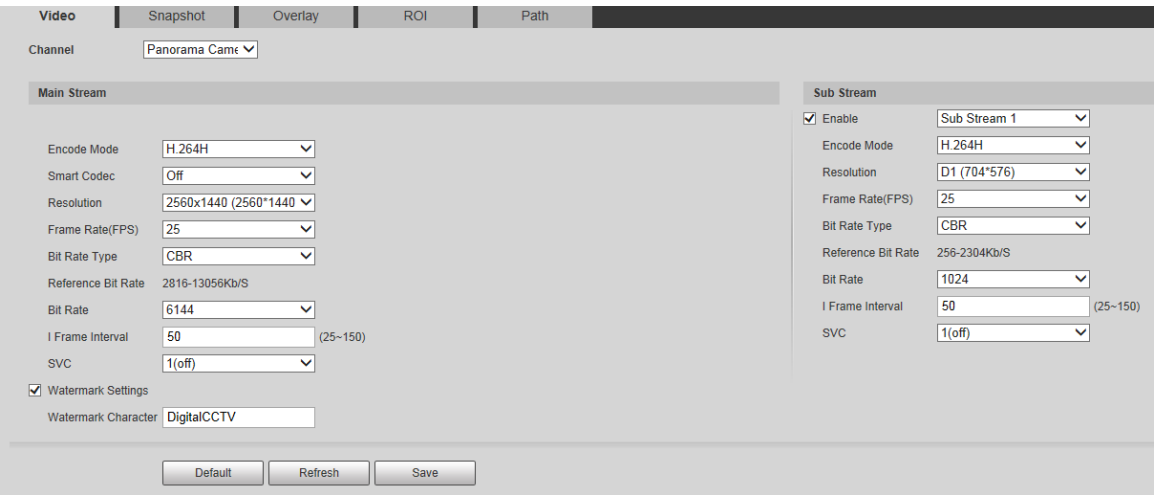
5.1.2.1 Video Stream

This section describes how to set the video stream for the monitoring screen. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Video > Video**.

The **Video** interface is displayed. See Figure 5-32.

Figure 5-32 Video stream setting (Panorama Camera/Detail Camera)



- The stream configuration interfaces might vary depending on devices, and the actual interface shall prevail.
- The default bit rate of different devices might vary, and the actual product shall prevail.

Step 2 Configure parameters as needed. For parameter description, see Table 5-9.

Table 5-9 Video stream parameter description

Parameter	Description
Channel	Select the channel to set snapshot stream. You can select **Panorama Camera** or **Detail Camera**.
Sub Stream	Select the **Enable** check box to enable sub stream.
Encode Mode	You can select **H.264**, **H.264B**, **H.264H**, or **H.265**.
Smart Codec	The Camera changes encode mode automatically according to bandwidth, bit stream, and other parameters. You can select **On** or **Off** to enable or disable the function.
Resolution	Multiple resolution types are available for you to choose, and each type corresponds to a unique recommended stream value.
Frame Rate (FPS)	The value ranges from 1–300 frames/s. The frame rate changes with the resolution.
Bit Rate Type	There are two options: **CBR** (constant bit rate) and **VBR** (variable bit rate). ● Picture quality can be set only in VBR mode, and cannot be set in CBR mode. ● In MJPEG encode mode, CBR is the only option for Bit Rate.
Reference Bit Rate	The recommended bit rate range based on the resolution and frame rate.
Bit Rate	● It is the upper limit of stream in VBR. In CBR, the value is fixed. ● The **Reference Bit Rate** provides the best reference range.
I Frame Interval	The number of P frames between two I frames. The range varies with the frame rate, and the maximum value is 150. It is recommended to set the interval twice the frame rate.

Parameter	Description
SVC	FPS is subject to layered encoding. SVC is a scalable encoding method on time domain. It is 1 by default, which means no layered coding. You can set 2 or 3 layered encoding.
Watermark Settings	Select the check box to enable watermark.
Watermark Character	You can verify the watermark characters to check whether the video has been tampered or not. Select **Watermark Settings** check box to enable **Watermark Character**. The watermark character is **DigitalCCTV** by default. Watermark character consists of up to 128 characters from numbers, letters, underlines, and strikethroughs.

Step 3 Click **Save**.

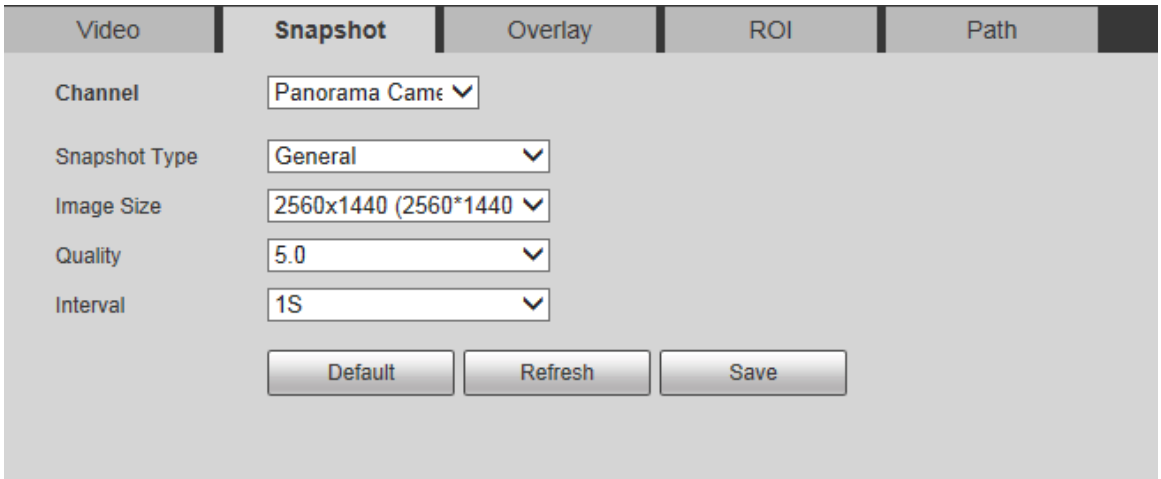
5.1.2.2 Snapshot

This section describes how to set streams for snapshots. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Video > Snapshot**.

The **Snapshot** interface is displayed. See Figure 5-33.

Figure 5-33 Snapshot stream setting (Panorama Camera/Detail Camera)



Step 2 Configure parameters as needed. For parameter description, see Table 5-10.

Table 5-10 Snapshot stream parameter description

Parameter	Description
Channel	Select the channel to set snapshot stream. You can select **Panorama Camera** or **Detail Camera**.
Snapshot Type	You can select **General** and **Event**. ● **General** refers to capturing pictures within the time range set in a time table. For details, see "5.5.1 Schedule." ● **Event** means capturing pictures when motion detection, video tampering, or local alarms are triggered. For how to enable snapshots for motion detection, video tampering, or local alarms, see "5.4 Event Management."
Image Size	It is the same as the resolution of the selected snapshot bit rate (main stream or sub stream).
Quality	Set the snapshot quality. You can select from **1.0**, **2.0**, **3.0**, **4.0**, **5.0** or **6 (Best)**.
Interval	Set the snapshot frequency. You can select from 1 s through 7 s or **Customized**.

Step 3 Click **Save**.

5.1.2.3 Overlay

This section describes how to set the overlay information on the monitoring screen. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Video > Overlay**.

The **Overlay** interface is displayed.

Step 2 Configure overlay information as needed. For the configuration interfaces, see the following figures. For the parameter description, see Table 5-11.

Figure 5-34 Overlay setting–channel title (Panorama Camera/Detail Camera)

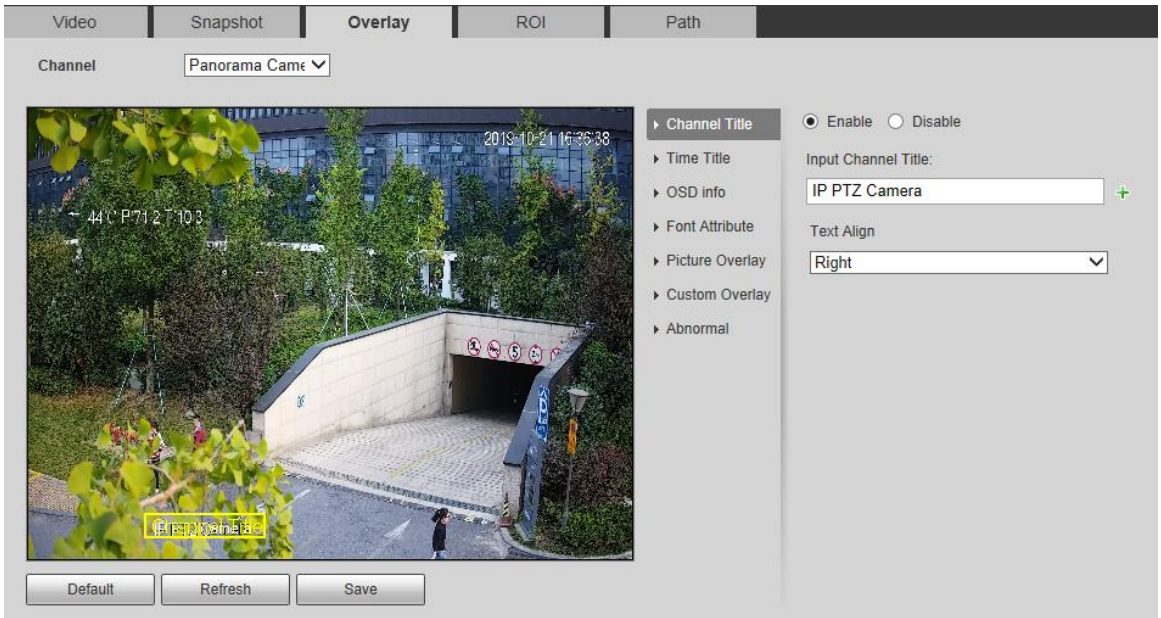


Figure 5-35 Overlay setting–time title (Panorama Camera/Detail Camera)

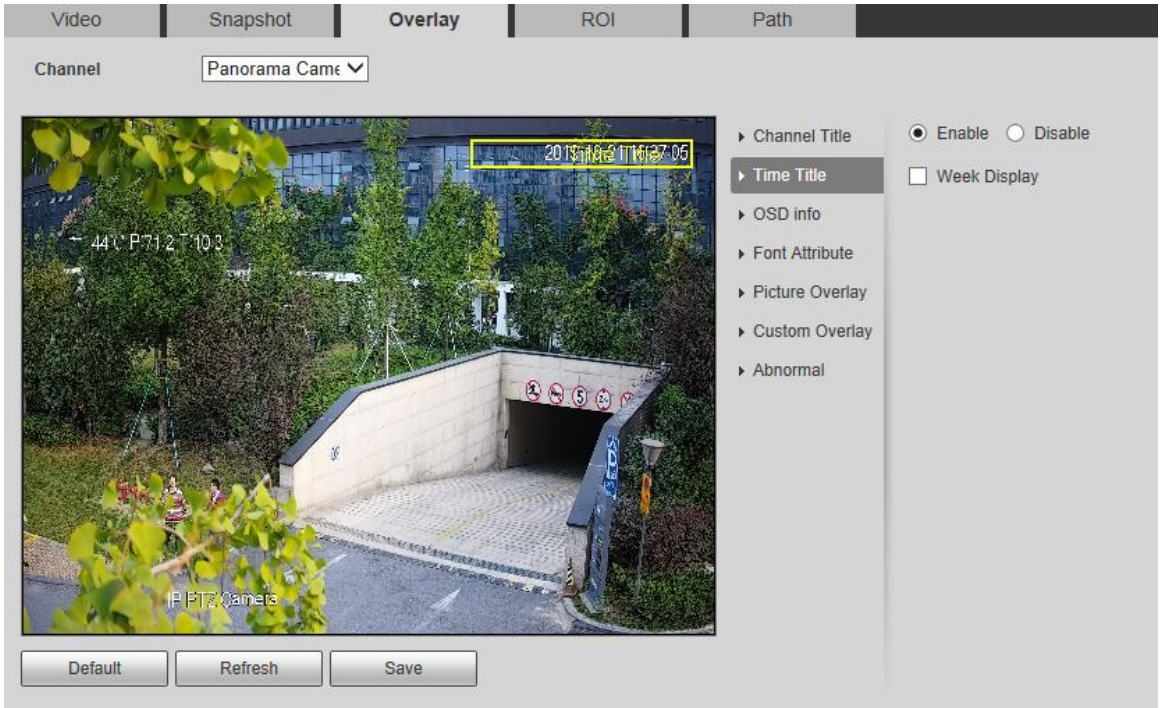


Figure 5-36 Overlay setting–OSD info (Panorama Camera)

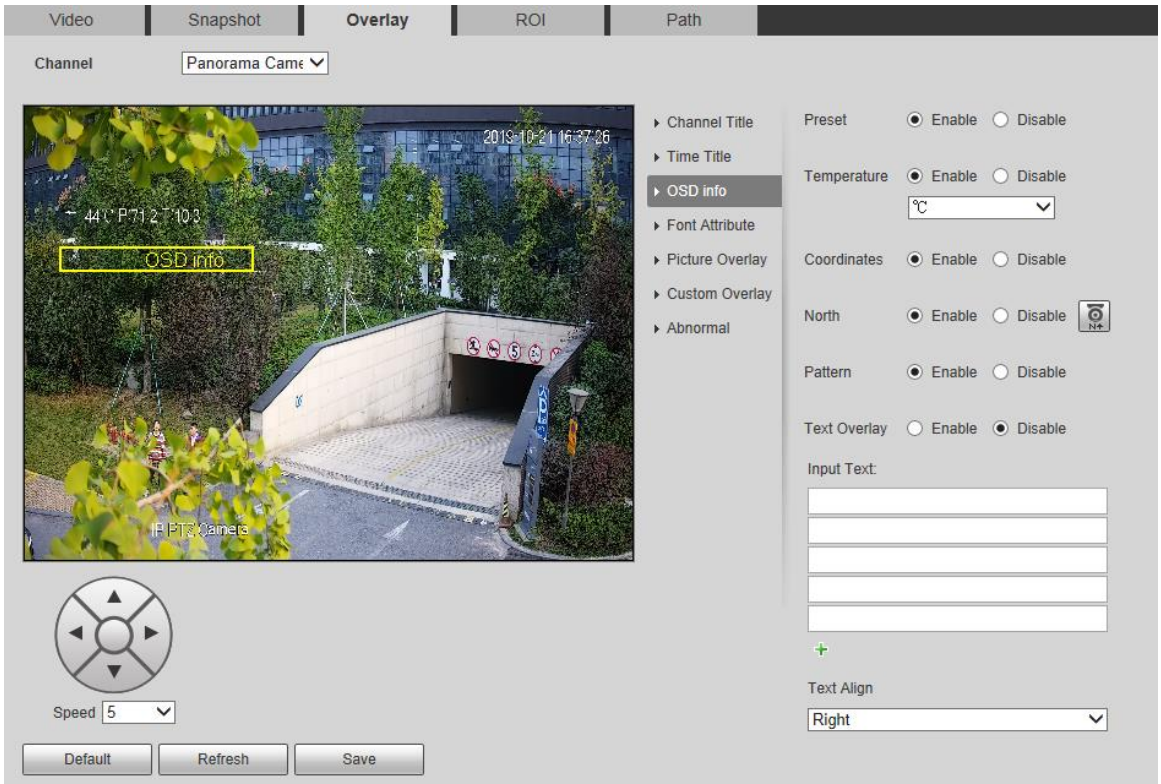


Figure 5-37 Overlay setting–OSD info (Detail Camera)

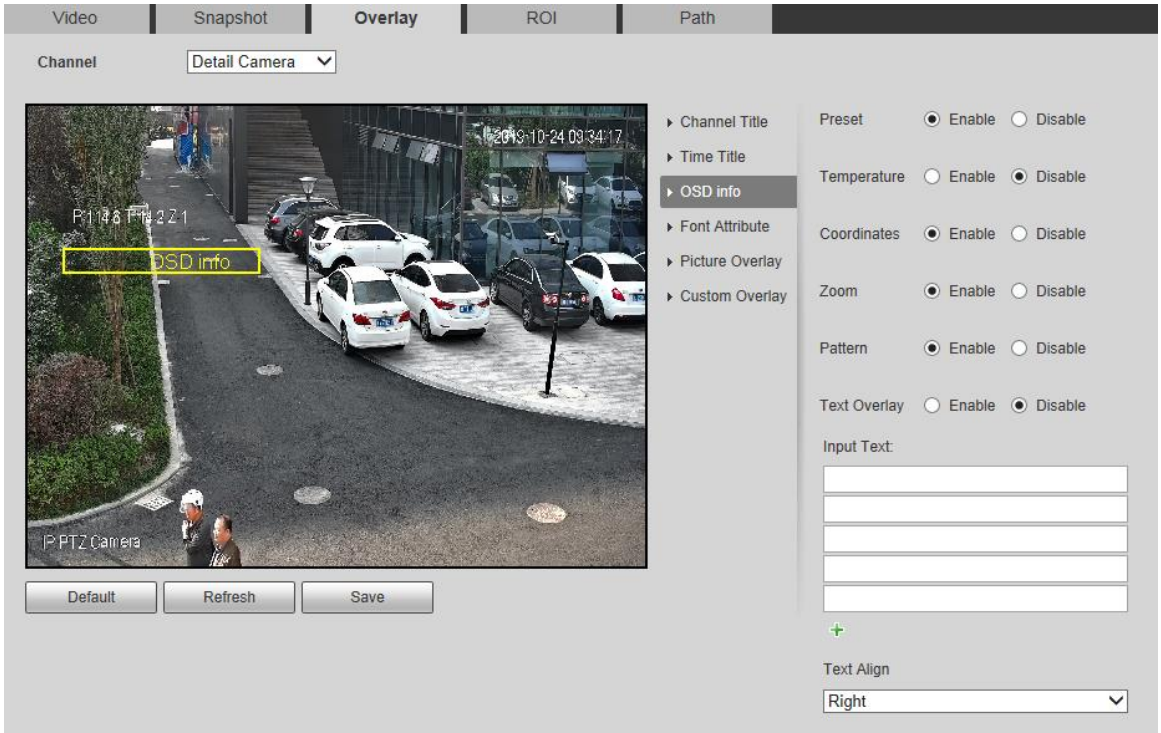


Figure 5-38 Overlay setting–font attribute (Panorama Camera/Detail Camera)

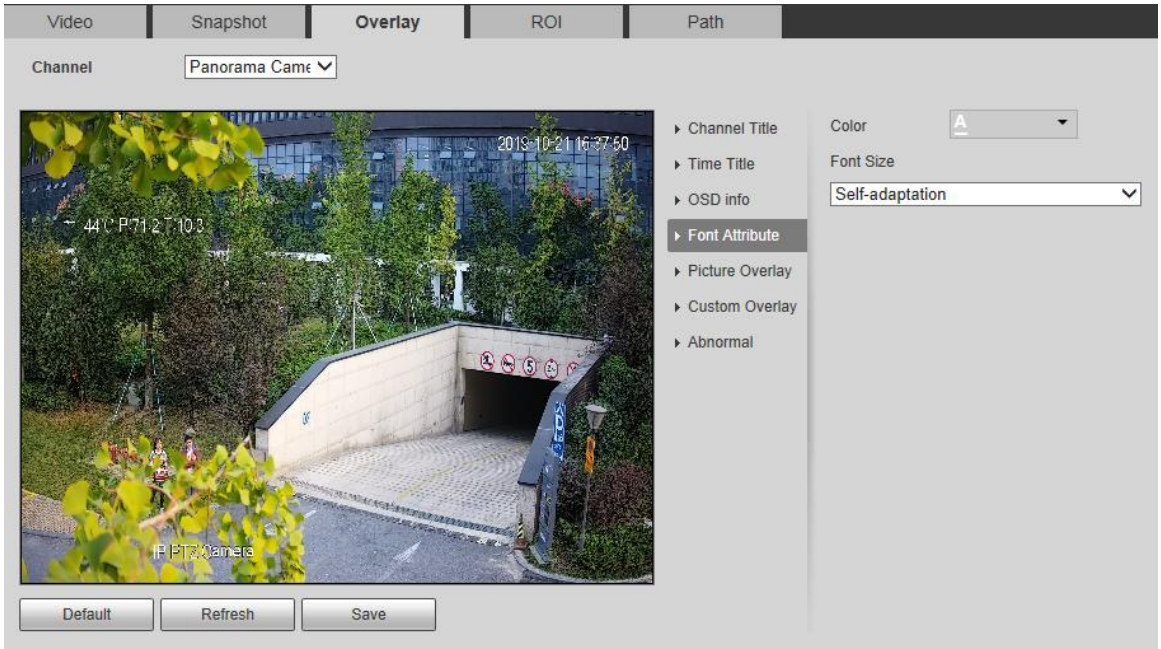


Figure 5-39 Overlay setting–picture overlay (Panorama Camera/Detail Camera)

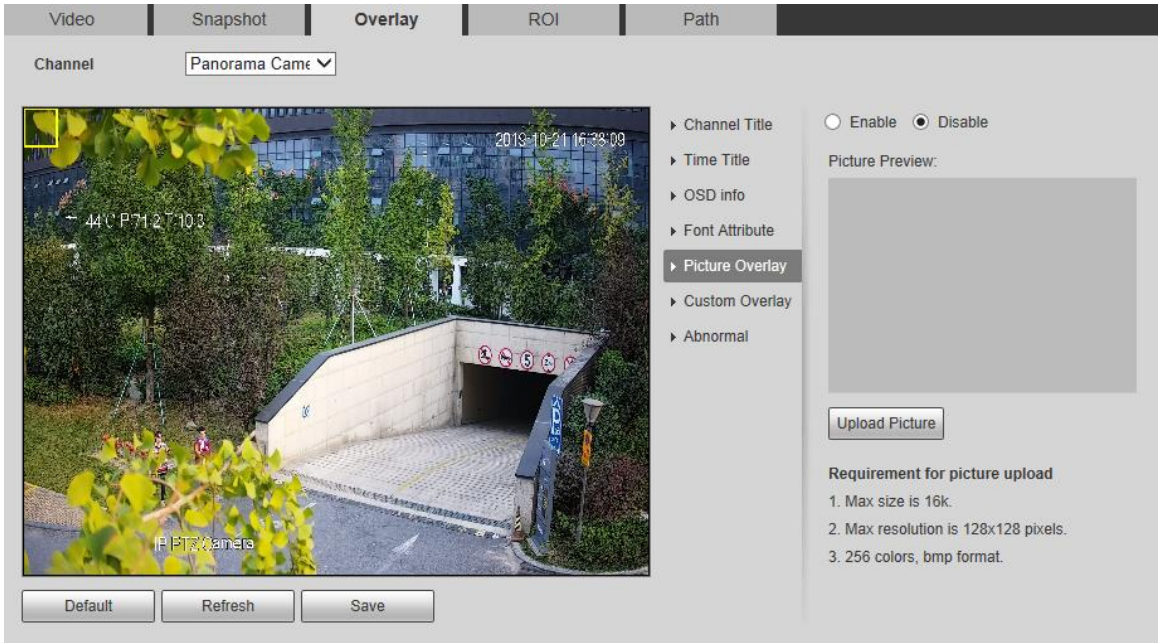


Figure 5-40 Overlay setting–custom overlay (Panorama Camera/Detail Camera)

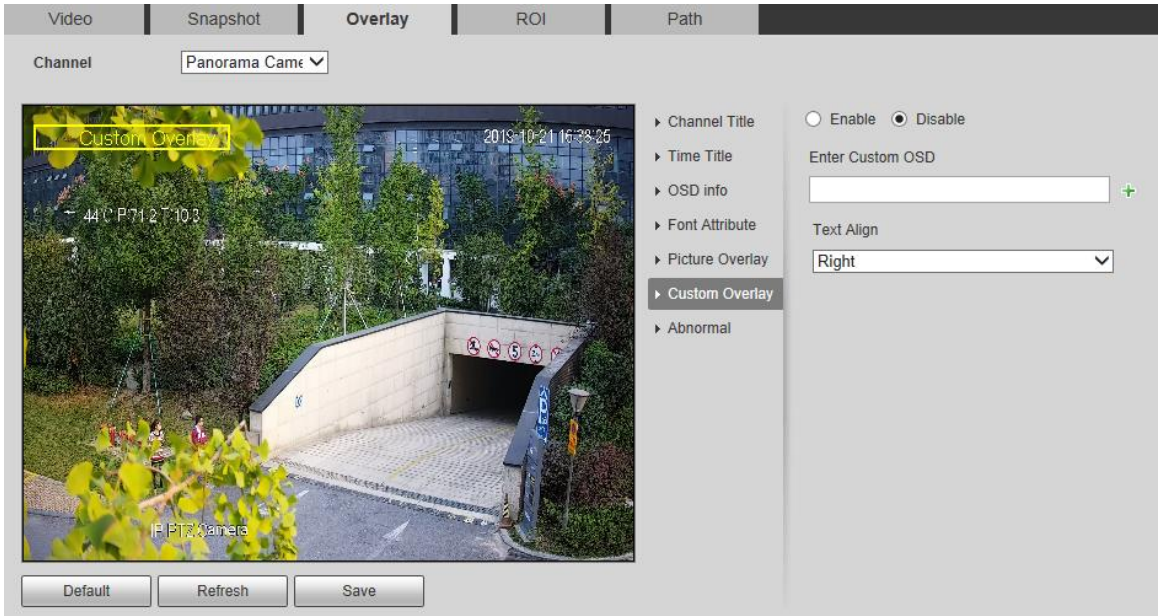


Figure 5-41 Overlay setting–abnormal (Panorama Camera)

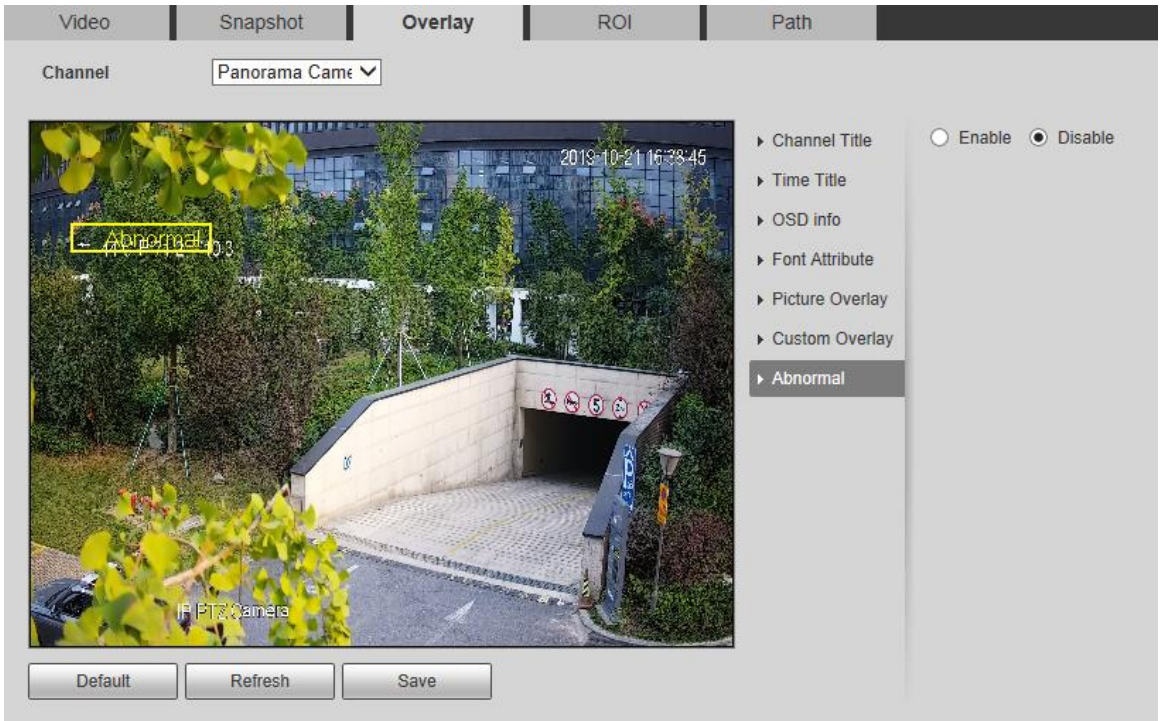


Table 5-11 Overlay setting parameter description

Parameter	Description
Channel Title	● Set whether to display the channel title on the monitoring screen. You can adjust the channel title location by dragging the box. ● Click + to add a channel title. You can also select the **Text Align** of the channel title.
Time Title	Set whether to display time on the monitoring screen, and you can select whether to display the week. You can adjust the time title location by dragging the box.
OSD info	Set whether to display the preset, temperature, PTZ coordinate, zoom, north direction, RS485, and other information on the monitoring screen. You can adjust the OSD info location by dragging the box. There are two options for **Text Align**: **Left** and **Right**.
Font Attribute	Set the font of the channel title, time title, and OSD info, and you can also set the color and size of the font.
Picture Overlay	Set whether to display the overlaid picture on the monitoring screen. Click **Upload Picture** to overlay local pictures on the monitoring screen. You can adjust the location of an overlaid picture by dragging the yellow box. Geographic location and picture overlay cannot be both enabled.
Custom Overlay	Add custom OSD information to the monitoring screen. Click + to add one line of custom OSD information. You can also select the **Text Align** of the channel title.

Parameter	Description
Abnormal	Select the check box to enable the function. This function is only supported by Panorama Camera.

Step 3 Click **Save**.

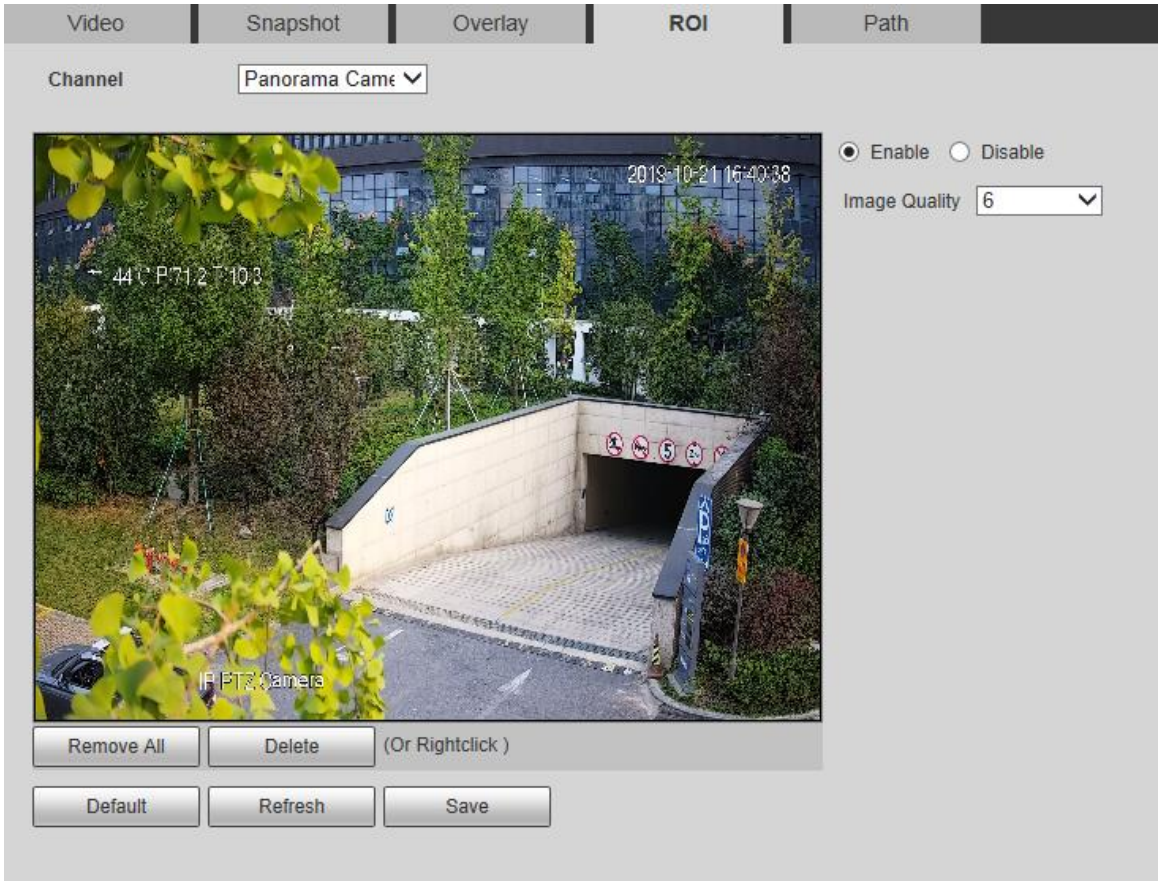
5.1.2.4 ROI

Set a key monitoring region as a ROI (region of interest). You can set the image quality of this region. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Video > ROI**.

The **ROI** interface is displayed. See Figure 5-42.

Figure 5-42 ROI setting (Panorama Camera/Detail Camera)



Step 2 Select **Enable** to enable this function.

Step 3 Press and hold the left mouse button to draw boxes on the monitoring screen. You can draw up to 4 boxes.

- Click **Delete** or right click to delete the drawn boxes.
- Click **Remove All** to clear all boxes.

Step 4 Set the image quality of the ROI.

Step 5 Click **Save**.

5.1.2.5 Path

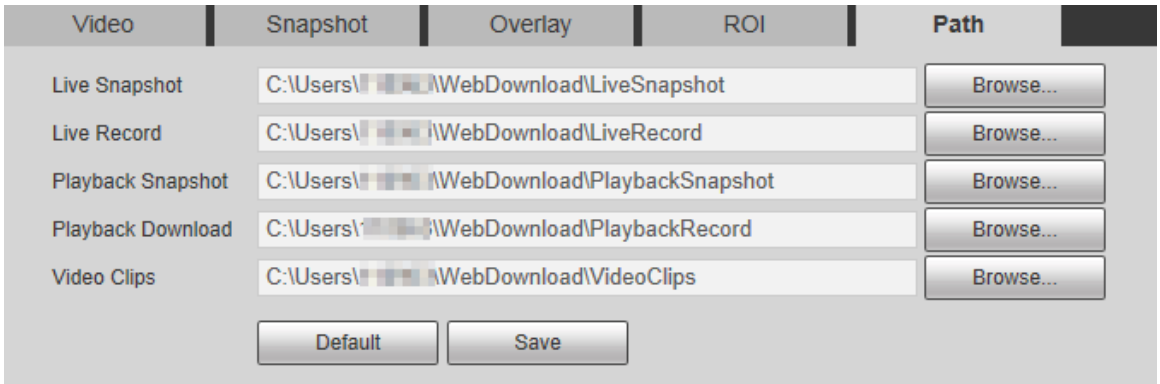
- The storage path is associated with the snapshot and recording on the **Live** interface. You can set the path of **Live Snapshot** and **Live Record** respectively.

- The storage path is associated with the snapshot, downloaded and clipped files on the **Playback** interface. You can set the path of **Playback Snapshot**, **Playback Download**, and **Video Clips** respectively. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Video > Path**.

The **Path** interface is displayed. See Figure 5-43.

Figure 5-43 Path setting



Step 2 Set each storage path.

- Default storage path for snapshots: C:\Users\TEMP\WebDownload\LiveSnapshot.
- Default storage path for recording: C:\Users\TEMP\WebDownload\LiveRecord.
- Default storage path for playback snapshot: C:\Users\TEMP\WebDownload\PlaybackSnapshot.
- Default storage path for playback download: C:\Users\TEMP\WebDownload\PlaybackRecord.
- Default storage path for video clips: C:\Users\TEMP\WebDownload\VideoClips.

TEMP is the login account.

Step 3 Click **Save**.

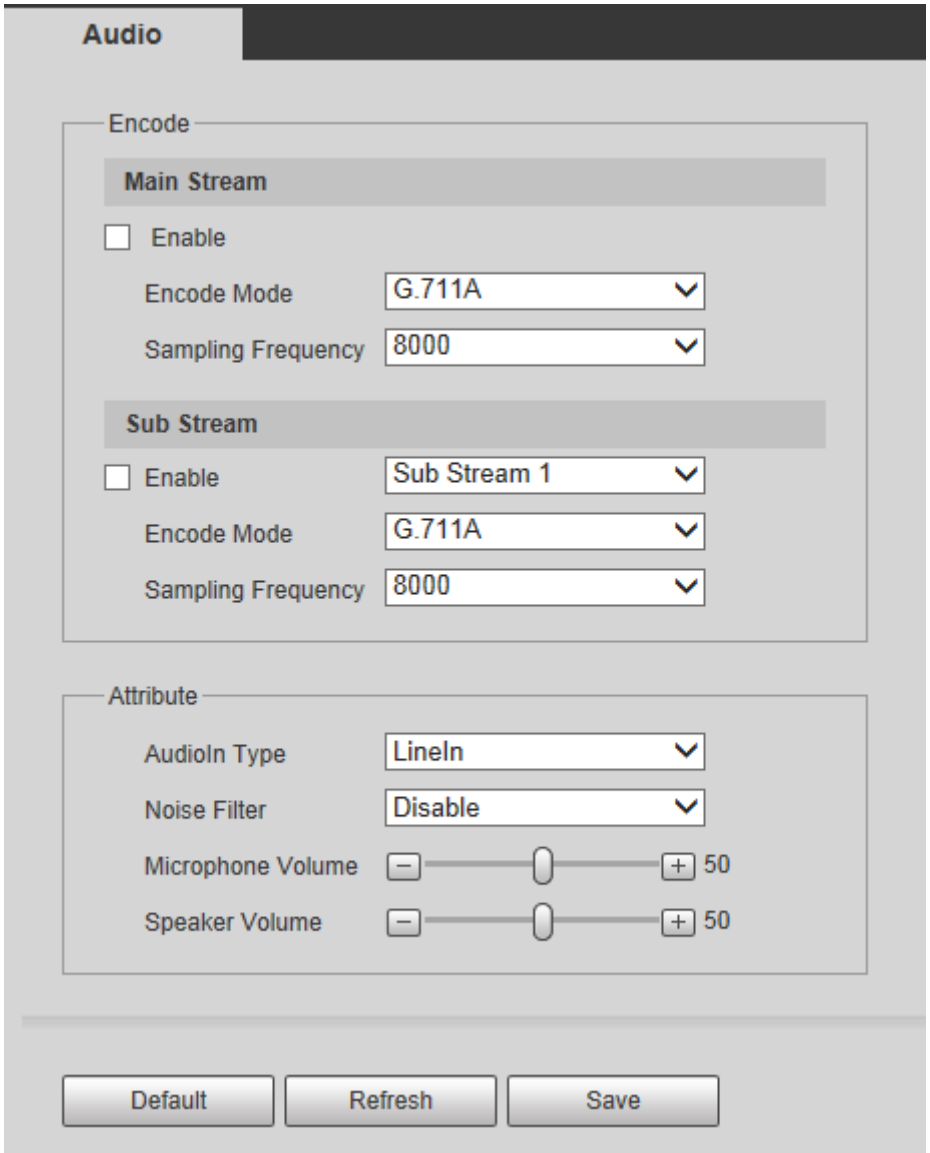
5.1.3 Audio

Set audio parameters of the Camera. Follow these steps to complete the configurations:

Step 1 Select **Setting > Camera > Audio > Audio**.

The **Audio** interface is displayed. See Figure 5-44.

Figure 5-44 Audio setting



Step 2 Configure parameters as needed. For parameter description, see Table 5-12.

Table 5-12 Audio setting parameter description

Parameter	Description
Enable	Enable **Main Stream** or **Sub Stream**, and then the network stream contains both audio and video, otherwise, it is only video stream. Audio can be enabled only when video has been enabled.
Encode Mode	The audio encode modes include **G.711A**, **G.711Mu**, **G726**, **MPEG2-Layer2**, **G.722.1**, **G.729**, and **AAC**. It is **G.711A** by default. The audio encode mode set here applies to both audio streams and voice talks.
Sampling Frequency	The supported sampling frequencies include **8000**, **16000**, **48000**, and **64000**. The sampling frequency varies depending on the encode mode. Select an encode mode as needed.

Parameter	Description
AudioIn Type	Set the audio input type. Only **LineIn** is supported.
Noise Filter	Enable or disable **Noise Filter** function. **Disable** is selected by default.
Microphone Volume	Adjust the microphone volume from 0 to 100.
Speaker Volume	Adjust the speaker volume from 0 to 100.

Step 3 Click **Save**.

5.2 Network Settings

5.2.1 TCP/IP

Configure the IP address and DNS server of the Camera to connect it to other devices in the network.

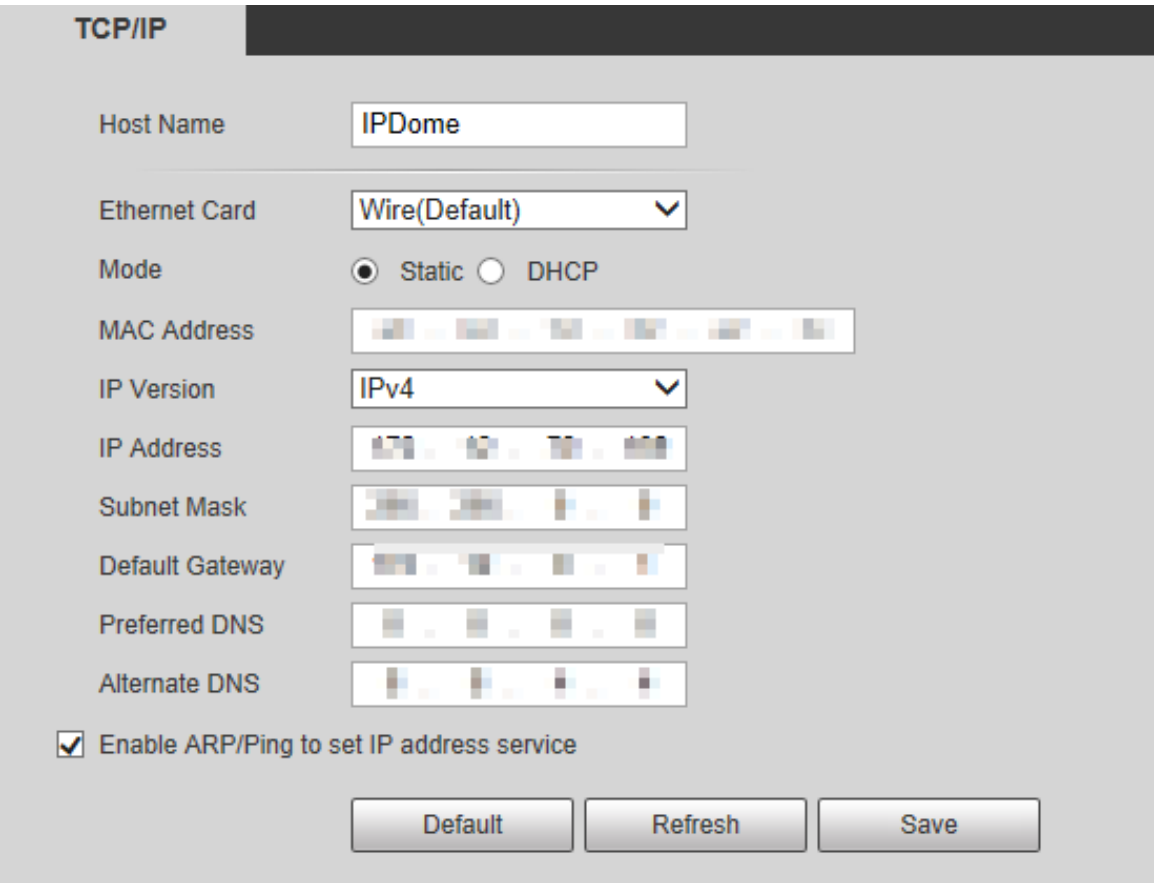
Before configuring network parameters, make sure that the Camera is connected to the network properly.

- If there is no router in the network, assign an IP address in the same network segment.
- If there is a router in the network, set the corresponding gateway and subnet mask.

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

The **TCP/IP** interface is displayed. See Figure 5-45.

Figure 5-45 TCP/IP settings



Step 2 Set TCP/IP parameters. For details, see Table 5-13.

Table 5-13 TCP/IP parameter description

Parameter	Description
Host Name	Set the name of the current host device. The host name can be English or Chinese within 63 bytes.
Ethernet Card	Select the Ethernet card to be configured. **Wire** is selected by default. If the Camera is configured with multiple Ethernet cards, the default Ethernet card can be changed. If you reset the default Ethernet card, restart the Camera.
Mode	**Static** and **DHCP** modes are available. If **DHCP** is selected, the IP address is obtained automatically. In this case, the IP address, subnet mask, and gateway cannot be set. If **Static** is selected, you need to set the IP address, subnet mask, and gateway manually.
MAC Address	Display the MAC address of the Camera.
IP Version	You can select **IPv4** or **IPv6**. Both versions are supported and can be accessed.
IP Address	Enter correct digits to change the IP address.
Subnet Mask	Set the subnet mask according to actual conditions. The subnet prefix is a number in the range of 1 to 255. The subnet prefix identifies a specific network link, and usually contains a hierarchical structure. The Camera checks the validity of all IPv6 addresses. The IP address and the default gateway must be in the same network segment. Make sure that a certain part of the subnet prefix in the IP address and default gateway are the same.
Default Gateway	Configure as needed. The default gateway must be in the same network segment as the IP address.
Preferred DNS	IP address of the DNS server.
Alternate DNS	Alternate IP address of the DNS server.
	For IPv6 version, in the **IP address**, **Default Gateway**, **Preferred DNS**, and **Alternate DNS** fields, enter 128 bits, and these fields cannot be blank.
Enable ARP/Ping to set IP address service	Select the check box, and then you can modify and set the Camera IP address through ARP/Ping command if the MAC address is known. The function is enabled by default. During reboot, you will have no more than 2 minutes to configure the Camera 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 the function is not enabled, the IP address cannot be configured with ping packet.

Step 3 Click **Save**.

An Example of Configuring IP Address with ARP/Ping

Step 1 To obtain a usable IP address, make sure that the Camera and your PC are in the same LAN.

Step 2 Get the MAC address from the Camera label.

Step 3 Open command editor on the PC and enter the following command. See Table 5-14.

Table 5-14 Command lists

System	Command
Windows syntax	arp -s <IP Address> <MAC> ping -l 480 -t < IP Address > Example: arp -s 192.168.1.125 11-40-8c-18-10-11 ping -l 480 -t 192.168.0.125
UNIX/Linux/Mac syntax	arp -s <IP Address> <MAC> ping -s 480 < IP Address > Example: arp -s 192.168.1.125 11-40-8c-18-10-11 ping -s 480 192.168.0.125
Win7 syntax	netsh i i show in netsh -c "i i" add neighbors ldx <IP Address> <MAC> ping -l 480 -t < IP Address > Example: netsh i i show in netsh -c "i i" add neighbors 12 192.168.1.125 11-40-8c-18-10-11 ping -l 480 -t 192.168.1.125

Step 4 Power off the Camera and then restart it, or restart the Camera over the network.

Step 5 Check the PC command line. If there is information such as "Reply from 192.168.1.125…", it means the configuration succeeds. In this case, you can close the command editor.

Step 6 Enter *http://<IP address>* in the browser address bar to log in.

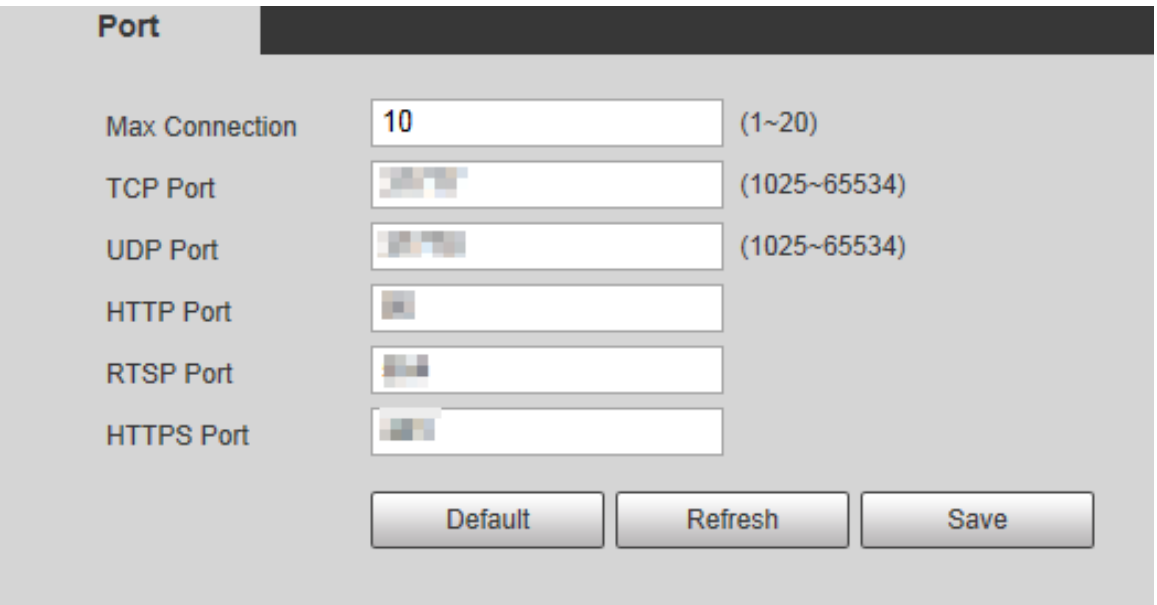
5.2.2 Port

Configure the maximum port numbers and values on this interface.

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

The **Port** interface is displayed. See Figure 5-46.

Figure 5-46 Port



Step 2 Configure each port value of the Camera. For more details, see Table 5-15.

- Except **Max Connection**, modifications of other parameters will take effect after restart.
- 0–1024, 1900, 3800, 5000, 5050, 9999, 37776, 37780–37880, 39999, and 42323 are occupied for specific uses.
- It is not recommended to use the default values of other ports during port configuration.

Table 5-15 Port parameter description

Parameter	Description
Max Connection	The max number of users that can log in to the web interface of the Camera simultaneously. The value is 10 by default.
TCP Port	TCP service port. The value is 37777 by default. You can set this parameter as needed.
UDP Port	User Datagram Protocol port. The value is 37778 by default. You can set this parameter as needed.
HTTP Port	HTTP communication port. The value is 80 by default. You can set this parameter as needed.

Parameter	Description
RTSP Port	Real Time Streaming Protocol port. Keep the default value 554 if it is displayed. If you play live view through Apple's QuickTime or VLC, the following format is available. This function is also supported by Blackberry mobile phone. When the URL format requiring RTSP, you need to specify channel number and bit stream type in the URL, and also username and password if needed. When playing live view with Blackberry mobile phone, you need to turn off the audio, and then set the stream encode mode to H.264B and resolution to CIF. URL format example: rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0 ● Username: Your username. For example, admin. ● Password: Your password. For example, admin. ● IP: Your device IP. For example, 192.168.1.122. ● Port: Leave it if the value is 554 by default. ● Channel: Channel number starting from 1. For example, if it is channel 2, then enter channel=2. ● Subtype: stream type. The main stream is 0 (subtype=0); the sub stream is 1 (subtype=1). For example, if you require the sub stream of channel 2 from a certain device, then the URL shall be: rtsp://admin:admin@192.168.1.123:554/cam/realmonitor?channel=2&subtype=1 If certification is not required, you do not need to specify the username and password. Use the following format: rtsp://ip:port/cam/realmonitor?channel=1&subtype=0
RTSP Port	A network protocol for real-time data communication. The value is 1935 by default. You can enter the value as needed. Enable RTMP to push audio and video data to the third-party server. Make sure that the address is trusted, otherwise it might cause data leakage.
HTTPS Port	HTTPS communication port. The value is 443 by default. You can set this parameter as needed.

Step 3 Click **Save**.

