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General

This manual introduces the functions, configuration, general operation, and system maintenance of network camera.

Safety Instructions

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

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

Revision History

Version	Revision Content	Release Date
V2.0.1	Added "Smart Motion Detection" function.	August 2019
 V2.0.0 1. Consolidated the outline, and added baseline and safety contents, and some intelligent functions such as face recognition and ANPR. 2. Deleted some old function such as stereo vision. 		July 2019
V1.0.4	 Updated the chapters of "People Counting" and "Heat Map" function. Add VR mode of Fisheye device. Add video structuralization function. 	March 2019
V1.0.3	Added Stereo Analysis function. Novembe	
V1.0.2 1. Added chapters of "Initialization" and "Stereo vision." 0 2. Updated the chapters of "Account", "Profile Management" and "SNMP." 0		October 2017
V1.0.1	First release. September 2016	

Privacy Protection Notice

As the device user or data controller, you might collect personal data of others such as face, fingerprints, car plate number, Email address, phone number, GPS and so on. You need to be in compliance with the local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures include but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

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 device.
- If there is any uncertainty or controversy, please refer to our final explanation.

Electrical safety

- All installation and operation should conform to your local electrical safety codes.
- The power source shall conform to the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC60950-1. Please Description that the power supply requirement is subject to the device label.
- Make sure the power supply is correct before operating the device.
- A readily accessible disconnect device shall be incorporated in the building installation wiring.
- Prevent the power cable from being trampled or pressed, especially the plug, power socket and the junction extruded from the device.

Environment

- Do not aim the device at strong light to focus, such as lamp light and sun light; otherwise it might cause over brightness or light marks, which are not the device malfunction, and affect the longevity of Complementary Metal-Oxide Semiconductor (CMOS).
- Do not place the device in a damp or dusty environment, extremely hot or cold temperatures, or the locations with strong electromagnetic radiation or unstable lighting.
- Keep the device away from any liquid to avoid damage to the internal components.
- Keep the indoor device away from rain or damp to avoid fire or lightning.
- Keep sound ventilation to avoid heat accumulation.
- Transport, use and store the device within the range of allowed humidity and temperature.
- Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.
- Pack the device with standard factory packaging or the equivalent material when transporting the device.
- Install the device in the location where only the professional staff with relevant knowledge of safety guards and warnings can access. The accidental injury might happen to the non-professionals who enter the installation area when the device is operating normally.

Operation and Daily Maintenance

- Do not touch the heat dissipation component of the device to avoid scald.
- Carefully follow the instructions in the manual when performing any disassembly operation about the device; otherwise, it might cause water leakage or poor image quality due to unprofessional disassemble. Please contact after-sale service for desiccant replacement if there is condensed fog found on the lens after unpacking or when the desiccant turns green. (Not all models are included with the desiccant).
- It is recommended to use the device together with lightning arrester to improve lightning

protection effect.

- It is recommended connect the grounding hole to the ground to enhance the reliability of the device.
- Do not touch the image sensor (CMOS) directly. Dust and dirt could be removed with air blower, or you can wipe the lens gently with soft cloth moistened with alcohol.
- Device body can be cleaned with soft dry cloth, which can also be used to remove stubborn stains when moistened with mild detergent. To avoid possible damage on device body coating which could cause performance decrease, do not use volatile solvent such as alcohol, benzene, diluent and so on to clean the device body, nor can strong, abrasive detergent be used.
- Dome cover is an optical component, do not touch or wipe the cover with your hands directly during installation or operation. For removing dust, grease or fingerprints, wipe gently with moisten oil-free cotton with diethyl or moisten soft cloth. You can also air blower to remove dust.



- Please strengthen the protection of network, device data and personal information by adopting measures which include but not limited to using strong password, modifying password regularly, upgrading firmware to the latest version, and isolating computer network. For some device with old firmware versions, the ONVIF password will not be modified automatically along with the modification of the system password, and you need to upgrade the firmware or manually update the ONVIF password.
- Use standard components or accessories provided by manufacturer and make sure the device is installed and maintained by professional engineers.
- The surface of the image sensor should not be exposed to laser beam radiation in an environment where a laser beam device is used.
- Do not provide two or more power supply sources for the device unless otherwise specified. A failure to follow this instruction might cause damage to the device.

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Overview

1.1 Introduction

IP camera (Internet Protocol camera), is a type of digital video camera that receives control data and sends image data through internet. They are commonly used for surveillance, requiring no local recording device, but only a local network.

IP camera is divided in to single-channel camera and multi-channel camera according to the channel quantity. For multi- channel camera, you can set the parameters for each channel.

1.2 Network Connection

In the general IPC network topology, IPC is connected to PC through network switch or router. See Figure 1-1.



Get IP address by searching on ConfigTool, and then you can start accessing IPC through network.

1.3 Function

Functions might vary with different devices, and the actual product shall prevail.

1.3.1 Basic Function

Real-time Monitoring

- Live view
- When live viewing the image, you can enable audio, voice talk and connect monitoring center for quick processing on the abnormality.
- Adjust the image to the proper position by PTZ.
- Snapshot and triple snapshot abnormality of the monitoring image for subsequent view and processing.
- Record abnormality of monitoring image for subsequent view and processing.
- Configure coding parameters, and adjust live view image.

Record

- Auto record as schedule.
- Play back record and picture to view the necessary record or picture.
- Download record and picture to be judgment basis.
- Alarm linked record.

Account

- Add, modify and delete user group, and manage user authorities according to user group.
- Add, modify and delete user, and configure user authorities.
- Modify user password.

1.3.2 Intelligent Function

Alarm

- Set alarm prompt mode and tone according to alarm type.
- View alarm prompt message.

Smart Track

- Smart track and alarm track.
- Switch between smart track and speed dome auto track.

Video Detection

- Motion detection, video tampering detection and scene changing detection.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Smart Motion Detection

- Avoid the alarms triggered by the environment changes.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Audio Detection

- Audio input abnormal detection and intensity change detection.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

- Cross fence, tripwire, intrusion, abandoned object, moving object, fast moving, parking detection, people gathering, and loitering detection.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Crowd Map

- View crowd distribution in real time for the timely arm to avoid accidents like stampede.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Face Detection

- Detection face and display the related attributes on live interface.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Face Recognition

- After detecting face, make comparison between the detected face with the face in face database, and activates alarm output.
- Query the recognition result.

People Counting

- Count the people flow in/out the detection area, and output report.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Heat Map

- Count cumulative density of moving objects.
- View report of heat map.

Stereo Analysis

- Include fall detection, violence detection, people No. error, people approaching detection, and strand detection.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

ANPR

- Recognize plate number in detection area, and display the related information on live interface.
- When alarm is triggered, the system links alarm output and snapshot.

Video Structuralization

- Snap people, non-motor vehicle and vehicle, and display the related information on the live interface.
- When alarm is triggered, the system links alarm output.

Alarm Setting

- When external alarm input device generates alarm, the alarm is triggered.
- When alarm is triggered, the system links record, alarm output, sending email, PTZ operation, and snapshot and so on.

Abnormality

- SD card error, network disconnection, illegal access and voltage detection.
- When SD card error or illegal access is triggered, the system links alarm output and sending email.
- When network disconnection alarm is triggered, the system links record and alarm output.
- When the input voltage is more or less than the rated voltage, the alarm is triggered and the system links sending email.

2 Configuration Flow

For the device configuration flow, see Figure 2-1. For details, see Table 2-1. Configure the device according to the actual situation.



Figure 2-1 Configuration flow

Table 2-1 Description of flow

Configuration		Description	Reference
Login		Open IE browser and enter IP address to login to web interface, The devices IP address is 192.168.1.108 by default.	4.1 Login
Initialization		Initialize device when you use the device for the first time.	3 Device Initialization
	IP address	Modify IP address according to network planning for the first use or during network adjustment.	4.6.1 TCP/IP
Basic parameters	Date & time	Set date & time to ensure the record time is correct.	4.8.2 Date & Time
	Image parameters	Adjust image parameters according to the actual situation to ensure the image quality.	4.5.1 Conditions
Intelligent	Detection rules	Configure the necessary detection rules, including video detection and IVS and so on.	5 Event
Event	Subscribe alarm	Subscribe alarm event. When the subscribed alarm is triggered, the system will record the alarm on alarm tab.	5.1.2 Subscribing Alarm

3 Device Initialization

Device initialization is required for first-time use. This manual is based on the operation on the web interface. You can also initialize device with ConfigTool, NVR, or platform devices.

Before first login, you need to set the password for admin account to proceed.

 \square

- To ensure device safety, please keep the password properly after initialization and change the password regularly.
- When initializing device, keep the PC IP and device IP in a same network.
- <u>Step 1</u> Open IE browser, enter the IP address of the device in the address bar, and then press Enter.

The Device Initialization interface is displayed. See Figure 3-1.

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I .			
I .			
_	_		_

The IP is 192.168.1.108 by default.

Figure 3-1 Device initialization

Device Initialization	
Username Password	admin The minimum pass phrase length is 8 characters Weak Middle Strong
Confirm Password	weak incure arony
I Email Address	Use a password that has 8 to 32 characters, it can be a combination of letter(s), number(s) and symbol(s) with at least two kinds of them.(please do not use special symbols like ** ; : &)
	To reset password, please input properly or update in time.
	Save

<u>Step 2</u> Set the password for admin account. For details, see Table 3-1.

Parameter Description	
User name	The default user name is admin.
Password	The password must consist of 8 to 32 digits and at least two forms from
Confirm	number, letter, and common symbols (except "'","",";",":","&"). Set a high
password	security level password according to the password security notice.
	Enter an email address for password reset, and this option is selected
	by default.
email	When you need to reset the password of the admin account, there will
	be a security code sent to the rserved email address which can be used
	to reset the password.

Step 3 Click Save.

The **End-User License Agreement** interface is displayed, see Figure 3-2. Figure 3-2 End-user license agreement

Z	hejiang Dahua Technologies Co.,Ltd. Software End User License Agreement	
1	NOTICE	
Iħ	IPORTANT NOTICE. PLEASE READ CAREFULLY: This Zhejiang Dahua Technology Co. LTD (Dahua) License Agreement	
(°.	Agreement') sets forth the terms and conditions under which You are licensed to use the Software. By installing, copying,	
d	ownloading the Software or using the same by any other means, you are deemed to have accepted this Agreement. If you do not	
а	gree with it in whole or in part, you do not have the right to use this Software, in which case you should immediately stop installing,	
С	opying the Software or using the same by any other means.	
2	DEFINITIONS	
5	Software' means information management program(s) or supporting document(s) consisting of several modules or functions.	
S	upporting document(s) includes all or part of the source codes and object codes of the Software, as well as the images,	
p	hotographs, icons, animations, audio, video, music, words and codes incorporated therein; it also includes all relevant paper or 👘	
e	lectronic information and technical documentation which describe the functions, characteristics, contents, quality, tests, customer	
n	nanuals user arreements, etc. ("Software Product" or "Software")	
F	I have read and agree to all terms	

<u>Step 4</u> Select the check box I have read and agree to all terms, and then click Next. The Easy4ip interface is displayed, see Figure 3-3.

Figure 3-3 Easy4ip

Easy4ip
Easy4ip Register device to EASY4IP and then suitable for user to apply for cloud account. It can realize cloud service such as remote surveillance, device record, alarm, cloud storage, using device to manage cloud. Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage Image: Control of the storage
Next

<u>Step 5</u> You can now register your device to Easy4ip, select the option if you need it, and then click **Next**.

The **Online Upgrade** interface is displayed, see Figure 3-4.

Figure 3-4 Online upgrade

Online Upgrade
✓ Auto-check for updates
Notify automatically when updates available. The system checks for updates every day.
Online Upgrade is a service that provides you with firmware updates by cloud. This service will collect device information in order to
inform you about available firmware updates. Such information may include your device name, firmware version and device
identification numbers. Such information is processed for the sole purpose of informing you about firmware updates.
Save

<u>Step 6</u> Select the upgrading method as needed.

If you select **Auto-check for updates**, the system checks new version once a day automatically. There will be system notice on **Upgrade** interface and **Version** interface if any new version is available.



Select **Setting > System > Upgrade > Online Upgrade**, you can also configure this function on **Online Upgrade** interface after login.

Step 7 Click Save.

Device initialization is completed.

4 Basic Configuration

The section introduces the basic configuration, including login, Live view, PTZ operation, playback operation, camera configuration, network configuration, storage configuration and system configuration.

4.1 Login

This section introduces how to log in to and log out of web interface. This section takes IE Explorer 9 as an example



- You need to initialize the device before logging in to web interface. For details, see "3 Device Initialization."
- When initializing device, keep the PC IP and device IP in a same network.
- You need to install plug-in for the first login. Follow the instruction to download and install the plug-in.

Step 1 Open IE browser, enter the IP address of the camera (192.168.1.108 by default) in the address bar and press Enter.

The login interface is displayed. See Figure 4-1.

Figure 4-1 Login

Username:			
Password:			Forgot password?
	Login	Cancel]

<u>Step 2</u> Enter the username and password.

The username is admin by default.

Click **Forget password?**, and you can reset the password through the email address set during initialization. For details, see "6.3 Resetting Password."

Step 3 Click Login.

The **Live** interface is displayed, see Figure 4-2.

- Live: Click **Live**, and you can view the real-time monitoring image.
- Playback: Click **Playback**, and you can play back or download record or image files.

• Setting: Click **Setting**, and you can configure the basic and intelligent functions of the device.

For the device with multiple channels, through selecting channel numbers, you can set the parameters of the channels.

- Alarm: Click **Alarm**, and you can subscribe and view alarm information.
- Logout: Click **Logout** to go to login interface.

The system will sleep automatically after idling for a period of time. Figure 4-2 Live



4.2 Live

This section introduces the layout of the interface and function configuration.

4.2.1 Live Interface

This section introduces system menu, encode bar, live view function bar, and window adjustment bar.

Log in and click **Live** tab, the **Live** interface is displayed. See Figure 4-3. For the layout details, see Table 4-1.



The functions and interfaces of different devices might vary, and the actual product shall prevail.



Table 4-1 Description of function bar

No.	Function	Description
1	Encode bar	Sets stream type and protocol:
2	Live view	Displays the real-time monitoring image.
3	Live view function bar	Functions and operations in live viewing.
4	Window adjustment bar.	Adjustment operations in live viewing.

4.2.2 Encode bar

For encode bar, see Figure 4-4.

Figure 4-4 Encode bar



- Main Stream: It has large bit stream value and image with high resolution, but also requires large bandwidth. This option can be used for storage and monitoring. For details, see "4.5.2.1 Video."
- **Sub Stream**: It has small bit stream value and smooth image, and requires small bandwidth. This option is normally used to replace main stream when bandwidth is not enough. For details, see "4.5.2.1 Video."
- **Protocol**: You can select the network transmission protocol as needed, and the options are **TCP**, **UDP** and **Multicast**.



Before selecting Multicast, make sure that you have set the Multicast parameters.

4.2.3 Live view Function Bar

For the live view function bar, please see Table 4-2.

lcon	Function	Description		
		Manually position the tracking speed dome to the selected location of corresponding panoramic camera. Click the icon and click or select randomly on the image of panoramic camera channel, the tracking speed dome will automatically position the selected location.		
P	Manual Position	 For multi-sensor panoramic network camera + PTZ camera, before enabling manual position, make sure that you have enabled alarm track and smart track calibration. For details, see "5.2 Setting Smart Track." For panoramic network camera, before enabling manual position, make sure that you have enabled panoramic linkage. For details, see "5.3 Setting Panoramic Calibration." 		
Ξ	Regional Focus	Select channel image of the tracking speed dome, click the icon and click or select randomly on the channel image of the tracking speed dome, and then the speed dome can realize auto focus upon the selected region.		
¢	Wiper	Controls the wiper of the camera. Click the icon to enable or disable wiper function.		
	Ranging	Click the icon, select a point on the ground, and the distance between the camera and the selected point will be displayed. Before using this function, you need to set the installation of device first. For details, see "4.5.2.3.11 Configuring Ranging."		
Þ	Gesture	Controls PTZ by operating the mouse on the live view of tracking speed dome. Select the live view of tracking speed dome, click the icon, press left-button and drag image to control PTZ. And you can zoom the image through rolling mouse wheel.		
\odot	Manual Track	Click the icon, and select tracking target on the live view of tracking speed dome, the camera tracks the selected target automatically.		
	Relay-out	 Displays alarm output state. Click the icon to force to enable or disable alarm output. Alarm output state description: Red: Alarm output enabled. 		

Table 4-2 Description of Live view function bar

lcon	Function	Description	
		Grey: Alarm output disabled.	
	Digital Zoom	 You can zoom video image through two operations: Click the icon, and then select an area in the video image to zoom in; right-click on the image to resume the original size. In zoom in state, drag the image to check other area. Click the icon, and then scroll the mouse wheel in the video image to zoom in or out. 	
	Snapshot	Click the icon to capture one picture of the current image, and it will be saved to the defined storage path. About viewing or configuring storage path, see "4.5.2.5 Path."	
	Triple Snapshot	Click the icon to capture three pictures of the current image, and they will be saved to the defined storage path. About viewing or configuring storage path, see "4.5.2.5 Path."	
D	Record	Click the icon to record video, and it will be saved to the defined storage path.	
[+]	Easy Focus	 Click the icon, the AF Peak (focus eigenvalue) and AF Max (max focus eigenvalue) are displayed on the video image. AF Peak: The eigenvalue of image definition, it displays during focus. AF Max: The best eigenvalue of image definition. The smaller the difference between AF peak value and the AF max value, the better the focus is. Easy focus closes automatically after five minutes. 	
	Audio	Click the icon to enable or disable audio output.	
Ļ	Talk	Click the icon to enable or disable intercom.	

4.2.4 Window Adjustment Bar

4.2.4.1 Adjustment

This section introduces the adjustment of image. For details, see Table 4-3.

lcon	Function	Description		
		Click the icon, and then the Image Adjustment interface is displayed at the right side of the Live interface. You can adjust brightness, contrast, hue, and saturation.		
1	Image Adjustment	image brightness, and changes the value when the image is too bright or too dark. The bright and dark areas will have equal changes.		
		• (Contrast adjustment): Changes the value		
		when the image brightness is proper but contrast is not enough		
		• (Hue adjustment): Makes the color deeper or		
		lighter. The default value is made by the light sensor, and it is recommended.		
		• Gaturation adjustment): Adjusts the image		
		saturation, this value does not change image brightness.		
100%	Original Size	Click the icon, and then the video displays with original size.		
23	Full Screen	Click the icon to enter full screen mode; double-click or press Esc to exit.		
W:H	W:H	Click the icon to resume original ratio or change ratio.		
	Fluency	 Click the icon to select the fluency from Realtime, Fluency and Normal. Realtime: Guarantee the real time of image. When the bandwidth is not enough, the image might not be smooth. Fluency: Guarantee the fluency of image. There might be delay between live view image and 		

Table 1-3 Descr	intion of	adjustment	har
Table 4-3 Desci	ιριισπ σι	aujusimeni	Dai

lcon	Function	Description
		real-time image.
		• Normal: It is between Realtime and Fluency.
4	Rule Info	Click the icon, and then select Enable to display smart
		rules and detection box; select Disable to stop.
		Click the icon, and the PTZ control panel is displayed
PT7	PT7	at the right side of the Live interface. You can control
		and call PTZ function. For details, see "4.3.3 Calling PTZ."
		Adjust focal length to zoom in and out video image.
		Click the icon, and the Zoom and Focus configuration
5+3	Zoom and Focus	interface is displayed at the right side of the Live
		interface. You can control and call PTZ function. For
		details, see "4.2.4.2 Zoom and Focus."
	Fisheye	Click the icon, and then the fisheye configuration
0		interface is displayed at the right side of the Live
		interface. For details, see "4.2.4.3 Fisheye."
		Click the icon, and the face detection or face
		recognition results are displayed on Live interface.
101	Face	• For face recognition, see "5.10 Setting Face
		Recognition."
		For face detection: see 5.11 Setting Face Detection "
		Click the icon and the ANPR results are displayed on
G Ý	ANPR	Live interface. For details, see "5.15 Setting ANPR."
	Video	Click the icon, the video structuralization results are
	Structuralization	displayed on Live interface. For details, see "5.16
		Setting Video Structralization."
	Window Layout	When view multi-channel image, you can select
	-	aispiay layout.
		Click the incon and select Enable. The Crowd Man
1	Crowd Map	interface is dispalved. For details, see "5.9 Setting
		Crowd Map."
		Clowd Map.

4.2.4.2 Zoom and Focus

You can adjust focal length to zoom in and out video image; by adjusting focus manually, automatically or within a certain area, you can change image clarity or correct adjusting errors.

 \square

The focus would adjust automatically after zooming in or out.

Figure 4-5 Zoom and focus



Table 4-4 Description of zoom and focus

Parameter	Description
	Changes the focal length of the camera to zoom in or out the image.
Zoom	1. Set the Speed value. The Speed is the adjustment range in one click.
	The larger the value is, the more the image would zoom in or out in one
	click.
	 Click or hold + /- button, or drag the slider to adjust zoom.
	Adjusts the optical back focal length to make the image clearer.
	1. Set the Speed value. The Speed is the adjustment range in one click.
Focus	The larger the value is, the more the image would zoom in or out in one
	click.
	 Click or hold +/ – button, or drag the slider to adjust zoom.
	Adjusts image clarity automatically.
Auto Focus	\square
Autorocus	
	Do not make any other operation during auto focus process.
	Restores focus to default value and corrects errors.
Restore All	
	You can restore the focus if the image has poor clarity or has been zoomed too
	frequently.
Pagional	Focus on the subject of a selected area.
Focus	Click Regional Focus, and then select an area in the image, the camera
	performs auto focus in that area.
Refresh	Get the latest zoom setting of the device.

4.2.4.3 Fisheye

You can configure the install mode, display mode and VR mode of fisheye devices as needed. For details, see Table 4-5.

- Install Mode: Install the fisheye camera according to the actual situation.
- Display Mode: Select the display mode of live view.
- VR Mode: Select VR mode to display the image in stereo mode.

Figure 4-6 Fisheye



Table 4-9	5 Descrin	tion of F	Fisheve	configuration
	Descrip		ISHEYE	connyuration

Parameter	Description		
Installation Mode	Includes ceiling, wall, and ground.		
Display Mode	 The present model of the current image. There are different display modes for each installation mode. Ceiling: 1P+1, 2P, 1+2, 1+3, 1+4, 1P+6, 1+8. Wall: 1P, 1P+3, 1P+4, 1P+8. Ground: 1P+1, 2P, 1+3, 1+4, 1P+6, 1+8. The image will be on original size by default when switching installation mode. 		

Parameter	Description			
Ceiling/Wall/Ground	Original image	The original image before correction.		
Ceiling/Ground Mount	↔ 1P+1	 360° rectangular panoramic image screen + independent sub-screens. You can zoom or drag the image in all the screens. You can move the start point (left and right) on rectangular panoramic image screen. 		
	₽ E E E E P	Two associated 180° rectangular image screens, and at any time, the two screens form a 360° panoramic image. It is also called Dual-panoramic image. You can move the start point (left and right) on the two rectangular panoramic image screens, and the two screens link each other.		
	1+2	 Original image screen + two independent sub-screens. Ground Mount does not support this display mode. You can zoom or drag the image in all the screens. You can rotate the image on the original image screen to change the start point. 		
	Q 1+3	 Original image screen + three independent sub-screens. You can zoom or drag the image in all the screens. You can rotate the image on the original image screen to change the start point. 		
	1+4	 Original image screen + four independent sub-screens. You can zoom or drag the image in all the screens. You can rotate the image on the original image screen to change the start point. 		
	₩ 1P+6	 360° rectangular panoramic screen + six independent sub-screens. You can zoom or drag the image in all the screens. You can move the start point (left and right) on rectangular panoramic image screen. 		

Parameter	Description	
	1P+8	 Original image screen + eight independent sub-screens. You can zoom or drag the image in all the screens. You can rotate the image on the original image screen to change the start point.
Wall Mount	N _{1P}	180° rectangular panoramic image screen (from left to right).You can drag the image in all the screens (up and down) to adjust the vertical view.
	1P+3	 180° rectangular panoramic image screen + three independent sub-screens. You can zoom or drag the image in all the screens. You can drag the image in all the screens (upper and lower) to adjust the vertical view.
	1P+4	 180° rectangular panoramic image screen + four independent sub-screens. You can zoom or drag the image in all the screens. You can drag the image in all the screens (upper and lower) to adjust the vertical view.
	1P+8	 180° rectangular panoramic image screen + eight independent sub-screens. You can zoom or drag the image in all the screens. You can drag the image in all the screens (upper and lower) to adjust the vertical view.
VR Mode	Panorama	Drag or cross the screen 360° to unfold the distortion panorama, and you can drag the image in left/right direction.
	Semi-circle	 You can drag the image in upper/lower/left/right direction. Press I to display the panorama, and press O to resune the orignal size. Press S to rotate the image in anticlockwise direction, and press E to stop the rotation. Scroll the mouse wheel to zoom the image.
	Cylinder	 Display the distortion panorama in 360° circularity. You can drag the image in upper/lower/left/right direction. Press I to display the panorama, and press O to return the orignal size. Press S to rotate the image in anticlockwise direction, and press E to stop the rotation. Scroll the mouse wheel to zoom the image.

Parameter	Description		
	Asteroid	•	You can drag the image in upper/lower/left/right direction. Press I to display the panorama, and press O to return the orignal size. Press the left mouse-button to slide down to display the image on the planet surface. Scroll the mouse wheel to zoom the image.

4.3 PTZ Operation

This chapter introduces PTZ parameter configuration, PTZ control and PTZ function configuration.

4.3.1 Configuring External PTZ Protocol

You need to configure PTZ protocol when access external PTZ, otherwise the camera cannot control external PTZ.

Preparation

- Access external PTZ through RS-485.
- You have configured the parameters of serial port. For details, see "4.8.6.1 Serial Port Settings."

Procedures

<u>Step 1</u> Select Setting > PTZ Setting > Protocol.

The **PTZ Setting** interface is displayed. See Figure 4-7.

Figure 4-7 PTZ setting

PTZ Settings			
Protocol	PELCOD	•	
	Default	Refresh	Save

<u>Step 2</u> Select the PTZ protocol.

Step 3 Click OK.

4.3.2 Configuring PTZ Function

4.3.2.1 Preset

Preset means certain defined positions that the camera can make quick orientation to. It contains several defined parameters, including PTZ pan and tilt angles, camera focus, and location.

<u>Step 1</u> Select Setting > PTZ settings > Function > Preset.

The **Preset** interface is displayed. See Figure 4-8.

Figure 4-8 Preset

Function					
	▶ Preset	Number	Preset Title	Save	Delete
	▶ Tour				
	▶ Scan				
	▶ Pattern				
	▶ Pan				
Des Child States	PTZ Speed				
	► Idle Motion				
	▶ PowerUp				
SUITI 4 FER 174 S. AS. 140 EL S.	▶ PTZ Limit	+ Add	Refresh	🛱 Remove	All
	▶ Time Task				
8	▶ PTZ Restart				
(-) Zoom (+)	▶ Default				
Focus (+)					
Speed 5					
			_		

Step 2 Set the speed, and click direction buttons, \bigcirc and \bigcirc to adjust the parameters of

direction, zoom, focus and iris, to move the camera to the position you need.

- <u>Step 3</u> Click **Add** to add the current position to be a preset, and the preset is displayed in preset list.
- <u>Step 4</u> Double-click the preset title to edit the title.
- Step 5 Click 🚽 to save the preset.

