Thermal Camera

Web Operation Manual

V1.0.3

Cybersecurity Recommendations

Mandatory actions to be taken towards cybersecurity

1. Change Passwords and Use Strong Passwords:

The number one reason systems get “hacked” is due to having weak or default passwords. It is recommended to change default passwords immediately and choose a strong password whenever possible. A strong password should be made up of at least 8 characters and a combination of special characters, numbers, and upper and lower case letters.

2. Update Firmware

As is standard procedure in the tech-industry, we recommend keeping NVR, DVR, and thermal imaging camera firmware up-to-date to ensure the system is current with the latest security patches and fixes.

“Nice to have” recommendations to improve your network security

1. Change Passwords Regularly

Regularly change the credentials to your devices to help ensure that only authorized users are able to access the system.

2. Change Default HTTP and TCP Ports:

● Change default HTTP and TCP ports for systems. These are the two ports used to communicate and to view video feeds remotely.

● These ports can be changed to any set of numbers between 1025-65535. Avoiding the default ports reduces the risk of outsiders being able to guess which ports you are using.

3. Enable HTTPS/SSL:

Set up an SSL Certificate to enable HTTPS. This will encrypt all communication between your devices and recorder.

4. Enable IP Filter:

Enabling your IP filter will prevent everyone, except those with specified IP addresses, from accessing the system.

5. Change ONVIF Password:

On older IP Camera firmware, the ONVIF password does not change when you change the system’s credentials. You will need to either update the camera’s firmware to the latest revision or manually change the ONVIF password.

6. Forward Only Ports You Need:

● Only forward the HTTP and TCP ports that you need to use. Do not forward a huge range of numbers to the device. Do not DMZ the device's IP address.

● You do not need to forward any ports for individual cameras if they are all connected to a recorder on site; just the NVR is needed.

7. Disable Auto-Login on SmartPSS:

Those using SmartPSS to view their system and on a computer that is used by multiple people should disable auto-login. This adds a layer of security to prevent users without the appropriate credentials from accessing the system.

8. Use a Different Username and Password for SmartPSS:

In the event that your social media, bank, email, etc. account is compromised, you would not want someone collecting those passwords and trying them out on your video surveillance system. Using a different username and password for your security system will make it more difficult for someone to guess their way into your system.

9. Limit Features of Guest Accounts:

If your system is set up for multiple users, ensure that each user only has rights to features and functions they need to use to perform their job.

10. UPnP:

● UPnP will automatically try to forward ports in your router or modem. Normally this would be a good thing. However, if your system automatically forwards the ports and you leave the credentials defaulted, you may end up with unwanted visitors.

● If you manually forwarded the HTTP and TCP ports in your router/modem, this feature should be turned off regardless. Disabling UPnP is recommended when the function is not used in real applications.

11. SNMP:

Disable SNMP if you are not using it. If you are using SNMP, you should do so only temporarily, for tracing and testing purposes only.

12. Multicast:

Multicast is used to share video streams between two recorders. Currently there are no known issues involving Multicast, but if you are not using this feature, deactivation can enhance your network security.

13. Check the Log:

If you suspect that someone has gained unauthorized access to your system, you can check the system log. The system log will show you which IP addresses were used to login to your system and what was accessed.

14. Physically Lock Down the Device:

Ideally, you want to prevent any unauthorized physical access to your system. The best way to achieve this is to install the recorder in a lockbox, locking server rack, or in a room that is behind a lock and key.

15. Connect IP Cameras to the PoE Ports on the Back of an NVR:

Cameras connected to the PoE ports on the back of an NVR are isolated from the outside world and cannot be accessed directly. And the condition above is only for cameras with PoE ports.

16. Isolate NVR and IP Camera Network

The network your NVR and IP camera resides on should not be the same network as your public computer network. This will prevent any visitors or unwanted guests from getting access to the same network the security system needs in order to function properly.

Regulatory Information

The regulatory information herein might vary according to the model you purchased. Some information is only applicable for the country or region where the product is sold.

FCC Information

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC conditions:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

FCC compliance:

This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the guide, may cause harmful interference to radio communication.

- For class A device, these limits are designed to provide reasonable protection against harmful interference in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- For class B device, these limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.

Foreword

General

This user’s manual (hereinafter referred to be "the Manual") introduces the characteristics, basic configurations, daily operation and maintenance of the thermal camera (hereinafter referred to be "the Device").

Thermal camera contains all the monocular thermal bullet cameras.

Models

TPC5 series

Safety Instructions

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

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

Revision History

No.	Version	Revision Content	Release Time
1	V1.0.0	First release.	January 13, 2017
2	V1.0.1	"Cybersecurity Recommendations" added.	October 18, 2017
3	V1.0.2	● Content about device initialization added. ● Interface screenshots updated. ● Description of reserved spots’ input and output added. ● Content about safety management added.	February 1, 2017

No.	Version	Revision Content	Release Time
4	V1.0.3	● Function of safety management modified. ● Parameters of camera modified. ● Screenshots of interfaces updated. ● GDPR requirements added.	July 15, 2018

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.

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1 Product Introduction

1.1 Overview

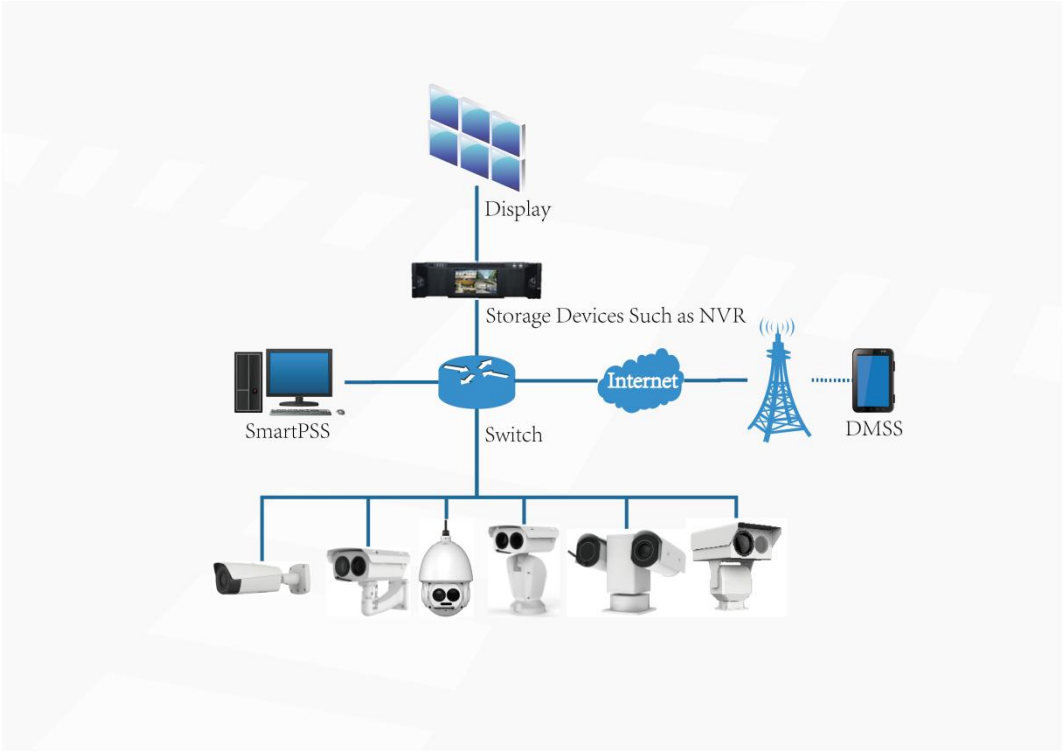
Thermal Camera is based on requirements such as temperature measurement, fire prevention, safety protection and night vision. This product can help you preview videos, videotape an object, test temperature, warn the potential fire, track a cold/hot spot and analyze a special behavior. This product can be used in energy industry, transportation, building, power system, public security, government, enterprises, and other fields (such as science, education, culture and health). You can use the product alone or combine the product with other storage devices to provide solutions for safety/intelligence city, production safety, safety protection of residential buildings and public area safety.

1.2 Features

- Safe and stable.
  With a full embedded system, this Device can implement all-day monitoring in a stable way.
- A long detection distance.
  Wide monitoring range and long detection distance. Used for surveillance of wide range and long distance.
- Strong detection ability.
  With night vision ability, this Device can clearly distinguish different objects in the dark and can tell camouflage and hidden objects.
- Strong anti-interference ability.
  This Device can get rid of interference of light intensity under backlight or strong light environment.
- Adaptive capacity to complex environment.
  Applicable to such environment as smoke, smog, rain, snow, and dust which will block your eyes and is very confusing in colors.

This product can be used in various scenarios and the "small application scenarios" is taken as an example here for detailed description. See Figure 1-1.

Figure 1-1 Application scenarios



1.3 Functions

Live

Table 1-1 Function description

Function	Description
Real-time preview	Video images can be previewed.
PTZ operation	For those cameras with PTZ, you can use the PTZ to operate the cameras to enlarge the surveillance range and identify details of an object. ● You can set a bullet camera's PTZ functions such as preset, tour, pattern, assistant and wiper. ● You can set a speed dome's PTZ functions such as reserved spot, tour, pattern, horizontal rotation, PTZ speed, free action, boot action and timing task.
Voice intercom	For cameras with voice intercom function, you can talk indoors with a person near the outdoor monitor to facilitate problem solution.
Snapshot	When previewing, you can snapshot an abnormal image for further check and handling.
Local recording	When previewing, you can record abnormal images for further check and handling.
Real-time reports	For cameras with temperature measuring, you can check the real-time temperature data of your monitoring area.

Function	Description
Real-time spot temperature measurement	For cameras with temperature measuring, you can check the real-time temperature data of any spot in your monitoring area.
Additional functions	● Switch video bit stream or streaming protocol. ● Mark information you need in the surveillance image ● Check whether there is any alarm output. ● Magnify part of the surveillance image. Or, scroll the mouse to zoom the whole surveillance image. ● You can help the camera focus manually on the web interface. ● Adjust display effect of the surveillance images. ● Boot up or shut down the intelligent rule display.

Playback

Table 1-2 Description of playback function

Function	Description
Videotaping manually	When playing back a video, you can record the key information of the previous video for further check and handling.
Planned recording	After you set a recording plan, the system will record automatically.
Video playback and download	● Play back a previous video to find some valuable video fragments. ● Download the valuable video fragments for further judgment.
Picture Playback	Play back pictures you have snapshot to find something valuable.
Relay activation	When there is an alarm, the system will videotape automatically.

Report

You need to follow certain rules such as time sequence to check history data of temperature saved in the device Micro SD card.

Alarm

- Set prompting mode (sound, for example) based on the alarm type.
- View alarm information.

Account Management

Table 1-3 Function description

Function	Description
Management of user group	● Add, modify or delete an account group. ● Manage user permissions based on user groups.
User Management	● Add, modify or delete a user account. ● Set the user permissions.
Change password	Change users' admin password.

Intelligent Thermal Imaging

Table 1-4 Function description

Function	Description
Intelligent Behavior Analysis	● Intelligent behavior analysis contains tripwire, area intrusion, abandoned object and missing object. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots. ● Supports addition of detection area and exclusion area. You can also filter disturbances and shadows, save the target objects you need, and lower false alarms caused by ripple on the water surface.
Fire warning	● Supports fire warning. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots.
Cold/hot spot tracking	● Supports cold/hot spot tracking. ● Supports real-time display of surveillance scenario's cold spots and hot spots according to different colors. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots.

Event

Table 1-5 Function description

Function	Description
Video detection	● Supports motion detection. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots.
Audio detection	● Supports detection of input exception and mutation of acoustic intensity. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots.
Temperature alarm	● When temperature satisfies the alarm conditions of temperature testing rules, an alarm is triggered. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots.
Alarm settings	● The alarm is triggered when there is an alarm from external device. ● When there is an alarm, you can implement following operations at the same time such as linkage video recording, alarm output, email delivery, PTZ operation and screenshots.

Function	Description
Abnormality	● Supports detection of SD card or network abnormality and illegal access. ● When there is SD card abnormality or illegal access, you can implement following operations at the same time such as linkage video alarm output, and email delivery. ● When there is an alarm of network abnormality, you can implement following operations at the same time such as linkage video recording, and alarm output.

Temperature Measuring Settings

This function is available on select model.

Table 1-6 Function description

Function	Description
Temperature measuring rules	● Supports measuring spot, line, polygon and ellipse's average temperature, maximum temperature and minimum temperature. ● Supports outputting alarm based on different conditions. ● Supports setting different alarm output conditions to different objects that need to be measured.
Temperature contrast	● Supports temperature contrast of different objects that needs to be measured. ● Supports outputting alarm based on different conditions. ● Supports setting different alarm output conditions to different temperature contrast rules.
Heat map	Supports outputting real-time heat map information. Then, you can do the further analysis through the heat map tools.
Additional functions	● Supports enabling or closing temperature testing rules. ● Supports enabling or closing isotherm. ● Supports enabling or closing color code articles.

2 Basic Settings

2.1 Device Initialization

When using the Device for the first time or after the Device is restored to factory settings, you need to initialize the Device. To initialize the Device, you can log in the web client or use the ConfigTool. Web client is taken as an example for detailed description.

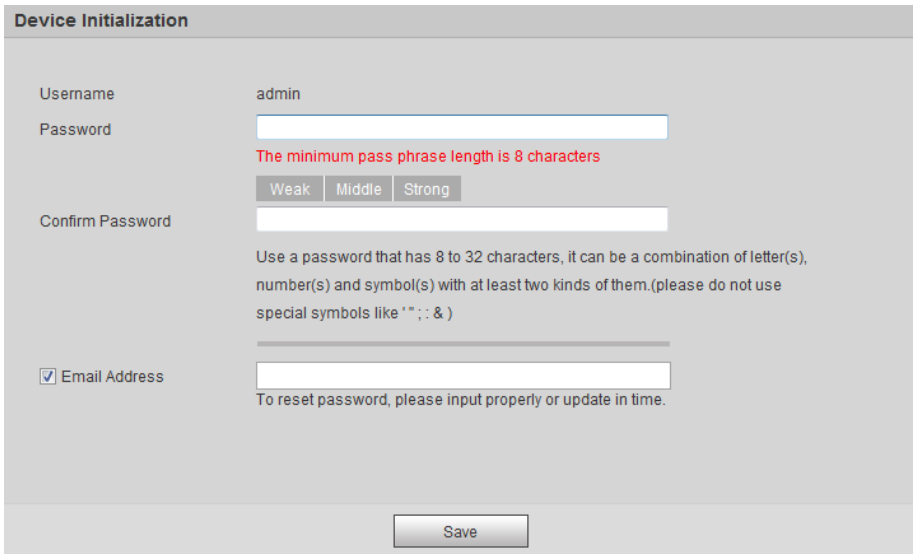
- The Device cannot be used if not initialized.
- To secure your admin account, please keep the password properly and change it regularly.
- Device initialization can be implemented only when the device IP address (192.168.1.108 by default) and the PC IP address are in the same network segment.

Step 1 Open browser, enter camera default IP address in the address bar, and then press **Enter**.

The default IP is 192.168.1.108.

After logging in the device, the Device Initialization interface is displayed. See Figure 2-1.

Figure 2-1 Device initialization



Step 1 Set the login password of admin user and reserve your phone number.

- The phone number you have reserved is used for password reset. And this function is set by default. When you forget the password, you need to scan the QR code to reset the password. And the phone number you have reserved will be used to receive the safety code. Then, by the safety code, you can reset the password of admin user.
- If you do not set a number for reservation or you need to change the reserved number, you can follow the path **Setting > System Management > User**

Management > User Management > User to implement the settings. See "2.4 Resetting Password" for more details.

Step 2 Click **Save** to complete initialization.

After you have initialized the Device, if the **Online Upgrading** is displayed, please operate according to the interface prompts.

2.2 Modifying IP Address

Default IP address of all devices is 192.168.1.108. When you use the Device for the first time or there is change of the network, modify IP address of your device according to network planning.

You can modify one or several IP addresses through ConfigTool. You can also log in the web client to modify IP addresses.

2.2.1 Modifying One IP Address

When there are only a few devices or the login passwords of devices are different, you can modify only one IP address at one time. Logging in WEB client to modify IP addresses is taken as an example for detailed description.

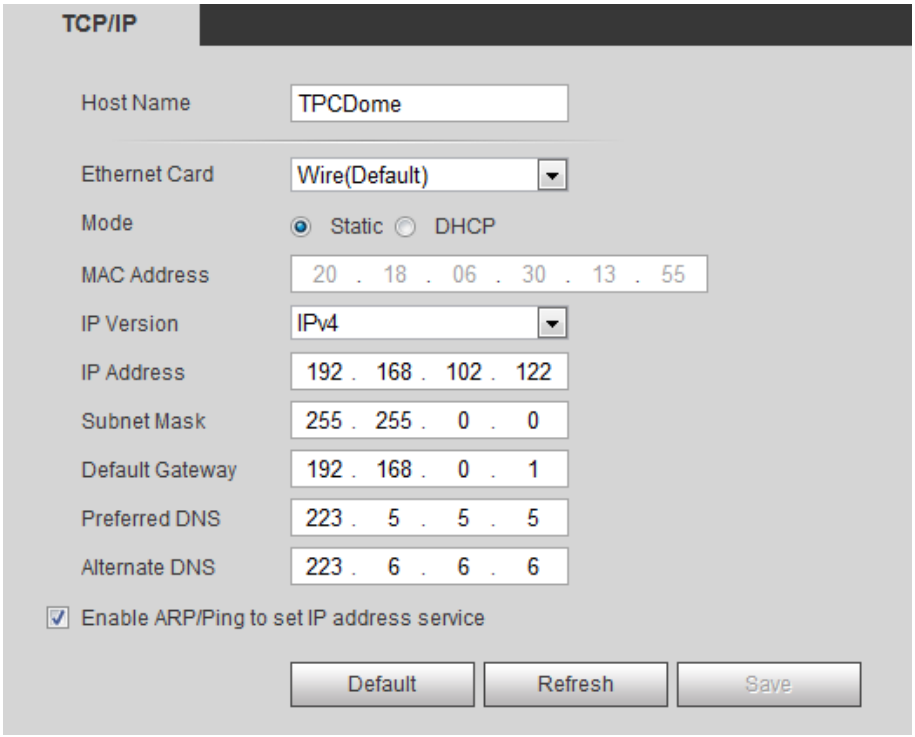
Step 1 Log in web interface from the IE browser.

- The default IP is 192.168.1.108.
- The default user is admin. The password is the one that was configured during initial settings.

Step 2 Select **Setting > Network > TCP/IP**.

The **TCP/IP** interface is displayed. See Figure 2-2.

Figure 2-2 TCP/IP interface



Step 3 Configure relevant information of IP address and then click **Save**.

2.2.2 Modifying Several IP Addresses

When there are several devices or the login passwords of devices are the same, you can modify several IP address at the same time through the ConfigTool.

Preparation

- You have obtained the installation package of ConfigTool. To obtain the installation package, you can consult technical support staffs.
- You have achieved network communication between PC (which is with ConfigTool) and the Device.

Procedures

Step 1 Click  .

The **Modify IP** interface is displayed.

Step 2 Click **Search Settings.**

The dialog box named by "settings" is displayed.

Step 3 Set the network segment of the Device, admin and password. Then click **OK**.

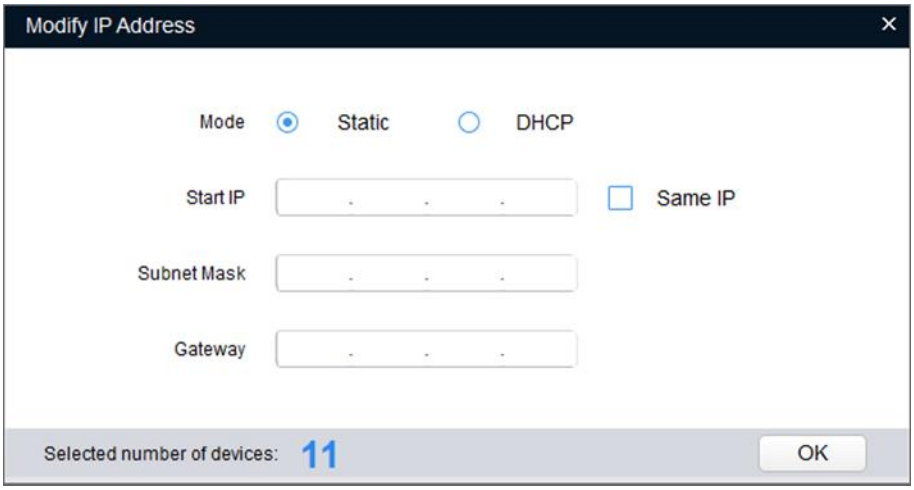
After the search, the system displays devices that have been searched.

Default user name and password are both admin.

Step 4 Select devices whose IP address needs to be modified and click the icon indicating that you can modify several IP addresses at one time.

The dialog box of **Modify IP Address** is displayed. See Figure 2-3.

Figure 2-3 Modifying IP address



Step 5 Select the mode of IP address based on the actuality.

- DHCP mode: When there is a DHCP server in the network, set the **Mode** as **DHCP** and the Device obtains IP addresses from the DHCP server automatically.
- Manual mode: Set **Mode** as **Static** and enter **Starting IP**, **Subnet Mask** and **Gateway**. Then, IP addresses of devices are incrementally modified from the start IP address.

Select the check box of **The Same IP** and set the IP addresses of the Devices you have picked up as the same one.

Step 6 Click **OK** to finish configuration.

2.3 Logging in Web Interface

After you have modified the IP addresses, you can log in the WEB interface of the Device through a browser to operate, configure and maintain the Device.

Background Information

To log in the Device in a smooth way, you need to make sure that the PC connected to the Device satisfies the following requirements. See Table 2-1.

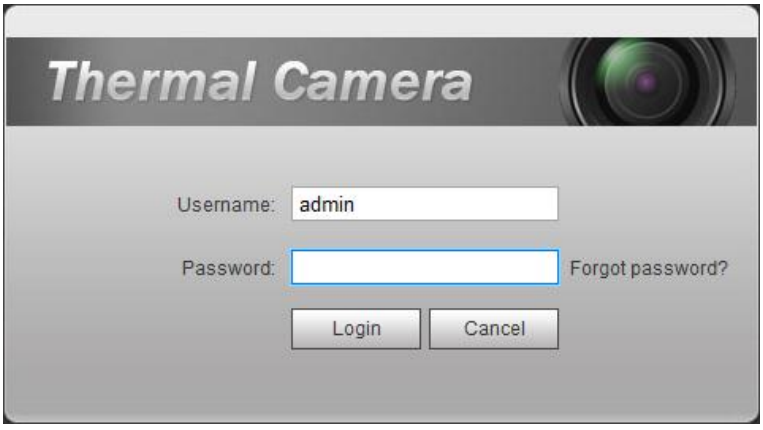
Table 2-1 Recommended PC configuration

PC items	Recommended configuration
Operation system	≥ Windows 7
CPU	≥ Intel core i3
Graphics card	≥ Intel HD Graphics
Storage	≥ 2GB
Display	≥ 1024×768 Resolution
Browser	Internet Explorer 9/10/11

Procedure

Step 1 Open browser, enter IP address in the address bar, and then press **Enter**.
The **login** interface is displayed. See Figure 2-4.

Figure 2-4 Login

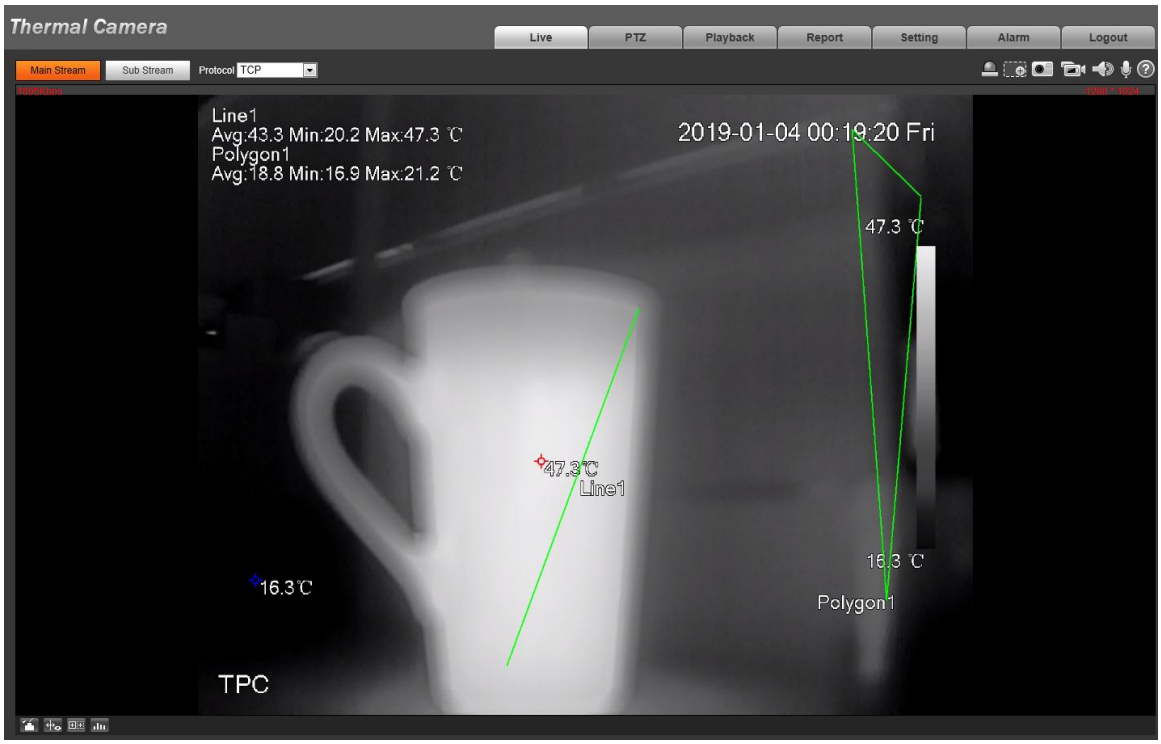


Step 2 Enter username and password, and click **Login.**
After the successful login, the **Live** interface is displayed. See Figure 2-5.

- The default user is admin. The password is the one that was configured during initial settings.
- It will prompt you to install plug-in for the first system login. Please download and install plug-in according to the prompt.

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

Figure 2-5 Live Interface



Click **Log out** on the upper right corner to exit the interface.

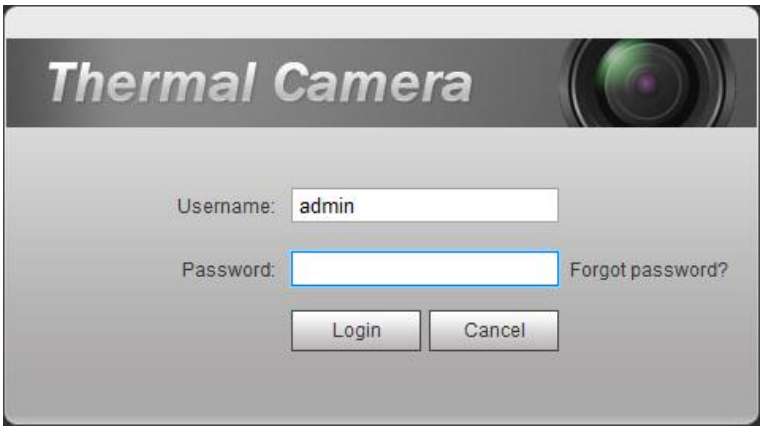
2.4 Resetting Password

If you forget the password, you can use the reserved E-mail address to achieve password resetting.

Step 1 Open IE browser and type the camera's IP address. Then press Enter.

The **Thermal Camera** interface is displayed. See Figure 2-6.

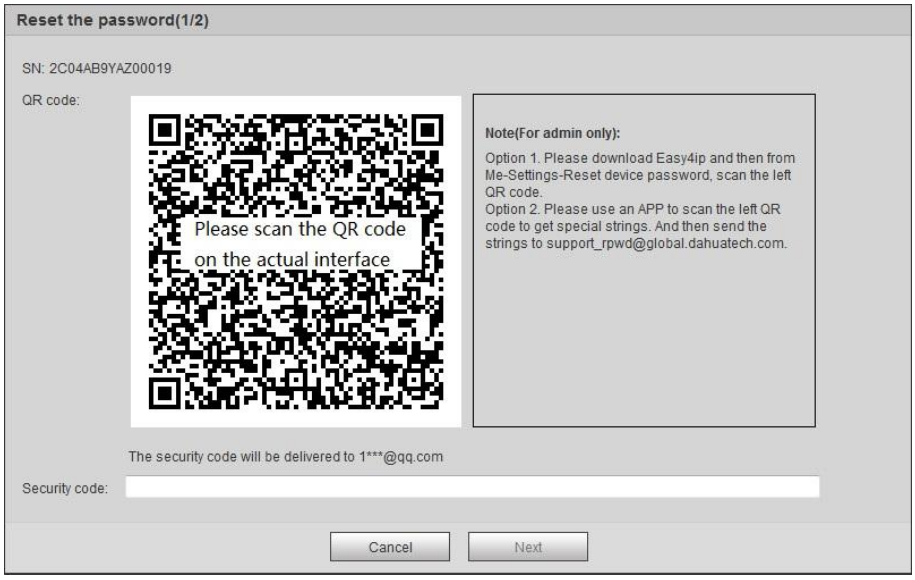
Figure 2-6 Logging in the Device



Step 2 Click **Forgot Password?**

The **Reset the password (1/2)** interface is displayed. See Figure 2-7.

Figure 2-7 Reset the password(1/2)



Step 3 Reset the password.

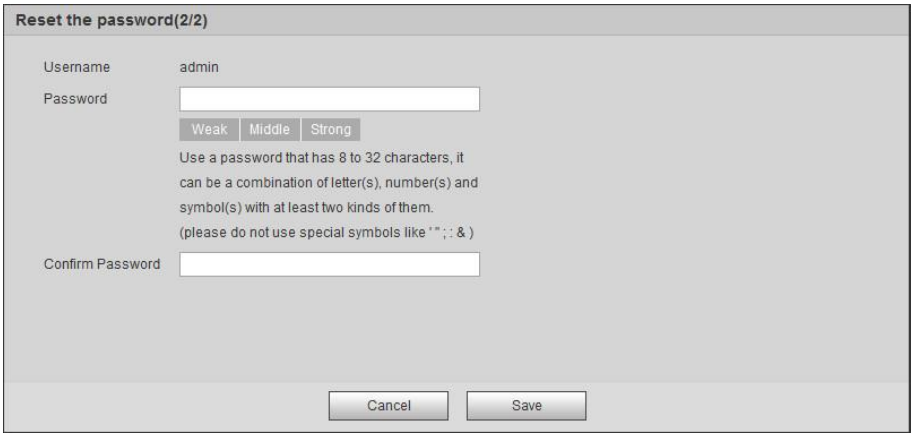
Scan the QR code, and the security code will be sent to the email address you have already fulfilled. Type the security code then.

- Reset the password in time when you receive the security code, because the security code will be invalid within 24 hours.
- If you get security codes twice but do not use them, when you get the security code for the third time, the system will prompt failure. To solve this problem, you need to restore your device to default settings or wait 24 hours to get a new one.

Step 4 Click **Next**.

The **Reset the password (2/2)** interface is displayed. See Figure 2-8.

Figure 2-8 Resetting the password(2/2)



Step 5 Fill in a new password and confirm it.

The password is made up of characters for 8–32 digits and the password must contain two of the three forms (number, letter, and the common characters. “!”、“!!”、“;”、“:”、“&”are not included.) You should obey the prompt of the password’s security level and set a password with high security level.

Step 6 Click **Save** to finish password resetting.

The login interface is displayed.

3 Daily Operation

3.1 Real-time Preview

On the Live interface, you can do operations to the real-time surveillance images such as viewing, taking snapshots and recording videos.

- Functions of different devices might vary, and the actual product shall prevail.
- Double-click the image and the image is displayed in a full screen. Then, right-click the full-screen image and the image returns to its previous state.

3.1.1 Introduction to Live Interface

Click the **Live** tab, and the **Live** interface is displayed. See Figure 3-1. In the live interface, there are five function bars. See Table 3-1.