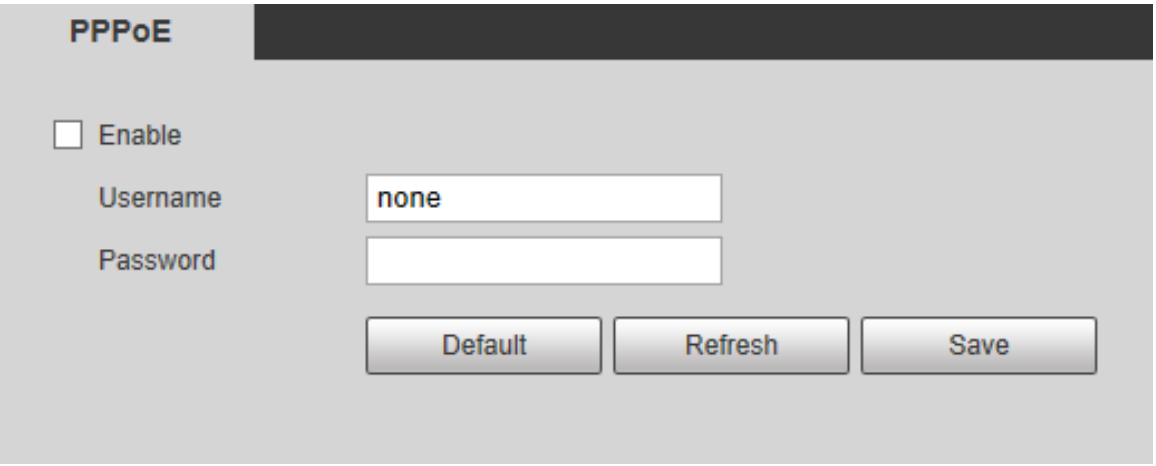
5.2.3 PPPoE

You can enable PPPoE (Point-to-Point Protocol over Ethernet) to establish network connection. In this case, the Camera obtains a dynamic IP address. To use this function, you need to obtain the username and password from the Internet Service Provider (ISP).

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

The **PPPoE** interface is displayed. See Figure 5-47.

Figure 5-47 PPPoE interface (1)

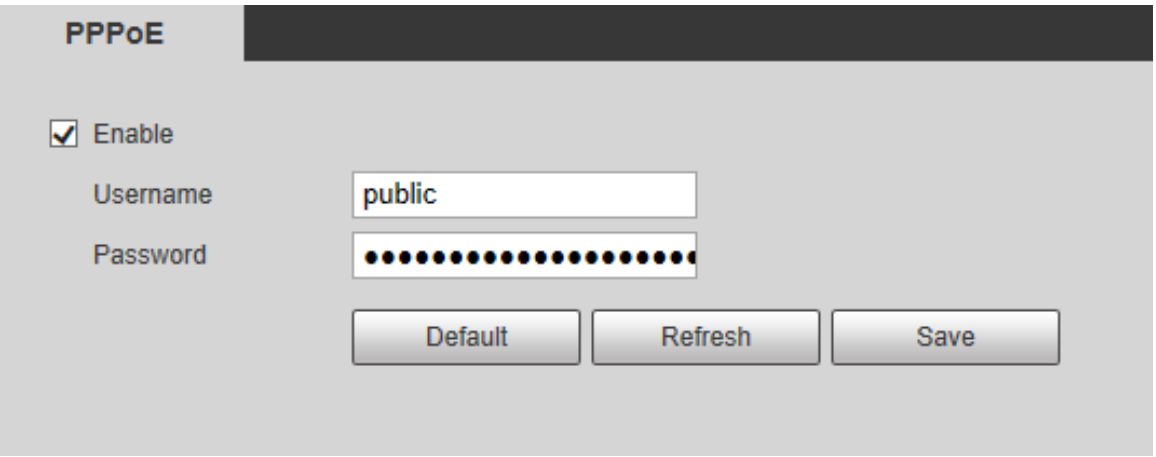


Step 2 Select **Enable**, and then enter PPPoE username and password.

Step 3 Click **Save**.

Save Succeeded! is displayed, and the obtained IP address of public network is displayed in real time. See Figure 5-48. You can access the Camera through the IP address.

Figure 5-48 PPPoE interface (2)



5.2.4 DDNS

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

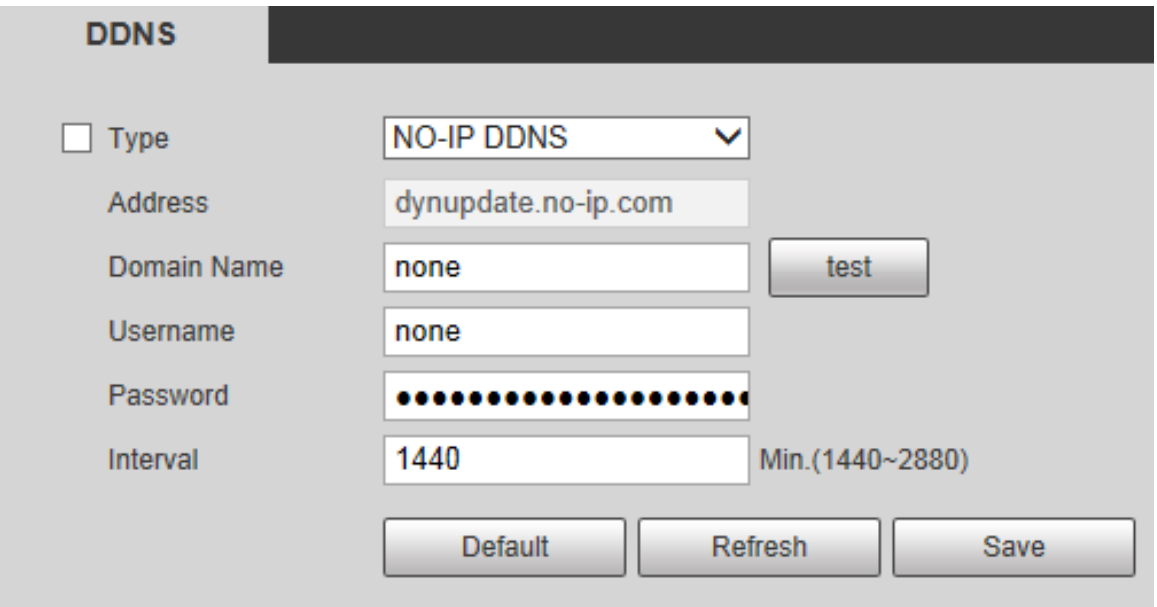
Before making any changes, please check if your camera support the DNS server.

- The third party servers might collect your camera information if DDNS is enabled.
- Register and log in to the DDNS website, and then you can view the information of all the connected cameras in your account.

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

The **DDNS** interface is displayed, see Figure 5-49.

Figure 5-49 DDNS



Step 2 Select **Type**, and then configure the parameters as needed. For details, see Table 5-16.

Table 5-16 DDNS parameter description

Parameter	Description
Type	The name and website of the DDNS service provider. Here is the matching relationship: ● CN99 DDNS Server address: www.3322.org ● NO-IP DDNS Server address: dynupdate.no-ip.com ● Dyndns DDNS Server address: members.dyndns.org
Address	
Domain Name	The domain name you registered on the DDNS website.
Username	Enter the username and password obtained from DDNS service provider. You need to register an account (including username and password) on the website of DDNS service provider.
Password	
Interval	The update cycle of the connection between your camera and the server, and the time is 10 minutes by default.

Step 3 Click **Save**.

5.2.5 SMTP (Email)

After this function is enabled, the Camera data will be sent to the given server. There is data leakage risk. Think twice before enabling the function.

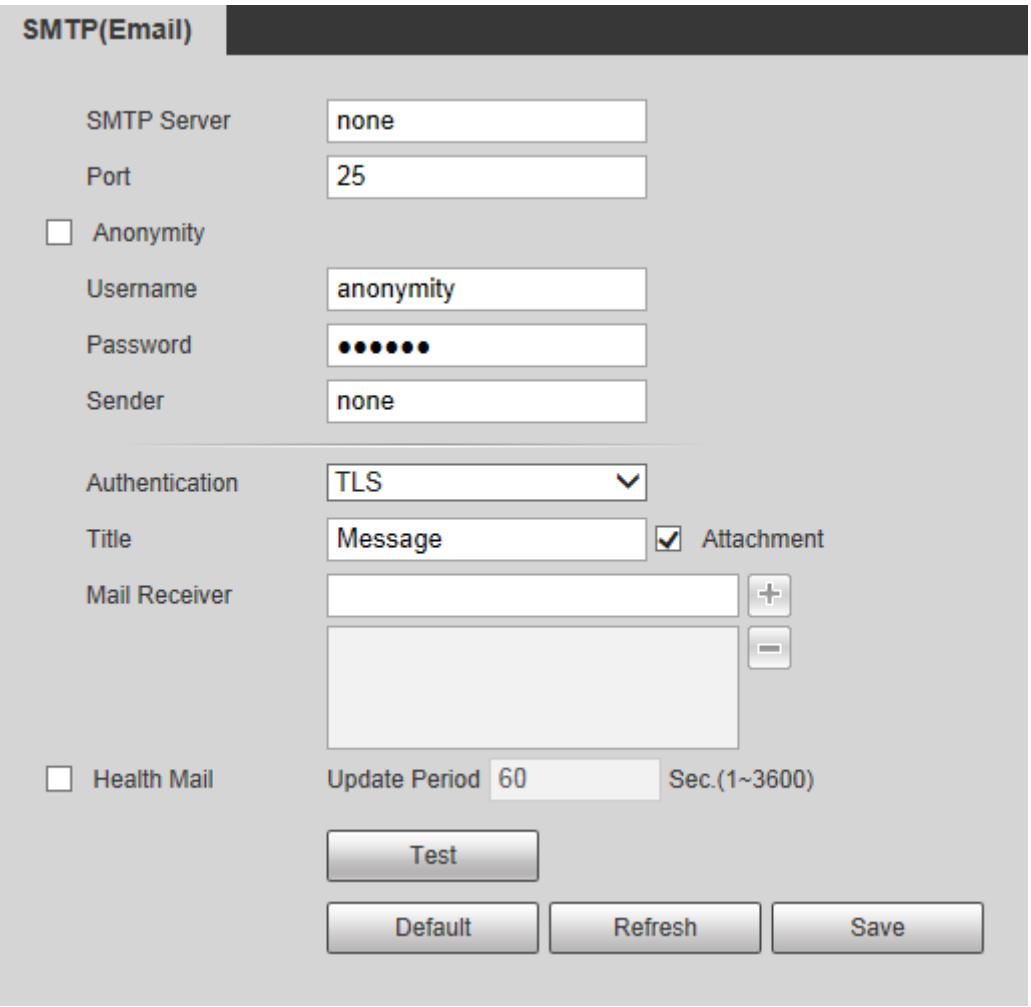
Configure **SMTP (Email)**. When alarms, video detection and abnormal events are triggered, an email will be sent immediately.

When alarms, video detection and abnormal events are triggered, an email will be sent to the recipient server through SMTP server. The recipient can log in to the incoming mail server to receive emails.

Step 1 Select **Setting > Network > SMTP (Email)**.

The **SMTP (Email)** interface is displayed, see Figure 5-50.

Figure 5-50 SMTP (Email)



Step 2 Configure parameters as needed. For parameter description, see Table 5-17.

Table 5-17 SMTP (Email) parameter description

Parameter	Description	
SMTP server	IP address of the outgoing mail server complying with SMTP protocol.	For the detailed configuration, see Table 5-18.
Port	Port number of the outgoing mail server complying with SMTP protocol. It is 25 by default.	
Username	Username of sender mailbox.	
Password	Password of sender mailbox.	
Anonymity	For servers supporting anonymous email, you can log in anonymously without entering username, password, and sender information.	
Sender	Email address of the sender.	

Parameter	Description
Encryption Type	Select authentication type from **None**, **SSL** and **TLS**. **TLS** is selected by default. ● For the detailed configuration, see Table 5-18. ● There might be risks if you select the authentication type other than **TLS**. **TLS** is recommended.
Title	You can enter no more than 63 characters in Chinese, English, and Arabic numerals.
Mail Receiver	Email address of the receiver. Support 3 addresses at most.
Attachment	Select the check box to support attachment in the email.
Health Mail	The system sends test mail to check if the connection is successfully configured. Select **Health Mail** check box and configure the **Update Period**, and then the system sends test mails according to the defined period.
Test	Test whether the email function is normal. If the configuration is correct, the email address of the receiver will receive the test email. Save the email configuration before running rest.

For common email configurations, see Table 5-18.

Table 5-18 Common email configuration description

Type	SMTP Server	Encryption Mode	Port	Description
QQ	smtp.qq.com	SSL	465	● The authentication type cannot be **None**. ● You need to enable SMTP service in your mailbox. ● The authentication code is required; either the QQ password or email password is not applicable. Authentication code is the code you receive when enabling SMTP service.
		TLS	587	
163	smtp.163.com	SSL	465/994	● You need to enable SMTP service in your mailbox. ● The authentication code is required; the email password is not applicable. Authentication code is the code you receive when enabling SMTP service.
		TLS	25	
		—	25	
Sina	smtp.sina.com	SSL	465	You need to enable SMTP service in your mailbox.
		none	25	
126	smtp.126.com	none	25	You need to enable SMTP service in your mailbox.

Step 3 Click **Save** to finish configurations.

5.2.6 UPnP

After UPnP is enabled, Intranet service and port of the Camera will be mapped to Extranet. Think twice before enabling it.

UPnP (Universal Plug and Play) allows you to establish the mapping relationship between Intranet and Extranet. Extranet users can access Intranet device by visiting Extranet IP address. Intranet port is device port and Extranet port is router port. Users can access the Camera by accessing Extranet port. When you are not using routers for UPnP, disable UPnP to avoid affecting other functions.

Once UPnP is enabled, the Camera supports UPnP protocol. In Windows XP or Windows Vista, after UPnP is enabled, the Camera can be automatically searched by Windows network.

Perform the following steps to add UPnP network service in the Windows system.

Step 1 Open **Control Panel**, and select **Add or Remove Programs**.

Step 2 Click **Add/Remove Windows Components**.

Step 3 Select **Network Service** from the **Windows Components Wizard** and click **Details** button.

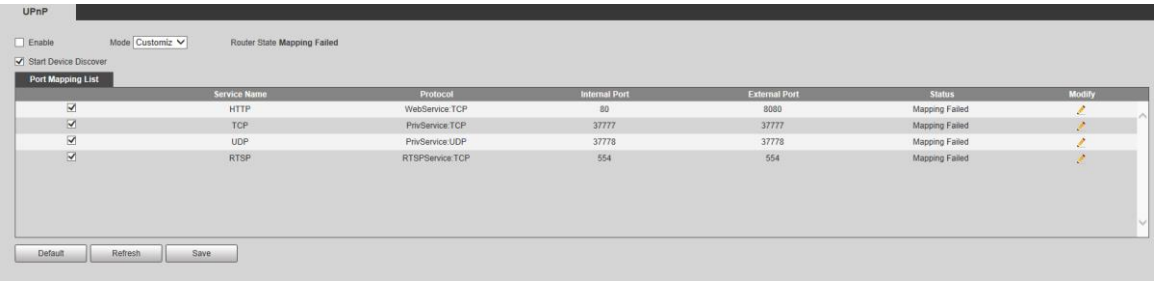
Step 4 Select **Internet Gateway Device Discovery and Control Client**, and **UPnP User Interface**, and then click **OK** to start installation.

Perform the following steps to configure UPnP:

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

The **UPnP** interface is displayed. See Figure 5-51.

Figure 5-51 UPnP



Step 2 Select **Enable**.

Step 3 Select a mode from the list.

There are 2 mapping modes: **Customized** and **Default**.

- In **Customized** mode, users can modify the external port.
- Select **Default**, and then the system finishes mapping with unoccupied port automatically. In this case, you do not need to modify mapping relation.

Step 4 Select **Start Device Discover** as needed.

Step 5 Click **Save** to finish configurations.

5.2.7 SNMP

SNMP (Simple Network Management Protocol) is a basic network management framework. SNMP function can be configured in the network settings. You need to install a certain software to the Camera to obtain the configuration information of the Camera.

The following requirements must be satisfied if you want to use SNMP function:

- Install SNMP monitoring and managing tools, such as MIB Builder and MG-SOFT MIB Browser.
- Obtain two MIB files corresponding to the current version from the technical personnel.

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

The **SNMP** interface is displayed, see Figure 5-52 and Figure 5-53.

Figure 5-52 SNMP (1)

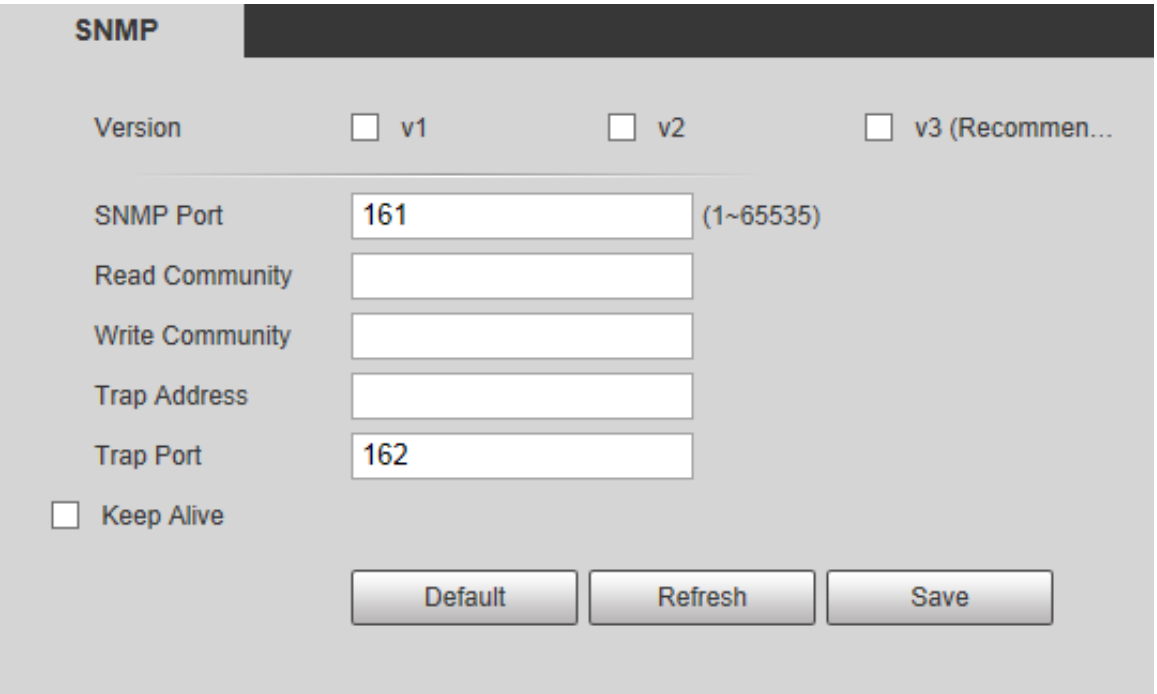
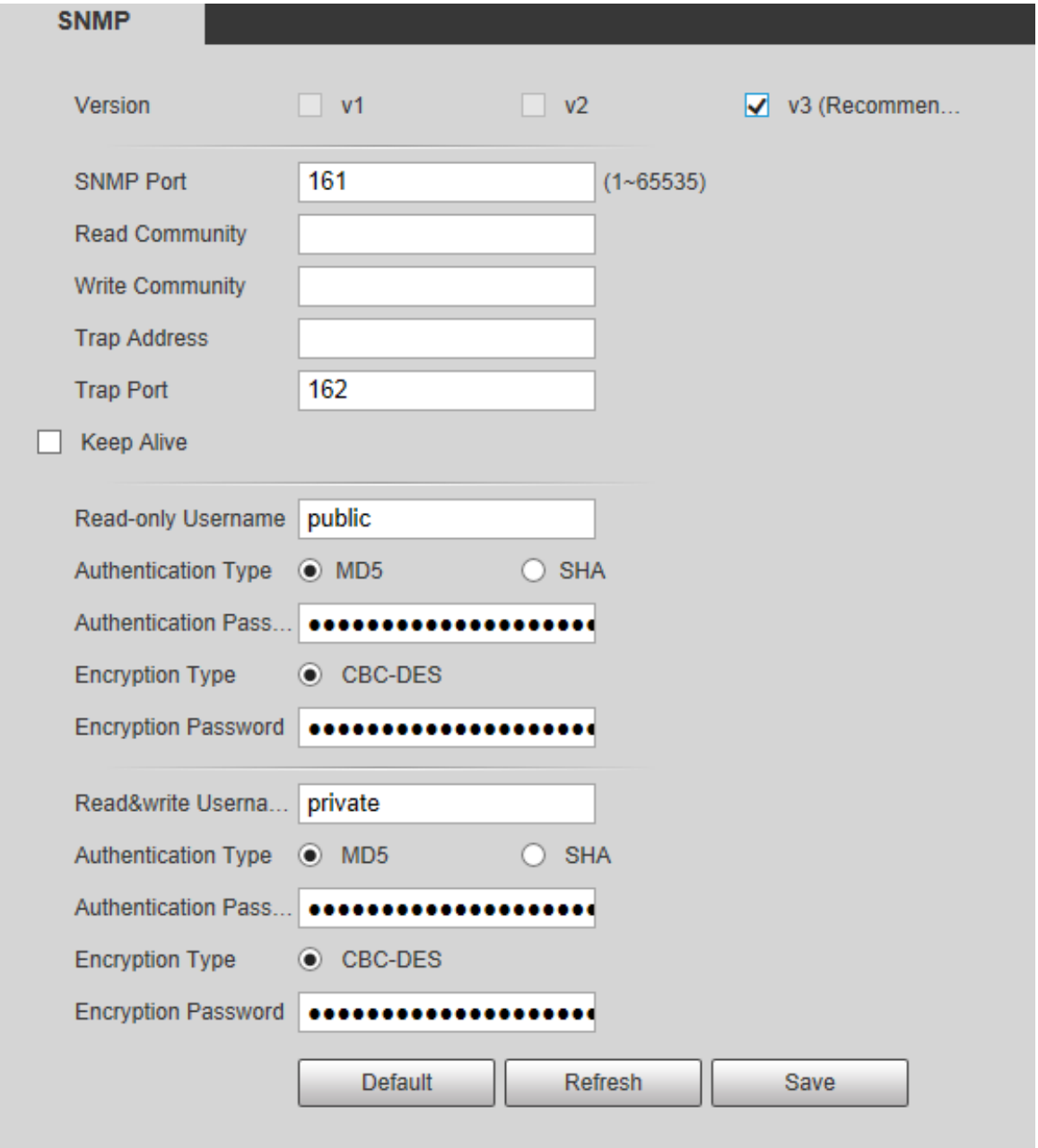


Figure 5-53 SNMP (2)



Step 2 Select a version to enable SNMP.

In the **Trap Address** field, enter the IP address of the PC that has MG-SOFT MIB Browser installed, leaving other parameters to the default values.

Table 5-19 SNMP parameter description

Parameter	Description
Version	Select the check box of the version you need, and the system can process information of the corresponding version. ● Select **V1**, and the system can only process information of V1 version. ● Select **V2**, and the system can only process information of V2 version. ● Select **V3**, and then **V1** and **V2** become unavailable. You need to set the username, password, and authentication type to visit your camera from the server. **V1** and **V2** might cause data leakage, and **V3** is recommended.
SNMP Port	The listening port of the software agent in the Camera.
Read Community/Write Community	The read and write community strings that the software agent supports. The name can only consist of number, letter, underline, and strikethrough.
Trap Address	The target address of the trap information sent by the software agent in the Camera.
Trap Port	The target port of the trap information sent by the software agent in the Camera.
Keep Alive	Select **Keep Alive** check box, and the system can send data package to ensure network connection without interruption.
Read-only Username	The name is **public** by default. The username can only consist of number, letter, and underline.
Read&write Username	The name is **private** by default. The username can only consist of number, letter, and underline.
Authentication Type	You can select from **MD5** and **SHA**, and it is **MD5** by default.
Authentication Password	It shall be no less than 8 digits.
Encryption Type	It is CBC-DES by default.
Encryption Password	It shall be no less than 8 digits.

Step 3 Click **Save**.

Step 4 View camera information.

1) Run MIB Builder and MG-SOFT MIB Browser.
2) Compile the two MIB files with MIB Builder.
3) Load the generated modules with MG-SOFT MIB Browser.
4) Enter the IP address of the Camera you need to manage in the MG-SOFT MIB Browser, and then select version to search.
5) Unfold all the tree lists displayed in the MG-SOFT MIB Browser, and then you can view the configuration information, video channel amount, audio channel amount, and software version.

Use PC with Windows operating system (OS) and disable SNMP Trap service. The MG-SOFT MIB Browser will display prompt when an alarm is triggered.

5.2.8 Bonjour

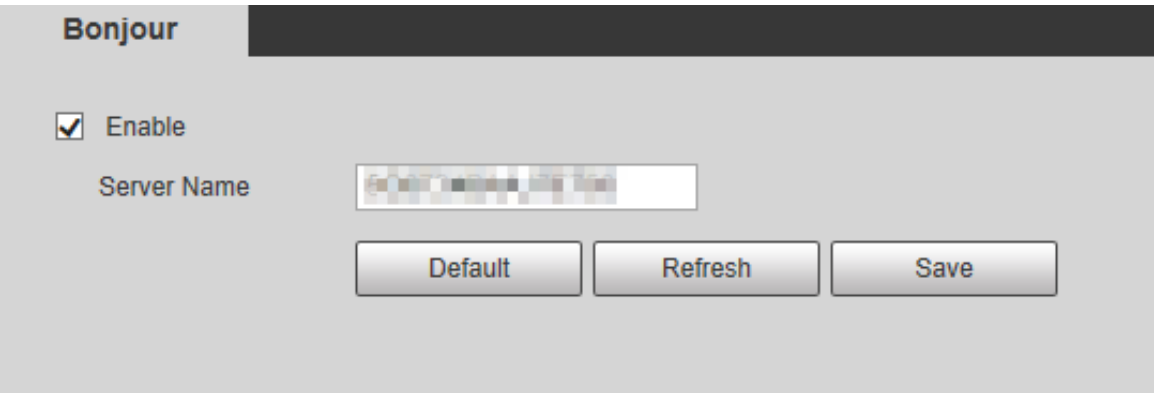
Bonjour is also called zero-configuration networking, which can automatically discover computers, devices and services on IP networks. Bonjour is a protocol of industry standard which allows devices to search and find each other. IP address or DNS server is not required during the process.

Enable this function, and the network camera will be automatically detected by the OS and client with Bonjour function. When the Camera is automatically detected by Bonjour, server name you have set will be displayed.

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

The **Bonjour** interface is displayed. See Figure 5-54.

Figure 5-54 Bonjour



Step 2 Select **Enable**, and then set **Server Name**.

Step 3 Click **Save** to finish configurations.

In the OS and clients that support Bonjour, perform the following steps to visit the web interface of the Camera with Safari browser.

Step 1 Click **Show all bookmarks** in Safari.

Step 2 The OS or client automatically detects the network cameras with Bonjour enabled in the LAN.

Step 3 Click to visit the corresponding web interface.

5.2.9 Multicast

Access the Camera by network to see live view. If the access times exceed its upper limit, preview might fail. You can set multicast IP to access by multicast protocol to solve the problem. See Figure 5-55.

Figure 5-55 Multicast

Step 1 Enable main stream or sub stream as needed.

Step 2 Enter multicast address and port number.

There is limit on multicast IP address range, and no limit on multicast port.

Step 3 Click **Save**.

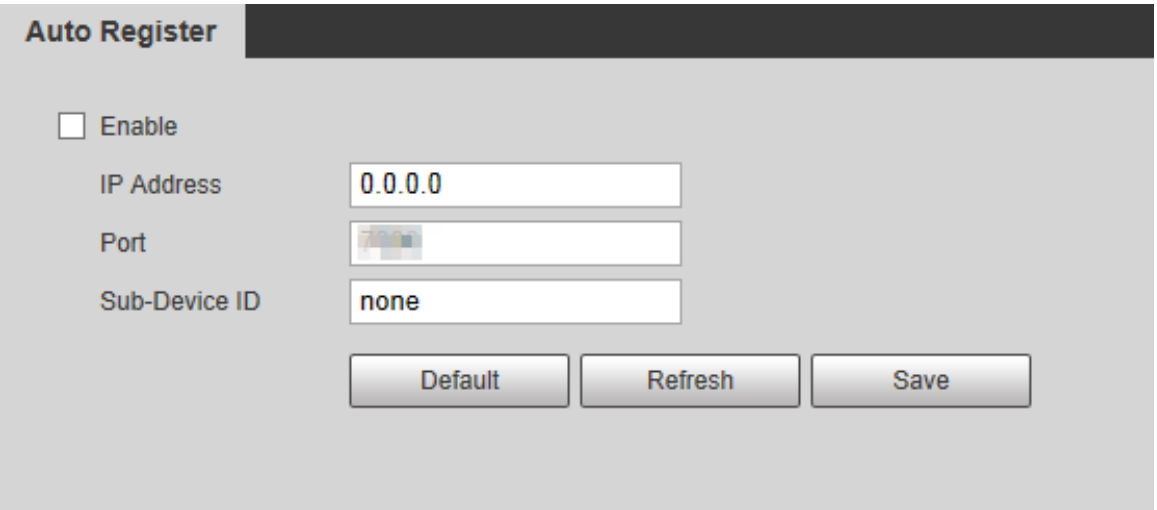
5.2.10 Auto Register

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

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

The **Auto Register** interface is displayed. See Figure 5-56.

Figure 5-56 Auto register



Step 2 Select **Enable** to enable **Auto Register**.

Step 3 Enter **IP Address**, **Port** and **Sub-Device ID**. For details, see Table 5-20.

Table 5-20 Auto register parameter description

Parameter	Description
Server Address	The IP address of server that needs to be registered to.
Port	The port for auto-registration.
Sub-Device ID	Sub device ID assigned by server.

Step 4 Click **Save**.

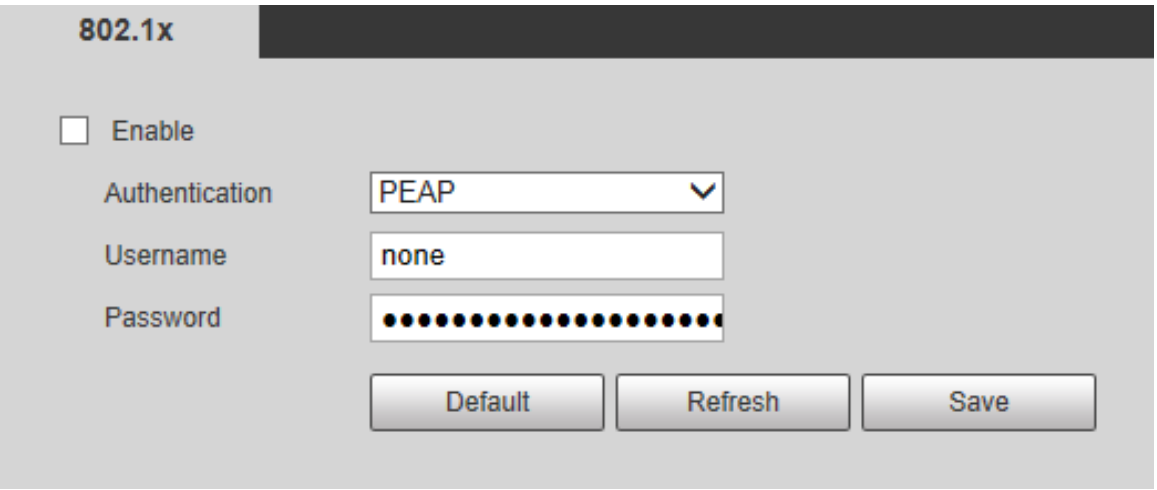
5.2.11 802.1x

802.1X is a port-based network access control protocol. It allows users to manually select authentication mode to control device access to LAN, and meet authentication, billing, safety and management requirements of the network.

Step 1 Select **Setting > Network > 802.1x**.

The **802.1x** interface is displayed, see Figure 5-57.

Figure 5-57 802.1x



Step 2 Select **Enable** to enable **802.1x**.

Step 3 Select an authentication mode, and enter username and password. For parameter description, see Table 5-21.

Table 5-21 802.1X setting parameter description

Parameter	Description
Authentication	PEAP (protected EAP protocol).
Username	The username that was authenticated on the server.
Password	Corresponding password.

Step 4 Click **Save**.

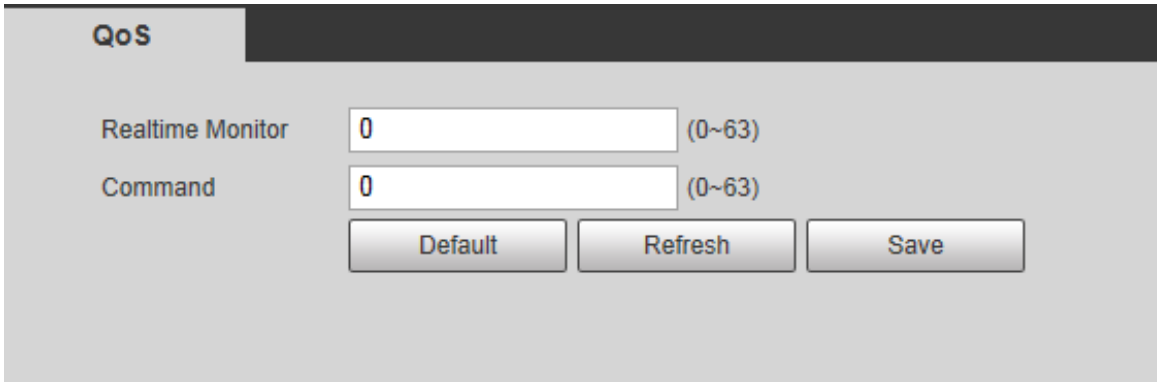
5.2.12 QoS

QoS (Quality of Service) is a network security mechanism, and is also a technology to solve network delay, congestion, and other problems. For network business, QoS includes transmission bandwidth, time delay in transmission, and packet loss of data. In network, QoS can be improved by ensuring transmission bandwidth, and reducing time delay in transmission, packet loss rate, and delay jitter.

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

The **QoS** interface is displayed. See Figure 5-58.

Figure 5-58 QoS



Step 2 Configure **Realtime Monitor** and **Command**. For parameter description, see Step 2.

Table 5-22 QoS setting parameter description

Parameter	Description
Realtime Monitor	Data packet of network video monitoring. The value ranges from 0 to 63.
Command	Data packet of device configuration and query. The value ranges from 0 through 63.

Step 3 Click **Save**.

5.2.13 Access Platform

5.2.13.1 P2P

P2P is a private network traversal technology which enables users to manage devices easily without requiring DDNS, port mapping or transit server. Scan the QR code with your smart phone, and then you can add and manage more devices on your mobile client.

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

The **P2P** interface is displayed. See Figure 5-59.

Figure 5-59 P2P

- P2P is enabled by default. You can manage the devices remotely.
- When P2P is enabled and the Camera is connected to network, the status is displayed as **Online**. We might collect the information including IP address, MAC address, device name, and serial number. The information collected is for remote access only. If you not agree with this, you can clear **Enable** check box.
- The QR code is for reference. Scan the QR code on the actual interface.

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

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

Step 4 Scan the QR code on the P2P interface.

Step 5 Follow the instructions to finish configurations.

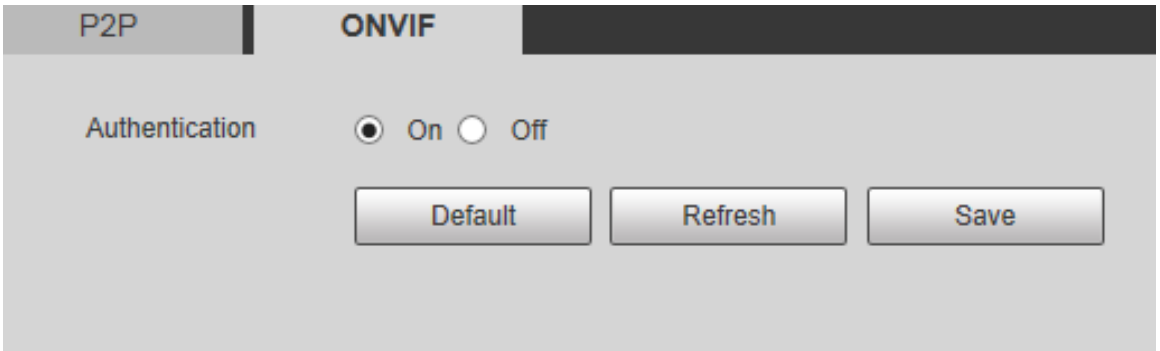
5.2.13.2 ONVIF

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

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

The **ONVIF** interface is displayed. See Figure 5-60.

Figure 5-60 ONVIF



Step 2 Select **On** for Authentication.

Step 3 Click **Save**.

5.3 PTZ Settings

The Camera is equipped with two PTZs which can move up, down, right, left, and even zoom. Through pan, tilt and zoom, the Camera provides both wide-area coverage and great details.

5.3.1 Preset

Preset means a certain position of the Camera. Users can adjust the PTZ and Camera to the environment quickly via calling presets. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > Preset**.

The **Preset** interface is displayed. See Figure 5-61 and Figure 5-62.

Figure 5-61 Preset setting (Panorama Camera)

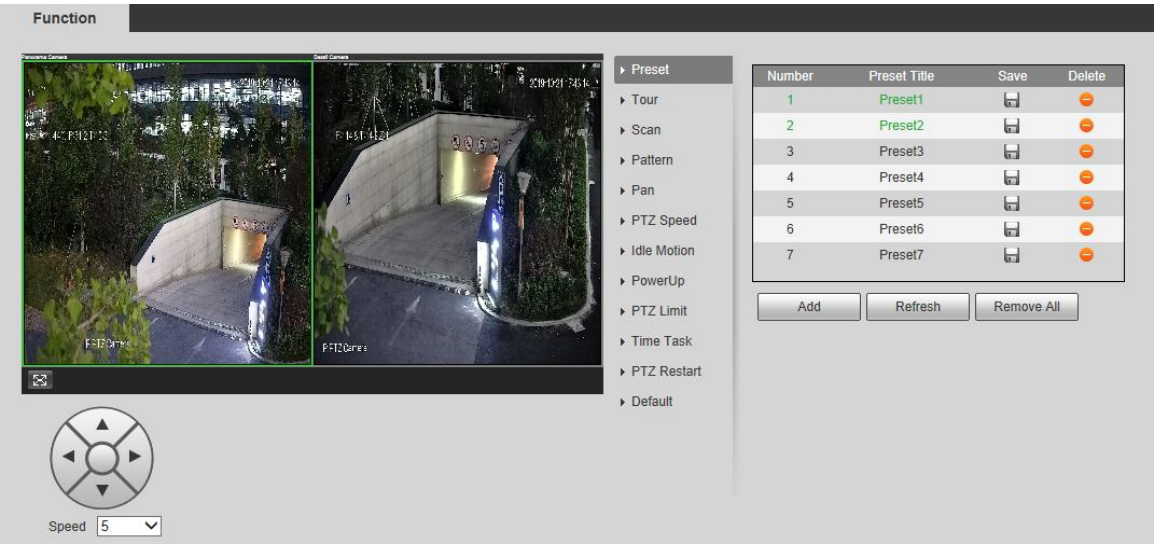
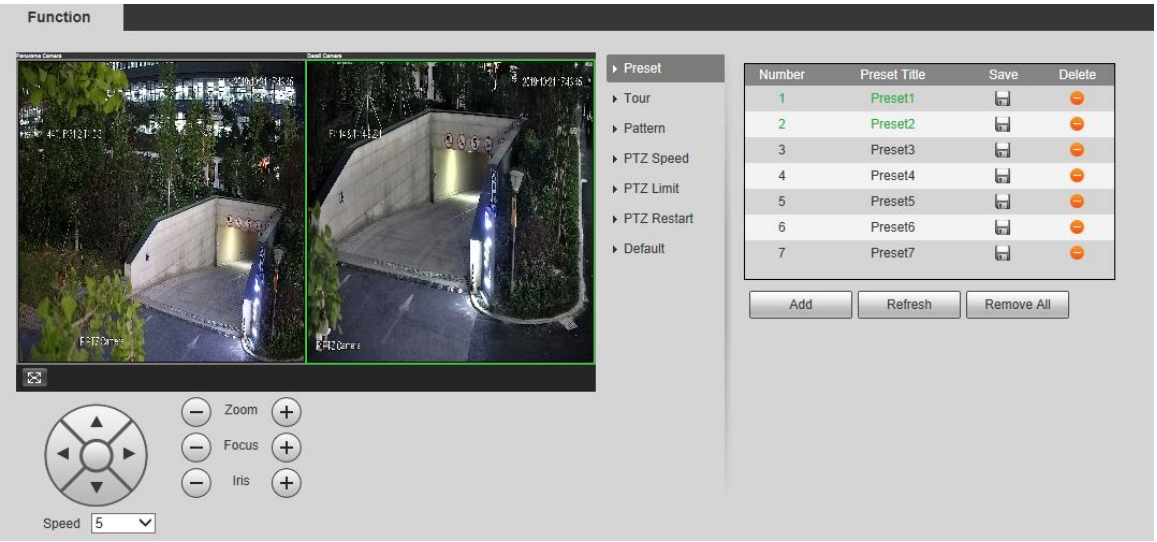


Figure 5-62 Preset setting (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 At the lower left corner of the PTZ interface, click the direction buttons, , and to adjust the PTZ direction, zoom, focus and iris to adjust the Camera to the proper position.

Step 4 Click **Add**.

The current position is set as a preset, and is displayed in the list.

Step 5 Click to save the preset.

Step 6 Perform preset operations.

- Double-click the preset title to edit the title displayed on the monitoring screen.
- Click to delete the preset.
- Click **Remove All** to clear all the presets.

5.3.2 Tour

Tour means a series of movements that the Camera makes along several presets. Follow these steps to complete the configurations:

You need to set several presets in advance.

Step 1 Select **Setting > PTZ > Function > Tour**.

The **Tour** interface is displayed, see Figure 5-63 and Figure 5-64.

Figure 5-63 Tour setting (Panorama Camera)

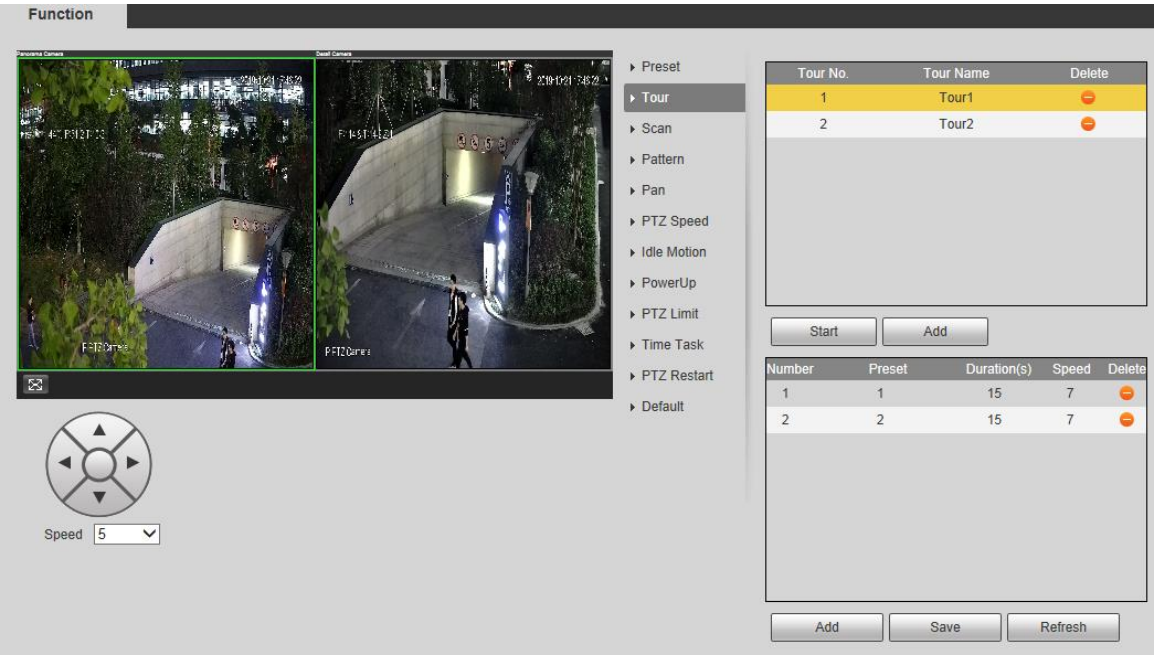
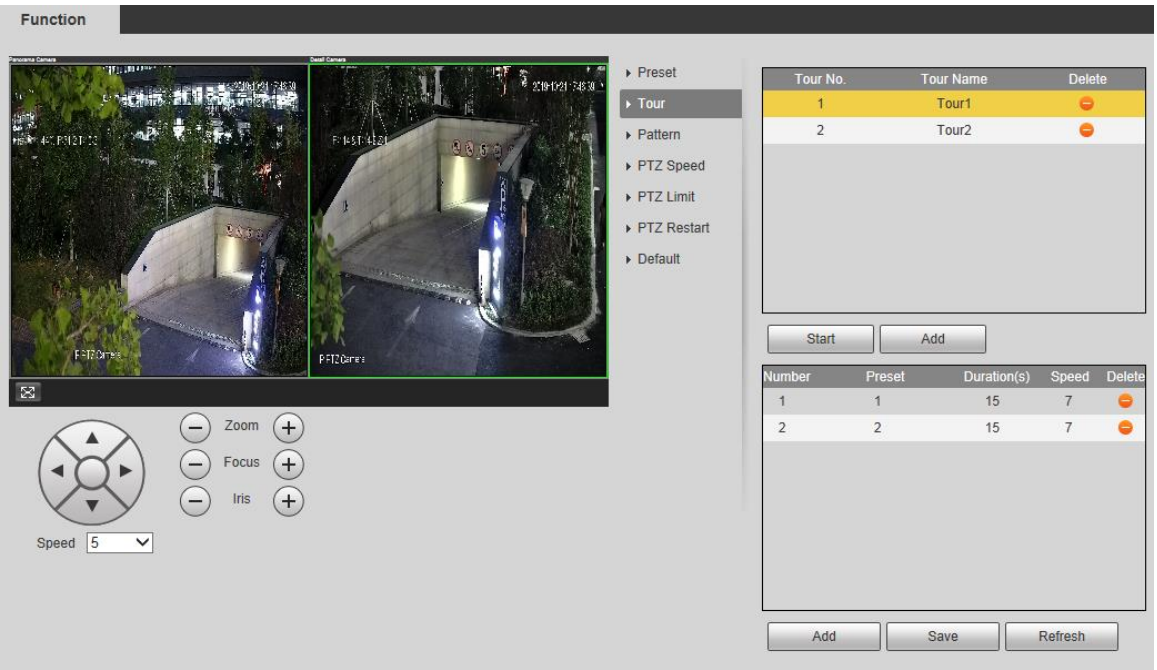


Figure 5-64 Tour setting (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 Click **Add** below the list at the upper right corner of the interface to add a tour path.

Step 4 Click **Add** below the list at the lower right corner of the interface to add several presets.

Step 5 Perform tour operations.

- Double-click tour name to edit the name of the corresponding tour.
- Double-click duration to set the time that the Camera stays at the corresponding preset.
- Double-click speed to modify the tour speed. The default value is 7, and the value range is 1–10. The larger the value, the faster the speed.

Step 6 Click **Start** to start the tour.

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

5.3.3 Scan

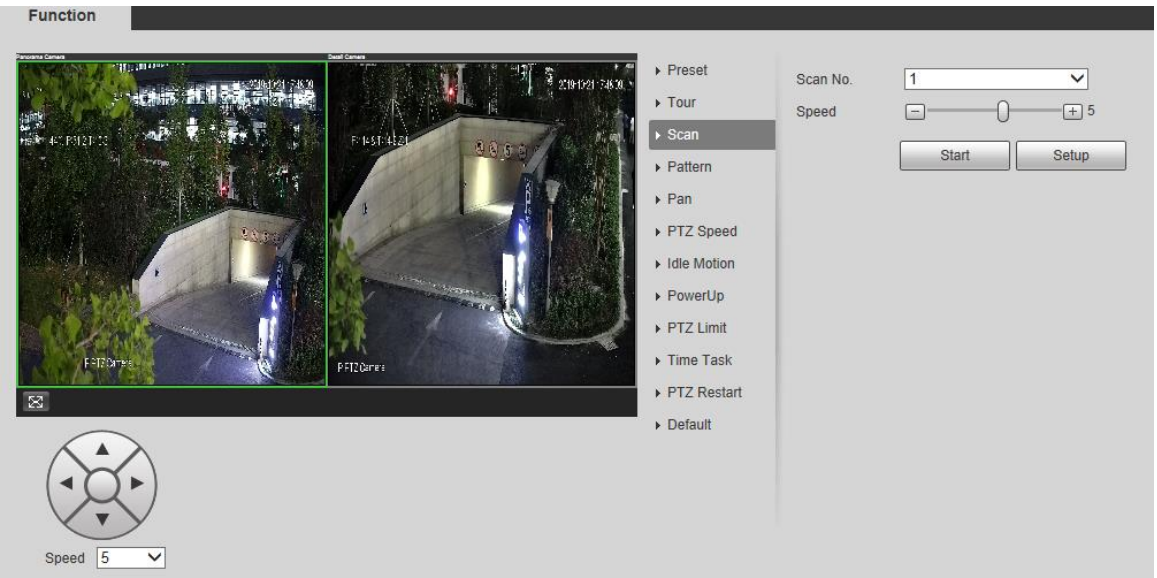
Scan is supported by Panorama Camera only.

Scan means the Camera moves horizontally at a certain speed between the defined left and right boundaries. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > Scan**.

The **Scan** interface is displayed, see Figure 5-65.

Figure 5-65 Scan setting (Panorama Camera)



Step 2 Select **Scan No.** from the list.

Step 3 Drag the progress bar to change the scan speed.

Step 4 Click **Setup** to adjust the Camera to an ideal position.

Step 5 Click **Set Left Limit** and **Set Right Limit** to set the left and right boundaries of the camera.

Step 6 Click **Start**, and the camera starts scanning.

Step 7 Click **Stop**, and the scanning stops.

5.3.4 Pattern

Pattern means a record of a series of operations that the user makes to the Camera. The operations include horizontal and vertical movements, zoom and preset. Record and save the operations, and then you can call the pattern path directly. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > Pattern**.

The **Pattern** interface is displayed. See Figure 5-66 and Figure 5-67.