Other Operations

- Click Click to delete the preset.
- Click **Remove All** to remove all presets.

4.3.2.2 Tour

Tour means a series of movements that the camera makes along several preset points.

Preparation

You have set several presets.

Procedures

<u>Step 1</u> Select Setting > PTZ settings > Function > Tour. The Tour interface is displayed. See Figure 4-9. Figure 4-9 Tour

9				
Function				
Function	 Preset Tour Scan Pattern Pan PTZ Speed Idle Motion PowerUp PTZ Limit 	Tour Mode Se	Original Path Tour Name	▼ Delete
Speed 5 \checkmark	 ▶ Time Task ▶ PTZ Restart ▶ Default 	▶ Start Number	+ Add 1 Preset Duration(s) Speed Delete
		+ Add 🥥	Save 🗘	Refresh

Step 2 Click Add ① to add tour. Double-click the tour name to edit the name.

- <u>Step 3</u> Click **Add** ② to add preset. Double-click the duration to set the duration.
- <u>Step 4</u> Select the tour mode.
 - Original Path: The PTZ camera moves in the older of the selected presets.
 - Shortest Path: The PTZ camera ranks presets by distance, and moves in the optimal path.
- Step 5 Click Save.
- Step 6 Click Start to start touring.



- If you operate PTZ during tour, the camera will stop tour.
- Click **Stop** to stop touring.

4.3.2.3 Scan

Scan means the camera moves horizontally on a certain speed between the defined left and right boundaries.





Figure 4-10 Scan



<u>Step 2</u> Select the scan number, and set the speed.

- Step 3 Click Setup to set left limit and left limit.
 - 1) Click Set Left Limit to set the current position to be the left limit.
 - 2) Click Set Right Limit to set the current position to be the right limit.
- <u>Step 4</u> Click **Start** to start scanning. Click **Stop** to stop scanning.

4.3.2.4 Pattern

Pattern means a record of a series of operations that you make to the camera, and when pattern starts, the camera performs the operations repeatedly. The record includes the manual operations that the user performed to the PTZ, and the changes in focus and zoom.

<u>Step 1</u> Select Setting > PTZ settings > Function > Pattern.

The **Pattern** interface is displayed. See Figure 4-11.

Figure 4-11 Pattern

- <u>Step 2</u> Select the pattern number.
- <u>Step 3</u> Click **Setup**, and then click **Start Rec**. Adjust the parameters of direction, zoom, focus and iris according to the actual situation.
- <u>Step 4</u> Click **Stop Rec** to stop recording.
- <u>Step 5</u> Click **Start** to start patterning. Click **Stop t**o start patterning.

4.3.2.5 Pan

Enable Pan, the camera can realize 360° horizontal rotation.

<u>Step 1</u> Select Setting > PTZ settings > Function > Pan.

The **Pan** interface is displayed. See Figure 4-12.

Figure 4-12 Pan

<u>Step 2</u> Set the pan speed and click **Start**, and the camera starts horizontal rotation. Click **Stop** to stop rotation.

4.3.2.6 PTZ Speed

<u>Step 1</u> Select Setting > PTZ settings > Function > PTZ Speed.

The **PTZ Speed** interface is displayed. See Figure 4-13.

Figure 4-13 PTZ speed



Step 2 Select the PTZ speed.

4.3.2.7 Idle Motion

PTZ idle motion is a function of a PTZ camera where you can set an interval of idle time before the camera defaults to one of the following: Preset, scan, tour, or pattern.

Preparation

You have configured the PTZ motions, including preset, scan, tour, or pattern.

Procedures

<u>Step 1</u> Select Setting > PTZ settings > Function > Idle Motion.

Figure 4-14 Idle motion

Function			
Presetuol Presetuol	Preset Tour Scan Pattern Pan Pattern Pan PTZ Speed Idle Motion PTZ Limit Time Task PTZ Restart Default	Enable Idle Motion Number Idle Time	 Preset Tour Scan Pattern 1: Preset001 • 10 minute(s) (1~60) Refresh Save

- Step 2 Select the Enable check box to enable idle motion.
- Step 3 Select idle motion and set idle time.

You need to select the corresponding number for some selected idle motions, such as **Preset001**.

Step 4 Click Save

4.3.2.8 PowerUp

After setting Powerup motion, the camera will execute the configured motion after power up.

Preparation

You have configured the PTZ motions, including preset, scan, tour, or pattern.

The Idle Motion interface is displayed. See Figure 4-14.

Procedures

<u>Step 1</u> Select Setting > PTZ settings > Function > PowerUp.

The **PowerUp** interface is displayed. See Figure 4-15.



<u>Step 2</u> Select the **Enable** check box to enable powerup motion.

<u>Step 3</u> Select the powerup motion.



When you select **Auto**, the system will execute the last motion before power off for 20 s.

Step 4 Click OK.

4.3.2.9 PTZ Limit

After setting PTZ limit, the camera can only move in the set area.

<u>Step 1</u> Select Setting > PTZ settings > Function > PTZ Limit.

The **PTZ Limit** interface is displayed. See Figure 4-16.



Figure 4-16 PTZ limit

- <u>Step 2</u> Control camera direction, click **Setting** (1) to set up line.
- <u>Step 3</u> Control camera direction, click **Setting** ② to set down line. Click **Live** to live view the set up/down line.
- Step 4 Select the **Enable** check box to enable PTZ limit function.

4.3.2.10 Time Task

After setting time task, the camera executes the motions during the set period.

Preparation

You have configured the PTZ motions, including preset, scan, tour, and pattern.

Procedures

<u>Step 1</u> Select Setting > PTZ settings > Function > Time Task. The Time Task interface is displayed. See Figure 4-17.
Figure 4-17 Time task

Function	▶ Preset ▶ Tour	Enable
	 Four Scan Pattern Pan PTZ Speed Idle Motion PowerUp PTZ Limit Time Task 	Time Task num Clear All Task Set Time Task action Time Task action Preset Tour Scan Pattern Action Number 1: Preset001 AutoHome 30 s (5-3600) Period setting Copy To Task No. 1 Copy
Speed 5 T	 PTZ Restart Default 	Refresh Save

- Step 2 Select the Enable check box to enable time task function.
- <u>Step 3</u> Select the time task number.
- Step 4 Select the time task action.

You need to select the corresponding action number for some selected time task actions.

<u>Step 5</u> Set the auto home time in **AutoHome**.

AutoHome: When you call PTZ, the time task will be interrupted. After setting **AutoHome** time, the camera will resume the time task automatically.

- <u>Step 6</u> Click **Period setting** to set the time of the task, and then click **Save**. For setting arm time, see "5.1.1.1 Setting Period."
- Step 7 Click Save.

Other Operations

You can copy the configurations of existing task number to other task number.

- <u>Step 1</u> Select the existing task number in **Time Task num**.
- <u>Step 2</u> Select the task number to be configured in **Copy To Task No**.
- Step 3 Click Copy.
- Step 4 Click Save.

4.3.2.11 PTZ Restart

- <u>Step 1</u> Select Setting > PTZ settings > Function > PTZ Restart.
- <u>Step 2</u> The **PTZ Restart** interface is displayed. See Figure 4-18.

Function Preset PTZ Restart ► Tour 019-06-18 17/28/54 Scan Preset001 Pattern ▶ Pan PTZ Speed ▶ Idle Motion ▶ PowerUp ▶ PTZ Limit Time Task \mathbb{R} ▶ Default Zoom (+)Focus Iris + Speed 5 •

<u>Step 3</u> Click **PTZ Restart** to restart PTZ.

4.3.2.12 Default



This function will restore the device to default configuration.Step 1Select Setting > PTZ settings > Function > Default.The Default interface is displayed. See Figure 4-19.

Figure 4-18 PTZ restart

Figure 4-19 Default



Step 2 Click **Default** and the PTZ function is restored to default.

4.3.3 Calling PTZ

Click **PTZ** on **Live** interface, and the PTZ configuration panel is displayed. You can control PTZ and call PTZ function.

4.3.3.1 PTZ Control

You can rotate device, zoom image, and adjust iris through PTZ control or virtual joystick. See Figure 4-20 and Figure 4-21.

Figure 4-20 PTZ control



Figure 4-21 Joystick



Notate PTZ direction through direction button. PTZ supports eight directions: left/right/up/down/upper left/upper right/bottom left/bottom right. Click , and draw a box in the image, PTZ will rotate, focus and quickly position the defined scene.



Example: Rotate PTZ direction through joystick. Press (1), and drag it to the direction that you need, then PTZ will move to the defined direction.

• Speed: Measure the rotation speed. The bigger the step length is, the faster the speed becomes.

• Zoom, focus and iris: Click 🖸 or 🛨 to adjust zoom, focus and iris.

4.3.3.2 PTZ Function

Select the PTZ function from the drop-down list to call the corresponding functions, including Scan, Preset, Tour, Pattern, Pan, Go to, Assistant and Light Wiper. See Figure 4-22. For details, see Table 4-6. Before calling PTZ function, see "4.3.2 Configuring PTZ Function" to configure PZT function.



- If an external PTZ is connected to the camera, the configurations are valid only when the corresponding functions are available on the external PTZ.
- The range of PTZ function (such as preset and tour) depends on the PTZ protocol. Figure 4-22 PTZ function



Table 4-6 PTZ Description of function

Parameter	Description
Scan	Set scan number and click Start, the camera moves horizontally on a certain
	speed between the set left and right limit. Click Stop to stop scanning.
Preset	Set preset number and click Go to, the camera quickly positions the
110301	corresponding preset.
Tour	Set tour number and click Start, the camera moves in the older of the set
1001	presets. Click Stop to stop touring.
	Set pattern number and click Start, the camera moves continuously
Battorn	according to the operation records. Click Stop to stop patterning.
Fallem	Operation records include the information of manual operation, focus and
	zoom.
Pan	Click Start, and the camera rotates 360° at a certain speed in horizontal
1 dii	direction.
Go to	Set horizontal angle, vertical angle, and zoom. Click Go to to position a
0010	certain point accurately.
	Set assistant number and click Aux On to enable the corresponding
Assistant	assistant function, and then you can adjust the camera. Click Aux On to
	disable the corresponding assistant function
	Set the light or wiper of the camera.
Light/Wiper	Click Enable to enable light/wiper function.
	Click Disable to disable light/wiper function.

4.4 Playback

This section introduces playback related functions and operations, including video playback and picture playback.

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- Before playing back video, you need to configure record time range, record storage method, record schedule and record control. For details, see "5.1.1.2.1 Setting Record Plan."
- Before playing back picture, you need to configure snapshot time range, snapshot storage method, snapshot plan. For details, see "5.1.1.3.1 Setting Snapshot Plan."
- When using Dahua smart card, make sure the card has been authenticated before using.

4.4.1 Playback Interface

Click **Playback** tab, and the **Playback** interface is displayed. See Figure 4-23 and Figure 4-24. For details, see Table 4-7.





Figure 4-24 Picture playback

				Cilo Tu					
				File Ty	le jb	9			
				Data S	rc SI) Card		•	
				Jun	-	<	2019	>	
				Sun I	on Tue	Wen Th		Sat	
								1	
				2	3 4	5 6	7	8	
				9	10 11	12 1	3 14	15	- <i>I</i>
				16	17 18	19 2	0 21	22	
				23	24 25	26 2	7 28	29	
				30					
				-					
					12		E		
3•									
5Snapshot Type	🔽 All 🛛 General 🔳	🗹 Event 🗖 🗹 Alarm							

Table 4-7 Playback interface description

No	Function	Description
Fisheye		Click , you can select display mode according to the installation mode during playback.
1	Rules Info	Click , intelligent rules and object detection box are displayed. It is enabled by default.
2	Sound	 Controls the sound during playback: Mute mode. Vocal state. You can adjust the sound.

No	Function	Description
		Controls playback:
		Click the icon to play back record.
		Click the icon to stop playing back record.
2	Diau against har	Click the icon to play the next frame.
3	Play control bar	
		When you enable the function of playing video by frame,
		you need to stop playback.
		Click the icon to slow down the play.
		Click the icon to speed up the play.
4	Progress bar	 Displays the record type and the corresponding period. Click any point in the colored area, and the system will play back the record from the selected moment. Each record type has its own color, and you can see their relations in Record Type bar.
	Record/Snapshot	Select the record type or snapshot type:
5		• Record type includes General, Event, Alarm, Manual
	- 7F -	Snapshot type includes General, Event, Alarm
6	Assistant	 You can zoom video image of the selected area through two operations: Click the icon, and then select an area in the video image to zoom in; right-click on the image to resume the original size. In zoom in state, drag the image to check other area. Click the icon, and then scroll the mouse wheel in the video image to zoom in or out. Click the icon to capture one picture of the current image, and it will be saved to the defined storage path. About viewing or configuring storage path, see "4.5.2.5 Path."
7	Playback video	You can select the file type, data source, and record date.
8	Video clip	Clip a certain record and save it. For details, see "4.4.3 Clipping Video."

No	Function	Description
9	Time format of progress bar	Includes 4 time formats: 24hr, 22hr, 2hr, 2hr, 2hr, 2hr, 2hr, 2hr,

4.4.2 Playing back Video or Picture

This section introduces the operation of video playback and picture playback. This section takes video playback as an example.

<u>Step 1</u> Select **dav** from **Record Type** drop-down list and **SD card** in the **Data Src** drop-down list. See Figure 4-25.

Select **jpg** from **Record Type** drop-down list when playing back picture, and you do not need to select data source.

Fil	е Тур	e d	av			•
Da	ata Sr	c <mark>S</mark>	SD Card			•
<	12	_		2013	}	>
Sun	Mon	Tue	Wed	Thu	Fri 🛛	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Figure 4-25 File type selection

<u>Step 2</u> Select the record type in **Record Type**. See Figure 4-26. Figure 4-26 Record type selection

Record Type 🗹 All 🗹 General 📕 🗹 Motion 📕 🗹 Alarm 📕 🗹 Manual 📕

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



Figure 4-27 Specific event types

<u>Step 3</u> Select the month and year of the video that you want to play.

ſ	Υ	T
4	÷	4

Those dates with blue color indicate there were videos recorded in those days. <u>Step 4</u> Play video.

- Click in the control bar.
 The system plays the recorded video of the selected date (in the order of time).
- Click any point in the colored area on the progress bar. See Figure 4-28. The playback starts from that moment.

Figure 4-28 Progress bar

• Click IIII, the video files of the selected date would be listed. See Figure 4-29.

Enter the start time and end time, and then click **a** to search all files between the

start time and end time. Double-click the file in the list, and the system plays the video and displays file size, starting time, and ending time.





4.4.3 Clipping Video

- Step 1 Click , the video files of the selected date are listed.
- Step 2 Select dav or mp4 in Download Format.
- Step 3 Click on the progress bar to select the start time of the target video, and then click

×-See Figure 4-30.

Figure 4-30 Clipping video



Step 4 Click again on the progress bar to select the end time of the target video, and then click



Step 5 Click to download the video.

The system will prompt that it cannot playback and download at the same time.

Step 6 Click OK.

The playback stops and the clipped file is saved in the defined storage path. For the configuration of storage path, see "4.5.2.5 Path."

4.4.4 Downloading Video or Picture

Download video or picture to a defined path. You can download single video or picture file, or download them in batches. This section takes downloading video as an example.

 \square

- Playback and downloading at the same time is not supported.
- Operation might be vary with different browsers, and the actual product shall prevail.
- For details of viewing or setting storage path, see "4.5.2.5 Path."

4.4.4.1 Downloading Single File

<u>Step 1</u> Select **dav** from **Record Type** drop-down list and **SD card** in the **Data Src** drop-down list.

Select **jpg** from **Record Type** drop-down list when playing back picture, and you do not need to select data source.

- Step 2 Click Elected date are listed. See Figure 4-29.
- Step 3 Select dav or mp4 in Download Format. Click Select dav or mp4 in Download.

The system starts to download the file to the defined path. When downloading picture, you do not need to select the download format.

4.4.4.2 Downloading File in Batches

Step 1 Click on the playback interface.

The **Batch Download** interface is displayed. See Figure 4-31. Figure 4-31 Batch download

Batch Downlo	oad					×
Туре	All Videos	-				
Otest Time	2010.06.19		00 Fad Time	2010 06 18	22 . 50 . 50	Courth
Start Time	2019-06-18	00:00:	00 End Time	2019-06-18	23 : 59 : 59	Search
Nu Nu	Imber File Size((Kb)	Begin Time	End Time	File Type	Download Progress
					M	∢ 1/1 ▶ ▶ <u>1</u>
Eile Size: 0Kb						
File Size, UKD						
Tura						
Type	dav	•				
Path	C:\Users\4536	3\WebDownload\Pl	aybackRecord	Browse		Download

<u>Step 2</u> Select the record type, set the start time and end time, and then click **Search**.

The searched files are listed.

<u>Step 3</u> Select the files to be downloaded, select dav or mp4 from Format drop-down list, and then set the storage path. Click Download.
 The system starts to download the file to the defined path. When downloading picture, you do not need to select the download format.

4.5 Camera

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

Camera parameters of different devices might vary, and the actual product shall prevail.

4.5.1 Conditions

Configure camera parameters of the camera to ensure surveillance goes properly.

4.5.1.1 Conditions

Configure camera parameters according to the actual situation, including picture, exposure, backlight and white balance.

4.5.1.1.1 Interface Layout

Configure camera parameters to improve the scene clarity, and ensure surveillance goes properly. See Figure 4-32.

- You can select from normal, day and night mode to view the configuration and the effect of the selected mode, such as picture, exposure, and backlight.
- Camera with PZT function supports zoom, focus and iris operations. See Figure 4-33.
 Configure speed, click direction button,

 and

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

Figure 4-32 Camera conditions



Figure 4-33 Camera conditions (PTZ camera)



4.5.1.1.2 Picture

You can configure picture parameters as needed.

- <u>Step 1</u> Select Setting > Camera > Conditions > Conditions > Picture.
 - The **Picture** interface is displayed. See Figure 4-34.



Figure 4-34 Picture



Parameter	Description
	Select picture style from soft, standard and vivid.
	• Soft: Default image style, displays the actual color of the image.
Style	• Standard: The hue of the image is weaker than the actual one, and
	contrast is smaller.
	Vivid: The image is more vivid than the actual one.
	Changes the value to adjust the picture brightness. The bigger the value is, the
Brightness	brighter the picture will be, and the smaller the darker. The picture might be
	hazy if the value is configured too big.
	Changes the contrast of the picture. The bigger the value is, the more the
Contract	contrast will be between bright and dark areas, and the smaller the less. If the
Contrast	value is set too big, the dark area would be too dark and bright area easier to
	get overexposed. The picture might be hazy if the value is set too small.
	Makes the color deeper or lighter. The bigger the value is, the deeper the color
Saturation	will be, and the lower the lighter. Saturation value does not change image
	brightness.
	Changes the sharpness of picture edges. The bigger the value is, the clearer
Sharpness	the picture edges will be, and if the value is set too big, picture noises are more
	likely to appear.
	Changes the picture brightness and improves the picture dynamic range in a
Gamma	non-linear way. The bigger the value is, the brighter the picture will be, and the
	smaller the darker.
Mirror	Select On , and the picture would display with left and right side reversed.

Table 4-8 Description of picture parameter

Parameter	Description				
	Changes the display direction of the picture, see the options below.				
	0°: Normal display.				
	• 90°: The picture rotates 90° clockwise.				
	• 180°: The picture rotates 90° counterclockwise.				
Flip	• 270°: The picture flips upside down.				
	For some models, please set the resolution to be 1080p or lower when using				
	90° and 180°. For details, see "4.5.2.1 Video."				
	Corrects the device shaking with difference comparison algorithm and				
EIS	improves the image clarity, effectively solves the picture shaking problem.				
Picture	When you call a preset, the image displays the preset location, not the rotation				
Freeze	image.				

4.5.1.1.3 Exposure

Configure iris and shutter to improve image clarity.



Cameras with true WDR do not support long exposure when WDR is enabled in **Backlight**. <u>Step 1</u> Select **Setting > Camera > Conditions > Conditions > Exposure**.

The **Exposure** interface is displayed. See Figure 4-35.



Figure 4-35 Exposure

Step 2 Configure exposure parameters. For details, see Table 4-9.

Parameter	Description
Anti-flicker	 You can select from 50 Hz, 60 Hz and Outdoor. 50 Hz: when the current is 50 Hz, the system adjusts the exposure according to ambient light automatically to ensure there is no stripe appears. 60 Hz: when the current is 60 Hz, the system adjusts the exposure according to ambient light automatically to ensure there is no stripe appears. Outdoor: You can select any exposure mode as needed.
Mode	 Device exposure modes, the options are: Auto: adjusts the image brightness according to the actual condition automatically Gain Priority: When the exposure range is normal, the system prefers the configured gain range when auto adjusting according to the ambient lighting condition. If the image brightness is not enough and the gain has reached upper or lower limit, the system adjusts shutter value automatically to ensure the image at ideal brightness. You can configure gain range to adjust gain level when using gain priority mode. Shutter priority: When the exposure range is normal, the system prefers the configured shutter range when auto adjusting according to the ambient lighting condition. 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 at ideal brightness. Iris priority: The iris value is set to a fixed value, and the device adjusts shutter value has reached upper or lower limit, the system adjusts gain value automatically to ensure the image at ideal brightness. Manual: Configure gain and shutter value manually to adjust image brightness.
	Shutter priority in the Mode list.
Exposure Comp	Sets the value, and it ranges from 0 to 50. The bigger the value is, the brighter the image will be.
Shutter	Set the effective exposure time. The value is smaller, the shorter the exposure time will be.
Shutter range	When selecting Shutter Priority or Manual in Mode , and setting Customized Range in Shutter , you can set shutter range, and the unit is ms.

Table 4-9 Description of exposure parameter

Parameter	Description
	When selecting Gain Priority or Manual in Mode, you can set shutter
Gain	range. With minimum illumination, the camera increases Gain
	automatically to get clearer images.
Iris	When selecting Aperture Priority in Mode, you can set iris range.
	This configuration is available only when the camera is equipped with
	auto-iris lens.
	• When auto iris is enabled, the iris size changes automatically
Auto Iris	according to the ambient lighting condition, and the image
	brightness changes accordingly.
	• When auto iris is disabled, the iris stays at full size and does not
	change no matter how ambient lighting condition changes.
2D NR	Average single-frame dots and other dots around to reduce noise.
	Works with multi-frame (no less than 2 frames) images and reduces
	noise by using the frame information between previous and latter frames.
Grada	This configuration is available only when the 3D DNR is enabled.
Blade	The higher the DNR level is, the better the result will be.

4.5.1.1.4 Backlight

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

<u>Step 1</u> Select Setting > Camera > Conditions > Conditions > Backlight.

The **Backlight** interface is displayed. See Figure 4-36.

Figure 4-36 Backlight

▶ Picture	Mode Off
▶ Exposure	
 Backlight 	
▶ WB	
Day & Night	
► IR Light	
▶ Defog	

<u>Step 2</u> Configure backlight parameters. For details, see Table 4-10.

Backlight mode	Description
Auto	The system adjusts image brightness according to ambient lighting
Auto	condition automatically to ensure image clarity.
	Enable BLC, the camera can get clearer image of the dark areas on the
	target when shooting against light. You can select Default mode or
	Customized mode.
	• When in Default mode, the system adjusts exposure according to
BLC	ambient lighting condition automatically to ensure the clarity of the
	darkest area.
	• When in Customized mode, the system auto adjusts exposure
	only to the set area according to ambient lighting condition to
	ensure the image of the set area at ideal brightness.
	The system dims bright areas and compensates dark areas to ensure
	the clarity of all the area. The bigger the value is, the brighter the dark
	will be, but the bigger the noise will be.
WDR	
	There might be a few seconds of video loss when the device is
	switching to WDR mode from other mode.
	Enable HLS when extreme strong light is in the environment (such as
	toll station or parking lot), the camera will dim strong light, and reduce
HLS	the size of Halo zone to lower the brightness of the whole image, so
	that the camera can capture human face or car plate detail clearly. The
	bigger the value is, the more obvious the HLS effect will be.

Table 4-10 Description of backlight mode

4.5.1.1.5 WB

WB function makes the image color display precisely as it is. When in WB mode, white objects would always display white color in different environments.

<u>Step 1</u> Select Setting > Camera > Conditions > WB.

The **WB** interface is displayed. See Figure 4-37.

Figure 4-37 WB

▶ Picture	Mode Auto
Exposure	
 Backlight 	
▶ WB	
Day & Night	
IR Light	
Defog	

Step 2 Configure WB mode. For details, see Table 4-11.

WB mode	Description
Auto	The system compensates WB according to color temperature to ensure
	color precision.
Notural	The system auto compensates WB to environments without artificial light to
Inatural	ensure color precision.
Street Lamp	The system compensates WB to outdoor night scene to ensure color
Street Lamp	precision.
Outdoor	The system auto compensates WB to most outdoor environments with
Outdoor	natural or artificial light to ensure color precision.
Manual	Configure red and blue gain manually; the system auto compensates WB
	according to color temperature.
Regional	The system compensates WB only to the set area according to color
Custom	temperature to ensure color precision.

Table 4-11 Description of WB mode

4.5.1.1.6 Day & Night

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

<u>Step 1</u> Select Setting > Camera > Conditions > Conditions > Day & Night.

The Day & Night interface is displayed. See Figure 4-38.

Figure 4-38 Day and night

 Picture 	Mode	Auto	-
Exposure	Sensitivity	Middle	-
 Backlight 	Delay	6s	-
▶ WB			_
▶ Day & Night			
► IR Light			
Defog			

<u>Step 2</u> Configure day and night parameters. For details, see Table 4-12.

Table 4-12 Description of day and night mode

Parameter	Description
	You can select device display mode from Color, Auto, and B/W.
Mode	
	Day & Night configuration is independent from profile management
	configuration.
	• Color: The system displays color image.
	• Auto: The system switches between color and black-and-white display
	according to the actual condition.
	• B/W : The system displays black-and-white image.

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

4.5.1.1.7 Zoom and Focus

Initialize lens to adjust zoom and focus. Only PZT camera supports lens initialization.

<u>Step 1</u> Select Setting > Camera > Conditions > Conditions > ZoomFocus.

The **ZoomFocus** interface is displayed. See Figure 4-39.

Figure 4-39 Zoom and focus

 Picture 	Digital Zoom 🔿 On 💿 Off
▶ Exposure	Zoom Speed — (+ 100
Backlight	Mode Semi Auto
▶ WB	Focus Limit Auto
▶ Day & Night	Sensitivity Default
▶ ZoomFocus	
► IR Light	Lens Initialization
▶ Defog	

<u>Step 2</u> Configure zoom and focus parameters. For details, see Table 4-12.

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camera
om, the
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focus.
e cover
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Parameter	Description
Sensitivity	The sensitivity of triggering focus. The bigger the value is, the easier the
	focus will be triggered.
Step 3 Click Save.	

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Ш		
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Click Lens Initialization, the lens will adjust the zoom and focus parameters.

4.5.1.1.8 IR Light

This configuration is available only when the device is equipped with IR light.

<u>Step 1</u> Select Setting > Camera > Conditions > Conditions > IR Light.

The **IR Light** interface is displayed. See Figure 4-40.

Figure 4-40 IR light

 Picture 	Mode Auto
▶ Exposure	
 Backlight 	
▶ WB	
Day & Night	
► IR Light	
▶ Defog	

Step 2 Configure IR light mode. For details, see Table 4-14.