Figure 3-1 Live interface

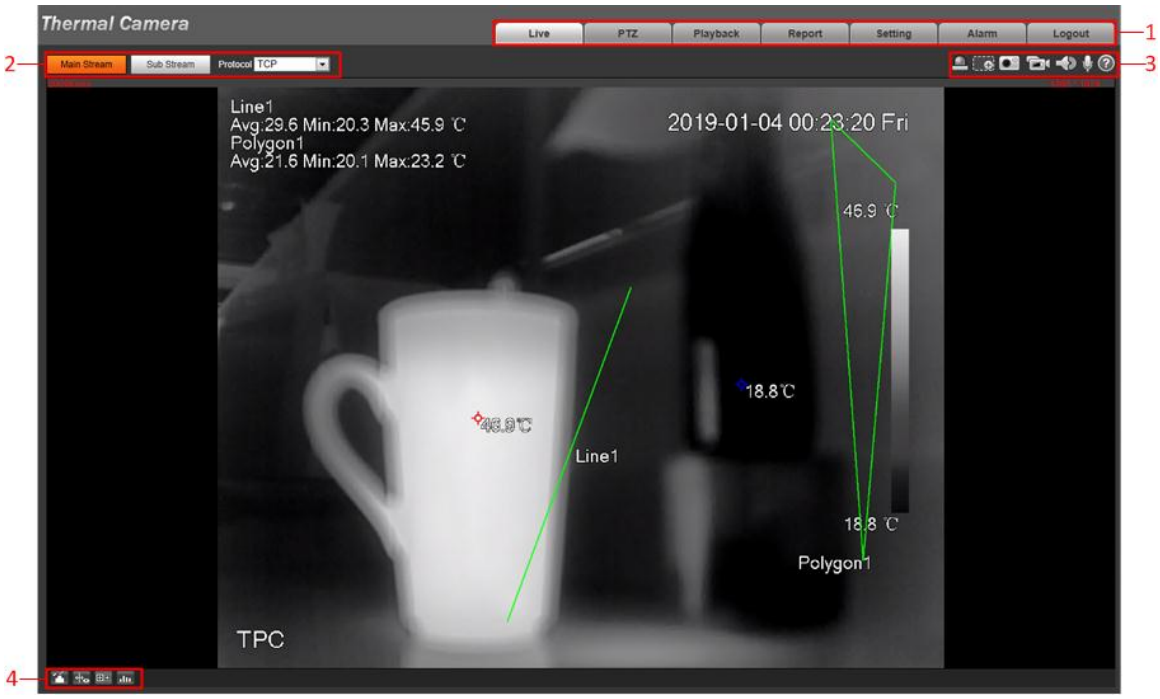


Table 3-1 Description of function bar

No.	Rule name	Description
1	System menu	Click each function tab in the system menu to go to the corresponding interface.

No.	Rule name	Description
2	Encode bar	Select bit stream type and streaming protocol when previewing a video. ● Main Stream: It has large bit stream value and image with high resolution, but also requires large bandwidth. This option is normally used for storage and surveillance. ● Sub Stream: It has small bit stream value and smooth image, and requires little bandwidth. This option is normally used to replace main stream when bandwidth is not enough. ● Streaming protocol: A network transmission protocol, supports TCP, UDP and Multicast.
3	Live view function bar	For functions and operations of live view bar, see "3.1.2 Function Bar."
4	Adjustment bar of video window	Supports adjusting clarity of video images, displaying intelligent rules, zooming with focusing at the same time, checking real-time reports. See "3.1.3 Window Adjustment" for more details.

3.1.2 Function Bar

See Figure 3-2 and Table 3-2 for more details.

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

Figure 3-2 Live view function

Table 3-2 Live view function description

No.	Rule name	Description
1	Relay-out	Shows alarm output state. Click the icon to force enable or force disable alarm output. Alarm output state description: ● Red: Alarm output. ● Grey: Alarm over.
2	Zoom in	You can zoom in video image with two operations: ● Click the icon to enlarge part of visible light or thermal images. Right-click to resume. ● Click the icon to zoom a video image by scrolling the mouse.
3	Snapshot	Click the icon to capture a live image and save it under the path you have set. To check or modify the storage path, see "4.1.2.5 Configuring Storage Path."

No.	Rule name	Description
4	Video recording	Click the icon to record the live video and save it under the path you have set. To check or modify the storage path, see "4.1.2.5 Configuring Storage Path."
5	Audio	Click the icon to enable or disable audio output. This function is available on select model.
6	Voice intercom	Click this icon to enable or disable the intercom function. Please open stereo remix after enable the voice intercom function. This function is available on select model.
7	Help	Click to open help document.

3.1.3 Window Adjustment

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

Figure 3-3 Window adjustment

3.1.3.1 Image Adjustment

Adjust brightness, contrast, hue and saturation of video images on your web interface.

For detailed operations, see "4.1.1 Configuring Lens."

Click  , and the **Image Adjustment** interface is displayed at the right side of live interface. See Figure 3-4.

Figure 3-4 Image adjustment interface

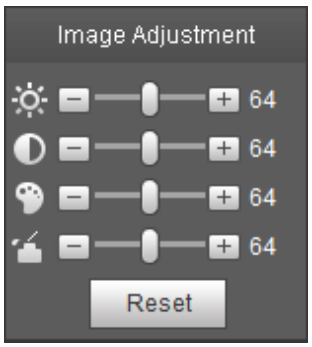
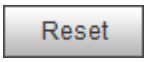


Table 3-3 Image adjustment configuration

Icon	Function	Description

Icon	Function	Description
	Brightness	Adjusts the overall image brightness, change the value when the image is too bright or too dark. The bright and dark areas will have equal changes.
	Contrast	Change the value when the image brightness is proper but contrast is not enough.
	Hue	Makes the color deeper or lighter. The default value is made by the light sensor and is recommended.
	Saturation	Adjusts color depth. This value doesn't change the overall image brightness.
	Reset	Click the icon to reset brightness, contrast, hue and saturation to their default values.

3.1.3.2 Display of Smart Rules

You can control whether rules information is displayed on surveillance images. It is set by default that this function is in opening state.

Click  to select **Enable**, and then select **Enable** to display smart rules and detection box; select **Disable** to stop.

3.1.3.3 Zoom and Focus

Zooming and focusing functions are only available on motorized vari-focal devices.

Adjust focal length of your lens to zoom in or out surveillance images; adjust optical afterfocus of your lens to improve clarity level of video images.

Click  , and the zooming and focusing interface is displayed at the right side of live interface.

Table 3-4 Zoom and focus description

Parameters	Description
Variable focal length	Click  or  , and adjust the optical back focal length of thermal tunnel to make images more clear.
Auto focus	Auto focus.

3.1.3.4 Optical Axis Calibration

Used only for calibrating the device lens when the Device is being debugged in the factory. You do not need to operate this function.

3.1.3.5 Real-time Reports

Record the average temperature within the set time of the dots, lines and area that you have selected.

Only Devices with temperature-testing function support this function, and the actual product shall prevail.

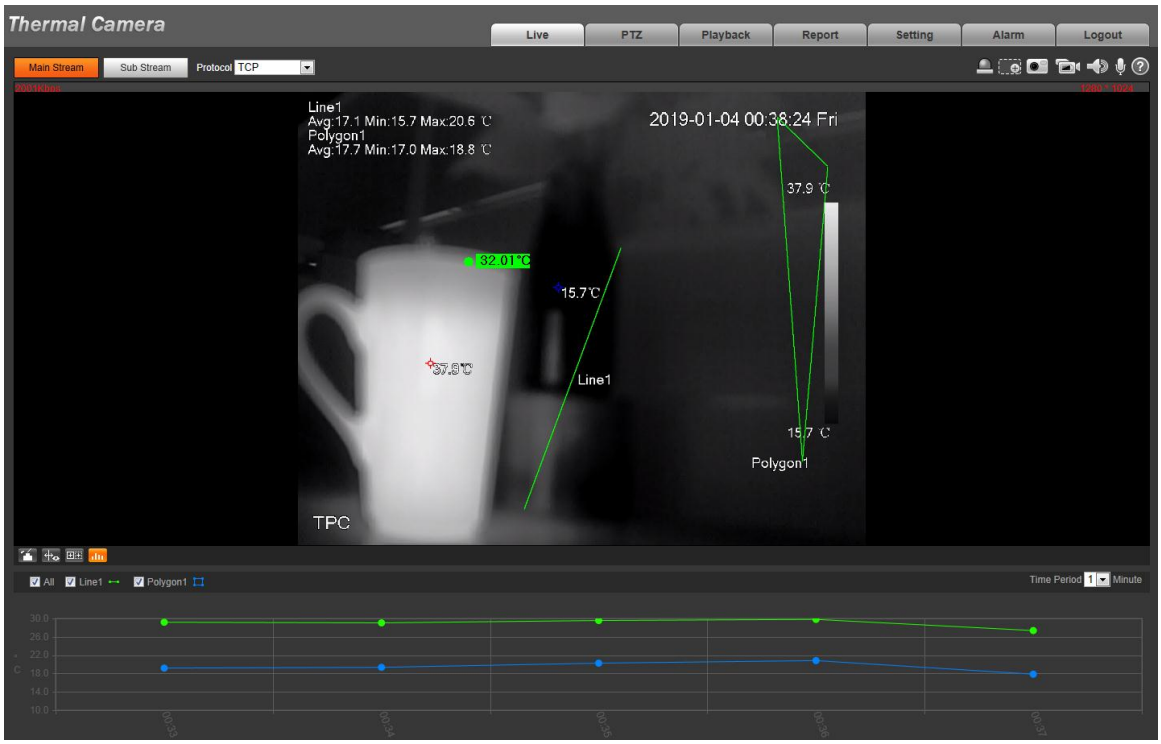
Preparation

You have set the temperature testing rules. For detailed operation, see "4.5.1.1 Configuring Temperature Measuring Rules."

Procedure

Click  and the real-time reports interface is displayed. Select the temperature-measuring program and set the time circle. Then the real-time temperature change is displayed. See Figure 3-5.

Figure 3-5 Temperature recording area

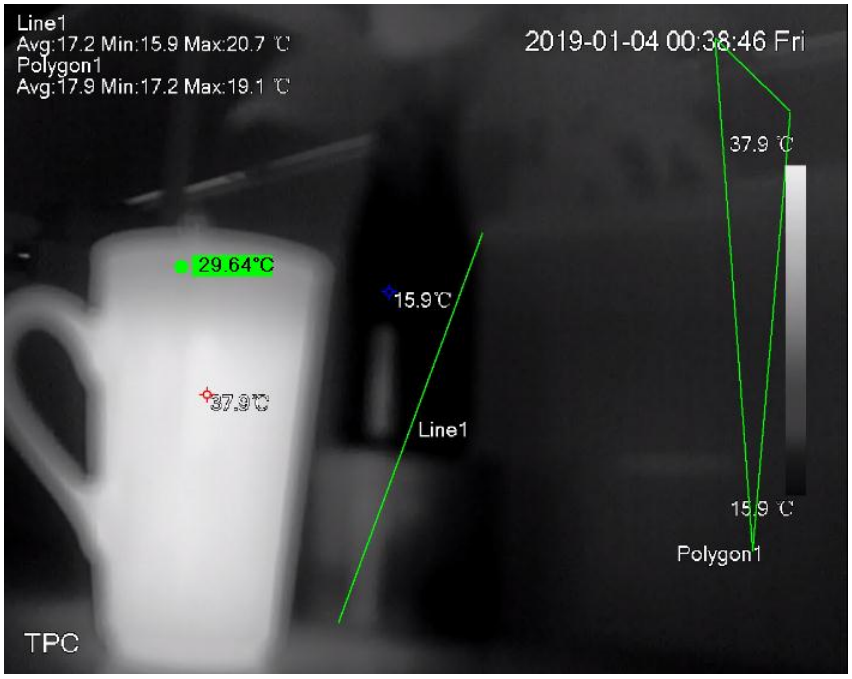


3.1.4 Real-time Spot Temperature Measuring

Only devices with temperature-measuring function support this function, and the actual product shall prevail.

Move the pointer to any position of the video image and click. Then the real-time temperature of this spot is displayed. See Figure 3-6.

Figure 3-6 Real-time spot temperature measuring



3.2 PTZ

PTZ setting of bullet camera is used for controlling external PTZ device. Connect the Device to external PTZ through RS-485 port before using this function.

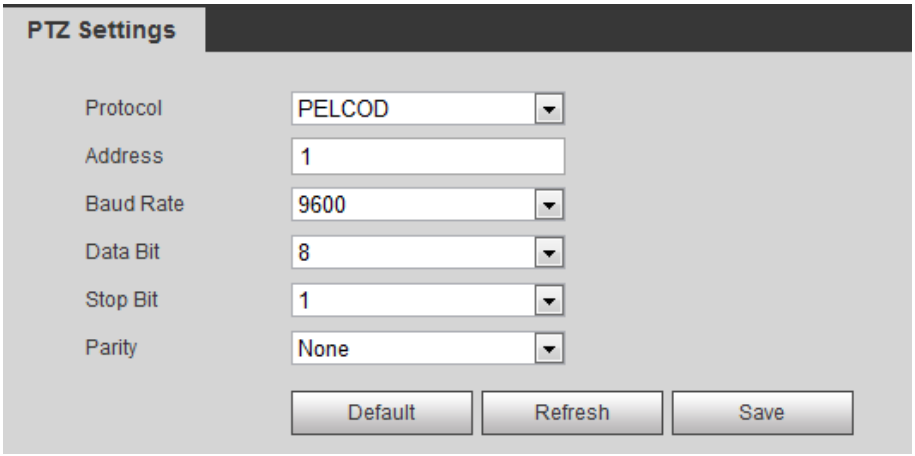
3.2.1 Configuring Protocol

If you want to control the external PTZ by your bullet camera, you need to set the PTZ protocol first and then connect PTZ to your camera.

Step 1 Select **Setting > System Management > PTZ Setting**.

The **PTZ Settings** interface is displayed. See Figure 3-7.

Figure 3-7 PTZ settings



Step 2 Configure PTZ parameters. For detailed description, see Table 3-5.

Table 3-5 Parameter description

Parameter	Description

Parameter	Description
Protocol	Matches with the PTZ protocol.
Address	Enter the corresponding device address. The entered address must be the same with the address configured on the PTZ; otherwise the PTZ cannot be controlled from the bullet camera.
Baud rate	Configure device baud rate.
Data bit	The default is "8".
Stop bit	The default is "1".
Parity	The default is "none".

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

3.2.2 Configuring PTZ Functions

- The protocol setting has been completed. For detailed operations about protocol setting, see "3.2.1 Configuring Protocol".
- For images representing the effect of external PTZ, you need to preview on the preview images of the external PTZ, not on the preview image of the bullet camera.
- The following functions are available only when your bullet camera is connected to the external PTZ.

3.2.2.1 Configuring Scan

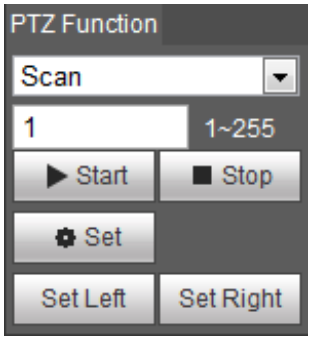
The camera scans on the horizontal direction between the left and right borders.

Step 1 Click the **PTZ** tab and select **Scan** in the PTZ function setting list.

Step 2 Click **Set.**

The **Set Left** and **Set Right** buttons are displayed. See Figure 3-8.

Figure 3-8 Linear sweep



Step 3 Set the left and right border.

1) Through the direction button, move the camera to the left border that you want and click **Set Left**.
2) Through the direction button, move the camera to the right border that you want and click **Set Right**.

Step 4 Click **Start** to start scan; click **Stop** to end it.

3.2.2.2 Configuring Presets

By configuring presets, the camera can store parameters such as PTZ's horizontal angle, inclination angle, and the lens focal length under the current situation to the Device. If you need those parameters later, you can quickly adopt them and adjust the PTZ and camera to those locations.

Step 1 Click the **PTZ** tab and select **Preset** in the **PTZ Function** setting list.

Step 2 Click **Set Preset**.

The **Add** and **Del** buttons are displayed. See Figure 3-9.

Figure 3-9 Preset

Step 3 Through the direction button, move the camera to the surveillance direction that you need.

Step 4 In the preset box, enter the preset number.

Range of the preset number is limited by the PTZ protocol.

Step 5 Click **Add** to add a preset.

Step 6 Enter a preset number and click **Go to**. The camera turns to the corresponding position.

3.2.2.3 Configuring Tour

By configuring tour, you can put the presets to the auto tour group to make the camera move back and forward quickly and automatically according to the presets.

Preparation

You have set several presets.

Procedure

Step 1 Click the **PTZ** tab and select **Tour** in the **PTZ Function** setting list.

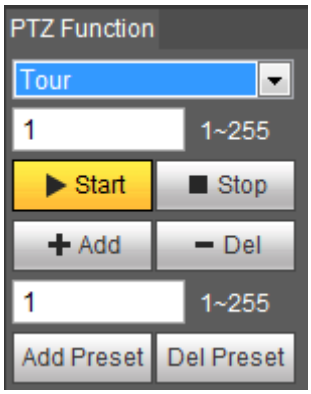
Step 2 In the tour typing box, type the tour number.

Range of the preset number is limited by the PTZ protocol.

Step 3 Click **Add**.

The **Preset** button, **Add Preset** button and **Delete Preset** button are displayed. See Figure 3-10.

Figure 3-10 Tour group



Step 4 In the preset typing box, type the preset number.

Step 5 Click **Add Preset** to add a preset in the tour group.

Repeat step 4 to step 5 to add several presets in the tour group.

Enter a preset number and click **Delete Preset** to delete preset it in the tour group.

Step 6 Enter a tour number. Click **Start** to start touring; click **Stop** to end it.

3.2.2.4 Configuring Pattern

By configuring pattern, you can record continuously your operation to the PTZ and record the moving pattern of the camera's lens. The Device will make the location where the recording begins as the beginning point, and move back and forward automatically following the preset movement pattern.

Step 1 Click the **PTZ** tab and select **Pattern** in the **PTZ Function** setting list.

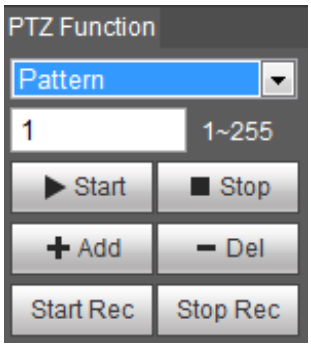
Step 2 In the pattern typing box, type a pattern number.

Range of the pattern number is limited by the PTZ protocol.

Step 3 Click **Add**.

The **Start Rec** and **Stop Rec** buttons are displayed. See Figure 3-11.

Figure 3-11 Touring pattern



Step 4 Click **Start Rec**.

Step 5 By operating the PTZ control panel, you can control the camera's surveillance direction, zoom images or change the focal length.

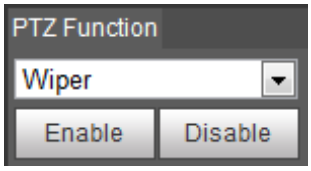
Step 6 Click **Stop Rec** to complete setting of the pattern.

Step 7 Select a pattern number. Click **Start** to start pattern; click **Stop** to end it.

3.2.2.5 Turing on Wiper

Step 1 Click the **PTZ** tab and select **Wiper** in the **PTZ Function** setting list. See Figure 3-12.

Figure 3-12 Wiper



Step 2 Click **Enable** to enable the wiper function; click **Disable** to disable the function.

3.2.2.6 PTZ Operation

- The corresponding protocol setting and function setting have been completed. See "3.2.1 Configuring Protocol" and "3.2.2 Configuring PTZ Functions" for more details.
- For images representing the effect of external PTZ, you need to preview on the preview images of the external PTZ, not on the preview image of the bullet camera.

Click the **PTZ** tab and the PTZ control panel is displayed on the right side of the PTZ interface. See Figure 3-13.

Figure 3-13 PTZ control panel

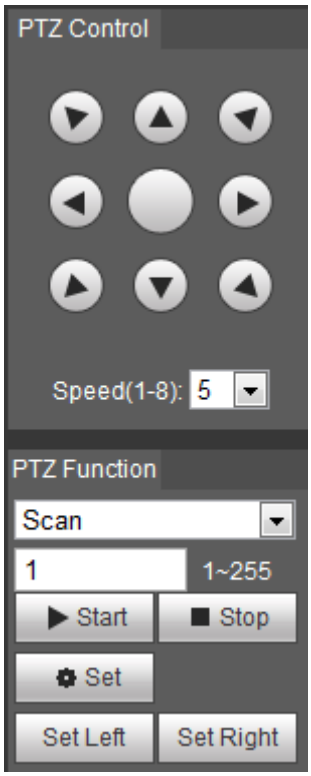


Table 3-6 Parameter description

No.	Function	Description
1	Direction button	Eight directions are contained: up, down, left, right, upper left, upper right, lower left, and lower right.

2	Speed	Controls the movement speed. The bigger the value is, the faster the movement will be. With this function, you can also change the speed of adjusting the PTZ direction, zooming, changing the focal length and adjusting the aperture.
3	Zoom, focus and iris	Click  and the zoom, focus and iris' value becomes bigger; click  and the zoom, focus and iris' value becomes smaller.
4	PTZ function	For detailed operations of PTZ, see "3.2.2 Configuring PTZ Functions".

3.2.3 Configuring Preset Backup

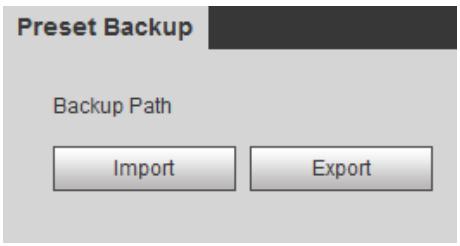
You can export presets you have set to back them up. When you need those presets, you can import them to your device and restore them.

If you want to export or import presets, you have to obey the following steps.

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

The **Preset Backup** interface is displayed.

Figure 3-14 Preset backup



Step 2 Export or import presets.

- Click **Export** to export presets for backup.
- Click **Import** to import presets you have already backed up.

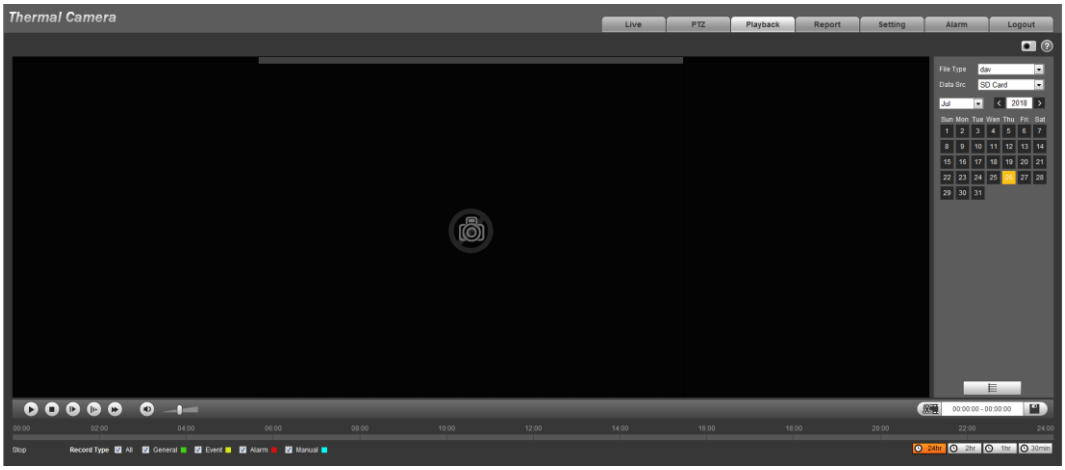
3.3 Playback

Playback of both videos and pictures is supported.

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

Click the **Playback** tab, and the **Playback** interface is displayed. See Figure 3-15.

Figure 3-15 Playback



3.3.1 Video Playback

3.3.1.1 Interface Layout

Select **dav** in the **File Type** list, and the video playback interface is displayed. See Figure 3-16. On the **Playback** interface, there are seven function bars. See Table 3-7.

Figure 3-16 Video playback

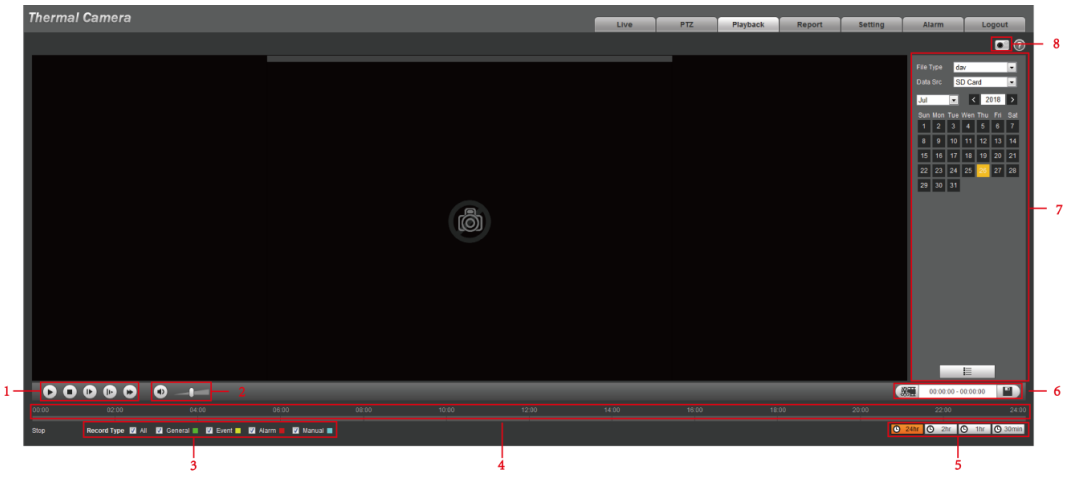


Table 3-7 Function bar description

No.	Functions	Description
1	Playback control bar	For detailed information about control buttons, see "3.3.1.2 Operate Control Bar."
2	Volume adjustment	Controls playback volume. ● muted. ● muted, and the volume can be adjusted.
3	Record type	Record type includes **All**, **General**, **Event**, **Alarm**, and **Manual.** You can select according to your actual needs.
4	Time bar	Displays the record type and the time period. ● Click any point in the colored area, and the playback starts

		from this moment. ● Each color represents a certain video type, and the corresponding relationship is indicated in the record type selection area.
5	Time bar unit	There are four formats:  ,  .  , and  . Take  for an example, the whole time bar has 24 hours.
6	Video clip	Clip and save certain video section. For detailed operations, see "3.3.1.4 Clipping Recorded Video."
7	Playback file list	You can select file type, data source and record date.
8	Snapshot	Click the icon to capture a live image and save it under the path you have set.

3.3.1.2 Operate Control Bar

See Table 3-8 for details.

Table 3-8 Playback control bar

Icons	Functions	Description
	Play	Click this icon to play video.
	Stop	Click this icon to stop playback.
	Play by Frame	Click this icon to play the next frame. You need to pause the playback before using play by frame.
	Slow playback	Click this icon to slow down the playback.
	Fast playback	Click this icon to speed up the playback.

3.3.1.3 Playing Back Videos

There are differences in operation of video playback according to the differences of data sources. Data come from SD card or your local storage.

3.3.1.3.1 Playing Back Videos in SD Card

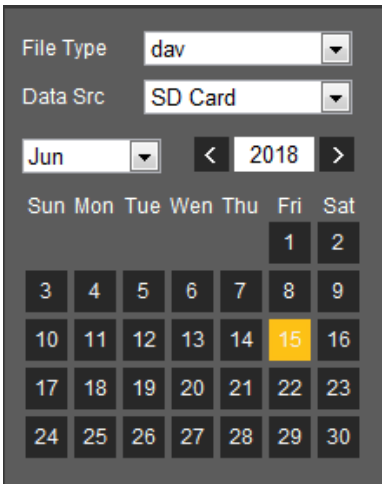
Step 1 Select record type in the Data Src bar. See Figure 3-17.

Figure 3-17 Selecting record type

Step 2 In the **File Type** box, select .**dav**, and in the **Data Src** box, select **SD Card**. See Figure 3-18.

File type contains dav and jpg. "Dav" represents video playback and “jpg” represents picture playback.

Figure 3-18 Setting files playback



Step 3 Those dates with blue color indicate there are recorded videos in those days. Select a date with recorded video inside and its time bar is displayed.

Each color on the time bar represents a certain record type. See the matching relationship in Figure 3-17.

Step 4 Play video.

- Click in the playback control bar.
  The system plays the recorded video of the selected date (in time order).
- Click any point in the colored area of the time bar. See Figure 3-19.
  The playback starts from that point.

Figure 3-19 Time bar

- Click , and the video files of the selected date will be listed. Double-click a file in the list. See Figure 3-20. The system plays the video and displays file size, start time and end time.
  For detailed operations, see Table 3-9.

Figure 3-20 List of playback files

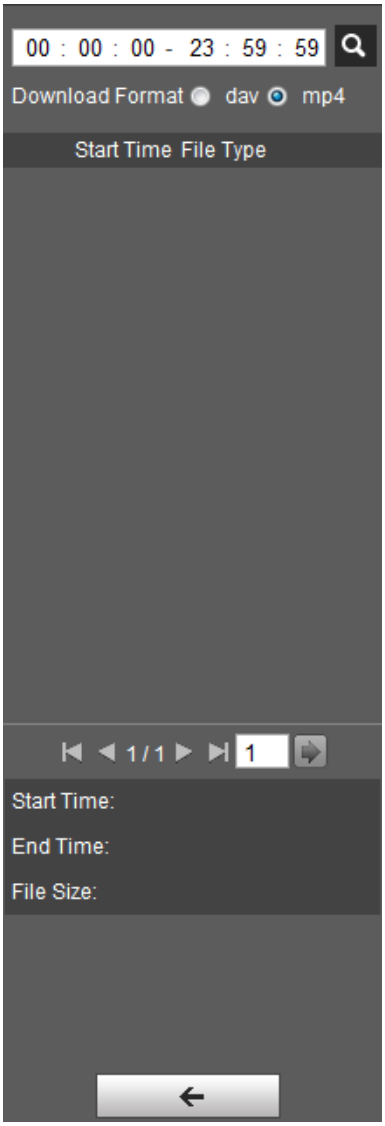


Table 3-9 Picture Playback file more operations

Operation	Description
Search	Enter start time and end time, and then click to find out all the video files between the entered start time and end time.
Download	Select **dav** or **mp4** in the **Download Format**. Then click . The file will be downloaded to the set storage path. For detailed operations of setting the storage path, see "4.1.2.5 Configuring Storage Path." Downloading and playing video at the same time is not supported.
Back	Click to go back to the calendar interface.

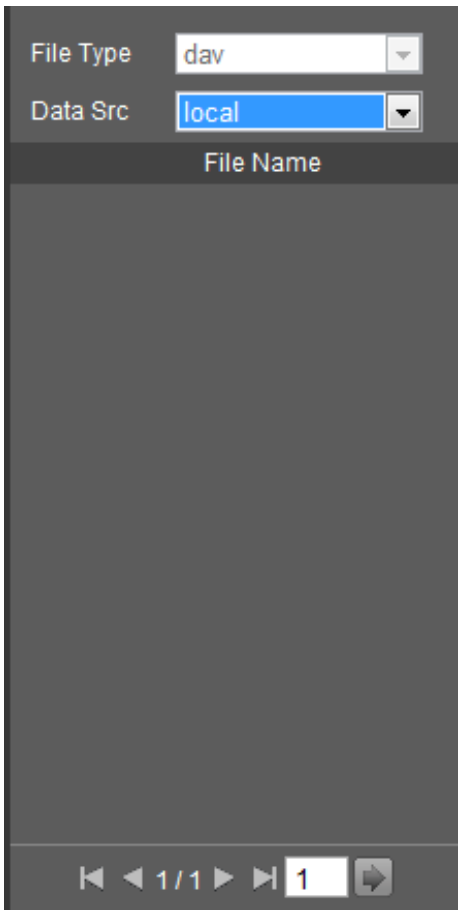
3.3.1.3.2 Playing Back Local Videos

Step 1 In the **Data Src** box, select video type. See Figure 3-17.

Step 2 Select **dav** in **File Type**, and **SD Card** in **Data Src**.

List of playback files is displayed. See Figure 3-21.

Figure 3-21 List of playback files (2)



Step 3 Double-click a file and the file is displayed.

3.3.1.4 Clipping Recorded Videos

You can clip a part of recorded video and save it under the path you have set. See Figure 3-22.

Figure 3-22 Video clipping

Step 1 In **Video Format**, select **dav** or **mp4**.

Step 2 Click on the time bar to select the start time, and then click  to start.

Step 3 Click again on the time bar to select the end time, and then click  to finish.