Figure 5-66 Pattern setting (Panorama Camera)

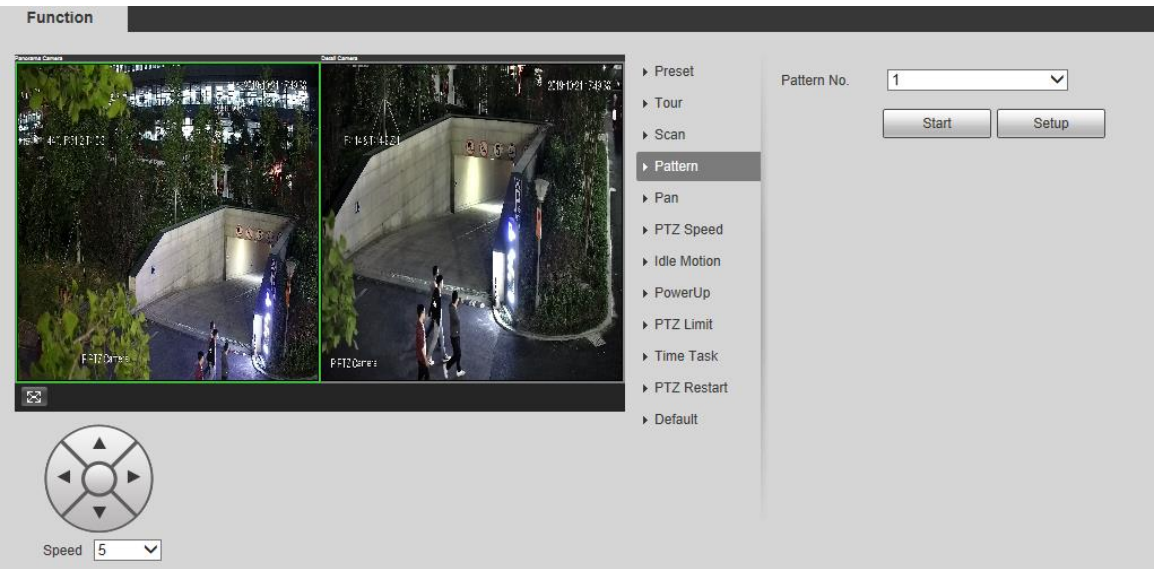
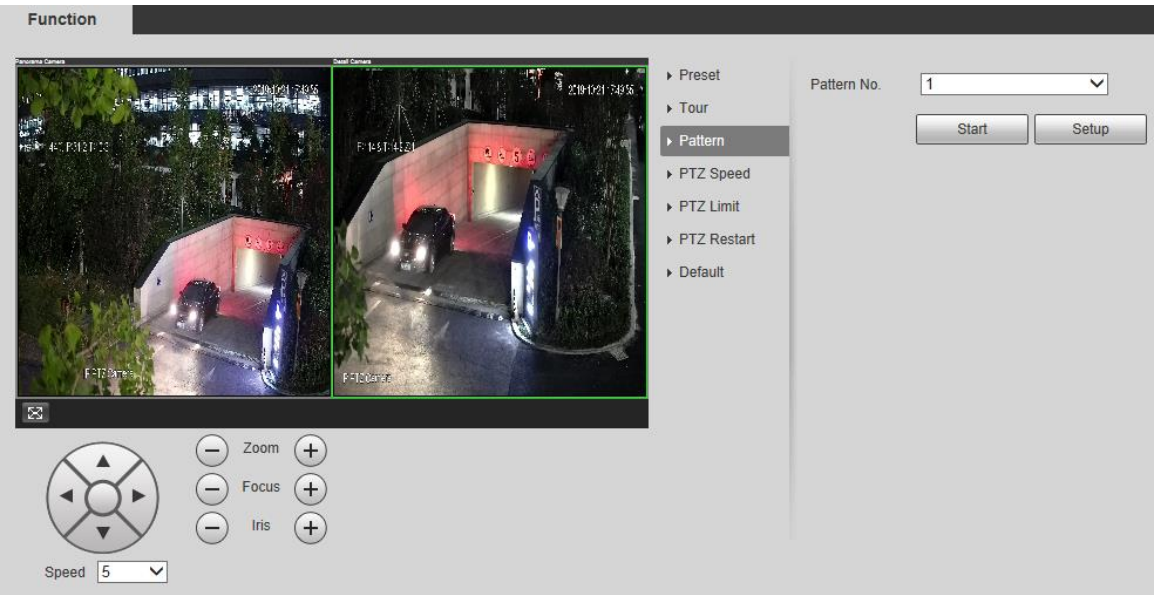


Figure 5-67 Pattern setting (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 Select **Pattern No.** from the list.

Step 4 Click **Setup** and **Start Rec**, and then operate the PTZ as needed.

Step 5 Click **Stop Rec** to stop recording.

Step 6 Click **Start**, and the Camera starts patterning.

Step 7 Click **Stop**, and the patterning stops.

5.3.5 Pan

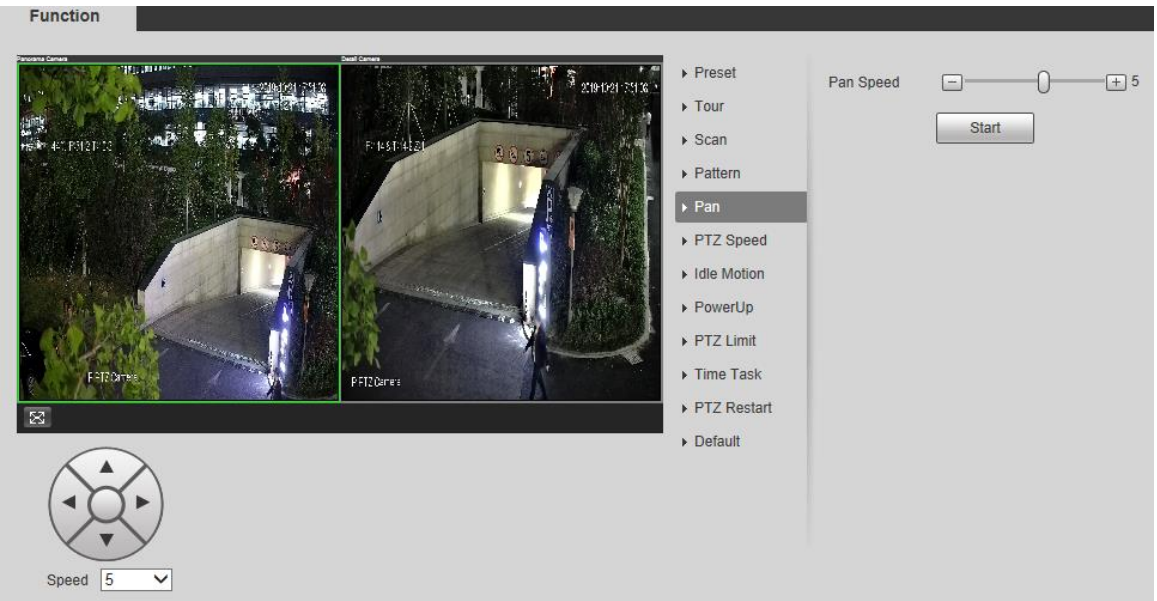
Pan is supported by Panorama Camera only.

Pan refers to the continuous 360° rotation of the Camera at a certain speed. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > Pan**.

The **Pan** interface is displayed. See Figure 5-68.

Figure 5-68 Pan setting (Panorama Camera)



Step 2 Drag the progress bar to set the **Pan Speed**.

Step 3 Click **Start**, and the Camera starts to rotate horizontally at this speed.

5.3.6 PTZ Speed

PTZ speed refers to the rotation speed of the Camera. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > PTZ Speed**.

The **PTZ Speed** interface is displayed. See Figure 5-69 and Figure 5-70.

Figure 5-69 PTZ speed setting (Panorama Camera)

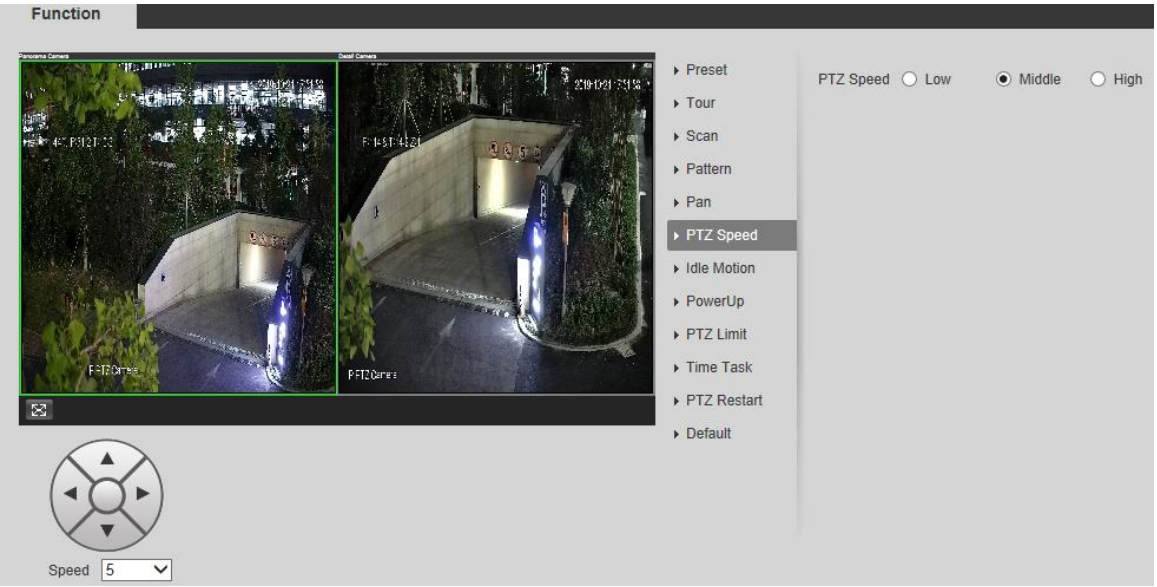
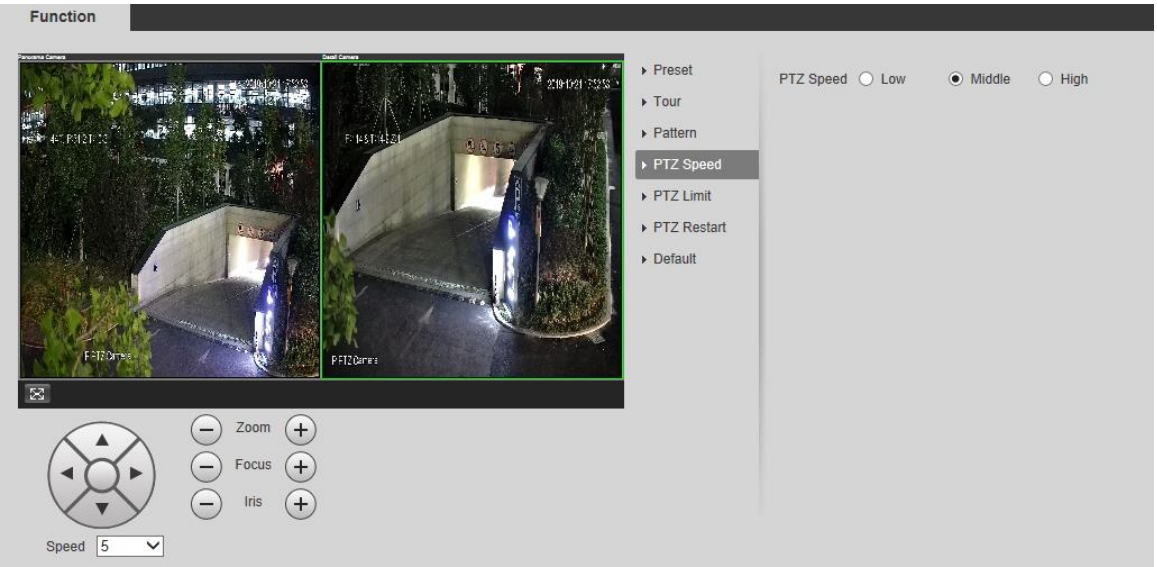


Figure 5-70 PTZ speed setting (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 Select **Low**, **Middle** or **High** for **PTZ Speed**.

The Camera rotates at this speed.

5.3.7 Idle Motion

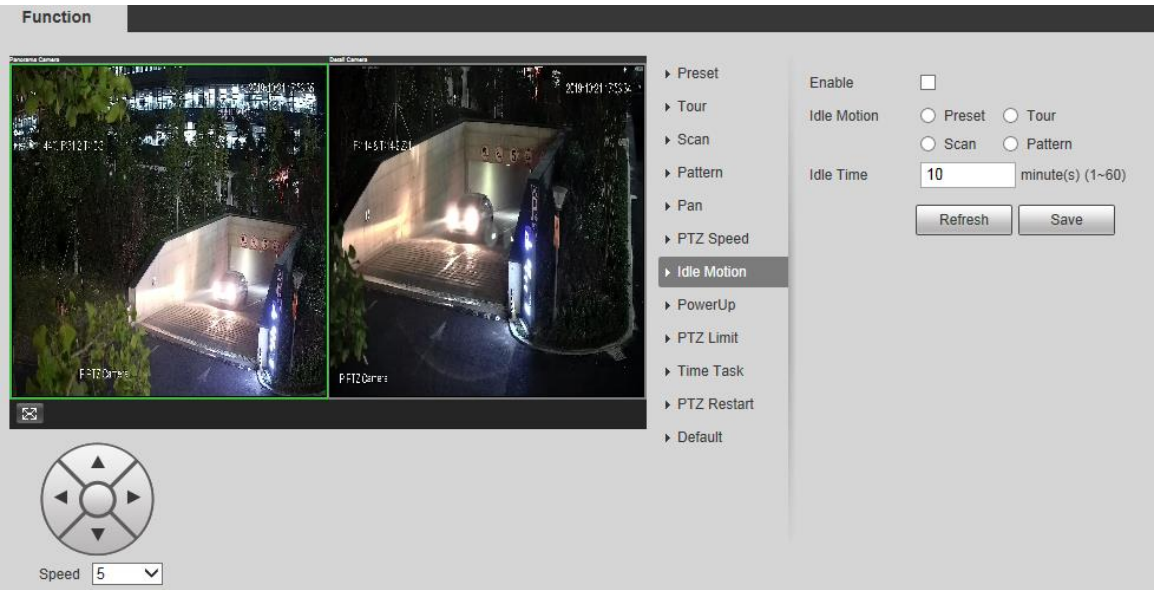
- Idle Motion is supported by Panorama Camera only.
- Set preset, tour, scan or pattern in advance.

Idle motion refers to a preset motion when the Camera does not receive any valid command within a certain period. Follow these steps to complete the configurations.

Step 1 Select **Setting > PTZ > Function > Idle Motion**.

The **Idle Motion** interface is displayed. See Figure 5-71.

Figure 5-71 Idle motion setting (Panorama Camera)



Step 2 Select **Enable** to enable the idle motion.

Step 3 Select idle motion from **Preset**, **Tour**, **Scan** and **Pattern**.

Step 4 Select the action number of the selected motion.

Step 5 Set **Idle Time** for the selected motion.

Step 6 Click **Save**.

5.3.8 PowerUp

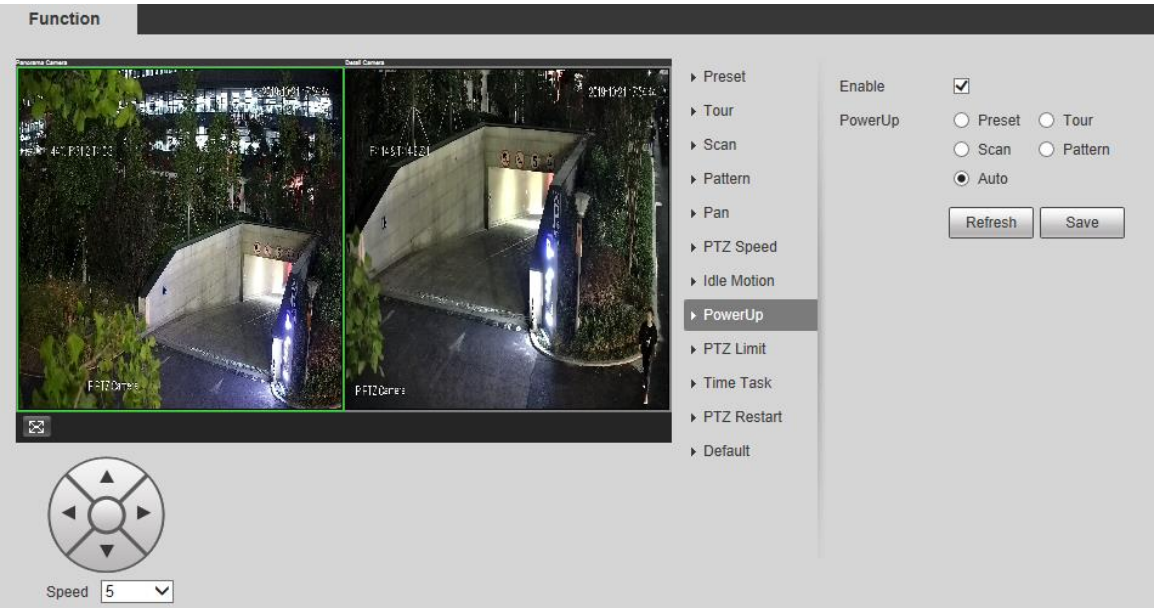
- PowerUp is supported by Panorama Camera only.
- Set preset, tour, scan or pattern in advance.

PowerUp means the automatic operation of the Camera after it is powered on. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > PowerUp**.

The **PowerUp** interface is displayed. See Figure 5-72.

Figure 5-72 PowerUp setting (Panorama Camera)



Step 2 Select **Enable** check box to enable power up motion.

Step 3 Select **PowerUp** such as **Preset**, **Tour**, **Scan**, **Pattern** or **Auto**.

Select **Auto** and the last motion before you shut down the Camera last time will be performed.

Step 4 Select the action number of the selected motion.

Step 5 Click **Save**.

5.3.9 PTZ Limit

After setting PTZ limit, the Camera can only move in the set area. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > PTZ Limit**.

The **PTZ Limit** interface is displayed. See Figure 5-73 and Figure 5-74.

Figure 5-73 PTZ limit setting (Panorama Camera)

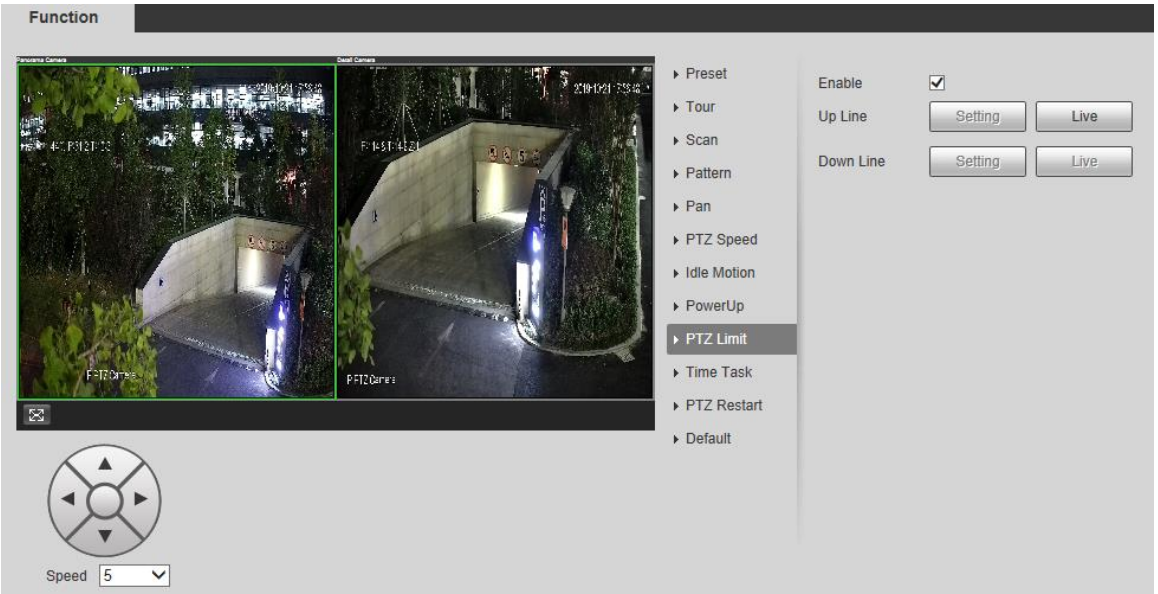
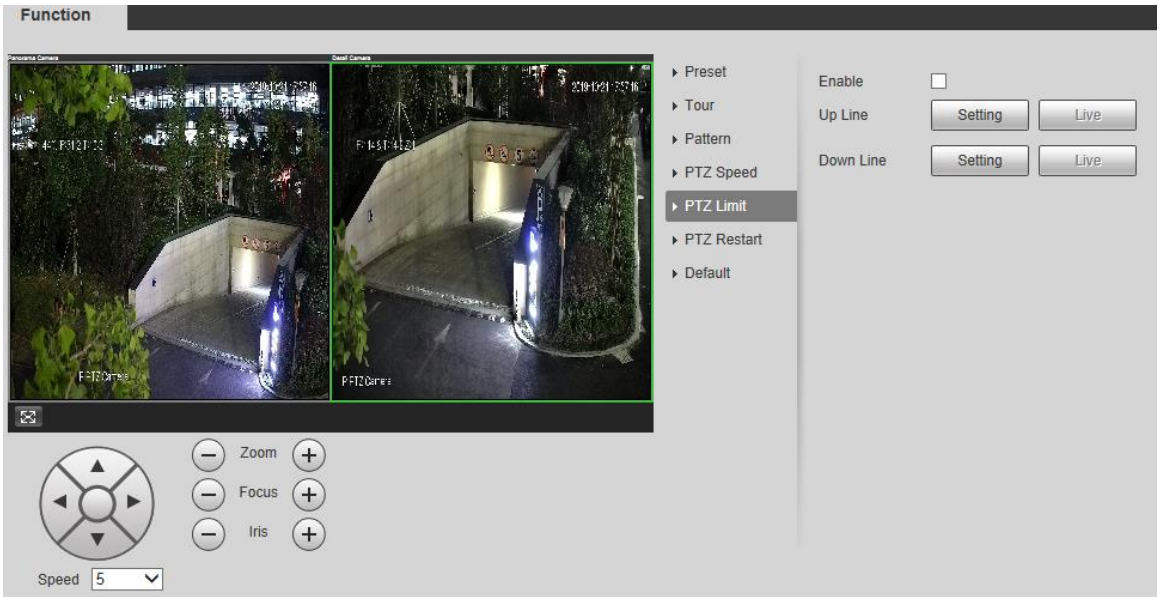


Figure 5-74 PTZ limit setting (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 Select **Enable** to enable the PTZ limit function.

Step 4 Adjust the PTZ direction and click **Setting** to set the **Up Line**.

Step 5 Adjust the PTZ direction and click **Setting** to set the **Down Line**.

Step 6 Click **Live** to preview the set up line and down line.

5.3.10 Time Task

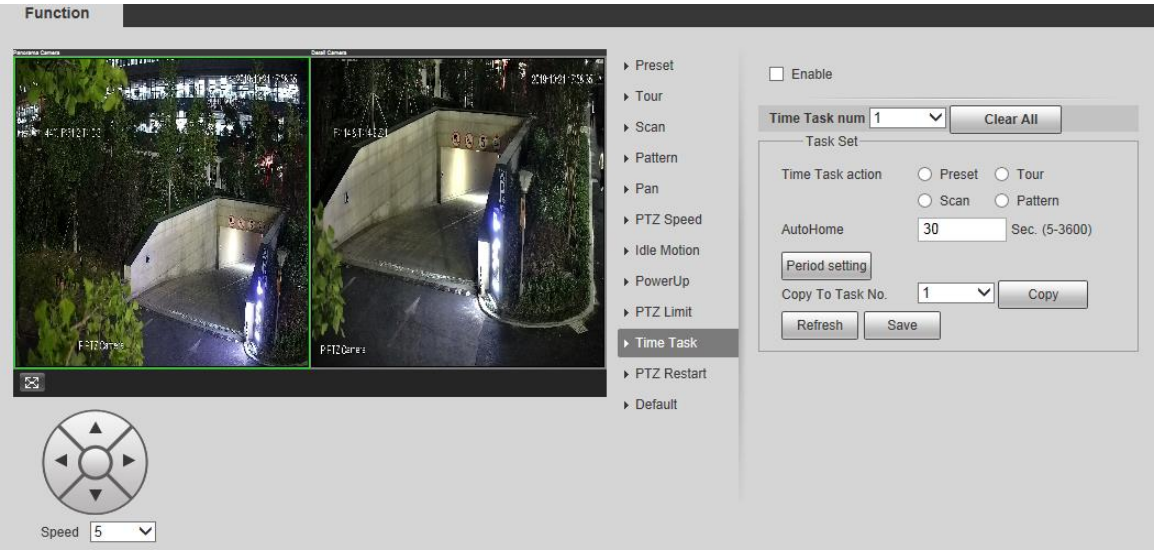
- Time Task is supported by Panorama Camera only.
- Set preset, tour, scan or pattern in advance.

After setting time task, the Camera performs the selected motions during the set period. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > Time Task**.

The **Time Task** interface is displayed. See Figure 5-75.

Figure 5-75 Time task setting (Panorama Camera)



Step 2 Select **Enable** check box to enable time task function.

Step 3 Set the time task number.

Click **Clear All** to delete all set time tasks.

Step 4 Select **Time Task action** such as **Preset**, **Tour**, **Scan** or **Pattern**.

Step 5 Select the action number of the selected motion.

Step 6 Set the time for **AutoHome**.

The time needed to automatically recover the time task in case of manually calling the PTZ to stop the time task.

Step 7 Click **Period setting** to set the period to perform time tasks.

For the period setting, see "5.4.1.1 Motion Detection."

Step 8 Select the task number to copy settings to the selected task, and then click **Copy**.

Step 9 Click **Save**.

5.3.11 PTZ Restart

Restart the PTZ. Follow these steps to complete the configurations:

Step 1 Select **Setting > PTZ > Function > PTZ Restart**.

The **PTZ Restart** interface is displayed. See Figure 5-76 and Figure 5-77.

Figure 5-76 PTZ restart (Panorama Camera)

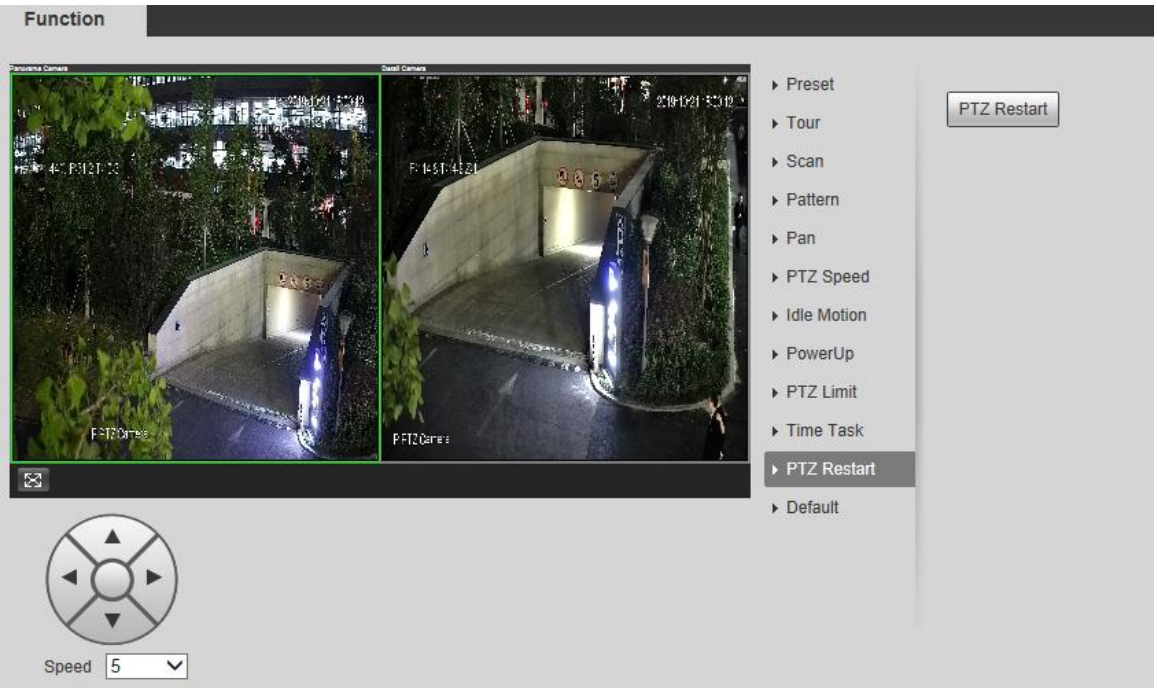
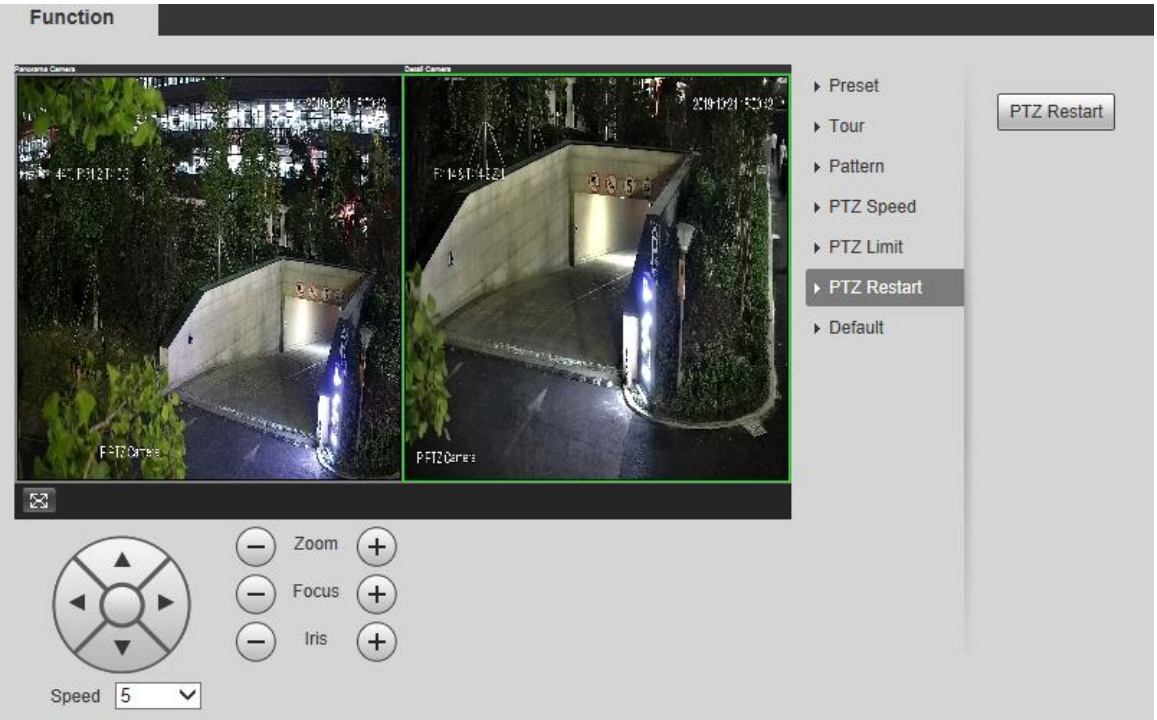


Figure 5-77 PTZ restart (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 Click **PTZ Restart**.

The PTZ is restarted.

5.3.12 Default

Restore the PTZ to factory defaults. Follow these steps to complete the configurations:

This function will restore the Camera to defaults. Think twice before performing the operation.

Step 1 Select **Setting > PTZ > Function > Default**.

The **Default** interface is displayed. See Figure 5-78 and Figure 5-79.

Figure 5-78 Default setting (Panorama Camera)

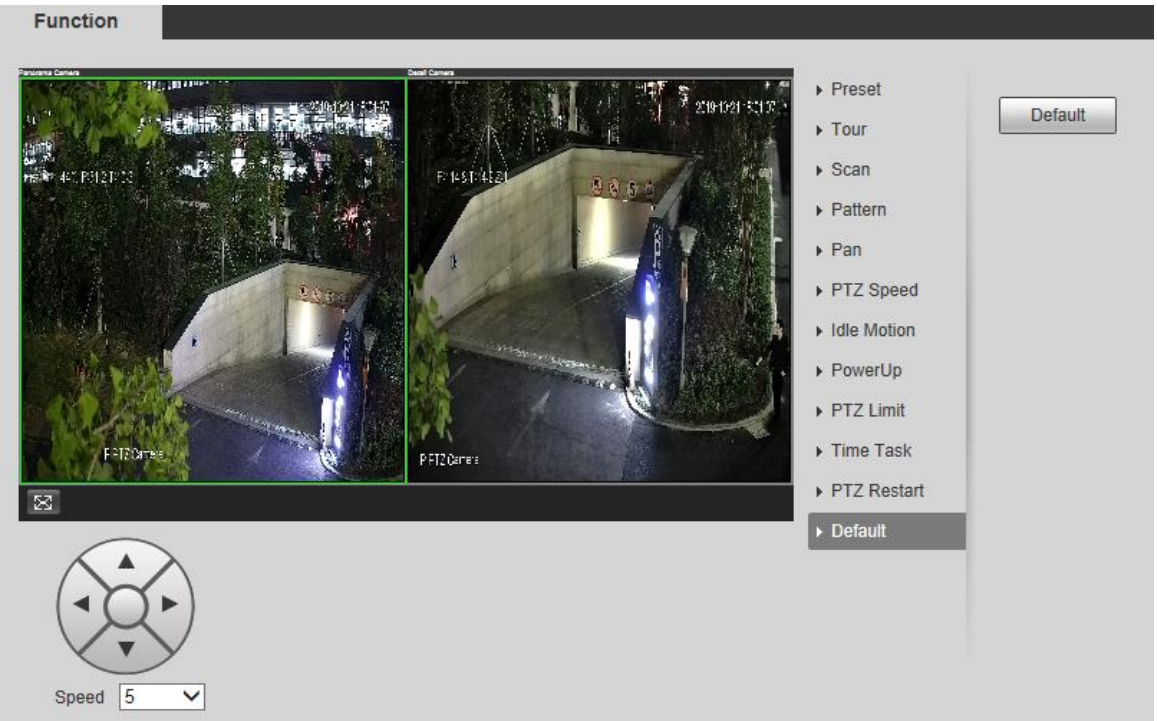
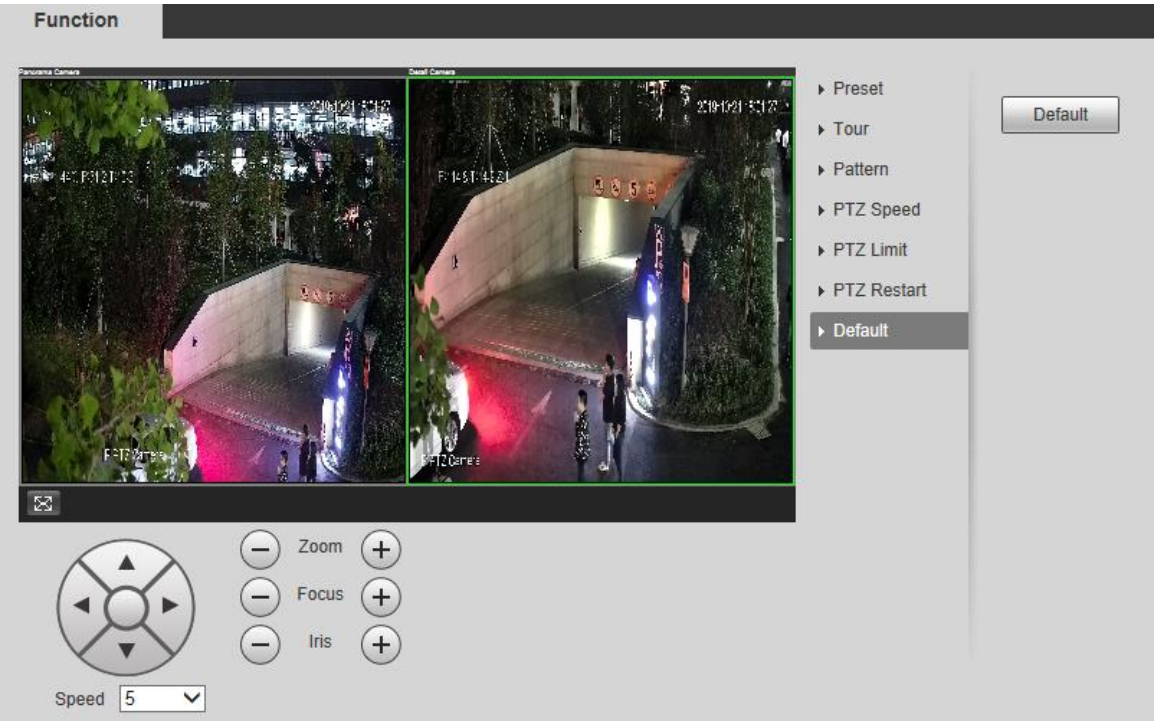


Figure 5-79 Default setting (Detail Camera)



Step 2 Click Panorama Camera or Detail Camera live view to select the corresponding channel.

Step 3 Click **Default**.

The PTZ will be restored to factory defaults.

5.4 Event Management

5.4.1 Video Detection

It includes three event types: **Motion Detection**, **Video Tamper** and **Scene Changing**.

5.4.1.1 Motion Detection

When the moving object appears and moves fast enough to reach the preset sensitivity value, alarms will be triggered.

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

The **Motion Detection** interface is displayed. See Figure 5-80 and Figure 5-81.

Figure 5-80 Video detection—motion detection (Panorama Camera)

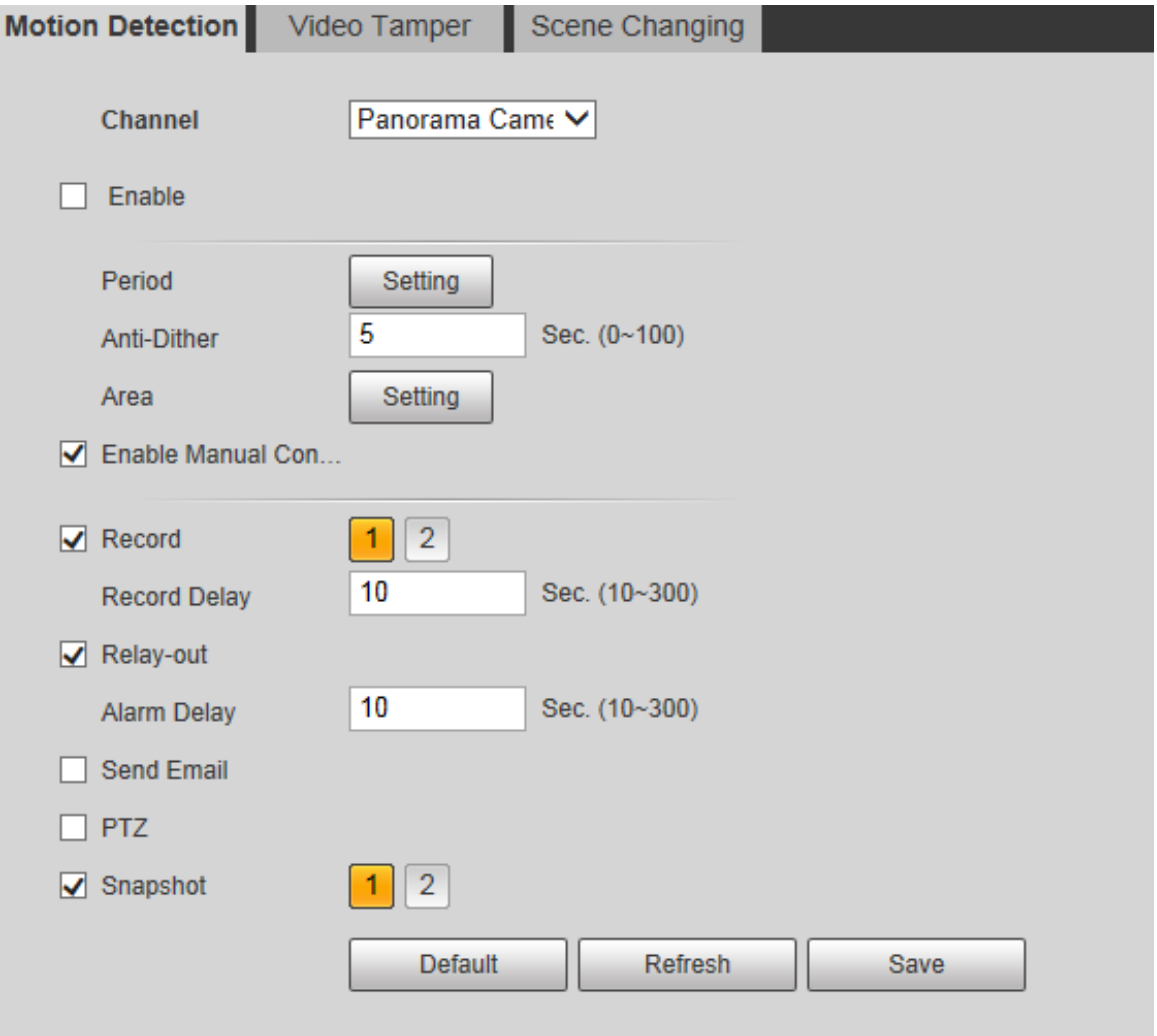
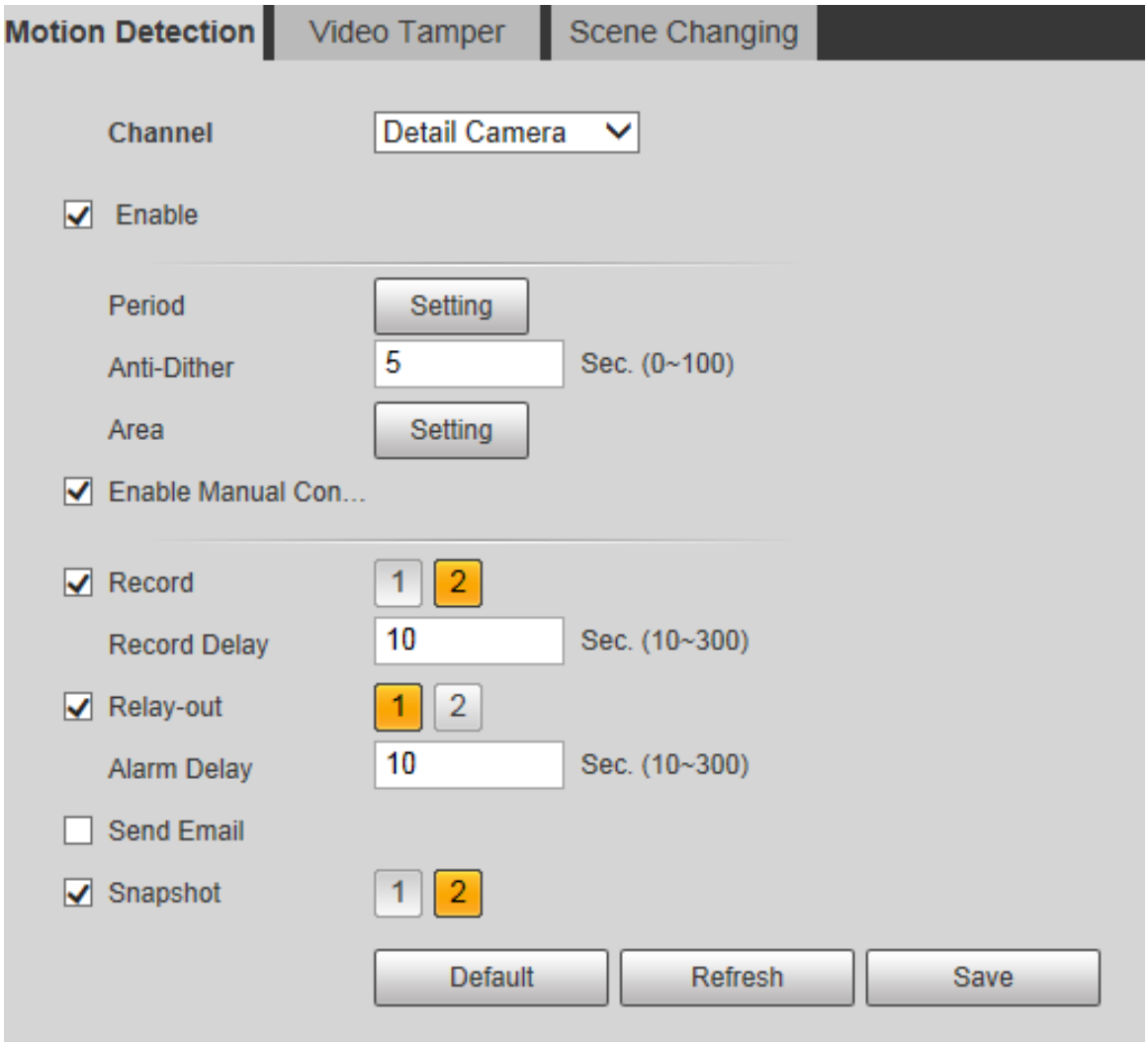


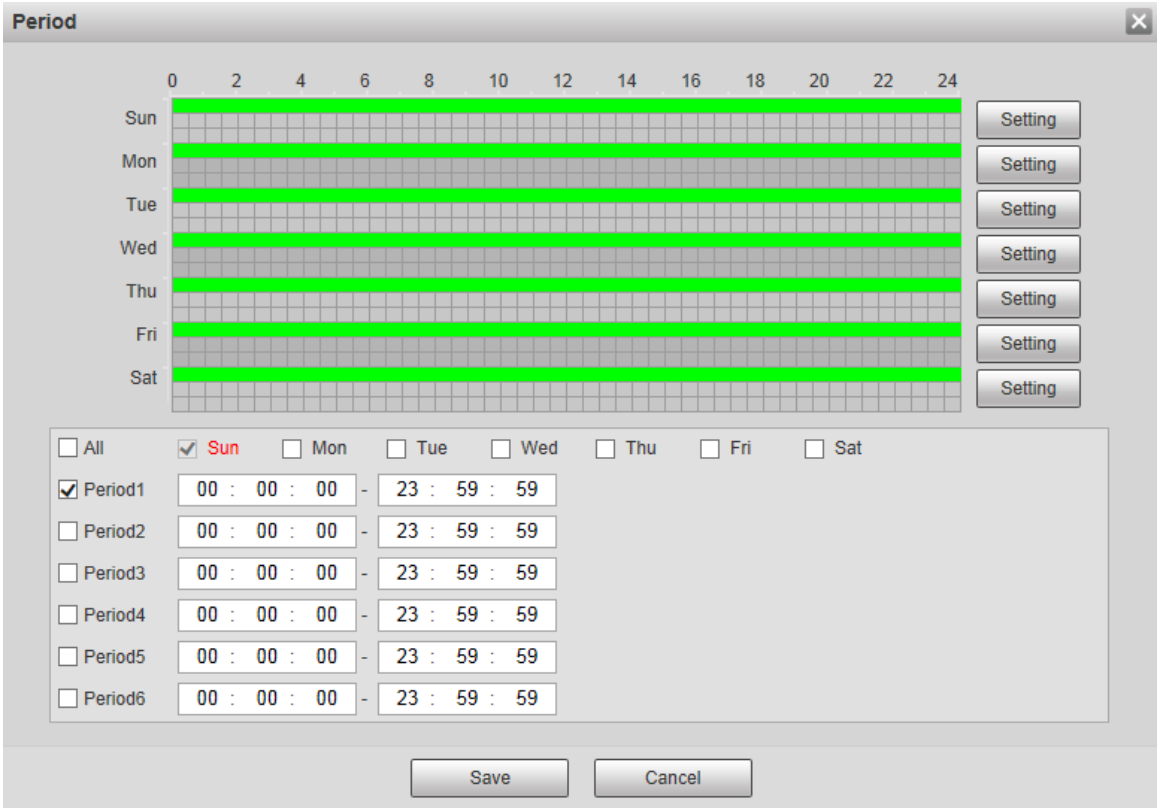
Figure 5-81 Video detection—motion detection (Detail Camera)



Step 2 Select **Enable**, and then configure parameters as needed.

- Set arming and disarming period.
  1) Click **Setting**, and then set the arming and disarming period on the interface shown in Figure 5-82.

Figure 5-82 Arming and disarming period setting



2) Set the alarm period to enable alarm events in the period you set.
   There are 6 time periods for each day. Select the check box for the time period to enable it.
   Select the day of week (**Sunday** is selected by default; If **All** is selected, the setting is applied to the full week. You can also select the check box next to the day to set it separately).
3) After completing the settings, click **Save**.
   Return to the setting interface.

- Set the Area.

  Click **Setting**, and the **Area** interface is displayed. See Figure 5-83. For parameter description, see Table 5-23.

  Each color represents a certain region, and you can set different motion detection region for each area. The detection region can be irregular and discontinuous.

Figure 5-83 Area setting

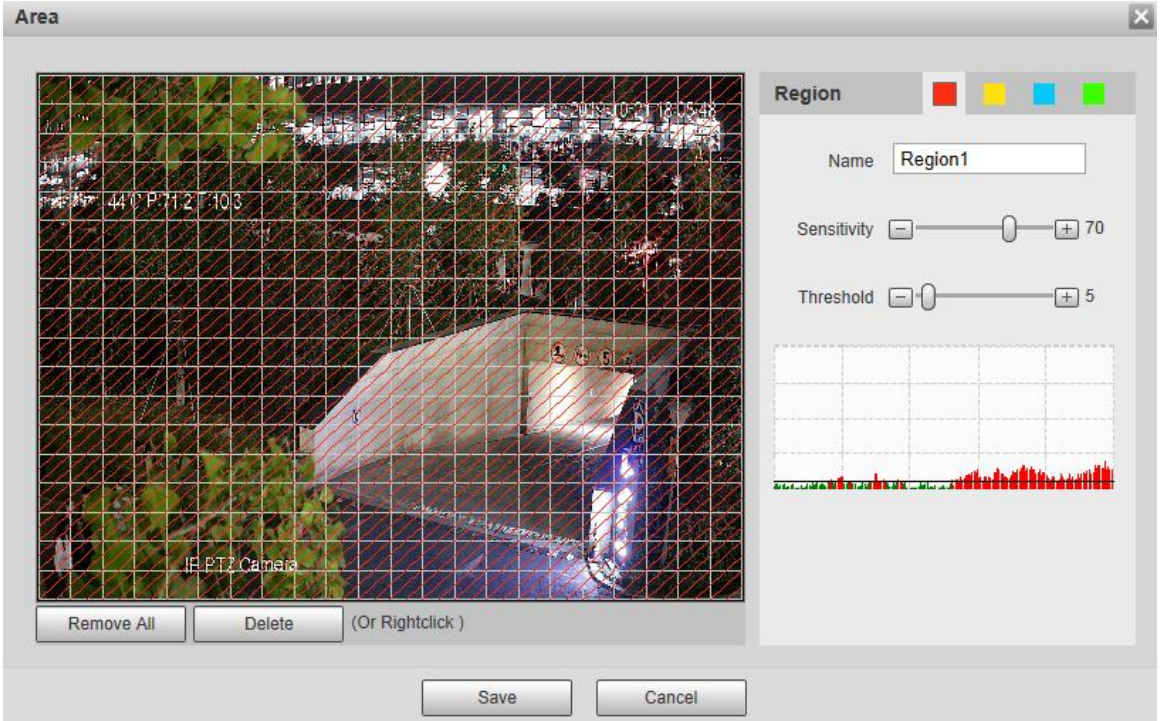


Table 5-23 Area setting parameter description

Parameter	Description
Name	The default names are Region1, Region2, Region3 and Region4, and the names can be customized.
Sensitivity	Sensitivity to brightness change.The higher the sensitivity is, the easier the motion detection event will occur. You can set different sensitivities for each region, with values ranging from 0 to 100, and 30 to 70 is recommended.
Threshold	Detect the relation between the object and the region. The smaller the threshold is, the easier the motion detection will occur. Set different thresholds for each region, with values ranging from 0 to 100, and 1 to 10 is recommended.
Waveform graph	The red line indicates that motion detection is triggered, and the green line indicates that it is not triggered.
Remove All	Remove all detection regions.
Delete	Delete the detection region of the selected color block.

- Other parameters.

  For more parameters, see Table 5-24.

Table 5-24 Video detection parameter description

Parameter	Description
Anti-Dither	The system records only one motion detection event within the defined period. The time unit is second, and the value range is 0–100.
Enable Manual Control Trigger	After you enable the function, the motion detection events that occur when you control the PTZ manually will be exclude. In this way, you can reduce the false alarm rate of such events.

Parameter	Description
Record	After you enable the function, when a local alarm is triggered, the system will start recording automatically. Before using the function, you need to set the recording period of the alarm in **Storage > Schedule**, and select automatic recording in the recording control interface.
Record Delay	When the alarm is over, the alarm recording will continue for an extended period of time. The time unit is second, and the value range is 10–300.
Relay-out	Select the check box, and you can enable the alarm linkage output port, and link corresponding relay-out devices after an alarm is triggered.
Alarm Delay	When the alarm is over, the alarm will continue for an extended period of time. The time unit is second, and the value range is 10–300.
Send Email	After you select the check box, when alarm is triggered, the system sends email to the specified email address. You can configure the email address in "5.2.5 SMTP (Email)."
PTZ	Select **PTZ**, and then configure the linkage action. When alarm is triggered, the system links PTZ to rotate to the preset X. The **Activation** options include **None**, **Preset**, **Tour** and **Pattern**.
Snapshot	Select **Snapshot** check box, and then the system takes snapshot automatically when alarm is triggered. You need to set the alarm snapshot period as described in "5.5.1.2 Snapshot."

Step 3 Click **Save**.

5.4.1.2 Video Tamper

Alarms will be triggered if there is video tampering.

Step 1 Select **Setting > Event > Video Detection > Video Tamper**.

The **Video Tamper** interface is displayed. See Figure 5-84 and Figure 5-85.