Table 4-14 Description of IR light mod
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IR light mode	Description
Manual	Adjust the brightness of IR light manually, and then the system will supply IR light to the image accordingly.
Auto	The system adjusts the IR light intensity according to the ambient lighting
Smart IR	condition.
ZoomPrio	 The system adjusts the IR light intensity automatically according to the change of the ambient light. When the ambient light turns darker, the system turns on the low beam lights first, if the brightness is still not enough, it turns on the high beam lights then. When the ambient light turns brighter, the system dims high beam lights until they are off, and then the low beam lights. When the focus reaches certain wide angle, the system doesn't turn on high beam light in order to avoid over-exposure in short distance. In the meantime, you can configure light compensation manually to make fine adjustment to the IR light intensity.
Off	IR light is off.

Step 3 Click Save.

4.5.1.1.9 Defog

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

<u>Step 1</u> Select Setting > Camera > Conditions > Conditions > Defog.

The **Defog** interface is displayed. See Figure 4-41.

Figure 4-41 Defog

Picture	Mode Off
Exposure	
Backlight	
▶ WB	
Day & Night	
► IR Light	
▶ Defog	

Step 2 Configure defog mode. For details, see Table 4-15.

Table 4-15 Description of defog mode

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

Step 3 Click Save.

4.5.1.1.10 Fisheye

Select install mode and record mode according to the actual installation scene. When the camera accesses to the platform with corrective stream, the platform displays the corrective image.



This function is only available on fisheye device.

<u>Step 1</u> Select Setting > Camera > Conditions > Conditions > Fisheye.

The Fisheye interface is displayed. See Figure 4-42.

Figure 4-42 Fisheye

 Picture 	Install Mode Ceiling	•
▶ Exposure	Record Mode 10	•
 Backlight 		
▶ WB		
Day & Night		
▶ IR Light		
▶ Fisheye		

<u>Step 2</u> Set install mode and record mode. For details, see Table 4-16.

Parameter	Description			
Install Mode	You can select Ceiling, Wall, or Ground.			
	10: The original image before correction.			
	• 1P: 360° rectangular panoramic image.			
	• 2P: When the install mode is Ceiling or Ground , you can set this			
	mode. Two associated 180° rectangular image screens, and at any			
	time, the two screens form a 360° panoramic image.			
	• 1R: Original image screen + independent sub-screen. You can zoom			
	or drag the image in all the screens.			
Record Mode	• 2R: Original image screen + two independent sub-screens. You can			
	zoom or drag the image in all the screens.			
	• 4R: Original image screen + four independent sub-screens. You can			
	zoom or drag the image in all the screens.			
	• 10 + 3R: Original image screen + three independent sub-screens.			
	You can zoom or drag the image in original image screen, and move			
	the image (upper and lower) in sub-screens to adjust the vertical			
	view			

Step 3 Click Save.

4.5.1.2 Profile Management

The surveillance system works in different ways as profile configured in different time.

<u>Step 1</u> Select Setting > Camera > Conditions > Profile Management.

The **Profile Management** interface is displayed.

- Step 2 Manage profile.
 - When **Profile Management** is set as **General**, the surveillance system works under **General** configuration.

Figure 4-43 General

Conditions Pro	file Managemen	t Zoom and Foc	us
Profile Management	🖲 General 🔘 Fu	ıll Time 🔘 Schedu	le 🔘 Day/Night
	Default	Refresh	Save

• When **Profile Management** is set as **Full Time**, you can select **Day** or **Night** in the **Always Enable** list, the surveillance system works under **Always Enable** configuration.



			_
Conditions P	rofile Management	Zoom and Foc	us
Profile Managemen	t 🔿 General 💿 Full	Time 🔘 Schedu	le 💿 Dav/Night
2	0 0000000 0 1000		o O Dayinigin
Always Enable	Day	•	
	Default	Refrech	Sava
	Delault	IXeliesh	Jave

 When Profile Management is set as Schedule, you can drag the slide block to set certain time as Day or Night. For example, set 8:00–18:00 as day, and 0:00– 8:00 and 18:00–24:00 as night.

	Figure 4-	45 Scheo	dule			
Conditions Pr	rofile Management Zoom	and Focus				ĺ
Profile Managemen	t 🔘 General 🔘 Full Time @) Schedule 🔿 D	ay/Night			
Period setting						
	0:00 4:00	8:00	12:00	16:00	20:00	24:00
	📒 Day 🔳 Night					
	Default Refresh Save					

• When **Profile Management** is set as **Day & Night**, the surveillance system works under **Day & Night** configuration.

Figure 4-46 Day/Night

Conditions Profil	e Management	Zoom and Focu	ls i
Profile Management 📀	General 🔘 Full	Time 🔘 Schedul	e 🖲 Day/Night
	Default	Refresh	Save

Step 3 Click Save.

4.5.1.3 Zoom and Focus

You can adjust image clarity through auto or manual focus; and adjust the image size through zoom. For details, see 4.2.4.2 Zoom and Focus."

4.5.2 Setting Video Parameters

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



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

4.5.2.1 Video

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

<u>Step 1</u> Select **Setting > Camera > Video > Video**.

The **Video** interface is displayed. See Figure 4-47. Figure 4-47 Video

Main Stream			Sub Stream		
			Enable	Sub Stream1	•
Encode Mode	H.264H]	Encode Mode	H.264H	•
Smart Codec	Off]	Resolution	704*480(D1)	•
Resolution	4000*3000(4000x3000)]	Frame Rate(FPS)	30	•
Frame Rate(FPS)	30]	Bit Rate Type	CBR	•
Bit Rate Type	CBR]	Reference Bit Rate	512-2048Kb/S	
Reference Bit Rate	7726-16384Kb/S		Bit Rate	768	▼ (Kb/S)
Bit Rate	Customized -]	I Frame Interval	60	(30~150)
	8448	(3~17664) (Kb/S)	SVC	1(off)	•
I Frame Interval	60	(30~150)			
SVC	2]			
Watermark Settings					
Watermark Characte	er DigitalCCTV]			

Step 2 Configure video parameters. For details, see Table 4-17.

Parameter	Description
	Select the Enable check box to enable sub stream, it is enabled by default.
Enable	
	You can enable multiple sub streams simultaneously.
Enable	Select the Enable check box to enable sub stream, it is enabled by default.
Enable	You can enable both Sub Stream 1 and Sub Stream 2.

Table 4-17 Description of video parameter

Parameter	Description
	You can select encode mode from:
	H.264: Main Profile Encode Mode.
	H.264H: High Profile Encode Mode.
Encode	H.264B: Baseline Profile Encode Mode.
Mode	H.265: Main Profile Encode Mode.
	• MJPEG : When under this mode, the image requires high bit rate value to
	ensure clarity, it is recommended to set the Bit Rate value to the biggest
	value in the Reference Bit Rate .
	Enable smart codec to improve video compressibility and save storage
	space.
Smart	\mathbf{A}
Codec	$\overline{\langle i \rangle}$
	After smart codec is enabled, the device would stop supporting the third bit
	stream, ROI, and smart event detection, and the actual interface shall prevail.
	The resolution of the video. The bigger the value is, the clearer the image will
Resolution	be, but the bigger the bandwidth will be.
	This function is available only for sub stream 2 of select device.
	1. Select Video Clip, and click
Video Clip	The Area interface is displayed.
	2. Select resolution as needed and clip image on the interface.
	3. View the clipped video on Live interface (the live interface of sub stream
	2 only displays the clipped area).
Frame Rate	The number of frame in one second of video. The bigger the FPS is, the
(FPS)	clearer and smoother the video will be.
	The bit rate control type during video data transmission. You can select bit
	rate type from:
	• CBR : The bit rate changes a little and keeps close to the defined bit rate
	value.
Bit Rate	• VBR: The bit rate changes as monitoring scene changes.
туре	\square
	The Bit Rate Type can be only be set as CBR when Encode Mode is set as
	MJPEG.
	This parameter can be configured only when the Bit Rate Type is set as
Quality	VBR.
-	The better the quality is, the larger the bandwidth will be.
Reference	The most suitable bit rate value range recommended to user according to the
Bit Rate	defined resolution and frame rate.
	This parameter can be configured only when the Bit Rate Type is set as
	VBR.
Max Bit Rate	You can select the value of the Max Bit Rate according to the Reference Bit
	Rate value. The bit rate then changes as monitoring scene changes, but the
	max bit rate keeps close to the defined value.

Parameter	Description
	This parameter can be configured only when the Bit Rate Type is set as
Bit Rate	CBR.
	Select bit rate value in the list according to actual condition.
l Frama	The number of P frames between two I frames, and the I Frame Interval
Intonyol	range changes as FPS changes.
Interval	It is recommended to set I Frame Interval twice as big as FPS.
	Scaled video coding, able to encode a high quality video bit stream that
	contains one or more subset bit streams. When sending stream, to improve
SVC	inflency, the system will quit some data of related lays acoording to the
370	network staus.
	• 1: The default value, which means that there is no layered coding.
	• 2, 3 and 4: The lay number that the video stream is packed.
Watermark	You can varify the watermark to check if the video has been tempered
Settings	1 Select the check box to enable watermark function
Watermark	2 The default character is DigitalCCTV
Character	

Step 3 Click Save.

4.5.2.2 Snapshot

You can configure snapshot parameters, including snapshot type, image size, quality and interval.

<u>Step 1</u> Select Setting > Camera > Video > Snapshot.

The **Snapshot** interface is displayed, see Figure 4-48.

Figure 4-48 Snapshot

Video	Snapshot	Overlay	ROI	Path
Snapshot Type	General	T		
Image Size	1080P (1920*1080)			
Quality	5	•		
Interval	1 S	•		
	Default	Refresh	ave	

<u>Step 2</u> Configure snapshot parameters. For details, see Table 4-18.

Table 4-18	Description	of snapshot	parameter
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Parameter	Description
	You can select General and Event.
	• General: The system takes snapshot as scheduled. For details, see
Snapshot	"4.7.1 Schedule."
Туре	• Event: The system takes snapshot when the video detection, audio
	detection, event, or alarm is triggered. This function requires the
	corresponding snapshot being enabled.
Image Size	The same resolution with main stream.
	Configures the snapshot quality. There are six levels of Image quality,
Quality	and the sixth is the best.

	Configures the snapshot frequency.
Interval	Select Customized, and then you can configure snapshot frequency
	manually.

4.5.2.3 Overlay

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

4.5.2.3.1 Configuring Privacy Masking

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

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Privacy Masking.

The **Privacy Masking** interface is displayed. See Figure 4-49 and Figure 4-50.



Figure 4-49 Privacy masking

Video Snapshot Overlay ROI Path PTZ Camera Channel --SN Color Channel Title Time Title n Delete Draw OSD info Q Go to Picture Overlay Ranging Zoom

Figure 4-50 Privacy masking (speed dome)

Step 2 Set privacy masking.

- Speed Dome
- 1) Select the SN.
- Adjust the live image to the proper location through PTZ, select the color, and then click **Draw**. Press the mouse button to drag rectangles. The configuration takes effect immediately.

Other operations:

- \diamond Select he SN, and click **Go to**, the speed dome rotates to the masked area.
- ♦ Select the SN, and click **Delete** to delete the masking rectangles.
- Click Clear, and the click OK to clear all masking rectangles.
- Other cameras
- 1) Select **Enable**, and then drag the block to the area that you need to cover.



- You can draw four rectangles at most.
- Click Remove All to delete all the area boxes; select one box, and then click
 Delete or right-click to delete it.
- 2) Adjust the size of the rectangle to protect the privacy.
- 3) Click Save.

4.5.2.3.2 Configuring Channel Title

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

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Channel Title.

The Channel Title interface is displayed. See Figure 4-51.



Step 2 Select the Enable check box, enter the channel title, and select the text align.



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

- <u>Step 3</u> Move the title box to the position you want in the image.
- Step 4 Click Save.

4.5.2.3.3 Configuring Time Title

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

Step 1 Select Setting > Camera > Video > Overlay > Time Title.

The **Time Title** interface is displayed. See Figure 4-52.



- Step 2 Select the Enable check box.
- Step 3 Select the Week Display check box.
- <u>Step 4</u> Move the time box to the position you want in the image.

4.5.2.3.4 Configure Text Overlay

You can enable this function if you need to display text in the video image.



Text overlay and picture overlay cannot work at the same time, and the IPC that connects to mobile NVR with private protocol would display GPS information as priority.

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Text Overlay.

The **Text Overlay** interface is displayed. See Figure 4-53.

Figure 4-53 Text overlay



<u>Step 2</u> Select the **Enable** check box, enter the text you need, and then select alignment. The text displays in the video image.



Click + to expand the text overlay, and you can expand 9 lines at most.

<u>Step 3</u> Move the text box to the position you want in the image.

Step 4 Click Save.

4.5.2.3.5 Configure Font Attribute

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

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Font Attribute.

The Font Attribute interface is displayed. See Figure 4-54.



<u>Step 2</u> Select the font color and size.

Click **More Color** to customize the font color.

Step 3 Click Save.

4.5.2.3.6 Configure Picture Overlay

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

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

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Picture Overlay.

The Picture Overlay interface is displayed. See Figure 4-55.

Figure 4-55 Picture overlay



<u>Step 2</u> Select the **Enable** check box, click **Upload Picture**, and then select the picture to be overlaid.

The picture is displayed on the video image.

- <u>Step 3</u> Move the overlaid picture to the position you want in the image.
- Step 4 Click Save.

4.5.2.3.7 Configure Custom Overlay

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

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Custom Overlay.

The **Custom Overlay** interface is displayed, see Figure 4-56.



<u>Step 2</u> Select the **Enable** check box, and then select the text align.

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-	~	4

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

<u>Step 3</u> Move the custom box to the position you want in the image.

Step 4 Click Save.

4.5.2.3.8 Configuring OSD Info

You can enable this function if you want to display the information of preset, PTZ coordinates, zoom, tour and location on the video image.



Only tracking speed dome supports OSD info function.

<u>Step 1</u> Select Setting > Camera > Video > OSD Info.

The **OSD Info** interface is displayed. See Figure 4-57.

Overlay Video Snapshot I ROI 1 Path Channel * 2017-08-23 17-3 Privacy Mask Preset Enable O Disable Channel Title Enable () Disable Temperatur Time Title Coordinate Enable () Disable Picture Overlay Enable () Disable Zoom ▶ Counting North 🔿 Enable 💿 Disable RS485 Enable O Disable 🔿 Enable Oisable Input Text Refresh Default Save Text Align • Right

Figure 4-57 OSD info

Step 2 Configure OSD information. See Table 4-19.

Parameter	Description	
Draaat	Select Enable, and the preset name is diaplayed in the image when the	
Flesel	camera turns to the preset, and it will disappear 3 s later.	
Tomporaturo	Select Enable and the internal temperature of the current device is	
Temperature	displayed.	
Coordinates	Select Enable and the PTZ coordinates info is diaplayed in the image.	
	Select Enable and the zoom info is displayed in the image. such as	
Zoom	P 89 4 T 12/5 Z 12, which means 12x zoom rate.	
North	Select Enable and the north direction is displayed in the image.	
RS485	Select Enable and it will enable RS-485 communication function.	
Text	Select Enable and set text, and the text is displayed in the image.	
Input Text		
Text Align	Alignment mode of the displayed information in the image.	

Table 4-19 Description of OSD information

<u>Step 3</u> Move the OSD box to the position you want in the image. <u>Step 4</u> Click **Save**.

4.5.2.3.9 Configure Counting

The image displays statistics of the enter number and leave number. When the overlay function is enabled during intelligent rules configuration, this function is enabled simultaneously.

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Counting.

The **Counting** interface is displayed. See Figure 4-58.

Figure 4-58 Counting



Step 2 Select the Enable check box, and then configure counting method and alignment.

- <u>Step 3</u> Move the counting box to the position you want in the image.
- Step 4 Click Save.

4.5.2.3.10 Configuring Structured Statistics

The image displays structured statistics. When the overlay function enabled during intelligent rules configuration, this function is enabled simultaneously.

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Structured Statistics.

The Structured Statistics interface is displayed. See Figure 4-59.

Figure 4-59 Structured statistics



<u>Step 2</u> Select the **Enable** check box, select the statistics type, and then select text align.

<u>Step 3</u> Move the structured statistics box to the position you want in the image.

Step 4 Click Save.
4.5.2.3.11 Configuring Ranging

Configure camera height and the display time of overlay information. Click any point on the ground that the pole is installed on the image, and the overlay information between camera and the selected point is displayed.

Video Snapshot Overlay ROI Path PTZ Camera Channel * Privacy Masking SIDE FRANK enable O Disable Channel Title Installation Height Time Title 0 m (>0) OSD info Time Display Picture Overlay s(1~30) 5 Default Refresh Save

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Ranging.

The **Ranging** interface is displayed. See Figure 4-60. Figure 4-60 Ranging

<u>Step 2</u> Select the **Enable** check box, and then set the installation height and time display. Time display: The display time of the ranging information on live image.

Step 3 Click Save.

4.5.2.3.12 Configuring ANPR

The image displays ANPR statistics information. When the overlay function enabled during intelligent rules configuration, this function is enabled simultaneously.

<u>Step 1</u> Select Setting > Camera > Video > Overlay > ANPR.

The **ANPR** interface is displayed. See Figure 4-61.



<u>Step 2</u> Select the **Enable** check box, select the statistics type, and select text align.

<u>Step 3</u> Move the ANPR box to the position you want in the image.

Step 4 Click Save.

4.5.2.3.13 Configuring Face Statistics

The image displays face statistics information. When the overlay function enabled during intelligent rules configuration, this function is enabled simultaneously.

<u>Step 1</u> Select Setting > Camera > Video > Overlay > Face Statistics.

The Face Statistics interface is displayed. See Figure 4-62.

Figure 4-62 Face statistics



<u>Step 2</u> Select the **Enable** check box, and select the text align.

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

Step 4 Click Save.

4.5.2.4 ROI

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

- <u>Step 1</u> Select **Setting > Camera > Video > ROI**.
 - The ROI interface is displayed. See Figure 4-63.

Figure 4-63 ROI



<u>Step 2</u> Select the **Enable** check box, draw the area on the image, and then configure the image quality of ROI.

 \square

- You can draw four area boxes at most.
- The bigger the image quality value is, the better the quality will be.
- Click Remove All to delete all the area boxes; select one box, and then click Delete or right-click to delete it.

Step 3 Click Save.

4.5.2.5 Path

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

<u>Step 1</u> Select **Setting > Camera > Video > Path**.

The Path interface is displayed. See Figure 4-64.

Figure 4-64 Path

Video	Snapshot	Overlay	Path	
Live Snapshot	C:\Users\admin\WebI	Download\LiveSnapshot		Browse
Live Record	C:\Users\admin\Webl	Download\LiveRecord		Browse
Playback Snapshot	C:\Users\admin\WebI	Download\PlaybackSnaps	hot	Browse
Playback Download	C:\Users\admin\Webl	Download\PlaybackRecor	d	Browse
Video Clips	C:\Users\admin\WebI	Download\VideoClips		Browse

<u>Step 2</u> Click **Browse** to select the storage path for live snapshot, live record, playback snapshot, playback download, and video clips. For details, see Table 4-20.

Table 4-20 Description of path

Parameter	Description	
	The snapshot of live interface.	
Live Snapshot	The default path is	
	C:\Users\admin\WebDownload\LiveSnapshot.	
	The recorded video of live interface.	
Live Record	The default path is	~~
	C:\Users\admin\WebDownload\LiveRecord.	
Dlavbaak	The snapshot of playback interface.	
PlayDack	The default path is	Admin in the path
Shapshot	C:\Users\admin\WebDownload\PlaybackSnapshot.	refers to the
Dlovback	The downloaded video of playback interface.	account being
Playback	The default path is	usea.
Download	C:\Users\admin\WebDownload\PlaybackRecord.	
	The clipped video of playback interface.	
Video Clips	The default path is	
	C:\Users\admin\WebDownload\VideoClips.	

Step 3 Click Save.

4.5.3 Audio

You can configure audio parameters and alarm audio.

4.5.3.1 Configuring Audio Parameter

This section introduces audio parameters, including encode mode, sampling frequency, audio in type, and noise filter.

<u>Step 1</u> Select Setting > Camera > Audio > Audio.

The Audio interface is displayed. See Figure 4-65.

Encode	
Main Stream	
Enable	
Encode Mode	G.711A 💌
Sampling Frequency	16k 💌
Sub Stream	
🔲 Enable	Sub Stream 1
Encode Mode	G.711A 💌
Sampling Frequency	16k 💌
Attribute	
AudioIn Type	Lineln
Noise Filter	Enable 🔹
Microphone Volume	□ () () = 50
Speaker Volume	

<u>Step 2</u> Select the **Enable** check box in **Main Stream** or **Sub Stream**.

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

Step 3 Configure audio parameters. For details, see Table 4-21.

Table 4-21	Description of	audio parameter
------------	----------------	-----------------

Parameter	Description		
	You can select audio Encode Mode from G.711A, G.711Mu, AAC,		
Encode Mode	G.726.		
	The configured audio encode mode applies to both audio and		
	intercom. The default value is recommended.		
	Sampling number per second. The higher the sampling frequency		
Sampling Frequency	is, the more the sample in a second will be, and the more accuary		
	the restored signal will be. You can select audio Sampling		
	Frequency from 8K, 16K, 32K, 48K, 64K.		
	You can select audioin type from:		
Audioin Type	Linein: Requires external audio device.		
	Mic: Not require external audio device.		
Noise Filter	Enable this function, and the system auto filters ambient noise.		
Microphone Volume	Adjusts microphone volume.		
Speaker Volume	Adjusts speaker volume.		

Step 4 Click Save.

4.5.3.2 Configuring Alarm Audio

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

- Click 🤷 to play the selected audio.
- Click is to download the audio to local storage.

<u>Step 1</u> Select **Setting > Camera > Audio > Alarm Audio**.

The Alarm Audio interface is displayed. See Figure 4-66.

Figure 4-66 Alarm audio

Choose	Name	Play	Download	Modify	Delete
ē	alarm1.pcm	0	<u>+</u>		
С	alarm2.pcm	0	±		

Step 2 Click Add Audio File.

The Add Audio File dialog box is displayed. See Figure 4-67.

Figure 4-67 Add audio file

Add Audio F	File	×
Record	C Upload	
Audio File	.pcm Record	

Step 3 Configure audio file.

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

The camera support audio file with .pcm format only, and you can upload audio files with .pcm or .wav2 formats.

<u>Step 4</u> Select the file you need.

4.6 Network

This section introduces network configuration.

4.6.1 TCP/IP

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

Preparation

The camera has connected to the network.

Procedures

Step 1 Select Setting > Network > TCP/IP.

The **TCP/IP** interface is displayed. See Figure 4-68.

Figure 4-68 TCP/IP

Host Name	IPC		
Ethernet Card	Wire(DEFAULT)	▼ Set as D	efault
Mode	• Static • DHCP		
MAC Address	N. N. W.	h. d. e	
P Version	IPv4	•	
P Address	1751 155 4	Ref.	
Subnet mask	2011 1201 10	韻	
Default Gateway	12.12.12.1	1	
Preferred DNS Server	E E E	E.	
Alternate DNS Server	M M . H .	-	
Enable ARP/Ping to se	t IP address service		
Enable ARP/Ping to se	et IP address service		

<u>Step 2</u> Configure parameters. For details, see Table 4-22.

Table 4-22 Description of TCP/IP parar
--

Parameter	Description
Host Name	Enter host name, and the maximum length is 15 characters.
Ethernet Card	Select the Ethernet card that need to be configured, and the default
	one is Wire .
	The mode that the camera gets IP:
	Static
	Configure IP Address, Subnet Mask, and Default Gateway
Mode	manually, and then click Save, the login interface with the
	configured IP address is displayed.
	• DHCP
	When there is DHCP server in the network, select DHCP, and the
	camera acquires IP address automatically.
MAC Address	Displays host MAC address.
IP Version	Select IPv4 or IPv6.
IP Address	
	When you select Static in Mode, enter the IP address and subnet mask
Subnet Mask	that you need.

Parameter	Description		
Defaut Gateway	IPv6 does not have subnet mask.		
	• The default gateway must be in the same network segment with		
	the IP address.		
Preferred DNS	IP address of the preferred DNS		
Alternate DNS	IP address of the alternate DNS		
	 Select the check box, get the device MAC address, and then you can modify and configure the device IP address with ARP/ping command. This is enabled by default. During reboot, you will have no more than 2 minutes to configure the device IP address by a ping packet with certain length, the server will be turned off in 2 minutes, or it will be turned off immediately after the IP address is successfully configured. If this is not enabled, the IP address cannot be configured with ping packet. A demonstration of configuring IP address with ARP/Ping. Keep the camera that needs to be configured and the PC within the same local network, and then get a usable IP address. Get the MAC address of the camera from device label. Open command editor on the PC and enter the following command. 		
Enchla APD/Ding	arp _s <ip address=""> <mac> e</mac></ip>		
to set IP address	ping –I 480 –t <ip address=""> 🕫</ip>		
service	Windows example ²		
	arp -s 192.168.0.125 11-40-8c-18-10-11+		
	ping -l 480 -t 192.168.0.125+2		
	UNIX/Linux/Mac syntax+ ²		
	arp −s <ip address=""> <mac> ↔</mac></ip>		
	ping –s 480 <ip address=""> 🕫</ip>		
	UNIX/Linux/Mac example+		
	arp -s 192.168.0.125 11-40-8c-18-10-11+		
	ping -s 480 192.168.0.125+ ³		
	4. Reboot camera.		
	5. Check the PC command line, if information such as Reply from		
	192.168.0.125 is displayed, the configuration succeeds, and you		
	can turn it off then.		
	192.168.0.125 is displayed, the configuration succeeds, and you can turn it off then.6. Enter http://(IP address) in the browser address bar to log in.		

Step 3 Click Save.

4.6.2 Port

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

<u>Step 1</u> Select Setting > Network > Port.

The **Port** interface is displayed. See Figure 4-69.

Figure 4-69 Port

Max Connection	10	(1~20)
TCP Port	37777	(1025~65534)
UDP Port	37778	(1025~65534)
HTTP Port	80	
RTSP Port	554	
HTTPS Port	443	

<u>Step 2</u> Configure port parameters. For details, see Table 4-23.

- The configuration of Max Connection takes effect immediately, and others will take effect after reboot.
- 0-1024, 1900, 3800, 5000, 5050, 9999, 37776, 37780-37880, 39999, 42323 are occupied for specific uses.
- It is not recommended to use the default values of other ports during port configuration.

Parameter	Description
Max	The max number of users (web client, platform client or mobile phone client)
Connection	that can connect to the device simultaneously. The value is 10 by default.
TCP Port	Transmission control protocol port. The value is 37777 by default.
UDP Port	User datagram protocol port. The value is 37778 by default.
HTTP Port	Hyper text transfer protocol port. The value is 80 by default.

Table 4-23 Description of port parameter

Parameter	Description
	 Real time streaming protocol port, and the value is 554 by default. If you play live view with QuickTime, VLC or Blackberry smart phone, the following URL format is available. When the URL format requiring RTSP, you need to specify channel number and bit stream type in the URL, and also user name and password if needed. When playing live view with Blackberry smart phone, you need to turn off the audio, and then set the codec mode to H.264B and resolution to CIF.
	URL format example:
RTSP Port	rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0
	Among that:
	 Username: The user name, such as admin. Password: The password, such as admin. IP: The device IP, such as 192.168.1.112. Port: Leave it if the value is 554 by default. Channel: The channel number, which starts from 1. For example, if you are using channel 2, then the channel=2. Subtype: The bit stream type; 0 means main stream (Subtype=0) and 1 means sub stream (Subtype=1).
	Example: If you require the sub stream of channel 2 from a certain device, then the URL should be:
	rtsp://admin:admin@10.12.4.84:554/cam/realmonitor?channel=2&subtype= 1
	If user name and password are not needed, then the URL can be:
	rtsp://ip:port/cam/realmonitor?channel=1&subtype=0
RIMP Port	The port that RIMP provides service. It is 1935 by default.
HTTPS Port	HTTPS communication port. It is 443 by default.