Step 4 Click  .

The system prompts that you cannot play back and download a recorded video at the same time.

Step 5 Click **Save**.

The system stops playback and save the edited file under the storage path you have set. For detailed operations of setting the storage path, see "4.1.2.5 Configuring Storage Path".

3.3.2 Picture Playback

The following content is about the introduction of the interface function bar and how to play back pictures.

3.3.2.1 Interface Layout

Select "jpg" in "file type" list, and the **Picture Playback** interface is displayed. See Figure 3-23.

Figure 3-23 Image playback

Table 3-10 Image playback

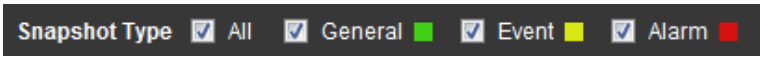
No.	Function	Description
1	Control button for playing pictures	Includes the following two types: ● When this icon displays, the picture playback is paused or not started. Click this icon to start picture playback. ● When this icon displays, the picture playback is ongoing. Click this icon to stop picture playback. The two states above can be switched.
2	Snapshot type selection	There are three types including **General**, **Event** and **Alarm**, and you can select one of them according to actual needs.
3	Playback file list	You can select file type and snapshot data.

3.3.2.2 Picture Playback

You can check and play a snapshot image based on your own needs.

Step 1 Select a snapshot type in the selection bar of snapshot type. See Figure 3-24.

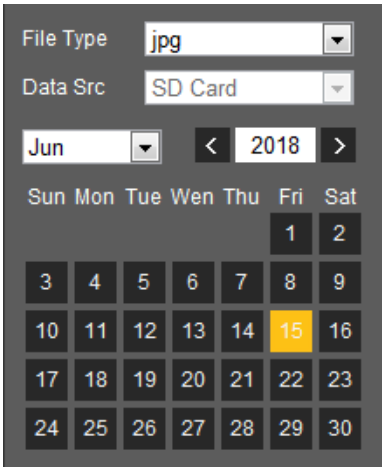
Figure 3-24 Snapshot type selection



Step 2 Select **jpg** in **File Type**. See Figure 3-25.

File type contains dav and jpg. "Dav" represents video playback and “jpg” represents image playback.

Figure 3-25 Configuring playback files



Step 3 Those dates with blue color indicate there are snapshot images in those days. Select a date with snapshot images inside.

Step 4 Play images.

- Click in the play control bar and the system plays the snapshots you have selected (in time order).
- Click which represents the file list, pictures which you have selected would be displayed. Double-click a file in the list. See Figure 3-26. The file is displayed.

  For detailed operations, see Table 3-11.

Figure 3-26 List of playback files

Table 3-11 Picture Playback file more operations

Operation	Description
Search	Enter starting time and ending time, and click . Finds out all the picture files between the entered starting time and ending time.

Operation	Description
Download	Click , and the file is downloaded to local host. The download operation might vary with different browsers, and the actual interface shall prevail.
Back	Click to go back to the calendar interface.

3.4 Reports

You can follow certain rules such as time sequence, and check history data of temperature saved in the device Micro SD card.

Preparation

- You have set the temperature measuring rules (spots, lines and area included). For detailed operations, see "4.5.1.1 Configuring Temperature Measuring Rules".
- You have inserted a SD card to the Device.

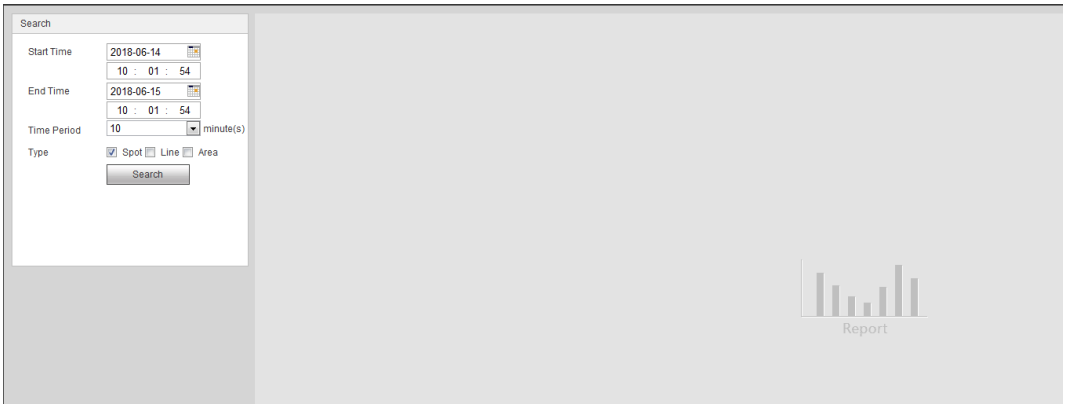
Some devices do not support this function. The actual product shall prevail.

Procedure

Step 1 Click the **Report** tab.

The **Report** interface is displayed. See Figure 3-27.

Figure 3-27 Report



Step 2 Set the conditions for searching and click **Search.**

Temperature data you have searched is displayed. See Figure 3-28.

Figure 3-28 Result of report searching

3.5 Alarm

You can select alarm type as needed, when the selected alarms are triggered, the system would record detailed alarm information at the right side of the interface.

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

3.5.1 Introduction to Alarm Types

For alarm types and conditions that trigger an alarm, see Table 3-12.

Table 3-12 Alarm type description

Alarm Type	Description	Condition
Motion detection	The alarm is triggered when moving objects are detected.	You have enabled motion detection. For detailed operations, see "4.4.1 Configuring Video Detection."
Disk full	The alarm is triggered when the free space in the SD card is lower than the set percentage.	You have enabled detection to lack of SD card storage space. For detailed operations, see "4.4.5.1 Configuring SD Card Abnormality Parameters."
Disk error	The alarm is triggered when there is SD card error or abnormality.	You have enabled detection to SD card storage space. For detailed operations, see "4.4.5.1 Configuring SD Card Abnormality Parameters."
External alarm	The alarm is triggered when there is alarm from external device.	There is an alarm input port and the external alarm is enabled. For detailed operations, see "4.4.4 Configuring Alarm."
Illegal access	The alarm is triggered when the login password has been wrongly entered for more than the set times.	You have enabled detection to illegal access. For detailed operations, see "4.4.5.3 Configuring Illegal Access."
Audio detection	Alarm is triggered when there are audio input errors.	You have enabled detection to audio errors. For detailed operations, see "4.4.2 Configuring Audio Detection."

Alarm Type	Description	Condition
IVS	Alarm is triggered when the set smart plans are triggered.	You have enabled detection to general behaviors. For detailed operations, see "4.3.2 Configuring Common Behavior Analysis."
Fire warning	Alarm is triggered when fire is detected.	You have enabled fire alarm. For detailed operation, see "4.3.3 Configuring Fire Warning."
Temperature alarm	When temperature satisfies alarm conditions stipulated by temperature testing rules, alarm is triggered.	You have enabled temperature alarm. For detailed operations, see "4.4.3 Configuring Temperature Alarm."
Temperature difference alarm	When temperature difference satisfies alarm condition you have set, alarm is triggered.	You have enabled temperature comparison alarm. For detailed operations, see "4.4.3 Configuring Temperature Alarm."
Hot spot alarm	When temperature of a hot spot satisfies alarm condition you have set, alarm is triggered.	You have enabled hot/cold spot tracing. For detailed operations, see "4.3.4 Configuring Hot Trace."
Cold spot alarm	When temperature of a cold spot satisfies alarm condition you have set, alarm is triggered.	

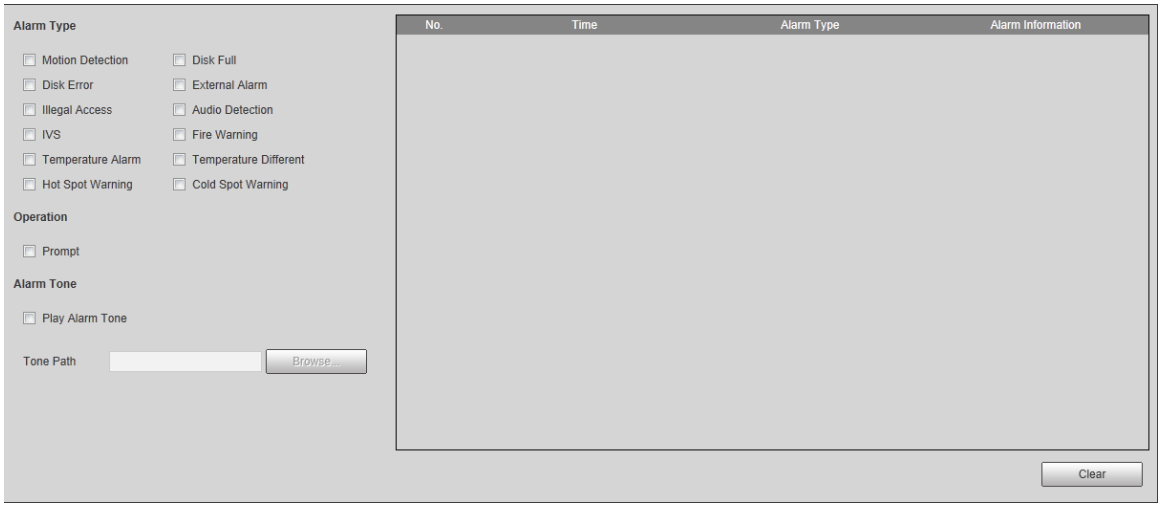
3.5.2 Subscribing Alarm Information

You can enable alarm prompts and define alarm sound according to your preference.

Step 1 Click the **Alarm** tab.

The **Alarm** interface is displayed. See Figure 3-29.

Figure 3-29 Alarm



Step 2 Select an alarm type.

Step 3 Select **Prompt**, and the system prompts and records alarm information as needed.

- If you are not in the **Alarm** interface when alarm events you have subscribed are triggered, there will be a  displayed on the **Alarm** tab and the alarm information will be recorded. Click the **Alarm** tab, and the sign disappears.
- If you are at the “Alarm” interface when the selected alarm is triggered, there will be detailed alarm information displayed at the right side of the interface.

Step 4 Select the check box of **Play Alarm Tone**, and select audio file.

System would play the audio file you have selected, when alarm events you have subscribed are triggered.

Click **Remove all** to remove all the alarm information.

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

4.1 Configuring Camera

Configure camera’s components such as lens, video and audio to ensure proper surveillance.

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

4.1.1 Configuring Lens

4.1.1.1 Configuring Lens Parameter

Configure or check lens properties under different scenarios.

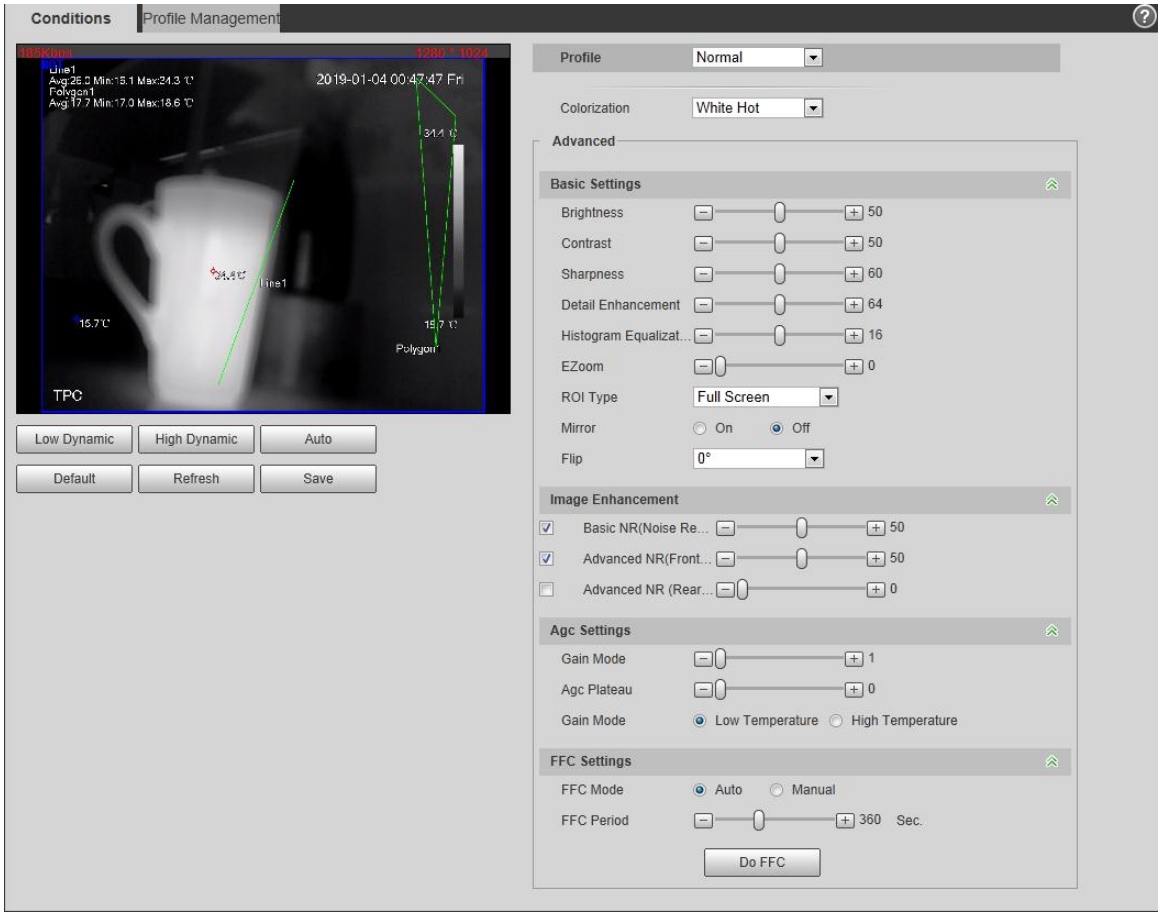
Camera parameters of different devices might vary, and the actual product shall prevail.

Configure a specific scenario where you use the camera, including indoor scenario, outdoor scenario, and adaptive scenario. You can choose a scenario you need, and configure and check the scenario.

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

The **Conditions** interface is displayed. See Figure 4-1.

Figure 4-1 Conditions



Step 2 Configure lens parameters. For detailed description, see Table 4-1.

Table 4-1 Parameter description of lens

Classification	Parameter	Description
Configuration files	Configuration files	Common model, day model and night model can be selected. You can set up the relevant parameter of thermal imagery after you configure files.
	Scene	Select the duplicate frame and set up the frequently used video parameter as the user-defined scene. Or, you can select the default scene and set up the display of the thermal imagery. ● Indoor scene: Thermal images will be displayed based on the configuration of indoor scene. ● Outdoor scenario: Thermal images will be displayed based on the configuration of outdoor scenario. ● Adaptive scene: Thermal images will be displayed based on the configuration of adaptive scene.

Classification	Parameter	Description
Basic setup	Pseudo color	Add color to the thermal imagery image and use color to indicate the temperature. "White glow" is the default color. ● White glow: Lighter when the temperature is higher in gray image. ● Black glow: Lighter when the temperature is lower in gray image. ● Fusion: Color is concentrated on the range of purple- red- yellow. More purple when the temperature is lower and more yellow when the temperature is higher. ● Rainbow: Color is concentrated on the range of blue- green - red- yellow. Bluer when the temperature is lower and more yellow when the temperature is higher. ● Golden autumn: Color is concentrated on the range of red- yellow. Redder when the temperature is lower and more yellow when the temperature is higher. ● Midday: Color is concentrated on the range of blue- green - red- yellow. Bluer when the temperature is lower and more yellow when the temperature is higher. ● Iron oxide red: Its color range is similar to that of Midday, but its brightness is lower than Midday. ● Amber: It's mainly represented as brown. Brighter when the temperature is higher. ● Boulder: Color is concentrated on the range of purple - red- yellow-green- blue. More purple when the temperature is lower and bluer when the temperature is higher. ● The setting sun: Color is concentrated on the range of blue- red- yellow. Bluer when the temperature is lower and more yellow when the temperature is higher. ● Ice and fire: In color image, high temperature objects show red and low temperature objects show blue. Ice and fire is usually used to give a warning. ● Oil painting: Color is concentrated on the range of purple-blue-green- yellow-red. More purple when the temperature is lower and redder when the temperature is higher. ● Pomegranate: It's mainly represented as wine red. Brighter when the temperature is higher. ● Green jade: It's mainly represented as aquamarine. Brighter when the temperature is higher.
	Scene name	When "scene" is configured as user-defined scene, you can set up the parameter.
	Brightness	Change the overall image brightness through linear mode. The bigger the value is, the brighter the image will be, and the smaller the darker.

Classification	Parameter	Description
	Sharpness	Change the sharpness of image edges. The larger the value, the more obvious the image edge. Don’t make the value too large to prevent image noise.
	Gamma	Change image contrast ratio based on relative humidity of the specific scene. When the value is larger than 0, you can increase contrast ratio of the part with higher temperature and decrease contrast ratio of the part with lower temperature.
	Electronic amplification	Enlarge the thermal image based on the multiple of the set.
	Intelligent scene	District with large temperature differences may display better contrast ratio while district with small temperature differences not. The larger the value, the better the reserve of primitive temperature differences in the scene.
	Strengthening the district video quality	Select the district of strengthening video quality. The brightness and clarity of the chosen district will be higher. District consists of 25% central point, 50% central point, 75% central point, full screen, bottom part, middle part, above part and user-defined part. When you configure the part "Strengthening the district video quality" as the "user-defined", you need to press and drag the left mouse button. Then, add the "strengthening the district video quality" box.
	Mirror image	Open the mirror image and the monitor image will reverse from left to right.
	Angle of view	Change the display direction of the monitor image. ● Normal: the monitor image is displayed normally. ● Corridor pattern 1: Surveillance images will be displayed after being rotated 90 degrees clockwise. ● Corridor pattern 2: Surveillance images will be displayed after being rotated 90 degrees counterclockwise. ● Shadow: Surveillance images will be displayed after being turned upside down.  For some models, if you adopt the corridor mode, please set the resolution to 1080p or lower.
	Image freeze	When you are using the preset positions, the preset positions image that has been used will be directly represented. The image during the movement of PTZ will not be displayed.
	Basic noise reduction	Average the pixel of single frame image with other pixels to reduce the image noise. Select the copy frame, open the basic noise reduction and configure the class of basic noise reduction. The higher the class, the better the noise reduction, but the image will be less clear.

Classification	Parameter	Description
	Advanced noise reduction	Handles multiple frames images (at least 2 frames image). Use the frame information between two frames of the video to reduce the noise of the image. Select the copy frame, open the advanced noise reduction and configure or self-define the class of basic noise reduction. The higher the class, the better the noise reduction, but the image tail will be more obvious.
Strengthen image contrast	Strengthen district contrast	Based on the average gray level of chosen district and average gray level of the whole district, and based on the parameter, makes the contrast between the chosen district and other district more outstanding.
	Benchmark brightness	Benchmark brightness is a base on which you can adjust the brightness of surveillance images.
	Tensile strength	Used together with benchmark brightness and can be adjusted by benchmark brightness.
Gain settings	Automobile gain	The larger the gain value, the more unstable the image.
	Balanced gain	The larger the district, the bigger the contrast.
	Gain model	Low-temperature mode and high-temperature mode are contained.
FFC setting	FFC mode	Method of correcting the shutter. ● Auto: According to the switch period that you have configured, the shutter will be corrected regularly. ● Manually: Correct the shutter by yourself.
	FFC switch period	You can configure this parameter only when "FFC mode" is set to be "auto." Adjust time gap of correcting the shutter automatically.
	Shutter correcting	Click **Shutter Correcting** to trigger the shutter correcting for this time.

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

Click **Reset** and the lens properties are restored to the primary state.

4.1.1.2 Configuring Profile Management

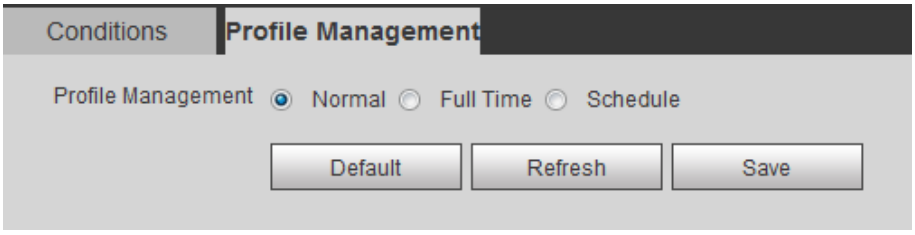
When configuring the profile management, you can select from **Normal**, **Full Time** and **Schedule** based on your own needs.

Step 1 Select **Setting > Camera > Conditions > Conditions > Profile Management**.
The Profile Management interface is displayed.

Step 2 Profile Management Configuration

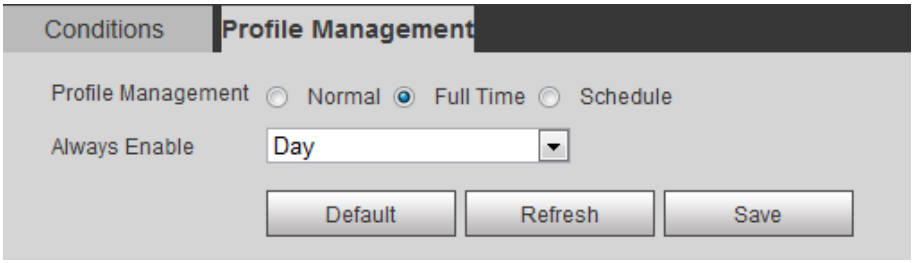
- When **Profile Management** is set as **Normal**, the surveillance system works under normal configuration.

Figure 4-2 Common setting



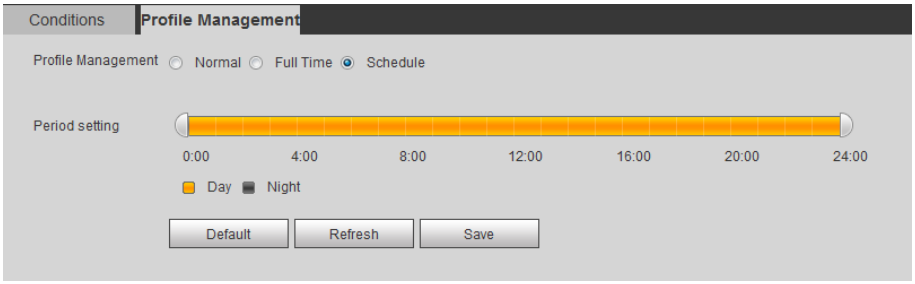
- When **Profile Management** is set as **Full Time**, you can select **Day** or **Night** as **Always Enable**, and the surveillance system works under **Always Enable**.

Figure 4-3 Full time setting



- When **Profile Management** is set as **Schedule**, you can drag the slide block to set certain time as Day or Night. For example, set 8:00–5:00 PM as day, and 0:00–8:00 and18:00–24:00 as night. System works under corresponding configuration in different time.

Figure 4-4 Switching based on time



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

4.1.2 Configuring Video Parameters

4.1.2.1 Configuring Video Streaming

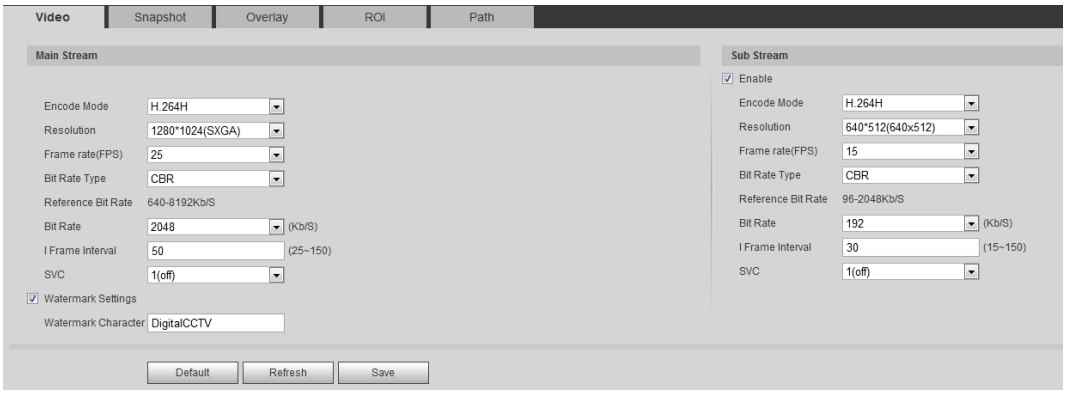
Configure video stream parameters, including stream type, encode mode, resolution, frame rate, bit stream control, bit stream, I frame interval, SVC, and watermark.

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

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

The default bit stream value of different devices might vary, and the actual product shall prevail.

Figure 4-5 Video



Step 2 Configure video streaming. For detailed description, see Table 4-2.

Table 4-2 Parameter description

Parameter	Description
Enable	Select the option box to enable sub stream (enabled by default). Enabling sub stream 1 and sub stream 2 at the same time are supported.
Encode Mode	Encode mode of video. ● H.264: Main profile encode mode. ● H.264H: High profile encode mode. ● H.264B: Baseline profile encode mode. ● MJPEG: Under this mode, the higher streaming value is required to ensure the clarity of images. And, we suggest that you should use the maximum streaming value we have offered.
Resolution	The resolution of the video The max resolution of different devices might vary, and the actual product shall prevail.
Frame Rate (FPS)	The number of frame in one second of video The higher the FPS is, the clearer and smoother the video will be.
Bit rate	You can select bit rate type: ● Fixed: the bit rate changes little and keeps close to the set bit rate value. ● Changeable: the bit rate changes as monitoring scene changes. Bit rate type can only be set as **Fixed** when **Encode Mode** is set as **MJPEG**.
Image quality	This parameter can be configured only when the bit rate type is set as "Changeable." Image quality can be classified as the six levels of "the best", "the better", "good", "bad", "the worse", "the worst."
Reference bit rate value	According to resolution and frame rate you have set, we have offered you a reference bit rate value, which is also the best value you can adopt.

Parameter	Description
Bit rate	This parameter can be configured only when the bit rate type is set as **Fixed**. If you select the bit rate value according to “reference bit rate value”, the streaming changes little and keeps close to the bit rate value you have selected. Select **Customized** and you can configure bit rate value manually.
Maximum bit rate	This parameter can be configured only when bit rate type is set as **Changeable**. You can select the max value of the bit rate according to the reference bit rate value, and the bit rate changes with monitoring scenes, but the max bit rate keeps close to the value you set.
I Frame Interval	The number of P frame between two I frames, and the I Frame Interval range changes as FPS. It is recommended to set I Frame Interval twice as big as FPS.
SVC	Scaled video coding, able to encode a high quality video bit stream that contains one or more subset bit streams. The default value is 1, which means no layered coding.
Watermark Settings	Select the check box to enable watermark. Then you can check if the video has been tampered by verifying the watermark.
Watermark character	The default character is Digital CCTV. You can configure at most 128 watermark characters which are composed of number, letter, underline and dash.

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

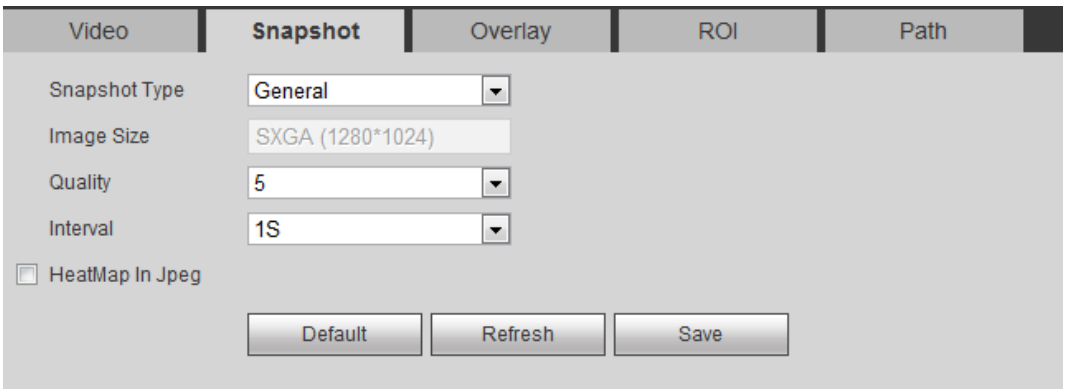
4.1.2.2 Configuring Image Streaming

Configure parameters of image streaming which cover snapshot type/interval, image size/quality.

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

The **Snapshot** interface is displayed. See Figure 4-6.

Figure 4-6 Snapshot



Step 2 Configure snapshot streaming. See Table 4-3.

Table 4-3 Parameter description

Parameter	Description
Snapshot type	You can select **General** or **Event.** ● **General** means the system takes snapshot as scheduled ● **Event** means snapshot functions when video/audio detection, event or alarm is triggered.
Image Size	The same resolution with main stream.
Quality	Snapshot quality. The bigger the value, the better the snapshot quality.
Snapshot interval	Snapshot frequency. Select **Customized** to manually configure snapshot frequency.
Heat map in jpeg	Select the check box and snapshots of thermal images will carry the temperature-measuring information.

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

4.1.2.3 Configuring Video Overlay

Configure **Overlay** which covers **Privacy Masking**, **Channel Title**, **Time Title**, **Geography location**, **Font**, and **Picture Overlay**.

4.1.2.3.1 Configuring Privacy Masking

You can enable this function if you need to cover certain area in the video image.

This function is available only for bullet cameras.

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

The Overlay interface is displayed.

Step 2 Click **Privacy Masking**.

The **Privacy Masking** interface is displayed. See Figure 4-7.

Figure 4-7 Privacy masking interface

Step 3 Select **Enable**, and then drag the block to the area that you need to cover.

- You can draw four area boxes at most.
- Click **Remove All** to delete all the area boxes; you can also just select one box, and click **Delete** or right-click to delete it.

Step 4 Click **Save** to finish configuration.

4.1.2.3.2 Configuring Channel Title

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

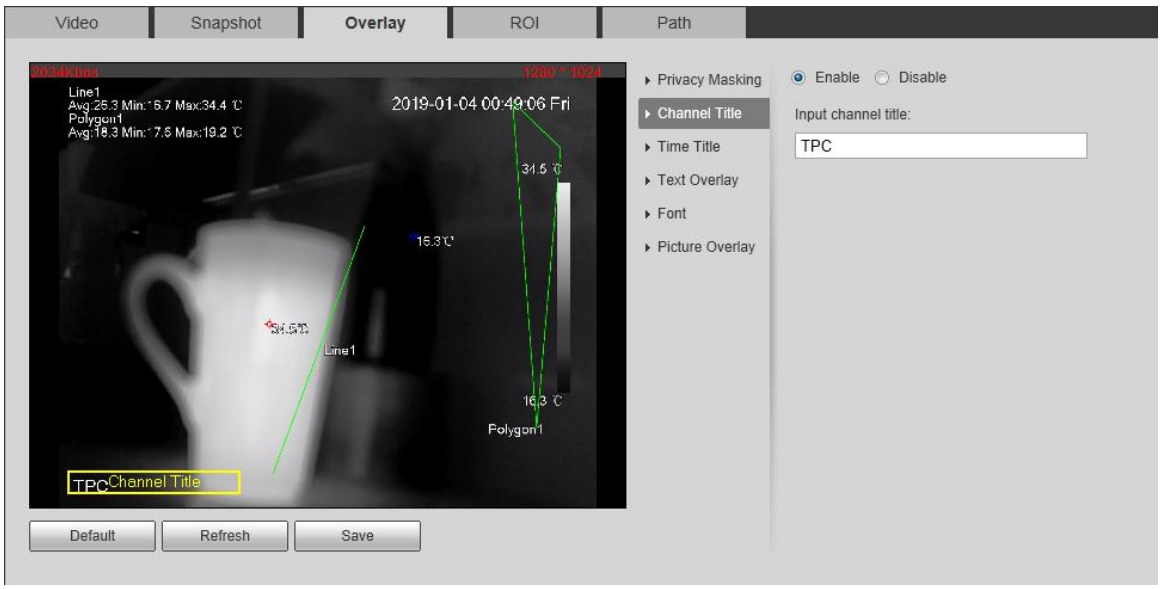
Step 1 Select **Setting > Camera > video > Overlay**.

The **Overlay** interface is displayed.

Step 2 Click **Channel Title**.

The **Channel Title** interface is displayed. See Figure 4-8.

Figure 4-8 Channel title



Step 3 Select **Enable** and enter Channel title, and then the title displays in the video image.

You can drag the "Channel Title" box in the video image with your mouse to adjust the box's location.

Step 4 Click **Save** to finish configuration.