Figure 5-84 Video detection—video tamper (Panorama Camera)

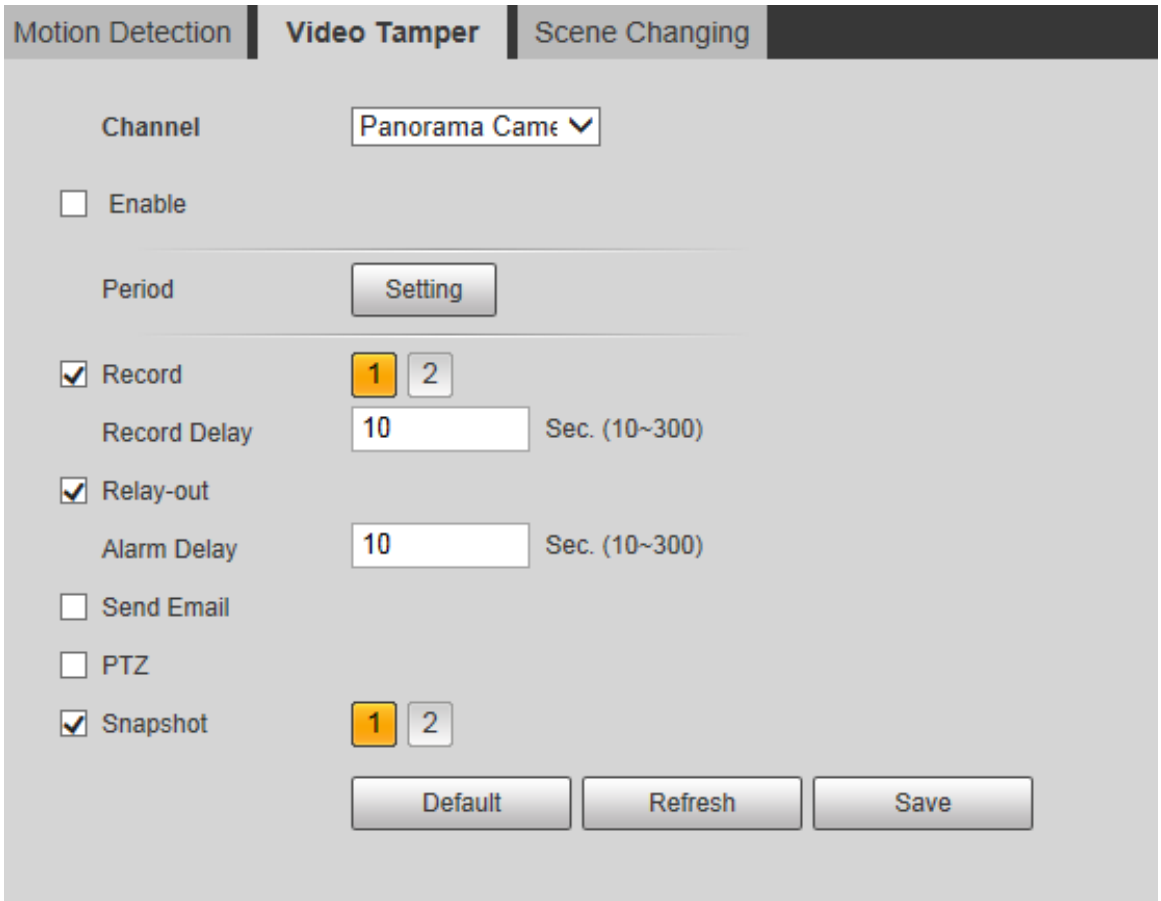
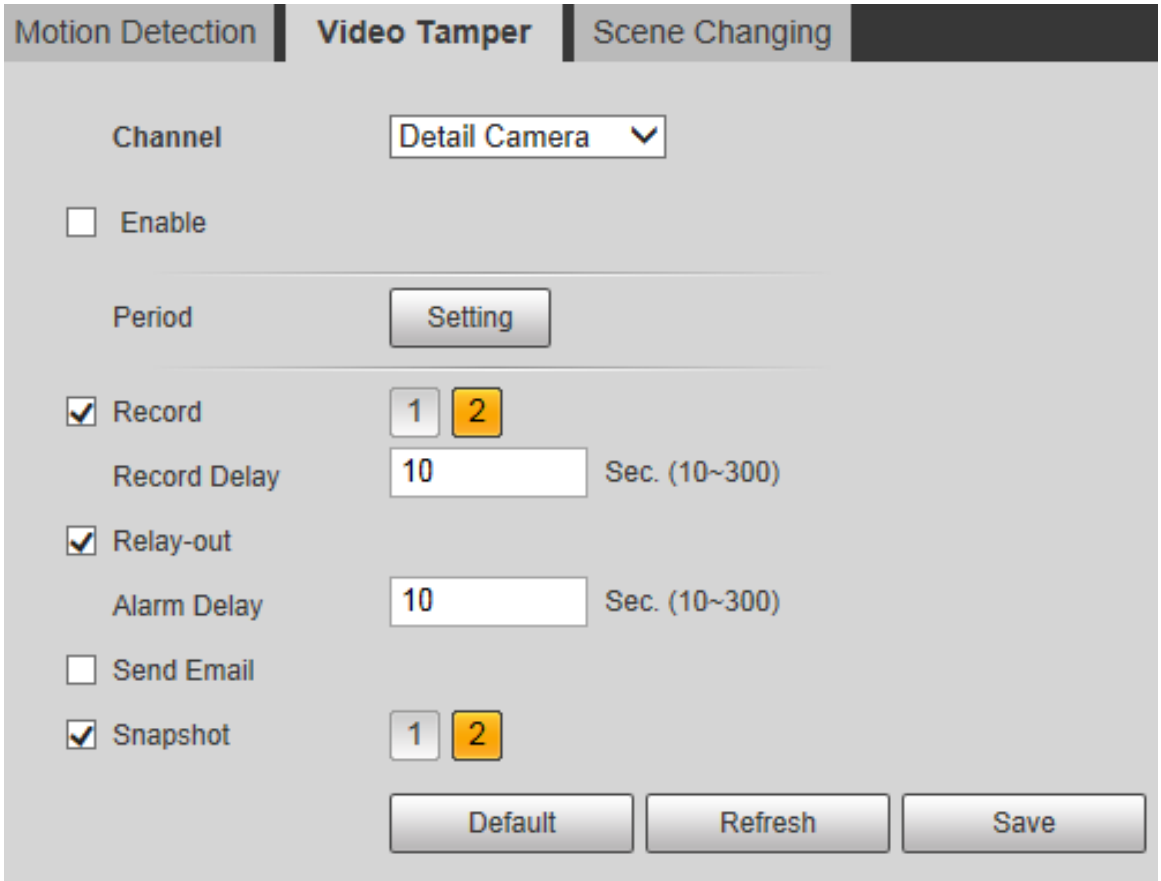


Figure 5-85 Video detection—video tamper (Detail Camera)



Step 2 Select **Enable**, and then configure parameters as needed.

For parameters configuration, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

5.4.1.3 Scene Changing

Alarms will be triggered if there is scene changing.

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

The **Scene Changing** interface is displayed. See Figure 5-86 and Figure 5-87.

Figure 5-86 Video Detection—scene changing (Panorama Camera)

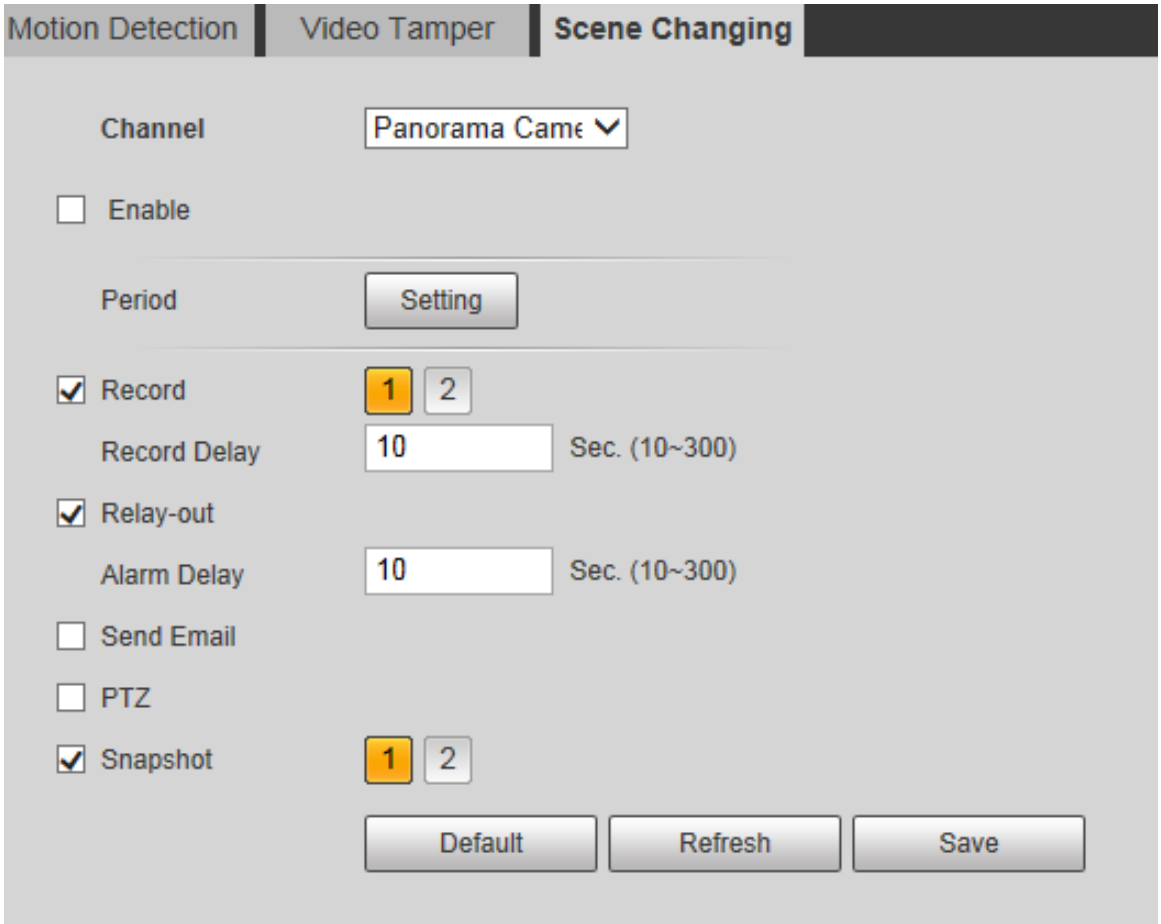
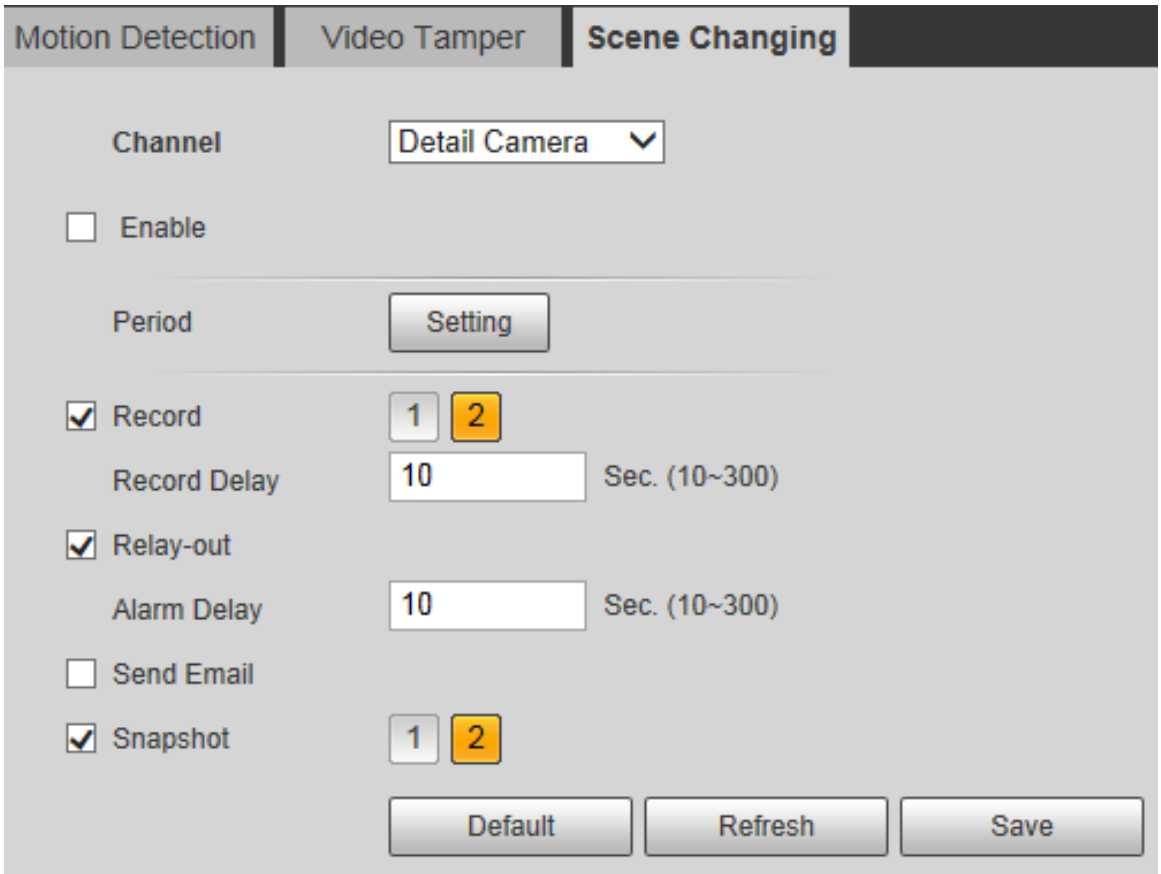


Figure 5-87 Video Detection—scene changing (Detail Camera)



Step 2 Select **Enable**, and then configure parameters as needed.
For parameters configuration, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

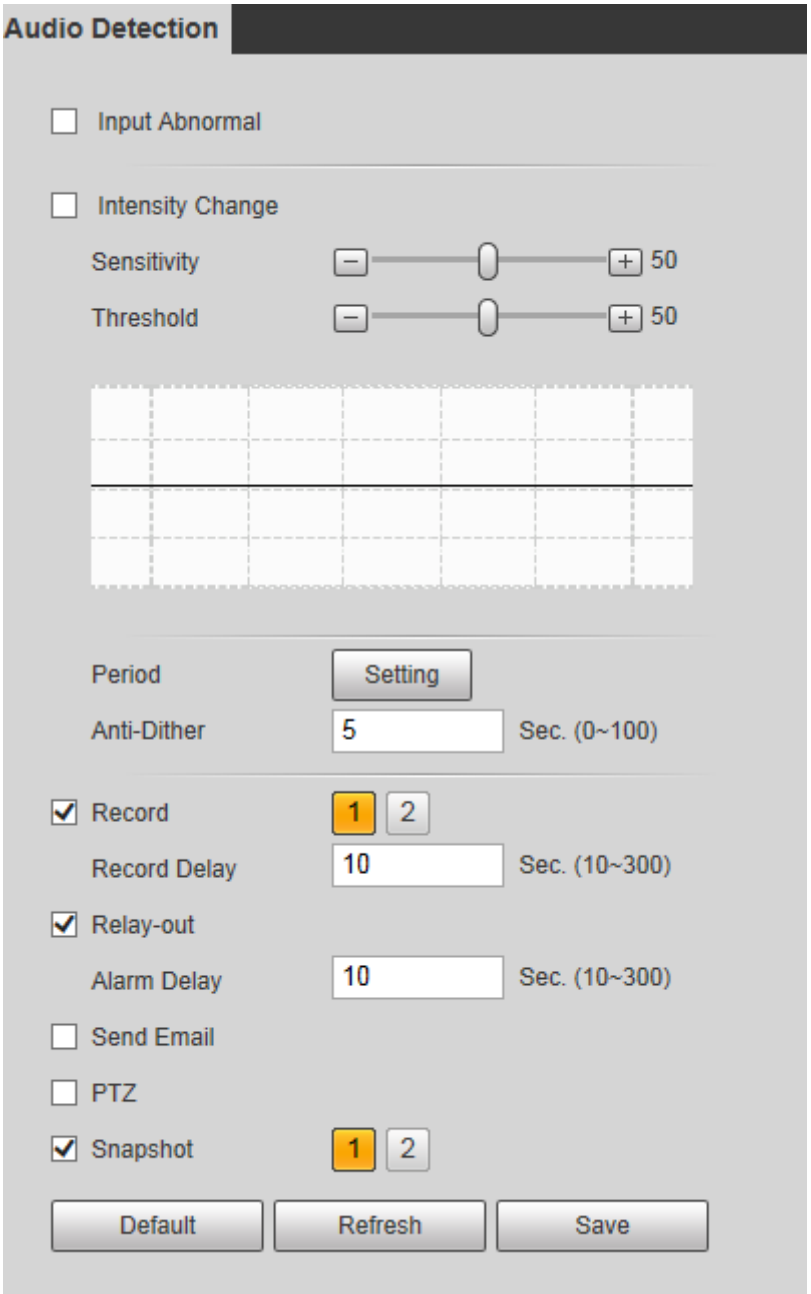
5.4.2 Audio Detection

The system performs alarm linkage when abnormal input or sound intensity change is detected.

Follow these steps to complete the configurations:

Step 1 Select **Setting > Event > Audio Detection > Audio Detection**.
The **Audio Detection** interface is displayed. See Figure 5-88.

Figure 5-88 Audio detection setting



Step 2 Configure parameters as needed. For the parameter description, see Table 5-25.

Table 5-25 Audio detection parameter description

Parameter	Description
Input Abnormal	Select **Input Abnormal**, and then the alarm is triggered when there is abnormal audio input.
Intensity Change	Select **Intensity Change**, and then the alarm is triggered when the change in sound intensity exceeds the defined threshold.
Sensitivity	The value ranges from 1–100. The smaller this value is, the larger the input sound volume changes is needed for it to be judged as an audio anomaly. You need to adjust it according to the actual condition.
Threshold	The value ranges from 1–100. Configure the ambient sound intensity you need to filter. The louder the ambient noise is, the larger this value shall be. You need to adjust it according to the actual condition.

For other parameters, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

5.4.3 Panoramic Linkage

5.4.3.1 Master/Slave Calibration

After you calibrate Panorama Camera and Detail Camera, there will be linkage between the two cameras. Panorama Camera is the master camera to view panoramic image, while Detail Camera is the slave camera to view detailed image.

You can select **Auto** or **Manual** for the **Calibration Mode**.

- **Manual**: If there are many obvious static signs in the monitoring environment, you can complete the calibration accurately with the help of signs. If you have special requirements on the calibration results, manual calibration can be used.
- **Auto**: The calibration point in the monitoring screen is selected through the algorithm. The calibration speed is high, and the result is accurate. If you have no special requirements on the calibration results, auto calibration can be used.

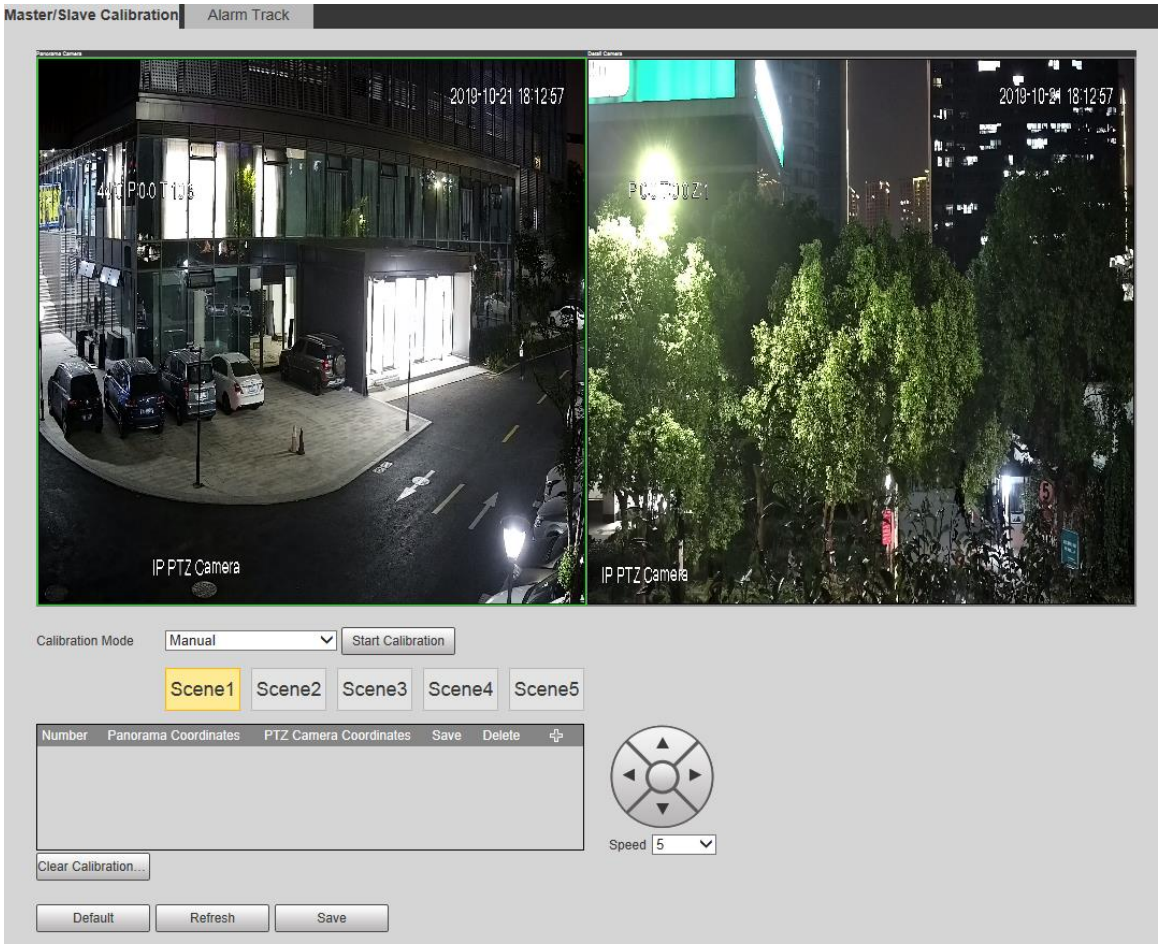
Perform the following steps to complete calibration.

Manual Calibration

Step 1 Select **Setting > Event > Panoramic Linkage > Master/Slave Calibration**.

The **Master/Slave Calibration** interface is displayed. See Figure 5-89.

Figure 5-89 Manual calibration setting (1)



Step 2 Select **Manual** from the **Calibration Mode** list.

Step 3 Select the scene and adjust the PTZ of Detail Camera to the appropriate calibration position.

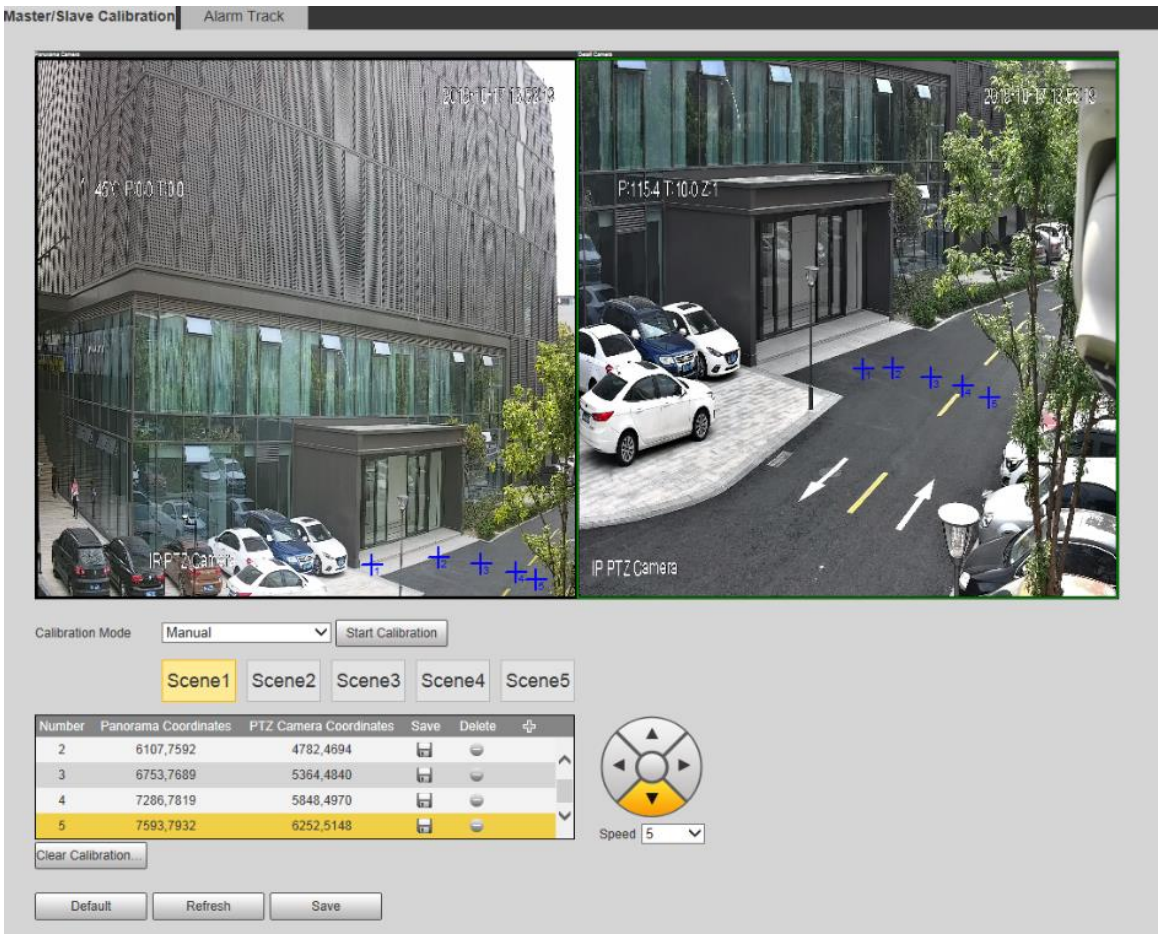
Step 4 Click **Start Calibration**.

Step 5 After clicking , select two points, one in the Panorama Camera channel on the left side of the monitoring screen, and one in the Detail camera channel on the right side. These two points are regarded as a set of calibration points.

- Calibrate at least 4 sets and at most 10 sets. 6 sets is recommended.
- It is recommended to calibrate evenly from far to near in clockwise or counterclockwise direction.
- Select the calibration points with obvious position characteristics, such as the obvious point on the object or the crossing point.

Step 6 After you finish the calibration, click **Stop Calibration** to save the calibration points in the scene. For the interface, see Figure 5-90.

Figure 5-90 Manual calibration setting (2)



Step 7 Select another scene, adjust the PTZ of Detail Camera, and then repeat Step 4 to Step 6 to set the calibration points in the scene.

Step 8 Click **Save**.

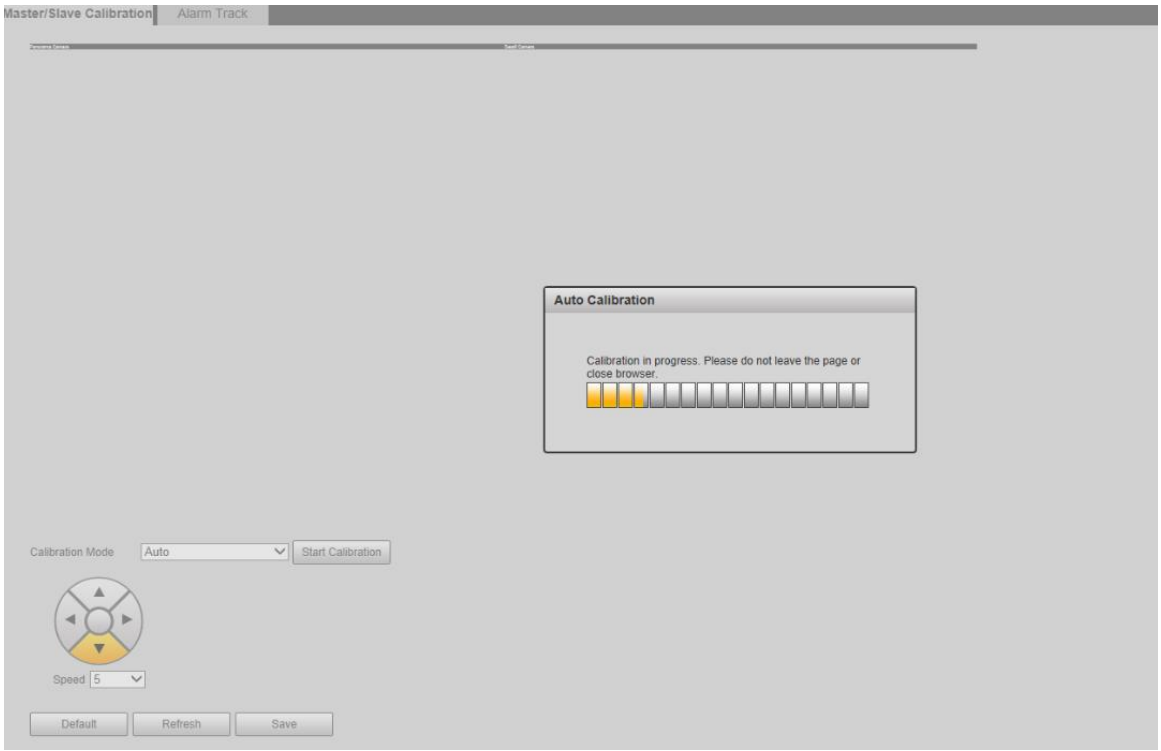
Auto Calibration

Step 1 Select **Setting > Event > Panoramic Linkage > Master/Slave Calibration**.
The **Master/Slave Calibration** interface is displayed

Step 2 Select **Auto** from the **Calibration Mode** list.

Step 3 Click **Start Calibration**. For the interface, see Figure 5-91.

Figure 5-91 Auto calibration setting (1)



Step 4 Wait for progress bar buffering to complete.

After the calibration, the interface shown in Figure 5-92 is displayed.

If you are not satisfied with the calibration results, you can click **Start Calibration** to calibrate again.

Figure 5-92 Auto calibration setting (2)

Step 5 Click **Save**.

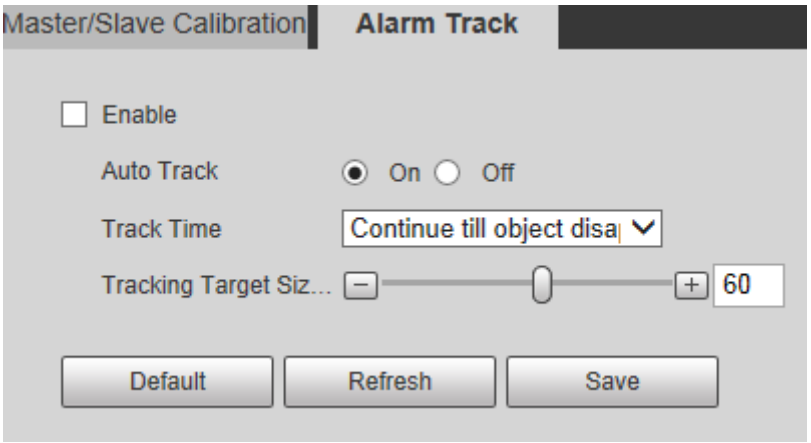
5.4.3.2 Alarm Track

You can enable this function to link the tracking targets of Panorama Camera and Detail Camera. The Panorama Camera can capture the target, and the Detail Camera can track the target. Follow these steps to complete the configurations:

Step 1 Select **Setting > Event > Panoramic Linkage > Alarm Track**.

The **Alarm Track** interface is displayed. See Figure 5-93.

Figure 5-93 Alarm track



Step 2 Configure parameters as needed. For parameter description, see Table 5-26.

Table 5-26 Alarm track parameter description

Parameter	Description
Enable	Select the **Enable** check box, and linkage tracking between Panorama Camera and Detail Camera is enabled. Before setting smart plan, you need to select whether to enable alarm track. If the alarm track status is changed, the smart plan will be reset, and you need to configure the smart plan again.
Auto Track	Select **On** or **Off** to enable or disable auto track. With **Auto Track** enabled, the Detail Camera tracks the target and takes snapshots.
Track Time	● **Continue till object disappears**: If you select this mode, the Detail Camera will follow and capture the target until the target cannot be detected. ● **Custom**: If you select this mode, time setting field will be displayed on the interface. Set the **Track Time** as needed.
Tracking Target Size Ratio	Set the proportion of the tracked object in the Detail Camera live view. The proportion here is the high ratio of the tracked object to the camera view.

Step 3 Click **Save**.

5.4.4 Smart Plan

5.4.4.1 Smart Plan

Both Panorama Camera and Detail Camera support face recognition, deep IVS and video structuralization.

- Before configuring the smart plan, you need to set presets in advance. For setting methods, see "5.3.1 Preset."
- You can select deep IVS for the Detail Camera only when alarm track is disabled.
- With alarm track enabled, if you select deep IVS for Panorama Camera, only video structuralization can be selected for Detail Camera.

Follow these steps to complete the configurations.

Step 1 Select **Setting > Event > Smart Plan > Smart Plan**.

The **Smart Plan** interface is displayed. See Figure 5-94 and Figure 5-95.

Figure 5-94 Smart plan interface (Panorama Camera)

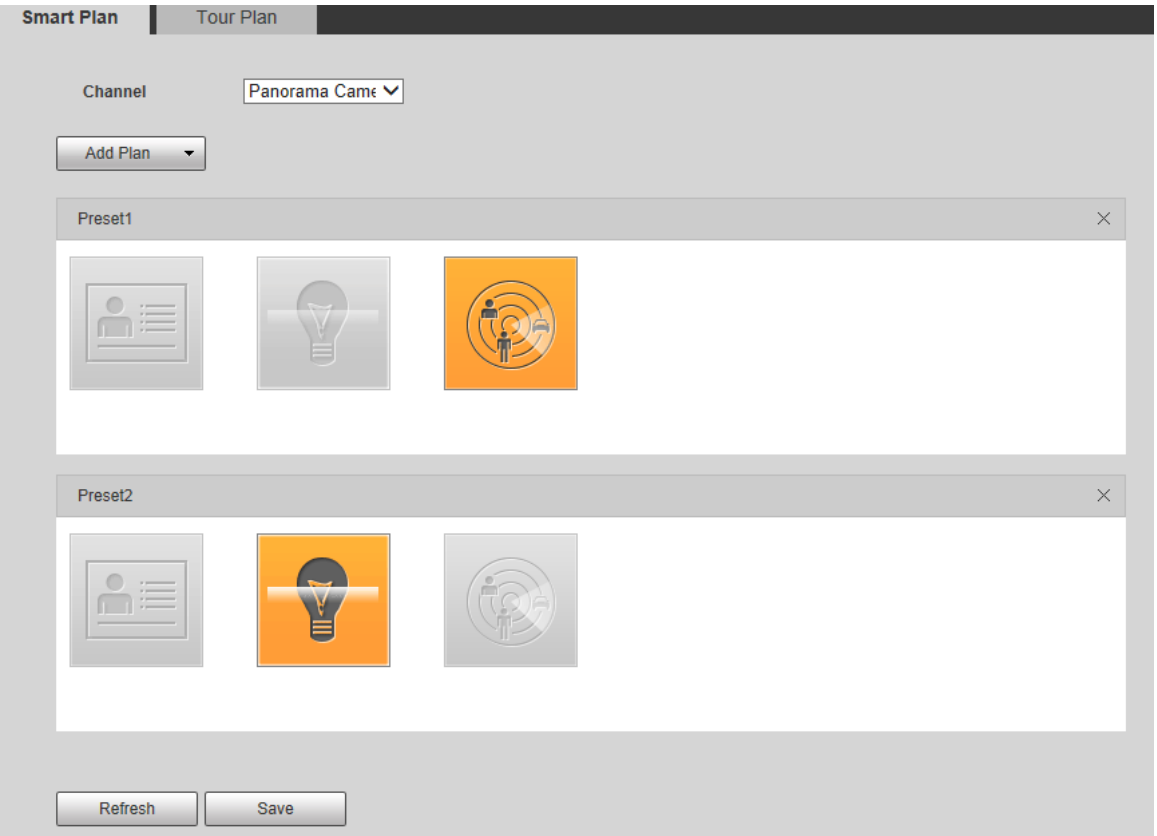
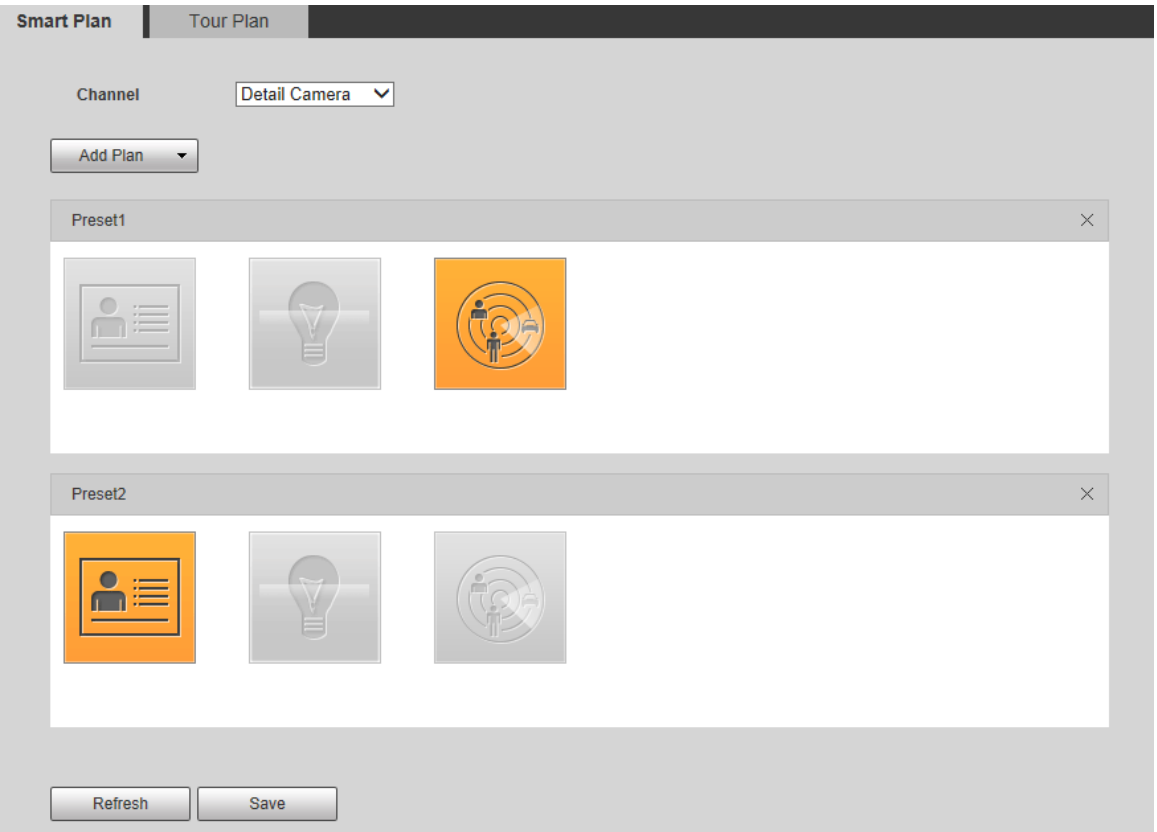


Figure 5-95 Smart plan interface (Detail Camera)



Step 2 Select the camera channel to configure smart plan.

Step 3 To enable a smart function, click the corresponding button.

The selected smart function will be highlighted.

Click the selected smart functions and you can cancel selection.

Step 4 Click **Save**.

5.4.4.2 Tour Plan

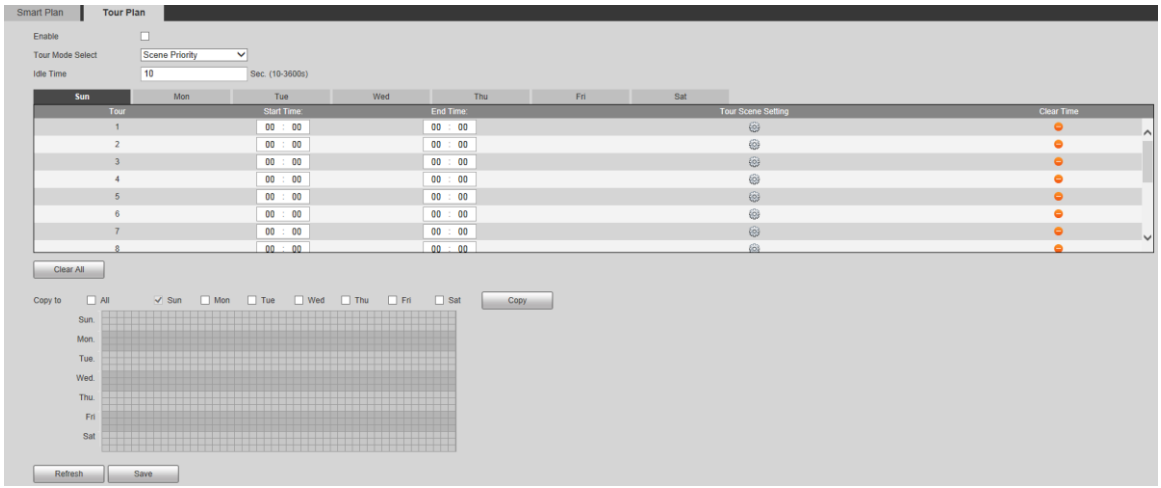
Before configuring the tour plan, you need to set presets in advance. For setting methods, see "5.3.1 Preset."

Set the tour mode and time plan for different time periods.

Step 1 Select **Setting > Event > Smart Plan > Tour Plan**.

The **Touring Plan** interface is displayed. See Figure 5-96.

Figure 5-96 Tour Plan



Step 2 Select **Enable**, and then the **Tour Plan** function is enabled.

Step 3 Configure parameters as needed. For the parameter description, see Table 5-27.

Table 5-27 Tour plan parameter description

Parameter	Description
Tour Mode Select	Only **Scene Priority** is supported. **Scene Priority**: Tour according to the set duration of the scene.
Idle Time	The time between the user manually operates the Camera and the Camera automatically rotates to the smart plan scene. The value ranges from 10 s to 3600 s.
Tour	Tour group number.
Start Time	Set the time when the tour starts.
End Time	Set the time when the tour ends.
Tour Scene Setting	Click to set the scene where the tour takes effect.
Delete	Click to delete the set tour plan.
Clear Time	Clear the set start time and end time of the tour.
Clear All	Clear all set tour plans.
Copy to	Copy the tour setting of the current smart plan to the selected week.

Step 4 Click **Save**.

Follow these steps to configure tour plan.

Step 1 Set the start time and end time of the tour.

Step 2 Click **Tour Scene Setting**.

The **Multi-scenario tour confi interface** is displayed.

Step 3 Set the scene. For the interface, see Figure 5-97. For the parameter description, see Table 5-28.

Figure 5-97 Multi-scenario tour config

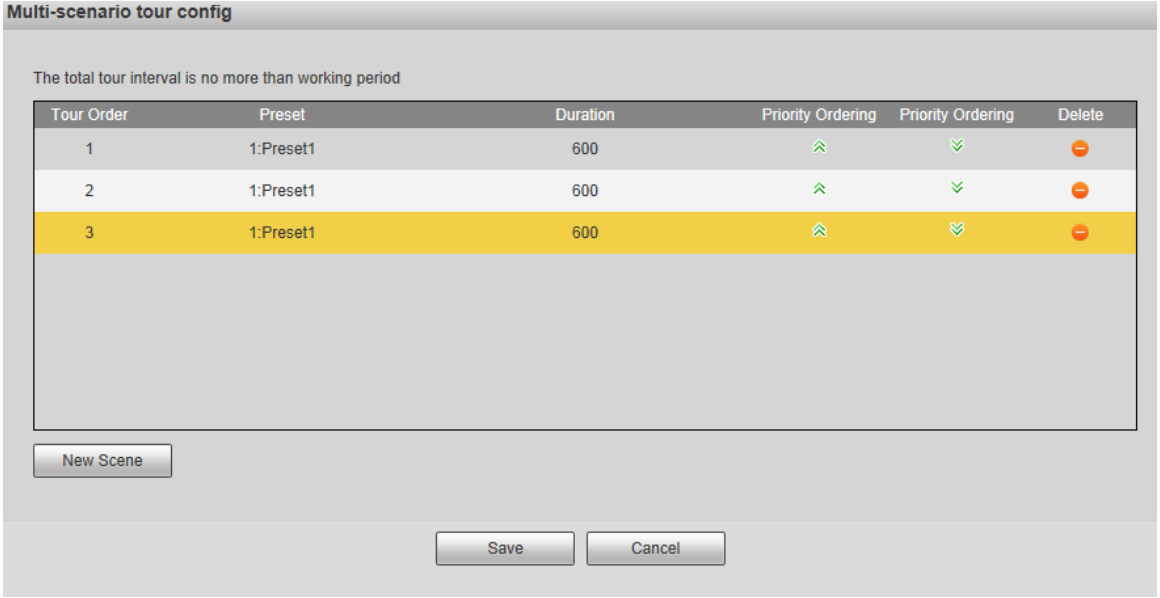


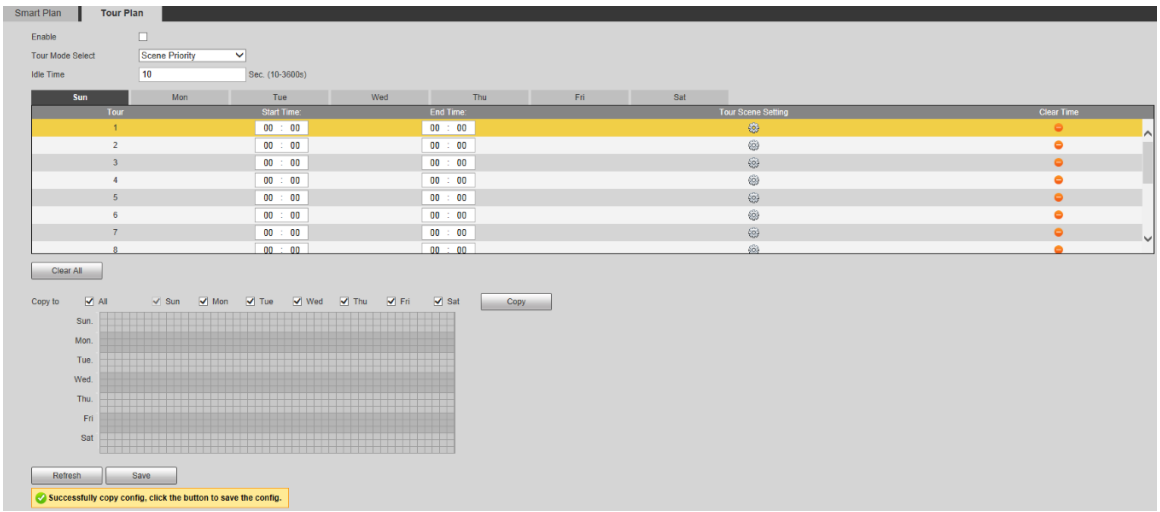
Table 5-28 Multi-scenario tour parameter description

Parameter	Description
Duration	Set the time that the Camera stays in the scene. Double-click the duration to modify the time.
Priority Ordering	Set the priority of multiple scenes. Click or to adjust the order.
Delete	Click to delete the scene.
New Scene	Click **New Scene** to add a tour scene.

Step 4 Click **Save**.

Step 5 Click **Copy to**, and then you can copy the configuration to the selected date. See Figure 5-98.

Figure 5-98 Copying tour plan



Step 6 Click **Save**, and then you can save the configurations. Click **Refresh** to view the latest configurations.

5.4.5 Deep IVS

- Before configuring **Deep IVS**, you need to set presets in advance. For setting methods, see "5.3.1 Preset."
- Select **Setting > Event > Smart Plan** to enable Deep IVS, and then you can configure the function.

Here are the basic requirements for the scene.

- The target size shall not exceed 10% of the image.
- The pixel of the target shall be no less than 10×10; the pixel of abandoned object shall be no less than 15×15 (CIF image); the width and height of the target shall be no more than 1/3 of the image. It is recommended that the height of the target is 10% of the image.
- The brightness difference between the target and the background is not less than 10 gray values.
- The target shall be present in the image for no less than 2 consecutive seconds, and the moving distance shall be larger than its width and no less than 15 pixels (CIF image).
- Try to reduce the complexity of monitoring scenes. It is not recommended to enable the deep IVS function in scenes with dense targets and frequent light changes.
- Try to avoid the following scenes: scenes with reflective surfaces such as glass, bright ground or water; scenes that disturbed by tree branches, shadows or winged insects; scenes that against light or under direct light exposure.

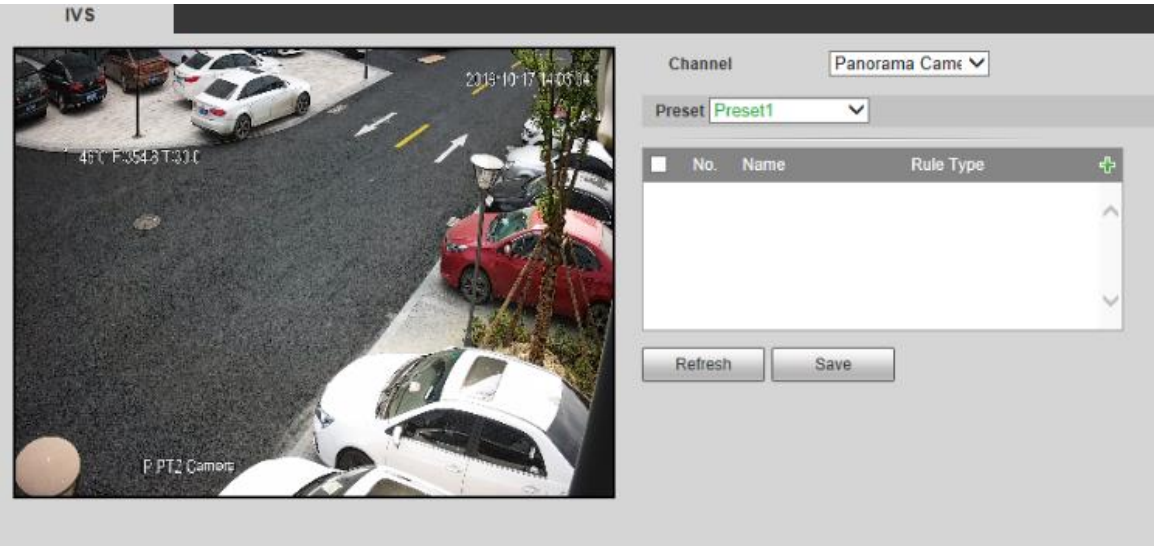
5.4.5.1 Rule Configurations

Set smart rules. Follow these steps to complete the configurations:

Step 1 Select **Setting > Event > Deep IVS > IVS**.

The **IVS** interface is displayed, see Figure 5-99.

Figure 5-99 Adding smart rules



Step 2 Select the camera channel to set smart rules. You can select **Panorama Camera** or **Detail Camera**.

Step 3 Select the presets to set smart rules.

Step 4 Click to add smart rules.

Click **Rule Type** to modify the type of rules.

Step 5 Click **Save**.

5.4.5.1.1 Tripwire

Alarms are triggered when the target crosses the warning line toward the defined direction.

It requires certain residence time and moving space for the target to be confirmed, so leave some space at both sides of the warning line during configuration and do not draw it near obstacles.

Applicable scenes: Scenes with sparse targets and no occlusion between targets, such as perimeter protection of unattended areas.