Step 3 Click Save.

4.6.3 **PPPoE**

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

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

Preparation

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

Procedures

<u>Step 1</u> Select Setting > Network > PPPoE.

The **PPPoE** interface is displayed. See Figure 4-70.

Figure 4-70 PPPoE

PPPoE			
🗌 Enable			
Username			
Password			
	Default	Refresh	Save

- <u>Step 2</u> Select the **Enable** check box, and then enter user name and password.
- Step 3 Click Save.

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

4.6.4 DDNS

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



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

Preparation

Check the type of DNS server supported by the camera.

Procedures

<u>Step 1</u> Select **Setting > Network > DDNS**.

The **DDNS** interface is displayed. See Figure 4-71.

DDNS	
🔽 Туре	NO-IP DDNS • After enabling DDNS function, third-party server may collect your device info.
Address	dynupdate.no-ip.com
Domain Nam	e none test
Username	none
Password	••••
Interval	1440 Min.(1440~2880)
	Default Refresh Save

Figure 4-71 DDNS (1)

Step 2 Select Type, and configure the parameters as needed. For details, see Table 4-24.

Table 4-24 Description of DDNS parameter

Parameter	Description
Туре	The name and web address of the DDNS service provider, see the
	matching relationship below:
Web Address	CN99 DDNS web address: www.3322.org
Web Address	NO-IP DDNS web address: dynupdate.no-ip.com
	 Dyndns DDNS web address: members.dyndns.org
Domain Name	The domain name you registered on the DDNS website.
Test	Only when selecting NO-IP DDNS type, you can click test to check
Test	whether the domain name registration is successful.
Username	Enter the user name and password that you got from the DDNS server
Decoword	provider. You need to register an account (includes user name and
Passworu	password) on the DDNS server provider's website.
Intorval	The update cycle of the connection between the device and the server, and
Interval	the time is 10 minutes by default.

Step 3 Click Save.

Verification

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

4.6.5 SMTP (Email)

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

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

The SMTP (Email) interface is displayed. See Figure 4-72.

F	igure 4-72 SMTP (Email)
SMTP(Email)	
SMTP Server	none
Port	25
Anonymity	
Username	anonymity
Password	••••
Sender	none
Authentication	TIS 🔹
Title	
Mail Receiver	
Health Mail	Update Period 30 Min.(30~1440)
	Test
	Default Refresh Save

<u>Step 2</u> Configure parameters. For details, see Table 4-25.

Table 4-25 Description of SMTP (Email) parameter

Parameter	Description					
SMTP Server	SMTP server address	\square				
Port	The port number of the SMTP server.					
Username	The account of SMTP server.	For details, see "Table				
Password	The password of SMTP server.	4-26."				
Anonymity	Select the check box, and the sender's information of the	ation is not displayed in the				
Sender	Sender's email address.					
Authentication	Select Authentication from None, SSL and TLS.					
	For detais, see "Table 4-26."					
Title	Enter maximum 63 characters in Chinese, English, and Arabic numerals. Click 🐨 to select title type, including Name , Device ID , and Event Type , and you can set maximum 2 titles.					
Attachment	Select the check box to support attachment in the	ne email.				
Mail Receiver	Receiver's email address. Supports 3 addresse	s at most.				
Health Mail	The system sends test mail to check if the configured. Select Health Mail and configure th the system sends test mail as the set interval.	connection is successfully ne Update Period , and then				

For the configuration of major mailboxes, see Table 4-26.

Mailbox	SMTP server	Authen tication	Port	Description
			465	• The authentication type cannot be
QQ	smtp.qq.com	TLS	587	 None. You need to enable SMTP service in your mailbox. The authentication code is required, the QQ password or email password is not applicable. Authentication code: The code you receive when enabling SMTP service.
	smtp.163.com	SSL	465/994	• You need to enable SMTP service in
		TLS	25	your mailbox.
163		none	25	 The authentication code is required; the email password is not applicable. Authentication code: the code you receive when enabling SMTP service.
Oine	smtp.sina.co	SSL	465	
Sina	m	none	25	Enable SIVE P Service in your mailbox.
126	smtp.126.com	none	25	Enable SMTP service in your mailbox.

Table 4-26 Description of major mailbox configuration

Step 3 Click Save.

<u>Step 4</u> Click **Test** to test whether the emails can be sent and received successfully.

4.6.6 UPnP

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

Preparation

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

Procedures

<u>Step 1</u> Select **Setting > Network > UPnP**.

The **UPnP** interface is displayed. See Figure 4-73.

Figure 4-73 UPnP

	Service Name	Protocol	Internal Port	External Port	Status	Modify
8	HTTP	WebService:TCP	80	8080	Mapping Failed	1
×.	TCP	PrivService:TCP	37777	37777	Mapping Failed	1
8	UDP	PrivService:UDP	37778	37778	Mapping Failed	1
2	RTSP	RTSPService.TCP	554	554	Mapping Failed	1

<u>Step 2</u> Select the **Enable** check box, and there are two mapping modes: **Custom** and **Default**.

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

Step 3 Click Save.

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

4.6.7 SNMP

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

Preparation

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

Procedures

<u>Step 1</u> Select **Setting > Network > SNMP**.

The **SNMP** interface is displayed. See Figure 4-74 and Figure 4-75.

Figure 4-74 SNMP (1)

Version	🗆 v1	🗌 v2		🗆 V3
SNMP Port	161		(1~65535)	
Read Community				
Write Community]	
Trap Address				
Trap Port	162			

SNMP			
Version	v1	V2	V3 (Recommen
SNMP Port	161	(1~65535)	
Read Community			
Write Community			
Trap Address			
Trap Port	162		
Read-only Username	public		
Authentication Type	MD5	○ SHA	
Authentication Pas		The minimum	n pass phrase length is 8 characters
Encryption Type	OBC-DES		
Encryption Password		The minimum	n pass phrase length is 8 characters
Read&write Userna	private		
Authentication Type	MD5	⊙ SHA	
Authentication Pas		The minimum	pass phrase length is 8 characters
Encryption Type	CBC-DES		
Encryption Password		The minimum	n pass phrase length is 8 characters
	Default	Refresh	Save

Figure 4-75 SNMP (2)

Step 2 Select SNMP version to enable SNMP.

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

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

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

Parameter	Description				
SNMP Port	The listening port of the software agent in the device.				
Read Community	The read and write community string that the software agent supports.				
Write Community					
	You can enter number, letter, underline and dash to form the name.				
Tran Address	The target address of the Trap information sent by the software				
Hap Address	agent in the device.				
Tran Port	The target port of the Trap information sent by the software agent in				
	the device.				

Table 4-27	Description	of SNMP	parameter

Parameter	Description
Read-only Username	Set the read-only username accessing device, and it is public by default.
Read/Write Username	Set the read/write username access device, and it is public by default.
Authentication Type	You can select from MD5 and SHA . The default type is MD5 .
Authentication Password	It should be no less than 8 digits.
Encryption Type	The default is CBC-DES.
Encryption Password	It should be no less than 8 digits.

Step 3 Click Save.

Verification

View device configuration through

- Step 1 Run MIB Builder and MG-SOFT MIB Browser.
- <u>Step 2</u> Compile the two MIB files with MIB Builder.
- Step 3 Load the generated modules with MG-SOFT MIB Browser.
- <u>Step 4</u> Enter the IP address of the device you need to manage in the MG-SOFT MIB Browser, and then select version to search.
- <u>Step 5</u> 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.

 \square

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

4.6.8 Bonjour

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



Bonjour is enabled by default.

Procedures

<u>Step 1</u> Select **Setting > Network > Bonjour**.

The **Bonjour** interface is displayed. See Figure 4-76.

	Figure 4-76 Bonj	our	
Bonjour			
 Enable 			
Server Name	2F03XXXXXXXXXXXX		
	Default	Refresh	Save

<u>Step 2</u> Select the **Enable** check box, and then configure server name. <u>Step 3</u> Click **Save**.

Verification

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

Step 1 Click Show All Bookmarks in Safari.

- <u>Step 2</u> Enable **Bonjour**. The OS or client automatically detects the network cameras with Bonjour enabled in the LAN.
- <u>Step 3</u> Click the camera to visit the corresponding web interface.

4.6.9 Multicast

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

Procedures

<u>Step 1</u> Select Setting > Network > Multicast.

The **Multicast** interface is displayed. See Figure 4-77.

Figure 4-77 Multicast

Main Stream			Sub Stream		
Enable			Enable	Sub Stream 1	•
Multicast Address	224.1.2.4	(224.0.0.0~239.255.255.255)	Multicast Address	224 . 1 . 2 . 4	(224.0.0.0~239.255.255.255
Port	40000	(1025~65500)	Port	40016	(1025~65500)

Step 2 Select the **Enable** check box, and enter IP address and port number. For details, see Table 4-28.

Parameter	Description
	The multicast IP address of Main Stream/Sub Stream is
Multicast Address	224.1.2.4 by default, and the range is 224.0.0.0-
	239.255.255.255.
	The multicast port of corresponding stream: Main Stream: 40000;
Port	Sub Stream1: 40016; Sub Stream2: 40032, and all the range is
	1025–65500.

Table 4-28 Descr	iption of multicast	parameter
------------------	---------------------	-----------

Step 3 Click Save.

Verification

In the Live interface, select RTSP in Multicast, and then you can view the video image with multicast protocol.

4.6.10 802.1x

Cameras can connect to LAN after passing 802.1x authentication.

<u>Step 1</u> Select Setting > Network > 802.1x.

The 802.1x interface is displayed. See Figure 4-78.

Figure 4-78 802.1x

802.1x			
🗌 Enable			
Authentication	PEAP	¥	
Username	none		
Password			
	Default	Refresh	Save

<u>Step 2</u> Select the **Enable** check box, and then configure parameters. For details, see Table 4-29.

Table 4-29	Descri	ntion of	802 1x	narameter
	Descrip		002.17	parameter

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

Step 3 Click Save.

4.6.11 QoS

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

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

<u>Step 1</u> Select Setting > Network > QoS.

The **QoS** interface is displayed. See Figure 4-79.

	Figure 4-79 Q	oS	
QoS			
Realtime Monitor	0	(0~63)	
Command	0	(0~63)	
	Default	Refresh	Save

Step 2 Configure parameters. For details, see Table 4-30.

Table 4-30 Desci	iption of QoS	parameter
------------------	---------------	-----------

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

Step 3 Click Save.

4.6.12 Access Platform

4.6.12.1 P2P

P2P is a private network traversal technology which enables user 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 the mobile phone client.

<u>Step 1</u> Select Setting > Network > Access Platform > P2P.

The P2P interface is displayed. See Figure 4-80.

Figure 4-80 P2P

P2P	ONVIF	RTMP		
Enable				
Status	Offline			
S/N	4M02	and the second se		
QR Code	Please scan the QR code on the actual interface	3 9		
	LEI ACCEMPT			
	Default	Refresh	Save	
	QR code on the actual interface	Refresh	Save	

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

<u>Step 2</u> Log in to mobile phone client and tap **Device management**.

<u>Step 3</u> Tap the + at the upper right corner.

<u>Step 4</u> Scan the QR code on the **P2P** interface.

<u>Step 5</u> Follow the instructions to finish the settings.

4.6.12.2 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 device.

ONVIF is enabled by default.

<u>Step 1</u> Select Setting > Network > Port > ONVIF.

The **ONVIF** interface is displayed. See Figure 4-81.

Figure 4-81 ONVIF P2P ONVIF RTMP Authentication On Off Default Refresh Save

Step 2 Select On in Authentication.

Step 3 Click Save.

4.6.12.3 RTMP

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

 \square

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

<u>Step 1</u> Select Setting > Network > Port > RTMP.

The **RTMP** interface is displayed. See Figure 4-82.

Figure 4-82 ONVIF

P2P	ONVIF RTMP
Enable	
Stream Type	Main Stream ○ Sub Stream 1 ○ Sub Stream 2
Address Type	Non-custom O Custom
IP Address	0.0.0.0
Port	1935 (0~65535)
Custom Addre	ess
	Default Refresh Save

Step 2 Select the Enable check box.



Step 3 Configure parameters. For details, see Table 4-31.

Table	4-31	Descrir	ntion of	narameters
I able 4	4-31	Descrip		parameters

Parameter	Description			
Stroom Typo	The stream for live view. Make sure that the video format is the H.264,			
Stream Type	H.264 B and H.264H, and the audio format is AAC.			
	Includes Non-custom and Custom.			
Address Type	• Non-custom: Enter the server IP and domain name.			
	• Custom : Enter the path allocated by the server.			
IP Addreaa	When selecting Non-custom, you need to enter server IP address and			
	port.			
Port	• IP address: Support IPv4 or domain name.			
	• Port : We recommend that you use the default one.			
	When selecting Custom, you need to enter the path allocated by the			
Custom Address	server.			

Step 4 Click Save.

4.7 Storage

This section introduces how to manage saved resources (such as recorded video) and storage space. The storage management helps to make best use of storage space.

4.7.1 Schedule

You can configure record schedule, snapshot schedule and holiday schedule.



When holiday schedule setting is not the same with the general setting, holiday schedule setting is prior to the general setting. For example, with **Holiday Schedule** enabled, if the day is holiday, snapshot or record as holiday schedule setting, otherwise, snapshot or record as general setting

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

Preparation

- Set the record mode to be **Auto** in Record control. For details, see "5.1.1.2.1 Setting Record Plan."
- Configure holiday record and snapshot schedule. For details, see "5.1.1.2.1 Setting Record Plan" and "5.1.1.3.1 Setting Snapshot Plan."

Procedures

<u>Step 1</u> Select Setting > Storage > Schedule > Holiday Schedule.

The Holiday Schedule interface is displayed. See Figure 4-83.

Figure 4-83 Holiday schedule

Calenda					Jul	•		
Sun	Mon	Tue	Wen	Thu	Fri	Sat		
	1	2	3	4	5	6		
7	8	9	10	11	12	13		
14	15	16	17	18	19	20		
21	22	23	24	25	26	27		
28	29	30	31					

Step 2 Select from Record and Snapshot.

Step 3 Select the days you need to set as holiday.

Those days with yellow color indicates that they were set as holidays.

Step 4 Click Save.

4.7.2 Destination

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

4.7.2.1 Path

You can select different storage paths for the recorded videos and snapshots according to event type. You can select from SD card, FTP and NAS.



Local is displayed only on models that support SD card.

<u>Step 1</u> Select Setting > Storage > Destination > Path.

The **Path** interface is displayed. See Figure 4-84.

Figure 4-84 Path

Path	Local	FT	P	NAS			
cord				Snapshot			
Event Type	Scheduled	Motion Detection	Alarm	Event Type	Scheduled	Motion Detection	Alarm
Local				Local			
FTP	V		V	FTP			V
NHO				NAS			

<u>Step 2</u> Select the storage method you need for the recorded videos and snapshots of different types.

Table 4-32 Descri	ption of	path	parameters
-------------------	----------	------	------------

Parameter	Description
Event Type	Select from Scheduled, Motion Detection and Alarm.
Local	Save in the internal SD card.
FTP	Save in the FTP server.
NAS	Save in the NAS (network attached storage).

Step 3 Click Save.

<u>Step 4</u> Configure other path parameters on **Destination**, **FTP** or **NAS** interface. For details, see "4.7.2 Destination", "4.7.2.3 FTP" or "4.7.2.4 NAS."

4.7.2.2 Local

Display the information of the local SD card. You can set it as read only or read & write; you can also hot swap and format SD card, and reset password for it. When inserting Dahua smart card onto a device available for it, there are 3 modes according to the SD card status:

- Normal mode: The new SD cards and the cards whose password are cleared successfully show normal mode. The SD cards of this status do not support authorization operation.
- Unauthorized mode: The SD card authorized by other devices shows unauthorized mode. The SD cards of this status do not support operations of setting read only, read & write, formatting and encryption.
- Encrypted mode: The SD cards encrypted and authorized on this camera show encrypted mode. The camera can record max. 10 pieces of encrypted SD information. When the records exceed 10 pieces, the earliest ones will be overwritten.

\square

- Functions might vary with different models, and the actual product shall prevail.
- If you enter the wrong password for five times when authorizing, modifying, and clearing password, the camera will be locked for five minutes.
- Make sure that the SD card has been authorized before recording and playback.
- The health status of SD card:
 - \diamond Green: The health status is excellent.
 - \diamond Blue: The health status is good.
 - ♦ Orange: The health status is moderate.
 - ♦ Red: The health status is poor, and you need to replace the SD card.

Select **Setting > Storage > Destination > Local**, and the **Local** interface is displayed. See Figure 4-85.

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

			Figure 4-8	5 Local		
Path		Local	FTP	NAS		
Name	Status	Attribute	Used Capacity	Total Capacity		
Read Only	Read & V	Vrite Hot St	wap Refresh			Format

4.7.2.3 FTP

FTP function can be enabled only when it was selected as a destination path. When the network does not work, you can save all the files to the internal SD card for emergency.

<u>Step 1</u> Select Setting > Storage > Destination > FTP.

The FTP interface is displayed. See Figure 4-86.

Figure 4-86 FTP

Path	Local FTP NAS
Enable	FTP
Server Address	4 10 1 10
Port	21 (0~65535)
Username	ipc
Password	•••
Remote Directory	share
Emergency (Local)	
	test
	Default Refresh Save

<u>Step 2</u> Select the **Enable** check box to enable FTP function.



SFTP is recommended to enhance network security.

<u>Step 3</u> Configure FTP parameters. For details, see Table 4-33.

	Table 4-33 Description of FTP parameters
Parameter	Description
Server Address	The IP address of the FTP server.
Port	The port number of the FTP server.
Username	The user name to log in the FTP server.

Table 4-33 Description of FTP parameters

Parameter	Description
Password	The password to log in to the FTP server.
Remote Directory	The destination path in the FTP server.
Emergency	Select Emergency (Local), and when the FTP server does not work, all
(Local)	the files are saved to the internal SD card.

Step 4 Click Save.

<u>Step 5</u> Click **test** to test whether FTP function works normally.

4.7.2.4 NAS

This function can be enabled only when NAS was selected as a destination path. Enable this function, you can save all the files in the NAS.

<u>Step 1</u> Select Setting > Storage > Destination > NAS.

The **NAS** interface is displayed. See Figure 4-87.

		Figure 4	-87 NAS	
Path	Local	FTP	NAS	
Enable Server Address Remote Directory	NFS 0.0.0.0 Default	▼ Refresh S	ave	

Step 2 Select the **Enable** check box to enable NAS function, and select NAS protocol type.

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

Step 3 Configure NAS parameters. For details, see Table 4-34.

Parameter	Description
Server Address	The IP address of the NAS server.
Username	When selecting SMB protocol, you are required to enter user name and
Password	password. Enter them as needed.
Remote	The destination path in the NAS conver
Directory	

Table 4-34 Description of NAS parameters

Step 4 Click Save.

4.8 System

This section introduces system configurations, including general, date & time, account, safety, PTZ settings, default, import/export, remote, auto maintain and upgrade.

4.8.1 General

You can configure device name, language and video standard.

<u>Step 1</u> Select Setting > System > General > General.

The **General** interface is displayed. See Figure 4-88.

	Figure 4-88 General
General	Date&Time
Name	4M0292DYAG2B100
Language	English
Video Standard	PAL
TVOut	TV
	Default Refresh Save

<u>Step 2</u> Configure general parameters. For details, see Table 4-35.

Table 4-00 Description of general parameter	Table 4-3	5 Description	of general	parameters
---	-----------	---------------	------------	------------

Parameter	Description
	The name of the device.
Name	
	Each device has its own name.
Language	Select system language.
Video Standard	Select video standard from PAL and NTSC.
	Select On or Off , this function is available on models with analog output.
TVOut	
TVOUL	• If the TV out is On , smart plans will be disabled; if the smart plans
	are enabled, the TV out will be set as Off .
	 SDI and HDCVI are available on select models.

Step 3 Click Save.

4.8.2 Date & Time

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

<u>Step 1</u> Select Setting > System > General > Date & Time.

The Date & Time interface is displayed. See Figure 4-89.

General	Date&Time
Date Format	YYYY-MM-DD
Time Format	24 Hour
Time Zone	(UTC) Coordinated Universal Time
Ourrest Time	
DSI	
DST Type	O Date O Week
Start Time	Jan 💌 1 💌 00 : 00 : 00
End Time	Jan 💌 2 💌 00 : 00 : 00
NTP	
Server	clock.isc.org
Port	123
Interval	10 Min. (0~30)
	Default Refresh Save

Figure 4-89 Date and time

<u>Step 2</u> Configure date and time parameters. For details, see Table 4-36.

Parameter	Description
Date Format	Configure the date format.
Time Format	Configure the time format. You can select from 12-Hour or 24-Hour .
Time Zone	Configure the time zone that the camera is at.
Current Time	Configure system time.
	Click Sync PC, and the system time changes to the time on PC.
	Enable DST as needed.
DST	Select the check box, and configure start time and end time of DST with
	Date or Week.
NTP	Orderstation also and the NTD (active dutions and the set) is evoluted
NTP Server.	Select the check box, and then NTP (network time protocol) is enabled,
Time Zone	the system then syncs time with the internet server in real time.
Port	which installed NTP server to use NTP
Interval	

T 4 00	D					
1 able 4-36	Description	OŤ	date	and	time	parameters

Step 3 Click Save.

4.8.3 Splicing

When the panorama contain multiple images of various lens, enable this function. Before splicing, make sure the surveillance scene is large and there is no shield on the image, and do not move the camera, otherwise, the spplicing might fail.

Step 1 Select Setting > System > General > Splicing

The **Splicing** inteface is dispalyed. See Figure 4-90 and Figure 4-91.

General	Date&Time	Splicing	
Camera1	Camera2		
Start			

Figure 4-91 Splicing (2)

	General	Date&Time	Splicing	
	Merging Enhan	cement		
	Start			
2	Soloct th	e camera v	which need	ls to be spliced

<u>Step 2</u> Select the camera which needs to be spliced. When splicing the image through selecting lenses, you need to select the continuous

splicing screens. The screen with the icon 🧭 (deeper color) means the first screen of

the splicing. You can select any screen as the first one, and select the following screens continuous. The system supports the splicing of 4, 5, 6, 7 and 8 sensors.



This function is available on some select models. And it is all sensors splicing by default.

Step 3 Click Start.

The system begins to splice image.

- Some camera restarts automatically after splicing is completed, and you can view the splicing effect on **Live** view.
- Some camera displays splicing preview interface after splicing is completed. Click OK, and the system prompts default box. And then click OK. The splicing takes effect.

4.8.4 Account

Manages all the users, you can add, delete, or modify users. Users include admin, added users and ONVIF users.

Managing users and groups are only available for administrator users.

- The max length of the user or group name is 31 characters which can be consisted with number, letters, underline, dash, dot and @.
- The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' ";: &).
- You can have 18 users and 8 groups at most.
- You can manage users through single user or group, duplicate user names or group names are not allowed. A user can be in only one group at a time, and the group users can own authorities within group authority range.
- Online users cannot modify their own authority.
- There is one admin by default which has highest authority.
- Select **Anonymous Login**, and then log in with only IP address instead of user name and password. Anonymous users only have preview authorities. During anonymous login, click **Logout**, and then you can log in with other username.

4.8.4.1 Adding a User

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

<u>Step 1</u> Select Setting > System > Account > Account > Username.

The **Username** interface is displayed. See Figure 4-92.

Figure 4-92 Username

	Group Name					
No.	Username	Group Name	Memo	Restricted Login	Modify	Delete
1	admin	admin	admin 's account	I	2	•
2	admin1	admin		Q	1	•
Authority						
Authority User	Live	Playback	System	System Info		
Authority User Manual Control	Live File Backup	Playback Storage	System Event	System Info Network		

Step 2 Click Add User.

The Add User interface is displayed. See Figure 4-93 and Figure 4-94.

User		
Username		Must
Password		
855W010	The minimum pass phras	see length is 8
	characters	
	Weak Middle Stro	000
Confirm Password		
Group Name	admin	
Mamo		
wenno		
Operation Permiss	ion Restricted	d Login
V User		
Playback		
System Info		
Manual Control		
File Backup		
Storage		
Event		
Network		
Peripheral		
AV Parameter		
PTZ		
Security		

Figure 4-93 Add user (Operation permission)

Username					Mu	ist									
Password															
1 255 WOLD	The	minir	num n	ace nhr	ase leng	thic 9									
	cha	racter	s	ass prir	aselleng	1113 0									
	V	/eak	Mido	tle St	rona										
Confirm Password	1														
Group Name	ad	min			•										
Memo															
				_											
Operation Permi	ssion			Restrict	ed Login										
🔲 IP Add	ress														
IPv4			P IP	Address	s 🔽	1	0	0	1						
Validit	/ Period	1													
Begin	Fime	2019)-07-18	3			08 : 0	00 : 0	0						
End Tir	ne	2019	07-19	9			08 :	0 : 00	0						
				-											
Time F	Rande														
📃 Time F	Range 0	2	4	6	8	10	12	14	16	18	20	22	24		
Time F Sun	Range 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting	
Time F Sun Mon	Range 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting Setting	
Time F Sun Mon Tue	Range 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting Setting	
Time f Sun Mon Tue Wed	Range 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting Setting Setting	
Time f Sun Mon Tue Wed	Range 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting Setting Setting Setting	
Time f Sun Mon Tue Wed Thu	Cange 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting Setting Setting Setting Setting	
Time f Sun Mon Tue Wed Thu Fri	Range 0	2	4	6	8		12	14	16	18	20	22	24	Setting Setting Setting Setting Setting Setting	
Time f Sun Mon Tue Wed Thu Fri Sat	Range 0	2	4	6	8	10	12	14	16	18	20	22	24	Setting Setting Setting Setting Setting Setting Setting	

Figure 4-94 Add user (Restricted login)

<u>Step 3</u> Configure user parameters. For details, see Table 4-37.

Table 4-37 Description of user parameters (1)

Parameter	Description
Username	User's unique identification. You cannot use existed user name.
Password	Enter password and confirm it again. The password must consist of 8 to 32 non-blank characters and contain at
Confirm	least two types of characters among upper case, lower case, number, and
Password	special character (excluding ' ";: &).
Group Name	The group that users belong to. Each group has different authorities.
Memo	Describe the user
	Select authorities as needed.
Operation	
Fermission	It is recommended to give fewer authorities to normal users than premium
	users.

Parameter	Description				
	Set the PC address that allows the defined user to log in to the camera				
	and the validity period and time range. You can log in to web with th				
	defined IP in the defined time range of validity period.				
	• IP address: You can log in to web through the PC with the set IP.				
	• Validity period: You can log in to web in the set validity period.				
	• Time Range: You can log in to web in the set time range.				
Destricted Lewis	Set as following:				
Restricted Login	1. Select IP Address: Select IP type and set IP address.				
	IP Address: Enter the IP address of the host to be added.				
	 IP segment: Enter the start address and end address of the host 				
	to be added.				
	2. Select Validity Period: Set the begin Time and end time.				
	3. Select Time Range : Set the time range that allow user to log in. For				
	details, see "5.1.1.1 Setting Period."				
Step 4 Click Save					

The newly added user displays in the user name list.