4.1.2.3.3 Configuring Time Title

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

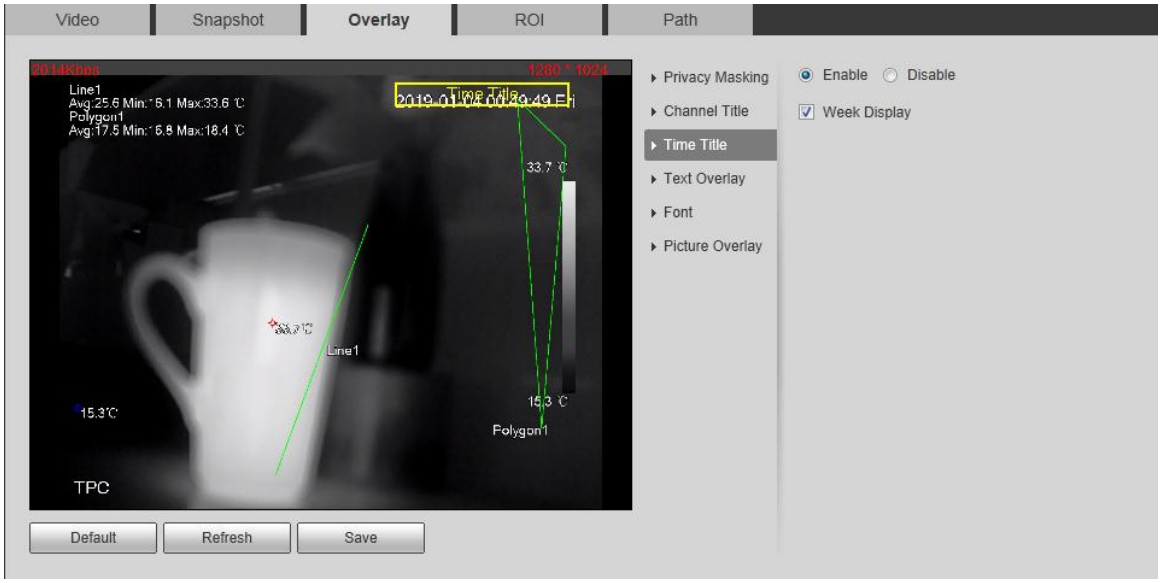
Step 1 Select **Setting > Camera > Video > Overlay**.

The **Overlay** interface is displayed.

Step 2 Click **Time Title**.

The **Time Title** interface is displayed. See Figure 4-9.

Figure 4-9 Time title



Step 3 Select the **Enable** check box, and the time displays in the video image.

Step 4 Click **Week Display**, and then the week information displays in the video image.

You can drag the "Time Title" box in the video image with your mouse to adjust the box's location.

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

4.1.2.3.4 Configuring Text Overlay

You can enable this function if you want to display words on the video image.

- **Text Overlay** and **Picture Overlay** can't work at the same time.
- This function is only available for bullet cameras.

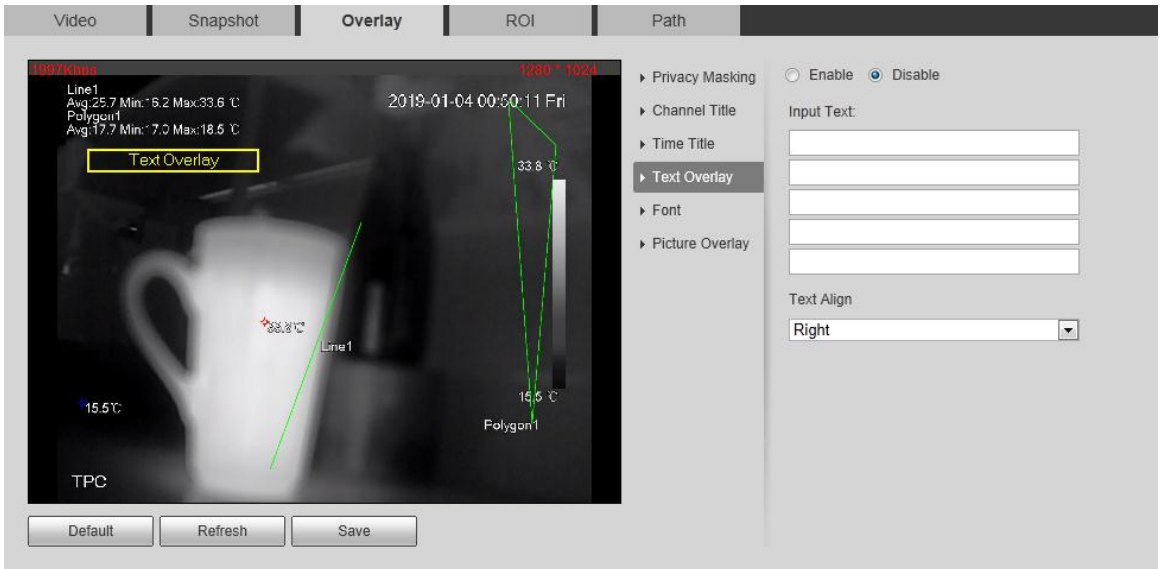
Step 1 Select **Setting > Camera > Video > Overlay**.

The **Overlay** interface is displayed.

Step 2 Click **Text Overlay**.

The **Text Overlay** interface is displayed. See Figure 4-10.

Figure 4-10 Text overlay



Step 3 Select the **Enable** check box, and enter text based on your own needs. Then, select an alignment, and the **Text Overlay** box is displayed on the video image.

You can drag the **Text Overlay** box on the video image with your mouse to adjust the box's location.

Step 4 Click **Save** to finish configuration.

4.1.2.3.5 Configuring Font

You can adjust size and color of the font in the video images based on your own needs.

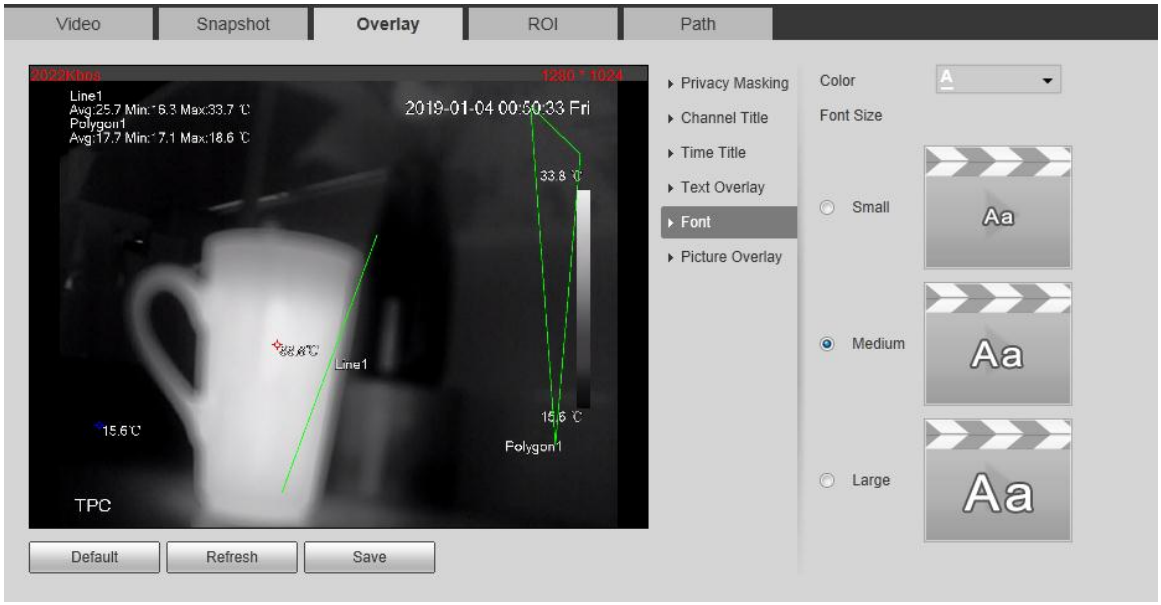
Step 1 Select **Setting > Camera > video > Overlay**.

The **Overlay** interface is displayed.

Step 2 Click the **Font** tab.

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

Figure 4-11 Font setting



Step 3 Select color and size of the font based on your own needs.

Step 4 Click **Save** to finish configuration.

4.1.2.3.6 Configuring Picture Overlay

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

Geography location and Picture overlay can't work at the same time.

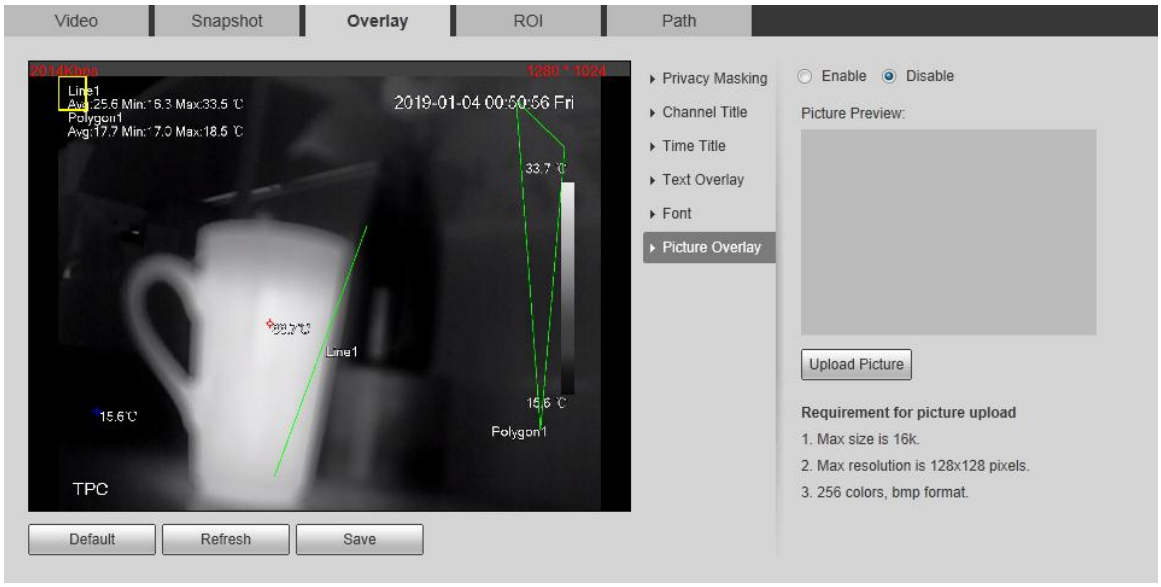
Step 1 Select **Setting > Camera > video > Overlay**.

The **Overlay** interface is displayed.

Step 2 Click the **Picture Overlay** tab.

The **Picture Overlay** interface is displayed. See Figure 4-12.

Figure 4-12 Picture overlay interface



Step 3 Select the **Enable** check box.

You will be informed that OSD information is to be closed. Click **Save**.

Step 4 Click **Upload Picture**, and select a picture. The picture is displayed in video images.

You can drag the "Picture Overlay" box in the video image with your mouse to adjust the box's location.

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

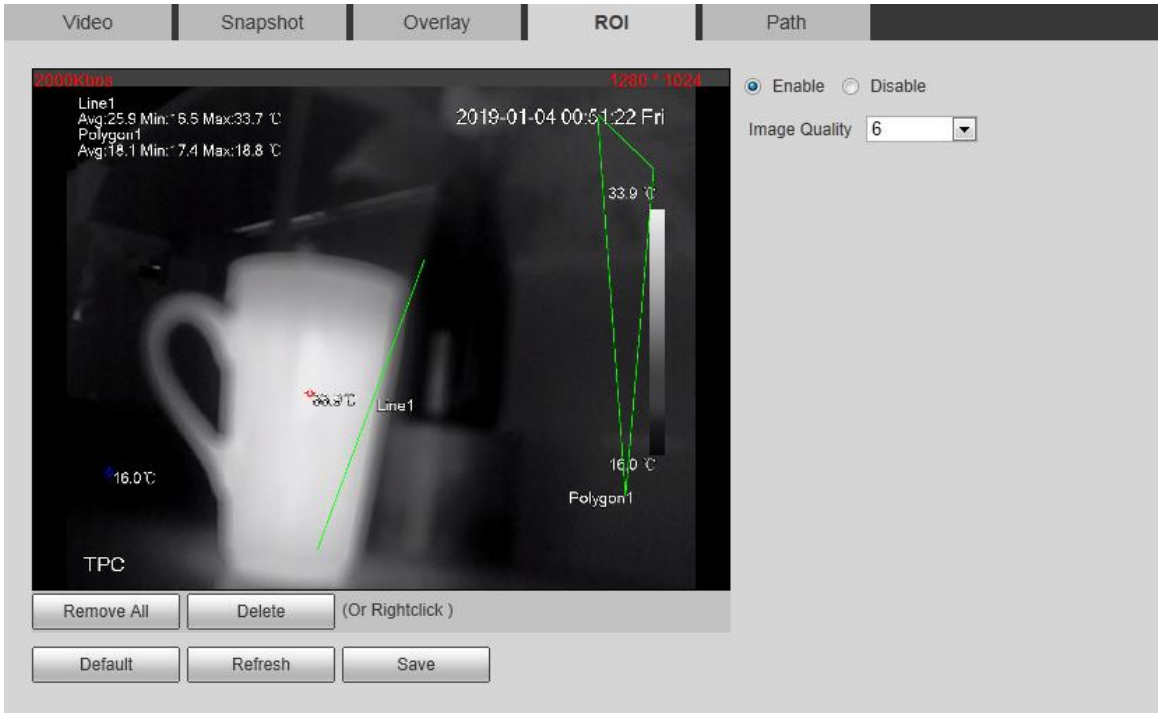
4.1.2.4 Configuring ROI

Select ROI in the image, and then the selected image would display with configured quality.

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

The **ROI** interface is displayed. See Figure 4-13.

Figure 4-13 ROI interface



Step 2 Select the **Enable** check box.

Step 3 Hold the left mouse button to draw a ROI area on video images. You can also configure the ROI's display quality.

- You can draw at most four ROI areas.
- Click **Remove All** to delete all the area boxes; you can also just select one box, and click **Delete** or right-click to delete it.

Step 4 Click **Save** to finish configuration.

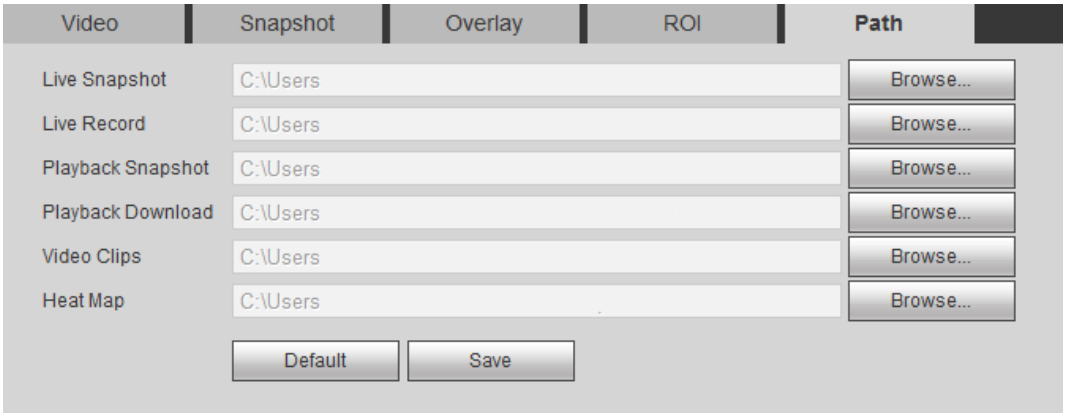
4.1.2.5 Configuring Storage Path

Configure storage paths covering **Live Snapshot**, **Live Record**, **Playback Snapshot**, **Playback Download**, **Video Clips,** and **Heat Map**.

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

The **Path** interface is displayed. See Figure 4-14.

Figure 4-14 Storage path interface



Step 2 Click **Browse**, and configure storage paths of live snapshot, live record, playback snapshot, playback download, video clips, and heat map. See Table 4-4 for detailed description.

Table 4-4 Storage path description

Path	Description
Live Snapshot	Live snapshot refers to the snapshot of live interface. C:\Users\admin\WebDownload\LiveSnapshot is the default path.
Live Record	Live record refers to the recorded video of live interface. C:\Users\admin\WebDownload\LiveSnapshot is the default path.
Playback Snapshot	Playback snapshot refers to the snapshot of playback interface. C:\Users\admin\WebDownload\LiveSnapshot is the default path.
Playback Download	Playback download refers to the downloaded video of playback interface. C:\Users\admin\WebDownload\LiveSnapshot is the default path.
Video Clips	Video clips refer to the clipped video of playback interface. C:\Users\admin\WebDownload\LiveSnapshot is the default path.
Heat Map	Heat map comes from the location **Setting** > **Temperature**. C:\Users\admin\WebDownload\LiveSnapshot is the default path.

Administrator in the default path is the user account.

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

4.1.3 Configuring Audio Parameters

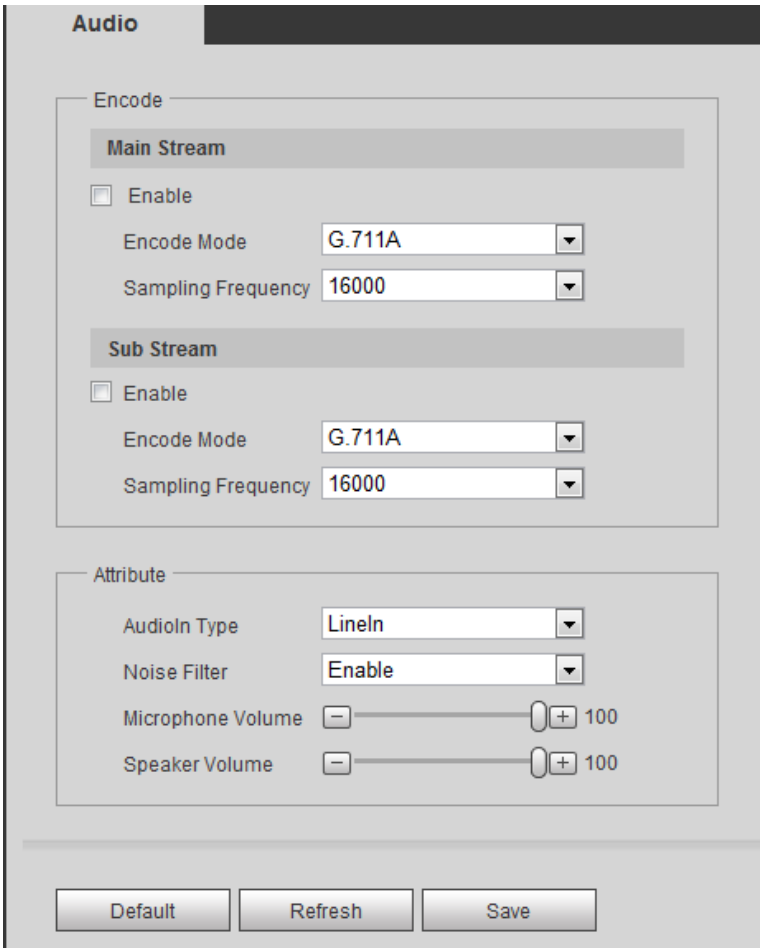
Configure audio parameters covering **Encode Mode**, **Sampling Frequency**, **Audio in Type**, and **Noise Filter**.

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

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

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

Figure 4-15 Audio



Step 2 Configure Audio parameters. For detailed description, see Table 4-5.

Table 4-5 Parameters

Parameters	Description
Enable	Audio can be enabled only when video is enabled. Enable **Main Stream** or **Sub Stream**, and the network stream is composed of both audio and video streams. If you do not select **Main Stream** or **Sub Stream**, then only video images are transmitted.
Encode Mode	You can select audio encode mode. G.711A, G.711Mu, and AAC are included. The configured audio encode mode applies to audio and intercom.

Parameters	Description
Sampling Frequency	Audio's sampling frequency. 8K and 16K are included.
Audio in Type	Two audio types are selectable. ● **Linein**: External audio input source is required. ● **Mic**: External audio input source is not required.
Noise Filter	Enable this function, and the system auto filters ambient Noise.
Microphone Volume	Adjusts microphone volume. This function is not available for all devices.
Speaker Volume	Adjusts speaker volume. This function is not available for all devices.

Step 3 Click **OK** to finish configuration.

4.2 Configuring Network

4.2.1 Configuring TCP/IP

You need to configure the camera's IP address and DNS server to connect the camera with other devices in the network.

Preparation

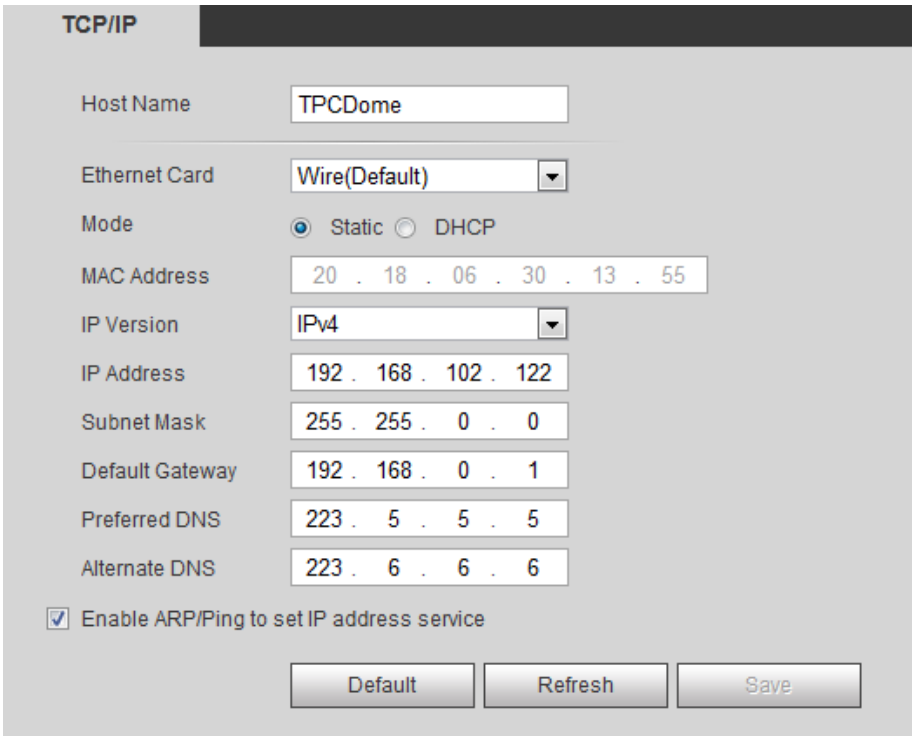
You have connected the camera to network.

Procedure

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

The **TCP/IP** interface is displayed. See Figure 4-16.

Figure 4-16 TCP/IP interface



Step 2 Configure TCP/IP parameters. See Table 4-6 for details.

Table 4-6 TCP/IP parameters

Parameter	Description
Host Name	Enter host name, 15 characters at most.
Ethernet Card	**Wire (Default)** is set by default.
Mode	● Static: You need to manually configure **IP Address**, **Subnet Mask** and **Default Gateway**. ● DHCP: Obtains IP address automatically. With DHCP enabled, **IP Address**, **Subnet Mask** and **Default Gateway** cannot be configured. You can check the current IP address whether the DHCP takes effect or not.
MAC Address	Host's MAC address, cannot be modified.
IP Version	Select IPv4 or IPv6.
IP Address	You can type IP address and subnet mask according to your own needs. All the IPv6 addresses will be validated, so ensure IP address and subnet mask are in the same network segment, which means the front parts of the IP address and the default gateway are the same one.
Subnet Mask	
Default Gateway	Configure as needed, 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.

There is no default gateway for IPv6. Enter 128 digits in preferred DNS and alternate DNS.

Parameter	Description
Enable ARP/Ping to set IP address service.	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 two minutes to configure the device IP address with a ping packet which has certain length. The server will be turned off in 2 minutes, or it will be turned off immediately after IP address configuration. If this is not enabled, the IP address cannot be configured with ping packet. **A demonstration of configuring IP address with ARP/Ping.** 1. To obtain a free IP address, you need to ensure that the Device and your PC are in the same LAN. 2. Get MAC address from the device label. 3. Open command editor on your PC and enter the following command. Windows syntax arp –s <IP Address> <MAC> ping –l 480 –t <IP Address> Windows example arp -s 192.168.0.125 11-40-8c-18-10-11 ping -l 480 -t 192.168.0.125 UNIX/Linux/Mac syntax arp –s <IP Address> <MAC> ping –s 480 <IP Address> UNIX/Linux/Mac example arp -s 192.168.0.125 11-40-8c-18-10-11 ping -s 480 192.168.0.125 4. Reboot through power or network. 5. Check your PC command line. If there is information such as "Reply from 192.168.0.125…", you have done configuration successfully. Turn it off then. 6. Enter http://(IP address) in the browser address bar to log in.

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

4.2.2 Configuring Port

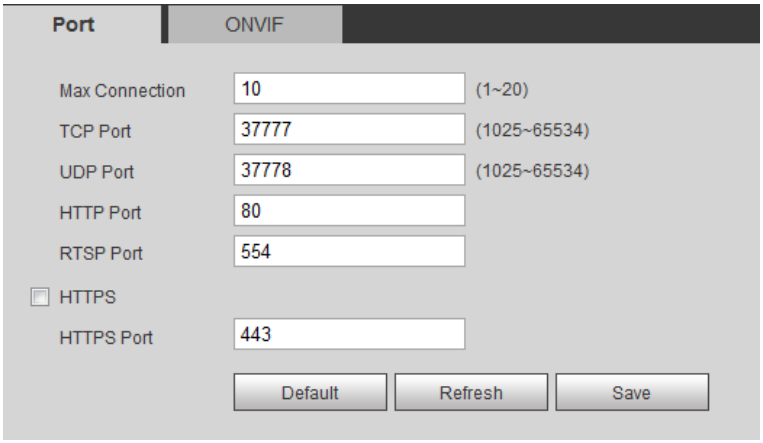
4.2.2.1 Configuring Port Parameters

You can configure the maximum port number and each port value.

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

The **Port** interface is displayed. See Figure 4-17.

Figure 4-17 Port



Step 2 Configure parameters. See Table 4-7 for details.

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

Table 4-7 Port parameter description

Parameters	Description
Max Connection	The maximum number of users (web client, platform client or mobile phone client) that can connect to the device simultaneously, the value is 10 by default.
TCP Port	Port of transmission control protocol. The value is 37777 by default.
UDP Port	User datagram protocol port, the value is 37778 by default.
HTTP Port	HTTP communication port. The default value is 80. If you have modified the default value, when logging in through a browser, you need to add the latest port number to the end of IP address.

Parameters	Description
RTSP Port	● 554 is the default port number. If you play live view through Apple's QuickTime or VLC, the following format is available. This function is also available for Blackberry. ● 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 code mode to H.264B and resolution to CIF. URL format example: rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0 ● Username: admin, for example. ● password ● IP: your device IP. ● Port: leave it if the value is 554 by default. ● Channel 1: Channel number, starts from 1. For example, if you are using channel 2, then the channel=2. ● Subtype refers to Bit stream type; 0 means main stream (Subtype=0) and 1 means sub stream (Subtype=1). So, 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
Enable HTTPS	HTTPS: Control of communication service. After selecting the check box, you can log in the Device through https://ip:port. When there is a default port, you can log in through https://ip.
HTTPS Port	HTTPS communication port whose value can be selected from 1025–65534 and 443 is the default value.

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

4.2.2.2 Configuring ONVIF Verification When Logging

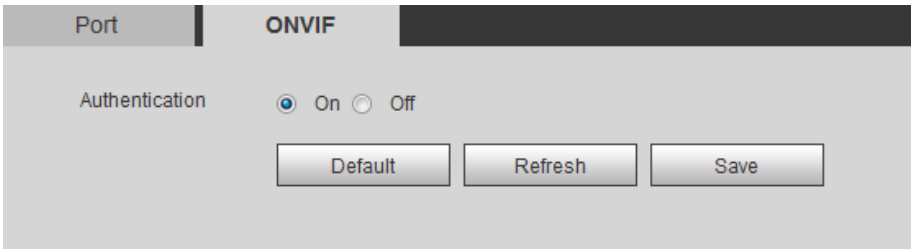
With ONVIF port standard, network video products (video recording device and other recording devices included) of different manufacturers can be connected to each other.

- ONVIF is enabled by default.
- When logging in through ONVIF, the default names of both "username" and "password" are admin and the default port value is 80.

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

The **ONVIF** interface is displayed. See Figure 4-18.

Figure 4-18 ONVIF



Step 2 Select the **On** check box in **Authentication** bar

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

4.2.3 Configuring PPPoE

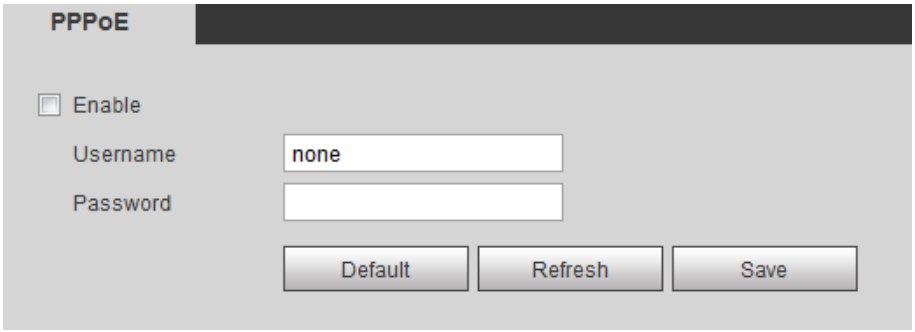
Point-to-Point Protocol over Ethernet, it is one of the protocols that device uses to connect to the internet. Get the PPPoE user name and password from the Internet Service Provider, and then, set up network connection through PPPoE, the device will acquire a WAN dynamic IP address.

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

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

The **PPPoE** interface is displayed. See Figure 4-19.

Figure 4-19 PPPoE



Step 2 Select the **Enable** check box, and type user name and password.

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

The successful prompt displays, and then the real-time WAN IP address is displayed. You can visit device through this IP address.

4.2.4 Configuring DDNS

When device's IP address is frequently changed, you can enable DDNS to dynamically update the relation between domain name and IP address (both of which are in the DNS server). By this, you can log in the device through a domain name.

Preparation

Before making any changes, check if your device supports the DNS server.

- If Quick DDNS is the DDNS' type, you do not need to register a new domain name.

- If Quick DDNS is not the DDNS' type, you need to log in the domain name of website registration provided by DDNS service provider.

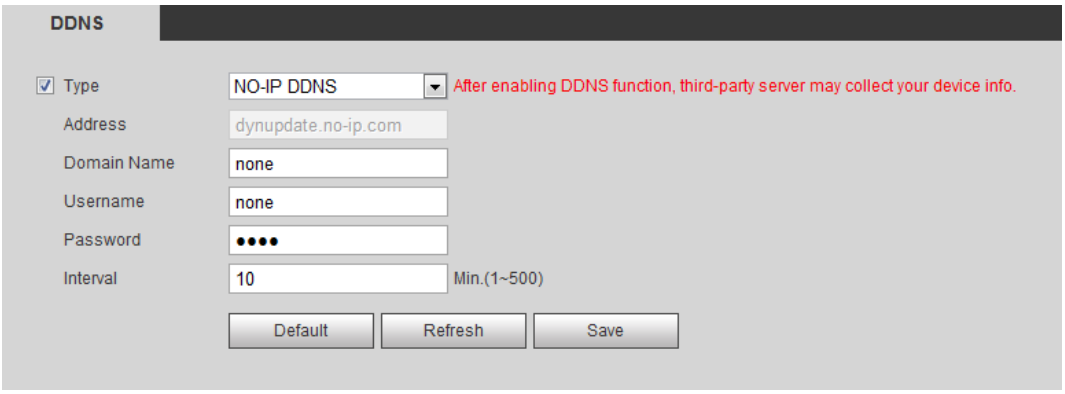
Register and log in the DDNS website, and then you can view the information of all the connected devices in your account.

Procedure

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

The **DDNS** interface is displayed. See Figure 4-20.

Figure 4-20 DDNS setting interface



Step 2 Select **Type** and configure as needed.