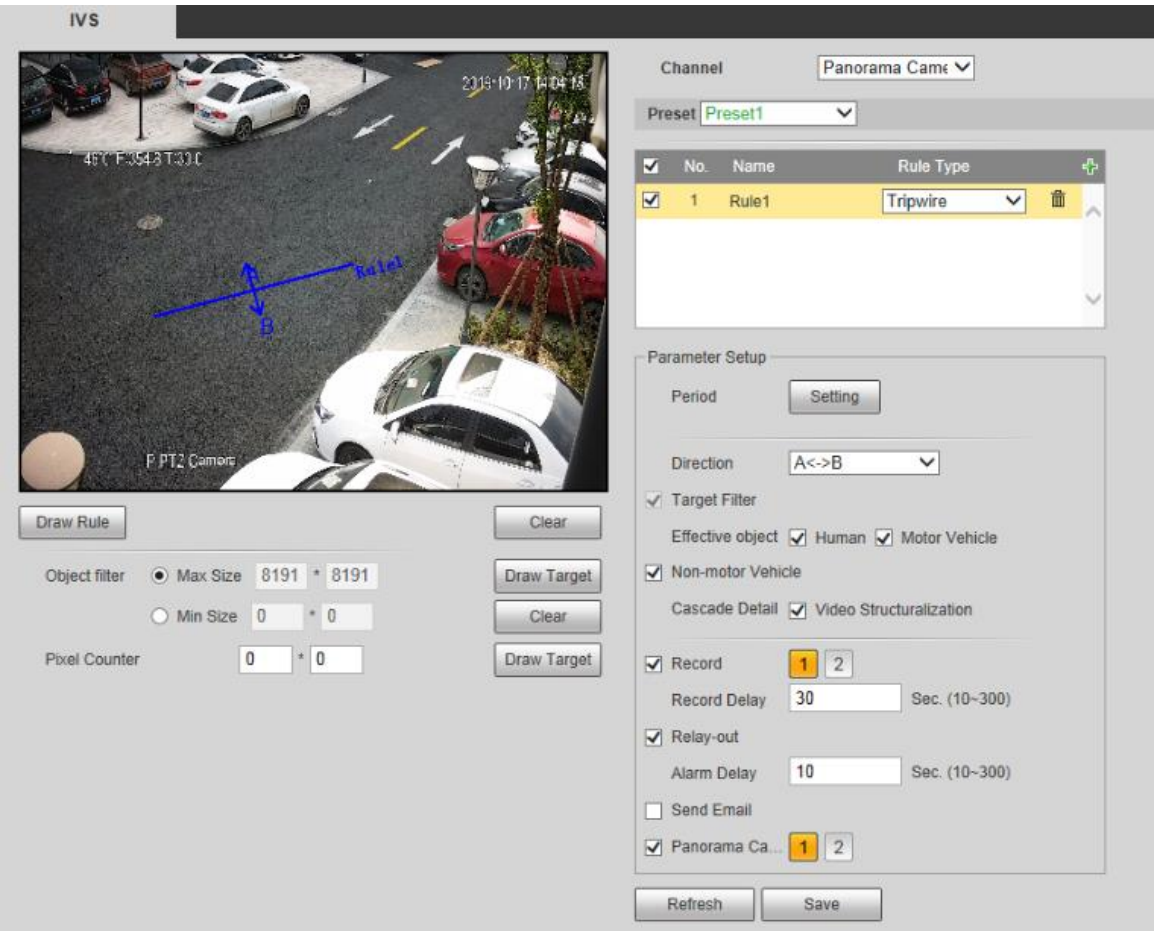
Follow these steps to complete the configurations:

Step 1 Select **Tripwire** from the **Rule Type** list.

The configuration interface is displayed. See Figure 5-100.

Double-click **Name** to modify the rule name.

Figure 5-100 Tripwire rule setting (Panorama Camera)



Step 2 Click **Draw Rule**, and you can draw rules on the monitoring screen. For parameter description, see Table 5-29.

Click **Clear** to delete all drawn rules.

Table 5-29 Rule drawing parameter description

Parameter	Description
Max Size	Set the size range of detection targets to be filtered, and select the maximum or minimum size. ● **Max Size**: Set the maximum size of targets to be filtered. When the target is larger than this size, the system will ignore it. The unit is pixel. ● **Min Size**: Set the minimum size of targets to be filtered. When the target is smaller than this size, the system will ignore it. The unit is pixel.
Min Size	
Pixel Counter	Help to accurately draw the target area. Enter the length and width of the target area in **Pixel Counter**, and click **Draw Target** to generate the target area in the monitoring screen. The unit is pixel.

Step 3 Configure parameters as needed. For the parameter description, see Table 5-30.

Table 5-30 Tripwire parameter description

Parameter	Description
Period	Set the alarm period to enable alarm events in the period you set. Click **Setting**, and then the **Period** interface is displayed. For the setting methods of the arming and disarming period, see "5.4.1.1 Motion Detection." After completing the setting, click **Save** to return to the rule setting interface.
Direction	Configure the tripwire direction. You can select **A->B**, **B->A** or **A<->B**.
Target Filter	Select the check box to enable the function. The **Effective object** includes **Human**, **Motor Vehicle** and **Non-motor Vehicle**. ● **Human**: When you select **Human** as the target, alarm will be triggered when people that violates the rule are detected. ● **Motor Vehicle**: When you select **Motor Vehicle** as the target, alarm will be triggered when motor vehicles that violate the rule are detected. ● **Non-motor Vehicle**: When you select **Non-motor Vehicle** as the target, alarm will be triggered when non-motor vehicles that violate the rule are detected.
Record	After you enable the function, when an alarm is trigged, the system will start recording automatically. Before using the function, you need to set the recording period of the alarm in **Storage > Schedule**, and select automatic recording in the recording control interface.
Record Delay	When the alarm is over, the alarm recording will continue for an extended period of time. The value range is 10–300.
Relay-out	Select the check box, and you can enable the alarm linkage output port, and link corresponding relay-out devices when an alarm is triggered.
Alarm Delay	When the alarm is over, the alarm will continue for an extended period of time. The value range is 10–300.
Send Email	Select **Send Email**, and when an alarm is triggered, the system sends email to the specified mailbox. You can configure the mailbox in **Setting > Network > SMTP (Email)**.

Parameter	Description
Panorama Capture	Select **Panorama Capture**, and then the panorama channel takes snapshot when an alarm is triggered. Before enabling this function, you need to configure snapshot period in **Setting > Storage > Schedule > Snapshot**.

Step 4 Click **Save**.

5.4.5.1.2 Intrusion

Intrusion includes crossing areas and in-area functions.

- Crossing area means an alarm will be triggered when a target enters or leaves the area.
- In-area function means an alarm will be triggered when a specified number of targets appear in a set alarming area at a given time. In-area function only counts the number of targets in the detection area, regardless of whether they are the same targets.
- For the reporting time interval of the in-area functions, the system will trigger the first alarm and then detect whether the same event occurs in the interval period. If no same event occurs in this period, the alarm counter will be cleared.

Similar to the warning line, to detect an entry/exit event, a certain movement space should be reserved at the periphery of the area line.

Applicable scenes: Scenes with sparse targets and no occlusion between targets, such as perimeter protection of unattended areas.

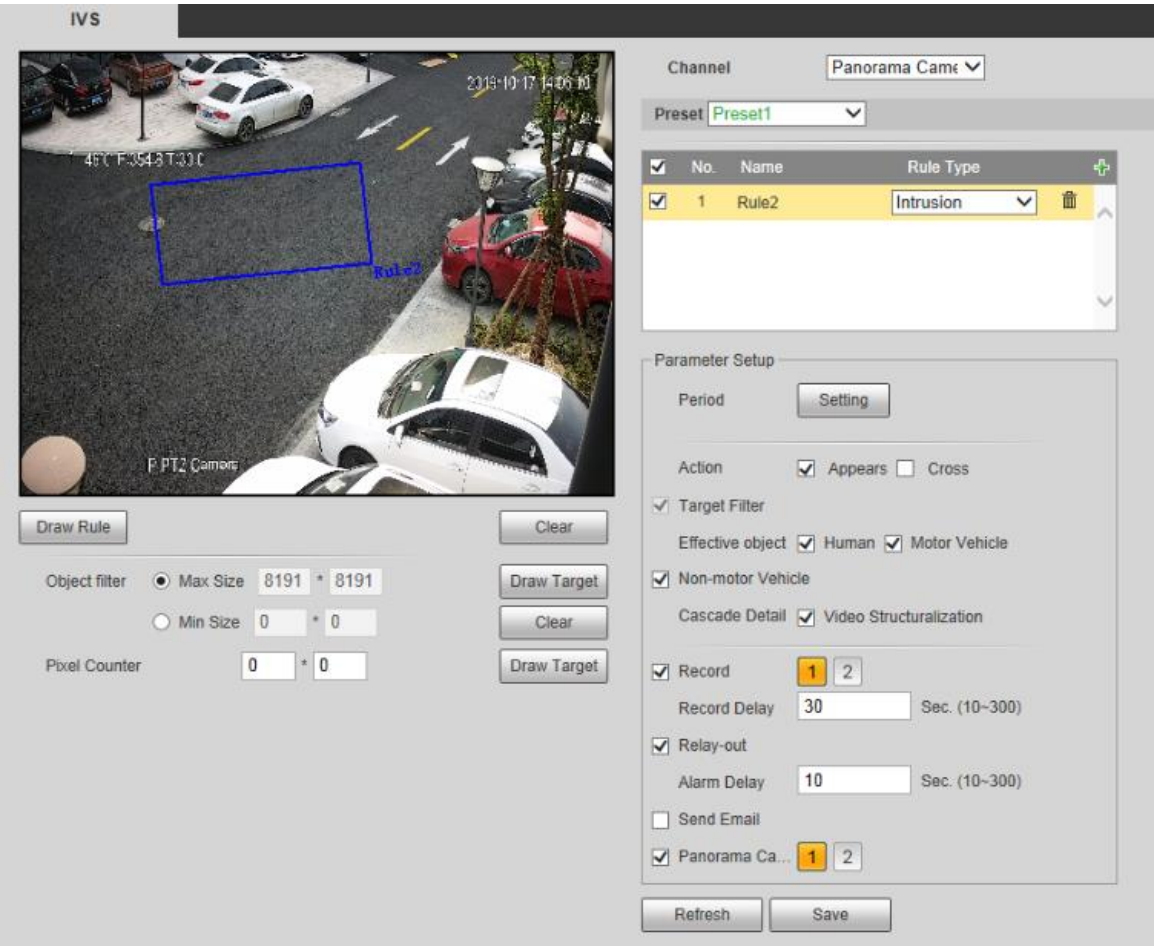
Follow these steps to complete the configurations:

Step 1 Select **Intrusion** from the **Rule Type** list.

The configuration interface is displayed. See Figure 5-101.

Double-click **Name** to modify the rule name.

Figure 5-101 Intrusion setting (Panorama Camera)



Step 2 Click **Draw Rule**, and you can draw rules on the monitoring screen. For parameter description, see Table 5-29.

Click **Clear** to delete all drawn rules.

Step 3 Configure parameters as needed. For the parameter description, see Table 5-30 and Table 5-31.

Table 5-31 Intrusion parameter description

Parameter	Description
Action	Configure intrusion action, and you can select **Appear** or **Cross**.

For other parameters, see "5.4.5.1.1 Tripwire."

Step 4 Click **Save**.

5.4.5.1.3 Abandoned Object

An alarm will be triggered when the selected target in the monitoring scene stays in the screen for more than the set time.

Pedestrians or vehicles that stay for too long would be regarded as abandoned objects. To filter out such alarms, you can use **Object filter**. In addition, the duration can be properly extended to avoid false alarm due to a short stay of people.

Applicable scenes: Scenes with sparse targets, no obvious and frequent light changes. For scenes with intensive targets or too many obstacles, missed alarms would increase; for scenes

in which too many people stays, false alarms would increase. Select detection areas with simple texture, because this function is not applicable to scenes with complex texture.

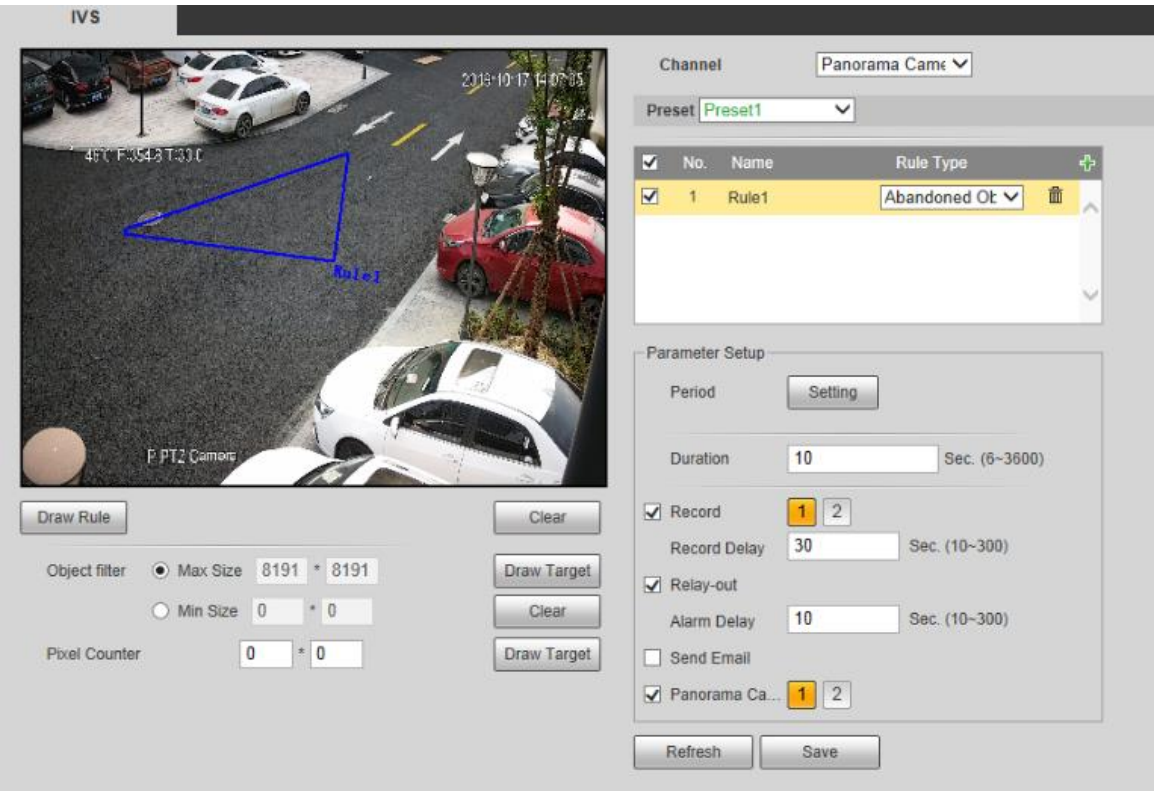
Follow these steps to complete the configurations:

Step 1 Select **Abandoned Object** from the **Rule Type** list.

The configuration interface is displayed. See Figure 5-102.

Double-click **Name** to modify the rule name.

Figure 5-102 Abandoned object setting (Panorama Camera)



Step 2 Click **Draw Rule**, and you can draw rules on the monitoring screen. For parameter description, see Table 5-29.

Click **Clear** to the right of **Draw Rule**, and you can clear all drawn rules.

Step 3 Configure parameters as needed. For the parameter description, see Table 5-32.

Table 5-32 Abandoned object parameter description

Parameter	Description
Duration	For abandoned object, the duration is the shortest time to trigger an alarm after an object is abandoned.

For other parameters, see "5.4.5.1.1 Tripwire."

Step 4 Click **Save**.

5.4.5.1.4 Missing Object

An alarm will be triggered when the selected target in the scene is taken away for the time longer than the set duration.

The system analyzes static areas from the foreground, and determines whether it is missing object or abandoned object from the similarity of its foreground and background. When the time exceeds the set period, an alarm is triggered.

Applicable scenes: Scenes with sparse targets, no obvious and frequent light changes. For scenes with intensive targets or too many obstacles, the missed alarm would increase; for scenes in which too many people stays, the false alarm would increase. Keep the detection area texture as possible simple as possible, because this function is not applicable to scenes with complex texture.

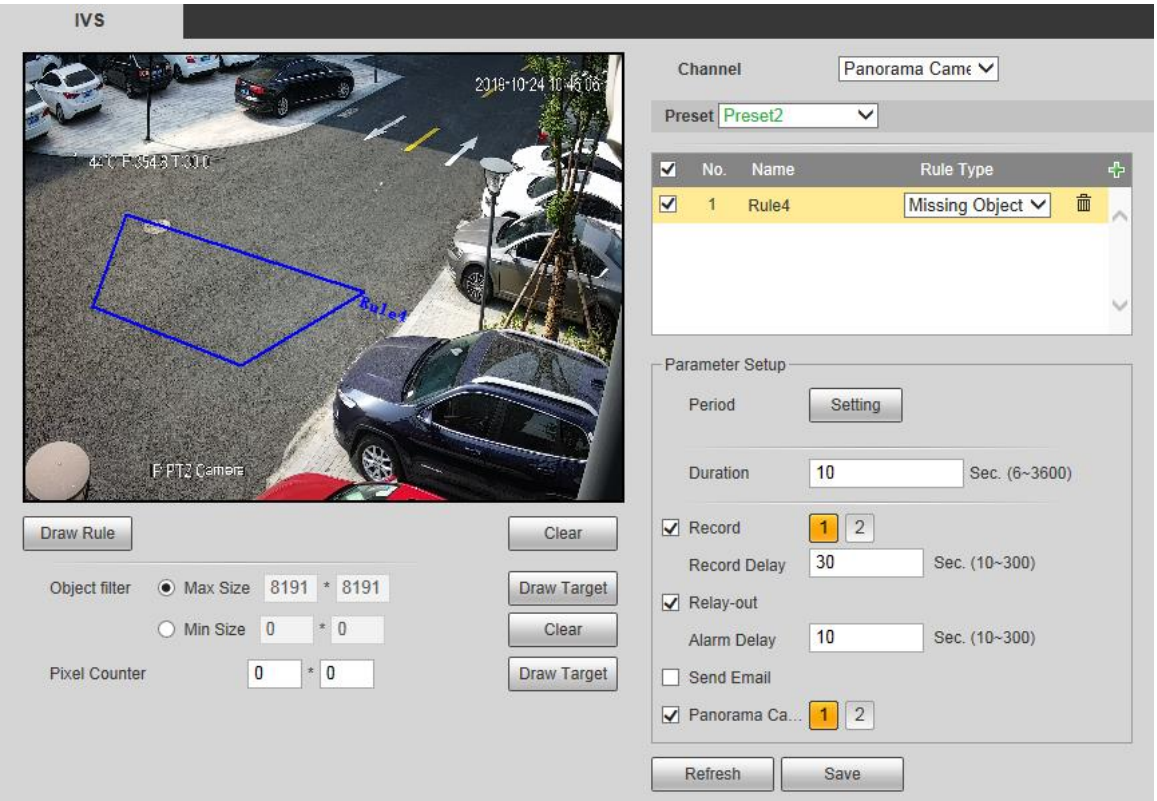
Follow these steps to complete the configurations:

Step 1 Select **Missing Object** from the **Rule Type** list.

The configuration interface is displayed. See Figure 5-103.

Double-click **Name** to modify the rule name.

Figure 5-103 Missing object setting



Step 2 Click **Draw Rule**, and you can draw rules on the monitoring screen. For parameter description, see Table 5-29.

Click **Clear** to the right of **Draw Rule**, and you can clear all drawn rules.

Step 3 Configure parameters as needed. For the parameter description, see Table 5-33.

Table 5-33 Missing object parameter description

Parameter	Description
Duration	Configure the shortest time from the object disappearing to the alarm being triggered.

For other parameters, see "5.4.5.1.1 Tripwire."

Step 4 Click **Save**.

5.4.6 Face Recognition

Select **Setting > Event > Smart Plan**, and then enable face recognition.

Detect faces and compare them with those in the configured face database.

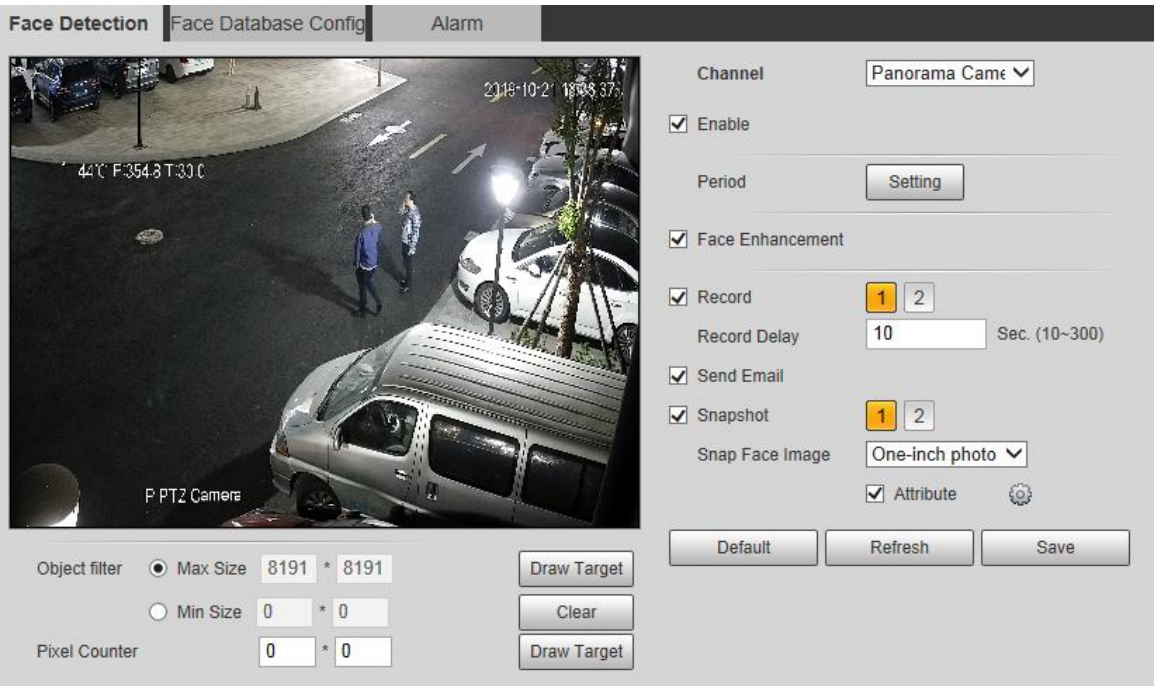
5.4.6.1 Face Detection

When human face is detected in the image, an alarm is triggered and the linked activity is executed.

Step 1 Select **Setting > Event > Face Recognition > Face Detection**.

The **Face Detection** interface is displayed. See Figure 5-104.

Figure 5-104 Face detection (Panorama Camera/Detail Camera**)**



Step 2 Select **Enable**, and you can enable the face detection function.

Step 3 Configure parameters as needed. For the parameter description, see Table 5-34.

Table 5-34 Face detection parameter description

Parameter	Description
Period	Alarm event will be triggered only within the defined time period. See "5.4.1.1 Motion Detection."
Face Enhancement	Select **Face Enhancement** to preferably guarantee clear faces with low stream.
Record	Select **Record**, and the system records video when alarms are triggered. To enable video recording, you need to make sure that: ● The motion detection recording is enabled. For details, see "5.5.1.1 Record." ● The auto recording is enabled. For details, see "5.5.3 Record Control."

Parameter	Description
Record Delay	The video recording will continue for the defined time after the alarm ends. The value ranges from 10 s to 3600 s.
Send Email	Select **Send Email**, and when alarms are triggered, the system sends emails to the specified mailbox. For the email settings, see "5.2.5 SMTP (Email)."
Snapshot	Select **Snapshot**, and the system takes snapshot when alarms are triggered. ● Enable the dynamic detection snapshot first. For details, see "5.5.1.1 Record." ● For searching and setting snapshot storage path, see "5.1.2.5 Path".
Snap Face Image	Set the snapshot scope, including **Face** and **One-inch photo**.
Attribute	Select the **Attribute** check box, click , and then you can set the human attributes during face detection.

Step 4 Click **Save**.

5.4.6.2 Face Database Config

After you successfully configure the face database, the detected faces can be compared with the information in the face database. Configuring a face database includes creating a face database, adding face pictures, and face modeling.

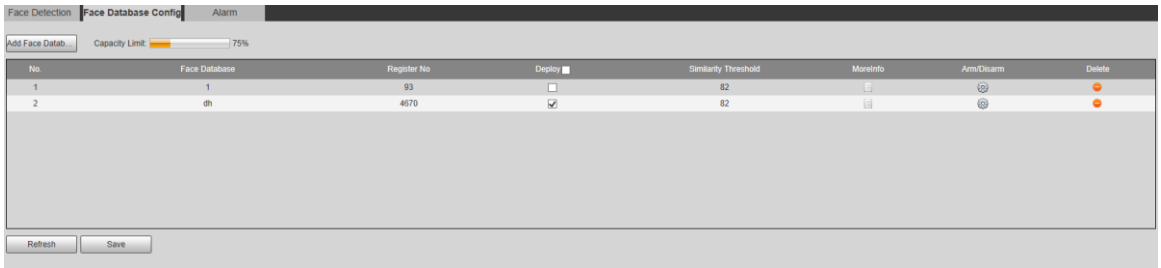
5.4.6.2.1 Adding Face Database

Create a face database, and choose whether to register face images, that is to add face pictures to the newly created face database.

Step 1 Select **Setting > Event > Face Recognition > Face Database Config**.

The **Face Database Config** interface is displayed. See Figure 5-105.

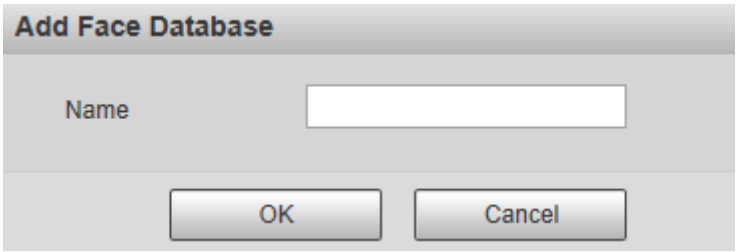
Figure 5-105 Face Database Config



Step 2 Click **Add Face Database**.

The **Add Face Database** interface is displayed, see Figure 5-106.

Figure 5-106 Adding face database

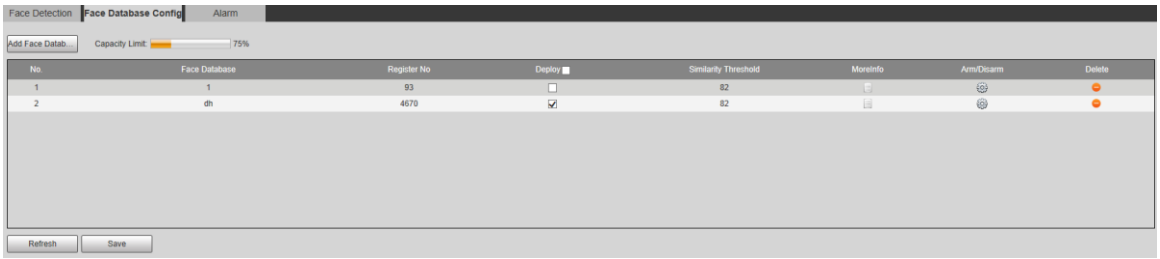


Step 3 Set the face database name.

Step 4 Click **OK**.

The added face database is displayed. See Figure 5-107.

Figure 5-107 Adding face library completed



Step 5 Configure parameters as needed. For the parameter description, see Table 5-35.

Table 5-35 Face database config parameter description

Parameter	Description
Deploy	Select **Deploy** and the face database takes effect.
Similarity Threshold	The comparison is successful only when the similarity between the detected face and the face feature in face database reaches the set similarity threshold. After this, the comparison result is displayed on the **Live** interface.
More Info	Click **More Info** to manage face database. You can set search conditions, register people, and modify people information.
Arm/Disarm	Alarm event will be triggered only within the defined time period. See "5.4.1.1 Motion Detection."
Delete	Delete the selected face database.

5.4.6.2.2 Adding Face Pictures

Add face pictures to the created face database. Manual addition and batch import are supported.

Manual Addition

Add a single face picture. Use this method when registering a small number of face pictures.

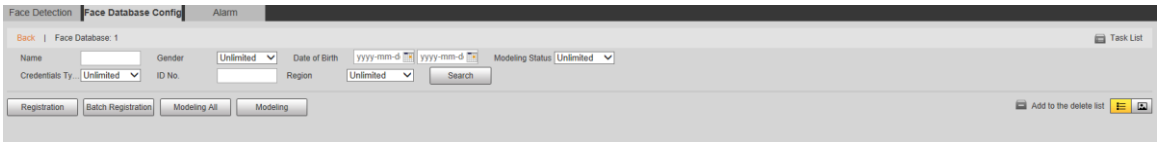
Step 1 Select **Setting > Event > Face Recognition > Face Database Config**.

The **Face Database Config** interface is displayed.

Step 2 Click **More Info** for the face database to be configured.

The interface shown as Figure 5-108 is displayed.

Figure 5-108 More info

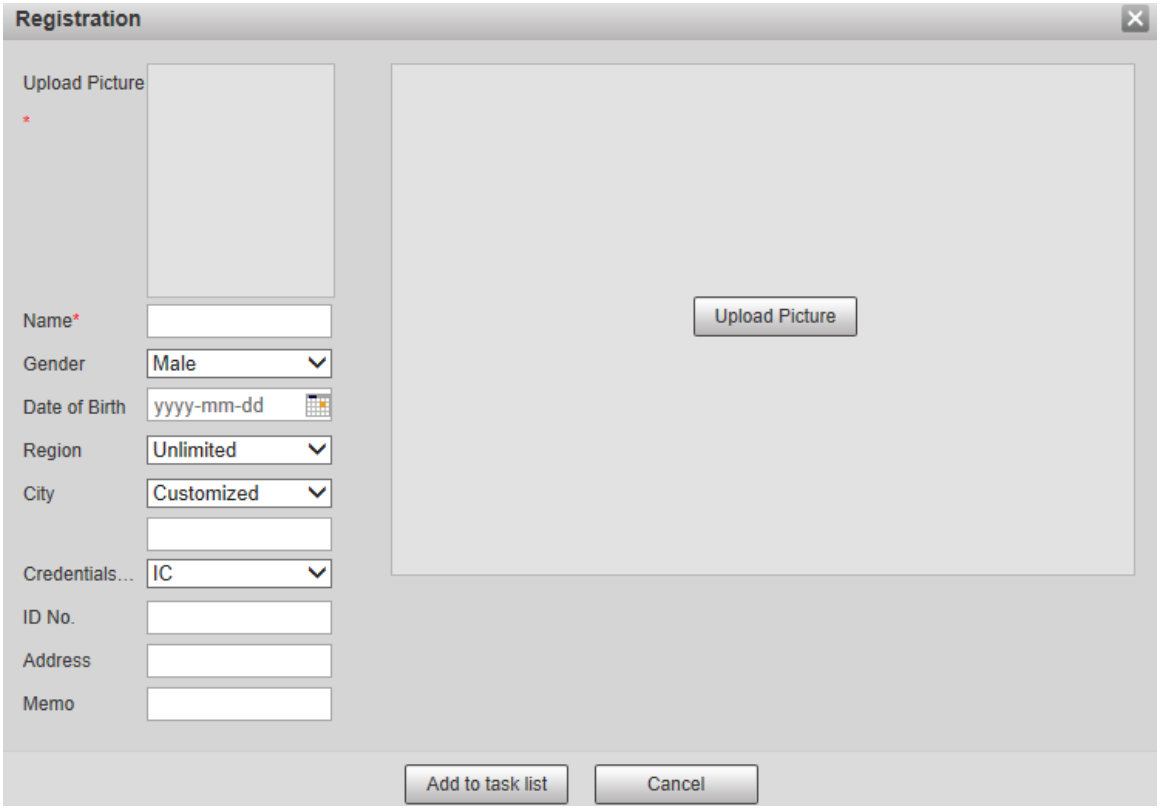


Set filtering conditions as needed, and then click **Search**. The search result is displayed.

Step 3 Click **Registration**.

The **Task List** interface is displayed. See Figure 5-109.

Figure 5-109 Registration interface



Step 4 Click **Upload Picture**.

Import the face pictures to be uploaded. The interface is displayed. See Figure 5-110.

You can manually select a face area. After uploading the picture, select a face area and click **OK**. If there are multiple faces in a picture, select the target face and click **OK** to save the face picture.

Figure 5-110 Addition completed

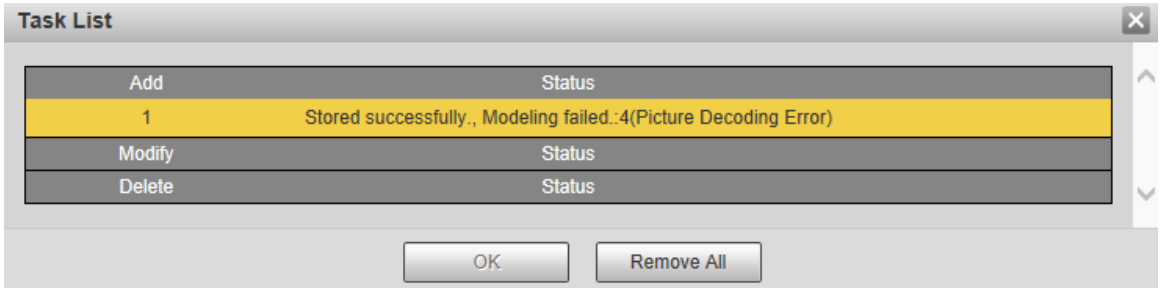
Step 5 Fill in face picture information as needed.

Step 6 Click **Add to task list**.

Step 7 Click Task List 1.

The **Task List** interface is displayed. See Figure 5-111.

Figure 5-111 Task list addition completed



Click **Remove All**, and you can remove all the tasks.

Batch Registration

Import multiple face pictures in batch. Use this method when registering a large number of face pictures.

Before importing pictures in batches, name the face pictures in the format of "Name#SGender#BDate of Birth#NRegion#TCredentials Type#MID No. jpg" (for example, "John#S1#B1990-01-01#NCN#T1#M330501199001016222"). For naming rules, see Table 5-36.

Name is required and the rest are optional.

Table 5-36 Naming rules for batch import

Naming Rules	Description
Name	Enter the corresponding name.
Gender	Enter a number. 1: Male; 2: Female.
Date of Birth	Enter numbers in the format of yyyy-mm-dd. For example, 2017-11-23.
Region	Enter the region name.
Credentials Type	Enter a number. 1: ID card; 2: passport.
ID No.	Enter ID No.

Step 1 Select **Setting > Event > Face Recognition > Face Database Config**.

The **Face Database Config** interface is displayed.

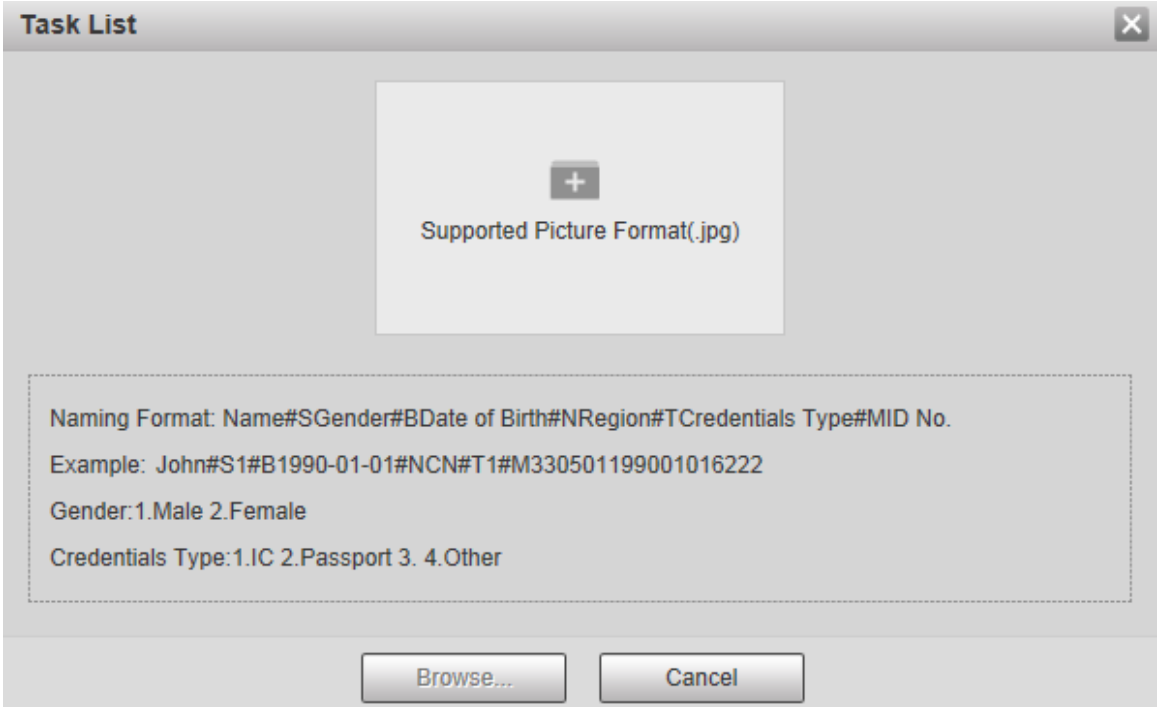
Step 2 Click **More Info** for the face database to be configured.

The **Face Database** interface is displayed.

Step 3 Click **Batch Registration**.

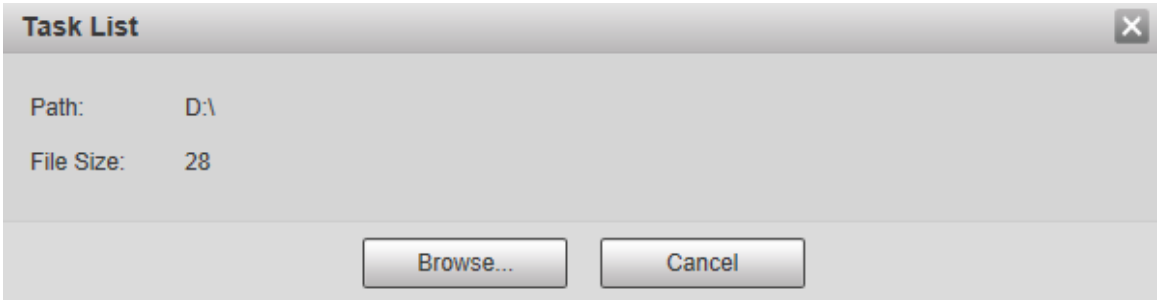
The **Task List** interface is displayed. See Figure 5-112.

Figure 5-112 Batch registration



Step 4 Click to select the file path.

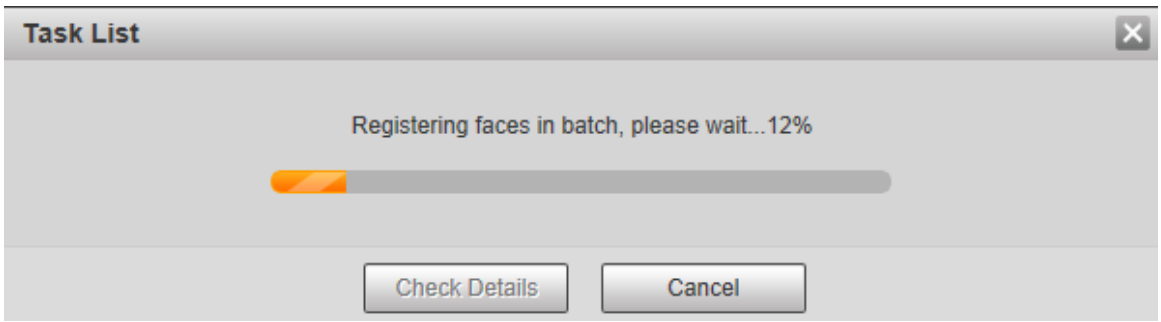
Figure 5-113 Batch registration



Step 5 Click **Browse**.

The interface is displayed. See Figure 5-114.

Figure 5-114 Registering



Step 6 After the registration is completed, click **Next** to view the registration result.

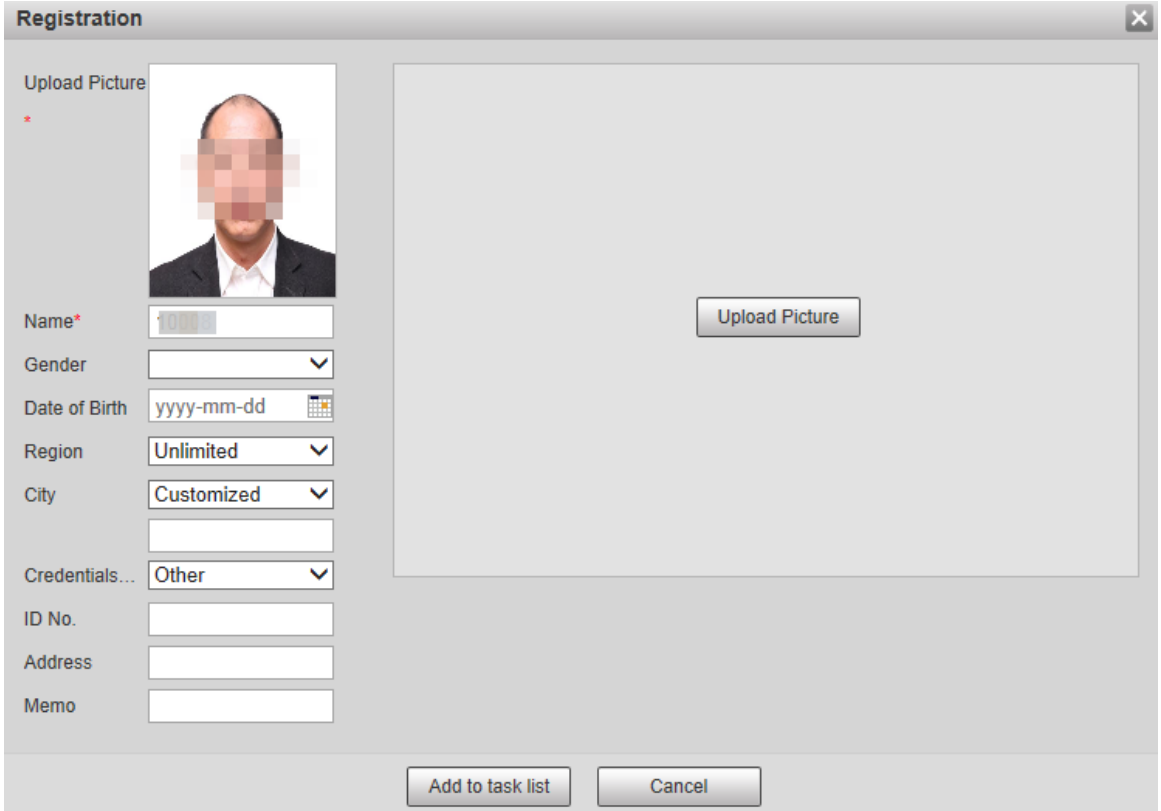
5.4.6.2.3 Managing Face Pictures

Add face pictures to face database, manage and maintain face pictures to ensure correct information.

Modifying Face Information

In **Face Database Config** interface, move the mouse pointer to the face image or person information line. Click or , and the **Registration** interface is displayed. See Figure 5-115. After modifying the face picture information as needed, click **Add to task list**.

Figure 5-115 Registration interface



Deleting Face Pictures

Click **More Info** of the face database, set filtering conditions as needed, click **Search**, and then delete the added face pictures.

- Single deletion: Move the mouse pointer to the face picture or people information line, and then click or to delete the face picture.
- Batch deletion: Move the mouse pointer to the face picture or people information line, and then click at the upper right corner of the face pictures, or click on person information line. After selecting multiple items, click **Add to the delete list**, click Task List 1, and then click **OK** to delete the selected face pictures.
- Delete all: When viewing face pictures in a list, click on people information line (or select **All** when viewing face pictures in pictures), click **Add to the delete list**, click Task List 1, and then click **OK** to delete all face pictures.

5.4.6.2.4 Face Modeling

Extract and import the relevant information of face pictures into the database through face modeling, and create a face feature mode for smart detection such as face comparison.

- The more face pictures you choose, the longer the modeling time is. Wait patiently.
- During the modeling process, some smart detection functions (such as face comparison) are temporarily unavailable and can be resumed after the modeling is completed.

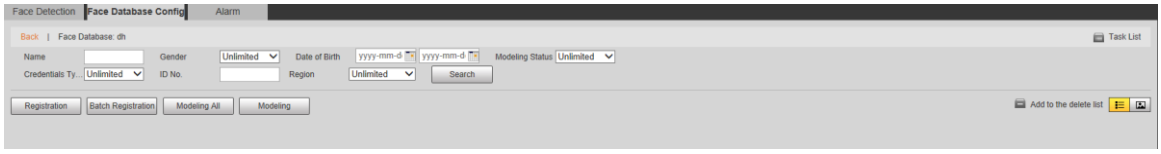
Step 1 Select **Setting > Event > Face Recognition > Face Database Config**.

The **Face Database Config** interface is displayed.

Step 2 Click **More Info** for the face database to be configured.

The interface shown as Figure 5-116 is displayed.

Figure 5-116 Face database interface



Step 3 Choose the face pictures for modeling as needed.

Click to view the face picture in a list. Click to view the face image as a thumbnail.

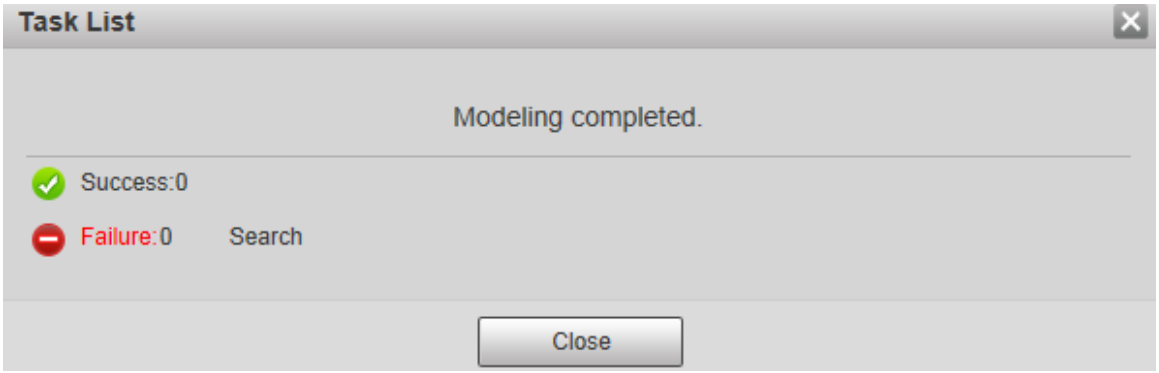
- Modeling All

Click **Modeling All**, and all face pictures in the face database will be modeled.

- Selective Modeling

If there are many face pictures in the face database, set filtering conditions and click **Search** to select face pictures for modeling.

Figure 5-117 Modeling completed



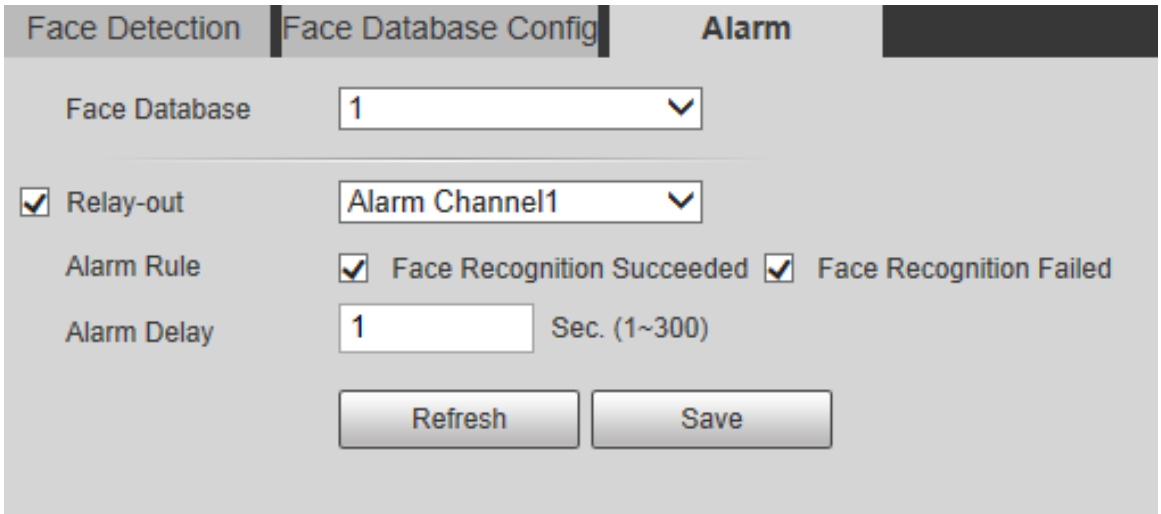
5.4.6.3 Alarm Linkage

Set the alarm linkage mode for face comparison.

Step 1 Select **Setting > Event > Face Recognition > Alarm**.

The **Alarm** interface is displayed. See Figure 5-118.

Figure 5-118 Alarm linkage



Step 2 Configure parameters as needed. For the parameter description, see Table 5-37.

Table 5-37 Alarm linkage parameter description

Parameter	Description
Face Database	Select the face database to be configured with alarm linkage.
Alarm Rule	Select the alarm rule as needed.
Relay-out	Select the **Relay-out** check box, and when an alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	When the alarm is over, the alarm will continue for an extended period of time. The value range is 1–300.

Step 3 Click **Save**.

5.4.7 Video Structuralization

Count the number of motor vehicles, non-motor vehicles and human in the monitoring image, identify the features of the vehicles and human in the image, and take snapshots.

- Before enabling video structuralization, you need to enable the function in **Smart Plan**.

5.4.7.1 Scene Setting

Set the parameters of snapshot, analysis and alarm in the scene.

Step 1 Select **Setting > Event > Video Structralization**.

The **Scene Setting** interface is displayed. See the following figures.