 \square

• After adding user, click 📩 to modify password, group, memo or authorities;

click 🤗 to delete the added user, admin user cannot be deleted.

• Click in the **admin** row to modify its user name and email address.

4.8.4.2 Adding User Group

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

<u>Step 1</u> Select Setting > System > Account > Account > Group Name.

The Group Name interface is displayed. See Figure 4-95.

Username	Group Name					
No.	Group Name		Memo		Modify	Delete
1	admin		administrator group		2	•
2	user		user group		2	•
Authority						
Authority Jser Jopuel Control	Live File Packup	Playback	System	System Info		
Authority Jser Aanual Control Perinheral	Live File Backup AV Parameter	Playback Storage PT7	System Event Security	System Info Network Maintenance		

Figure 4-95 Group name

Step 2 Click Add Group.

The Add Group interface is displayed. See Figure 4-96.

Add Group		×
Group Name	Must	
Memo		
Authority	All	
	Live	A
	Playback	
	System	
	System Info	-
	Save Cancel	

Figure 4-96 Add group

<u>Step 3</u> Enter group name and memo, and then select group authorities.

<u>Step 4</u> Click **Save** to finish configuration.

The newly added group displays in the group name list.



- After adding group, click is to modify group memo or authorities; click is to delete the added group, admin group and user group cannot be deleted.
- Click 🔜 in the row of admin group or user group to modify group memo.

4.8.4.3 ONVIF User

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

<u>Step 1</u> Select Setting > System > Account > ONVIF User.

The **ONVIF User** interface is displayed. See Figure 4-97.

Figure 4-97 ONVIF user

Account	Onvif User				
No	_	Username	Group Name	Modify	Delete
1		admin	admin		O
Add User					

Step 2 Click Add User.

The **Add User** interface is displayed. See Figure 4-98.

Figure 4-98 Add user

Add User	×
Username	Must
Password	
	The minimum pass phrase length is 8 characters Weak Middle Strong
Confirm Password	
Group Name	admin 💌
	Save Cancel

Step 3 Configure user parameters. For details, see Table 4-38.

	Table 4-38	Description	of user	parameters	(2)
--	------------	-------------	---------	------------	-----

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

Step 4 Click Save.

The newly added user displays in the user name list.

After adding user, click is to modify password, group, memo or authorities; click is to delete the added user, admin user cannot be deleted.
Click in the admin row to modify its user name and email address.

4.8.5 Safety

You can configure system service, HTTPS, and Firewall.

4.8.5.1 System Service

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

<u>Step 1</u> Select Setting > System > Safety > System Service.

The System Service interface is displayed. See Figure 4-99.

		Figure 4-99 IP filter
System Service	HTTPS	Firewall
SSH	Enable	
Multicast/Broadcas	st 🗸 Enable	
Password Reset	Enable	
CGI Service	Enable	
Onvif Service	Enable	
Genetec Service	Enable	
Audio and Video Tr	r 🔲 Enable	*Please make sure matched device or software supports video decryption function.
Mobile Push	Enable	
Default	Refresh	Save

Figure 4-99 IP filter

<u>Step 2</u> Enable the system service according to the actual needs. For details, see Table 4-39.

Function	Description
SSH	You can enable SSH authentication to perform safety management.
Multicast/Broadcast Search	Enable this function, and then when multiple users are previewing the device video image simultaneously through network, they can find your device with multicast/broadcast protocol.
Password Reset	Manage system security with this function.

Table 4-39 Description of system service parameters
Function	Description
CCI Comico	Enable this function, and then other devices can access through this
COISEIVICE	service.
Opvif Sorvico	Enable this function, and then other devices can access through this
Onvir Service	service.
Constac Service	Enable this function, and then other devices can access through this
Genelec Service	service.
	Enable to encrypt audio/video transmission.
Audio and Video	\square
Transmission	
Encryption	Please make sure the other devices and software that working
	together with the camera support video decryption.
	Enable this function, and then the system would send the snapshot
Mobile Push	that was taken when alarm is triggered to your phone, this is enabled
	by default.

Step 3 Click Save.

4.8.5.2 HTTPS

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

<u>Step 1</u> Create certificate or upload the authenticated certificate.

- If you select Create Certificate, follow the steps below.
- 1) Select **Setting > Network > HTTPS**.

The HTTPS interface is displayed. See Figure 4-100.

Figure 4-100 HTTPS (1)

System Service	LITTRS	Firewall					
System Service	nin s	Tirewaii					
Enable HTTPS							
Protocol Version							
Enable TLSv1.0							
Create Certificate							
Create							
Request Created							
Request Created			[Delete	Install	Download	
Install Signed Certifi	icate						
Certificate Path				Browse			
Certificate Key Path	1			Browse	Upload		
Certificate Installed							
Certificate Installed	i			Delete			
Attribute							
	Refresh	Save]				

2) Click Create.

The **HTTPS** dialog box is displayed. See Figure 4-101.

HTTPS	×
Country*e.g. CNIP or Domain name*Validity Period365ProvincenoneLocationnoneOrganizationnoneOrganization Unitnone	
Email	
Create Cancel	

Figure 4-101 HTTPS dialog box

Enter the required information and then click Create.
 If the operation is correct, the Create Successful prompt will be displayed.



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

4) Click **Install**. See Figure 4-102.

Figure 4-102 Certificate installation

HTTPS					
Enable HTTPS					
Create Certificate					
Create					
Request Created					
Request Created	H/IP=http://172.12.80.250/;C=CN;ST=none;L=none;	Delete	Install	Download	
Install Signed Certifica	te				
Certificate Path		Browse			
Certificate Key Path		Browse	Upload		
Certificate Installed					
Certificate Installed		Delete			
Attribute					
	Refresh Save				

- 5) Click **Download** to download root certificate.
- 6) Click **Download Root Certificate**.

The **File Download-Security Warning** dialogue box is displayed. See Figure 4-103.

Figure 4-103 File download

File Dov	File Download - Security Warning 🛛 🔀				
Do you	Do you want to open or save this file?				
	Name: ca.crt Type: Security Certificate From: 10.10.6.238 Open <u>S</u> ave Cancel				
۲	While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not open or save this software. <u>What's the risk?</u>				

 Click Open. The Certificate Information interface is displayed. See Figure 4-104. Figure 4-104 Certificate information

Certificate 🔹 💽					
General Details Certification Path					
Certificate Information This CA Root certificate is not trusted. To enable trust, install this certificate in the Trusted Root Certification Authorities store.					
Issued to: Product Root CA					
Issued by: Product Root CA					
Valid from 2013-6-18 to 2023-6-16					
Install Certificate					
ок					

- 8) Click Install Certificate.
- 9) The Certificate Import Wizard interface is displayed. See Figure 4-105.

Figure 4-105 Certificate import wizard

Certificate Import Wizard		X
	Welcome to the Certificate Import Wizard	
	This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.	
	A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept. To continue, click Next.	
	< Back Next > Cancel	

10) Click Next.

The **Certificate Store** interface is displayed. See Figure 4-106. Figure 4-106 Certificate import wizard

rtificate	Import Wizard
Certificat Certifi	e Store cate stores are system areas where certificates are kept.
Windo	ws can automatically select a certificate store, or you can specify a location for
۲	Automatically select the certificate store based on the type of certificate
0	Place all certificates in the following store
	Certificate store:
	Browse
	< <u>Back</u> <u>N</u> ext > Cance

11) Select the storage location and click **Next**.

The Certificate Import Wizard interface is displayed. See Figure 4-107.

Figure 4-107 Certificate import wizard

Certificate Import Wizard		×
	Completing the (Wizard	Certificate Import
	You have successfully compl wizard.	eted the Certificate Import
	You have specified the follow	wing settings:
	Certificate Store Selected Content	Automatically determined by t Certificate
	< <u>B</u> ack	Finish Cancel

12) Click **Finish** and a dialog box showing **The import was successful** pops up. See Figure 4-108.

Figure 4-108 Success

Certificate Import Wizard 🛛 🔀				
٩	The import was successful.			
	ОК			

4.8.5.3 Firewall

Configure **Network Access**, **PING prohibited** and **Prevent Semijoin** to enhance network and data security.

- Network Access: Set trust list and banned list to limit access permission.
 - ◇ Trust list: Only when the IP/MAC of your PC in the trust list, you can access the camera. Ports are the same.
 - ◊ Banned list: When the IP/MAC of your PC in the banned list, you cannot access the camera. Ports are the same.
- **PING prohibited**: Enable **PING prohibited** function, and the camera will not response to the ping request.
- **Prevent Semijoin:** Enable **Prevent Semijoin** function, and the camera can provide service normally under Semijoin attack.



- You cannot set trust or banned list for camera IP or MAC addresses.
- You cannot set trust or banned list for port MAC addresses.
- When the IP addresses of the camera and your PC are in the same LAN, MAC verification takes effect.

 When you access the camera through internet, MAC address verifies according to the router MAC.

This section takes **Network Access** as an example.

<u>Step 1</u> Select Setting > System > Safety > Firewall.

The Firewall interface is displayed. See Figure 4-109.

Figure 4-109 IP filter

ystem Service	HTTPS Firewall			
Rule Type	Network Access			
Enable	V			
Mode	● TrustList ○ BannedList			
Only the listed If	addresses/MAC are allowed to visit corresponding po	orts of the device.		
	IP address /MAC address	Port	Modify	Delete
	Royal Lab.	Device All Ports	/	•
	100 B 100	Device All Ports	2	•
	40,008,000	Device All Ports	1	_
	1004.8.0	Device All Ports	2	•
Add IP/MAC				
Dofault	Pafrash Sava			
Delault	Reliesh Save			

<u>Step 2</u> Select **Network Access** from **Rule Type** list, and then select the **Enable** check box.

- Enable **PING prohibited** and **Prevent Semijoin**, and click **Save**. You do not need to configure parameters.
- Enable Network Access, and configure trust list and banned list.
 - 1) Select the mode: TrustList and BannedList.
 - 2) Click Add IP/MAC.

The Add IP/MAC interface is displayed. See Figure 4-110.

Figure 4-110 Add IP/MAC

Add IP/MAC	×
Rule Type	IP Address
IP Version	IPv4 💌
IP Address	1
Device All Ports	
Device Start Server	1
Device End Server	1
ОК	Cancel

<u>Step 3</u> Configure parameters. For details, see Table 4-40.

Table 4-40 Description of adding IP/MAC parameters					
Parameter	Description				
	Select IP address, IP segment, MAC address or all IP addresses.				
	• IP address: Select IP version and enter the IP address of the				
	host to be added.				
	• IP segment: Select IP version and enter the start address				
Rule Type	and end address of the segment to be added.				
	• MAC address: Enter MAC address of the host to be added.				
	• All IP addresses: Set all IP addresses in trust list or Banned				
	list.				
Device All Ports	Set access ports. You can select all ports or the ports in defined				
Device Start Server Port	areas.				
	• Device all ports: Set all IP port in trust list or Banned list.				
	When selecting BannedList in Mode, and All IP Address in				
	Rule Type, you cannot select the Device All Ports check				
Device End Server Port	box.				
	• Device start server port and Device end server port: Set				
	Device start server port and device end server port, and the				
	range is 1–65535.				

<u>Step 4</u> Click **OK**, and the **Firewall** interface is displayed. <u>Step 5</u> Click **Save**.

4.8.6 Peripheral

4.8.6.1 Serial Port Settings

Set the serial port of external device.

<u>Step 1</u> Select Setting > System > Peripheral > Serial Port Settings.

The Serial Port Settings interface is displayed. See Figure 4-111.

Figure 4-111 Serial port settings

Serial Port Settings	External Light	Wiper	
Address	1		
Baud Rate	9600	-	
Data Bit	8	•	
Stop Bit	1	•	
Parity	NONE	-	
	Default	Refresh	Save

<u>Step 2</u> Configure serial port settings parameters. For details, see Table 4-41.

Parameter	Description
	The corresponding device address. It is 1 by default.
Address	
	Make sure that the address is the device address, otherwise you
	cannot control the device.
Baud Rate	Select the boud rate for the camera. It is 9600 by default.
Date bit	It is 8 by default.
Stop Blt	It is 1 by default.
Parity	It is None by default.

Table 4-41 Description of serial port settings parameters

Step 3 Click Save.

4.8.6.2 External Light

You need to configure external light mode when the external light is used.

Preparation

- Connect external light with RS-485 port.
- You have configured serial port parameters. For details, see "4.8.6.1 Serial Port Settings."

Procedures

<u>Step 1</u> Select Setting > System > Peripheral > External Light.

The External Light interface is displayed. See Figure 4-112.

Figure 4-112 External light

Serial Port Settings	External Light	Wiper				
			2000-01-01 03:45:55	Work Mode Auto Mode Light Brightness Period setting	Auto Time 	▼ ▼ + 128
IPC						
Default	Refresh	Save				

<u>Step 2</u> Configure external light work mode. For details, see Table 4-42.

Table 4-42 Description of external light parameters			
Parameter	Description		
	Off: Turn off the external light.		
Work Mode	Manual: Set the light brightness manually.		
	• Auto: The camera turns on or turns off the light according to		
	the light time and photoresister automatically.		
	Time: When selecting Time in Auto Mode, click Setting to set		
	the arming period. During the arming period, the external light is		
	on. For details of arming period setting, see "5.1.1.1 Setting		
Auto Mode	Period."		
	Photoresister: When you select Photoresister in Auto Mode,		
	the system turns on the external light according to the brightness		
	automatically.		
Light Brightness	Set the brightness of the external light		

Step 3 Click Save.

4.8.6.3 Wiper

<u>Step 1</u> Select **Setting > System > Peripheral > Wiper**.

<u>Step 2</u> The **Wiper** interface is displayed. See Figure 4-113.

Figure 4-113 Wiper

Serial Port Settings	External Light	Wiper			
			2000-01-01 03.59.58	Wiper Interval Time 10 s (0~255) Start Stop Once	
				Wash Time Wash Everyday 04 : 00 Once	
Default	Refresh	Save			

Step 3 Configure wiper work mode. For details, see Table 4-42.

Parameter	Description				
Intonyal Timo	The interval time between stop mode and start mode. For				
	example, set the time 10 s, and the wiper will work every 10 s.				
Sart	Set the work status of wiper.				
Stop	• Start: Click Start , and the wiper works as the set interval				
	time.				
Once	• Stop: Click Stop , and the wiper stops working.				
	• Once: Click Once , and the wiper works once.				
Time Wash	Select the Time Wash check box and set the time, and then the				

Table 4-43 Description of wiper parameters

Parameter	Description
	wiper will work as the set time.Click Once, and the wiper works
	once. It can be used to chek whether the wiper can work nomally.

Step 4 Click Save.

5 Event

This chapter introduces intelligent event settings, including smart track, panoramic calibration, video detection, audio detection, smart plan, IVS, face detection, face recognition, people counting, heat map, video structralization, alarm, and abnormality.

5.1 Setting Alarm Linkage

5.1.1 Alarm Linkage

Set alarm linkage (such as record and snapshot) when configuring alarm event. The alarm linkage is triggered when an alarm event occurs. See Figure 5-1.

Period	Setting
Anti-Dither	0 s (0~100) Sensor Type NO 💌
Record	
Record Delay	10 s (10~300)
Relay-out	
Alarm Delay	10 s (10~300)
📄 Send Email	
PTZ	
Snapshot	
	Default Refresh Save

Figure 5-1 Alarm linkage

5.1.1.1 Setting Period

Set arming periods. The system only performs corresponding linkage action in the set period. <u>Step 1</u> Click **Setting** on the **Period** interface.

The **Period** interface is displayed. See Figure 5-2.

riod									
	0 2	4	6 8	10	12 14	16 18	20 22	24	
Sun								Setting	
Mon								Setting	
Tue								Setting	
Wed								Setting	
Thu								Setting	
Fri								Setting	
Sat								Setting	
	Sun		о 🖂 Ти	• 🗆 W(ed 🗆 Th	ı 🗆 Eri	eat		
Deriod1		00 · 00	22	EQ · EQ			E Oat		
Period	00.	00.00	- 23 .	59.59					
Period2	00 :	00 : 00	- 23 :	59 : 59					
Period3	00 :	00 : 00	- 23 :	59 : 59					
Period4	00 :	00 : 00	- 23 :	59 : 59					
Period5	00 :	00 : 00	- 23 :	59 : 59					
Period6	00 :	00 : 00	- 23 :	59 : 59					
				Save		Cancel			

Figure 5-2 Period

<u>Step 2</u> Set arming periods. The time period in green on the timeline is armed.

- Method one: Directly press and drag the left mouse button on the timeline.
- Method two: Enter an actual time period.
 - 1) Click **Setting** for a day.
 - 2) Select a time period to be enabled.
 - 3) Enter start time and end time of a time period.

\square

- Select All or the check box of any day to synchronously set the time period of multiple days.
- ♦ You can set 6 time periods per day.

Step 3 Click Save.

5.1.1.2 Record Linkage

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

To use the record linkage function, set recording plan for motion detection alarm and enable auto recording in record control.

5.1.1.2.1 Setting Record Plan

The record channel starts alarm linkage record only after the corresponding alarm type (**Normal**, **Motion**, **Alarm**) is enabled.

<u>Step 1</u> Select Setting > Storage > Schedule > Record.

The **Record** interface is displayed. See Figure 5-3.

Figure 5-3 Record



Step 2 Set record plan.

Green represents normal record plan (such as timing record); yellow represents motion record plan (such as intelligent event-triggered record); red represents alarm record plan (such as record triggered by alarm).

- Method one: Select a record type, such as **Normal**, and directly press and drag the left mouse button to set the time period for normal record on the timeline.
- Method two: Enter an actual time period.
 - 1) Click **Setting** of a day.

The **Setting** interface is displayed. See Figure 5-4.

Figure 5-4 Setting (record time period)

Setting		×
🔲 All	Sun Mon Tue Wed Thu Fri Sat Holiday	
Period1	00 : 00 : 00 - 23 : 59 : 59 Normal V Motion V Alarm	
Period2	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm	
Period3	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm	
Period4	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm	
Period5	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm	
Period6	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm	
	Save Cancel	

2) Select a day, and the alarm type next to a period. Then set time period.

 \square

- Select All or the check box of any day to synchronously set the time period of multiple days.
- ♦ You can set 6 time periods per day.
- 3) Click Save.

The **Record** interface is displayed.

Step 3 Click Save.

5.1.1.2.2 Setting Record Control

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

 \square

Make sure that the SD card is authenticated before recording if you use Dahua smart card. For details, see "4.5.2.5 Path."

<u>Step 1</u> Select Setting > Storage > Record Control.

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

Figure 5-5 Record control

Record Control	
Death Develop	No. 14, 400
Pack Duration	8 Min. (1~120)
Pre-event Record	5 s (0~5)
Disk Full	Overwrite
Record Mode	● Auto 〇 Manual 〇 Off
Record Stream	Main Stream 💌
	Default Refresh Save

<u>Step 2</u> Set parameters. See Table 5-1.

Parameter	Description	
Pack	The pack duration for each video	
Duration		
	The time to record in advance in case of an alarm. For example, if the	
	pre-event record is set to be 5, the system saves the record of 5 seconds	
Dra avant	before such alarm is triggered.	
Pre-event	$\bigcap \bigcap$	
Record		
	When an alarm or motion links recording, the system saves the video data in	
	pre-event record to the video file if the record is not enabled.	
	• Stop: Stop recording when the disk is full.	
	• Overwrite: Cyclically overwrite the earliest video when the disk is full.	
Record	The system starts recording in Manual mode. The system starts recording in	
Mode	a set time period of record plan in Auto mode.	
Record	Coloct record stream including Main Stream and Sub Stream	
Stream	Select record stream, including Main Stream and Sub Stream.	

Table 5-1 Description of record control parameters

Step 3 Click Save.

5.1.1.2.3 Setting Record Linkage

On the alarm event setting interface (such as the motion detection interface), select **Record** and set **Record Delay**.

When record delay is set, alarm recording continues for an extended period of time after the alarm ends.



Figure 5-6 Record linkage

5.1.1.3 Snapshot Linkage

The system can automatically give an alarm and takes snapshot when an alarm event occurs.

After Motion is enabled in **Snapshot**, the system takes snapshot when an alarm is triggered. For querying and setting snapshot storage location, see "4.5.2.5 Path".

5.1.1.3.1 Setting Snapshot Plan

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

<u>Step 1</u> Select Setting > Storage > Schedule > Snapshot.

The **Snapshot** interface is displayed. See Figure 5-1.





<u>Step 2</u> Select snapshot type and set time period.

Green represents normal snapshot plan (such as timing snapshot); yellow represents motion snapshot plan (such as intelligent event-triggered snapshot); red represents alarm snapshot plan (such as snapshot triggered by alarm).

- Method one: Select snapshot type, such as **Normal**, and directly press and drag the left mouse button to set time period for normal snapshot on the timeline.
- Method two: Enter an actual time period.
 - 1) Click **Setting** of a day.

The **Setting** interface is displayed. See Figure 5-2. Figure 5-2 Setting (snapshot time period)

Setting		X		
IIA 🗐	🖉 Sun 🔲 Mon 📄 Tue 📄 Wed 📄 Thu 📄 Fri 📄 Sat 📄 Holiday			
Period1	00 : 00 : 00 - 23 : 59 : 59 Normal V Motion V Alarm			
Period2	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm			
Period3	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm			
Period4	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm			
Period5	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm			
Period6	00 : 00 : 00 - 23 : 59 : 59 Normal Motion Alarm			
Save Cancel				

2) Select a day, and the alarm type next to a period. Then set time period.



- Select All or the check box of any day to synchronously set the time period of multiple days.
- \diamond You can set 6 time periods per day.
- 3) Click Save.

The **Snapshot** interface is displayed.

Step 3 Click Save.

5.1.1.3.2 Setting Snapshot Linkage

On the alarm event setting interface (such as the motion detection interface), select **Snapshot** and set alarm linkage snapshot.

Figure 5-3 Snapshot linkage

Snapshot

5.1.1.4 Relay-out Linkage

The system can automatically link with relay-out device when an alarm event occurs.

On the alarm event setting interface (such as the motion detection interface), select **Alarm** and set **Alarm Delay**.

When alarm delay is set, alarm continues for an extended period of time after the alarm ends.

Figure 5-4 Relay-out linkage

✓ Relay-out		
Alarm Delay	10	s (10~300)

5.1.1.5 Email Linkage

The email can be automatically sent to user when an alarm event occurs.

Email linkage takes effect only when SMTP is configured. For SMTP setting, see "4.6.5 SMTP (Email)."

Figure 5-5 Email linkage



5.1.1.6 PTZ Linkage

The system can link PTZ to operate when an alarm event occurs. For example, the system links PTZ to rotate to the preset X.

✓ PTZ	Activation	Preset	▼ No.	1	(1~255)

Figure 5-6 PTZ Linkage

5.1.1.7 White Light Linkage

The system can automatically enable the white light when an alarm occurs.

After setting white light duration, the white light is turned off after an extended time of period after an alarm. The duration is 10 seconds–300 seconds.

Figure 5-7 White light linkage

White Light		
Mode	Normally o	r 💌
Duration	10	s (5~30)
Period	Setting	

5.1.1.8 Audio Linkage

The system broadcasts alarm audio file when an alarm event occurs. Select **Setting > Camera > Audio > Alarm Audio** to set alarm audio file.

Figure 5-8 Audio Linkage

Audio Linkage			
Play Duration	10	▼ s	

5.1.2 Subscribing Alarm

5.1.2.1 About Alarm Types

For alarm types and preparations that can trigger the alarm events, see Table 5-2.

Alarm Type	Description	Preparation
Motion Detection	The alarm is triggered when moving object is detected.	Motion detection is enabled. For details, see "5.4.1 Setting Motion Detection."
Disk Full	The alarm is triggered when the free space of SD card is less than the set value.	The SD card no space function is enabled. For details, see "5.18.1 Setting SD Card."
Disk Error	The alarm is triggered when there is failure or malfunction in the SD card.	SD card failure detection is enabled. For details, see "5.18.1 Setting SD Card."
Video Tampering	The alarm is triggered when the camera lens is covered or there is defocus in video images.	Video tampering is enabled. For details, see "5.4.2 Setting Video Tamper."

Table 5-2 Description of alarm types

Alarm Type	Description	Preparation
External Alarm	The alarm is triggered when there is external	The device has alarm input port and external alarm function is enabled. For details, see
	alarm input.	"5.17 Setting Relay-in ."
Illegal Access	The alarm is triggered when the number of consecutive login password error is up to the allowable number.	Illegal access detection is enabled. For details, see "5.18.3 Setting Illegal ."
Audio Detection	The alarm is triggered when there is audio connection problem.	Abnormal audio detection is enabled. For details, see "5.5 Setting Smart Motion Detection."
IVS	The alarm is triggered when intelligent rule is triggered.	Enable IVS, crowd map, face detection or people counting, and other intelligent functions.
Scene Changing	The alarm is triggered when the device monitoring scene changes.	Scene changing detection is enabled. For details, see "5.4.3 Setting Scene Changing."
Voltage Detection	The alarm is triggered when the device detects abnormal voltage input.	Voltage detection is enabled. For details, see "5.18.4 Setting Voltage Detection."
Security Exception	The alarm is triggered when the device detects malicious attack.	Voltage detection is enabled. For details, see "5.18.5 Setting Security Exception."

5.1.2.2 Subscribing Alarm Information

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

 \square

Function of different devices might vary, and the actual product shall prevail.

Step 1 Click the Alarm tab.

The Alarm interface is displayed. See Figure 5-9.

Figure 5-9 Alarm (subscription)

Alarm Type		No.	Time	Alarm Type	Source IP	Alarm Channel
Motion Detection	Disk Full					
Disk Error	Video Tampering					
External Alarm	Illegal Access					
Audio Detection	IVS					
Scene Changing	Security Exception					
Operation						
Prompt						
Alarm Tone						
Play Alarm Tone						
Tone Path	Browse					

Step 2 Select Alarm Type accord to the actual need. For details, see Table 5-2.

- Select **Prompt**. The system prompts and records alarm information according to actual conditions.
 - ♦ When the subscribed alarm event is triggered and the **Alarm** interface is not

displayed, the is displayed on the **Alarm** tab and the alarm information

is recorded automatically. Click the Alarm tab, and this icon disappears.

- When the subscribed alarm event is triggered and the Alarm interface is displayed, the corresponding alarm information is displayed in the alarm list at the right side of the Alarm interface.
- Select Play Alarm Tone, and select the tone path.
 The system would play the selected audio file when the selected alarm is triggered.

5.2 Setting Smart Track

The dome camera can automatically link to a corresponding position and tracks an object until the object is beyond the monitoring range or the set tracking time is reached when the intelligent rules for panoramic camera triggers an alarm.

5.2.1 Setting Calibration Parameters for Smart Track

The device has calibration parameters by default. See this section for manual calibration in case of poor using effect of default setting.

<u>Step 1</u> Select Setting > Event > Smart Track > Smart Track.

The Smart Track interface is displayed. See Figure 5-10.

Figure 5-10 Smart track



<u>Step 2</u> Select scene number under the video images in turns (See Figure 5-11) to add calibration points to the video images of the corresponding scene. Scene number 1 to 4 are four scenes divided by spliced image with at least four calibration points for each scene.





Add calibration points by the procedure as below.

1) Adjust the video image of dome to a position aligned with the panoramic image,

and then click 🕂.

Calibration box is displayed in the images of dome and panoramic camera.

2) Drag the calibration box to a proper position, and click **b** to save one pair of calibration boxes.

After the calibration record is saved, the calibration box is displayed in yellow.

Step 3 Click Save.