Table 4-8 DDNS parameters

Parameter	Description
Type	See the name and web site of DDNS service provides below: ● "members.dyndns.org" is the IP address of Dyndns DDNS. ● "dynupdate.no-ip.com" is the IP address of NO-IP DDNS. ● "members.3322.org" is the IP address of CN99 DDNS.
Address	
Domain name	The domain name you registered on the DDNS website.
User name	Enter the user name and password you got from DDNS service provide. You need to register an account (with user name and password) on the DDNS service provides' website.
Password	
Update period	The update cycle of the connection between your device and the server. 10 minutes are set by default.

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

Open your browser, and type the domain name into address bar. Press **Enter**. If a web interface is displayed, the configuration is finished successfully.

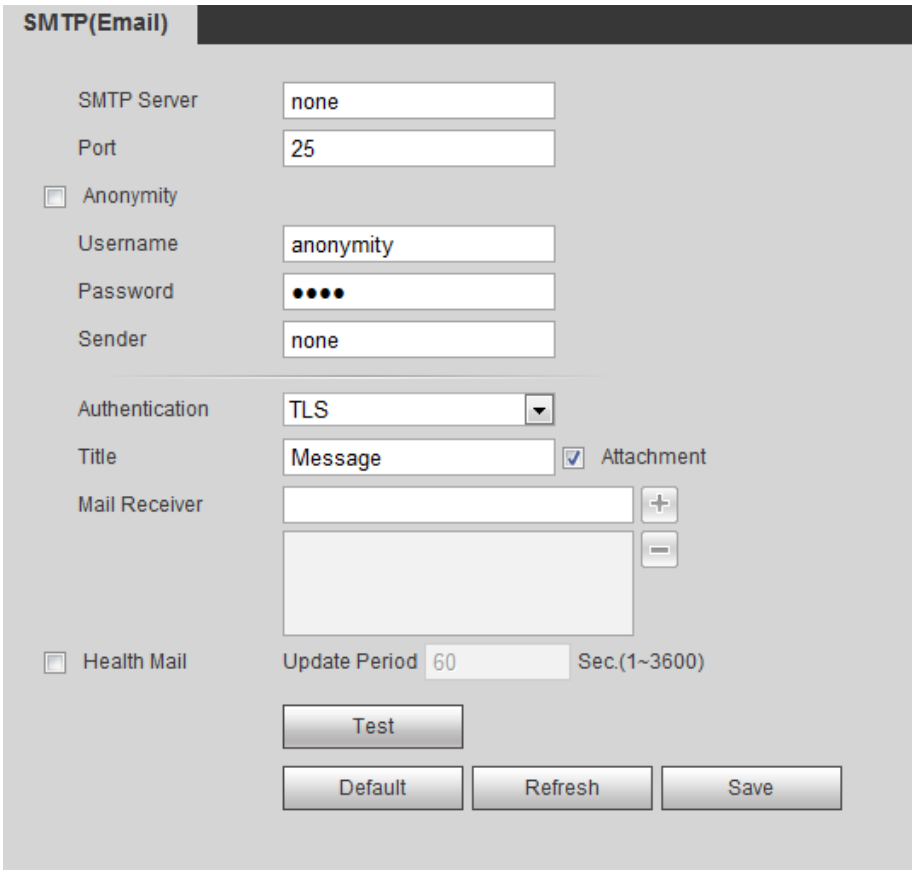
4.2.5 Configuring SMTP

Configure **SMTP (Email)**. When alarm, video detection, abnormal event and intelligent are triggered, SMTP alarms will be transmitted to the specific Emails you have configured.

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

The **SMTP (Email)** interface is displayed. See Figure 4-21.

Figure 4-21 SMTP (Email)



Step 2 Configure your SMTP server.

Step 3 For SMTP (Email)'s other parameters to be configured, see Table 4-9.

Table 4-9 SMTP (Email) parameter description

Parameters	Description
Anonymity	Enable **Anonymity**, and senders' identities will not be displayed in Emails transmitted to others.
Sender	Sender's email address
Encryption type	Select Authentication type from None, SSL and TLS. TLS is set by default.
Attachment	Select the check box to support attachment in the email.
Title	You can enter no more than 63 characters in Chinese, English, and Arabic numerals.
Receiver	Receiver's mail address. Supports 3 addresses at most.
Interval	Time intervals of sending alarm Emails. "0" means there is no interval. Set a time interval (normally >0s) as you want and when alarm, video detection, or event is triggered, Emails will not be transmitted all the time but be transmitted in the time interval you have set. This function is aimed at easing the pressure that is put on the Email server when there are quite a lot of abnormal events.
Health Mail	The system sends test mail to check if the connection is successfully set up. Select **Health Mail** to configure **Update Period**. E-mail testing results will be transmitted in time intervals you have set.
Test	Test the email sending and receiving function. If the configuration is correct, you would receive test email. Save email configuration before running rest.

Step 4 Click **Save** to finish configuration.

4.2.6 Configuring UPnP

Configure UPnP protocols to establish the reflection relation between intranet and external network. A user can access IP address of external network to visit devices in the intranet.

Preparation

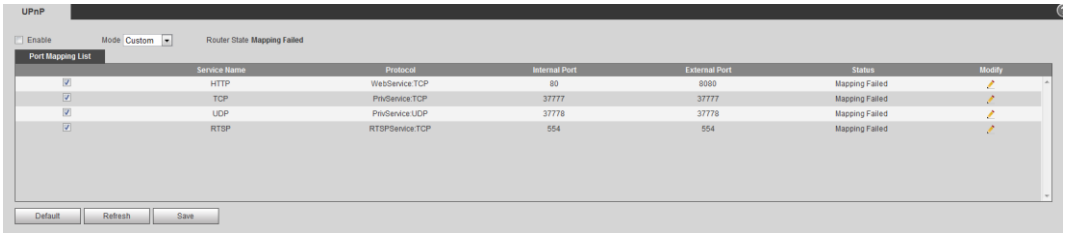
- Ensure UPnP network service has been installed to your PC.
- Log in the router, and configure WAN IP address to set up internet connection.
- Enable UPnP in the router.
- Connect your device to the LAN port of the router.
- Set IP address of your router as that of your device, or select DHCP to obtain IP address automatically.

Procedure

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

The **UPnP** interface is displayed. See Figure 4-22.

Figure 4-22 UPnP



Step 2 Select the **Enable** check box.

Step 3 Select mode, and service name in the port mapping list.

UPnP can be classified as custom mode and default mode.

- Under custom mode, you can change external ports.
- Under default mode, you do not need to change ports and reflection relations.

Step 4 Click **Save** to finish configuration.

Type "http:// (external network IP address): (external port number)" to access devices in Intranet whose ports correspond to your router.

4.2.7 Configuring SNMP

SNMP (Simple Network Management Protocol) is a basic network management framework. You need to install certain software to the Device to obtain the Device's information.

Preparation

- Install SNMP monitoring and managing tools such as MIB Builder and MG-SOFT MIB Browser.
- You can contact technical support for the MIB file that matches the current version.

Procedure

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

The **SNMP** interface is displayed. See Figure 4-23 and Figure 4-24.

Figure 4-23 SNMP (1)

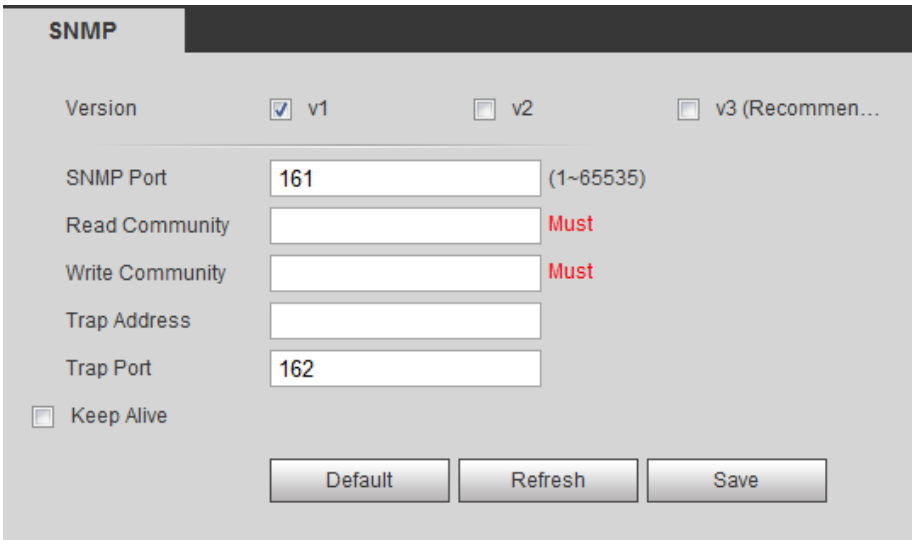
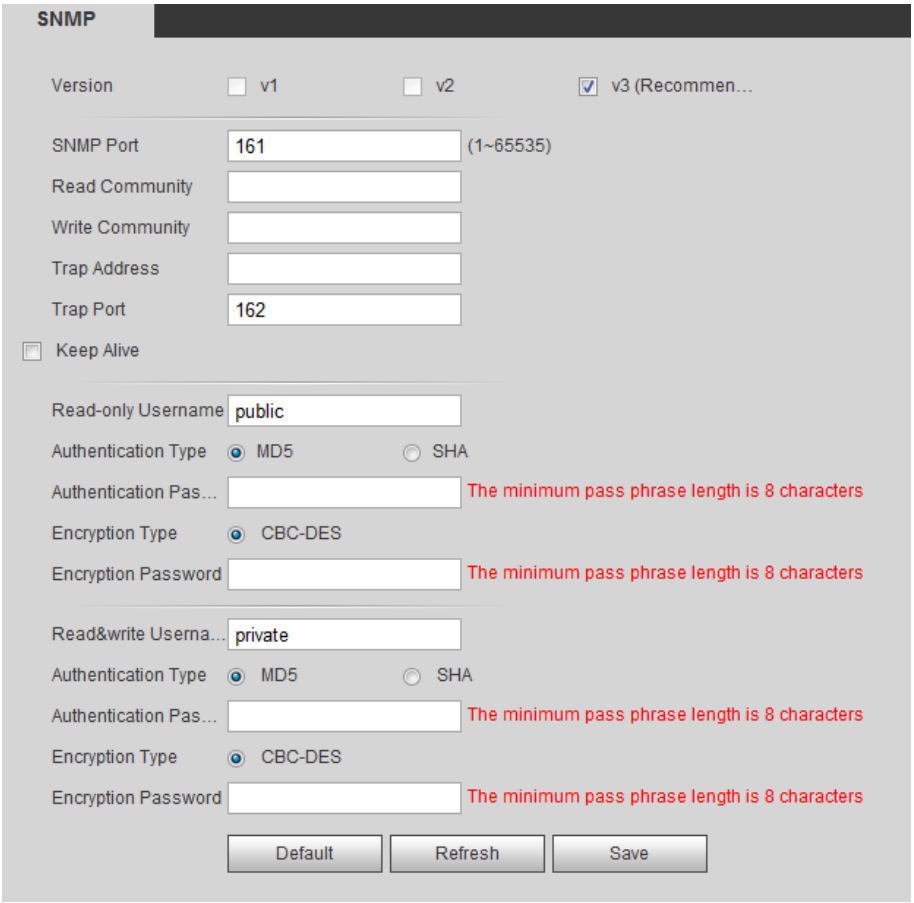


Figure 4-24 SNMP (2)



Step 2 Select the **Version** check box to enable SNMP.

Step 3 Configure SNMP parameters. See Table 4-10 for details.

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

Table 4-10 SNMP parameter description

Parameter	Description

Parameter	Description
SNMP Version	Select a version and its information will be displayed in the **SNMP** interface. ● Select v1, and only v1's information is displayed. ● Select v2, and only v2's information is displayed. ● Select v3, and you can configure user name, password and authentication type. It requires corresponding user name, password and authentication type from the server to visit your device. V1 and v2 version are now unavailable.
SNMP Port	Refers to the listening port of the software agent in the device.
Community	A character string, acts as a clear text password which can manage network's process and agent process. It defines the relation concerning certification, access, and escrow between agent and administrator. Device and agent must be consistent.
Read community, write community	Refers to the read and write community string that the software agent supports.  You can enter number, letter, underline and dash to form the name.
Trap	SNMP trap is a SNMP agent which transmits information such as important event or change of state to the administrator.
Trap address	A destination address to which agent program sends trap information.
Trap Port	A destination port to which agent program sends trap information. 162 set by default and range from 1–65535.
Read-only username	The name is "public" by default.  You can enter number, letter, underline to form the name.
Read/Write username	The name is "private" by default.  You can enter number, letter, underline to form the name.
Authentication type	You can select from MD5 and SHA, the default type is MD5.
Authentication password	It should be no less than 8 digits.
Encryption type	The default is CBC-DES.
Encryption Password	It should be no less than 8 digits.

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

Step 5 View device information.

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

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

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

4.2.8 Configuring Bonjour

Bonjour is also called zero-configuration networking. With Bonjour built into devices such as your phone, this thermal camera can be searched and accessed. Bonjour is a protocol of industry standard which allows devices search and find each other. IP address or DNS server is not required during this process.

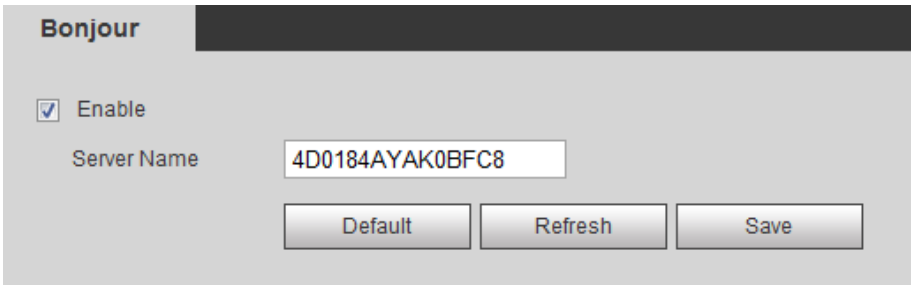
Enable Bonjour in this thermal camera, and this camera will be automatically detected by your client-side or web with Bonjour function. When this thermal camera is detected by Bonjour, server name you have set will be displayed.

Bonjour is enabled by default.

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

The **Bonjour** interface is displayed. See Figure 4-25.

Figure 4-25 Bonjour



Step 2 Select the **Enable** check box, and then configure server name.

Step 3 Click **OK** to finish configuration.

You can use Safari browser, and your client side or web with Bonjour function to access the thermal camera's web.

Step 1 Click "Show All Bookmarks" in Safari.

Step 2 Enable Bonjour, and then, in your LAN, all the network cameras in which the "Bonjour" is enabled are displayed.

Step 3 Click to visit the corresponding Web interface.

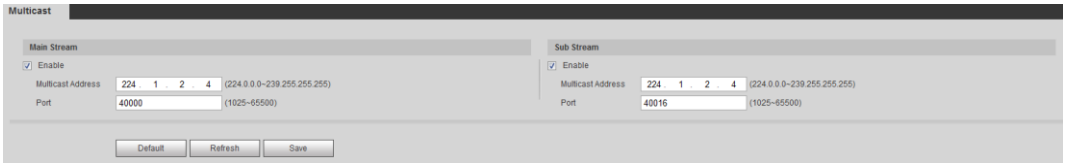
4.2.9 Configuring Multicast

The Device has limit towards web visitors. If several people access this Device's web in the meantime, video images may not be represented. To solve the problem, you can set up the Device's multicast IP and adopt multicast protocol.

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

The **Multicast** interface is displayed. See Figure 4-26.

Figure 4-26 Multicast



Step 2 Select **Enable** and then enter IP address and port number. For detailed description, see Table 4-11.

Table 4-11 Multicast

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

Step 3 Click **Save**, and the login interface is displayed. The configuration finishes.

In the Live interface, set **Protocol** to **Multicast**, and then you can view the video image with Multicast protocol.

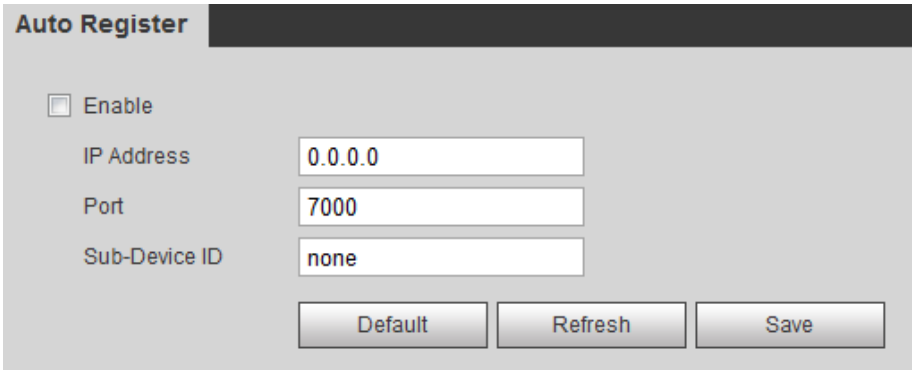
4.2.10 Configuring Auto Registration

In the **Auto Register** interface, you can set up an IP address to which the camera will report its location.

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

The **Auto Register** interface is displayed. See Figure 4-27.

Figure 4-27 Auto registration



Step 2 Select the **Enable** check box.

Step 3 Set up auto registration parameters. See Table 4-12.

Table 4-12 Auto registration parameter description

Parameter	Description
IP Address	IP address or domain name to which the camera transmits its location.
Port	The port for auto registration.
Sub-device ID	Your device ID given by the server.

Step 4 Click **Save** to finish configuration.

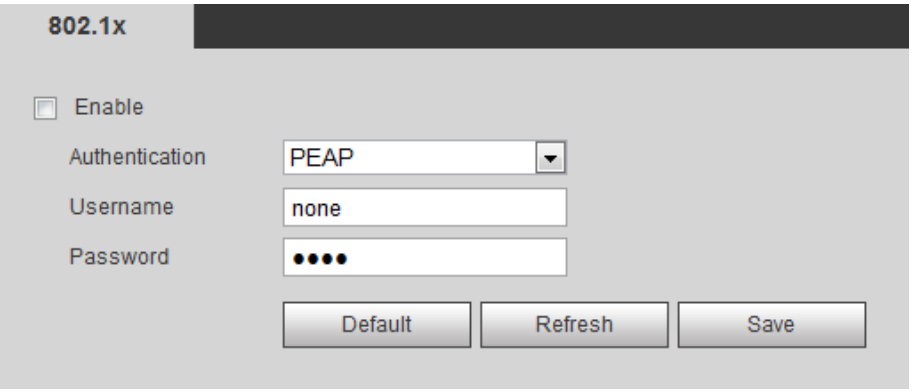
4.2.11 Configuring 802.1X

802.1X can control the Device's access to LAN.

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

The **802.1x** interface is displayed. See Figure 4-28.

Figure 4-28 802.1x



Step 2 Select the **Enable** check box.

Step 3 Set up 802.1x parameters. See Table 4-13.

Table 4-13 Parameters of 802.1x

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

Step 4 Click **Save** to finish configuration.

4.2.12 Configuring QoS

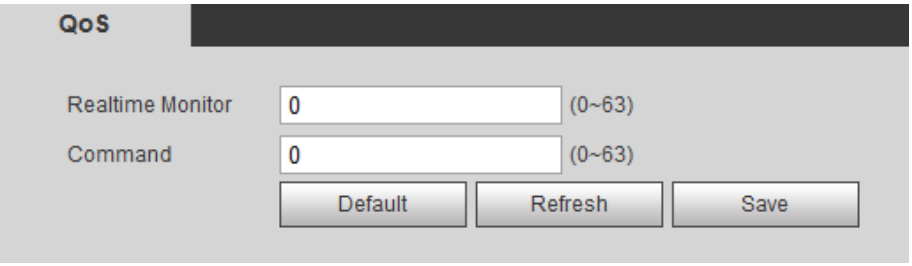
QoS can solve problems including network delay and congestion. It helps to assure bandwidth, reduce transmission delay, packet loss rate and delay jitter to improve service quality.

For DSCP (Differentiated Services Code Point), there are 64 priority degrees (0-63) of data packets. 0 represents the lowest and 63 the highest. Based on those differences, the 64 priority degrees will be classified as different groups. Each group occupies different bandwidth and will be abandoned accordingly. The entire configuration is to improve video quality.

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

The **QoS** interface is displayed. See Figure 4-29.

Figure 4-29 QoS



Step 2 Set up QoS parameters. See Table 4-14 for details.

Table 4-14 QoS parameter description

Parameters	Description
Real-time Monitor	Priority of the data packets that are used for network surveillance.
Command	Priority degree used for the Device's configuration and check which do not concern those surveillance data bags.

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

4.3 Smart Thermal

Configure the Device's common behavior analysis, fire alarm and hot trace.

- Functions of different devices might vary, and the final interface shall prevail.
- You cannot enable common behavior analysis and fire alarm in the meanwhile.

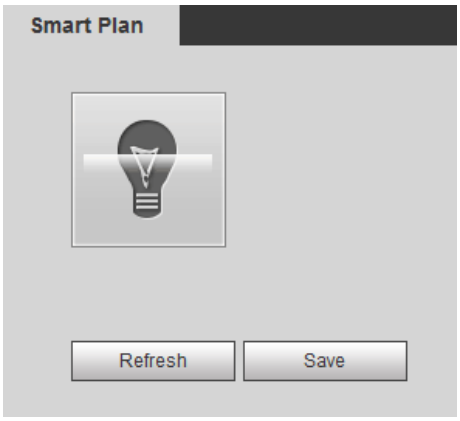
4.3.1 Configuring Smart Plan

You need to enable smart plan before intelligent rules function.

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

The **Smart Plan** interface is displayed. See Figure 4-30.

Figure 4-30 Smart Plan



Step 2 Select a preset dot in **Add Plan**.

A solution corresponding to presets is displayed.

You need this step only when presets are supported in your Device.

Step 3 Click the icon in the **Smart Plan** interface.

- The icon you have selected will be lighted.
- Click the icon again to cancel the smart plan.

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

4.3.2 Configuring Common Behavior Analysis

4.3.2.1 Basic Scene-Selecting Requirements

- The target should occupy no more than 10% of the whole image.
- The pixel of the target should be no less than 10×10; the pixel of abandoned object should be no less than 15×15(CIF image); the width and height of the target should be no more than 1/3 that of the image; it is recommended that the height of the target should be set to 10% of the image height.
- The brightness difference of the target and the background should be no less than 10 gray levels.

- The target should be continuously present in the image for no less than 2 seconds, and the moving distance should be larger its width and no less than 15 pixels (CIF image) at the same time.
- Try to reduce the scene complexity as much as condition allowed; it is not recommended to use Intelligence Behavior Analysis in scenes with intensive targets, changing lighting conditions or small difference between target temperature and scene temperature.
- Try to avoid the following scenes: scenes with reflective surfaces such as glass, bright ground or water; scenes that disturbed by tree branches, shadows or winged insects; scenes that against light or under direct light exposure. Control image proportion of objects that are with high relative ambient temperature.

4.3.2.2 Configuring Intelligent Rules

After enabling smart plan, you can set up IVS (intelligent rules) covering tripwires intrusion, area intrusion, abandoned object and missing object.

Preset spots that have been endowed with smart plan represent green.

4.3.2.2.1 Configuring Tripwire

When the target crosses the warning line toward the Direction, an alarm is triggered.

Preparation

You have set up smart plan of preset spots or tunnels. See "4.3.1 Configuring Smart Plan" for detailed operations.

Procedure

Step 1 Select **Setting > Smart Thermal > IVS > IVS**.
The **IVS** interface is displayed.

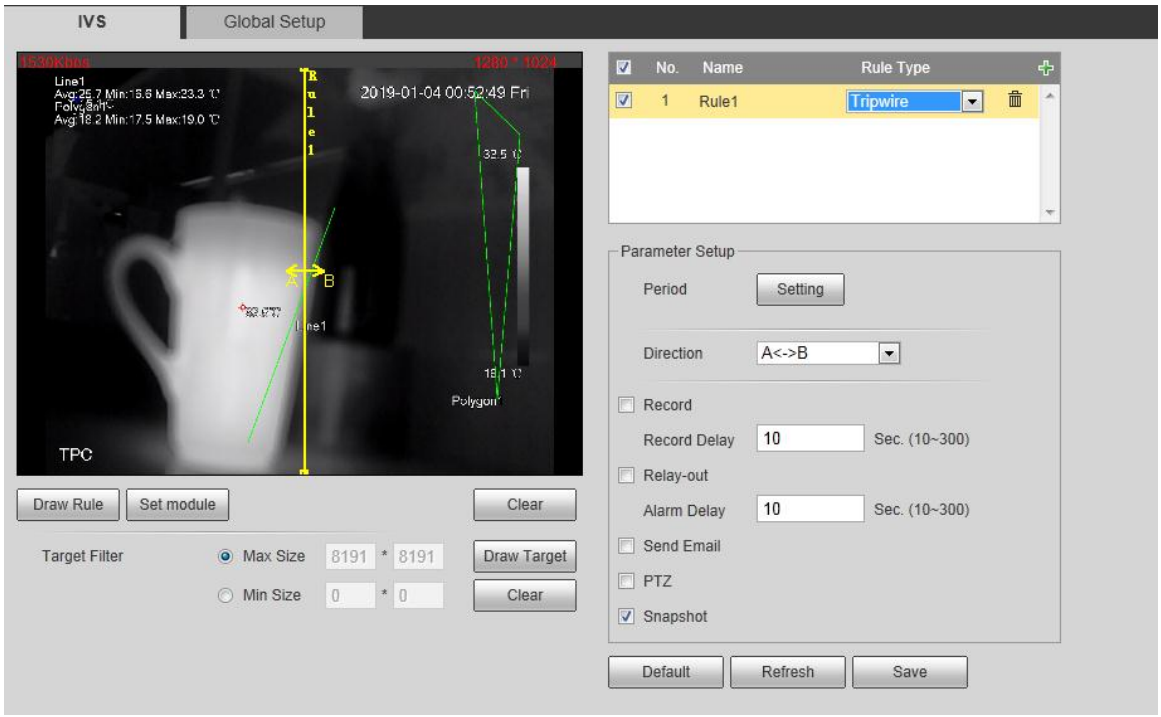
Step 2 Select a preset spot.
The camera turns to the spot.

This step is required only when preset spot function is carried on this interface.

Step 3 Set up tripwire rules.

1) Click and then double-click the rule you have just added to set up its name. Select **Tripwire** as the type. See Figure 4-31.

Figure 4-31 Tripwire



2) Click **Draw Rule** to draw a rule on surveillance image. Right-click to end drawing.

Click **Clear** to delete all the tripwires.

3) Select **Maximum Size** or **Minimum Size** and click **Draw Target**. Then you can drag the filter box's corner to make the box larger or smaller.

- An alarm is triggered only when size of the target that is crossing tripwire lies between the two filter boxes.
- When drawing a rule, you can select **Maximum Size** or **Minimum Size** and click **Clear** to delete a relevant filter box.

4) Set up tripwire parameters. See Table 4-15 for details.

Table 4-15 Tripwire parameter description

Parameters	Description
Working Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. • Method 1: Hold down and drag the left mouse button to select a period you need. • Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Settings** altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 1. Click **Save** to finish configuration of period.
Direction	Configure the target moving direction for tripwire alarm, you can select A->B, B->A and A<->B.

Parameters	Description
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To check and reset recorded videos' storage path, see "4.1.2.5 Configuring Storage Path". ● Two more conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	The record keeps running for the set time after alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as flashlights and alarm whistles. When an alarm is triggered, alarm devices connected to the relay-out port will work. Select the check box to enable this function.
Alarm Delay	The Alarm linkage keeps running for the set time after alarm is ended.
Send email	Enable this function. An e-mail will be delivered to the device user once the alarm is triggered. Set your e-mail first before enabling this function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set up PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Enable this function and Snapshot will be triggered once there is an alarm. ● To check and set snapshots' storage path, see "4.1.2.5 Configuring Storage Path". ● Enable motion-detecting snapshots first before enabling this function. See "4.6.1.2 Configuring Snapshot" for detailed operations.

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

4.3.2.2.2 Configuring Area Intrusion

When a target is crossing or appears in the area you have set up, an alarm is triggered.

Preparation

You have set up preset spots or tunnels' smart plan. See "4.3.1 Configuring Smart Plan" for detailed operations.

Procedure

Step 1 Select **Setting > Smart Thermal > IVS > IVS**.

The **IVS** interface is displayed.

Step 2 Select a preset in **Preset** bar.

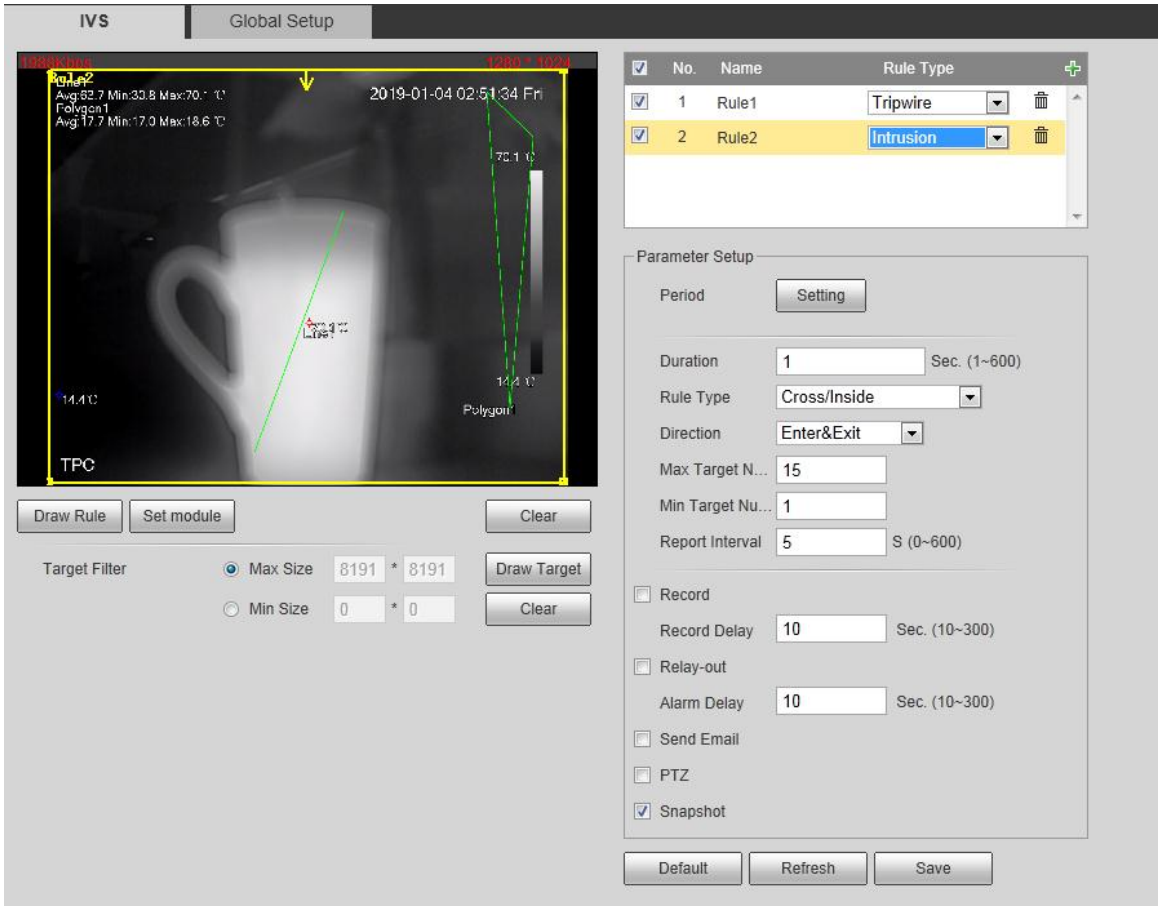
The camera turns to the position.

This step is required only when preset dot function is carried on this interface.

Step 3 Set up area invasion rules.

1) Click and then double-click the rule you have just added to set up its name. Select **Area Invasion** as the type. See Figure 4-32.

Figure 4-32 Intrusion



2) Click **Draw Rule** to draw a monitoring area on surveillance image. Right-click to end drawing.

- It requires certain residence time and moving space for the target to be confirmed, so leave some space around warning area during configuration and do not set it near obstacles.
- In Rule Type bar, when you select Cross/Inside, you need to modify your rule box to leave some detecting area around the box.
- Click Clear to delete monitoring area you have set up.

3) Select **Maximum Size** or **Minimum Size** and click **Draw Target**. Then you can drag the filter box's corner to make the box larger or smaller.

- An alarm is triggered only when size of target that is crossing your monitoring area lies between the two filter boxes.
- When drawing a rule, you can select **Maximum Size** or **Minimum Size** and click **Clear** to delete a relevant filter box.