Figure 5-119 Scene setting–people (Panorama Camera)

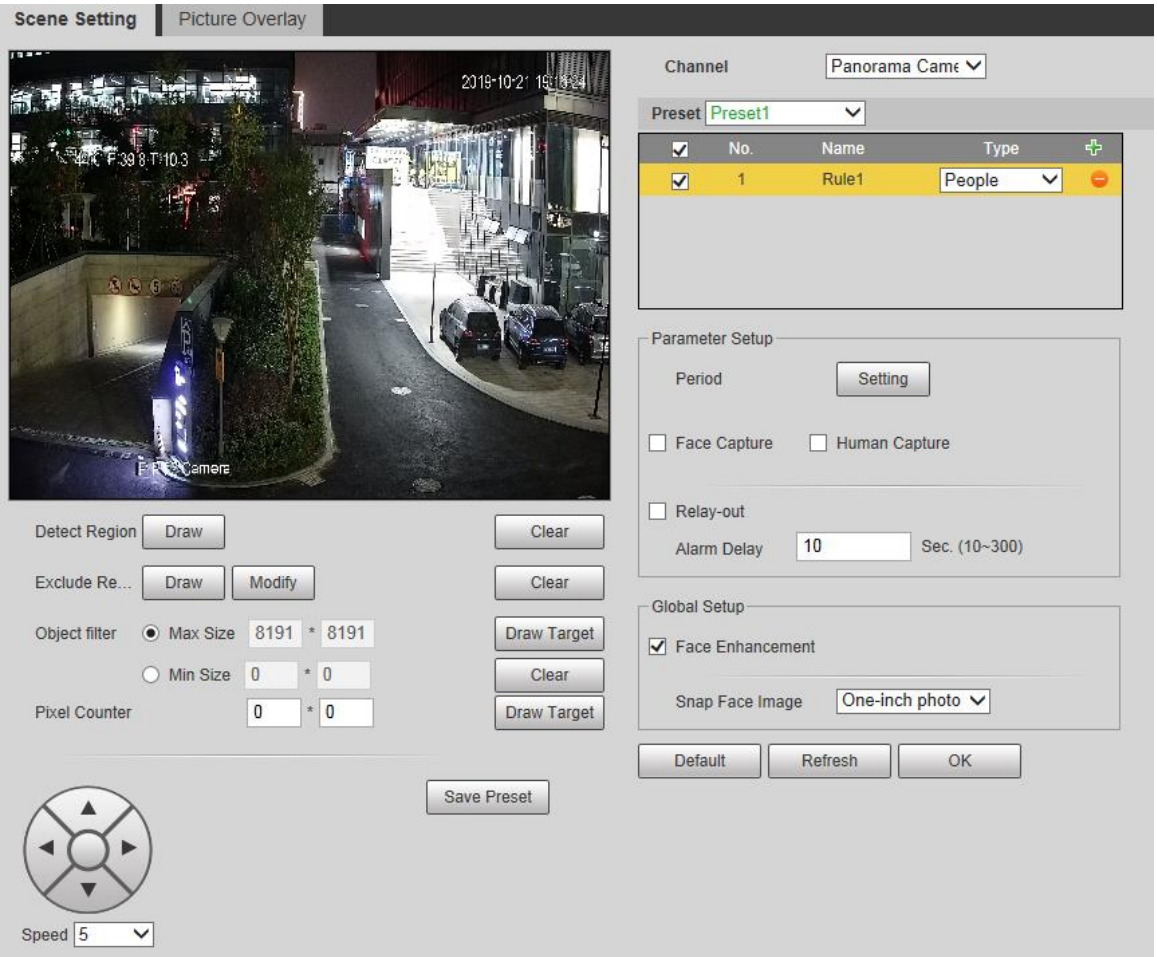


Figure 5-120 Scene setting—people (Detail Camera)

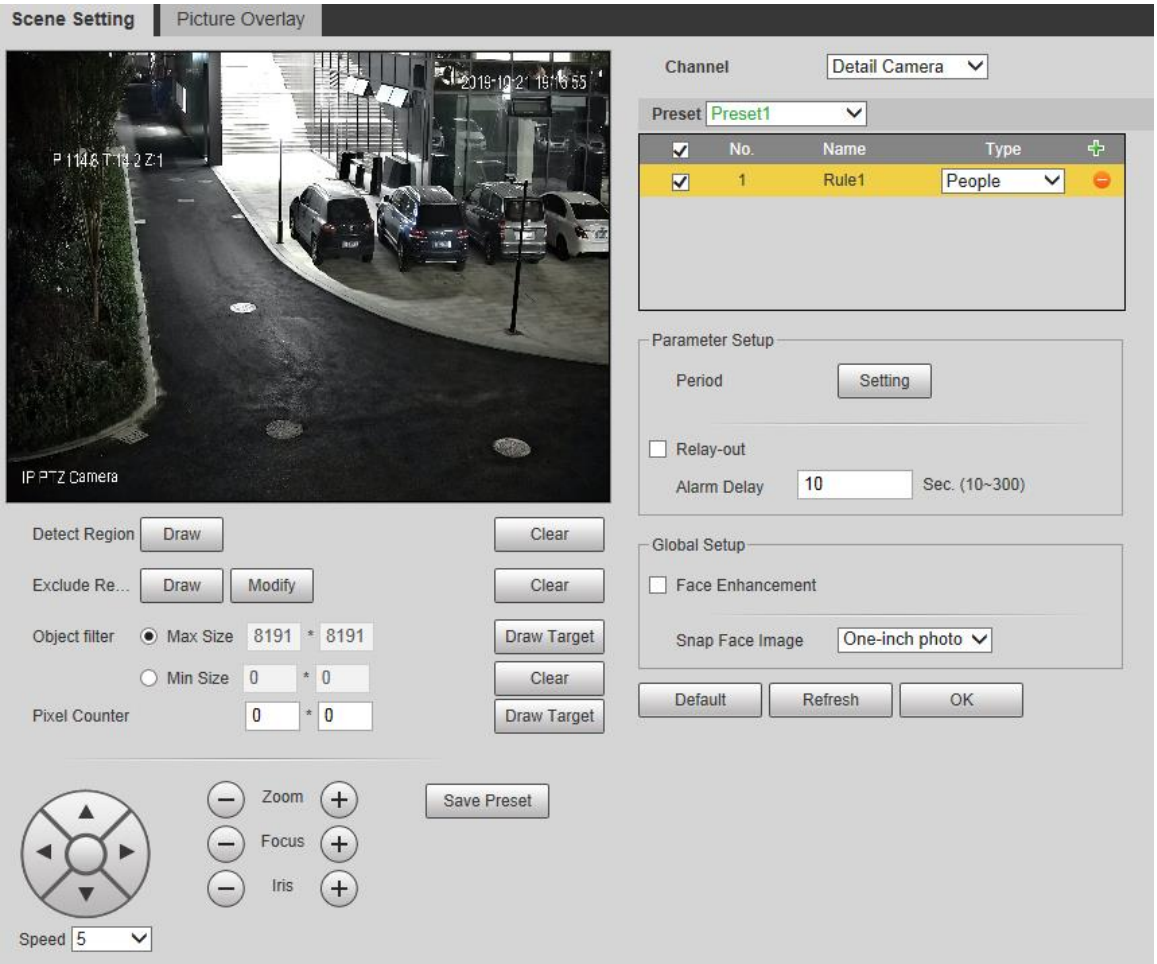


Figure 5-121 Scene setting—non-motor vehicle (Panorama Camera)

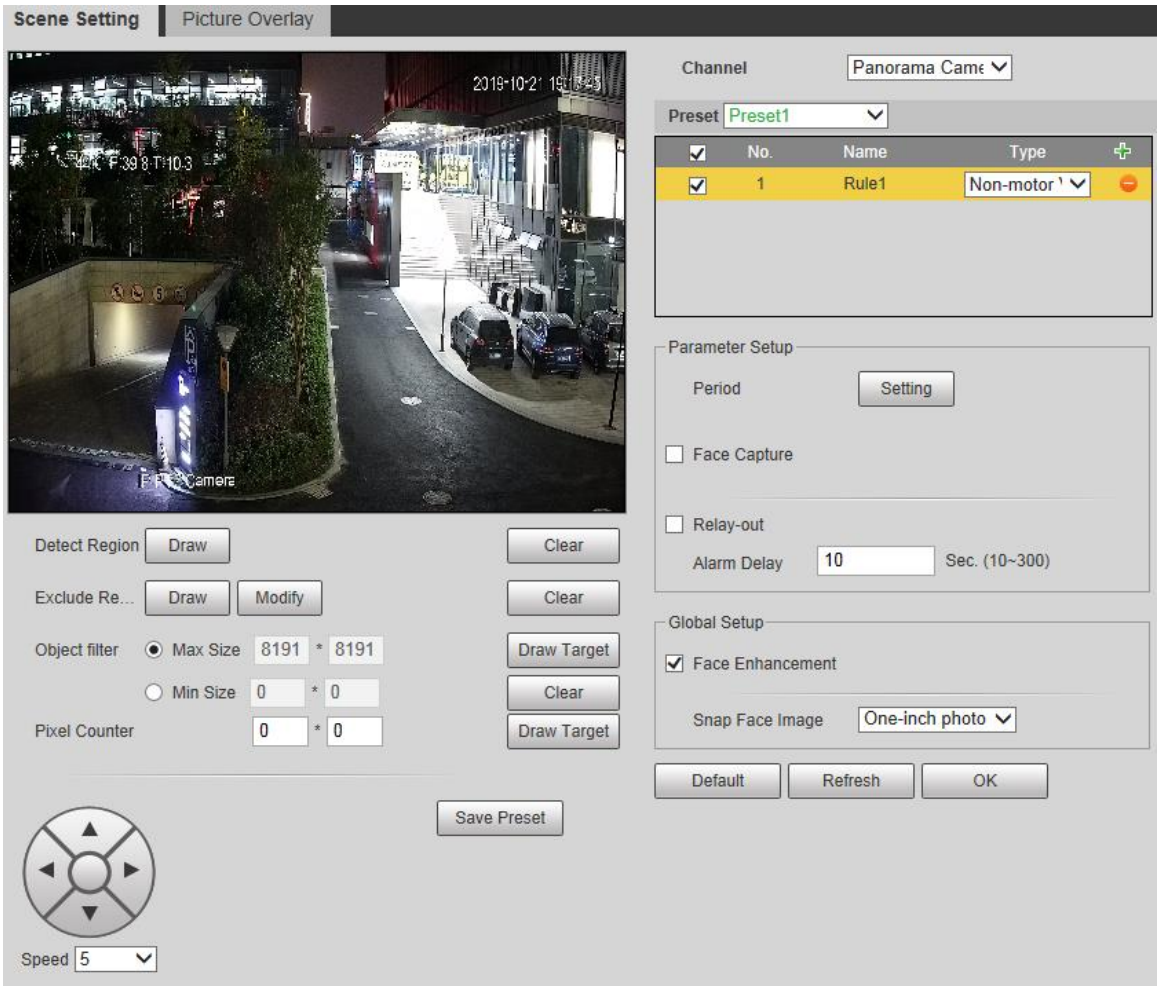


Figure 5-122 Scene setting—non-motor vehicle (Detail Camera)

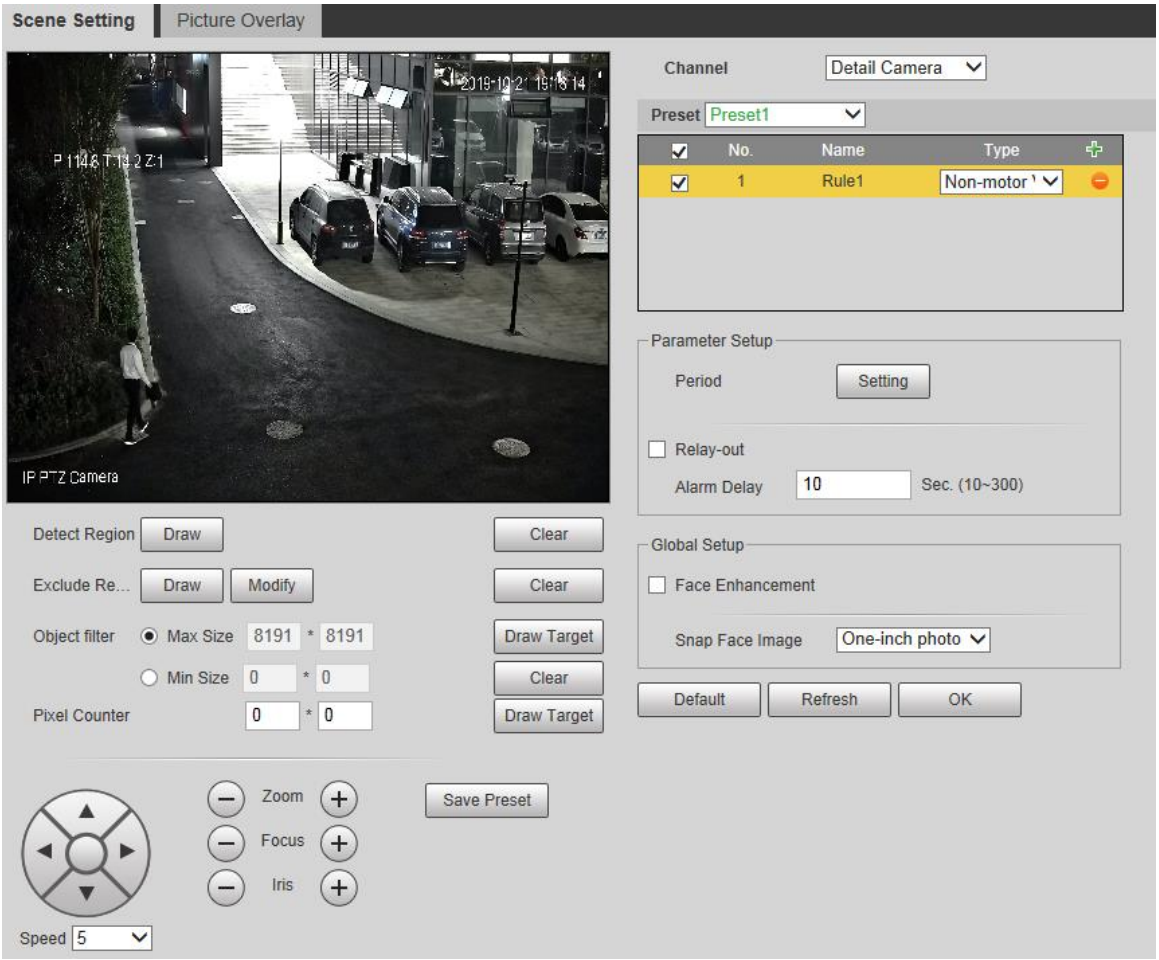


Figure 5-123 Scene setting—motor vehicle (Panorama Camera)

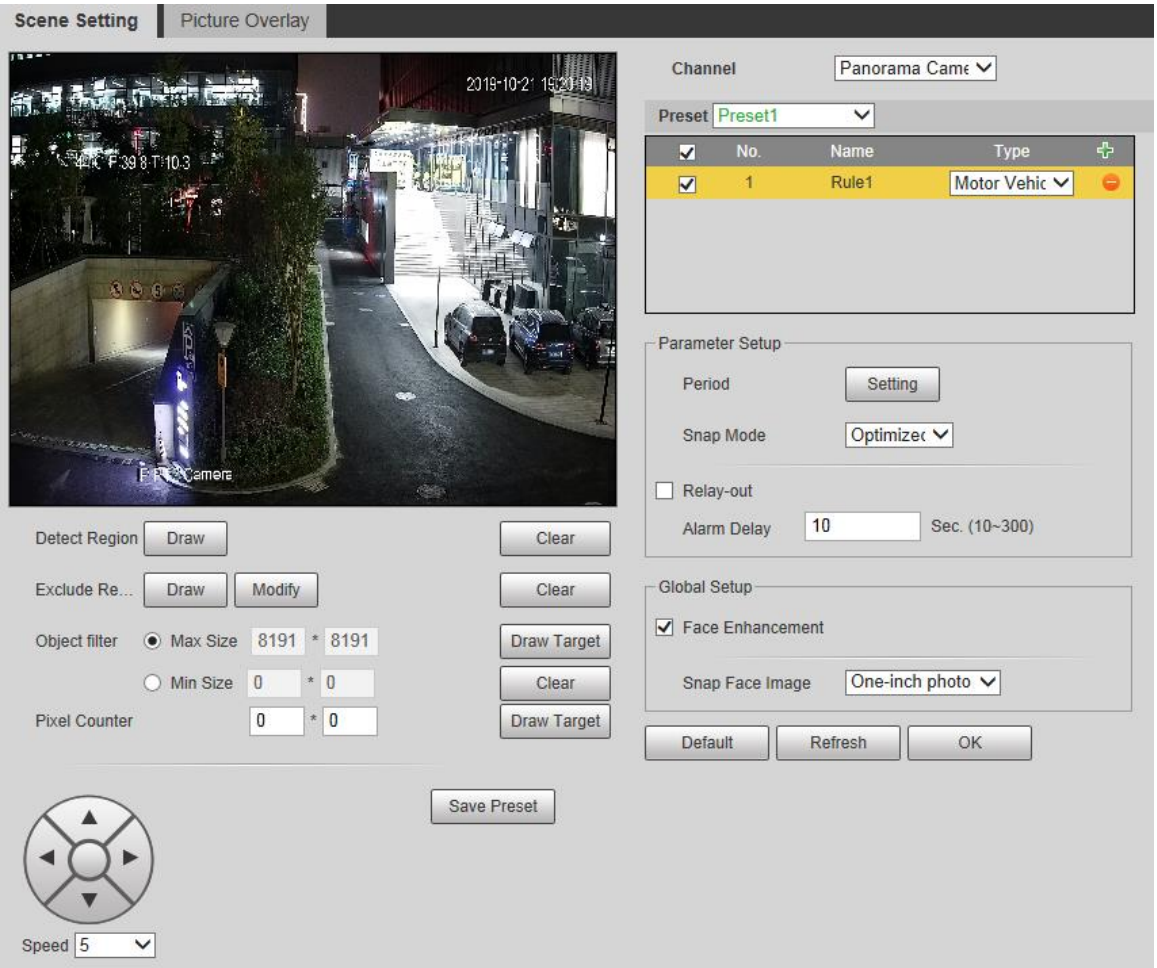
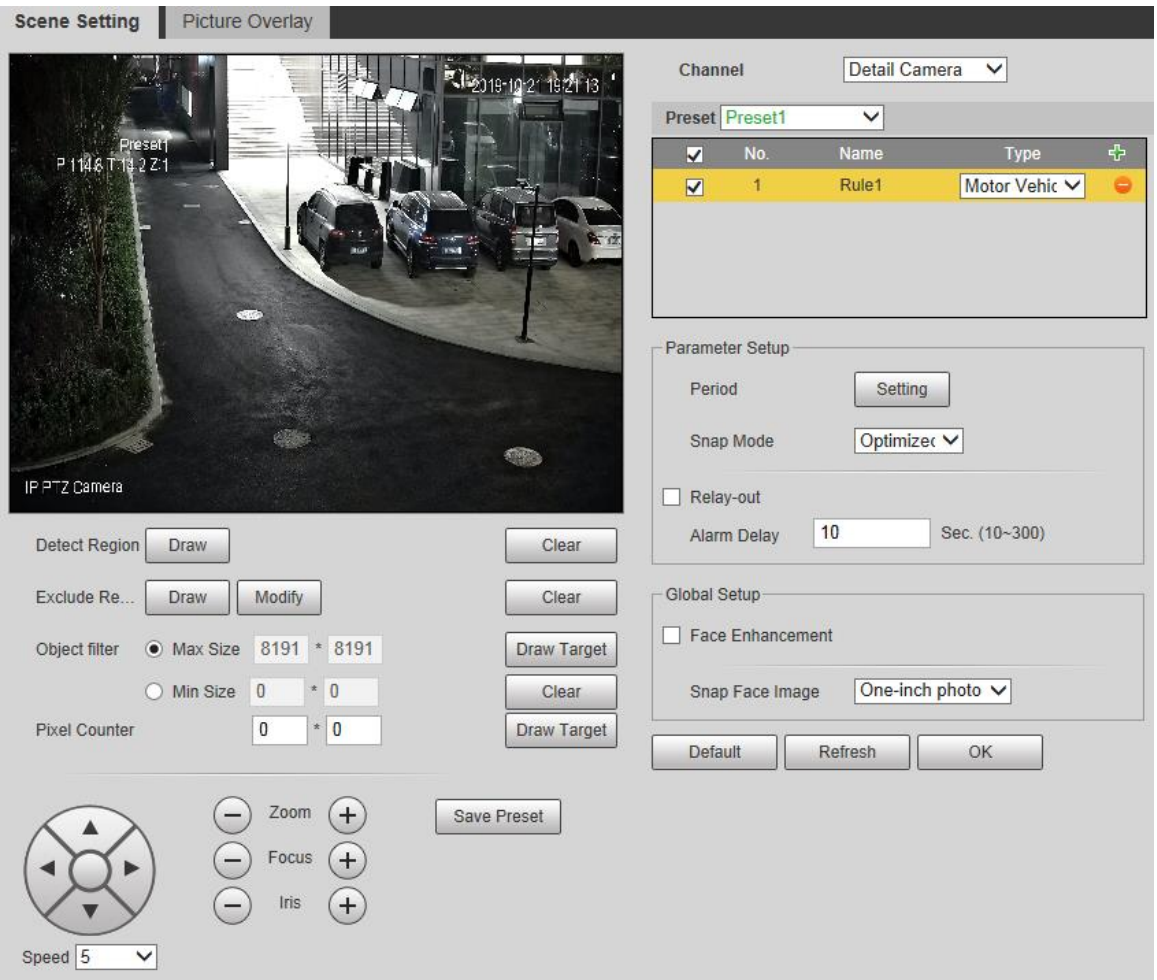


Figure 5-124 Scene setting—motor vehicle (Detail Camera)



Step 2 Select the preset from the **Preset** list to configure video structuralization.

Step 3 Click to add a rule type.

Step 4 Modify the parameters as needed.

- Double-click **Name** to modify the rule name.
- Click the **Type** list to select the rule type from **People**, **Non-motor Vehicle** or **Motor Vehicle**.

Click the corresponding to delete detection items.

Step 5 Configure each parameter as needed. For details, refer to "5.4.5.1.1 Tripwire."

Step 6 Click **Save**.

5.4.7.2 Picture Overlay

Set the overlay information on the snapshot.

Step 1 Select **Setting > Event > Video Structralization > Picture Overlay**.

The **Picture Overlay** interface is displayed.

Step 2 Select picture overlay **Type** from **People**, **Non-motor Vehicle** or **Motor Vehicle**.

See Figure 5-125, Figure 5-126, and Figure 5-127.

Figure 5-125 Picture overlay—motor vehicle

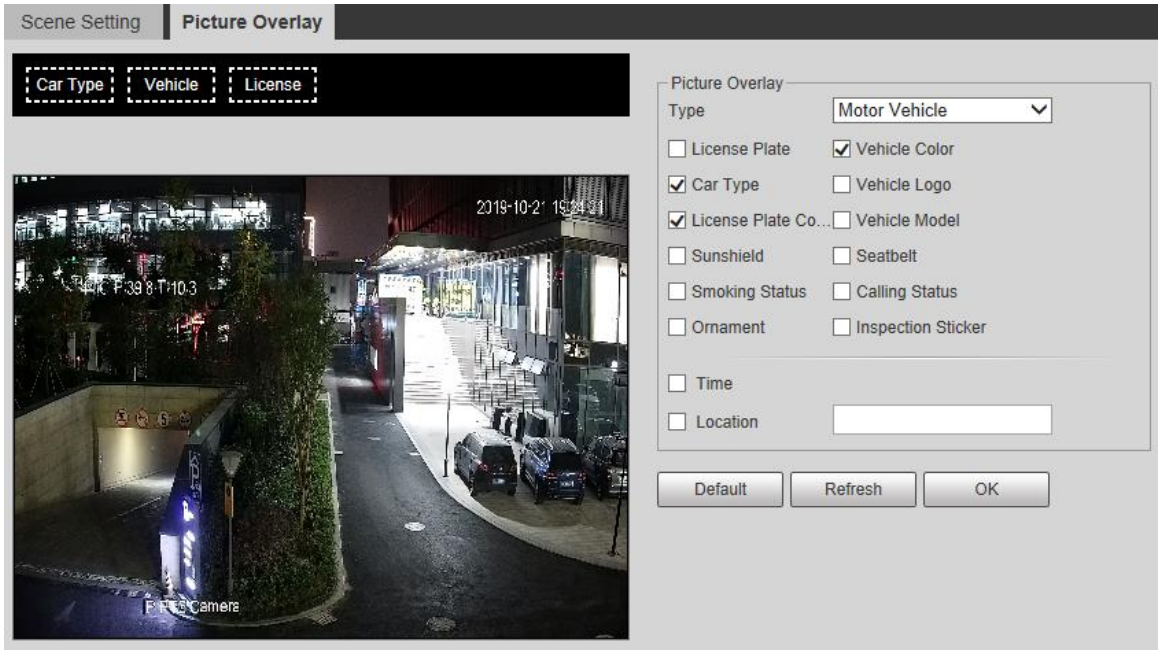


Figure 5-126 Picture overlay—non-motor vehicle

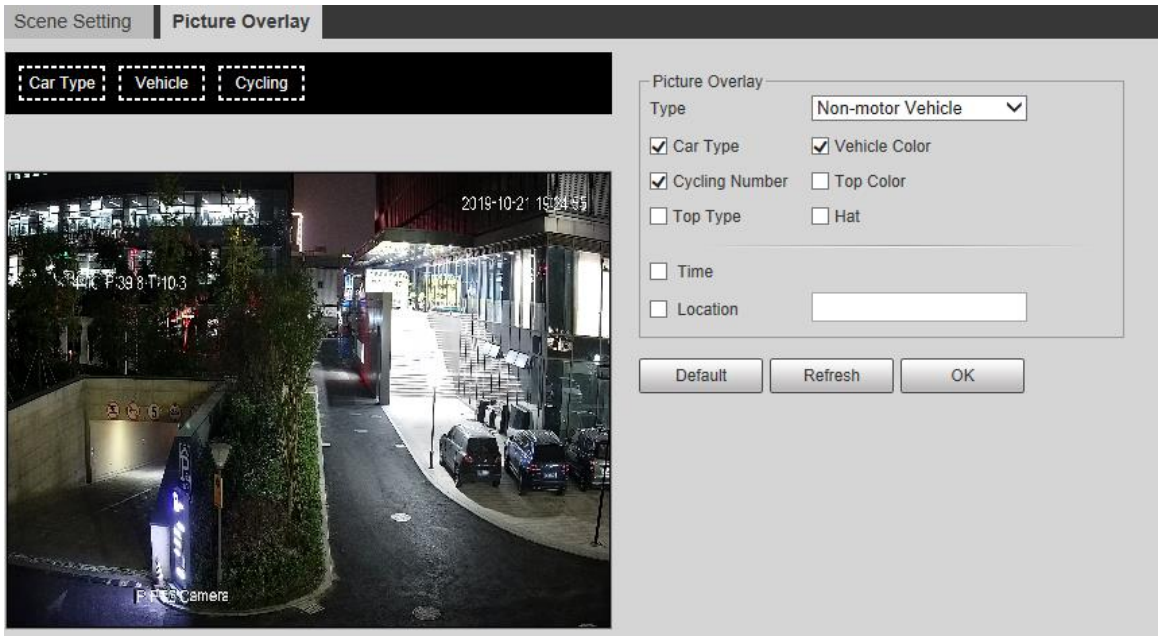
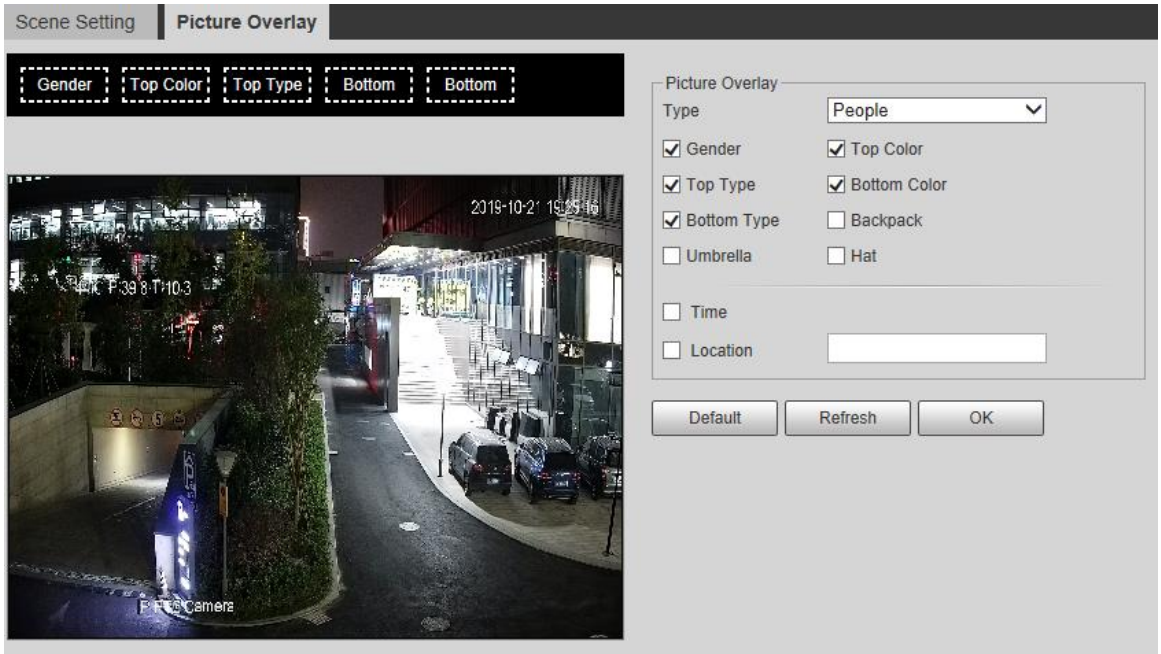


Figure 5-127 Picture overlay–people



Step 3 Select overlay information as needed.

If you select **Location**, you need to manually enter the location of the Camera.

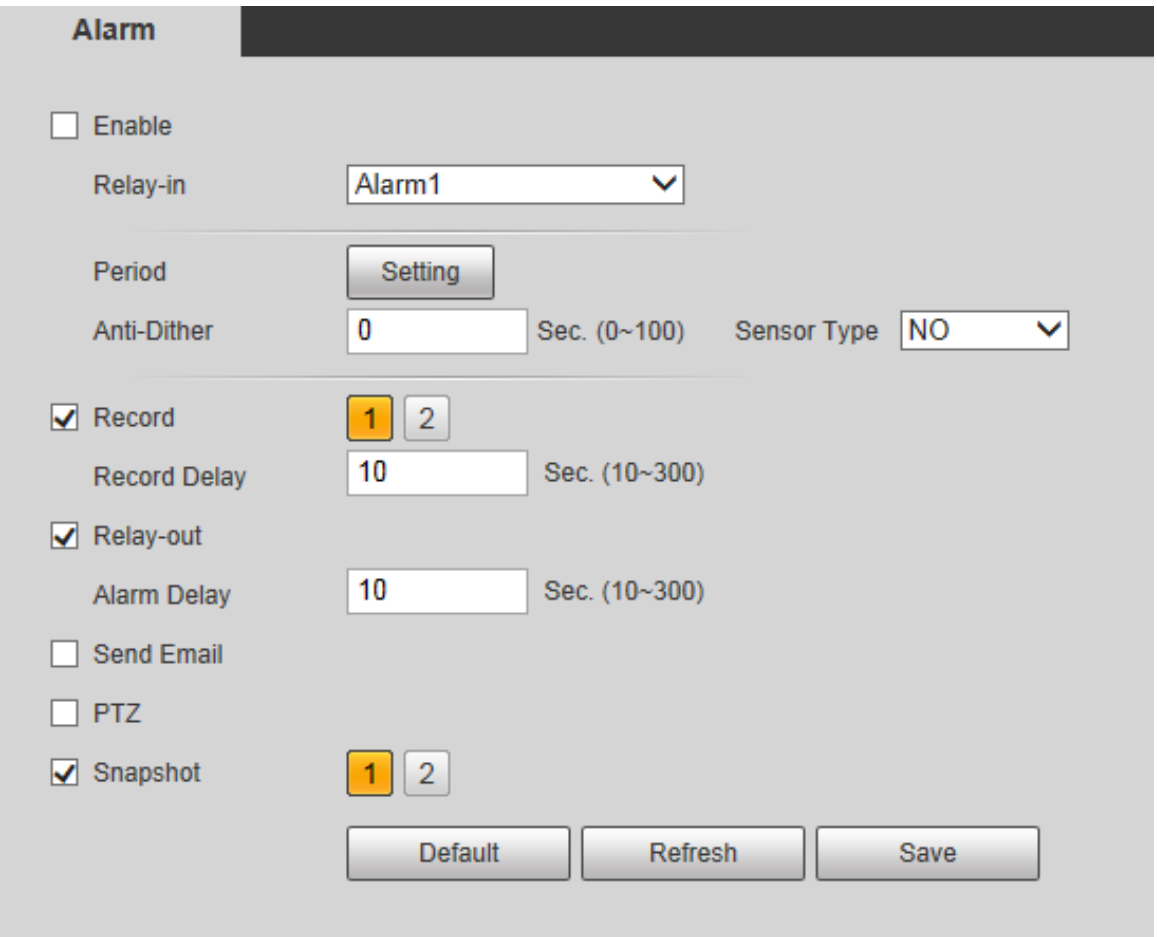
Step 4 Click **OK**.

5.4.8 Alarm Settings

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

The **Alarm** interface is displayed. See Figure 5-128.

Figure 5-128 Alarm setting



Step 2 Configure parameters as needed. For parameter description, see Table 5-38.

Table 5-38 Alarm setting parameter description

Parameter	Description
Enable	Select **Enable**, and then the alarm linkage is enabled.
Relay-in	Select alarm input, and 7 alarm inputs are available.
Sensor Type	There are two types: **NO** (normally open) and **NC** (normally closed). Switch from **NO** to **NC**, and alarm event will be enabled. Switch from **NC** to **NO**, and alarm event will be disabled.

For other parameters, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

5.4.9 Abnormality

Abnormality includes 7 alarm events: **No SD Card**, **Capacity Warning**, **SD Card Error**, **Disconnection**, **IP Conflict**, **Illegal Access**, and **Security Exception**.

5.4.9.1 SD Card

In case of an SD card exception, an alarm will be triggered. Follow these steps to complete the configurations:

Step 1 Select **Setting > Event > Abnormality > SD Card**.

The **SD Card** interface is displayed. See Figure 5-129, Figure 5-130, and Figure 5-131.

Figure 5-129 No SD card

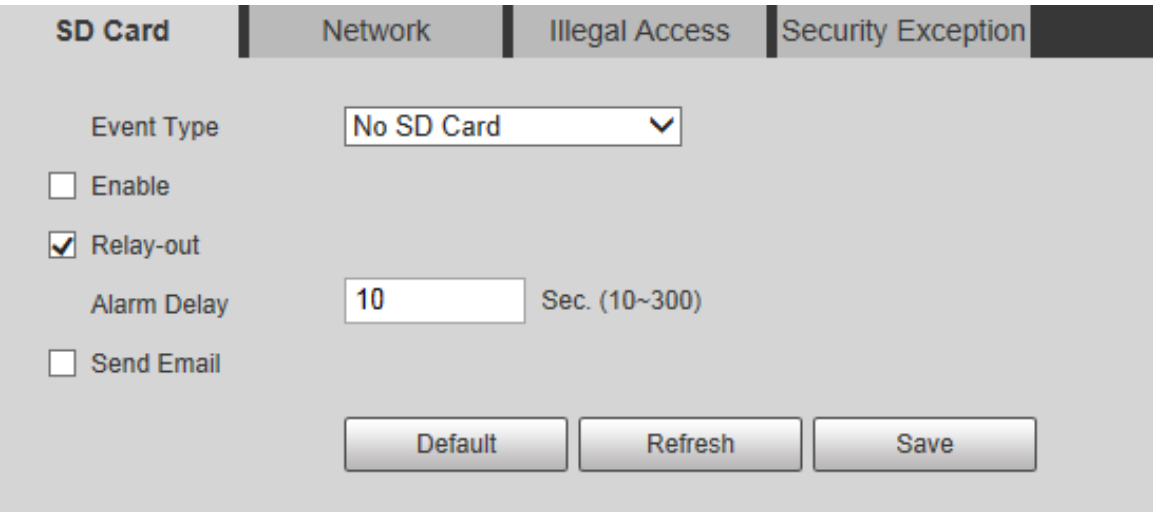


Figure 5-130 SD card error

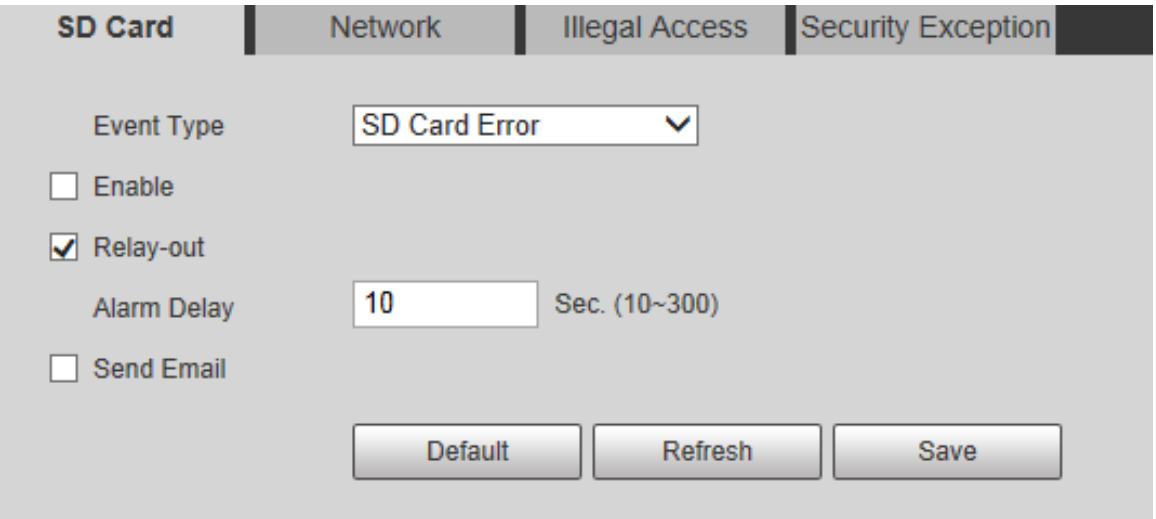
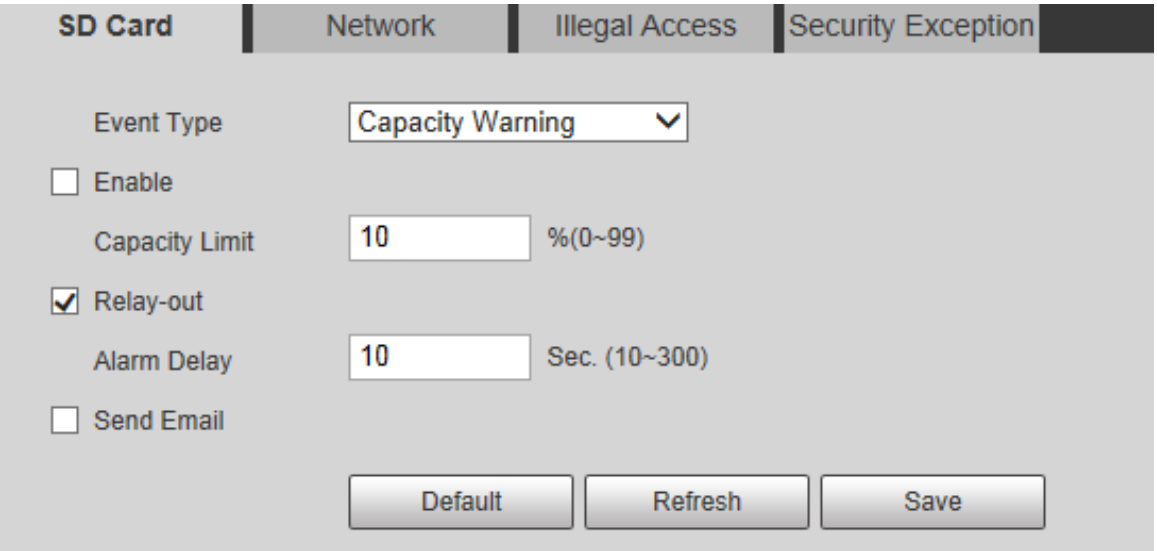


Figure 5-131 Capacity warning



Step 2 Configure parameters as needed. For details, see Table 5-39.

Table 5-39 SD card exception parameter description

Parameter	Description
Enable	Select the **Enable** check box to enable this function.
Capacity Limit	Configure the free space percentage, and if the free space in the SD card is lower than the defined percentage, an alarm is triggered.

For other parameters, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

5.4.9.2 Network Exception

In case of a network exception, an alarm will be triggered. Follow these steps to complete the configurations:

Step 1 Select **Setting > Event > Abnormality > Network**.

The **Network** interface is displayed. See Figure 5-132 and Figure 5-133.

Figure 5-132 Disconnection

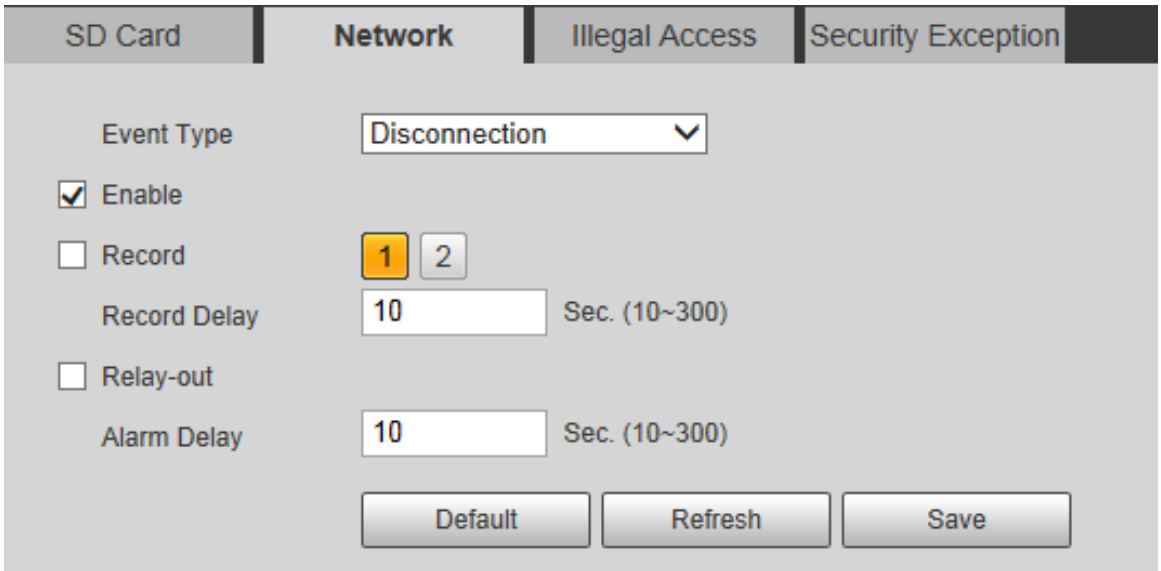
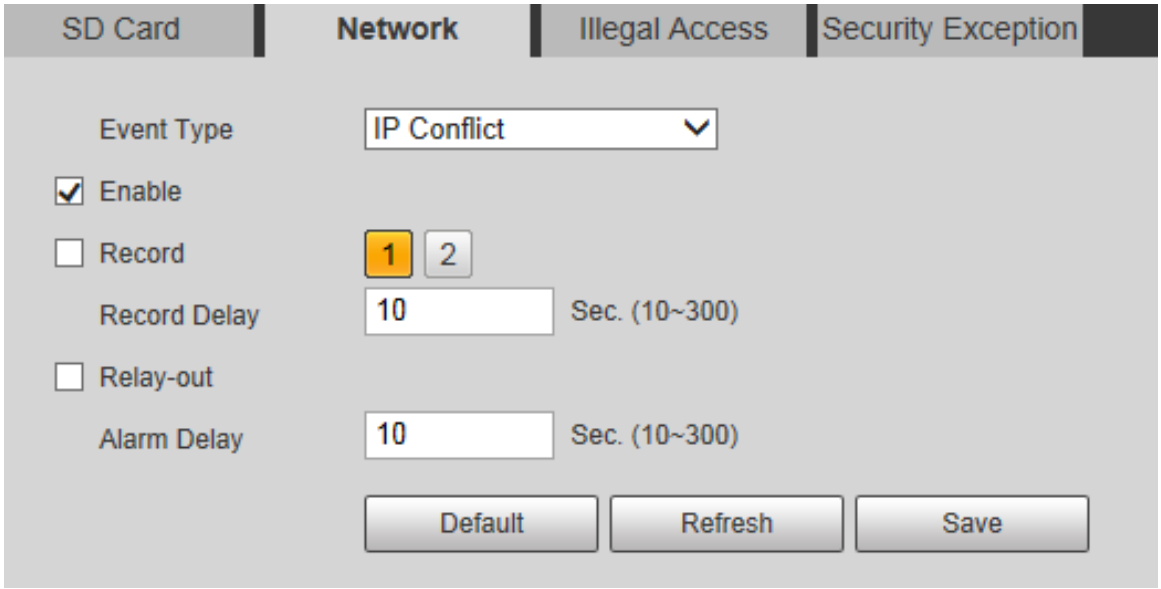


Figure 5-133 IP conflict



Step 2 Configure each parameter as needed. See Table 5-40.

Table 5-40 Network exception parameter description

Parameter	Description
Enable	Select the **Enable** check box to enable this function.

For other parameters, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

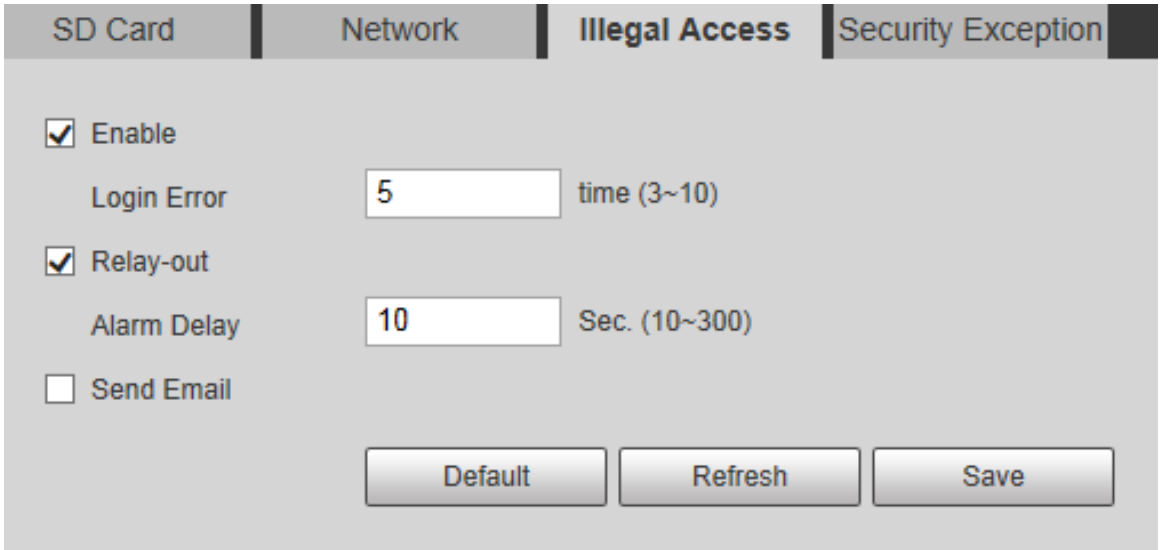
5.4.9.3 Illegal Access

Illegal access alarm is triggered when the login password has been wrongly entered for more than the times you set. Follow these steps to complete the configurations:

Step 1 Select **Setting > Event > Abnormality > Illegal Access**.

The **Illegal Access** interface is displayed. See Figure 5-134.

Figure 5-134 Illegal access



Step 2 Configure parameters as needed. For parameter description, see Table 5-41.

Table 5-41 Illegal access parameter description

Parameter	Description
Enable	Select **Enable** to set the illegal access alarm.
Login Error	After entering a wrong password for the set times, the alarm for illegal access will be triggered, and the account will be locked.

For other parameters, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

5.4.9.4 Security Exception

When an event affecting the Camera safety occurs, an alarm for safety exception will be triggered. Follow these steps to complete the configurations.

Step 1 Select **Setting > Event > Abnormality > Security Exception**.

The **Security Exception** interface is displayed. See Figure 5-135.

Figure 5-135 Security Exception

Step 2 Configure each parameter as needed. For details, see "5.4.1.1 Motion Detection."

Step 3 Click **Save**.

5.5 Storage

5.5.1 Schedule

Before setting the schedule, make sure that the **Record Mode** is **Auto** in **Record Control**.

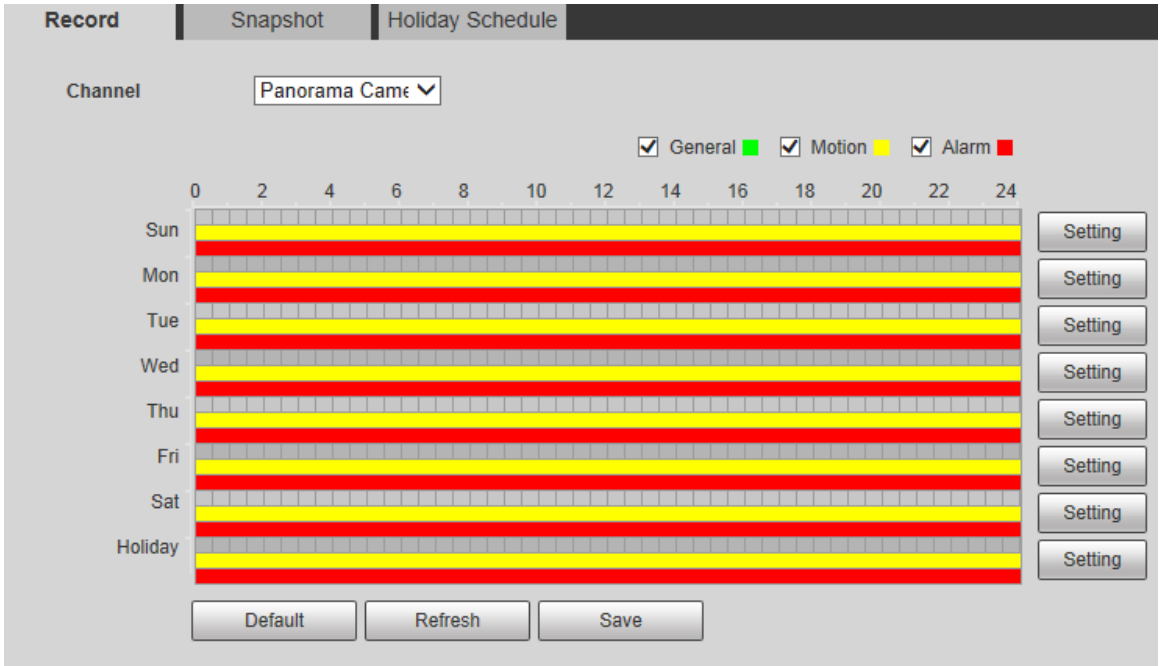
If the **Record Mode** is **Off**, the Camera will not record or take snapshots according to the schedule.

5.5.1.1 Record

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

The **Record** interface is displayed. See Figure 5-136.

Figure 5-136 Record interface (Panorama Camera/Detail Camera)



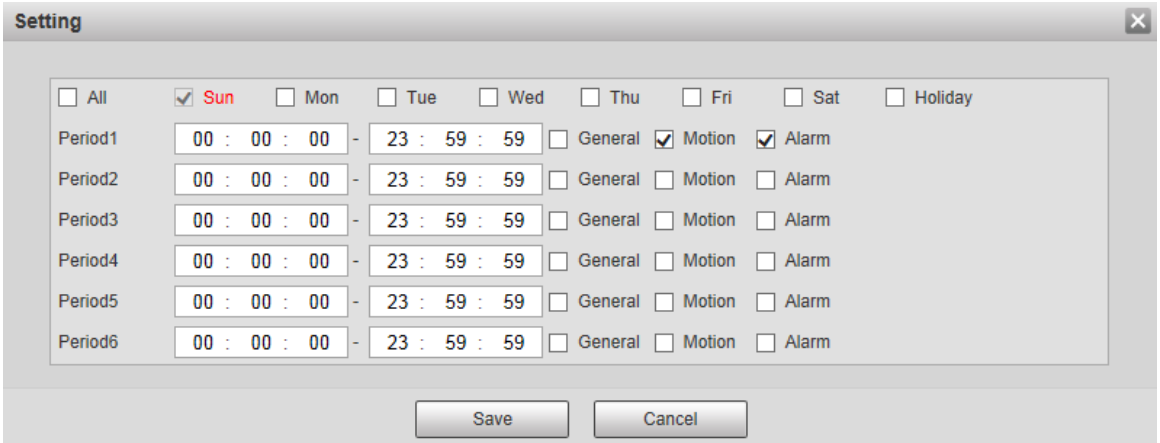
Step 2 Select the camera channel.

Step 3 Select the day for recording from Monday to Sunday. Click **Setting** on the right. The interface is displayed. See Figure 5-137.

- Set the recording period as needed. You can set up to six periods for one day.
- You can select 3 types of recording: **General**, **Motion** and **Alarm**.

To set the time period, you can also press and hold the left mouse button and drag directly on the **Record** interface.