5.2.2 Enabling Alarm Track

The **Alarm Track** is disabled by default. Smart track is enabled only after **Alarm Track** is enabled and intelligent rule is set for panoramic camera. **Smart Track** is supported only when rules of crowd map, cross region and tripwire intrusion are triggered. See "5.8 Setting " and "5.9 Setting Crowd Map."

<u>Step 1</u> Select Setting > Event > Smart Track > Alarm Track.

The Alarm Track interface is displayed. See Figure 5-12.

	3		
Smart Track	Alarm Track		
Enable			
V Lilable			
Auto Track	On	◯ Off	
Track Time	Continue till	object disa 💌	
Idle Time	5	s (1~1800)	
Idle Position	Preset1	•	
Default	Refresh	Save	
Idle Position Default	Preset1 Refresh	▼ Save	

<u>Step 2</u> To enable track linkage, select **Enable**.

- Manual positioning and manual track are enabled after **Alarm Track** is enabled.
- Auto Track is enabled after Alarm Track and Auto Track are enabled.

<u>Step 3</u> Set parameters. See Table 5-3.

Parameter	Description				
	Select Enable, the dome would automatically links to a corresponding				
Auto Track	position and tracks an object when the intelligent rules for panoramic				
	camera triggers an alarm.				
	Set time for alarm track.				
	• Before an object disappears: The dome would automatically links to a				
Track Time	corresponding position and tracks an object until the object moves out				
Hack Hille	of the monitoring range when the intelligent rules for panoramic camera				
	triggers an alarm.				
	Custom: Set time for auto alarm track of dome.				
Idle Time	It is an interval from the end of alarm track of dome to the start of idle mode.				
	Set Idle Time and Idle Position. If no event needs to be tracked after				
	passing the set idle time, the device automatically rotates to the set idle				
	position. For example, set the Idle Time to be five seconds and the Idle				
Idle Position	Position to be the preset point 1. When the dome does not start tracking				
	after five seconds, it automatically rotates to the preset point 1.				
	To set Idle Position, first set a preset point. For preset point, see "4.3.2.1				
	Preset."				

Step 4 Click Save.

5.3 Setting Panoramic Calibration

The device has calibration parameters by default. See this section for manual calibration in case of poor using effect of default setting. Before manually calibrate a channel, clear all default calibration parameters.

Channel 1 is PTZ camera. You should calibrate the scene coordinates of **Channel** 1 and other channels. Take calibration **Channel** 2 as an example.

<u>Step 1</u> Select **Setting > Event > Panoramic Calibration**.

The **Panoramic Calibration** interface is displayed. See Figure 5-13. Figure 5-13 Panoramic calibration

Panoramic Calibration 154 lease adjust the PTZ angle of channel 1 via PTZ control interface, make the center point of channel 1 basically concide with the green point of calibration 1 or calibration 2 screen, then it is to make calibration - Zoom (+) Calibrate1 Calibrate2 Speed 5 Y Channel 2 ٠ 446,3931 1328,311.0 1108.6328 3676,7643 1328,311.0 2 H 8 2020,1219 2775,931 1328,311,0 H 2459,7205 5574,7301 1328,311,0 4 H 0 Default Refresh

<u>Step 2</u> Select channel 2, and then select a calibration number under the video images in turns (See Figure 5-14) to add calibration points to the corresponding video images. Take **Calibrate1** as an example.

Figure 5-14 Selecting a calibration number



1) Adjust the dome PTZ angle of channel 1 by the PTZ control interface to rotate the center of channel 1 to a position aligned with the green point in **Calibrate1** image,

and then click 🕂.

Calibration box is displayed in pictures of **Channel 1** and **Calibrate1**.

Respectively drag calibration boxes in images of Channel 1 and Calibrate1 to the corresponding positions of the two images. Click label{eq:corresponding positions of the two images.

It is recommended to select a static and clear position in the image to drag calibration box. This can ensure the boundary can be accurately distinguished by camera. After the calibration record is saved, the calibration box is displayed in yellow.

To add at least 4 pairs of calibration points to each calibration picture, repeat steps 1)– 2).

Step 3 Click Save.

5.4 Setting Video Detection

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

5.4.1 Setting Motion Detection

The system performs alarm linkage when the moving object appears on the image and its moving speed reaches the preset sensitivity.

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

<u>Step 1</u> Select Setting > Event > Video Detection > Motion Detection.

The Motion Detection interface is displayed. See Figure 5-15.

Channel 1 Enable Working Period Setup Anti-Dither 0 Area Setup Verking Period 12/3 Record 1/2/3 Record Delay 10 Second (10~300) Relay-out 1/2 Alam Delay 10 Send Email PTZ Snapshot 1/2/3 Default Refresh	Motion	Detection	Video Tamper	Scene Changing
 Enable Working Period Setup Anti-Dither 0 Second (0~100) Area Setup Record 1 2 3 Record Delay 10 Second (10~300) Relay-out 1 2 Alarn Delay 10 Second (10~300) Send Email PTZ Y Snapshot 1 2 3 Default Refresh 		Channel	1	•
Working Period Setup Anti-Dither 0 Area Setup V Record 1 2 3 Record Delay 10 1 2 3 Kelay-out 1 2 Alarm Delay 10 Send Email PTZ Snapshot 1 2 3 Default Refresh		Enable		
Area Setup V Record 1 2 3 Record Delay 10 Second (10-300) V Relay-out 1 2 Alarm Delay 10 Second (10-300) Send Email PTZ V Snapshot 1 2 3 Default Refresh		Working Period Anti-Dither	Setup 0	Second (0~100)
✓ Record 1 2 3 Record Delay 10 Second (10~300) ✓ Relay-out 1 2 Alarm Delay 10 Second (10~300) Send Email PTZ ✓ Snapshot 1 2 3 Default Refresh		Area	Setup	
Record Delay 10 Second (10~300) V Relay-out 1 Alarm Delay 10 Second (10~300) Second Email PTZ V Snapshot 1 2 Default Refresh		Record	123	
Alarm Delay 10 Second (10~300) Send Email PTZ Snapshot 1 2 3 Default Refresh	V	Record Delay Relay-out	10	Second (10~300)
Send Email PTZ Snapshot Default Refresh Sa		Alarm Delay	10	Second (10~300)
PIZ ✓ Snapshot 1 2 3 Default Refresh Save		Send Email		
Default Refresh Save		Snapshot	1 2 3	
			Default	Refresh

Figure 5-15 Motion Detection

<u>Step 2</u> Select the **Enable** check box to enable motion detection.

<u>Step 3</u> Set the area for motion detection.

 Click Setup next to Area. The Area interface is displayed. See Figure 5-16. Figure 5-16 Area



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

- Sensitivity: Sensitive degree of outside changes. It is more easier to trigger the alarm with higher sensitivity.
- Threshold: Effective area threshold for motion detection. The smaller the threshold is, the easier the alarm is triggered.
- ♦ The whole video image is the effective area for motion detection by default.
- The red line in the waveform means that the motion detection is triggered, while the green one stands for no motion detection. Adjust sensitivity and threshold according to the waveform.
- 3) Click Save.
- <u>Step 4</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." Anti-dither: After the **Anti-dither** time is set, only record a motion detection event in the period.
- Step 5 Click Save.

5.4.2 Setting Video Tamper

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

<u>Step 1</u> Select Setting > Event > Video Detection > Video Tamper.

The Video Tamper interface is displayed. See Figure 5-17.

Motion Detection Video Tamper Scene Changing Channel 1 Ŧ Enable Working Period Setup 2 3 Record 1 Record Delay 10 Second (10~300) 2 Relay-out 1 10 Second (10~300) Alarm Delay Send Email PTZ Snapshot 2 3 Default Refresh Save

Figure 5-17 Video Tampering

<u>Step 2</u> Select **Enable**, set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage."

Enable Defocus Detection: The alarm is triggered when the image is fuzzy. Not all models support this function.

Step 3 Click Save.

5.4.3 Setting Scene Changing

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

<u>Step 1</u> Select Setting > Event > Video Detection > Scene Changing.

The **Scene Changing** interface is displayed. See Figure 5-18.

Figure 5-18 Scene Changing

Motion Detection	Video Tamper	Scene Changing		
Channel	1	•		
Enable				
Working Period	I Setup			
Record	123			
Record Delay	10	Second (10~300)		
Relay-out	1 2	_		
Alarm Delay	10	Second (10~300)		
Send Email				
PTZ				
Snapshot	1 2 3			
	Default	Refresh	Save	

<u>Step 2</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 3</u> Click **Save**.

5.5 Setting Smart Motion Detection

The system performs alarm linkage when human, non-motorized vehicle, or motor vehicle appear on the image and its moving speed reaches the preset sensitivity. Enabling smart motion detection can avoid the alarms triggered by the environment changes, and the function is enabled by default.

Preparation

- Select Setting > Event > Video Detection > Motion Detection to enable Motion Detection.
- You have set **Period** and **Area** in **Motion Detection**, and make sure that the sensitivity value is larger than 0, and the threshold value is smaller than 100.

Procedures

<u>Step 1</u> Select Setting > Event > Smart Motion Detection.

The **Smart Motion Detection** interface is displayed. See Figure 5-19. Figure 5-19 Smart motion detection

Smart	Motion Detection				
	Enable				
	Effective object	Human	Motor Vehicle		
	Sensitivity	Middle	•		
		Default	Refresh	Save	

<u>Step 2</u> Select the **Enable** check box to enable smart motion detection function.

Step 3 Set effective object and sensitivity.

- Effective object: Includes **Human** and **Motor vehicle**. When you select **Human**, the camera will detect human and non-motorized vehicle.
- Sensitivity: Includes Low, Middle, and High. The higher the sensitivity is, the easier the alarm will be triggered.

Step 4 Click OK.

5.6 Setting Audio Detection

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

<u>Step 1</u> Select Setting > Event > Audio Detection.

The Audio Detection interface is displayed. See Figure 5-20.

udio Detection		
Audio Chanel	Audio Chanel1	
Enable Input Abnor	mal	
Enable Intensity Ch	ance	
Sensitivity		
Threshold		
Working Period	Setup	
Anti-Dither	5 Second (0~100)	
Record	1 2 3	
Record Delay	10 Second (10~300)	
Relay-out	1 2	
Alarm Delay	10 Second (10~300)	
Send Email		
PTZ		
Snapshot	1 2 3	
Default	Refresh Save	

Figure 5-20 Audio Detection

Step 2 Set parameters.

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

<u>Step 3</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 4</u> Click **Save**.

5.7 Setting Smart Plan

Smart plan includes face detection, heat map, IVS, people counting, face detection, video structralization, and stereoscopic behavior analysis. The intelligent function can be enabled only after the corresponding smart plan is enabled.

<u>Step 1</u> Select Setting > Event > Smart Plan.

The **Smart Plan** interface is displayed. For smart plan icon, see Table 5-4.

Icon	Description	lcon	Description	lcon	Description
	Face detection	0	Stereo vision		Heat map
Ŕ	Stereoscopic behavior analysis		IVS		Face recognition
ŤŤŤ	People counting		Video structralization	Ē	Crowd map
00000	ANPR		-		-

Table 5-4 Description of smart plan icon

<u>Step 2</u> Enable smart functions accord to the actual need.

Different devices support different ways to enable smart functions. Select corresponding ways to enable these functions according to the actual interface.

• Select an icon to enable the corresponding smart plan. Click an icon to enable it, and the selected smart function is highlighted. Click it again to cancel the selection.

If there is **I** icon on the interface, click it to enable the smart function switch.

- To enable smart plan, click Add.
 - Select a preset point on the Add interface. The smart plan for the point is displayed.
 - To enable a smart function, click the corresponding icon.
 The selected smart function is highlighted. Click it again to cancel the selection.

Step 3 Click Save.

5.8 Setting IVS Analysis

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

Basic requirements on scene selection are as follows.

- The target should be less than 10% of the image.
- The target size in the image should not be less than 10×10 pixels. The size of abandoned object in the image should not be less than 15×15 pixels (CIF image). The target height and width should be less than a third of the image height and width. The recommended target height is 10% of the image height.
- Brightness difference between the target and the background should not be less than 10 greyscale.
- The target should be continuously present in the image for no less than two seconds, and

the moving distance of the target should be larger than its width and no less than 15 pixels (CIF image).

- Reduce the complexity of surveillance scene as possible as you can. Intelligent analysis function is not recommended to be used in scene with dense targets and frequent illumination change.
- Avoid areas such as glass, reflective ground, water surface, and areas interfered by branch, shadow and mosquito. Avoid backlight scene and direct light.

5.8.1 Global Configuration

Set global rules for IVS analysis, including disturbance filter, depth of field calibration, and valid motion parameter for targets.

Calibration Purpose

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

Applicable Scene

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

Notes

- Calibration Drawing
 - ♦ Calibration area: The calibration area drawn should be on a flat surface.
 - Vertical ruler: The bottom of three vertical rulers should be on the same horizontal surface. Select three reference objects with fixed height in triangular distribution as vertical ruler, such as vehicle parked at roadside or road lamp poles. Arrange three persons to draw at each of the three positions in the monitoring scene.
 - ♦ Horizontal ruler: Select reference object with known length on the ground, such as sign on the road, or use a tape to measure the actual length.
- Calibration Verification
 After setting the ruler, draw a straight line on the image, check the estimated value of the straight line, and then compare this value with the value measured in the actual scene to verify calibration accuracy. In case of major difference between the estimated value and the actual one, fine-tune or reset parameters until the error requirement is met.

Procedures

<u>Step 1</u> Select Setting > Event > IVS > Global Setup.

The **Global Setup** interface is displayed. See Figure 5-21. Figure 5-21 Global setup of IVS (common camera)

Rule Config Global Setup	Parameter Anti-Disturb Enable On Off Sensitivity
	Calibrate Region & Add Calibration Add Calibration Add Calibration Add Calibration Remove Calibrat Vertical Vertical Vertical Period Period Add Rulers Period Peri
	Advanced Parameter Save

<u>Step 2</u> Set parameters. See Table 5-5.

Table 5-5 Description of global setup (IVS) parameters

Parameter	Description			
Anti-disturb Enable	A reserved function.			
	This function is aimed at differentiating the object from its shadow.			
	Several objects with their shadows partly overlaid can be detected			
Shadow Screen	separately. So this function can give user a precise clue of where the			
Shadow Scieen	object really locates.			
	When a part of the object is similar to the shadow, this part might be			
	falsely detected as shadow and removed.			
	Adjust the filter sensitivity. With higher value, it is easier to trigger			
Sensitivity	alarm when low-contrast object and small object are captured, causing			
	higher false detection.			
Set as Tracking	Set the current zoom parameter as the tracking rate to maintain clear			
Rate	image when zooming.			
Save Preset Point	Save parameters such as the current horizontal angle and tilt angle of			
	PTZ as a new preset point.			
Tracking Overlap	A reserved function			
Rate				
Valid Tracking	A reserved function			
Distance				
Valid Tracking Time	A reserved function.			

<u>Step 3</u> Set calibration area and ruler.

- 1) Click Add Calibration Area and draw a calibration area in the image.
- 2) Select a calibration type and enter the actual length, and then click Add Rulers.
- 3) Draw one horizontal ruler and three vertical rulers in the calibration area.
- Step 4 Click Save.

Verification

- <u>Step 1</u> Select a verification type, and then click **Calibration Valid**. To verify vertical ruler and horizontal ruler, respectively select **Height Verification** and **Width Verification**.
- <u>Step 2</u> Draw a straight line in the image to verify whether the rulers are correctly set. In case of big difference between the estimated value and the actual one, fine tune or reset parameters until the error requirement is met.

5.8.2 Rule Configuration

Set rules for IVS, including cross fence detection, tripwire, cross region, abandoned object, moving object, fast moving, parking detection, crowd gathering, and loitering detection.

For the functions and applications of the rules, see Table 5-6.

Rule	Description	Applicable Scene
Cross fence	When the target crosses the set fence line from the defined direction, the system performs alarm linkage.	Road, airport, and other scenes with isolation zone.
Tripwire	When the target crosses tripwire from the defined motion direction, the system performs alarm linkage.	Scenes with sparse targets and no
Intrusion	When the target enters, leaves, or appears in the detection area, the system performs alarm linkage.	perimeter protection of unattended area.
Abandon ed object	When an object is abandoned in the detection area over the set time, the system performs alarm linkage.	Scenes with sparse targets and without obvious and frequent light change. Simple scene in the detection area is
Moving object	When an object is taken out of the detection area over the defined time, the system performs alarm linkage.	 recommended. Missed alarm omission might increase in the scenes with dense targets, frequent occlusion, and people staying. In scenes with complex foreground and background, false alarm might be triggered for abandoned or missing object.
Fast moving	When the motion speed exceeds the defined speed to trigger alarms, the system performs alarm linkage.	Scene with sparse targets and less occlusion. The camera should be installed right above the monitoring area. The light direction should be vertical to the motion direction.

Table 5-6 Description of IVS functions

Rule	Description	Applicable Scene			
Parking detection	When the target stays over the defined time, the system performs alarm linkage.	Road monitoring and traffic management.			
Crowd gathering	When the crowd gathers or the crowd density is large, the system performs alarm linkage.	Scenes with medium or long distance, such as outdoor plaza, government entrance, station entrance and exit. It is not suitable for short-distance view analysis.			
Loitering detection	When the target loiters over the shortest alarm time, the system performs alarm linkage. After alarm is triggered, if the target stay in the area within the time interval of alarm, then alarm will be triggered again.	Scenes such as park and hall.			

Preparation

- Select Setting > Event > Smart Plan, and enable IVS.
- To set **Fast Moving** rule, first select **Setting > Event > IVS > Global Setup** to finish global configuration.

Procedures

This section takes tripwire for example to introduce rule configuration of IVS analysis.

 \square

Go to the **Rule Config** interface, and the PTZ lock is automatically on. The locking time is 180 seconds. You can only manually control PTZ during the locking time. To manually unlock PTZ, click **Unlock** at lower left corner of the **Rule Config** interface. To relock PTZ, click it again after unlocking.

<u>Step 1</u> Select Setting > Event > IVS > Rule Config. The Rule Config interface is displayed.

Step 2 Click the name, and select **Tripwire** in the **Type** drop-down list. See

Figure 5-22.

Figure 5-22 Tripwire

		V	No.	Name		Rule Type		÷
	all and a second second		1	Rule1		Tripwire	•	• ^
	Face De autor 131							
								-
		- Para	ameter	Setun -				
	and the second		Doriod	octup	Sotting	1		
		г	enou		Setting]		
		C	Directio	n	A<->B	•		
	Contraction of the second		Object	ilter	Linio			
	0.2110 2250ga hiti - 4025 142043							
		F	Record		1			
	01	F	Record	Delay	10	s (10~300)		
	Clear	F	Relay-0	ut				
aw Rule			10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Velor	10	s (10~300)		
arget filter Max Size 8191 * 8191	Draw Target	A	larm (Joing		and a first of the second		
arget filter Max Size 8191 * 8191 Min Size 0 * 0	Draw Target Clear	م ع 📄	larm (Send E	mail				
arget filter Max Size Min Size * * * * * * * * * * * * *	Draw Target Clear Draw Target	A S F	larm (Send E PTZ	mail				
arget filter Max Size S191 * 8191 Min Size 0 * 0 txel Counter 0 * 0	Draw Target Clear Draw Target	A S F S S	larm (Send E PTZ Snapsi	mail not				
arget filter Max Size 8191 * 8191 Min Size 0 * 0 ixel Counter 0 * 0	Draw Target Clear Draw Target	A S F S S S	Send E PTZ Snapsl	mail not	Defrech	Cours		

<u>Step 3</u> Click **Draw Rule** to draw rule line in the image. Right click to finish drawing.
 For drawing requirements on rules, see Table 5-7. After drawing rules, drag corners of the detection area to adjust the area range.

Table 5-7	Description	of IVS analysis
-----------	-------------	-----------------

Rule	Description		
	Draw two detection lines. It includes cross the fence up and down.		
	the center of the rectangular box is beyond the fence boundary drawn, the		
Cross fence	cross fence alarm is triggered.		
detection	Requirements on fence:		
	No transparent fence, such as iron fence.		
	• No short wall (with a height less than normal height of a person).		
Tripwire	Draw a detection line.		
Intrusion	Draw a detection area.		
Abandoned	• During the detection of abandoned object, the alarm is also triggered		
object	if pedestrian or vehicle stays for a long time. If the abandoned object		
Moving object	is smaller than pedestrian and vehicle, set the target size to filter		
Fast moving	pedestrian and vehicle or properly extend the duration to avoid false		
Parking	report caused by transient staying of pedestrian.		
detection	• During the detection of crowd gathering, false alarm might be		
Crowd	triggered by low installation height, large percentage of single person		
gathering	in an image or obvious target occlusion, continuous shaking of		
Loitering	device, shaking of leaves and tree shade, frequent opening or closing		
detection	of retractable door, or dense traffic or people flow.		

<u>Step 4</u> (Optional) Click **Draw Target** at the right side of **Target Filter**, and then draw the target in the image.

• When the crowd gathering is set, it is necessary to draw the minimum gathering area rather than setting the target filter. Click **Draw Target** to draw the minimum gathering area in the scene. The alarm is triggered when the number of people in

the detection area exceeds the minimum area and the duration.

- Click **Clear** to delete all drawn detection lines.
- Click **Draw Target** at the right side of **Pixel Counter**, and then press and hold the left mouse button to draw a rectangle, the **Pixel Counter** then displays its pixel.

<u>Step 5</u> Set rule parameters for IVS. For details, see Table 5-8.

Parameter	Description
Direction	 Set the direction of rule detection. When setting cross fence detection and tripwire, select A->B, B->A or A<->B
	When setting intrusion, select Enters, Exits, or Enter&Exit.
Object tracking	Select Object Tracking to enable this function. When alarm is triggered by a moving object, select 1P+3 or 1P+5 as the object tracking display mode in the Live interface. Then the tracking scene follows the moving object until the object is beyond the camera range. For details, see "4.2.4 Window Adjustment Bar."
	This function is available on select models.
Track linkage	Select Alarm Track and set the tracking time. When alarm is triggered, the
Track Time	 device automatically tracks person or object that triggers the alarm. Tracking time is the duration of device automatically tracking the object. Before enabling this function, you need to enable or disable the Alarm Track function under Smart Track accord to the actual need. When you select Dome in Channel list, first disable Alarm Track under
	Smart Track.
	• When you select Panoramic Camera in Channel list, first enable
	Alarm Track under Smart Track.
AI Recognition	 Select Al Recognition to enable this function. When you select Person as the alarm target, alarm will be triggered when person that violates the rule is detected. When you select Vehicle as the alarm target, alarm will be triggered when vehicle that violates the rule is detected.
Duration	 For abandoned object, the duration is the shortest time to trigger an alarm after an object is abandoned. For missing object, the duration is the shortest time to trigger an alarm after an object is missing. For parking detection, crowd gathering, or loitering detection, the duration is the shortest time to trigger an alarm after an object appears in the area.

Table 5-8 D	Description of	IVS parameters
-------------	----------------	----------------

Parameter	Description	
Sensitivity	• For fast moving, sensitivity is related to the triggering speed. Lower	
	sensitivity requires faster motion speed to trigger the alarm.	
	• For crowd gathering, sensitivity is related to the alarm triggering time. It	
	is easier to trigger the alarm with higher sensitivity.	

<u>Step 6</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 7</u> Click **Save**.

To view alarm information on the **Alarm** tab, you need to subscribe relevant alarm event. For details, see "5.1.2 Subscribing Alarm."

5.9 Setting Crowd Map

You can view crowd distribution on the map in real time for timely arming, so as to prevent stampede and other risk events.

5.9.1 Global Configuration

Set calibration parameters of panoramic camera.

Calibration Purpose

Determine corresponding relationship between 2D image captured by the camera and 3D actual object according to the rulers calibrated by the user and its corresponding actual distance.

Notes

Draw two rulers at a position close to and a position far away from the center area in the image to ensure small difference between actual vertical distance and the calibrated one of each point in the image after calibration. Arrange two persons to draw at each of the two positions in the monitoring scene.

Procedures

<u>Step 1</u> Select Setting > Event > Crowd Map > Global Setup. The Global Setup interface is displayed. See Figure 5-23.
Crowd Map	Global Setup				
8014Kbps		5120x1800	Installation Height	6.2	m (3~30)
			Actual Length	1	m (0.05~10)
		2.60.21.016	Default	Refresh	Save
Add Rulers 1		Remove Rulers 1			
Add Rulers 2		Remove Rulers 2			

Figure 5-23 Global setup (crowd distribution map)

Step 2Click Add Rulers 1 and Add Rulers 2 to respectively draw a ruler in the area.Step 3Enter the installation Height and the actual length according to the actual need.Step 4Click Save.

5.9.2 Rule Configuration

When the number of people or the crowd density in the detection area exceeds the set threshold, the system performs alarm linkage.

Preparation

- Select Setting > Event > Smart Plan, and enable Crowd Map.
- Select Setting > Event > Crowd Map > Global Setup to configure the crowd map.

Procedures

<u>Step 1</u> Select Setting > Event > Crowd Map > Crowd Map.

The Crowd Map interface is displayed. See Figure 5-24.

Figure 5-24 Crowd map

Crowd Map	Global Setup					
14847Kbps			5120x1800	🔽 Enable		
				Period	Setting	
	Detect Region		21 5 67 21 12 15	No. I	Region	Trigger alarm Delete -립 number of people
E	And	Contraction of the second		1 F	Region1	20 🖨
Draw Detect			Clear	Crowd Densit	y 4	Human /m² (2~10)
Draw Area			Clear	Smart Track		
Pixel Counter	0 * 0		Draw Target	Record Record Delay	1 2 10	s (10~300)
				Relay-out Alarm Delay	1 2 10	3 s (10~300)
				 Send Email Snapshot 	1 2	
				Default	Refresh	Save

<u>Step 2</u> Select **Enable**, and then the crowd map function is enabled.

<u>Step 3</u> Click **Draw Detection Area** to draw global area for detecting crowd distribution in the image.

After drawing a global area, you can draw multiple local statistical areas in the global area according to the actual need. Follow these steps:

1) Click 🔂, and then click **Draw Area** to draw local statistical area in global detection area.

You can draw up to eight local statistical areas.

2) Double-click the area name and the alarm people amount to set the area name for local statistical area and the threshold of the alarm people amount.

When the number of people in the statistical area exceeds the alarm people amount, the system performs alarm linkage. The default alarm people amount is 20.

<u>Step 4</u> Set parameters. See Table 5-9.

Table 5-9 Description of crowd map parameters

Parameter	Description
Global	Select Global and set the crowd density threshold. The system detects
Crowd	crowd distribution in the global area. When the crowd density detected
Density	exceeds the defined threshold, the system performs alarm linkage.

Parameter	Description
Smart track	 Select Smart Track, and when alarm is triggered by the panoramic camera, the dome camera automatically turns to the position where alarm is triggered. The tracking time is "idle time + five seconds." To set idle time, see "5.2.2 Enabling Alarm Track." Linkage rules: Detect global alarm only: Turns to crowd with highest density. Detect local alarm only: Turns to local area first triggering alarm. Detect global alarm + one local alarm: First turns to local area, and then the crowd with highest density in case of no alarm in local area. Detect global alarm + multiple local alarms: First turns to local area that triggers alarm first, and then the crowd with highest density in case of no alarm in local area. Before enabling this function, you need to set smart track. See "5.2 Setting Smart Track."
	Click Draw Target at the right side of Pixel Counter, and then press and
Pixel Counter	hold the left mouse button to draw a rectangle, the Pixel Counter then displays its pixel.
Step 5 Set armi	ng periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage."