4) Set up intrusion parameters. See Table 4-16 for details.

Table 4-16 Intrusion parameters

Parameters	Description
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select a period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Settings** altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of period.
Duration	The shortest time from placing an object in the detection area to an alarm is triggered.
Rule Type	Set area intrusion rules. ● Cross：An alarm is triggered when an object is entering or leaving the area. ● Inside：An alarm is triggered when an object appears in the area. ● Cross/Inside: An alarm is triggered when an object is entering, leaving or appears in the area.
Direction	Set this parameter when you select **Cross** or **Cross/Inside** as your **Rule Type**. You can select from **Enters, Exits** and **Enters & Exits**.
Max Target Number	Set this parameter when you select **Inside** or **Cross/Inside** as your **Rule Type**. Set a maximum target number and when targets' number in your area is larger than the number you have set, an alarm is frozen and does Not function.
Min Target Number	Set this parameter when you select **Inside** or **Cross/Inside** as your **Rule Type**. Set a minimum target number and when targets' number in your area is smaller than the number you have set, an alarm is frozen and does Not function.
Report Interval	Set this parameter when you select **Inside** or **Cross/Inside** as your **Rule Type**. Set the shortest time between a target appears and an alarm is triggered.

Parameters	Description
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	The Alarm linkage keeps running for the set time after alarm is ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set up PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path." ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

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

4.3.2.2.3 Configuring Abandoned Object

When the object is placed in the detection area longer than the defined period, the system activates alarms and links the configured actions.

Preparation

You have enabled detection to general behaviors. For detailed operations, see "4.3.1 Configuring Smart Plan."

Procedure

Step 1 Select **Setting > Smart Thermal > IVS > IVS**.

The **IVS** interface is displayed.

Step 2 Select a preset in **Preset** bar.

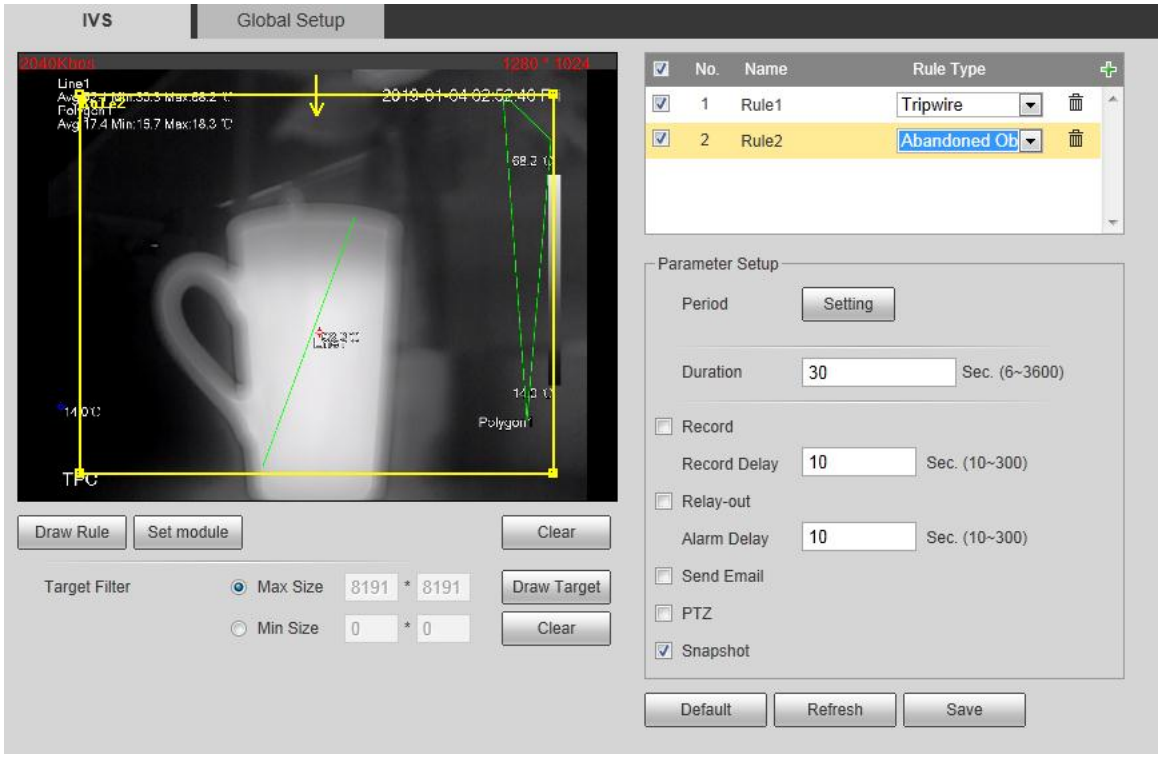
The camera turns to the position.

This step is required only when preset is supported by the Device.

Step 3 Configure rules.

1) Click and then double-click the rule you have just added to set up its name. In the **Rule Type** list, select **Abandoned Object**. See Figure 4-33.

Figure 4-33 Abandoned object



2) Click **Draw Rule** to draw a monitoring area on surveillance image. Right-click to end drawing.

- Pedestrians or cars might stay in your area and trigger an alarm. To filter this kind of alarm, you can set your targets' maximum size and ensure the size is smaller than people and vehicle.
- Click **Clear** to delete monitoring area you have set.

3) Select **Max Size** or **Min Size**, then click **Draw Target**, and then drag the filter box's corner to adjust the box's size to your requirement.

- An alarm is triggered only when size of abandoned objects lies between the two filter boxes.
- When drawing a rule, you can select **Max Size** or **Min Size** and click **Clear** to delete a relevant filter box.

4) Configure abandoned object parameters. See Table 4-17 for details.

Table 4-17 Abandoned object parameters

Parameter	Description
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Duration	The shortest time from placing an object in the detection area to an alarm is triggered.
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set up PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.

Parameter	Description
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

Step 4 Click **Save** to finish configuration.

4.3.2.2.4 Configuring Missing Object

When an object is taken away from the detection area and the absent time of the object is longer than the defined one, an alarm will be triggered and linked activities will be executed.

Preparation

You have set smart plans of presets or channels. See "4.3.1 Configuring Smart Plan" for detailed operations.

Procedure

Step 1 Select **Setting > Smart Thermal > IVS > IVS**.
The **IVS** interface is displayed.

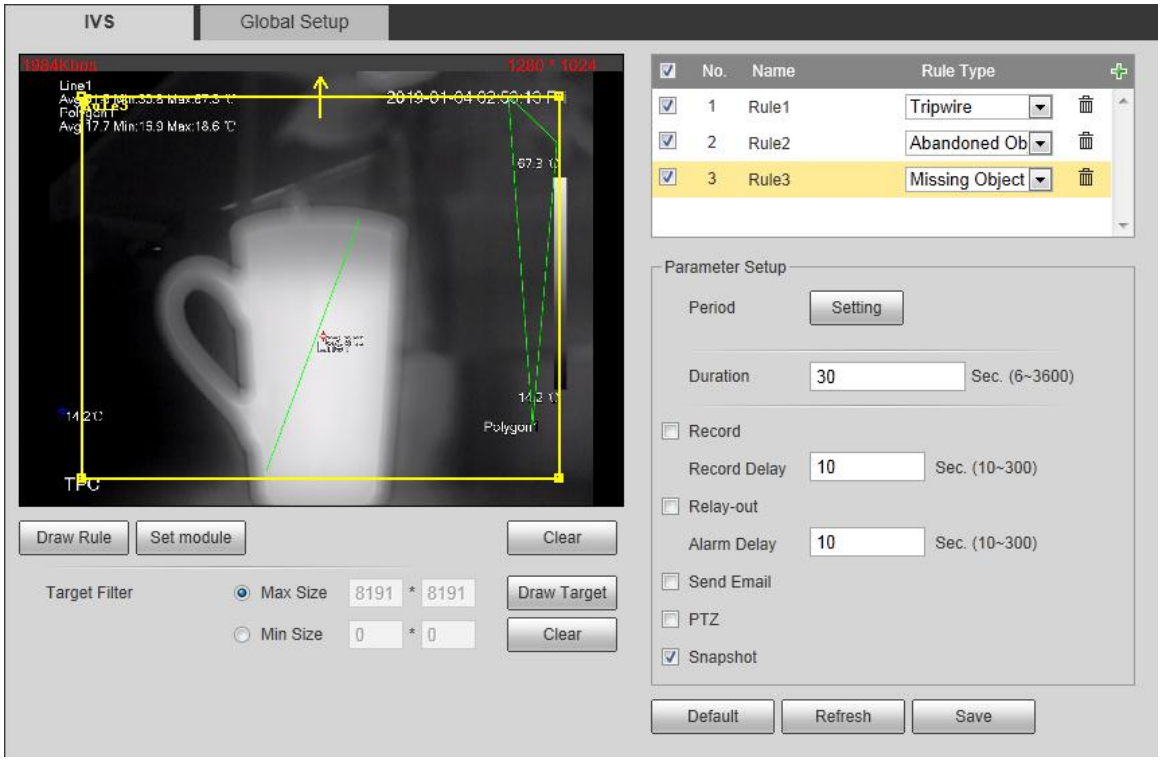
Step 2 Select a preset in **Preset** bar.
The camera turns to the position.

This step is required only when preset is supported by the Device.

Step 3 Set up rules about those missing objects

1) Click and then double-click the rule you have just added to set its name. In the **Rule Type** list, select **Missing Object**. See Figure 4-34.

Figure 4-34 Missing object



2) Click **Draw Rule** to draw a monitoring area on surveillance image. Right-click to end drawing.

Click **Clear** to delete monitoring area you have set.

3) Select **Max Size** or **Min Size**, then click **Draw Target**, and then drag the filter box's corner to adjust the box's size to your requirement.

- An alarm is triggered only when size of the missing object lies between the two filter boxes.
- When drawing a rule, you can select **Max Size** or **Min Size** and click **Clear** to delete a relevant filter box.

4) Configure missing object parameters. See Table 4-18 for details.

Table 4-18 Missing object parameters

Parameter	Description
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Settings** altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick. 3. Click **Save** to finish configuration of working period.

Parameter	Description
Duration	The shortest time from placing an object in the detection area to an alarm is triggered.
Record	Enable this function and alarm recording will be triggered when there is an alarm. 📖 ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. 📖 Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. 📖 Set PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. 📖 ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

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

4.3.2.3 Configuring Global Setup

Preparation

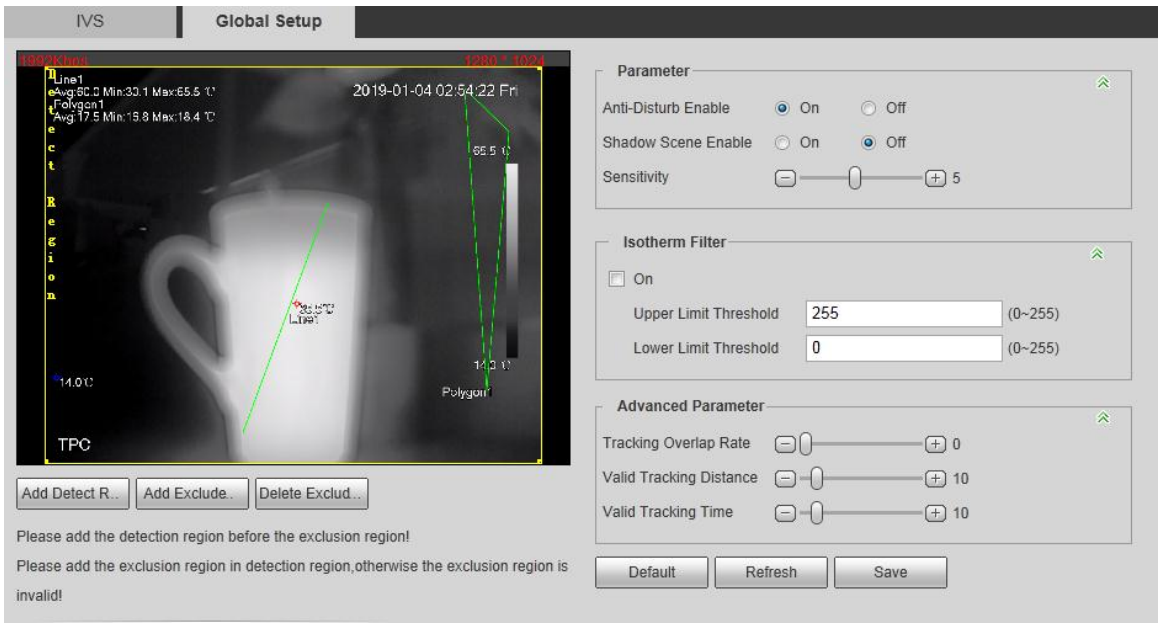
You have set smart plans of presets or channels. See "4.3.1 Configuring Smart Plan" for detailed operations.

Procedure

Step 1 Select **Setting > Smart Thermal > IVS > Global Setup**.

The **Global Setup** interface is displayed. See Figure 4-35.

Figure 4-35 Global setup



Step 2 Select a preset in **Preset** bar.

The camera turns to the position.

You need this step only when presets are supported in this Device.

Step 3 Add detected area and excluded area.

1) Click **Add Detect Region** to draw a detected area on surveillance image. Right-click to end drawing.

   Click **Add Detect** again to redraw.

2) Click **Add Excluded Area** to draw an excluded area on surveillance image. Right-click to end drawing.

   - Click **Delete Excluded Area** to delete the excluded area.
   - An excluded area takes effect only when it has been drawn in the detected area.
   - Multiple excluded areas can be drawn in the detected area.

Step 4 Configure global setup parameters. See Table 4-19 for details.

Table 4-19 Global setup parameters

Parameter	Description
Anti-Disturb Enable	Select the **On** check box to enable this function. This function is aimed at eliminating disturbance caused by shaking leaves or waving water.

Parameter	Description
Shadow Screen Enable	Select the **On** check box to enable this function. This function is aimed at eliminating an object's shadow and representing only the object itself in the object box; several objects with their shadows partly overlaid can be told separately. So this function can give user a precise clue of where the object really locates. However, if an object's part looks like the object's shadow, it's likely that this part will be identified as a shadow and eliminated.
Sensitivity	The larger this value is, the easier an alarm will be to be triggered by low-contrast or tiny objects.
Isotherm Filter	Select the **On** check box and set **Upper Limit Threshold** and **Lower Limit Threshold** on your own needs. This function is aimed at diminishing false alarms caused by waving water.
Tracking Overlap Rate	When overlap rate of an object at this moment and at earlier time is smaller than the rate you have set, this object can be detected and an alarm is triggered.
Valid Tracking Distance	Only when an object's moving distance is larger than valid tracking distance you have set, this object can be detected and an alarm is triggered.
Valid Tracking Time	Only when an object's moving time is larger than valid tracking time you have set, this object can be detected and an alarm is triggered.

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

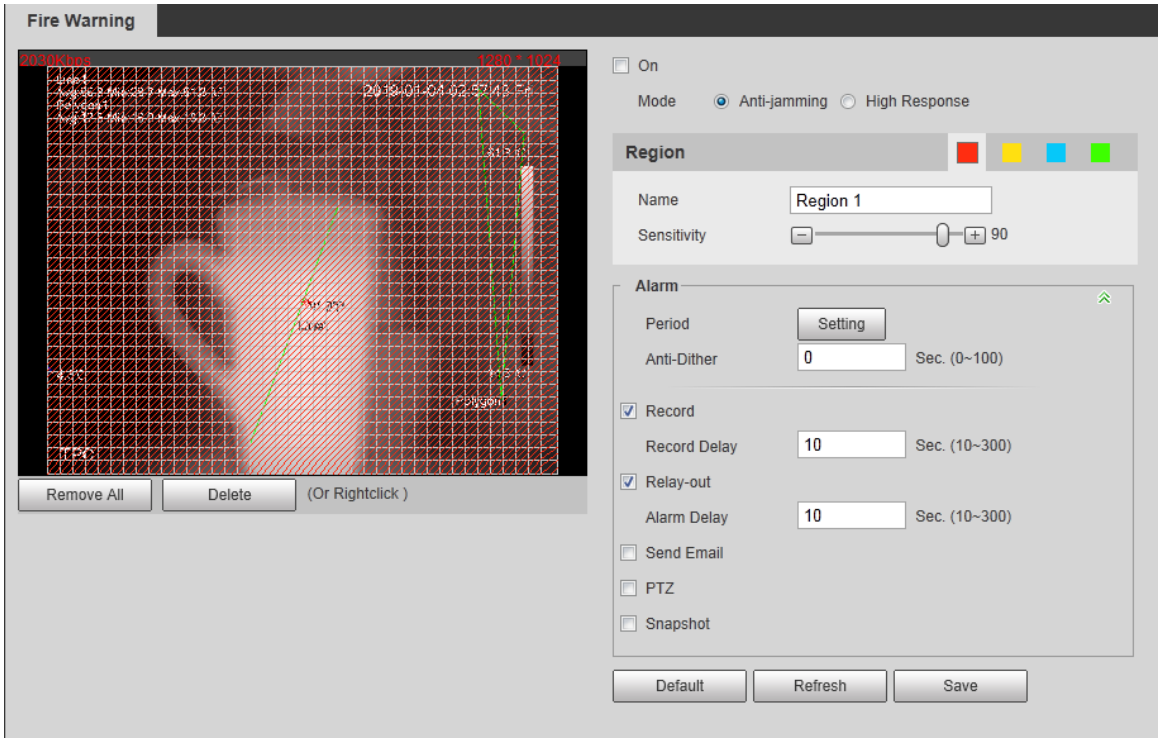
4.3.3 Configuring Fire Warning

The system will give out an alarm once a fire is detected.

Step 1 Select **Setting > Smart Thermal > Fire Warning**.

The **Fire Warning** interface is displayed. See Figure 4-36.

Figure 4-36 Fire warning



Step 2 Select a preset.

The camera turns to the position.

This step is required only when preset is supported by your Device.

Step 3 Select the **On** check box.

Step 4 Set rules of fire warning.

1) Select fire warning mode on your own needs.

High response mode is your only option when you want your camera to detect any a hidden fire danger.

- **Anti-jamming**: Your camera will only detect those objects that are newly with high temperature and send off alarms. That means under **Anti-jamming** mode, a constantly high-temperature object (a boiler, for example) is excluded.
- **High Response**: Your camera will detect any a hidden fire danger and send off alarms.

2) Select a color in . Each color represents a certain area which you can draw with your left mouse button. You can also give a name to the area you have drawn and set its sensitivity.

The larger the sensitivity is, the easier a fire will be triggered.

3) Set up fire warning parameters. See Table 4-20 for details.

Table 4-20 Fire warning parameters

Parameter	Description

Parameter	Description
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Duration	The shortest time from placing an object in the detection area to an alarm is triggered.
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set up PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.

Parameter	Description
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path." ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

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

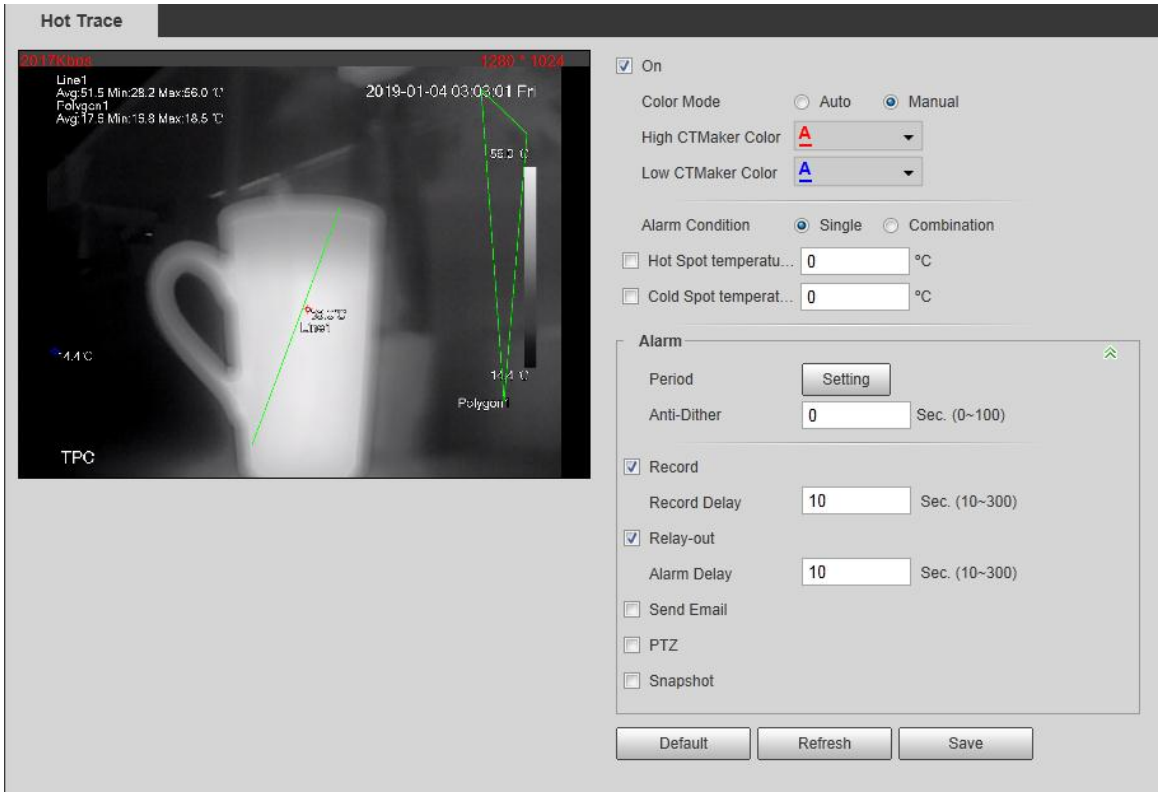
4.3.4 Configuring Hot Trace

You can enable **Hot Trace** to track spot with the highest temperature and spot with the lowest temperature.

Step 1 Select **Setting > Smart Thermal > Hot Trace**.

The **Hot Trace** interface is displayed. See Figure 4-37.

Figure 4-37 Hot trace



Step 2 Select the **On** check box.

Step 3 Configure parameters of cold/hot spot tracking. See Table 4-21 for details.

Table 4-21 Parameters of hot trace

Parameters	Description
Color Mode	Select a color for cold and hot spots. ● Auto: Select colors for the highest/lowest temperature automatically according to surveillance images. ● Manual: Define colors for the highest/lowest temperature.

Parameters	Description
Alarm Condition	Conditions under which an alarm is triggered. ● **Single** ◇ Select the **Hot Spot temperature more than** check box and when the highest temperature is larger than the temperature you have set, an alarm is triggered. ◇ Select the **Cold Spot temperature less than** check box and when the lowest temperature is smaller than the temperature you have set, an alarm is triggered. ◇ If you select both conditions above at one time, an alarm is triggered once any one condition is satisfied. ● **Combination** Only when the highest temperature is larger and the lowest temperature is smaller than the temperature you have set, an alarm is triggered.
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Anti-Dither	Only one motion detection event is recorded within the time you have set.
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.

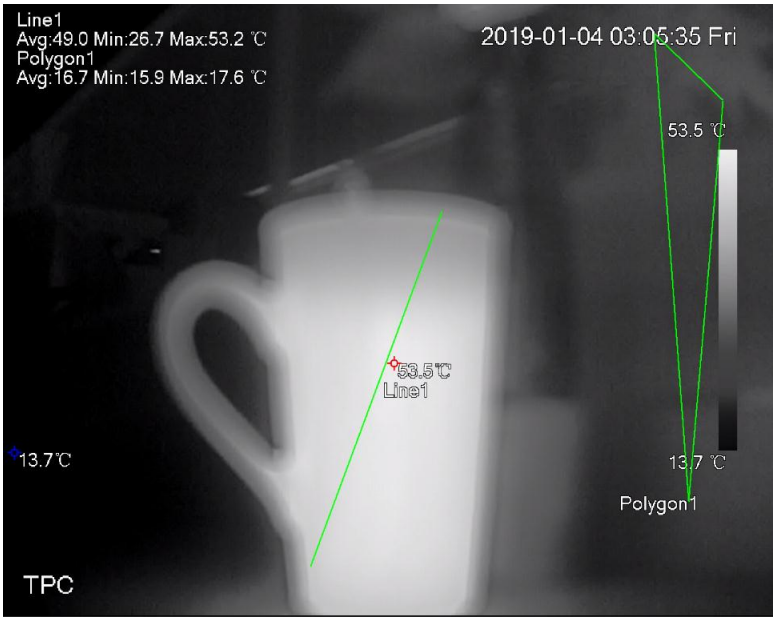
Parameters	Description
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

Step 4 Click **Save** to finish configuration.

Effect of hot trace is as shown in Figure 4-38.

The thermal camera can be classified as temperature-measuring model and observation model according to whether it carries temperature-measuring function. Cold/Hot spot's temperature is not displayed on the Device of observing model.

Figure 4-38 Effect of hot trace



4.4 Event

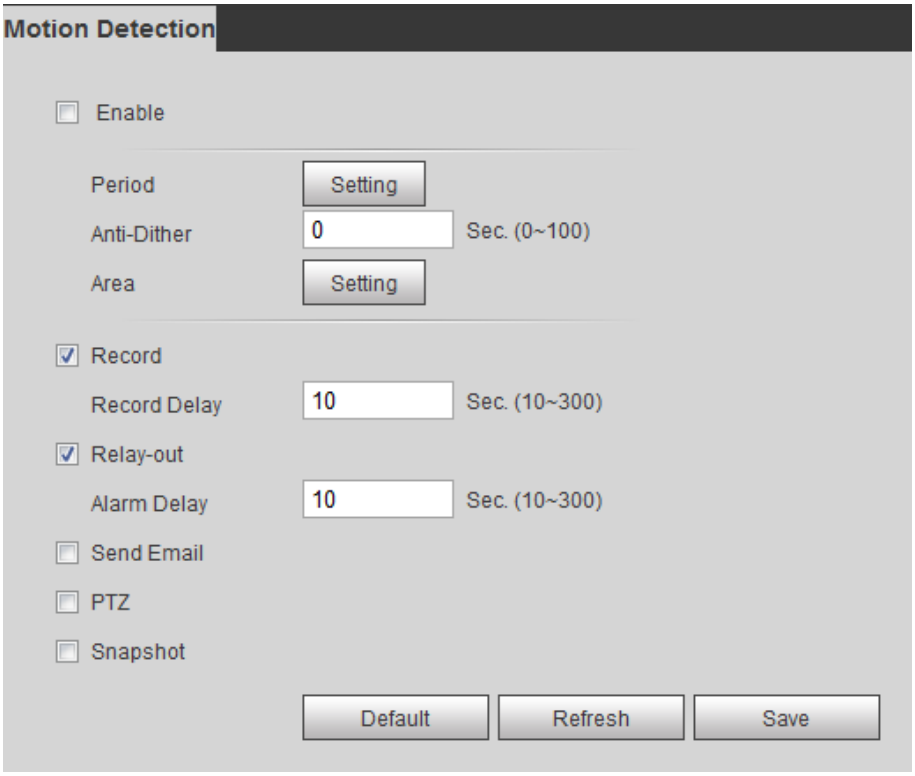
4.4.1 Configuring Video Detection

When an object appears and moves fast enough to reach the sensitivity value you have set, the object will be detected and an alarm will be triggered.

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

The **Motion Detection** interface is displayed. See Figure 4-39.

Figure 4-39 Motion detection setting



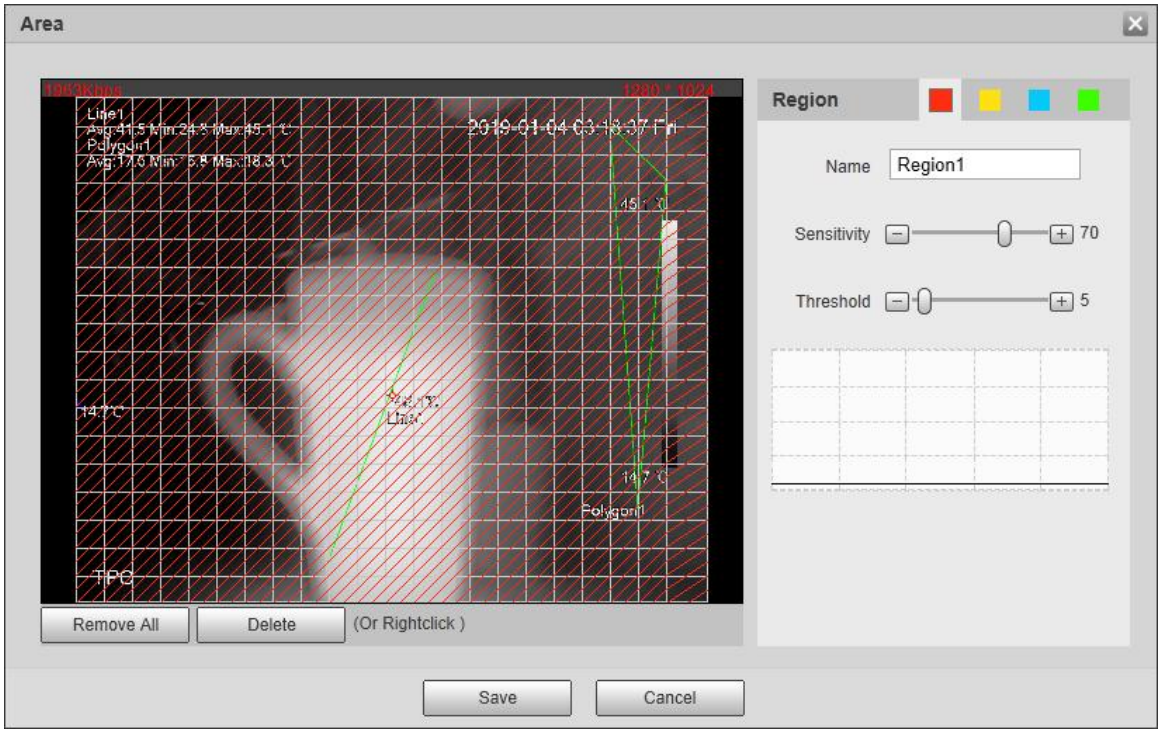
Step 2 Select the **Enable** check box.

Step 3 Configure a motion detection area.

1) Next to **Area**, click **Setting**.

The **Area** interface is displayed. See Figure 4-40.

Figure 4-40 Area configuration



2) Set area name and select motion detection areas as needed. You can configure the sensitivity and mutation threshold. The threshold defines the allowed moving area for certain objects. The motion detection will not be triggered as long as those objects stay within the area.

- The higher the sensitivity value is, the easier the motion detection will be triggered; the lower the mutation threshold is, the smaller the allowed moving area for certain objects is, hence the easier the motion detection will be triggered.
- Different colors represent different area. For each area, you can set different sensitivity and mutation threshold.
- In the wave diagram, red line represents motion detection is triggered, and green line represents not.

3) Click **Save** to finish configuration.

Step 4 Configure motion detection parameters. See Table 4-22 for details.

Table 4-22 Motion detection parameters

Parameter	Description

Parameter	Description
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Anti-Dither	The system records only one motion detection event within the set time.
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.

Parameter	Description
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

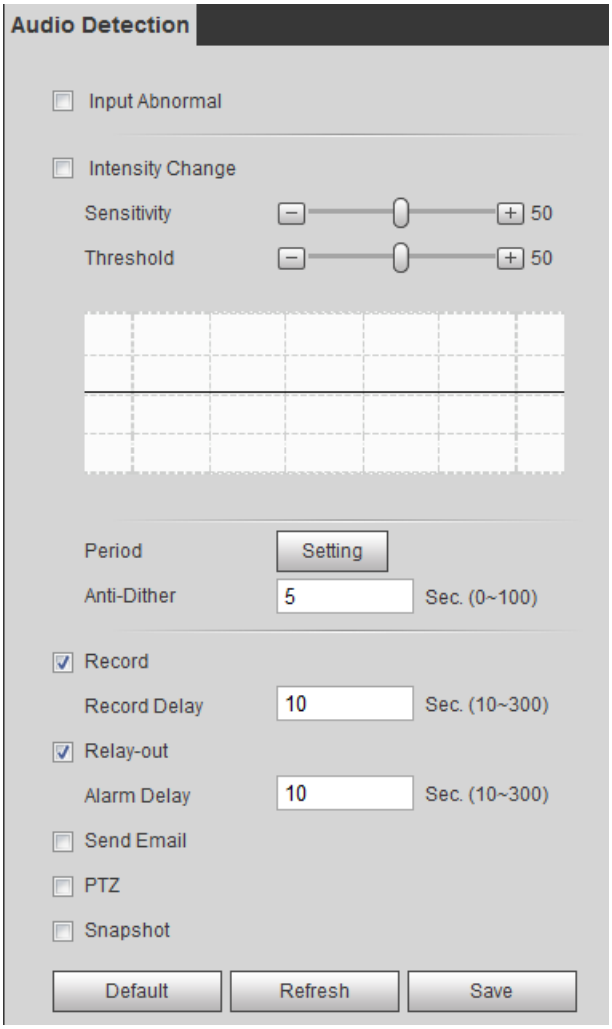
Step 5 Click **Save** to finish configuration.