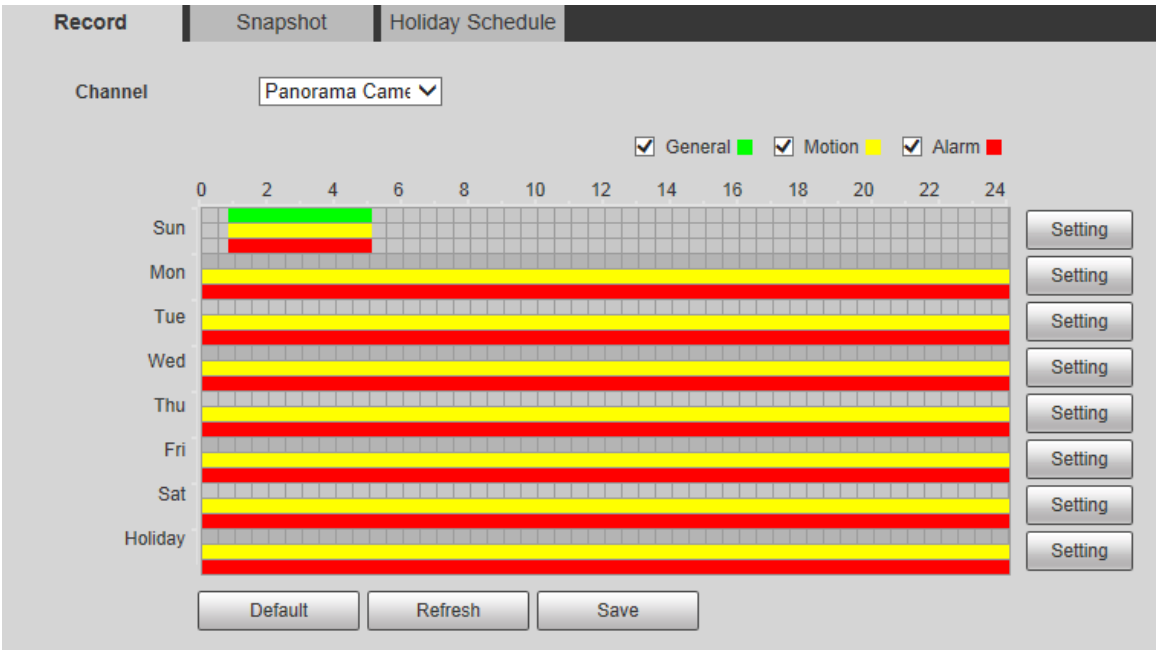
Figure 5-137 Record schedule setting



Step 4 Click **Save** to return to the **Record** interface. See Figure 5-138.
At this time, the colored chart visually displays the set time period.

- Green: Represents general recording.
- Yellow: Represents motion detection recording.
- Red: Represents the alarm recording.

Figure 5-138 Recording schedule setting completed



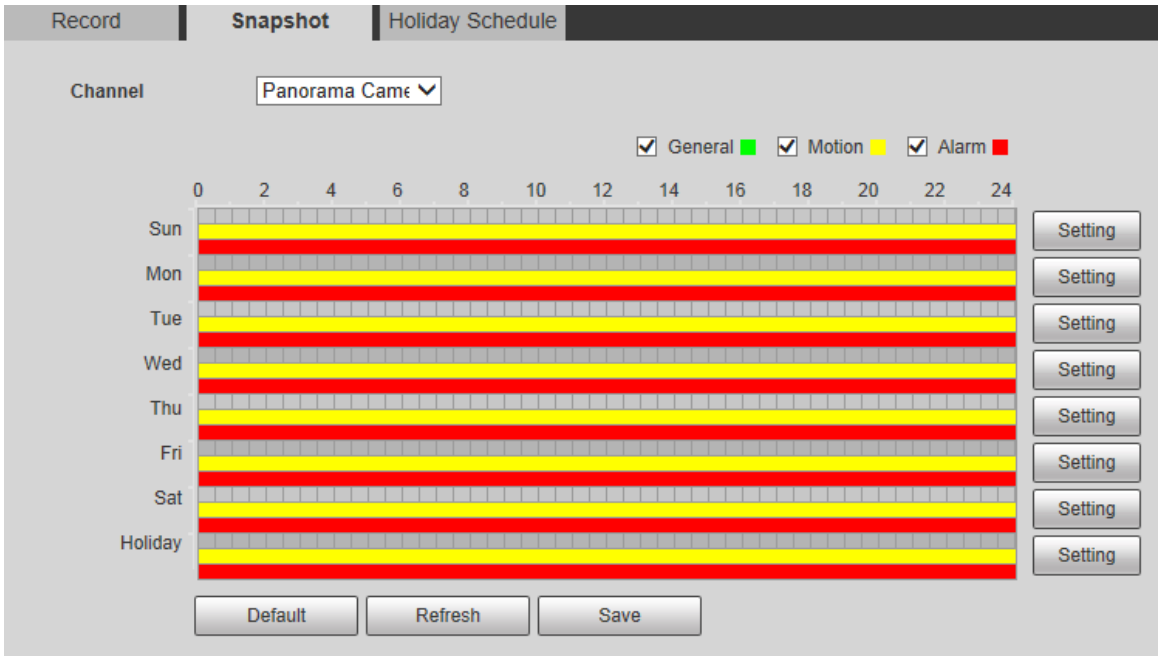
Step 5 On the **Record** interface, click **Save**, and the **Save Succeeded!** prompt will be displayed, which means the recording schedule has been set.

5.5.1.2 Snapshot

Step 1 Select **Setting > Storage > Schedule > Snapshot**.

The **Snapshot** interface is displayed. See Figure 5-139.

Figure 5-139 Snapshot interface (Panorama Camera/Detail Camera)



Step 2 Select the camera channel.

Step 3 For the snapshot schedule settings, refer to Step 2 to Step 3 in "5.5.1.1 Record."

Step 4 Click **Save**, and the "**Save Succeeded!"** prompt will be displayed, which means the snapshot schedule has been set.

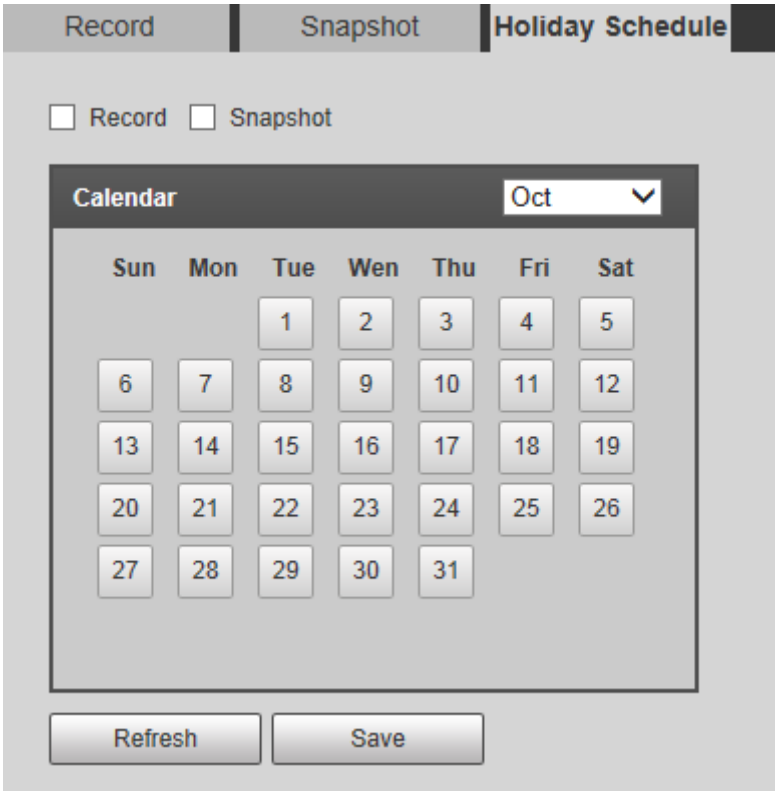
5.5.1.3 Holiday Schedule

You can set specific dates as holidays.

Step 1 Select **Setting > Storage > Schedule > Holiday Schedule**.

The **Holiday Schedule** interface is displayed. See Figure 5-140.

Figure 5-140 Holiday schedule



Step 2 Select the date to be set as a holiday, and the selected date will be displayed in yellow.

Step 3 Select **Record** or **Snapshot**, and then click **Save**. The "**Save Succeeded!**" prompt will be displayed.

Step 4 On the **Record** or **Snapshot** interface, click **Setting** to the right of **Holiday**. The setting method is the same as that of Monday to Sunday.

Step 5 Set the time period of one day for the **Holiday**, and the recording or snapshot will be taken according to the holiday time period.

5.5.2 Destination

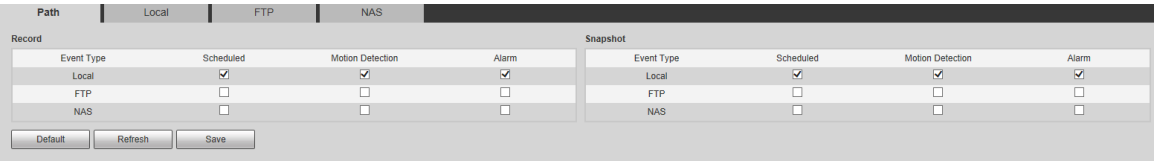
5.5.2.1 Path

Configure the storage path of recordings and snapshots of the Camera, and select local SD card, FTP and NAS for storage. Store recordings and snapshots according to the event type, respectively corresponding to **General**, **Motion** and **Alarm** in the schedule, and then select the corresponding type of recordings or snapshots for storage.

Step 1 Select **Setting > Storage > Destination > Path**.

The **Path** interface is displayed. See Figure 5-141.

Figure 5-141 Path



Step 2 Select the corresponding event type and storage method as needed. For details, refer to Table 5-42.

Table 5-42 Path parameter description

Parameter	Description
Event Type	Select **Scheduled**, **Motion Detection** or **Alarm**.
Local	Save recordings or snapshots to the SD card.
FTP	Save recordings or snapshots to the FTP server.
NAS	Save recordings or snapshots to NAS server.

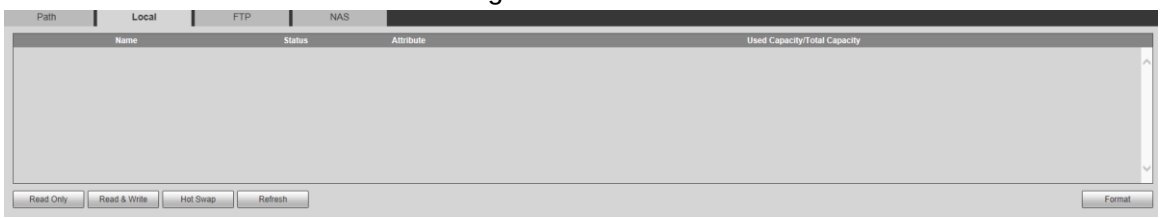
Step 3 Click **Save**.

5.5.2.2 Local

Display the SD card information. You can set it as read only or read & write; you can also hot swap or refresh it.

Select **Setting > Storage > Destination > Local**, and the **Local** interface is displayed. See Figure 5-142.

Figure 5-142 Local



- Click **Read Only**, and the SD card is set to read only.
- Click **Read & Write**, and the SD card is set to read & write.
- Click **Hot Swap** to pull out the SD card.
- Click **Refresh** to start formatting the SD card.

After the SD card is formatted, the data will be cleared. Think twice before performing the operation.

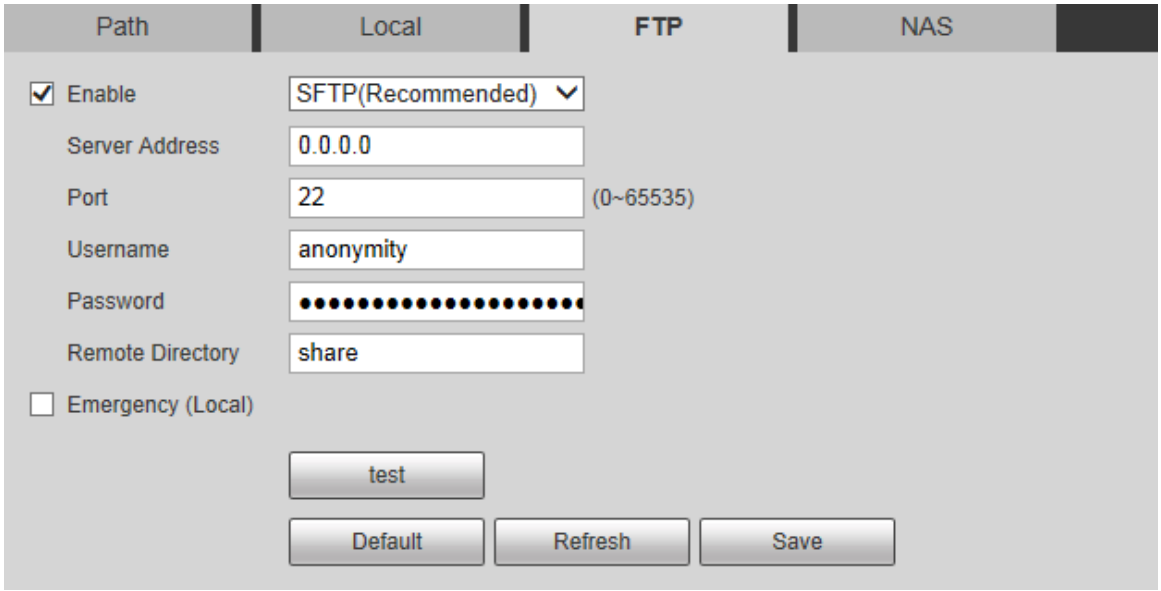
5.5.2.3 FTP

FTP function can be enabled only when it is selected as a destination path. When the network is disconnected or does not work, you can save recordings and snapshots to the SD card by using **Emergency (Local)** function.

Step 1 Select **Setting > Storage > Destination > FTP**.

The **FTP** interface is displayed. See Figure 5-143.

Figure 5-143 FTP setting



Step 2 Select **Enable**, and then the FTP function is enabled.

- There might be risks if the FTP function is enabled. Think twice before enabling the function.
- **SFTP** is recommended to ensure network security.

Step 3 Configure parameters as needed. For parameter description. See Table 5-43.

Table 5-43 FTP parameter description

Parameter	Description
Server Address	The IP address of the FTP server.
Port	The port number of the FTP server.
Username	The user name to log in to the FTP server.
Password	The password to log in to the FTP server.
Remote Directory	The destination path on the FTP server.
Emergency (Local)	If you enable the function, in case of FTP storage exception, the recordings and snapshots will be stored on the local SD card.

Step 4 Click **test** to verify the username and password, and test whether FTP is connected to the Camera.

Step 5 Click **Save**.

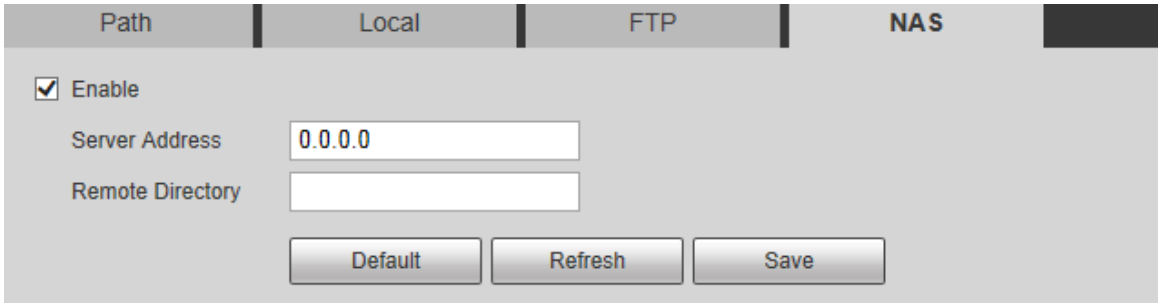
5.5.2.4 NAS

This function can be enabled only when NAS is selected as a destination path. Select NAS storage to store files on the NAS server.

Step 1 Select **Setting > Storage > Destination > NAS**.

The **NAS** interface is displayed. See Figure 5-144.

Figure 5-144 NAS setting



Step 2 Configure parameters as needed. For parameter description, see Table 5-44.

Table 5-44 NAS parameter description

Parameter	Description
Enable	Select the check box to enable NAS function.
Server Address	The IP address of the NAS server.
Remote Directory	The destination path on the NAS server.

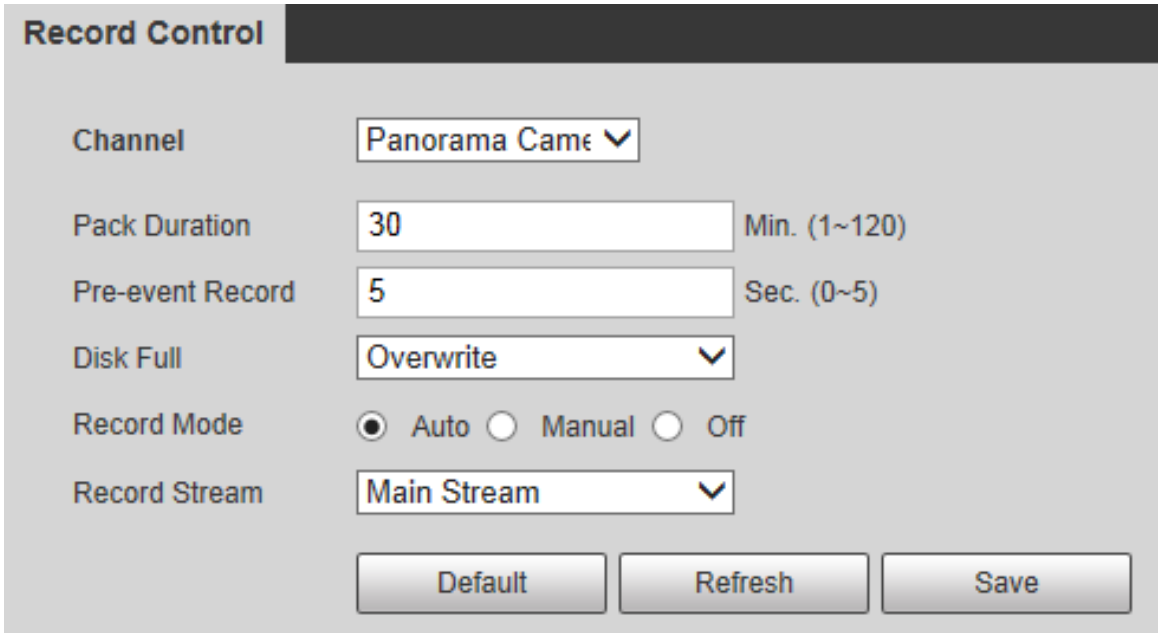
Step 3 Click **Save**.

5.5.3 Record Control

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

The **Record Control** interface is displayed, see Figure 5-145.

Figure 5-145 Record control interface (Panorama Camera/Detail Camera)



Step 2 Select the camera channel.

Step 3 Configure parameters as needed. For parameter description, see Table 5-45.

Table 5-45 Record control parameter description

Parameter	Description
Pack Duration	Set the pack duration of each recording file. It is 30 minutes by default.
Pre-event Record	Set the pre-recording time. For example, if you enter 5, when an alarm is triggered, the system reads the recording of the first 5 seconds in memory, and then records it into a file. If alarm recording or motion detection recording occurs, if there is no recording before, the video data within N seconds before the recording is started will also be recorded into the video file.
Disk Full	You can select **Stop** or **Overwrite**. ● **Stop**: The system stops recording when the disk is full. ● **Overwrite**: The system overwrites the oldest files and keep recording when the disk is full. The data will be overwritten if the disk is full. Back up the file in time as needed.
Record Mode	You can select **Auto**, **Manual** or **Off**. Select **Manual** mode to start recording immediately, and select **Auto** mode to record within the schedule.
Record Stream	Select **Main Stream** or **Sub Stream**.

Step 4 Click **Save**.

5.6 System Management

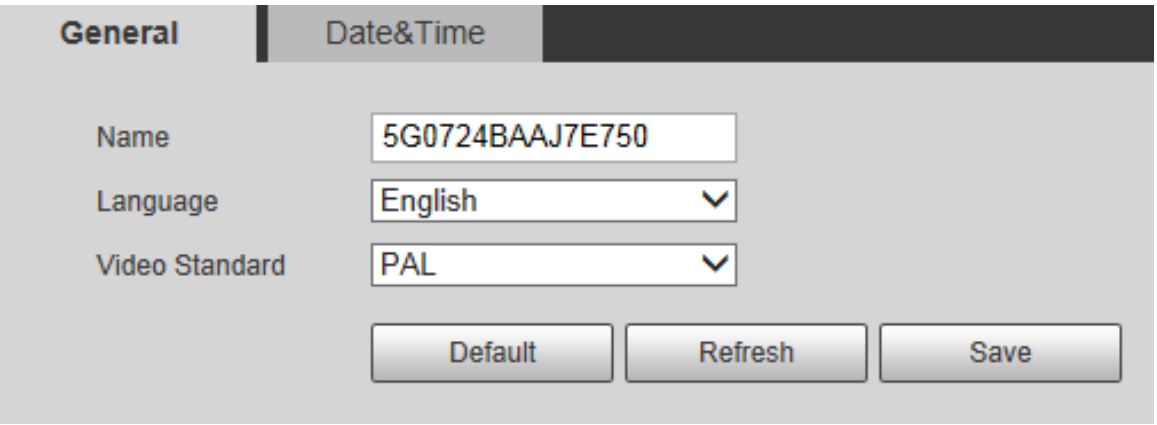
5.6.1 Device Settings

5.6.1.1 General

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

The **General** interface is displayed. See Figure 5-146.

Figure 5-146 General



Step 2 Configure parameters as needed. For parameter description, see Table 5-46.

Table 5-46 General setting parameter description

Parameter	Description
Name	Set the Camera name. Different devices have different names.
Language	Select the language to be displayed.
Video Standard	Video format of display equipment: for example, PAL.

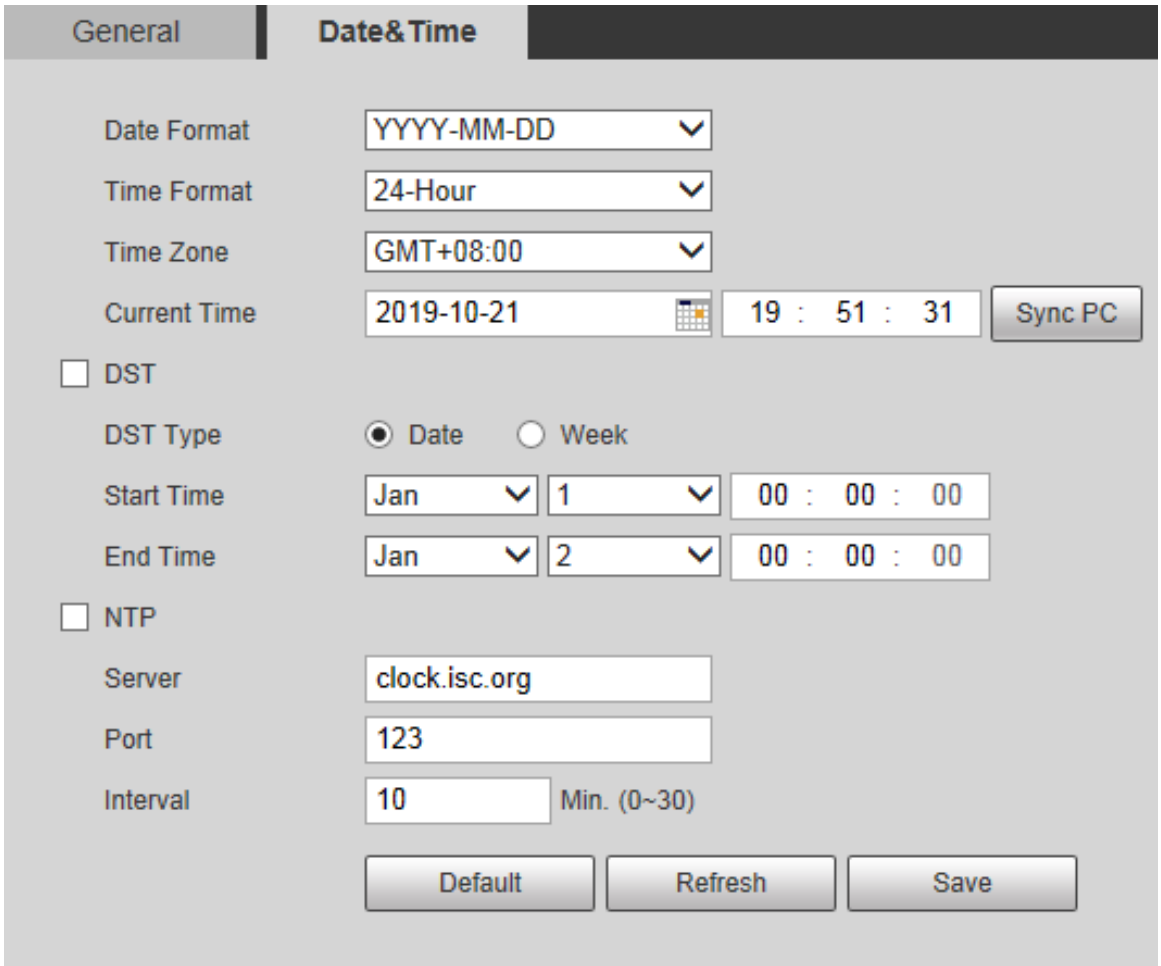
Step 3 Click **Save**.

5.6.1.2 Date&Time

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

The **Date&Time** interface is displayed, see Figure 5-147.

Figure 5-147 Date&Time



Step 2 Configure parameters as needed. See Table 5-47.

Table 5-47 Date&time parameter description

Parameter	Description
Date Format	Select the date format. Three formats are available: **YYYY-MM-DD**, **MM-DD-YYYY** and **DD-MM-YYYY**.
Time Format	Select the time format. Two formats are available: **24-Hour** and **12-Hour**.
Time Zone	Set the local time zone.
Current Time	The current time of the Camera.

Parameter	Description
DST	Set the **Start Time** and **End Time** of DST to the **Date** format or **Week** format.
NTP	Select the NTP check box to enable the network time sync function.
Server	Set the address of the time server. Set the network timing function of NTP server, and the Camera time will be synchronized with the server time.
Port	Set the port number of time server.
Interval	Set the synchronization interval of the Camera and the time server.

Step 3 Click **Save**.

5.6.2 Account

5.6.2.1 Account

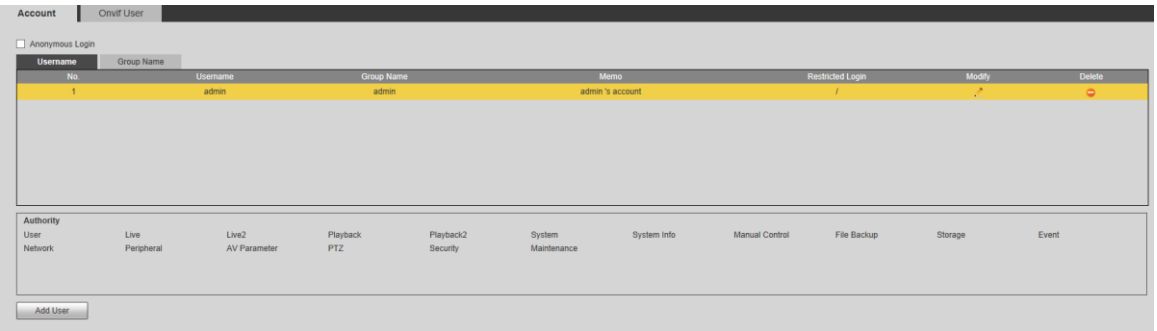
User management is only available for administrator users.

- For **Username** and **Group Name**, the maximum length is 15 characters. Username can only consist of numbers, letters, underlines, dots and @; group name can only consist of numbers, letters and underlines.
- The password should consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special characters (excluding ' " ; : &). The confirming password shall be the same as the new password. Set a high security password according to the prompt of password strength.
- The number of users and groups is 19 and 8 respectively by default.
- User management adopts a two-level method of group and user. Neither group names nor user names can be duplicated, and a user can only belong to one group.
- Users currently logged in cannot modify their own permissions.
- There is a default user **admin** when initializing. The **admin** account is defined as high privileged user.

5.6.2.1.1 Account

Select **Setting > System > Account > Account > Username**, and you can enable anonymous login, add users, delete users, modify user passwords, and perform other operations. For the configuration interface, see Figure 5-148.

Figure 5-148 User management



No permission is available for version information and other buttons except alarm in **Live** interface for the time being.

Anonymous Login

Select the **Anonymous Login** check box, and you can log in to the Camera anonymously without username and password after entering IP. Anonymous users only have preview permission in the permission list. In the anonymous login, click **Logout** to log in to the Camera by using other usernames.

After **Anonymous Login** is enabled, the user can view audio and video data without authentication. Think twice before enabling the function.

Adding Users

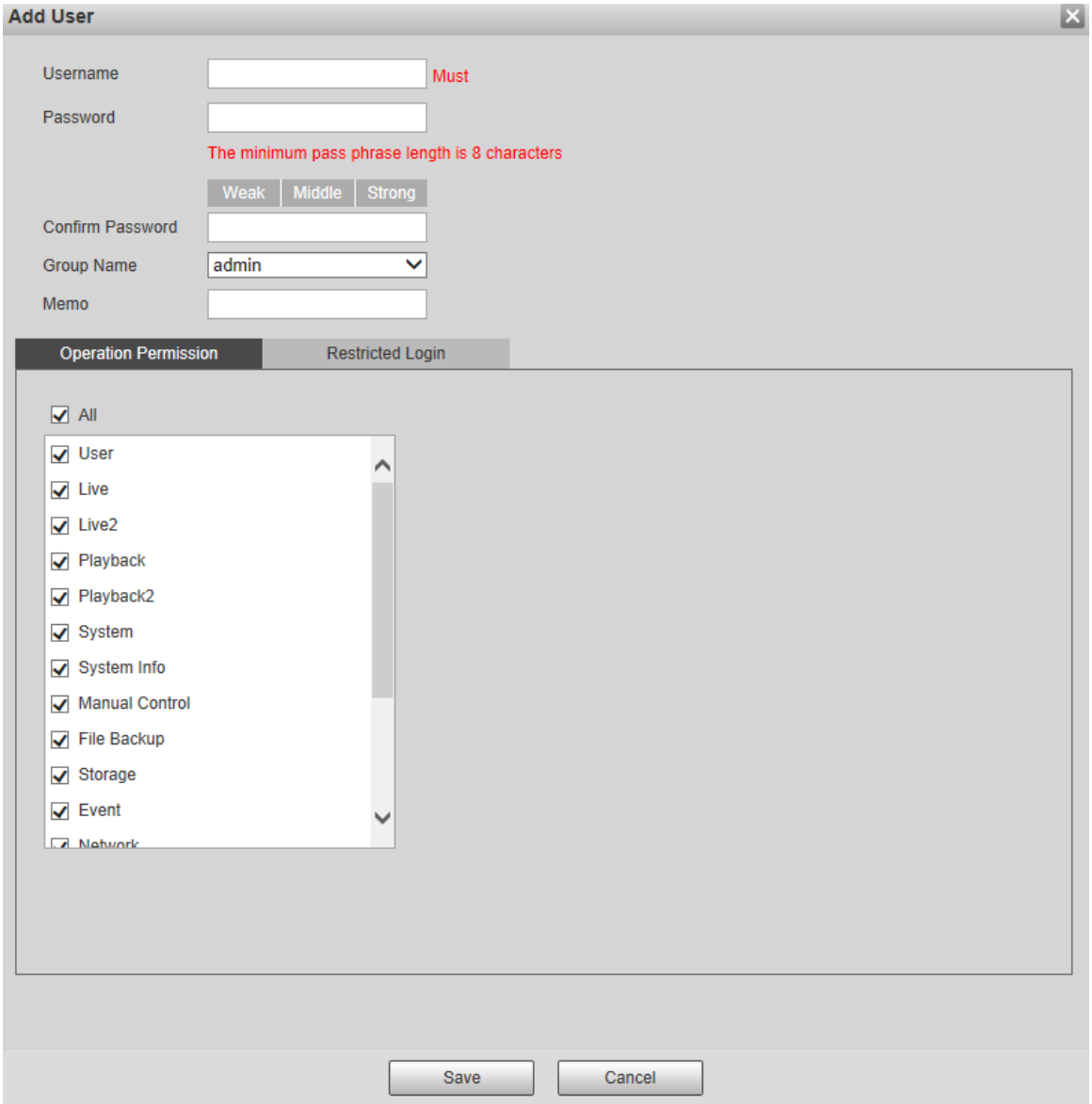
Add users in the group and set permissions.

As the default user with the highest authority, admin cannot be deleted.

Step 1 Click **Add User**.

The **Add User** interface is displayed. See Figure 5-149.

Figure 5-149 Add User

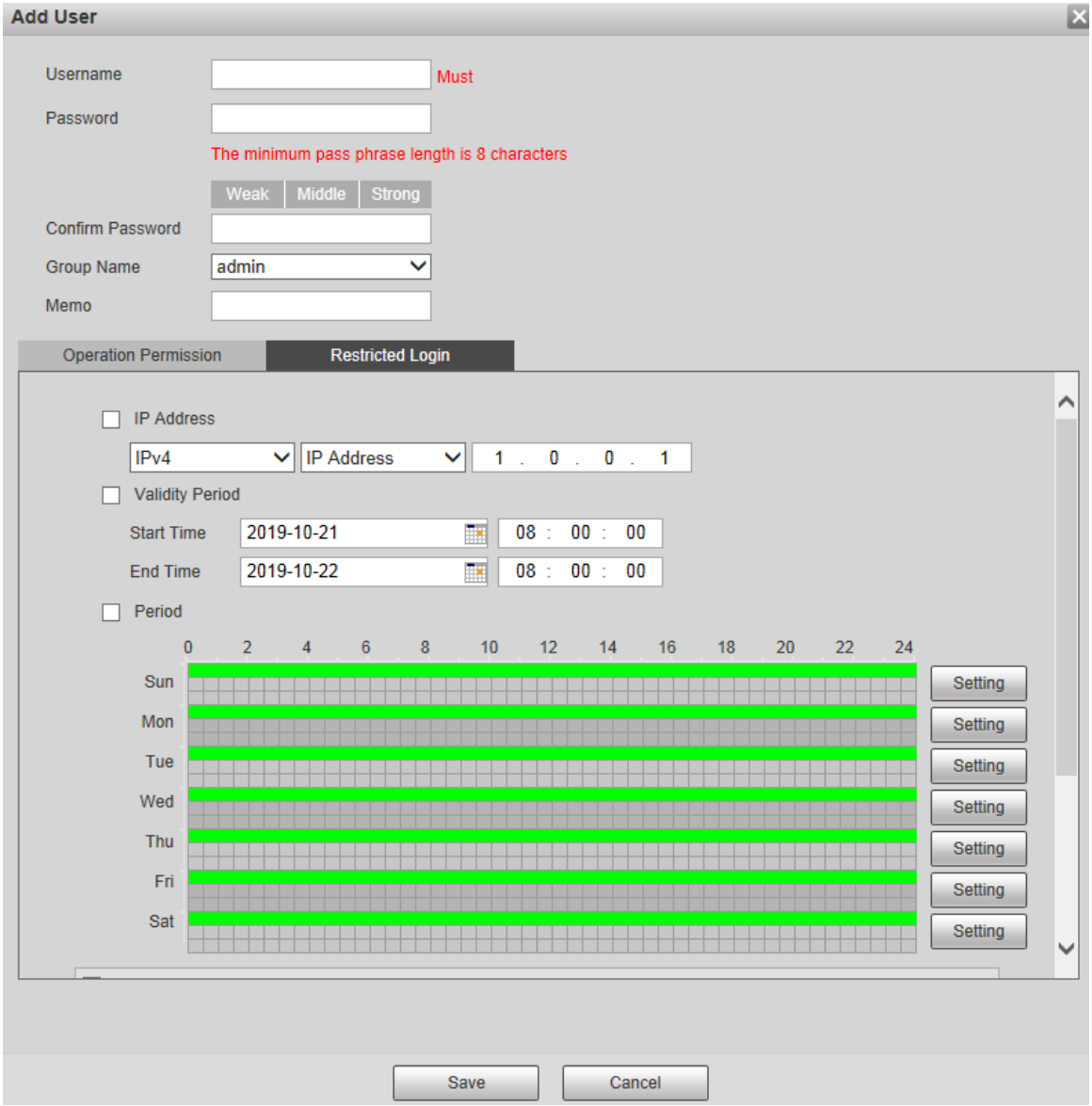


Step 2 Enter **Username** and **Password**, select **Group Name**, and then add **Memo**.

Step 3 Set **Operation Permission** and **Restricted Login**.

- Operation Permission: Click **Operation Permission**, and then select the operation permission of the user as needed.
- Restricted Login: Click **Restricted Login**, and the interface is displayed. See Figure 5-150. You can control login to the Camera by setting the **IP Address**, **Validity Period** and login **Period**.

Figure 5-150 Restricted Login



- Once the group is selected as needed, the user permission can only be a subset of the group, and cannot exceed its permission attributes.
- It is recommended to give less permissions to general users than advanced users.

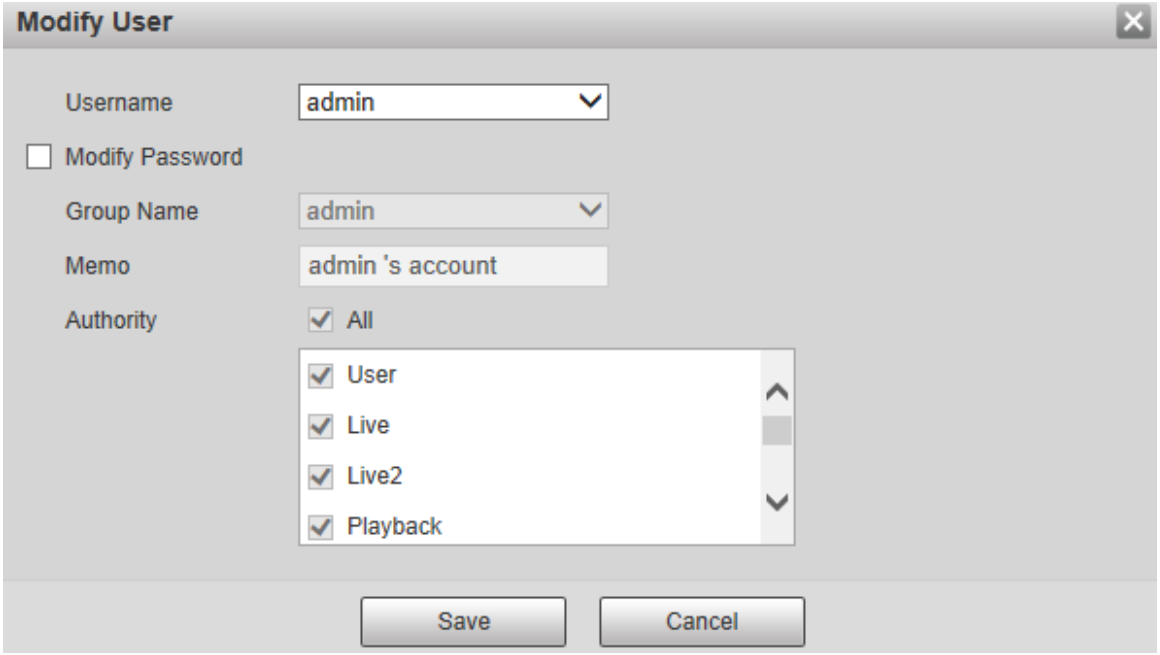
Step 4 Click **Save**.

Modifying Users

Step 1 Click corresponding to the user you want to modify.

The **Modify User** interface is displayed. See Figure 5-151.

Figure 5-151 Modifying User



Step 2 Modify user information as needed.

Step 3 Click **Save**.

Modifying Password

Step 1 Select the **Modify Password** check box.

Step 2 Enter old password, new password and confirm password.

Step 3 Click **Save**.

Deleting Users

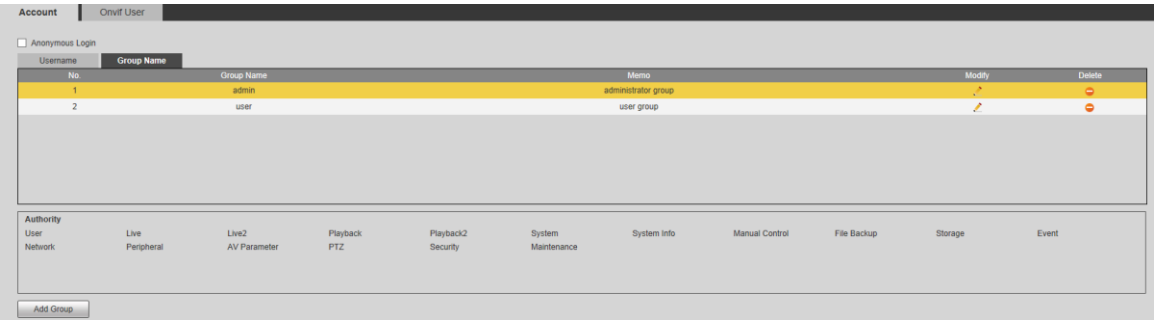
Click corresponding to the user to be deleted, and the user can be deleted.

Users/user groups cannot be recovered after deletion. Think twice before performing the operation.

5.6.2.1.2 Group Name

Select **Setting > System > Account > Account > Group Name**, and you can add groups, delete groups, modify group passwords, and perform other operations. For the interface, see Figure 5-152.

Figure 5-152 User group setting



Adding Groups

For specific operations, refer to "5.6.2.1.1 Account."

Modifying Groups

For specific operations, refer to "5.6.2.1.1 Account."

Deleting Groups

For specific operations, refer to "5.6.2.1.1 Account."

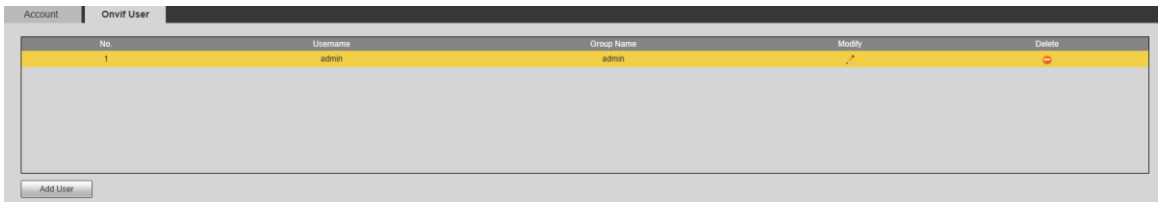
5.6.2.2 Onvif User

On the web interface, you can add ONVIF users, or modify existing users.

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

The **ONVIF User** interface is displayed, see Figure 5-153.

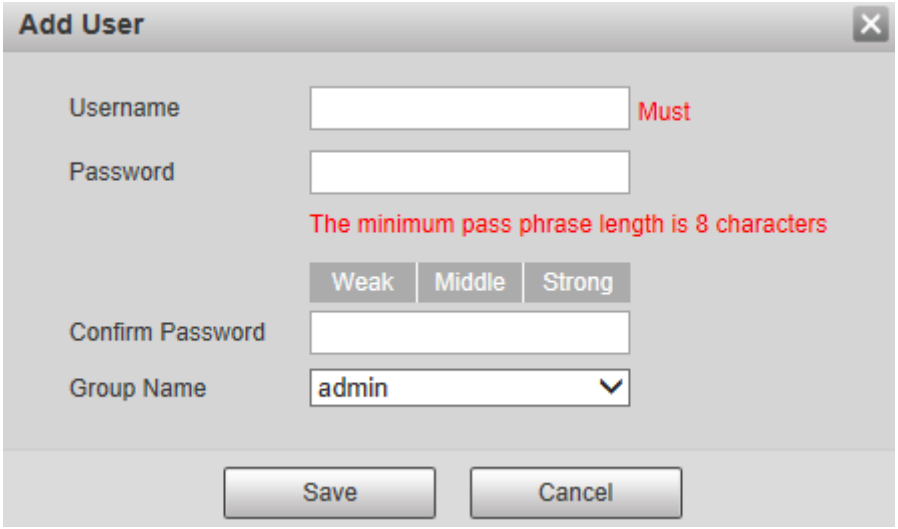
Figure 5-153 Onvif user



Step 2 Click **Add User**.

The **Add User** interface is displayed. See Figure 5-154.

Figure 5-154 Adding user



Step 3 Set the user name, password, and then select the group name.

Step 4 Click **Save**.

You can click to modify user information.

5.6.3 Security Management

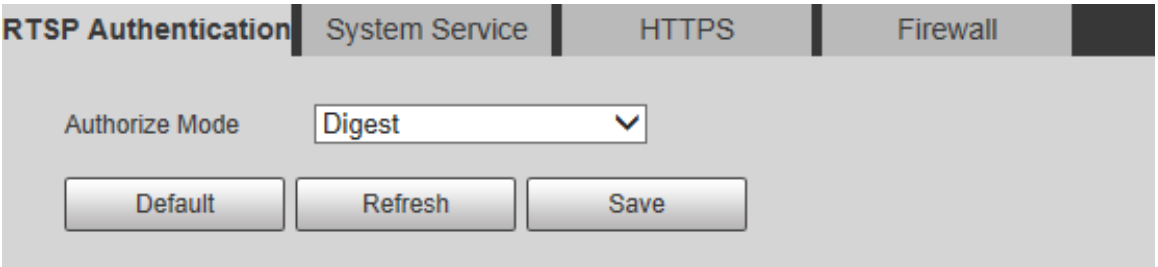
5.6.3.1 RTSP Authentification

Set the authentication method for media stream.

Step 1 Select **Setting > System > Safety > RTSP Authentification**.

The **RSTP Authentication** interface is displayed. See Figure 5-155.

Figure 5-155 RTSP authentification



Step 2 Select the **Authorize Mode**. You can select from **Digest**, **Basic** and **None**. It is **Digest** by default.

- Click **Default**, and **Digest** is selected automatically.
- Select **None**, and "**Non-authentication mode may have risk. Are you sure to enable it?**" prompt will be displayed. Think twice before selecting the mode.
- Select **Basic** mode, and "**Basic authentication mode may have risk. Are you sure to enable it?**" prompt will be displayed. Think twice before selecting the mode.

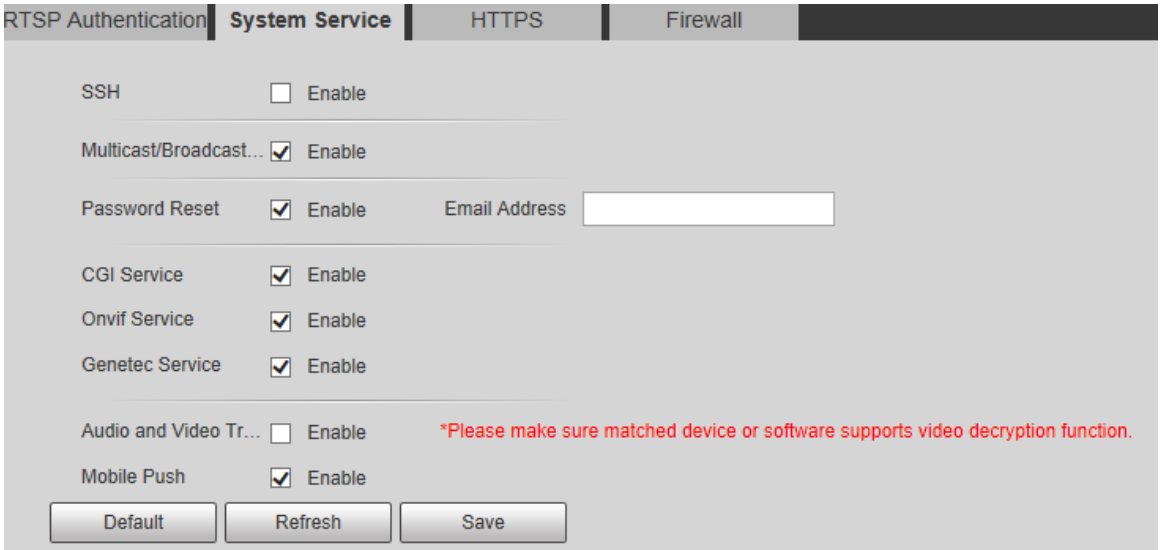
5.6.3.2 System Service

You can configure system service to ensure system security.

Step 1 Select **Setting > System > Safety > System Service**.

The **System Service** interface is displayed. See Figure 5-156.

Figure 5-156 System service



Step 2 Configure system service parameters. For the detailed description, see Table 5-48.

Table 5-48 System service parameter description

Function	Description
SSH	You can enable SSH authentication to perform safety management. The function is disabled by default. It is recommended to disable SSH. If this function is enabled, there might be security risks.
Multicast/Broadcast Search	Enable this function, and when multiple users are viewing the monitoring screen simultaneously through network, they can find the Camera through multicast/broadcast protocol. It is recommended to disable the multicast/broadcast search function. If this function is enabled, there might be security risks.
Password Reset	You can enable **Password Reset** to perform security management. The function is enabled by default. If the function is disabled, you can only reset the password after restoring the Camera to factory defaults through pressing the Reset button on the device.
CGI Service	You can access the Camera through this protocol. The function is enabled by default. It is recommended to disable the function. If this function is enabled, there might be security risks.
Onvif Service	You can access the Camera through this protocol. The function is

Function	Description
	enabled by default. It is recommended to disable the function. If this function is enable, there might be security risks.
Audio and Video Transmission Encryption	Enable this function to encrypt the stream transmitted through the private protocol. ● Make sure that the matched devices or software support video decryption function. ● It is recommended to enable the function. If the function is disabled, there might be risk of data leakage.
Mobile Push	Push the alarm snapshot triggered by the Camera to the mobile phone. The function is enabled by default. It is recommended to disabled the function. If this function is enabled, there might be security risks.

Step 3 Click **Save**.

5.6.3.3 HTTPS

It is recommended to enable HTTPS service. If the service is disabled, there might be risk of data leakage.

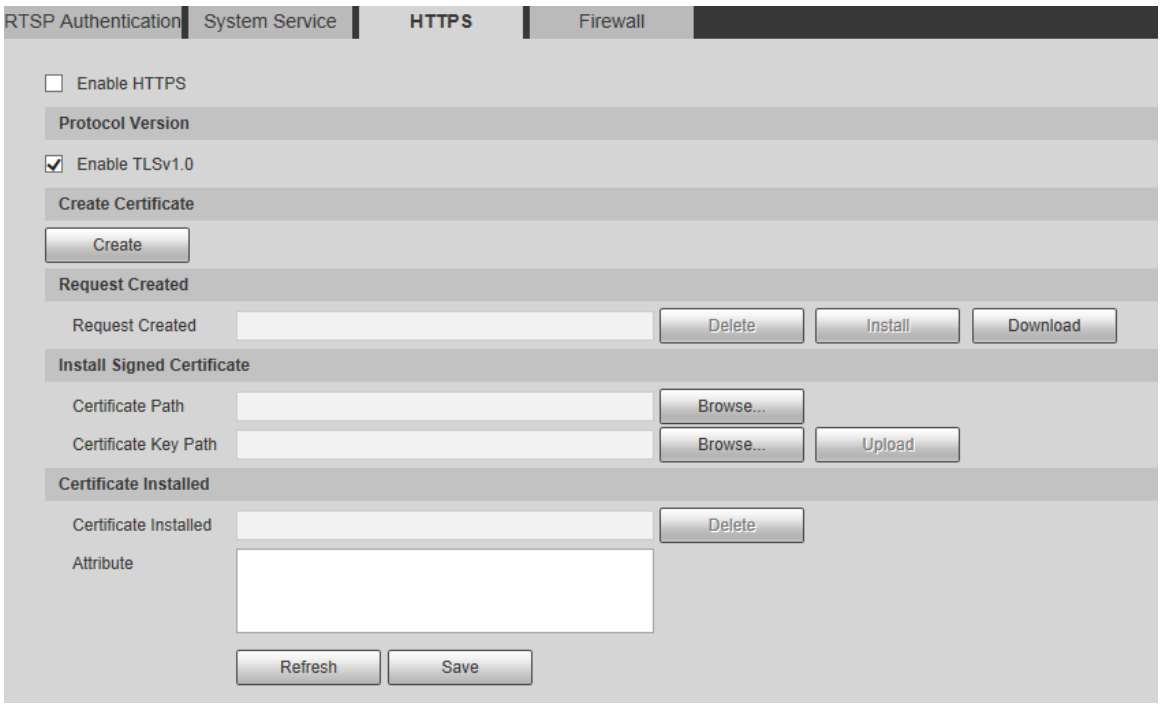
Create certificate or upload signed certificate, and then you can log in through HTTPS with your PC. HTTPS can ensure data security, and protect user information and device security with reliable and stable technology.

Step 1 Create certificate or upload the signed certificate.

- If you select **Create Certificate,** refer to the following steps.

1) Select **Setting > System > Security > HTTPS**.
   The **HTTPS** interface is displayed, see Figure 5-157.