Step 6 Click Save.

Verification

View crowd map on the **Live** interface. See Figure 5-25. Figure 5-25 Crowd map (1)



Double-click the rendering area at the lower-right corner in the image to view crowd distribution in the area. See Figure 5-26.

Figure 5-26 Crowd map (2)



5.10 Setting Face Recognition

When face is detected or recognized in the detection area, the system performs alarm linkage and supports searching face detection and recognition results.

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

For the process of setting face recognition, see Figure 5-27.



Figure 5-27 Face recognition flowchart

5.10.2 Setting Face Detection

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

Preparation

Enable Face Recognition from Setting > Event > Smart Plan.

Procedures

<u>Step 1</u> Select Setting > Event > Face Recognition > Face Detection. The Face Detection interface is displayed. See Figure 5-28.

Figure 5-28 Face detection

Face Detection Face Database Config Alarr	n Search		
	🗍 Enable		
	0SD	Clear	
	Period	Setting	
	Face En	hancement	
EN .	Record		
	Record	Delay 10 s (1	0~300)
	👔 📑 Send Er	nail	
	Snapsh	ot	
Pe	Non	-living Filtering	
	Snap Fa	ce Image One-inch photo 💌	
Detect Decise Draw	Snap M	ode Optimized Snap -	
Delect Region Draw	Clear	🔽 Attribute 🧔)
Exclude Re Draw Modify	Clear		
Tarnetfilter @ Max Size 9101 * 9101	Draw Target	Advanced	
		Face Exposure	
O Min Size 0 * 0	Clear Face Ta	rget Brightn 🖃 —— () ——	<u>+</u> 50 (0~100)
Pixel Counter	Draw Target Face Ex	posure Det 🖃 🌖	+ 5 (0~100) s
	Defau	Ilt Refresh	Save

- <u>Step 2</u> Select **Enable** to enable the face detection.
- Step 3 (Optional) Click Draw next to Detect Region to draw a face detection area in the image.
- Step 4 (Optional) Click Draw next to Exclude Region to draw a non-face detection area in the Detect Region.
- Step 5 (Optional) Select Max Size or Min Size, click Draw Target at the right side of Target filter, and then draw the target in the image.
- <u>Step 6</u> Set parameters. See Table 5-10.

Table 5-10 Description of face detection parameters			
Parameter	Description		
	Select OSD, and the number people with face detected and recognized is		
OSD	displayed on the Live interface.		
	Click Reset to recount.		
Face	Select Face Enhancement to preferably guarantee clear face with low		
Enhancement	stream.		
	Select Non-living Filtering to add a target box to the face in the captured		
Target Box	picture to highlight the face.		
Overlay	The captured face picture is saved in SD card. Click the Snap Face		
	Image tab to view the captured picture.		
Snap Face	Set a range for snapping face image, including face picture and one-inch		
Image	picture.		

Parameter	Description
Snap Mode	 Optimized Snapshot: Capture the clearest picture within the set time after the device detects face. Preferred Recognition: Repeatedly compare the face to the armed face database after the device detects face, and capture the picture most matching with the face database. It is recommended to use this mode in access control scene.
	Click Advanced to set the preferred time.
Attribute	Select Attribute , and click to set the display of face attribute for face detection.
Advanced	 Snapshot Angle Filter: Set snapshot angle to be filtered for face detection. Snapshot Sensitivity: Set snapshot sensitivity for face detection. It is easier to detect face with higher sensitivity. Optimized Time: Set a time period to capture the clearest picture after the device detects face.
Enable Face	Select Enable Face Exposure. When face is detected, the device can
Exposure	enhance brightness of the face to make face image clear.
Face Target Brightness	Set the face target brightness. It is 50 by default.
Face Exposure	Set the face exposure detection interval to prevent image flickering
Detection	caused by constant adjustment of face exposure. It is five seconds by
Interval	default.
Pixel Counter	Click Draw Target at the right side of Pixel Counter , and then press and hold the left mouse button to draw a rectangle, the Pixel Counter then displays its pixel.

<u>Step 7</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 8</u> Click **Save**.

5.10.3 Setting Face Database

By setting face database, the face database information can be used to compare with the face detected.

Face database setting includes creating face database, adding face picture, and face modeling.

5.10.3.1 Creating Face Database

Face database includes face picture, face data and other information. It also provides comparison data for the captured face pictures.

<u>Step 1</u> Select Setting > Event > Face Recognition > Face Database Config.

The Face Database Config interface is displayed. See Figure 5-29.

Figure 5-29 Face database config

Face Detection	Face Database Config	Alarm	Search				
Add Face Datab]						
No.	Face Database	Register No	Deploy 📄	Similarity Threshold	MoreInfo	Arm/Disarm	Delete
Refresh	Save						

Step 2 Click Add Face Database.

The **Add Face Database** interface is displayed. See Figure 5-30. Figure 5-30 Add face database

Add Face Database				
Name				
	OK Cancel			

<u>Step 3</u> Set the **Name** of face database.

Step 4 Click **OK**. See Figure 5-31.

Figure 5-31 Face database successfully added

Face Detection	Face Database Config	Alarm	Search			
Add Face Datab	Capacity Limit:	93%				
No.		Register No	Deploy 📄	Similarity Threshold	Arm/Disarm	
1	1	8037		82	@	-
2	test11	4144		82	÷	0
3	test2	4143		82	0	•
4	test_new	4568		82	(j)	•
5	Test_1	0		82	۲	•
Refresh	Save					
Kellesii	- Odvo					

<u>Step 5</u> Set parameters. See Table 5-11.

Parameter	Description
Doploy	Select Deploy , and the face database deployment is enabled. The captured
Deploy	face picture is compared to the armed face database.
	The detected face matches the face database only when the similarity
Similarity	between the detected face and the face feature in face database reaches the
Threshold	set similarity threshold. After this, the comparison result is displayed on the
	Live interface.

Parameter	Description
	Click MoreInfo to manage face database. You can search face images by
MoreInfo	setting search conditions, register personnel, and modify personnel
	information.
Arm/Disarm	Set the alarm time period. Alarm event will be triggered only within the
	defined time. See "5.1.1.1 Setting Period."
Delete	Delete the selected face database.

5.10.3.2 Adding Face Picture

Add face picture to the created face database. Single add and batch import are supported.

Requirements on face picture:

- Single face picture size is 50K–150K in JPEG or PNG. The resolution is less than 1080P.
- Face size is 30%–60% of the whole picture. Pixel should be more than 100 pixels between the ears.
- Taken in full-face view directly facing the camera without makeup, beautification, glasses, and fringe. Eyebrow, mouth and other face features must be visible.

5.10.3.2.1 Single Add

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

<u>Step 1</u> Select Setting > Event > Face Recognition > Face Database Config.

The Face Database Config interface is displayed.

<u>Step 2</u> Click line next to the face database to be set.

The **Face Database Config** interface is displayed. See Figure 5-32. Figure 5-32 Face database config

Face Detection Face Database Config	Alarm	Search	
Back Face Database: Test_1			📄 Task List
Name Gender	Unlimited	Date of Birth	Modeling Status Unlimited 💌
Credentials T Unlimited ID No.		Region	Unlimited Search
Registration Batch Registration Modelin	ig All Mo	deling	

Step 3 Click Registration.

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

Figure 5-3	3 Registration (1)
------------	--------------------

Registration	×
Upload Picture *	
Name*	Upload Picture
Gender Male 💌	
Date of Birth	
Region Unlimited 💌	
City Custom 💌	
Credentials IC	
ID No.	
Address	
Memo	
	Add to task list Cancel

<u>Step 4</u> Click **Upload Picture**, select a face picture to be uploaded, and click **Open**. The interface shown as Figure 5-34 is displayed.

1	\frown	\sim	h
Ш			l
	_	_	L
	_	_	-

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

Figure 5-34 Registration (2)

Registratio	n	
Upload Pictur *		OK Cancel
Name*		
Gender	Male	
Date of Birth		
Region	Unlimited	
City	Custom	
Credentials	IC	
ID No.	E CONTRACTOR OF	
Address		
Memo		
		Add to task list Cancel

<u>Step 5</u> Enter the information about face picture according to the actual need.

Step 6 Click Add to task list.

Step 7 Click Task List1 , and then click OK.

The Task List interface is displayed. See Figure 5-35.

Figure 5-35 Task list (manually add)

List		
Add	Status	_
Modify	Status	
Delete	Status	

 \square

Click **Remove All** to remove all tasks by one click.

5.10.3.2.2 Batch Add

Import face pictures in batches. Select this way when you need to add a large number of face pictures.

Preparation

Before importing pictures in batches, name face pictures in a format of "Name#SGender#BDate of Birth#NRegion#TCredentials Type#MID No.jpg" (for example, "John#S1#B1990-01-01#T1#M0000). For naming rules, see Table 5-12.

Parameter	Description	
Name	Enter a name, required.	
Gender	Enter a figure, optional. "1" is male and "2" female.	
Date of Birth	Enter a figure, optional. Format: yyyy-mm-dd, such as 2017-11-23.	
Province	Enter Chinese name of a province, optional.	
City	Enter Chinese name of a city, optional.	
Credentials	Enter a figure, optional, "1" is ID card and "2" passport	
Туре	Enter a ligure, optional. This ib card and 2 passport.	
ID number	Enter ID No., optional.	

Table 5-12 Description of naming rules for batch import parameters

Procedures

- <u>Step 1</u> Select Setting > Event > Face Recognition > Face Database Config. The Face Database Config interface is displayed.
- <u>Step 2</u> Click linext to the face database to be set.

The Face Database interface is displayed.

Step 3 Click Batch Registration.

The Task List interface is displayed. See Figure 5-36.

Figure 5-36 Batch add

Task List		×
	+ Supported Picture Format(.jpg)	
Naming Format: Name#SGer Example: John#S1#B1990-01 Gender: 1.Male 2.Female Credentials Type: 1.IC 2.Pass	nder#BDate of Birth#NRegion#TCreder -01#NCN#T1#M33050119900101622: port 4.Other	ntials Type#MID No. 2
[Browse Cancel	

Step 4 Click **I** to select file path.

select file path.

Figure 5-37 Batch import

Task List				×
Path:	D:\Human Face			
File Size:	370			
	[Browse	Cancel	

Step 5 Click Browse.

The interface shows import process. After import, the interface shown as Figure 5-38 is displayed.

Figure 5-38 Importing successfully

Task List		×
	Picture import completed!	
🕗 Succee	1:0	
🖨 Fail:1	Check Details	

5.10.3.3 Managing Face Picture

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

5.10.3.3.1 Modifying Face Information

<u>Step 1</u> Go to the **Face Database Config** interface, set screening condition according to the actual need, and click **Search**. The search result is displayed.

Step 2 Select the row where the face picture or the personnel information is located, and click



The **Registration** interface is displayed. See Figure 5-39. Figure 5-39 Face information modification

Registration	×
Upload Picture	
Name* 021819	Upload Picture
Gender	
Date of Birth	
Region Unlimited 💌	
City Custom 💌	
Credentials Other	
ID No.	
Address	
Memo	
	Add to task list Cancel

Step 3 Modify face information according to the actual need. Click Add to task list.

Step 4 Click Task List1 , and then click OK.

5.10.3.3.2 Deleting Face Picture

Go to the Face Database Config Interface, and delete the created face picture.

• Single Delete: Select the row where the face picture or the personnel information is located,

and click \square or \square to delete the face picture.

- Batch Delete: Select at the upper right corner of the face picture or of the row where the personnel information is located. Select information, click Add to Deletion List,
 TaskListi, and then click OK to delete the selected face picture.
- Delete All: To view face picture in a list, click \Box of the row where the serial number is located; or to view by picture, select **All** to select all face picture. Click **Add to Deletion**

List, Task List1, and then click **OK** to delete all face pictures.

5.10.3.4 Face Modeling

Face recognition and other intelligent detection can be realized by using this function to extract face picture information and import the information to a database for establishing relevant face feature model.

 \Box

- The more the selected face pictures are, the longer time the face modeling takes. Please wait patiently.
- During modeling, some intelligent detection functions (such as face recognition) are not available temporarily, and will be available after modeling.

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

The Face Database Config interface is displayed.

Step 2 Click I next to the face database to be set.

The Face Database Config interface is displayed. See Figure 5-40.

Figure 5-40 Face database config

Face Detection Face Database Config	Alarm	Search	
Back Face Database: Test_1			🚍 Task List
Name Gender Credentials T Unlimited V ID No.	Unlimited	Date of Birth Region	Unlimited Search Modeling Status Unlimited
Registration Batch Registration Modelia	ng All Mo	deling	

<u>Step 3</u> Select a picture for modeling according to the actual need.

 \square

Click 📖 to view face pictures in a list; click 🔼 to view by thumbnail.

- All Modeling
 Click Modeling All to complete modeling of all face pictures in the face database.
- Selective Modeling
 If there are many face pictures in the face database, set search condition and click

 Search to select face pictures for modeling. Then click Modeling.

5.10.4 Setting Face Recognition Alarm Linkage

When face recognition is succeeded or failed, the device links alarm out.

<u>Step 1</u> Select Setting > Event > Face Recognition > Alarm.

The **Alarm** interface is displayed. See Figure 5-41.

Figure 5-41 Alarm (face recognition)

Face Detection F	ace Database Config	Alarm	Search	
Face Database	Please add face databa			
Relay-out	Alarm Channel1	•		
Alarm Rule	Face Recognition Su	cceeded 🗌 Fa	ce Recognition Failed	
Alarm Delay	1 s (1~300	0)		
	Refresh	Save		

Step 2 Select a Face Database and an Alarm Rule.

- Face Recognition Succeeded: When the detected face matches the face database, the device links alarm out.
- Face Recognition Failed: When the detected face fails to match the face database, the device links alarm out.
- Step 3 Set alarm linkage action. For details, see "5.1.1 Alarm Linkage."
- Step 4 Click Save.

5.10.5 Viewing Face Recognition Result

View face recognition result on the **Live** interface or by the query function.

5.10.5.1 Viewing in the Live Interface

View face recognition result on the Live interface. See Figure 5-42.

- Face recognition result is displayed at the left side and the captured face picture and attribute information at the right side.
- Click a face picture in the display area, and the information is displayed.

Figure 5-42 Face recognition result



5.10.5.2 Viewing by Search Function

Query face recognition or face snapshot result. Take face recognition query as an example.

Preparation

You have installed an SD card in the device.

Procedures

<u>Step 1</u> Select Setting > Event > Face Recognition > Search.

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

Figure 5-43 Face recognition search

Type Face Snapsh -	
Start Time 2019-07-03 📰 14 : 20 : 55 End Time 2019-07-04 📰 14 : 20 : 55	Advanced Par Search
Age Unlimited 💌 Gender Unlimited 💌 Expression Unlimited 💌 Glass	ses Unlimited 💌
Mouth Mask Unlimited Beard Unlimited	

<u>Step 2</u> Select Face Recognition for Type, enter the Start Time and the End Time, and click Search.

The result is displayed. See Figure 5-44.

- Click Advanced Parameters to set more search conditions.
- Click the search result to view details. See Figure 5-45.

Figure 5-44 Search result (face recognition)



MoreInfo			×
Alarm Info	Face Database: Similarity: 99% Time: 2019-07-12 15:56:54		
Attribute -			
	Age: Young	Gender: Male	
	Expression: Confused	Glasses: General	
	Mouth Mask: No	Beard: No	
Moreinfo-			
	Name: Jhon		
	Date of Birth: 1991-05-20	Gender: Male	
	Region: Brazil	City: Brasilia	
	Credentials Type: Passport	ID No.: PE1234478	
	Address: Unknown		
	Memo: Unknown		

Figure 5-45 MoreInfo (face recognition)

5.11 Setting Face Detection

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

Preparation

Select Setting > Event > Smart Plan, and then enable Face Detection.

Procedures

<u>Step 1</u> Select Setting > Event > Face Detection. The Face Detection interface is displayed. See Figure 5-46.

Figure 5-46 Face detection

Face Detection		
	Enable	
	Sub tar brance OSD Clear	
	Period Setting	
	Face Enhancement	
	Record	
	Record Delay 10 s (10~300)	
	Relay-out 1 2	
	Alarm Delay 10 s (10~300)	
	Send Email	
	☑ Snapshot	
Detect Region Draw	Clear Non-living Filtering	
	Snap Face Image One-inch photo 💌	
Exclude Re Draw Modify	Clear Snap Mode Optimized Snap 👻	
Target filter Max Size 8191 * 8191	Draw Target 🖉 Attribute 😧	
O Min Size 0 * 0	Clear Advanced	
Pixel Counter 0 * 0	Draw Target	
		0)
	Face Exposure Det + 50 (0~10	0)s
		5580
	Default Refresh Save	

- <u>Step 2</u> Select **Enable** to enable the face detection.
- <u>Step 3</u> (Optional) Click **Draw** next to **Detect Region** to draw a face detection area in the image.
- <u>Step 4</u> (Optional) Click **Draw** next to **Exclude Region**, and then draw an area excluding face detection in the image.
- <u>Step 5</u> (Optional) Select **Max Size** or **Min Size**, click **Draw Target** at the right side of **Target filter**, and then draw the target in the image.
- <u>Step 6</u> Set parameters. See Table 5-13.

Table 5-13 Description of face detection parameters

Parameter	Description
	Select OSD. The number of detected faces is displayed on the preview
OSD	interface.
	Click Reset to recount.
Face	Select Face Enhancement to preferably guarantee clear face with low
Enhancement	stream.
	Select Non-living Filtering to add a target box to the face in the captured
Target Box	picture to highlight the face.
Overlay	The snapshot is saved in the SD card and the preset path for monitoring
	snapshots. For details, see "4.5.2.5 Path".
Non-living	Filter nen living faces in the image, such as a face nisture
Filtering	Filter non-living faces in the image, such as a face picture.
Snap Face	Set a range for snapping face image, including face picture and one-inch
Image	picture.

Parameter	Description
Snap Mode	 Instant Snap: The device snaps a face immediately when detecting it. Optimized Snapshot: Capture the clearest picture within the set time after the device detects face. Quality Priority: The device snaps a face only when detecting that the snapped face picture has higher quality than the quality threshold. Click Advanced to set Optimized Time and Quality Threshold.
Attribute	Select Attribute , and click to set the display of face attribute for face detection.
Advanced	 Snapshot Angle Filter: Set snapshot angle to be filtered for face detection. Snapshot Sensitivity: Set snapshot sensitivity for face detection. It is easier to detect face with higher sensitivity. Quality Threshold: If you select Quality Threshold, and then select Quality Priority for Snap Mode, the device detects the face attribute only when the snapped face picture has higher quality than the quality threshold. Optimized Time: Set a time period to capture the clearest picture after the device detects face.
Enable Face Exposure	Select Enable Face Exposure . When face is detected, the device can enhance brightness of the face to make face image clear.
Face Target Brightness	Set the face target brightness, 50 by default.
Face Exposure Detection Interval	Set the face exposure detection interval to prevent image flickering caused by constant adjustment of face exposure. it is five seconds by default.
Pixel Counter	Click Draw Target at the right side of Pixel Counter , and then press and hold the left mouse button to draw a rectangle, the Pixel Counter then displays its pixel.

Step 7 Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage."

Step 8 Click Save.

To view alarm information on the **Alarm** tab, you should subscribe relevant alarm event. For details, see "5.1.2 Subscribing Alarm."

Verification

The face detection result is displayed on the preview interface. See Figure 5-47.

- The face pictures snapped in real time and their attribute information are displayed.
- Click a face picture in the display area, and the information is displayed.

Figure 5-47 Face detection result



5.12 Setting People Counting

Make statistics on people flow and view people counting data in report form.

5.12.1 People Counting

The system counts the people flow into and out of the detection area. When the counted people flow exceeds the preset value, the system performs alarm linkage.

Preparation

Select Setting > Event > Smart Plan, and then enable People Counting.

Procedures

<u>Step 1</u> Select Setting > Event > People Counting. The People Counting interface is displayed. See Figure 5-48.

Figure 5-48 People counting

		🗖 No.	Name	Rule Type	4
	A Caston Farmer	1 Ste	ereoNumber	People Counting	- C
	र राजवा कि राज	Parameter S	Setup	Clear	
Constant of the		Enter N	0.		
		Leave N	10.		
		Period		Setting	
		Sensitivi	ity 📃	0(+ 7
The subscription of the su		Flip	Ve	rtical 💌	
		Flowrate	Alarm		
	Clear	Enter No	p. 0		
	Clear	Leave N	lo. 0		
e	Clear	Strande	d No. 0		
		Record			
		Record I	Delay 10	s (10~30	0)
		Relay-ou	ut 🚺	2	
		Alarm D	elay 10	s (10~30	0)
		Send En	mail		
		Snapsho	ot		

<u>Step 2</u> Click 🔂 to add the people counting function.

- <u>Step 3</u> Double-click the name to modify the rule name. Select **People Counting** or **In Area No**.
 - **People Counting**: The system counts the people flow into and out of the detection area. When the counted number of people who enter/leave/stay in the area exceeds the preset value, the system performs alarm linkage.
 - **Region People Counting**: The system counts the people flow in the detection area and the duration that people stay in the area. When the counted number of people in the detection area or the stay duration exceeds the preset value, the system performs alarm linkage. Only some devices support this function.

<u>Step 4</u> Click **Draw Area** to draw a detection area in the image.

When setting **People Counting**, you need to draw direction lines.

<u>Step 5</u> Set parameters. See Table 5-14.

Parameter	Description
	Select OSD or select Enter No. or Leave No. under OSD to display the
OSD	people count in the image.
	Click Clear to clear the count.
Flip	Set the viewing angle of the image as Inclined or Vertical .
Flowrate Alarm	Set Enter No., Leave No., and Stranded No. The alarm is triggered
	when the set value is reached.
Regional People	Set the number of people in the people counting region. When the
Number	people count reaches the threshold or the stay duration exceeds the
Statistics Alarm	preset value, the alarm is triggered.

Table 5-14 Description of people counting parameters

Step 6 Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage."

Step 7 Click Save.

To view alarm information on the **Alarm** tab, you should subscribe relevant alarm event. For details, see "5.1.2 Subscribing Alarm."

5.12.2 Viewing People Counting Report

Generate people counting data in report form.

<u>Step 1</u> Select Setting > Event > People Counting > People Counting Report.

The **People Counting Report** interface is displayed. See Figure 5-49.

Figure 5-49 People counting report

People Counting People Counting Report
Rule In Area No.
Report Type Daily
Begin Time 2019-07-12 Image: Constraint of the second sec
Stranding Time 💿 5s 🔿 30s 🔿 60s 🛛 Report Type 💿 Bar Chart 🔿 Line Chart
Search Export

<u>Step 2</u> Set search conditions. For details, see Table 5-15.

Table 5-15	Description	people	counting	report	parameters

Parameter	Description
Rule	Select the statistical rule of the report to be queried.
	Statistical period of people counting report.
Credentials	• Select People Counting to view daily report, monthly report, or annual
Туре	report.
	Select In Area No. to view daily report or monthly report.
Begin Time	View the bagin time and the and time of people counting
End Time	view the begin time and the end time of people counting.
People	In and out directions of people counting report. You can select Entrance
Counting	or Leave. Select Display Data, and the statistical quantity is displayed on
Direction	the report.
Stranding Time	After setting Regional People Number Statistics , select 5s , 30s , or 60s .

Parameter	Description
Report Type	
(Bar Chart/Line	Report type includes bar chart or line chart.
Chart)	

<u>Step 3</u> Click **Search** to complete the report.

Click **Export** to export the report in .bmp or .csv format.

5.13 Setting Heat Map

Make statistics on the cumulative density of object movement and view heat map in report.

5.13.1 Heat Map

With the heat map function, the system detects the distribution of dynamically living objects in the target area within a certain period of time and displays the distribution on a heat map. Color varies from blue to red. The lowest heating value is in blue, and the highest heating value in red.

When mirroring occurs on the device or the viewing angle changes, original data on the heat map will be cleared.

Preparation

Select Setting > Event > Smart Plan, and then enable Heat Map.

Procedures

<u>Step 1</u> Select **Setting > Event > Heat Map > Heat Map**.

The Heat Map interface is displayed. See Figure 5-50.

Figure 5-50 Heat map



<u>Step 2</u> Select **Enable** to enable the heat map function.

Step 3 Set Period. For details, see "5.1.1.1Setting Period."

Step 4 Click Save.

5.13.2 Viewing Heat Map Report

The system can export heat map data as a report.

<u>Step 1</u> Select **Setting > Event > Heat Map > Report**.

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

Figure 5-51 Heat map report



- <u>Step 2</u> Set the start time and end time. Only some devices support heat map sequence numbers.
- <u>Step 3</u> Click **Search** to complete the report. Click **Export** to export the statistical report.

5.14 Setting Stereo Analysis

Stereo analysis includes rule configuration and calibration configuration.

5.14.1 Setting Rules for Stereo Analysis

The rules for stereo analysis include Fall Detection, Violence Detection, People No. Error, People Approaching Detection, and Strand Detection.

For the functions and applications of the rules, see Table 5-16.

Rule	Function	Applicable Scene
	When walking or standing people in the	
Fall Detection	detection area suddenly fall down on the	Park and hall.
	ground, the alarm is triggered.	

Table 5-16 Description of stereo analysis function

Rule	Function	Applicable Scene
Rule Violence Detection People No. Error (Functions of People No. Error (Functions of People No. Error vary from devices.)	When people walking or standing inside or outside the self-service hall or ATM protection cabin have violent movement (such as smashing ATM machine) or fighting, the alarm is triggered.	Bank halls and ATM protection cabins
People No. Error	With the People No. Error function, the device can recognize the real-time number of people in the monitoring area. When the number of people exceeds the preset value, the alarm is triggered.	Scenic spots and banks
(Functions of People No. Error vary from devices.)	When a recording device is used, the device that monitors the front of a classroom needs to be configured with this function. With this function, the teacher's actions can be traced and enlarged. When the number of people in the image is not 1, the whole image is displayed.	Classrooms
People Approaching Detection	When the distance between walking or standing people is too close, the alarm is triggered.	Banks and educational institutions
Strand Detection	When people in the monitoring area stay longer than the preset stranding time, the alarm is triggered.	Banks and parks

Preparation

Select Setting > Event > Smart Plan, and then enable Stereo Analysis.

Procedures

The following describes configuration for stereo analysis rule. Take fall detection as an example.

<u>Step 1</u> Select Setting > Event > Stereo Analysis > Stereo Analysis. The Stereo Analysis interface is displayed.

Step 2 Click , double-click the name to modify the rule name, and set **Rule Type** as **Fall Detection**. See Figure 5-52.

Figure 5-52 Fall detection

Stereo Analysis Calibration Config					
	~	No.	Name	Rule Type	÷
		1	Rule1	People Approz 🗸	0
		2	Rule2	Fall Detection 🗸	•
		3	Rule3	Violence Deter V	•
THE RECENTION OF THE PARTY OF T		4	Rule4	People No. Eri 🗸	0
		5	Rule5	Strand Detecti 🗸	•
Traw Rule Clear	Paral P S D R M S C R	meter Setup — eriod ensitivity uration lepeat Alarm lode pacing Thres ecord Lecord Delay	Setting 		
	A	larm Delay	1 2	s (10~300)	
		end Email			
		T7			
		12			
	⊻ s	napshot			
	D	efault	Refresh	Save	

- <u>Step 3</u> (Optional) Click **Clear** to delete the default rule box, and then click **Draw Rule** to draw a detection area in the image.
 - When selecting People No. Error for a recording device, draw the front of a classroom as the detection area.
 - When selecting Stand Detection function for a recording device, draw the students area as the detection area.
 - If no special requirements for other devices, use the default box of the system (draw the full screen).
- <u>Step 4</u> Set parameters. See Table 5-17.