4.4.2 Configuring Audio Detection

Step 1 Select **Setting > Event > Audio detection**.

The **Audio Detection** interface is displayed. See Figure 4-41.

Figure 4-41 Audio detection settings



Step 2 Configure parameters of audio detection. See Table 4-23 for details.

Table 4-23 Parameters of audio detection

Parameters	Description
Input Abnormal	Enable this function and an alarm will be triggered when there is abnormal audio input.

Parameters	Description
Intensity Change	Enable this function and an alarm will be triggered when the change of sound intensity exceeds the threshold you have set.
Sensitivity	Volume change of input audio can be identified as audio abnormality only when volume change of input audio is larger than the lasting environment volume. You need to set the lasting environment volume on your own needs.
Threshold	Set the ambient sound intensity you need to filter. The louder the ambient noise is, the bigger this value should be, you can Adjust and test this option as needed.
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Anti-Dither	The system records only one audio detection event within the set time.
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.

Parameters	Description
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

Step 3 Click **OK** to finish configuration.

4.4.3 Configuring Temperature Alarm

You can set an alarm condition. When the temperature meets the defined alarm condition, an alarm is triggered and the linked activity is executed.

This function is available on select models, and the actual interface shall prevail.

Preparation

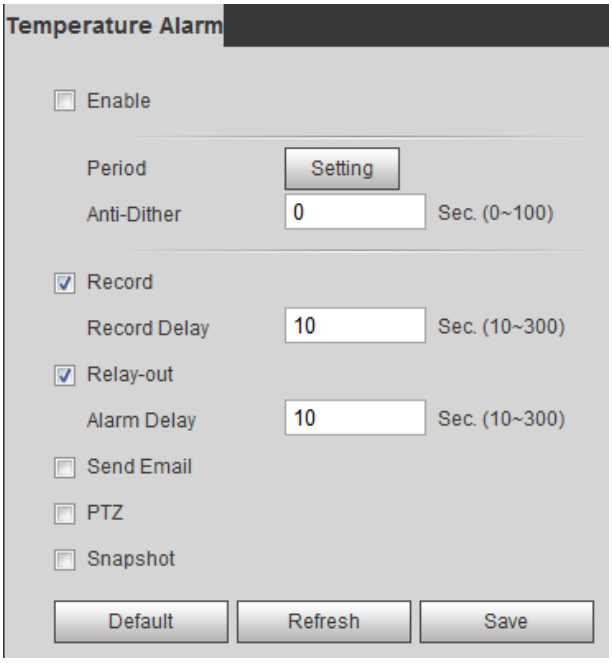
You have set the temperature measuring rules. See "4.5.1 Configuring Rules" for detailed operation.

Procedure

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

The **Temperature Alarm** interface is displayed. See Figure 4-42.

Figure 4-42 Temperature alarm settings



Step 2 Select the **Enable** check box.

Step 3 Configure parameters of temperature alarm. See Table 4-24 for details.

Table 4-24 Temperature alarm parameters

Parameter	Description
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. ● Method 1: Hold down and drag the left mouse button to select working period you need. ● Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Anti-dither	Only one temperature alarm event is recorded within the time you have set.
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.

Parameter	Description
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar. Set PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm. ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

Step 4 Click **Save** to finish configuration.

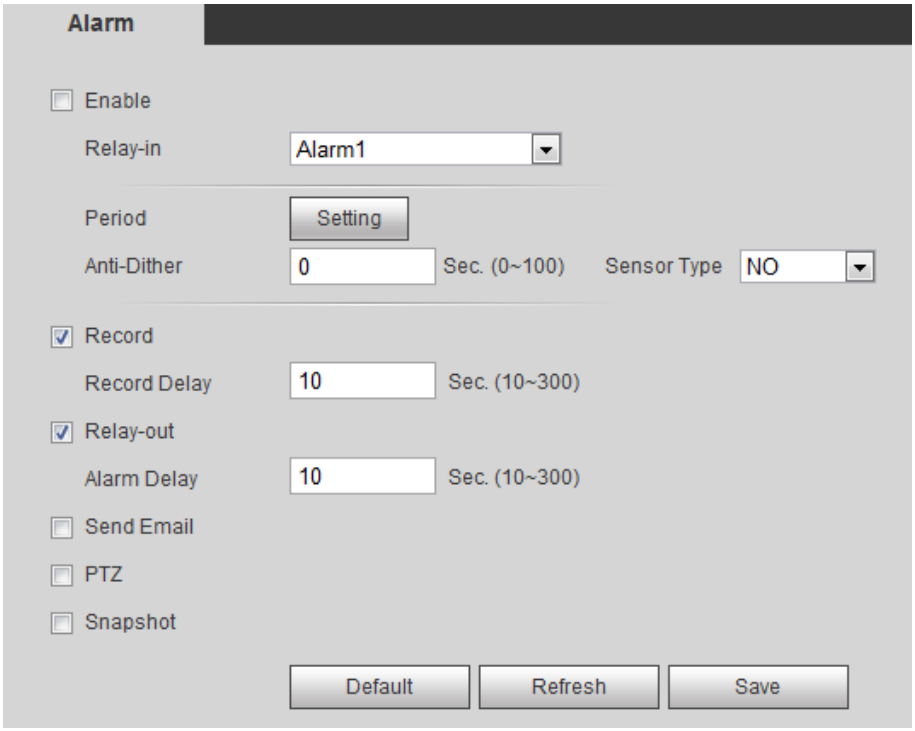
4.4.4 Configuring Alarm

When there is an alarm from external devices, an alarm will be released and linked activities will be executed.

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

The **Alarm** interface is displayed. See Figure 4-43.

Figure 4-43 Alarm settings



Step 2 Select the **Enable** check box.

Step 3 Configure Relay activation parameters. For detailed description, see Table 4-25.

Table 4-25 Alarm parameters

Parameters	Description
Relay-in	Select an external alarm device.
Period	Define a period during which the alarm settings are active. 1. Click **Setting**, and the period setting interface is displayed. 2. Configure period. • Method 1: Hold down and drag the left mouse button to select working period you need. • Method 2: Select **Setting > Event > Video Detection** and click **Setting** on the right side of **Period**. An interface is displayed. In this interface, there are seven **Setting**s altogether each of which corresponds to a day in a week. Select a **Setting** you want and there are six periods (period1-period6) below for you to pick up. 3. Click **Save** to finish configuration of working period.
Anti-dither	Only one temperature alarm event is recorded within the time you have set.
Sensor type	You can select from normally open (NO) and normally closed (NC).

Parameters	Description
Record	Enable this function and alarm recording will be triggered when there is an alarm.  ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path." ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered.  Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.
PTZ	Select the check box of **PTZ** and select an item from **None**, **Preset**, **Tour**, and **Pattern** in the **Activation** bar. Once an alarm is triggered, your PTZ will execute the item you have selected in the **Activation** bar.  Set PTZ first before enabling this function. See "3.2 PTZ" for detailed operations.
Snapshot	Select the **Snapshot** check box to take a snapshot when there is an alarm.  ● To view and set storage path of snapshots, see "4.1.2.5 Configuring Storage Path". ● To make the snapshot function take effect, you need to firstly enable motion-detection snapshots. See "4.6.1.2 Configuring Snapshot" for detailed operations.

Step 4 Click **Save** to finish configuration.

4.4.5 Configuring Abnormality

Abnormality covers events of SD card, network and illegal access.

The "No SD Card", "SD Card Error" and "Capacity Warning" events are available only on models that support SD card.

4.4.5.1 Configuring SD Card Abnormality Parameters

When any abnormality happens to the SD card, an alarm will be triggered and linked activities will be executed. SD card abnormality includes "No SD card", "SD Card Error" and "Capacity Warning."

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

The **SD Card** interface is displayed. See Figure 4-44.

Figure 4-44 SD card

Step 2 Select an event type.

Step 3 Select the **Enable** check box.

Step 4 Configure SD card abnormality parameters. For detailed description, see Table 4-26.

Table 4-26 SD card parameter description

Parameters	Description
Minimum storage space in SD card	This parameter can be configured only when the event type is "capacity warning." Configure the free space percentage, and if the free space in the SD card is lower than the set percentage, the alarm is triggered.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.

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

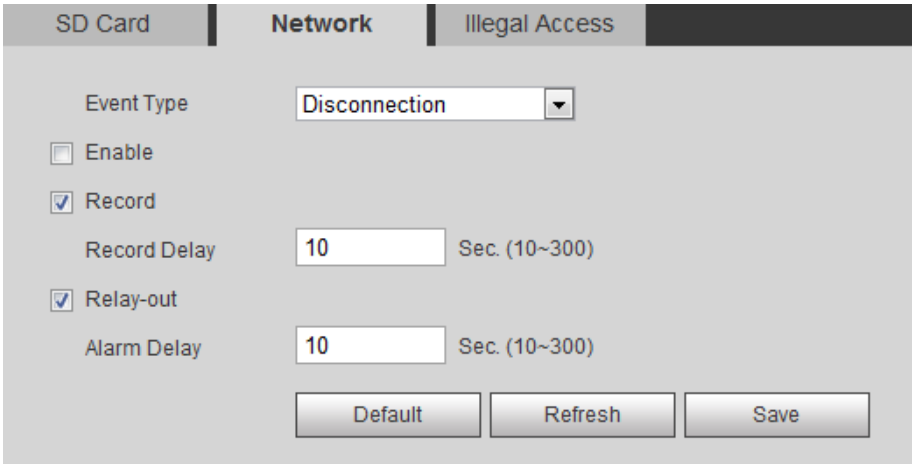
4.4.5.2 Configuring Network Abnormality Parameters

When any abnormality happens to network, an alarm will be triggered and linked activities will be executed. Network abnormality includes "Disconnection" and "IP conflict."

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

The **Network** interface is displayed. See Figure 4-45.

Figure 4-45 Network



Step 2 Select an event type.

Step 3 Select the **Enable** check box.

Step 4 Configure network abnormality parameters. See Table 4-27 for details.

Table 4-27 Network parameter description

Parameter	Description
Record	Enable this function and alarm recording will be triggered when there is an alarm. ● To view and set storage path of recorded videos, see "4.1.2.5 Configuring Storage Path". ● The following two conditions must be satisfied before alarm recording function works: ◇ You have enabled motion detection recording. See "4.6.1.1 Configuring Video Recording" for detailed operations. ◇ You have enabled auto recording. See "4.6.3 Configuring Record Control Parameters" for detailed operations.
Record Delay	Set a length of time for the Device to delay turning off recording after an alarm is ended.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.

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

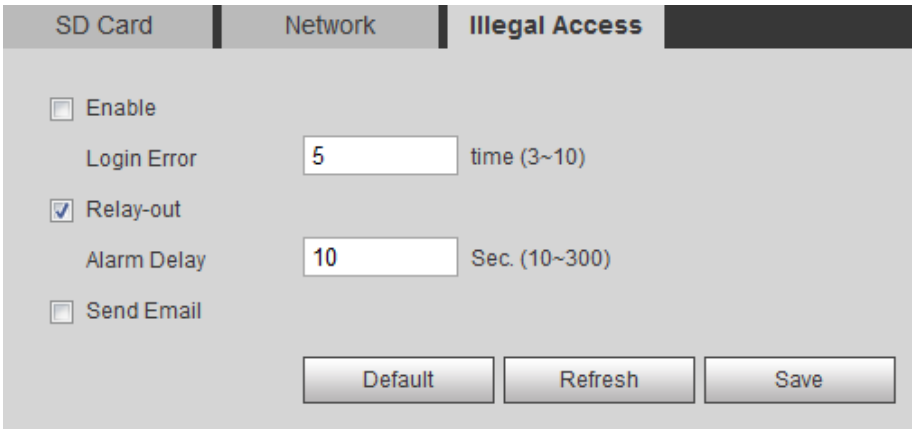
4.4.5.3 Configuring Illegal Access Parameters

If the password is continuously wrongly typed and the mistakes have reached the maximum you have set, an alarm will be triggered and linked activities will be executed.

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

The **Illegal Access** interface is displayed. See Figure 4-46.

Figure 4-46 Illegal access



Step 2 Select the **Enable** check box.

Step 3 Configure illegal access parameters. See Table 4-28 for details.

Table 4-28 Illegal access parameter description

Parameters	Description
Login error	The number of times that the login password is allowed to be wrongly entered for. When the login password has been wrongly entered for more than the set times, the account is locked. You need to wait 30 minutes before your account is unlocked.
Relay-out	You can connect this relay-out port to such alarm devices as light and siren. When an alarm is triggered, those alarm devices will work. Select the check box to enable this function.
Alarm Delay	Set a length of time for the Device to delay turning off alarm after an event is actually ended.
Send Email	Select the **Send Email** check box and an e-mail will be delivered to the device user once an alarm is triggered. Set your e-mail first before enabling the **Send Email** function. See "4.2.5 Configuring SMTP" for detailed operations.

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

4.5 Temperature Measuring Settings

Temperature measuring is available on select models and the actual interface shall prevail.

4.5.1 Configuring Rules

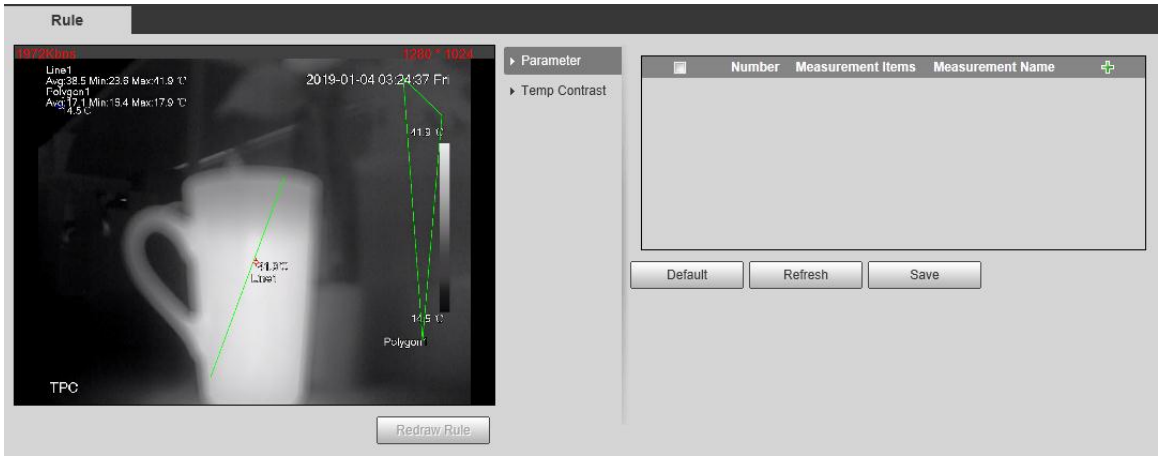
Configure temperature measuring rules and when alarm conditions are met, an alarm will be triggered.

4.5.1.1 Configuring Temperature Measuring Rules

Step 1 Select **Setting > Temperature > Rule > Parameter**.

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

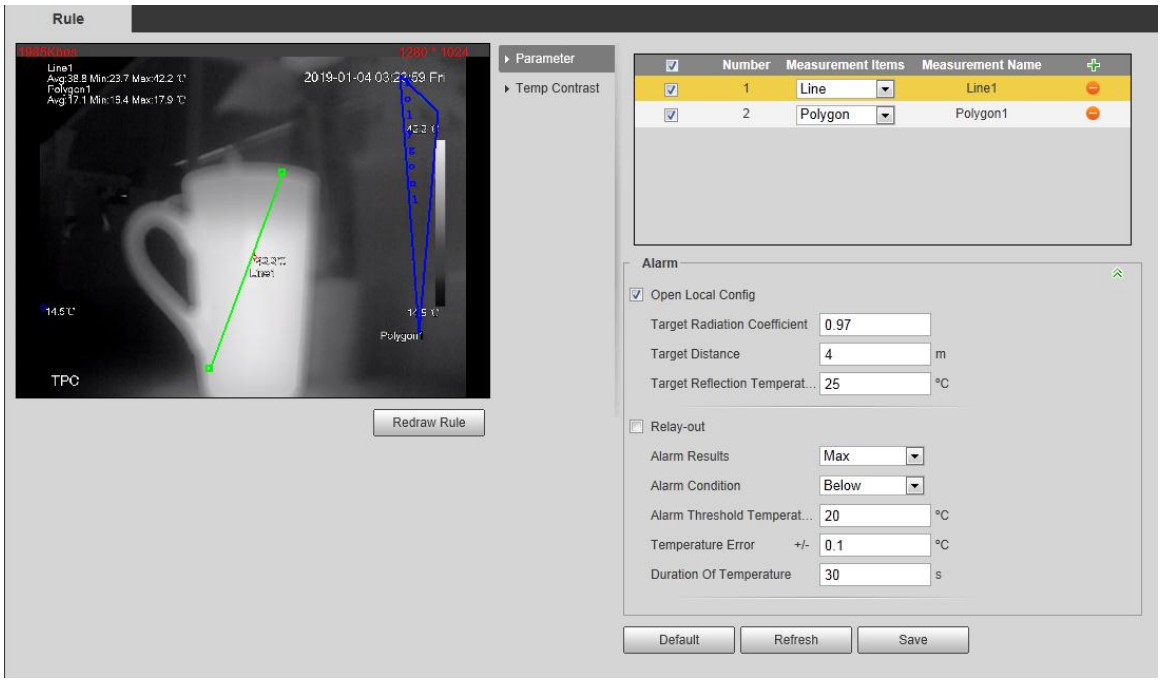
Figure 4-47 Parameter



Step 2 Configure temperature measuring rules and then parameters.

1) Click ⊕ to add a rule.
   See Figure 4-48.

Figure 4-48 Rule adding



2) Double-click the rule you have just added to select measurement items and modify the measurement name.
3) Draw your rules.
   - Select **Measurement Items** as **Spot**, and you can click a position on the surveillance image and a spot is formed.
   - Select **Measurement Items** as **Line**, **Rectangle** or **Ellipse**, and you can hold the left mouse button to draw rules you need on the surveillance image.
   - Select **Measurement Items** as **Polygon**, and you can hold the left mouse button to draw rules you need on the surveillance image. Right-click to end your drawing.

Select a rule you have drawn and click **Redraw Rule**. Then you can delete the rule and draw a new one.

4) Select the **Open Local Config** check box and configure parameters. See Table 4-29 for details.

Table 4-29 Parameter description of local configuration

Parameters	Description
Target Radiation Coefficient	Radiation coefficient of targets that are shot by this Device. Ranges from 0.5 – 1.
Target Distance	Distance from the camera to targets that are shot. Ranges from 0m – 10000m.
Target Reflection Temperature	Temperature of targets that are shot by this Device. Ranges from -50 °C to 327.7 °C.

5) Enable the **Relay-out** check box and configure its parameters. See Table 4-30 for details.

Table 4-30 Parameter description of relay-out

Parameter	Description
Alarm Results	Temperature's display items. ● Select **Measurement Items** as **Spot**, and average temperature and temperature slope will be displayed. ● Select **Measurement Items** as **Line**, **Rectangle**, **Ellipse** or **Polygon**, and maximum/minimum/average temperature, temperature slope and temperature difference are displayed. By temperature difference, we mean the difference between maximum and minimum temperatures under rules you have set. By temperature slope, we mean temperature's varying rate under rules you have set.
Alarm Condition	Set alarm conditions, covering **Below**, **Match** and **Above**.
Alarm Threshold Temperature	You can set this value when you select **Alarm Results** as **Max**, **Min**, **Aver**, or **Temperature Difference**. Ranges from -40 °C to 550 °C.
Temperature Slope	You can set this value when you select **Alarm Results** as **Slope.** By temperature slope, we mean the temperature difference in each minute. Ranges from -600 °C/min – 600 °C/min.
Temperature Error	Set a temperature error value and if the alarm threshold temperature or temperature slope is within the value you have set, linked alarms will still be triggered. Ranges from -10 °C to 10 °C.
Duration of Temperature	You can set a lasting time of abnormal temperature after which alarms will be triggered. Ranges from 0 – 1000s.

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

You can watch temperature change under the rules you have set on surveillance images.

4.5.1.2 Configuring Temperature Contrast

You can compare temperature of spots, lines or area you have selected and display comparison results on surveillance images.

Preparation

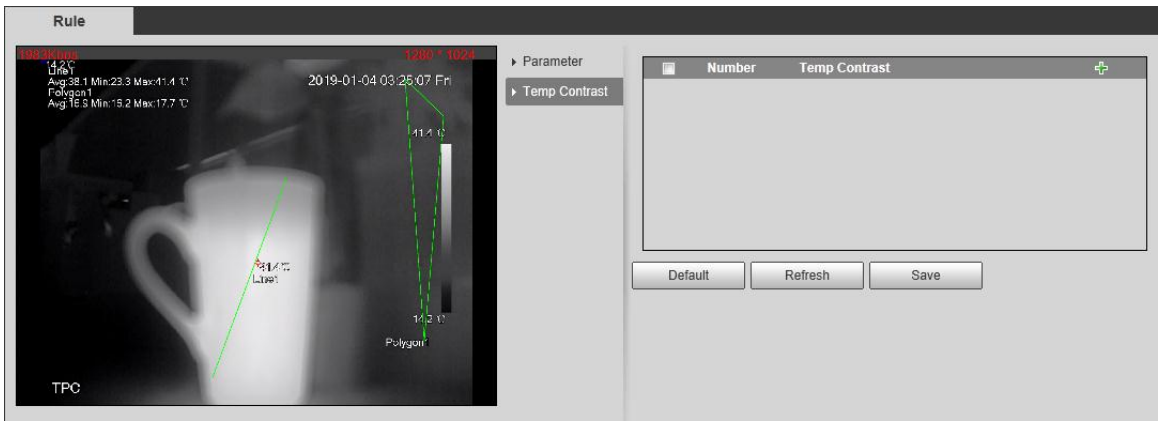
You have set at least two temperature testing rules. See "4.5.1.1Configuring Temperature Measuring Rules" for detailed operations.

Procedure

Step 1 Select **Setting > Temperature > Rule > Temp Contrast**.

The **Temp Contrast** interface is displayed. See Figure 4-49.

Figure 4-49 Temperature contrast

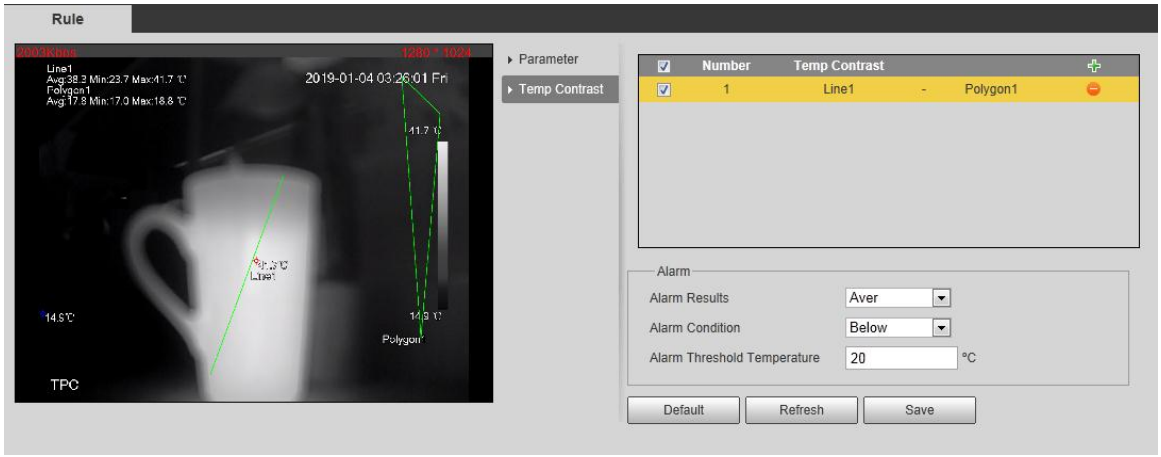


Step 2 Set temperature contrast rules

1) Click  to add a temperature contrast rule.

See Figure 4-50.

Figure 4-50 Temperature contrast rules adding



2) Double-click to add a temperature contrast rule.

3) Set alarm parameters. See Table 4-31.

Table 4-31 Parameters

Parameters	Description

Parameters	Description
Alarm Results	You can select from the following three options to determine a standard of triggering an alarm. ● Average temperature: Compare average temperatures of two rules. ● Maximum temperature: Compare maximum temperatures of two rules. ● Minimum temperature: Compare minimum temperatures of two rules. When one of the two rules refers to a spot, both maximum temperature and minimum temperature are actually average temperature.
Alarm Condition	Contains "lower", "matched" and "higher."
Alarm Threshold Temperature	Temperature of triggering an alarm. Ranges from 0 – 550 °C.

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

On the left-side live image, you can view temperature contrast results of the object you have selected.

4.5.2 Configuring Global Setup

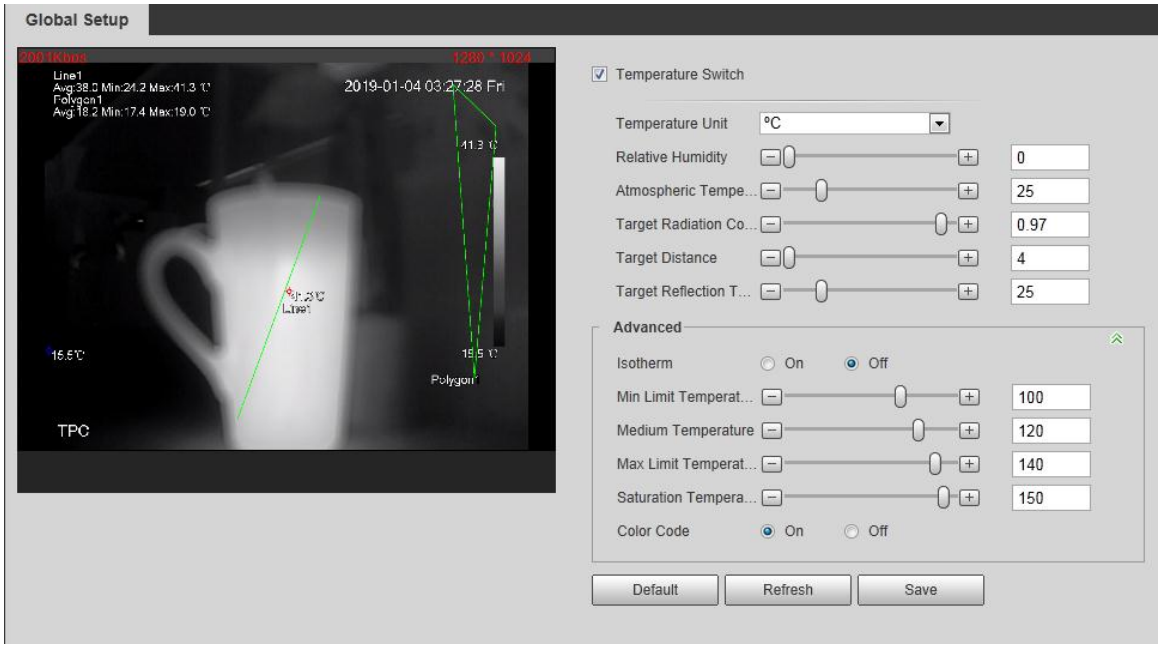
You can enable **Temperature Switch**, **Isotherm** and **Color Code**.

- Temperature Switch: A switch with which you can enable or disable temperature testing rules. Enable the **Temperature Switch** and the temperature testing rules you have set will be displayed on surveillance images.
- Isotherm: Used to highlight an object in images of high brightness. Isotherm is based on median temperature, with ceiling temperature and floor temperature as its floating range. The part of an object whose temperature is higher than floor temperature will be represented in a bright color and the part of an object whose temperature is lower than floor temperature will be represented in a black/white color.
- Color Code: Enable this function, and a color code is displayed on the right side of surveillance images to show change of color between minimum temperature and maximum temperature.

Step 1 Select **Setting > Temperature > Global Setup**.

The **Global Setup** interface is displayed. See Figure 4-51.

Figure 4-51 Global setup



Step 2 Configure the global setup parameters. See Table 4-32 for details.

Table 4-32 Parameter description of global setup

Parameter	Description
Temperature Switch	Select the check box to enable this function.
Temperature Unit	Includes °C and °F.
Relative Humidity	Relative humidity of environment. Ranges from 0RH – 100 %RH.
Atmospheric Temperature	Temperature of our environment. Ranges from -50 °C to 327.7 °C.
Target Radiation Coefficient	Set Radiation coefficient of targets that are shot by this Device. Ranges from 0.5 – 1.
Target Distance	Distance from the camera to targets that are shot. Ranges from 0m – 10000m.
Target Reflection Temperature	Temperature of targets that are shot by this Device. Ranges from -50 °C to 327.7 °C.
Isotherm	Select the **On** check box. You have to make sure that floor temperature <= median temperature <= ceiling temperature <= saturation temperature.
Min Limit Temperature	● When gain mode is under low-temperature mode, value ranges from -40 °C to 150 °C. ● When gain mode is under high-temperature mode, value ranges from -40 °C to 600 °C.
Medium Temperature	● When gain mode is under low-temperature mode, value ranges from -40 °C to 160 °C. ● When gain mode is under low-temperature mode, value ranges from -40 °C to 600 °C.

Parameter	Description
Max Limit Temperature	● When gain mode is under low-temperature mode, value ranges from -40 °C to 160 °C. ● When gain mode is under low-temperature mode, value ranges from -40 °C to 600 °C.
Saturation Temperature	● When gain mode is under low-temperature mode, value ranges from -40°C to 160℃. ● When gain mode is under low-temperature mode, value ranges from -40 °C to 600 °C.
Color Code	Select **On** to enable color code. A color code will be represented on the right side of surveillance images.

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

Effect images are as shown in Figure 4-52, Figure 4-53, and Figure 4-54.

Figure 4-52 Temperature switch

Figure 4-53 Isotherm

Figure 4-54 Color code

4.5.3 Exporting Heat Map

By exporting heat map, you can grasp temperature of every pixel on thermal images.

Step 1 Select **Setting > Temperature > Heat Map**.

The **Heat Map** interface is displayed. See Figure 4-55.

Figure 4-55 Heat map setting

Step 2 Click **Export Heat Map.**

Heat map files will be saved under the path you have set. For detailed operation of resetting the storage path, see "4.1.2.5 Configuring Storage Path."

4.6 Storage Management

4.6.1 Configuring Schedule

You can set schedule of recording, snapshotting, holidays.

If the record mode is **Off** in **Storage > Record Control > Record Control** interface, the system would not record video or snapshot as scheduled.

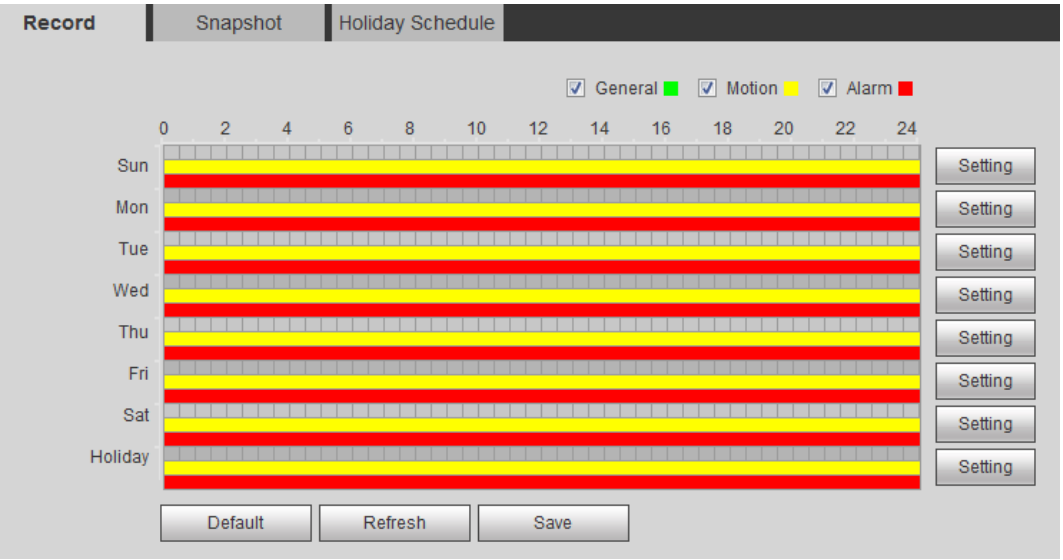
4.6.1.1 Configuring Video Recording

Set video recording, covering **General**, **Motion** and **Alarm**.