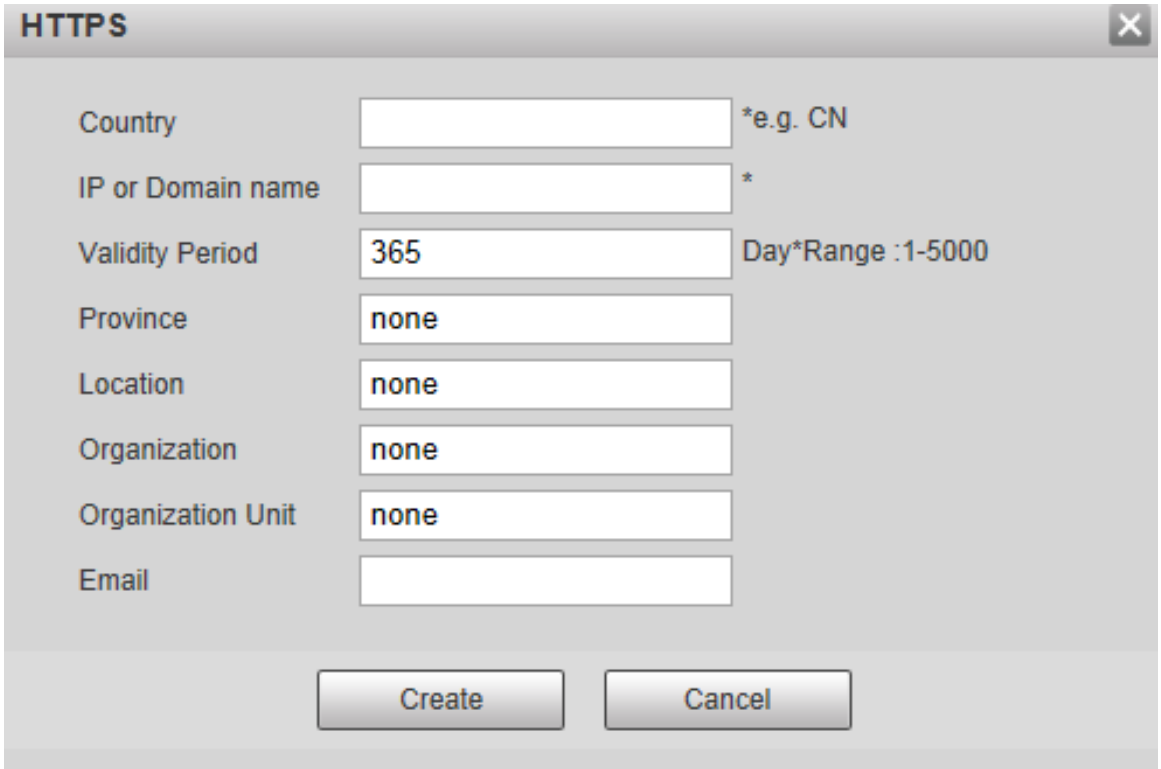
Figure 5-157 HTTPS (1)



2) Click **Create**.

The **HTTPS** dialog box is displayed, see Figure 5-158.

Figure 5-158 HTTPS (2)

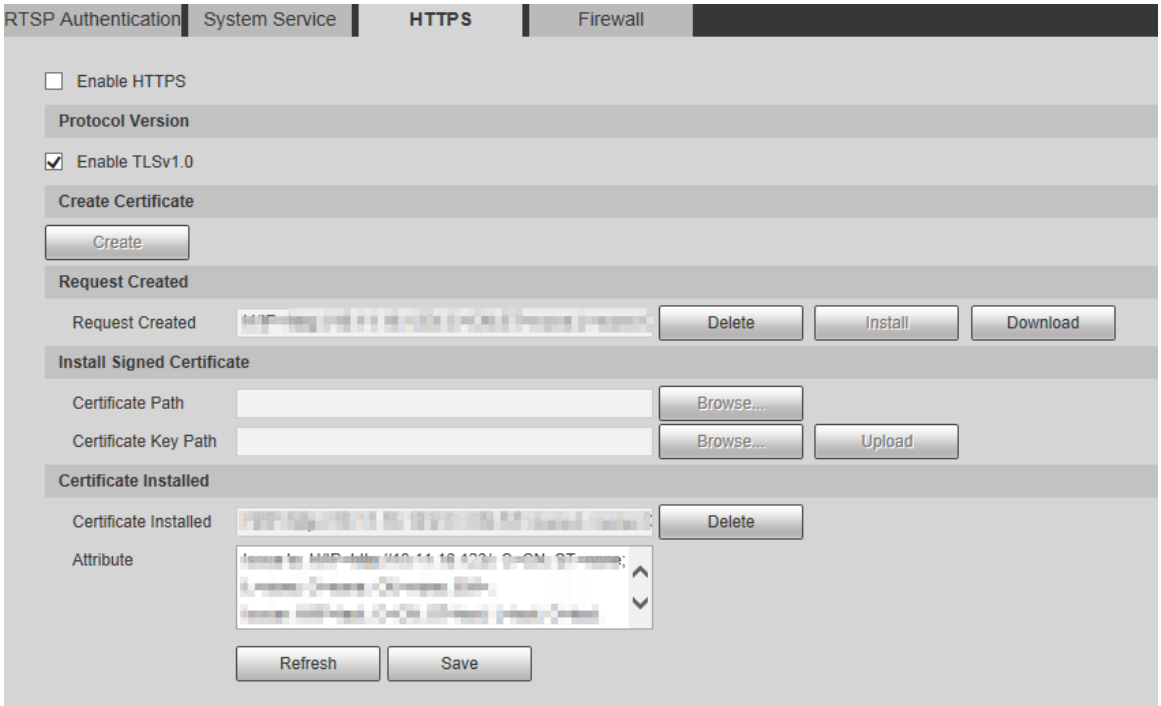


3) Enter the required information, and then click **Create**.

The entered **IP or Domain name** must be the same as the IP or domain name of the Camera.

4) Click **Install** to install the certificate on the Camera. See Figure 5-159.

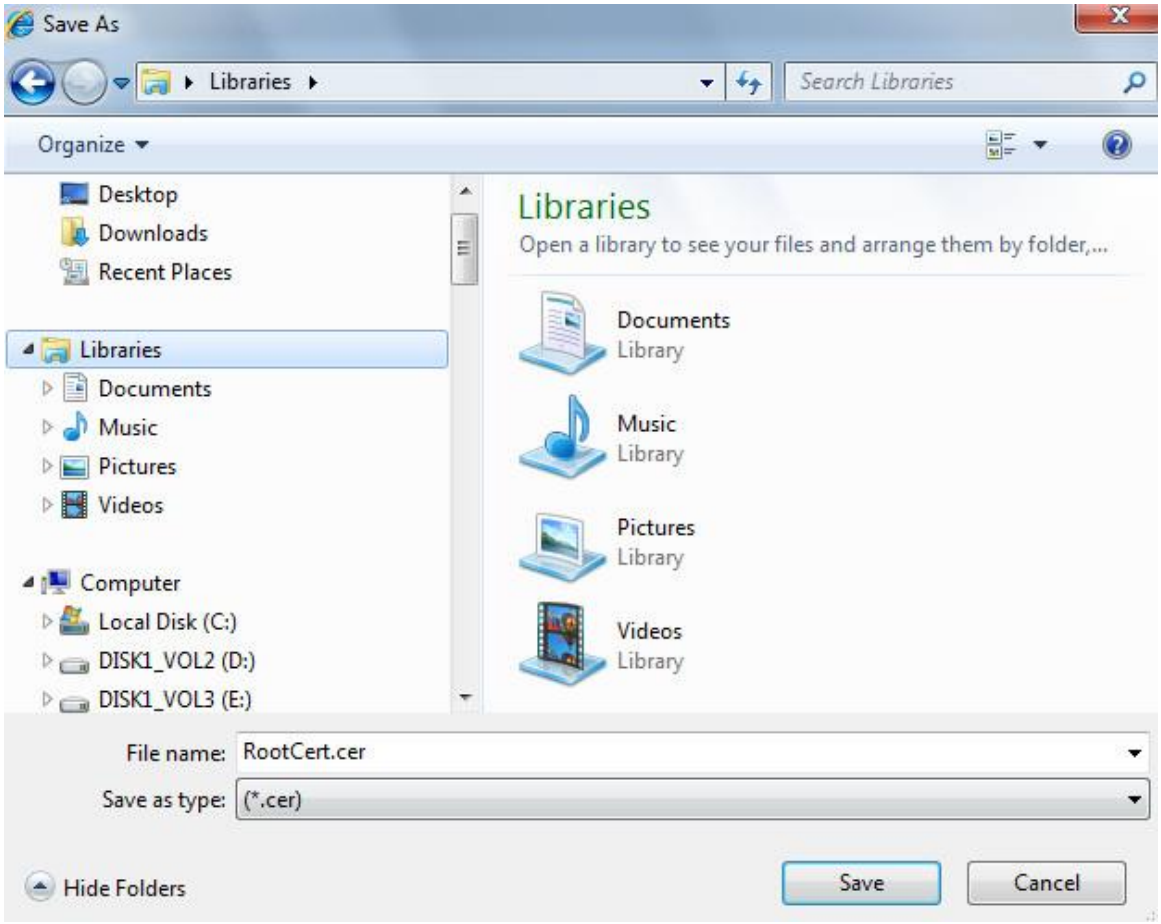
Figure 5-159 Certificate installation



5) Click **Download** to download root certificate.

The **Save as** dialog box is displayed, see Figure 5-160.

Figure 5-160 Downloading root certificate

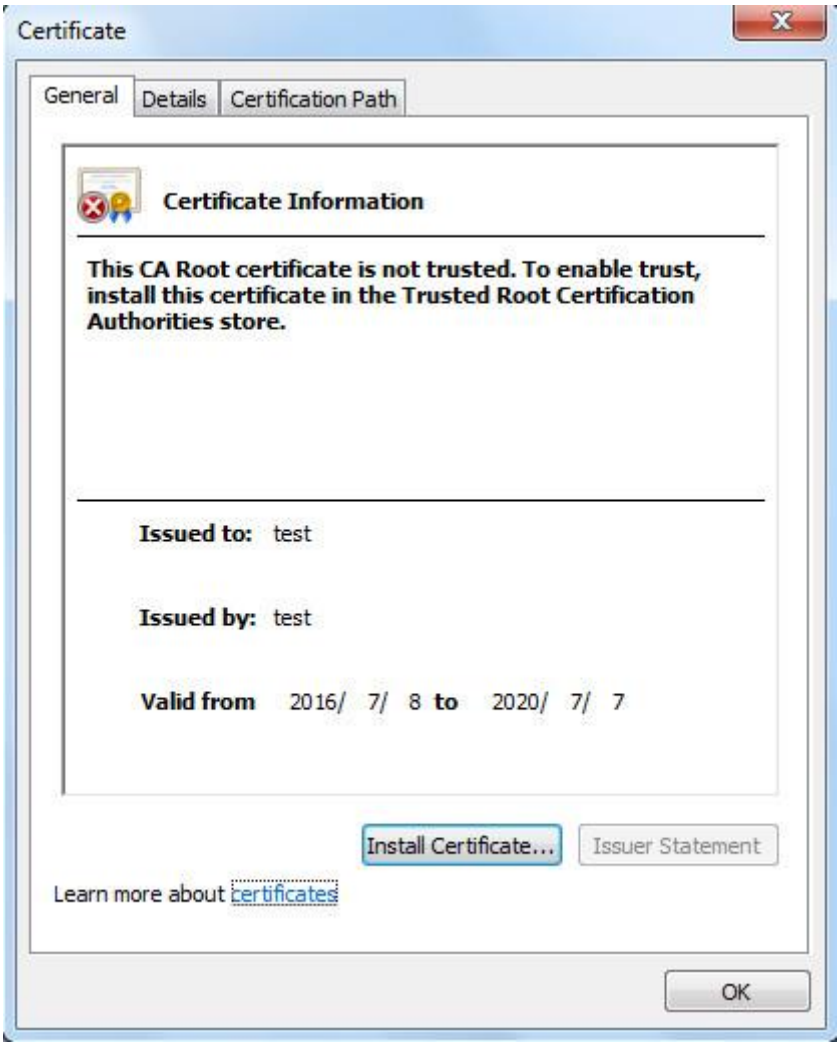


6) Select storage path, and then click **Save**.

7) Double-click the **RootCert.cer** button.

The **Certificate** interface is displayed, see Figure 5-161.

Figure 5-161 Certificate information



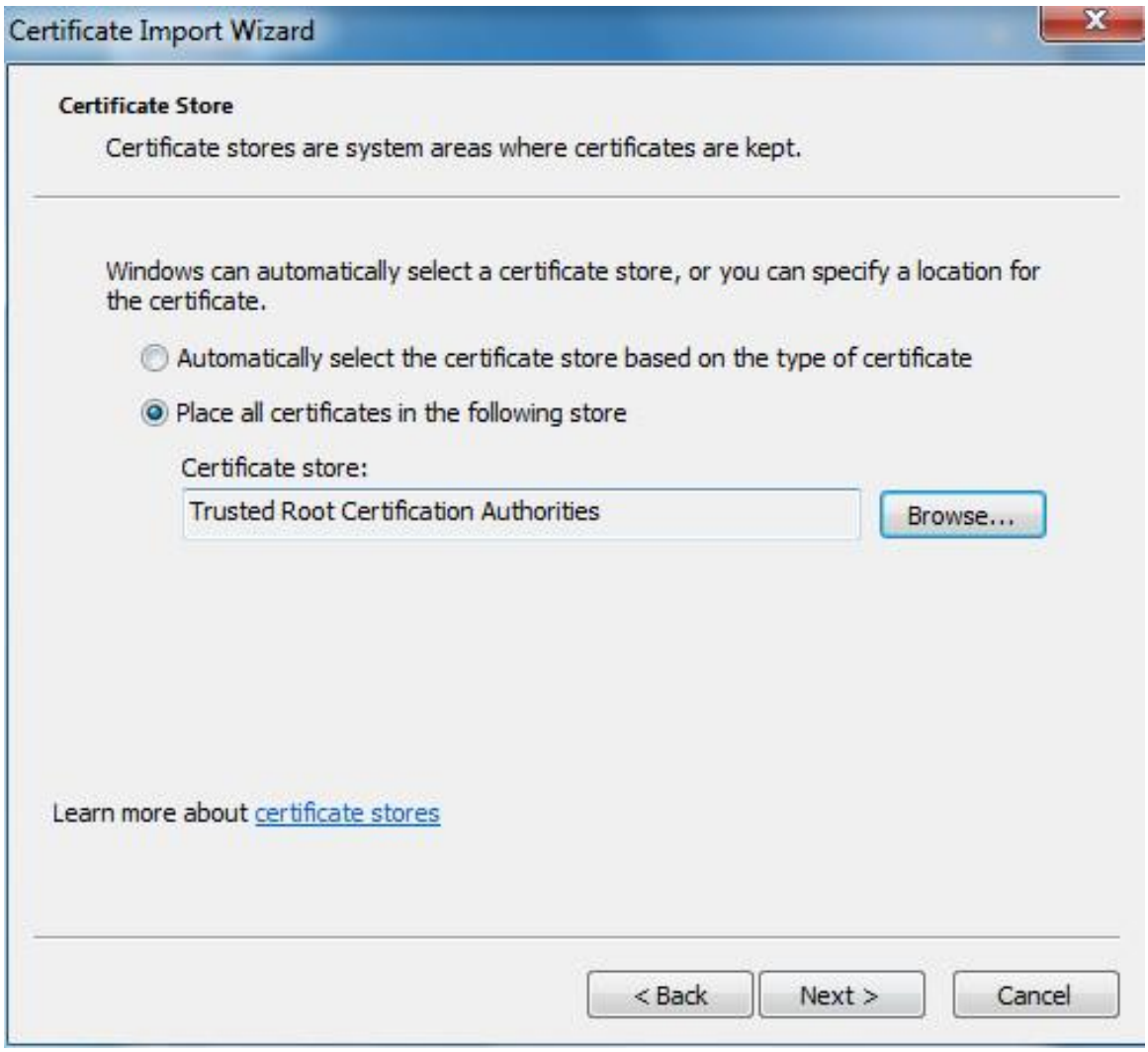
8) Click **Install Certificate**.

The **Certificate Import Wizard** interface is displayed, see Figure 5-162.

Figure 5-162 Certificate import wizard

9) Click **Next.**
Select **Trusted Root Certification Authorities**, see Figure 5-163.

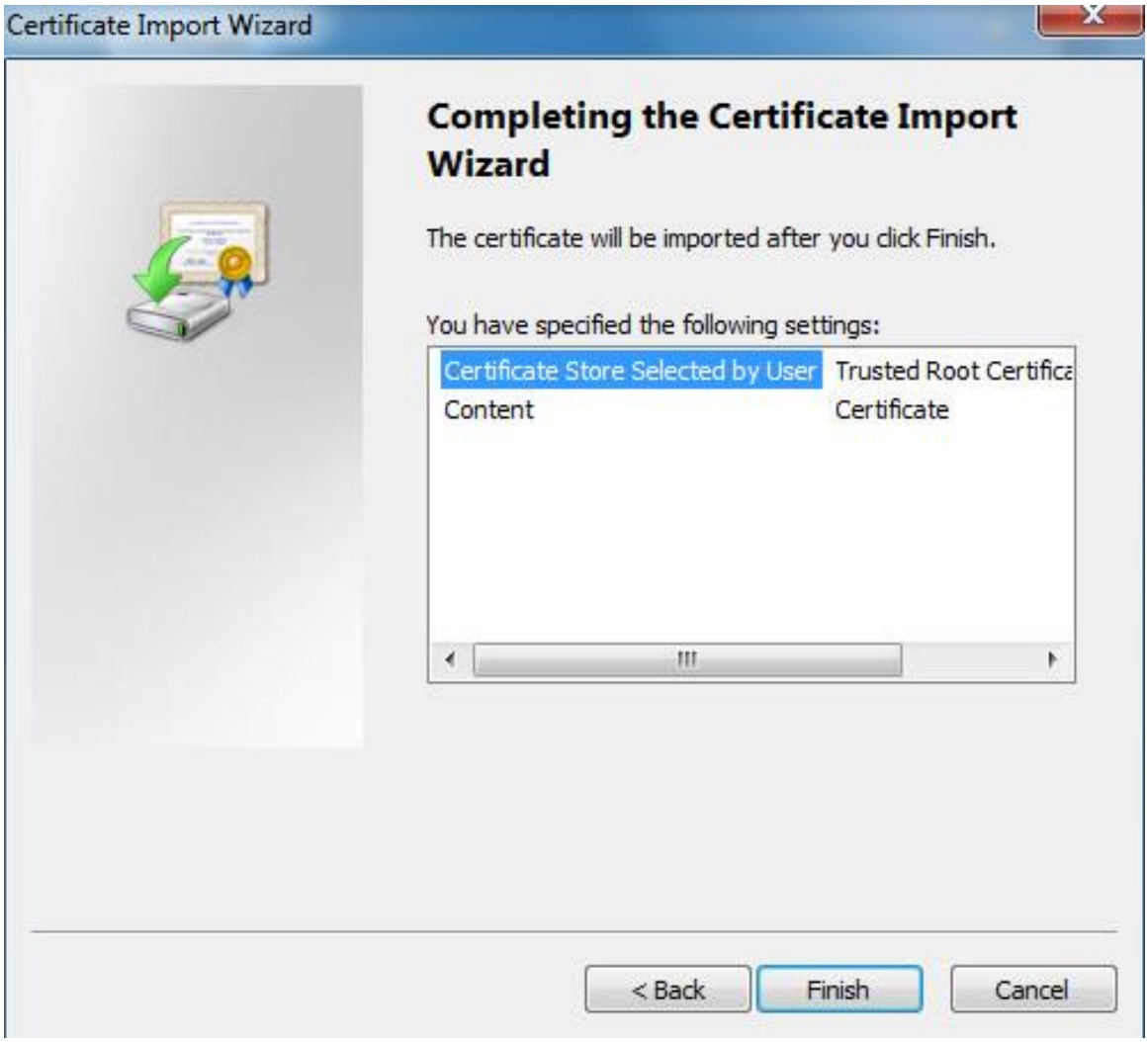
Figure 5-163 Certificate storage area



10) Click **Next.**

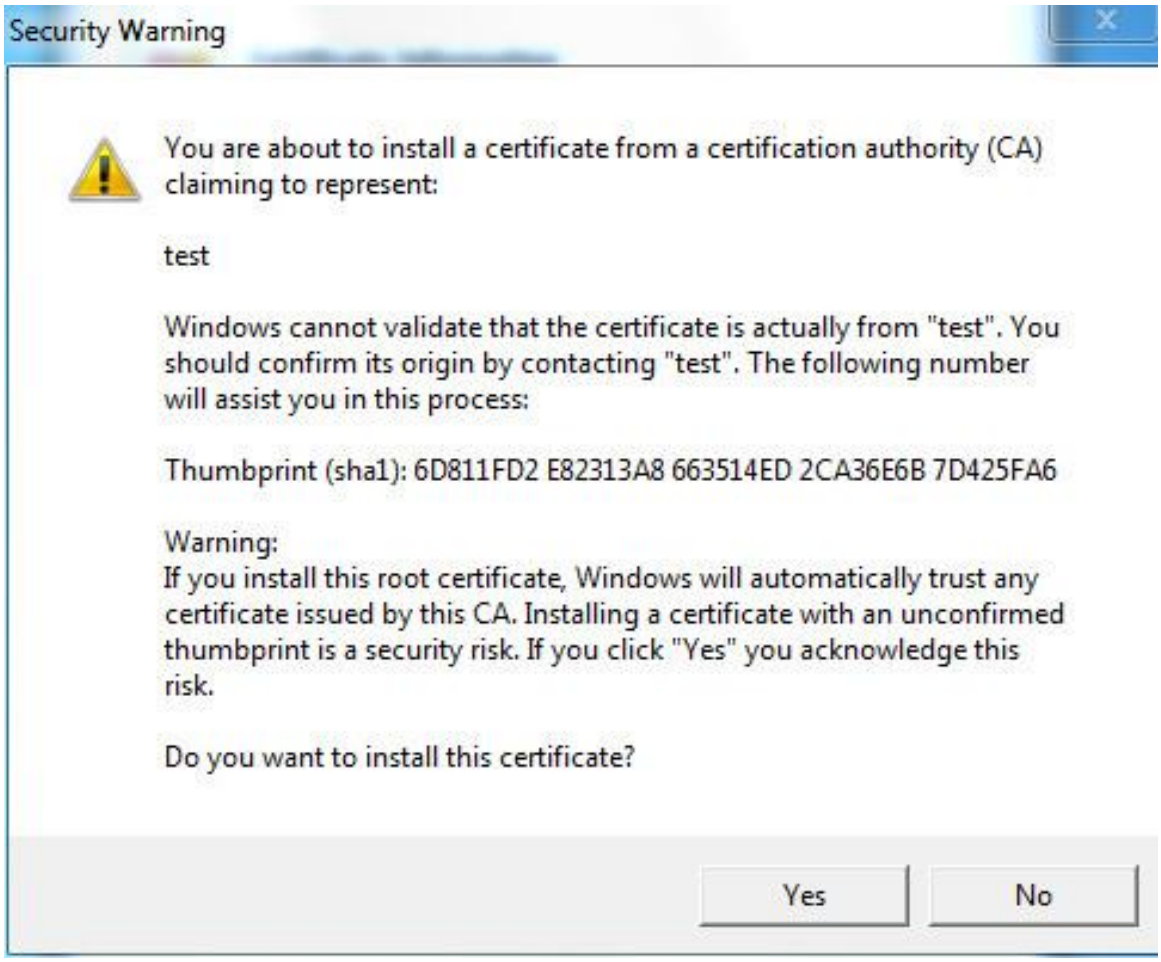
The **Completing the Certificate Import Wizard** interface is displayed, see Figure 5-164.

Figure 5-164 Completing certificate import wizard



11) Click **Finish**.
The **Security Warning** dialog box is displayed, see Figure 5-165.

Figure 5-165 Security warning



12) Click **Yes**.

The import was successful dialog box is displayed. Click **OK**. See Figure 5-166.

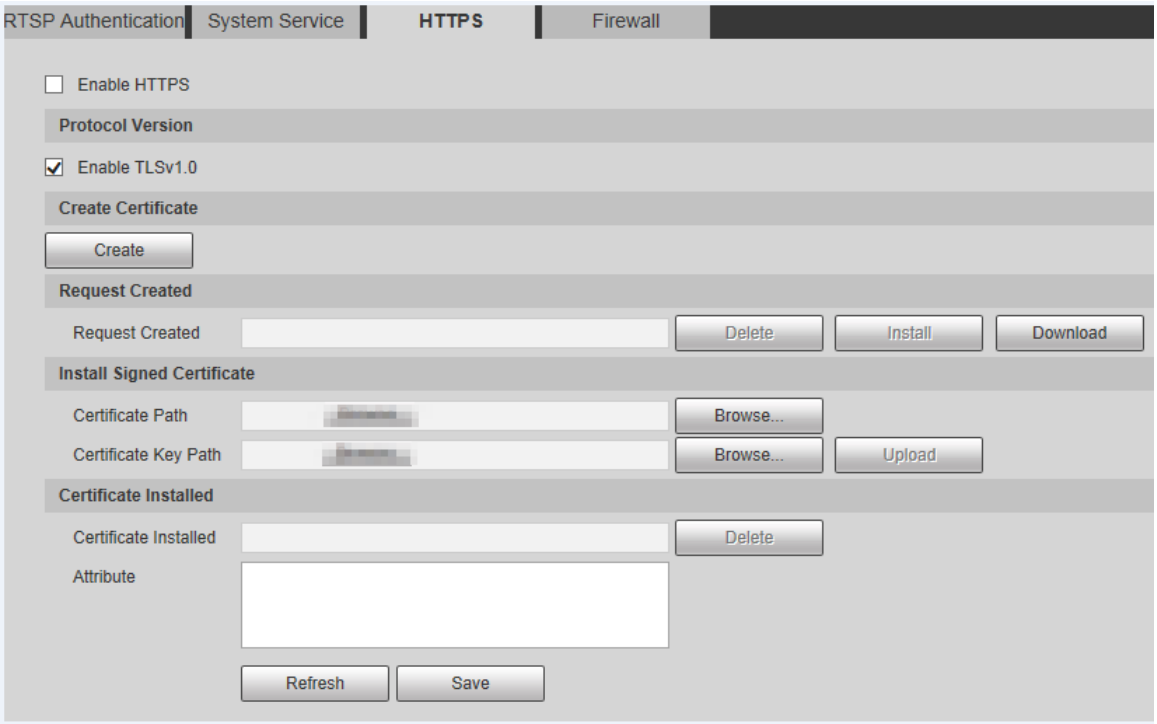
Figure 5-166 Import success

- If you select **Install Signed Certificate**, refer to the following steps.

1) Select **Setting > System > Security > HTTPS**.

The **HTTPS** interface is displayed, see Figure 5-167.

Figure 5-167 Installing signed certificate



2) Click **Browse** to upload the signed certificate and certificate key, and then click **Upload**.

3) To install the root certificate, refer to Step 5) to 12) in *Create Certificate*.

Step 2 Select **Enable HTTPS** and click **Save**.

The **Reboot** interface is displayed, and the configuration takes effect after reboot. See Figure 5-168.

Figure 5-168 Reboot

Enter https://xx.xx.xx.xx in the browser to open the login interface. If no certificate is installed, a certificate error prompt will be displayed.

- If HTTPS is enabled, you cannot access the Camera through HTTP. The system will switch to HTTPS if you access the Camera through HTTP.
- The deletion of created and installed certificates cannot be restored. Think twice before deleting them.

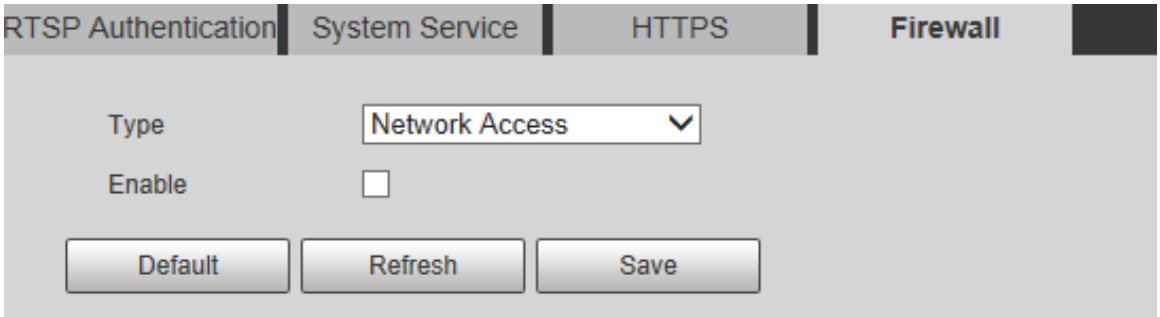
5.6.3.4 Firewall

Set a firewall for the Camera to prevent network attacks after the Camera is connected to the network.

Step 1 Select **Setting > System > Security > Firewall**.

The **Firewall** interface is displayed. See Figure 5-169.

Figure 5-169 Firewall



Step 2 Select the type of network attack that the firewall resists as needed. You can select **Network Access**, **PING Prohibited**, or **Prevent Semi-join**.

Step 3 Select **Enable**, and then the **Firewall** function is enabled.

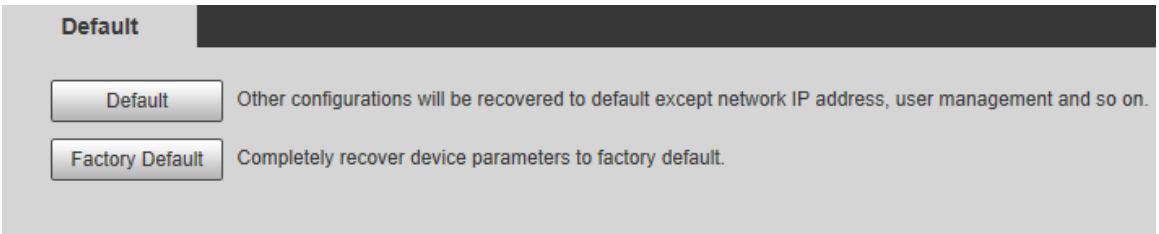
Step 4 Click **Save**.

5.6.4 Default

All information except IP address and user management will be restored to defaults. Think twice before performing the operation.

Step 1 Select **Setting > System > Default**, and click **Default** to restore the Camera. The configuration interface is displayed. See Figure 5-170.

Figure 5-170 Default interface



Step 2 Select the recovery mode as needed.

- Default: All information except IP address and user management will be restored to defaults.
- Factory Default: The function is equivalent to the Reset button of the Camera. All configuration information of the Camera can be restored to the factory defaults,

and the IP address can also be restored to the original IP address. After clicking **Factory Default**, you need to enter the password of admin user on the interface displayed. The Camera can be restored to factory defaults only after the system confirms that the password is correct.

Only admin account can use this function.

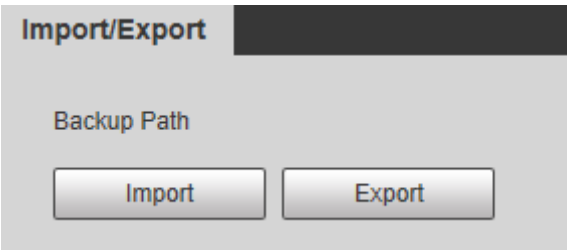
When the Camera is restored to factory defaults, all information except the data in the external storage media will be erased. Delete data in external storage media by formatting and other methods.

5.6.5 Import/Export

When multiple devices share the same configuration methods, they can be quickly configured by importing and exporting configuration files.

Step 1 On the web interface of one device, select **Setting > System > Import/Export**.
The **Import/Export** interface is displayed. See Figure 5-171.

Figure 5-171 Import/Export



Step 2 Click **Export** to export the configuration file (.backup file) to the local storage path.

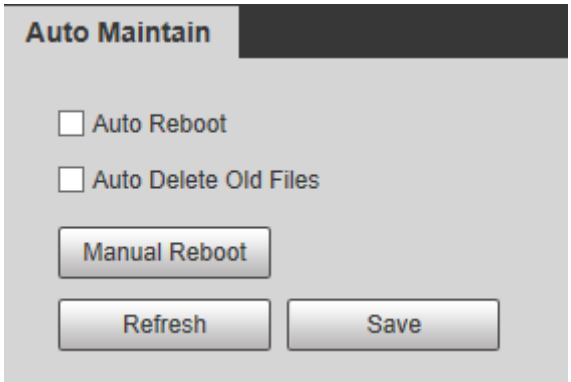
Step 3 Click **Import** on the **Import/Export** interface of the Camera to be configured to import the configuration file, and the Camera will complete the configurations.

5.6.6 Auto Maintain

You can select **Auto Reboot** or **Auto Delete Old Files**. If you select **Auto Reboot**, the frequency and time need to be set. If you select **Auto Delete Old Files**, you need to set the time period for the files to be deleted.

Step 1 Select **Setting > System > Auto Maintain**.
The **Auto Maintain** interface is displayed. See Figure 5-172.

Figure 5-172 Auto Maintain



Step 2 Configure parameters as needed. For parameter description, see Table 5-49.

Table 5-49 Auto maintain parameter description

Parameter	Description
Auto Reboot	Select the check box to set the Camera reboot time.
Auto Delete Old Files	Select the check box to customize the time period for the files to be deleted. The value ranges from 1 day to 31 days. When you enable the function, **The deleted files cannot be recovered. Are you sure to enable this function now?** prompt will be displayed. Think twice before enabling the function.

Step 3 Click **Save** and the configuration will take effect.

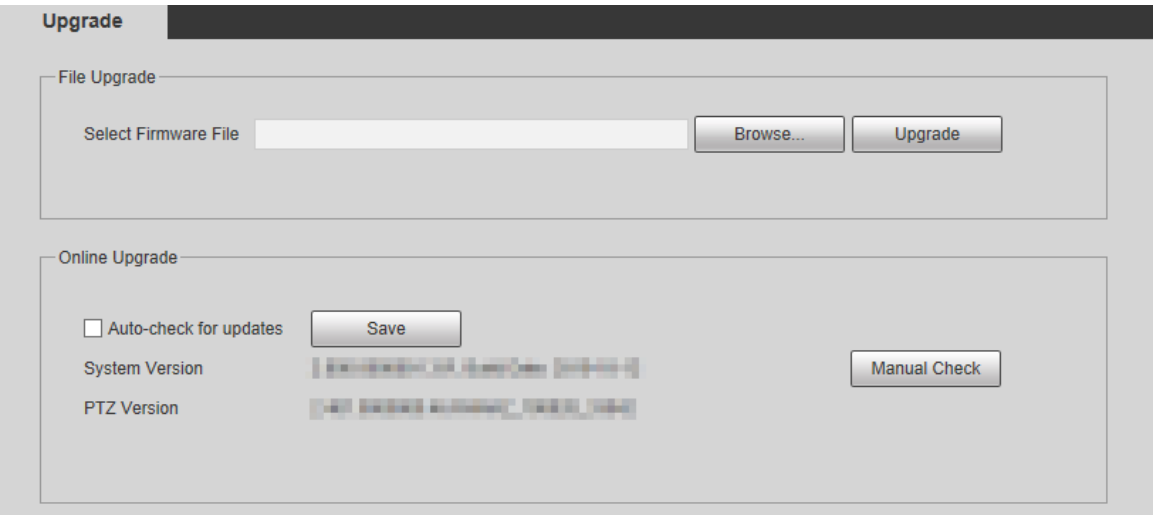
5.6.7 Upgrade

Upgrade the system to improve device function and stability.

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

Select **Setting > System > Upgrade**. The configuration interface is displayed, see Figure 5-173.

Figure 5-173 System upgrade



- **File Upgrade**: Click **Browse**, select the upgrade file, and then click **Upgrade** to upgrade the firmware. The upgrade file is in the format of *.bin.
- **Online Upgrade**
  1) Select Auto-check for updates.
     This will enable the system to check for upgrade once a day automatically, and there will be system notice if any upgrade is available.
     We need to collect the data such as IP address, device name, firmware version, and device serial number to perform auto-check. The collected information is only used to verify the legitimacy of the Camera, and push the upgrade notification.
  2) Click **Save**.

Click **Manual Check**, and you can check for upgrade manually.

5.7 Information

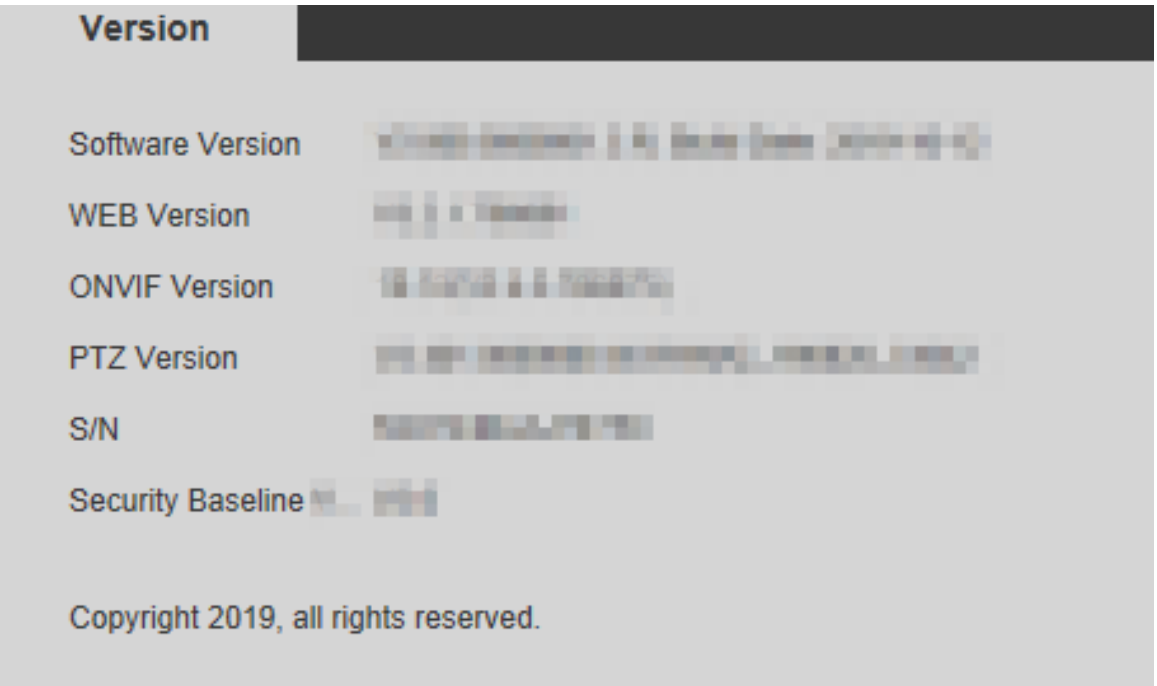
You can view information such as version, online users, log, and life statistics.

5.7.1 Version

You can view information such as system hardware features, software version and release date.

Select **Setting > Information > Version > Version**, and then you can see the version information of current web interface. See Figure 5-174.

Figure 5-174 Version



5.7.2 Log

5.7.2.1 Log

Select **Setting > Information > Log > Log**, and then you can see the operation information of the Camera, and some system information. See Figure 5-175. For parameter description, see Table 5-50.

Figure 5-175 Log

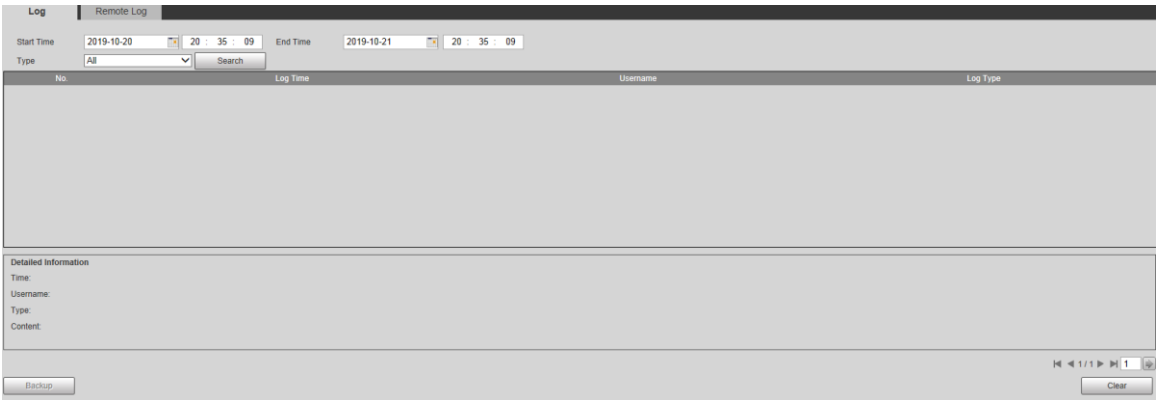


Table 5-50 Log parameter description

Parameter	Description
Start Time	The start time of the log to be searched (January 1, 2000 is the earliest time).
End Time	The end time of the log to be searched (December 31, 2037 is the latest time).
Type	The log type includes **All**, **System**, **Setting**, **Data**, **Event**, **Record**, **Account**, **Clear Log**, and **Safety**.
Search	Set the start time and end time of the log to be searched, select the log type, and then click **Search**. The searched log number and time period will be displayed.
Detailed Information	Click a log to display the details.
Clear	Clear all logs of the Camera, and classified clearing is not supported.
Backup	Back up the searched system logs to the PC currently used by the user. The data will be overwritten if the disk is full. Back up the data in time as needed.

Here are the meanings of different log types:

- **System**: Includes program launch, force exit, exit, program reboot, device shutdown/restart, system reboot, and system upgrade.
- **Setting**: Includes saving configurations, and deleting configuration files.
- **Data**: Includes disk type configurations, data erasing, hot swap, FTP state, and recording mode.
- **Event** (records events such as video detection, smart plan, alarm, and abnormality): Includes starting events, and ending events.
- **Record**: Includes file access, file access error, and file search.
- **Account** (records modification of user management, login, and logout): Includes login, logout, adding user, deleting user, modifying user, adding group, deleting group, and modifying group.
- **Safety**: Includes security-related information.
- **Clear Log**: Clearing logs.

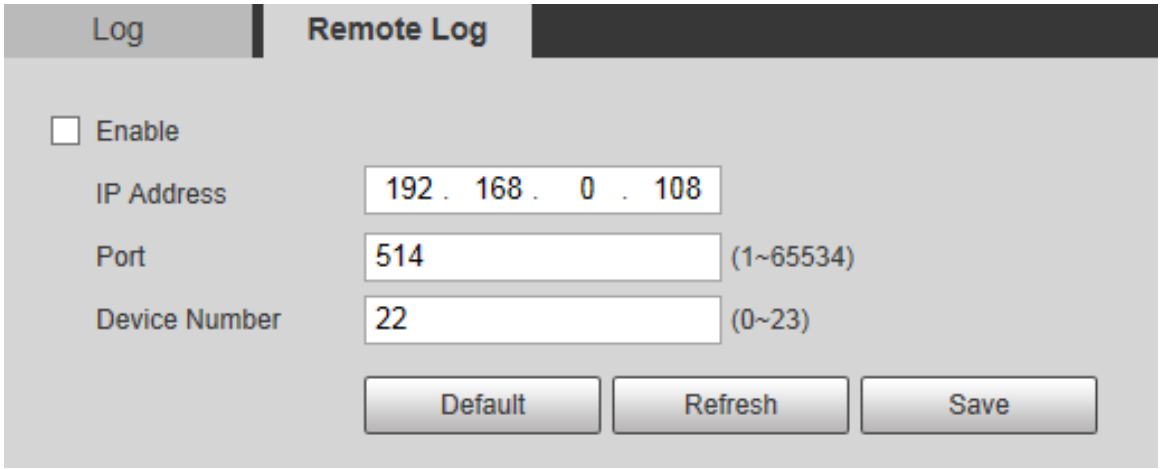
5.7.2.2 Remote Log

Upload the Camera operations to the log server.

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

The **Remote Log** interface is displayed. See Figure 5-176.

Figure 5-176 Remote Log



Step 2 Select **Enable**, and then remote log function is enabled.

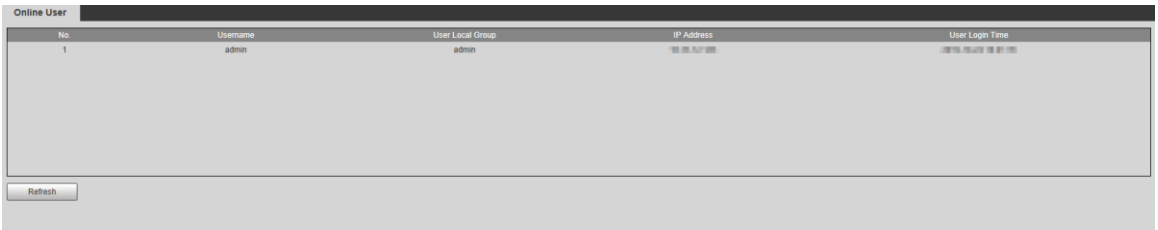
Step 3 Set the **IP Address**, **Port** and **Device Number** of the log server.

Click **Default** to restore the Camera to the default settings.

5.7.3 Online User

Select **Setting > Information > Online User > Online User**, and the **Online User** interface is displayed. See Figure 5-177.

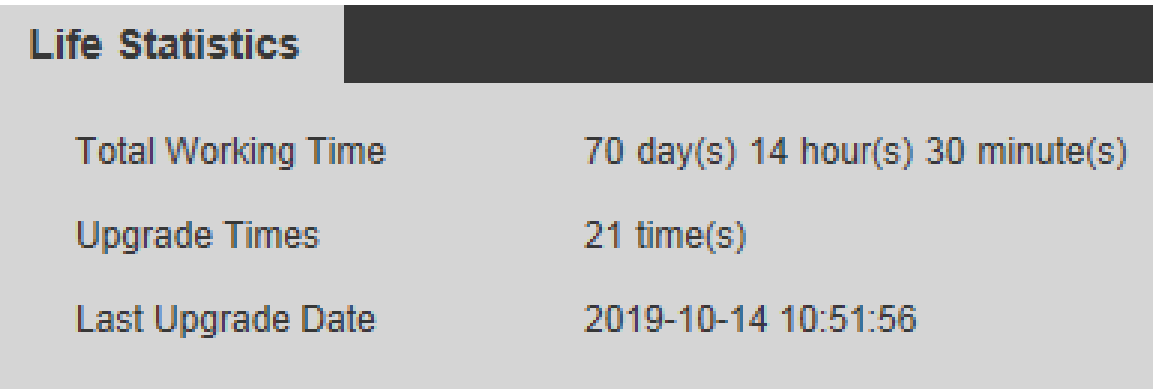
Figure 5-177 Online user



5.7.4 Life Statistics

Select **Setting > Information > Life Statistics > Life Statistics**, and then you can view the **Total Working Time**, **Upgrade Times**, and **Last Upgrade Date** of the Camera. See Figure 5-178.

Figure 5-178 Life statistics



6 Alarm

You can select alarm types on the interface. When the selected alarms are triggered, detailed alarm information will be displayed on the right side of the interface. You can also select **Prompt** or **Play Alarm Tone**. When an alarm occurs, the alarm prompt or tone will be triggered. For the **Alarm** setting interface, see Figure 6-1. For parameter description, see Table 6-1.

Figure 6-1 Alarm setting interface

Table 6-1 Alarm setting parameter description

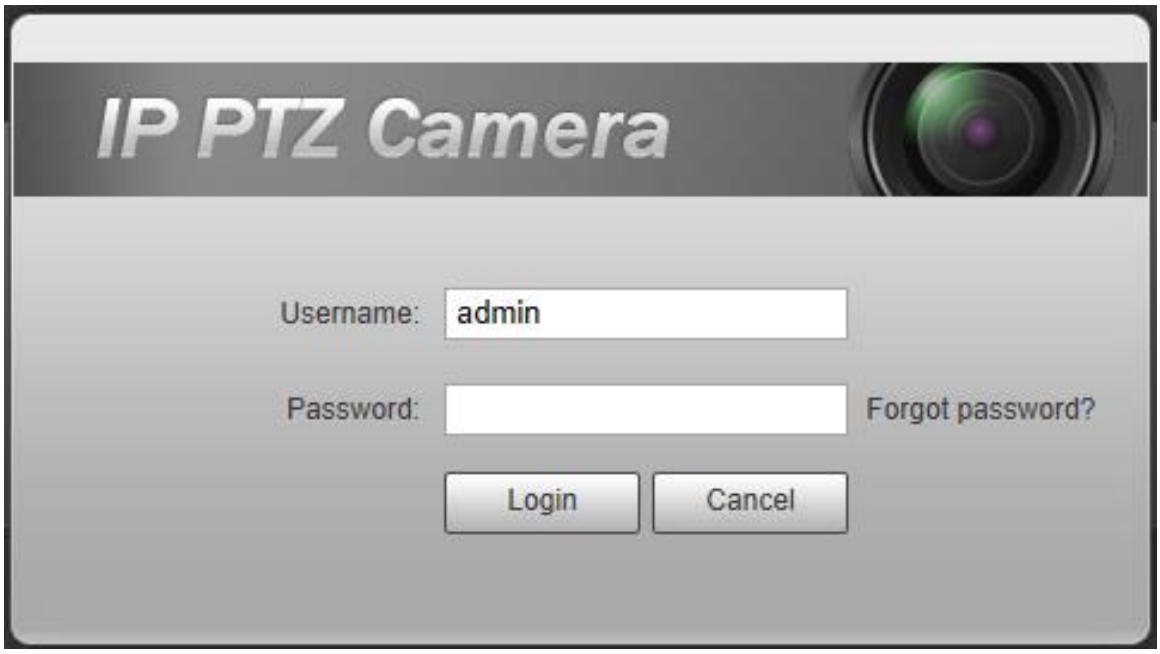
Category	Parameter	Description
Alarm Type	Motion Detection	Record alarm information in case of motion detection.
	Disk Full	Record alarm information in case of full disk.
	Disk Error	Record alarm information in case of disk error.
	Security Exception	Record alarm information in case of security exception.
	External Alarm	Record alarm information in case of an external alarm.
	Illegal Access	Record alarm information in case of illegal access.
	Audio Detection	Record alarm information in case of audio detection.
	IVS	Record alarm information in case of smart events.
	Scene Changing	Record alarm information in case of scene changing.
	Video Tamper	Record alarm information in case of video tampering.
Operation	Prompt	Select the **Prompt** check box. When you are not on the **Alarm** interface, and the selected alarm event is triggered, the Relay-out button on the main menu bar will change to  , and the alarm information will be automatically recorded. After you click the Alarm menu bar, the button disappears. If you are on the **Alarm** interface, there will be no image prompt when the selected alarm event is triggered, but the corresponding alarm information will be recorded in the alarm list on the right.
Alarm Tone	Play Alarm Tone	Select the check box, and then select the tone file path. When the selected alarm event is triggered, the selected tone file will be played to prompt you that an alarm event

Category	Parameter	Description
		is triggered.
	Tone Path	Customize the storage path for alarm tones.

7 Logout

Click **Logout** to log out, and the lgoin interface is displayed. See Figure 7-1. Enter the username and password to log in again.

Figure 7-1 Logout interface



Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic equipment network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters;
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
   - Do not contain the account name or the account name in reverse order;
   - Do not use continuous characters, such as 123, abc, etc.;
   - Do not use overlapped characters, such as 111, aaa, etc.;

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your equipment (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the equipment is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your equipment network security:

1. **Physical Protection**

   We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable equipment (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The equipment supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**
   We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.
6. **Enable HTTPS**
   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.
7. **Enable Whitelist**
   We suggest you to enable whitelist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the whitelist.
8. **MAC Address Binding**
   We recommend you to bind the IP and MAC address of the gateway to the equipment, thus reducing the risk of ARP spoofing.
9. **Assign Accounts and Privileges Reasonably**
   According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.
10. **Disable Unnecessary Services and Choose Secure Modes**
    If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.
    If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:
    - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
    - SMTP: Choose TLS to access mailbox server.
    - FTP: Choose SFTP, and set up strong passwords.
    - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.
11. **Audio and Video Encrypted Transmission**
    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.
    Reminder: encrypted transmission will cause some loss in transmission efficiency.
12. **Secure Auditing**
    - Check online users: we suggest that you check online users regularly to see if the Camera is logged in without authorization.
    - Check equipment log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.
13. **Network Log**
    Due to the limited storage capacity of the equipment, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.
14. **Construct a Safe Network Environment**
    In order to better ensure the safety of equipment and reduce potential cyber risks, we recommend:
    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.

- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.

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