Parameters for recording device and common device are different. The actual interface shall prevail.

Parameter	Description
Sopoitivity	Set the alarm-triggered sensitivity. Higher sensitivity is more easier to trigger
Sensitivity	alarm.
Alarm People	To set People No. Error function, set Alarm People Amount and Type.
Amount	Alarm type includes Greater than, Equal to, Less than, and Unequal to.
	When the real-time number of people in the detection area is greater than,
Alarm Type	equal to, less than, or unequal to Alarm People Amount, the alarm is
	triggered.

Table 5-17 Description of stereo analysis parameters

Parameter	Description
Duration	 For People Approaching Detection, the alarm is triggered when the time for people approaching reaches Duration. For Fall Detection, the alarm is triggered when the time for people falling down on the ground reaches Duration. For People No. Error, the alarm is triggered when the number of people in the area meets Alarm People Amount and Type, and the time reaches Duration.
Close-up Mode	 For people No. error function for a recording device, set Close-up Mode to Tracking Mode. Then the camera traces the walking trajectory of the teacher. You can view the tracking effect through sub stream 1 of the preview interface. When the number of people on the image is not equal to 1, the full screen is displayed. When setting the stand detection function for a recording device, set Close-up Mode to Fixed Mode. Then sub stream 1 enlarges and displays the image of standing people. When the number of standing people is not 1, the full screen is displayed. Before viewing the tracking or enlargement effect through sub stream 1, ensure that sub stream 1 is enabled and the resolution of the main stream and sub stream is 1080P. For the settings related to the main and sub streams, see "4.5.2.1 Video."
Repeat Alarm Time	After the alarm is triggered, if the status lasts for the time specified in Repeat Alarm Time , the alarm is triggered again.
	0 is to disable the repeat alarm repetition function.
Strand Time Threshold	For Strand Detection, you need to set the strand time threshold. The alarm is triggered when people in the area stay longer than the preset strand time threshold.

<u>Step 5</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 6</u> Click **Save**.

- Select Setting > Event > Stereo Analysis > Ratio Calibration to finish ratio calibration for a recording device, and then the detection rule becomes valid.
 Select Setting > Event > Stereo Analysis > Calibration Config to finish calibration configuration for other devices, and then the detection rule becomes valid.
- To view alarm information on the **Alarm** tab, you should subscribe relevant alarm event. For details, see "5.1.2 Subscribing Alarm."

5.14.2 Calibration Configuration

After setting the rule configuration for stereo analysis, set the installation height and angle of the device through calibration configuration.

- Calibration mode 1: Directly enter device installation height and angle according to the actual conditions.
- Calibration mode 2: Draw a area in the image to automatically calculate the installation height and the angle.

Preparation

You have set at least one rule under Setting > Event > Stereo Analysis > Stereo Analysis.

Procedures

Take the calibration mode 2 as an example.

<u>Step 1</u> Select Setting > Event > Stereo Analysis > Calibration Config.

The Calibration Config interface is displayed, see Figure 5-53.

Figure 5-53 Calibration config (stereo analysis)

Installation Height 106 cm Installation Angle 77.0 • (((0~1000) 0~90)
Installation Angle 77.0 • (u	0~90)
Refresh Save	
Ground	

- <u>Step 2</u> Click **Clear** to clear the default calibration box.
- <u>Step 3</u> Click **Ground** to draw a rectangular box in the image.

Ground should be on the same plane and as big as possible for calibration.

<u>Step 4</u> Click **Save**, and then the device calculates its height above the ground and the angle it forms with the ground.

If the height and angle are quite different from the actual situation, repeat Step 2–Step 4.

5.15 Setting ANPR

You can use this function to extract information about motor vehicles, non-motor vehicles, and people from images and display related attributes on the preview interface.

5.15.1 Scene Configuration

Configure ANPR scene, including non-motor vehicle detection, local word setting, alarm linkage, and lane drawing.

Preparation

Select Setting > Event > Smart Plan, and then enable ANPR.

Procedures

<u>Step 1</u> Select Setting > Event > ANPR > Scene Set.

The Scene Set interface is displayed. See Figure 5-54.

Figure 5-54 Scene set	t (ANPR)
-----------------------	----------

Scene Set	Picture	Report						
					No.	Name	Rule Type	÷
					1	VehicleDetect	Motor Vehic 💌	0
			1979-161-509462					
S ALLE		A TAKE A CA	R ANK F					
		The Constant of the second	A. Wester					
the star				Parame	ter Setup			
	11 14			🔲 Traff	ic Flow St	at		
	Dink				i -	Clear		
							1	
Pe	CALCULAR ST.		-	Peri	bd	Setting		
				Sna	p <mark>Mod</mark> e	Optimizec	•	
				Cap	ture Com	plete Vehicle		
Detect Region	Draw		Clear					
Exclude Re	Draw Modify		Clear	V Rela	iy-out	1 2		
Tarrad filler	Han Olar	0404	Denvi Terret	Aları	n Delay	s	(10~300)	
i arget filter 🧕	Max Size 8191	8191	Draw Larget	Defa	ult	Refresh	Save	
0	Min Size 0	• 0	Clear					
Pixel Counter	0	0	Draw Target					

- Step 2 Select Enable to enable the plate no. recognition function.
- <u>Step 3</u> Click **Draw** after **Detect Region** to draw a detection area. See the blue box in Figure 5-63.

To draw the detection area again, click **Clear** at the right side.

- <u>Step 4</u> Click **Detection Line** to draw an intelligent detection line for triggering snapshot. See the yellow line in Figure 5-63.
 - Requirement for drawing a detection line: When the detection line is triggered, the plate no. in the snapshot is clear.
 - To draw the detection area again, click **Clear** at the right side.
- <u>Step 5</u> Click **Plate No.**, and homocentric rectangular frames are displayed. After a snapshot is taken, adjust the camera and the rectangular box to make the actual plate no. in the frames to get a better detection effect.
- <u>Step 6</u> Set parameters. See Table 5-18.

Parameter	Description	
Non-Motor Vehicle Detection	Select Non-Motor Vehicle Detection to detect non-motor vehicles in the detection area.	
Non-Motor Select Non-Motor Vehicle Detection to detect non-motor vehicles in the detection area. Traffic Flow Select Traffic Flow Stat, and the device detects the number of motor vehicles and non-motor vehicles in the detection area and generates the statistical report. If Traffic Flow Stat is disabled, the report has no statistic data. OSD Select OSD to display the statistical result on the preview interface. To cleat the statistical result, click Clear. Target Box Select Non-living Filtering to add a target box to the target in the snapshot to highlight the target position. Overlay The snapshot is saved in the preset path for monitoring snapshots. For details, see "4.5.2.5 Path." Draw the lane to be detected according to actual conditions. Each lan consists of two lines. Arrow on lane indicates the driving direction. To add a lane: 1. Click 🔂 to add a lane.		
OSD	data. Select OSD to display the statistical result on the preview interface. To clear the statistical result, click Clear .	
Torgot Boy	Select Non-living Filtering to add a target box to the target in the snapshot	
Overlay	The snapshot is saved in the preset path for monitoring snapshots. For details, see "4.5.2.5 Path."	
Lane Line	 Draw the lane to be detected according to actual conditions. Each lane consists of two lines. Arrow on lane indicates the driving direction. To add a lane: 1. Click to add a lane. 2. Click to draw a lane in the image. 3. Click to delete the corresponding lane. 	

Table 5-18 Description of scene set parameters (ANPR)

<u>Step 7</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 8</u> Click **Save**.

Verification

The plate no. recognition result is displayed on the preview interface. See Figure 5-55.

- The plate no. and attribute information of vehicle are displayed at the right side.
- Click the image in the display area, and the detailed information is displayed.

Figure 5-55 Plate no. recognition result



5.15.2 Setting Picture Overlay

Set overlay of motor vehicle, non-motor vehicle and people and the box position.

Take setting of motor vehicle overlay as an example.

<u>Step 1</u> Select **Setting > Event > ANPR > Picture**.

The **Picture** interface is displayed. See Figure 5-56.

Figure 5-56 Picture (plate no. recognition)

	L	Туре	Motor Vehicle
		V Plate No.	Car Color
		Car Type	🔽 Car Logo
	Statute and	Sunshield	C Seatbelt
	With MITS and	Smoking Status	Calling Status
	A Start South Marga	Ornament	Inspection Sticker
	440 000	Time	
The In		Location	
		- Lipload Ricture	
The second se		Vehicle Body Pic.	

Step 2 Select Motor Vehicle for Type.

Select Non-motor Vehicle or People, and set non-motor vehicle and people overlay.

- <u>Step 3</u> Set overlay information and box position, including plate no., time, car color, car type, and car logo.
- Step 4 Click Save.

5.15.3 Viewing ANPR Report

Generate data of plate no. recognition in report form.

Preparation

Select **Setting > Event > ANPR > Scene Set**, and then enable **ANPR**. Otherwise, no statistics are displayed.

Procedures

<u>Step 1</u> Select **Setting > Event > ANPR > Report**.

The Report interface is displayed. See Figure 5-57.

Figure 5-57 Report



Step 2 Set Report Type, Start Time, End Time, and other parameters.

Step 3 Click Search.

The statistical results are displayed. See Figure 5-58. Click **Export** to export the statistical report.

Figure 5-58 Statistical results



5.16 Setting Video Structralization

Classify people, non-motor vehicles and motor vehicles in the captured video, and display the relevant attributes on the preview interface.

5.16.1 Scene Configuration

Set the detection scenes and rules, including rules for people, non-motor vehicles and motor vehicles.

Preparation

Select Setting > Event > Smart Plan, and then enable Video Structralization.

Procedures

Take setting of the People detection rules as an example.

<u>Step 1</u> Select Setting > Event > Video Structralization > Scene Set.

The **Scene Set** interface is displayed. See Figure 5-59.

Figure 5-59 Scene set (video structralization)

scene set	Ficture	Report						
155				V	No.	Name	Rule Type	÷
				V	1	Rule1	People 💌	C
T	N 1. 14	Contraction Contraction	sus rendration		2	Rule2	Non-motor \	•
	A March	A BAR TO			3	Rule3	Motor Vehic 💌	e
Detect Region [Exclude Re] Target filter • Pixel Counter	Draw Draw Max Size Min Size 0	 8191 0 0 0 	Clear Clear Draw Target Draw Target	Parame Traff OSE Peri- Snai Cap V Rela Alarri Global 3 Priva Face Snai Face Snai Face Snai	3 eter Setup ic Flow Sta o o p Mode ture Comp ay-out m Delay Setup acy Protect a Enhance p Face Ima ble Face E s Target Br s Exposure ne	Rule3 at Clear Setting Optimize Optimize I 1 2 10 ion Face ment age One-inch xposure ightn Distant	Motor Vehic ▼ A (10~300) () () () () () () () () () (

Step 2 Click , and double-click the name to modify the rule name, and select People in

Rule Type list.

- Step 3 Click **Draw** to draw a detect region and a exclude region in the image.
 - Detect Region: A region to be detected.
 - Exclude Region: A region not to be detected.
- <u>Step 4</u> Click **Draw Target** next to **Target Filter** to draw the max size and minimum size for the detection target in the image.
- <u>Step 5</u> Set parameters. For details, see Table 5-19.

|--|

Parameter	Description
People Flow	Select People Flow Statistics to count the number of people in the
Statistics	detection area.
Traffic Flow	Select Traffic Flow Statistics to count the number of motor vehicles in the
Stat	detection area.
Capture whole vehicle	Select Capture Whole Vehicle to capture whole vehicle. The snapshot is saved in the preset path for monitoring snapshots. For details, see "4.5.2.5 Path."
Non-motor Vehicle Flow Statistics	Select Non-motor Vehicle Flow Statistics to count the number of non-motor vehicles in the detection area.
	Select OSD , and the numbers of motor vehicles, non-motor vehicles and people in the detection area are displayed.
OSD	
	Click Reset to recount.
	Click Draw Target at the right side of Pixel Counter, and then press and
Pixel Counter	hold the left mouse button to draw a rectangle, the Pixel Counter then
	displays its pixel.
Face Enhancement	Select Face Enhancement to preferably guarantee clear face with low stream.
Snap Face Image	Set a range for snapping face image, including face picture and one-inch picture.
Enable Face	Select Enable Face Exposure to make face more clear by adjusting lens
Exposure	aperture and shutter.
Face Target Brightness	Set the face target brightness, 50 by default.
Face	
Exposure	Set the face exposure detection interval to prevent image flickering caused
Detection	by constant adjustment of face exposure. The default value is five seconds.
Interval	
Scene	Set scene as Distant View or Close View.

<u>Step 6</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 7</u> Click **Save**.

Verification

View the detection results of video structralization/ ANPR on the preview interface. See Figure 5-60.

- The plate no. and attributes of motor vehicle are displayed at the right side, and pictures of people and non-motor vehicles and their attributes at the bottom.
- Click the image in the display area, and the detailed information is displayed. Figure 5-60 Video structralization result



5.16.2 Setting Picture Information

Set overlay of motor vehicle, non-motor vehicle and people and the box position.

Take setting of motor vehicle overlay as an example.

<u>Step 1</u> Select Setting > Event > Video Structralization > Picture. The Picture interface is displayed. See Figure 5-61.

Figure 5-61 Picture (video structralization)

ar Type Car Colo	r Plate No.	Car Logo		┌ Picture Overlay —		
				Туре	Motor Vehicle	•
				VI Plate No.	Car Color	
	and a sec		top 141 A and	🔽 Car Type	🔽 Car Logo	
		A Maria	Avenike.	Sunshield	Seatbelt	
	Contraction of the		Start-	Smoke	Calling	
	aller .		William -	Ornament	Inspection	n Sticker
				Time		
	-14	A A	1	Location		
			MEA.	Upload Picture		
	COLUMNIE!			Vehicle Body Pi	C	
				Default	Refresh	Save
			12			

- <u>Step 2</u> Select **Motor Vehicle** for Type. Select **Non-motor Vehicle** or **People**, and set non-motor vehicle and people overlay.
- <u>Step 3</u> Set overlay information and box position, including plate no., time, car color, car type, and car logo.
- Step 4 Click Save.

5.16.3 Viewing Video Structralization Report

Generate data of video structralization recognition in report form.

- <u>Step 1</u> Select Setting > Event > Video Structralization > Report. The Report interface is displayed.
- <u>Step 2</u> Set **Report Type**, **Start Time** and **End Time**, and other parameters.
- <u>Step 3</u> Click **Search** to complete the report.

The statistical results are displayed. See Figure 5-62. Click **Export** to export the statistical report.



Figure 5-62 Video structralization report

5.17 Setting Relay-in

When an alarm is triggered at the alarm in interface, the system performs alarm linkage. <u>Step 1</u> Select **Setting > Event > Alarm Settings > Alarm**.

Figure 5-63 Alarm linkage					
Alarm					
Enable					
Relay-in	Alarm1				
Period	Setting				
Anti-Dither	0 s (0~100) Sensor Type NO 💌				
Record					
Record Delay	10 s (10~300)				
Relay-out	1 2				
Alarm Delay	10 s (10~300)				
Send Email					
🔽 Snapshot					
	Default Refresh Save				

Figure 5-63 Alarm linkage

The Alarm interface is displayed. See Figure 5-63.

<u>Step 2</u> Select **Enable** to enable the alarm linkage.

<u>Step 3</u> Select a relay-in interface and a sensor type.

- Sensor Type: On or Off.
- Anti-Dither: Only record one alarm event during the anti-dither period.

<u>Step 4</u> Set arming periods and alarm linkage action. For details, see "5.1.1 Alarm Linkage." <u>Step 5</u> Click **Save**.

5.18 Setting Abnormality

Abnormality includes SD card, network and illegal access.



Only device with SD card has abnormality functions, such as **No SD Card**, **Insufficient Space**, and **SD Card Error.**
5.18.1 Setting SD Card

In case of abnormal SD card, the system performs alarm linkage. The event types include No SD Card, Insufficient Space, and SD Card Error and Short Lifespan. **Short Lifespan** detection is supported only when you insert the Dahua smart card into a device available for it. Functions might vary with different models, and the actual interface shall prevail.

<u>Step 1</u> Select Setting > Event > Exception Handling > SD Card.

The **SD Card** is displayed in the interface. See Figure 5-64.

Figure 5-64 SD card

SD Card	Network	Illegal Access	Security Exception	1
Event Type Enable Relay-out Alarm Delay Send Email	No SD Card	▼ s (10~300)		
	Default	Refresh	Save	

- <u>Step 2</u> Select Event Type, and then select Enable to enable SD card detection.
 When setting Event Type as Insufficient Space, set Minimum SD Card Space. When the remaining space of SD card is less than this value, the alarm is triggered.
- Step 3 Set alarm linkage action. For details, see "5.1.1 Alarm Linkage."
- Step 4 Click Save.

5.18.2 Setting Network

In case of abnormal network, the system performs alarm linkage. The event types include disconnection and IP conflict.

<u>Step 1</u> Select **Setting > Event > Abnormality > Network**.

The **Network** interface is displayed. See Figure 5-65.

Figure 5-65 Network					
SD Card	Network	Illegal Access	Security Exception		
Event Type	Disconnecti	on 💌			
Enable					
Record					
Record Delay	10	s (10~300)			
Relay-out	1 2				
Alarm Delay	10	s (10~300)			
	Default	Refresh	Save		

<u>Step 2</u> Select **Event Type**, and then select **Enable** to enable network detection.

- Step 3 Set alarm linkage action. For details, see "5.1.1 Alarm Linkage."
- Step 4 Click Save.

5.18.3 Setting Illegal Access

When you enter a wrong login password more than the set times, the system performs alarm linkage.

<u>Step 1</u> Select Setting > Event > Abnormality > Illegal Access.

The **Illegal Access** interface is displayed. See Figure 5-66.

Figure 5-66 Illegal access

SD Card	Network	Illegal Access	Security Exception
 Enable Login Error Relay-out Alarm Delay 	5 1 2 10	time (3~10) s (10~300)	
📄 Send Email	Default	Refresh	Save

<u>Step 2</u> Select **Enable** to enable illegal access detection.

<u>Step 3</u> Set the times allowed for login error.

If you consecutively enter a wrong password more than the set times, the account is locked.

Step 4 Set alarm linkage action. For details, see "5.1.1 Alarm Linkage."

Step 5 Click Save.

5.18.4 Setting Voltage Detection

When the input voltage is higher than or lower than the rated value of the device, the system performs alarm linkage.

```
<u>Step 1</u> Select Setting > Event > Abnormality > Voltage Detection.
```

The Voltage Detection interface is displayed. See Figure 5-67.

Figure 5-67 Voltage detection

SD Card Network Illegal Acce	ess Voltage Detection Security Exception
V Enable	
Verlay	
Send Email	
Default Refr	esh Save

<u>Step 2</u> Select **Enable** to enable voltage detection.

Select Overlay, and the alarm icon is displayed by overlapping when the alarm is



5.18.5 Setting Security Exception

When a hostile attack is detected, the system performs alarm linkage.

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

The Security Exception interface is displayed. See Figure 5-68.

Figure 5-68 Security exception

SD Card	Network	Illegal Access	Security Exception
Enable			
Relay-out	1 2	_	
Alarm Delay	10	s (10~300)	
Send Email			
	Default	Refresh	Save

<u>Step 2</u> Select **Enable** to enable security exception detection.

Step 3 Set alarm linkage action. For details, see "5.1.1 Alarm Linkage."

Step 4 Click Save.

6 Maintenance

6.1 Requirements

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

- Check surveillance images regularly.
- Clear regularly user and user group information that are not frequently used.
- Modify the password every three months. For details, see "4.8.4 Account."
- View system logs and analyze them, and process the abnormity in time.
- Back up the system configuration regularly.
- Restart the device and delete the old files regularly.
- Upgrade firmware in time.

6.2 Auto Maintain

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

<u>Step 1</u> Select **Setting > System > Auto Maintain**.

The Auto Maintain interface is displayed. See Figure 6-1.

Figure	6-1	Auto	maintain
--------	-----	------	----------

Auto Maintain	
Auto Reboot	
Auto Delete Old Files	
Manual Reboot	
Refresh Save	

<u>Step 2</u> Configure auto maintain parameters. For details, see Figure 6-2.

- Select the **Auto Reboot** check box, and set the reboot time, the system automatically restarts as the set time every week.
- Select the **Auto Delete Old Files** check box, and set the time, the system automatically deletes old files as the set time. The time range is 1 to 31 days.
- Click **Manual Reboot**, and then click **OK** on the displayed interface, the camera will restart.



When you enable and confirm the Auto Delete Old Files function, The The deleted files cannot be restored, are you sure? notice is displayed. Operate it carefully.

Auto Maintain					
✓ Auto Reboot	Tue	✓ 02 : 00			
Auto Delete Old Files	Customized	▼ 1	Day(s) ago		
Manual Reboot					
Refresh	Save				

Step 3 Click OK.

6.3 Resetting Password

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

Preparation

You have enabled Password Reset service. For details, see "4.8.5.1 System Service."

Procedures

- <u>Step 1</u> Open IE browser, enter the IP address of the device in the address bar and press Enter.
- Step 2 The login interface is displayed, see Figure 6-3.

Figure 6-3 Login	

Username:			
Password:	Login	Cancel	Forgot password?



The Prompt dialog box is displayed. See Figure 6-4.

Figure 6-4 Prompt

Prompt	×
in order to provide a secure password reset environment, we need to collect your e-mail address, device MAC address, device SN, etc. All collected into is used only for the purposes of verifying device validity and sending a security code agree and want to continue the operation?	to you. Do you
OK Cancel	



The Reset the password (1/2) interface is displayed, see Figure 6-5.

 \square

Clicking **OK** means that you are informed that some of your personal data might be collected to help reset the password, such as phone number, MAC address, and device serial number. Read the prompt carefully to decide whether to authorize the collection activity.



Figure 6-5 Reset the password (1)



<u>Step 6</u> Scan the QR code, and there will be a security code sent to the email address you entered. Enter the security code as instructed.



- Please use the security code within 24 hours after you receive it. Otherwise, it will become invalid.
- If you fail to use the security code for two times continuously, there will be fail notice when you try to get a security code for the third time. You will then have to reset the device to get a security code or wait 24 hours to get it again.

Step 7 Click Next.

The Reset the password (2/2) interface is displayed, see Figure 6-6.

Figure 6-6 Reset the password (2)

Username	admin		
Password	Weak Middle Strong Use a password that has 8 to 32 characters, it can be a combination of letter(s), number(s) and		
Confirm Password	symbol(s) with at least two kinds of them. (please do not use special symbols like **; : &)		

Step 8 Reset and confirm the password.

The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' "; : &).

Step 9 Click Save.

The login interface is displayed.

6.4 Backup and Default

6.4.1 Import/Export

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

<u>Step 1</u> Select **Setting > System > Import/Export**.

```
The Import/Export interface is displayed. See Figure 6-7.
```

Figure 6-7 Import/Export

Import/Export	
Backup Path	
Import	Export

Step 2 Click Import or Export.

- Import: Select local configuration file, and click **Open** to import the local system configuration file to the system.
- Export: Select the storage path, and click **Save** to export the system configuration file to local storage.

<u>Step 3</u> Click **Save** to finish configuration.

6.4.2 Default

Restore the device to default configuration or factory settings.



This function will restore the device to default configuration.

Select Setting > System > Default. The Default interface is displayed. See Figure 6-8.

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

Figure 6-8 Default

Default	
Default	Other configurations will be recovered to default except network IP address, user management and so on.
Factory Default	Completely recover device parameters to factory default.

6.5 Upgrade

Upgrading to the latest system can improve device function and stability.

1		
L	-	
	_	

Upgrade

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

<u>Step 1</u> Select Setting > System > Upgrade.

The **Upgrade** interface is displayed. See Figure 6-9.

Figure 6-9 Upgrade

Select Firmware File		Browse	Upgrade	
nline Upgrade				
nline Upgrade	Save			

<u>Step 2</u> Select upgrading method according to the actual needs.

- File Upgrade
- Click **Browse**, and then upload upgrade file. The upgrade file should be a .bin file.
- 2) Click **Upgrade**. The upgrade starts.
- Online Upgrade
- 1) Select the Auto-check for updates check box.

The system checks for upgrade once a day automatically, and there will be system notice if any upgrade is available.

	_	_	
	-	гг	
- 12	_	_	
	_		

We need to collect the data such as device name, firmware version, and device serial number to proceed auto-check. The collected information is only used for verify the legality of cameras and upgrade notice.

2) If there is any upgrade available, click **Upgrade**, and then the system starts upgrading.



Click Manual Check to check for upgrade manually.

6.6 Information

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

6.6.1 Version

You can view device information such as hardware, system version, and web version. Select **Setting > Information > Version** to view the version information.

6.6.2 Log

You can view and back up log.

<u>Step 1</u> Select Setting > Information > Log.

The Log interface is displayed. See Figure 6-10.

Figure 6-10 Log Log Remote Log Start Time 2019-07-17 19 : 25 : 40 End Time 2019-07-18 19 : 25 : 40 Search Туре All -Detailed Information Time: Username Type: Content

<u>Step 2</u> Configure **Start Time** and **End Time**, and then select the log type.

The start time should be after January 1st, 2000, and the end time should be before December 31, 2037.

The log type includes All, System, Setting, Data, Event, Record, Account, and Safety.

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

Step 3 Click Search.

The searched results are displayed. See Figure 6-11.

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

Start Time	2019 07 17			
Type	2013-01-11	19 : 25 : 40	End Time 2019-07-18	19 : 25 : 40
1900	All	- Search	Find 72 log Time 2019-07-17 19:55:03 2019-0	7-18 19:01:11
No.	Log) Time	Username	Log Type
1	2019-07-	18 19:01:11	admin	Set Time
2	2019-07-	18 19:01:11	admin	Set Time
3	2019-07-	18 18:58:51	admin	Set Time
4	2019-07-	18 18:56:30	admin	Login
5	2019-07-	18 18:17:41	admin	Logout
6	2019-07-	18 18:01:11	admin	Set Time
7	2019-07-	18 18:01:11	admin	Set Time
8	2019-07-	18 17:58:51	admin	Set Time
9	2019-07-	18 17:31:36	admin	Set Time
10	2019-07-	18 17:31:36	admin	Set Time
Detailed Information	on			
Time:				
Username:				
Type:				
Content:				
				₩ ◀ 1/1 ► ₩ 1
Backup				

6.6.3 Remote Log

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

```
<u>Step 1</u> Select Setting > Information > Remote Log.
```

The **Remote Log** interface is displayed. See Figure 6-12.

Figure 6-12 Log								
Log Rer	note Log							
Enable								
IP Address	185, 186, 4, 108]						
Port	514	(1~65534)						
Device Number	22	(0~23)						
	Default Ref	fresh Save						

<u>Step 2</u> Select the **Enable** check box to enable remote log function.

Step 3 Set address, port and device number.

Step 4 Click Save.

6.6.4 Online User

View all the current users logging in to web.

Select **Setting > Information > Online User**. The **Online User** interface is displayed. See Figure 6-13.

在线用户					?
序号	用户名	用户所在组	IP地址	用户登录时间	
1	admin	admin	192.168.1.166	2014-11-06 09:04:13	<u>^</u>
					2
刷新					22.1

Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations from Dahua on how to create a more secured security system.

Mandatory actions to be taken for basic 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 device is logged in without authorization.
- Check equipment log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

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.