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

The **Record** interface is displayed. See Figure 4-56.

Figure 4-56 Record

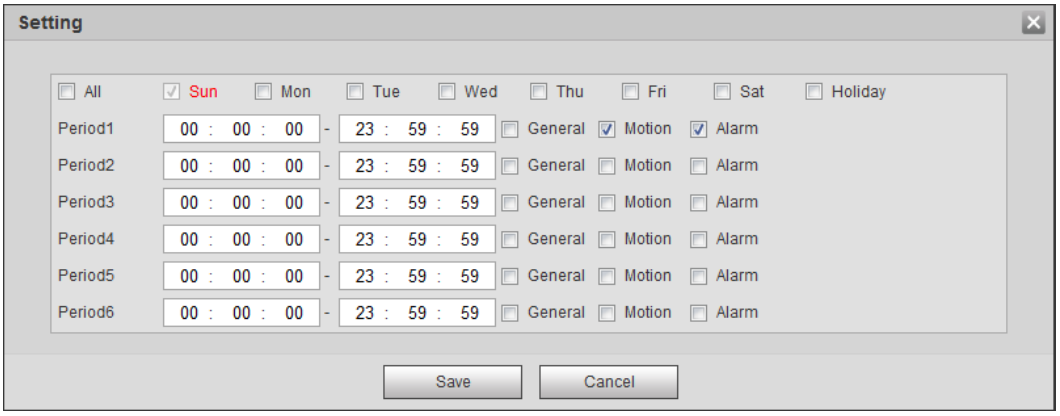


Step 2 Select recording type and configure time period.

Select recording type, and then you can also press and hold the left mouse button to select the time period as needed in the chart.

1) Click the **Setting** for the day that you want to configure time period.
   The **Setting** interface is displayed. See Figure 4-57.

Figure 4-57 Setting



2) Select a day in a week and configure its period.

   - There are 6 periods for each day.
   - Select the **All** check box, and the entered time period will apply to the whole week. Sunday is selected by default, and you can select other days as needed.

3) Select the record type for the corresponding time period.
4) Click **Save**.
   The system returns to the **Record** interface. Each color represents a video type. Green represents general video recording schedule, yellow represents video recording schedule under motion detection and red represents video recording schedule under alarm conditions.

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

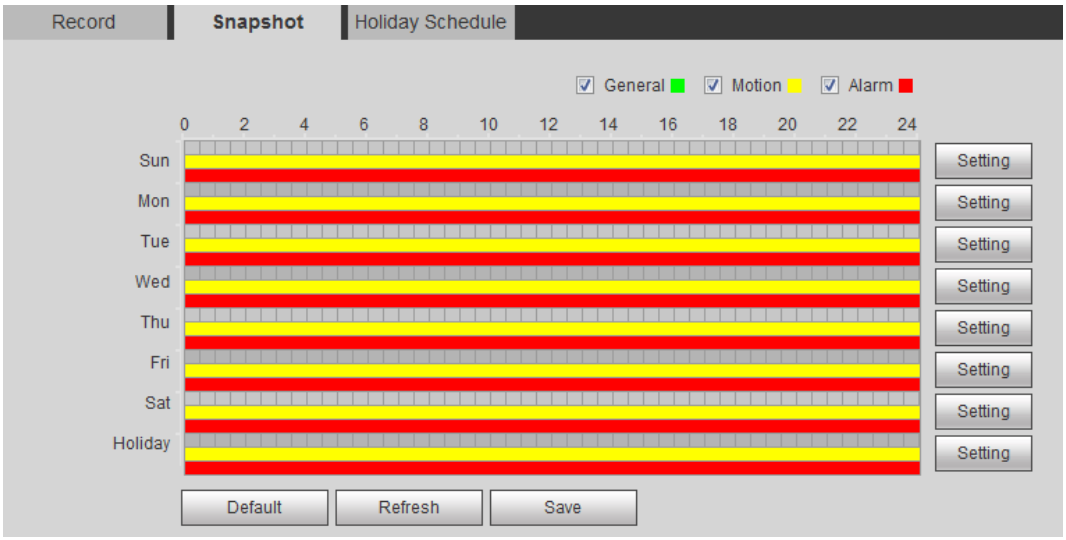
4.6.1.2 Configuring Snapshot

Set video snapshot schedule, covering **General**, **Motion** and **Alarm**.

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

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

Figure 4-58 Snapshot



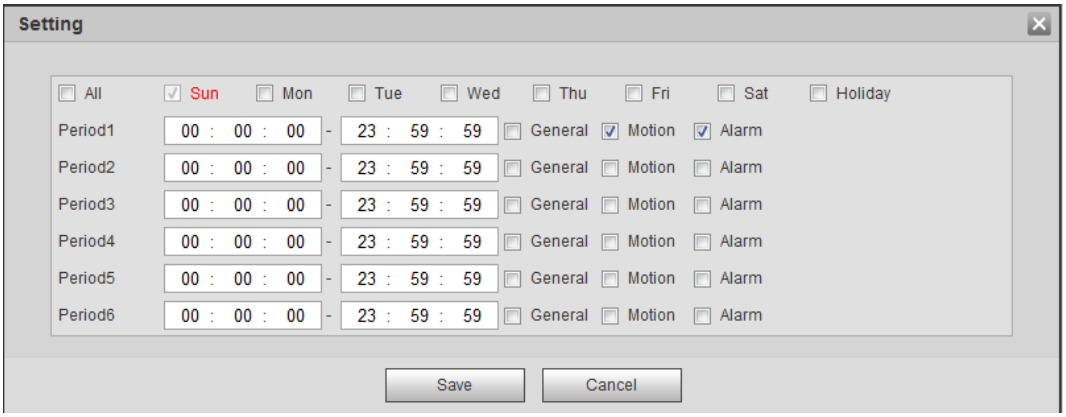
Step 2 Select snapshot type and configure time period.

Select snapshot type, and then you can also hold down the left mouse button to select the time period in the chart as needed.

1) Click the **Setting** for the day that you need to configure time period.

The **Setting** interface is displayed. See Figure 4-59.

Figure 4-59 Settings



2) Select a day in a week and configure its time period.

- There are 6 time periods for each day.
- Select **All**, and the entered time period would apply to the whole week. Sunday is selected by default, and you can select other days as needed.

3) Select the snapshot type for the corresponding time period.

4) Click **Save**.

The system returns to the **Snapshot** interface. Each color matches with a certain Snapshot type. Green means General Snapshot, yellow means motion detection Snapshot and red means alarm Snapshot schedule.

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

4.6.1.3 Configuring Holiday Schedule

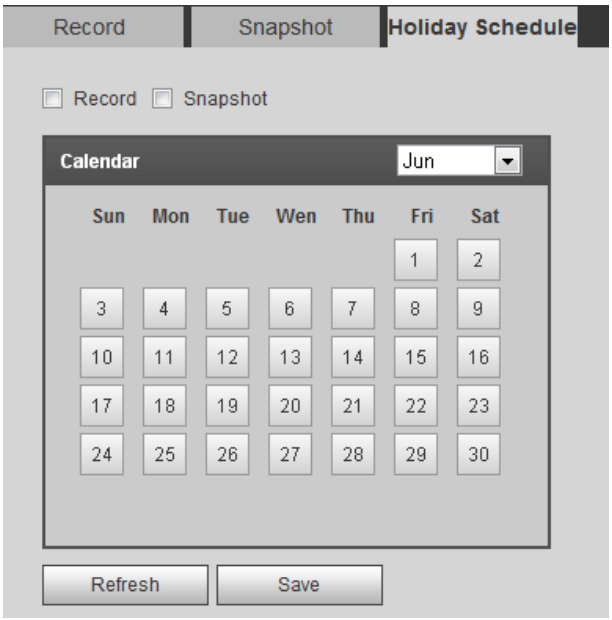
Select a day as your "holiday" and video recording/snapshots will be enabled at your "holiday."

- To use holiday recording function, you need to configure holiday recording schedule. For detailed operation, see "4.6.1.1 Configuring Video Recording."
- To use holiday snapshot function, you need to configure holiday record/snapshot schedule. For detailed operation, see "4.6.1.2 Configuring Snapshot."

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

The **Holiday Schedule** interface is displayed. See Figure 4-60.

Figure 4-60 Holiday schedule



Step 2 Select from record and snapshot.

Step 3 Select days you need to set as your "holiday."

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

Step 4 Click **Save** to finish configuration.

4.6.2 Device Storage

4.6.2.1 Configuring Storage Path

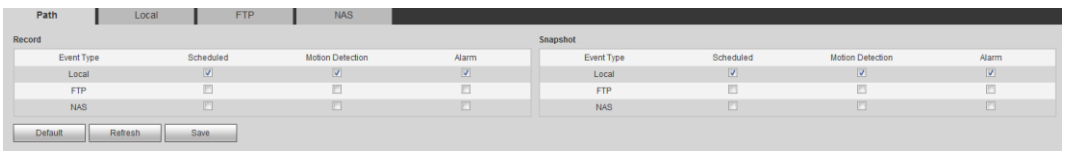
You can set video recording and snapshot's storage methods according to event types. You can save them in SD card, FTP or NAS.

Local storage is available only on models that support SD card.

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

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

Figure 4-61 Path



Step 2 Select different storage paths for the recorded videos and snapshots which belong to different event types.

Table 4-33 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** to finish configuration.

4.6.2.2 Configuring Local Storage

The system will display the internal SD card information. You can set it as **Read Only** or **Read & Write**; you can also **Hot Swap** or **Refresh** it.

Select **Setting > Storage > Destination > Local**, and the **Local** interface is displayed. See Figure 4-62.

- Select SD card you need to set and click **Read Only**. Then the SD card is set to read only.
- Select SD card you need to set and click **Read & Write**. Then the SD card is set to read& write.
- Select SD card you need to set and click **Hot Swap**. Then you can pull out the SD card.
- Select SD card you need to set and click **Refresh**. Then the SD card will be formatted.

Figure 4-62 Local storage setting

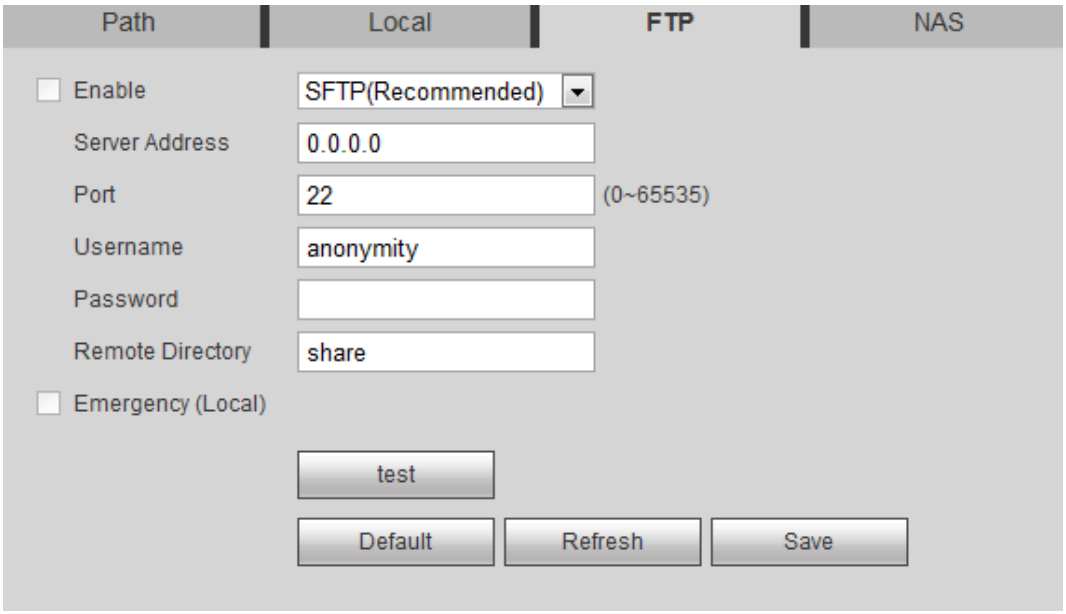
4.6.2.3 Configuring FTP Server

You can set FTP server only when FTP is selected as the storage method in **Path**. When the network doesn't work, you can save all the files to the local SD card for emergency.

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

The **FTP** interface is displayed. See Figure 4-63.

Figure 4-63 FTP settings



Step 2 Select the **Enable** check box, and then select the service type.

SFTP service is recommended.

Step 3 Configure FTP parameters. See Table 4-34.

Table 4-34 FTP parameter description

Parameters	Description
Server Address	The IP address of the SFTP or FTP server.
Port	The port of the SFTP or FTP server.
User name	The user name to log in the server.
Password	The password to log in the server.
Remote Directory	The destination path in the server.
Emergency (Local)	Select the **Emergency (Local)** check box, and when the FTP server does not work, all the files are saved to the internal SD card.

Step 4 Click **Save** to finish configuration.

Click **Test** to check whether the server has been properly connected.

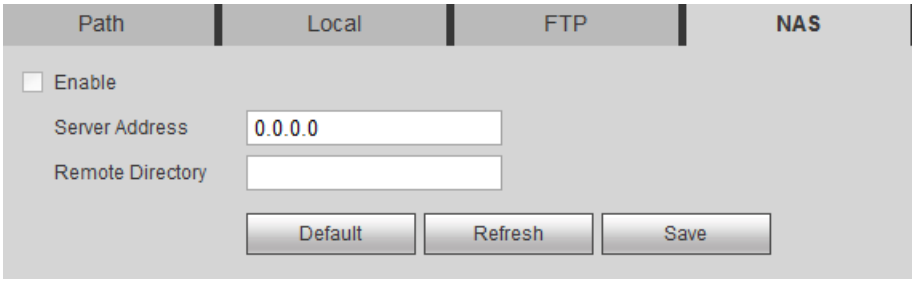
4.6.2.4 Configuring NAS Server

This function can be enabled only when NAS has been selected as destination path. Select **NAS** interface and you can save files in NAS server.

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

The **NAS** interface is displayed. See Figure 4-64.

Figure 4-64 NAS settings



Step 2 Select the **Enable** check box.

Step 3 Configure NAS parameters. See Table 4-35 for details.

Table 4-35 NAS parameters

Parameter	Description
Server Address	The IP address of the NAS server.
Remote Directory	The destination path in the NAS server.

Step 4 Click **Save** to finish configuration.

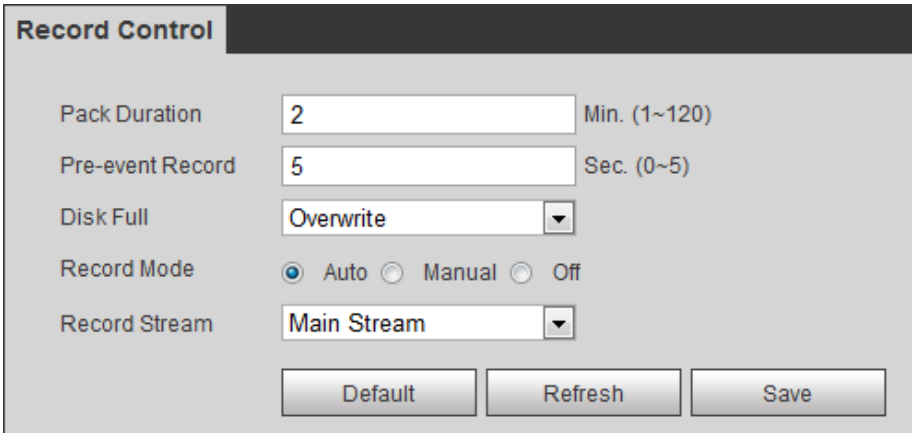
4.6.3 Configuring Record Control Parameters

This chapter introduces configurations including pack duration, pre-event record, disk full, record mode and record stream.

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

The **Record Control** interface is displayed. See Figure 4-65.

Figure 4-65 Record control settings



Step 2 Configure record control parameters. See Table 4-36 for details.

Table 4-36 Record control parameter description

Parameters	Description
Pack Duration	The duration of each file pack.
Pre-event Record	The time period for which the system records video before alarm, if the value is 5, then the system records video for 5 seconds before alarm starts and save it. If the **Record Mode** is **Off** and the record activity has been linked with alarm or motion detection, the system will still save the pre-event video.
Disk Full	The recording strategy when the disk is full. ● **Stop**: The system stops recording when the disk is full. ● **Overwrite**: The system overwrites the oldest files and keep recording when the disk is full.
Record Mode	At the record mode, if you select **Manual**, the system starts video recording; if you select **Auto**, the system records video as time period scheduled; if you select **Off**, video recording will not start.
Record Stream	Includes main stream and sub stream.

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

4.7 System Management

4.7.1 General Settings

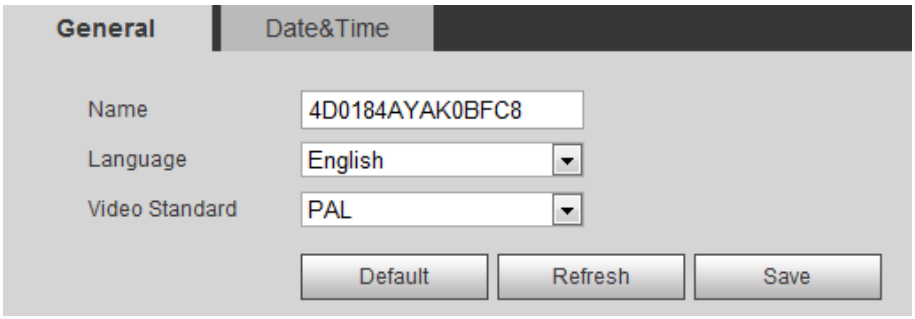
4.7.1.1 Configuring General Information

Configure device name, language and video standard.

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

The **General** interface is displayed. See Figure 4-66.

Figure 4-66 General



Step 2 Configure general parameters. See Table 4-37.

Table 4-37 General parameter description

Parameter	Description
Device name	The name of the device. Each device has different name.
Language	Select system language.
Video Standard	Select video standard from PAL and NTSC.

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

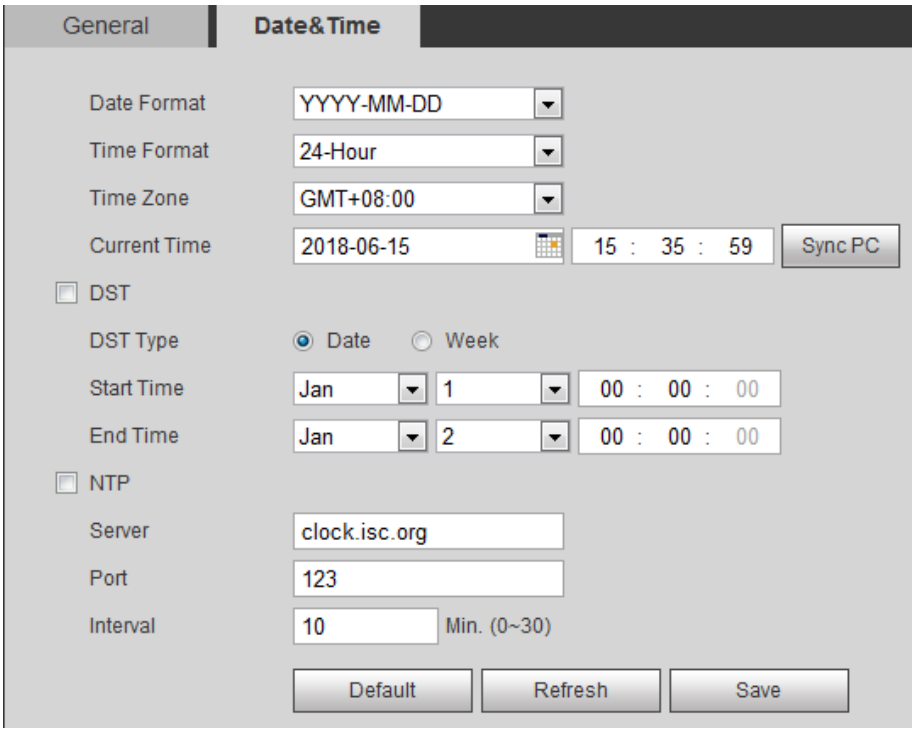
4.7.1.2 Configuring Date & Time

You can set up Date and Time format, Time zone, Current Time, DST (Daylight Saving Time) or NTP server.

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

The **Date & Time** interface is displayed. See Figure 4-67.

Figure 4-67 Date & Time



Step 2 Configure Date & Time parameters. See Table 4-38 for details.

Table 4-38 Date & Time parameters

Parameter	Description
Date Format	Date format.
Time Format	Configure the Time format, you can select from 24-Hour or 12-Hour.
Time zone	Configure the Time zone that the device is at.
Current Time	Configure system time. Click “Sync PC”, and the system time changes to the time on PC.
DST	Enable DST as needed. Select the check box to enable daylight saving time. Select “DST”, and then configure start time and end time of DST with dates or days of the week.
NTP	When you need the Device to transmit its time to NTP server, you can select the **NTP** check box to enable it.
Server	IP address or domain name of the NTP server.
Port	Port number of the FTP server.
Interval	Time gap of device’s transmission of its current time to NTP server.

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

4.7.2 User Management

Managing users and groups are only available for administrator users.

- The max length of the user or group name is 15 characters which can only be consisted of letters, numbers and underlines.
- The password must have 8 to 32 digits and at the same time have at least two forms (There are four password forms altogether: capital letter, lowercase letter, number and

special characters. “‘”, “””, “;”, “:”, and “&” are not covered in special characters.) Administrator users can modify all the uses’ password.

- You can have 19 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 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.

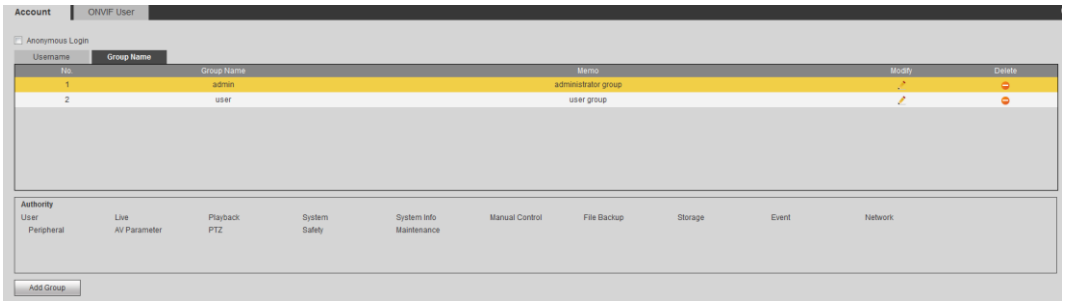
4.7.2.1 Adding a Group

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

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

The **Group Name** interface is displayed. See Figure 4-68.

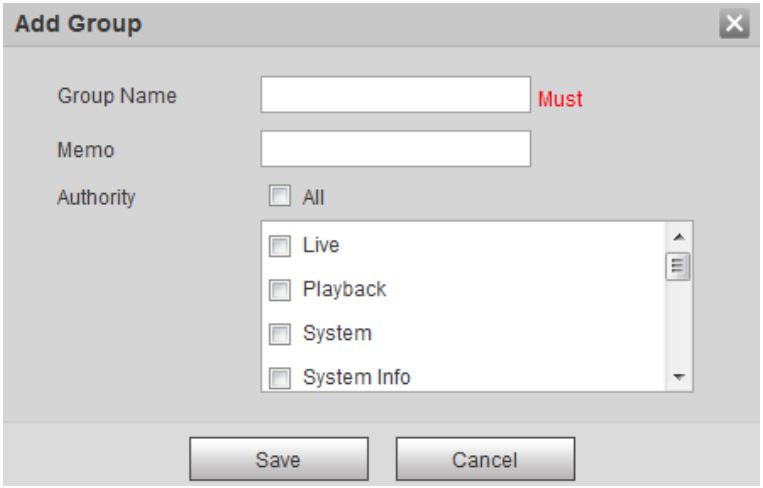
Figure 4-68 User group



Step 2 Click **Add Group**.

The **Add Group** interface is displayed. See Figure 4-69.

Figure 4-69 Add Group



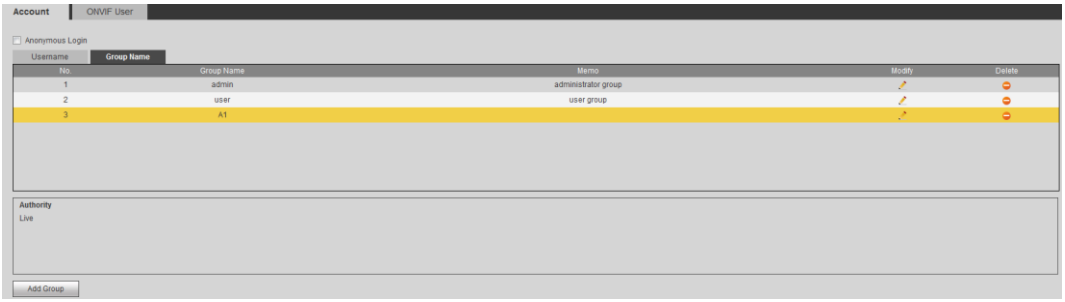
Step 3 Enter Group name and memo. Then select Group authorities.

Step 4 Click **Save** to finish configuration.

The newly added group displays in the group name list. See Figure 4-70.

- After adding group, click to modify group memo or authorities; click 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.

Figure 4-70 User group added.



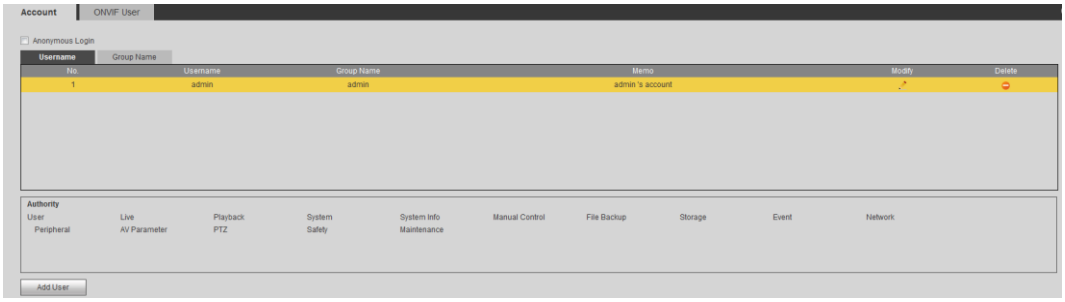
4.7.2.2 Adding a User

You are admin user by default, and you can add user, delete added users or modify their password.

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

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

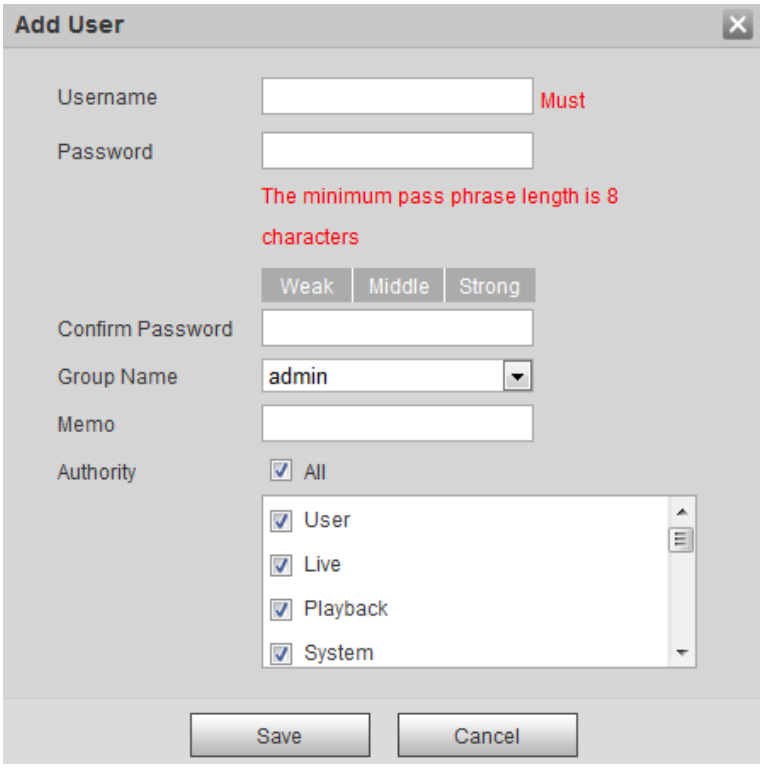
Figure 4-71 User settings



Step 2 Click **Add User**.

The **Add User** interface is displayed. See Figure 4-72.

Figure 4-72 Add user



Step 3 Configure parameters. See Table 4-39.

Table 4-39 User parameter description

Parameter	Description
Username	User's unique identification You cannot use existing user name.
Password	Enter password and confirm it. The two items must be the same.
Confirm Password	
Group name	The group that users belong to. Each group has different authorities.
Memo	Describes the user.
Authority	Select authorities as needed. It is recommended to give less authority to normal users than premium users.

Step 4 Click **Save** to finish configuration.

The newly added users are displayed in the user list.

- 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 user name and email address.

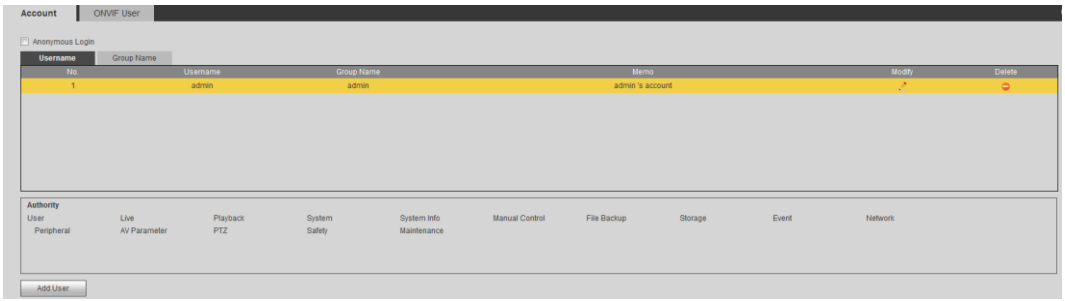
4.7.2.3 Modifying User Password

For data security, it's strongly recommended that you change the default password of the Device and modify it regularly. Also, it's recommended that you adopt a complicated and strong password.

Step 1 Select **Setting > System > Account > Account > Username**.

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

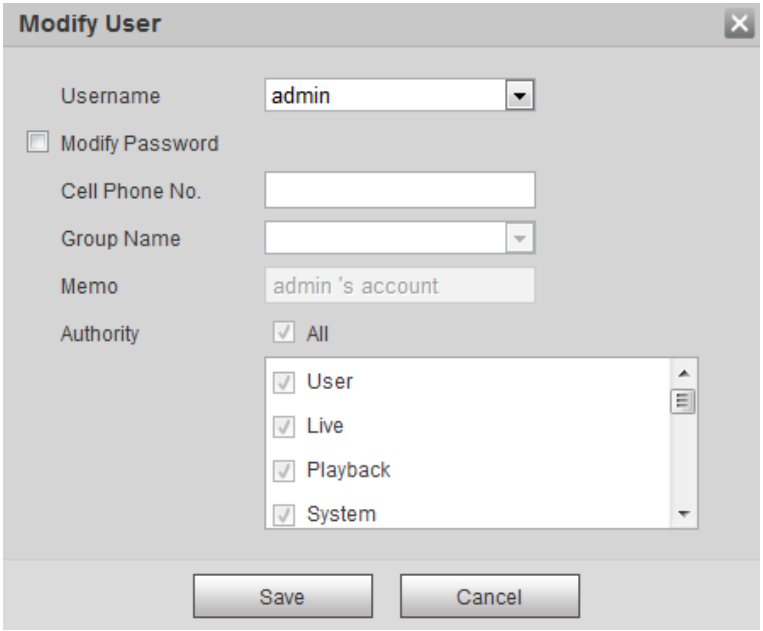
Figure 4-73 Username



Step 2 Click  .

The **Modify User** interface is displayed. See Figure 4-74.

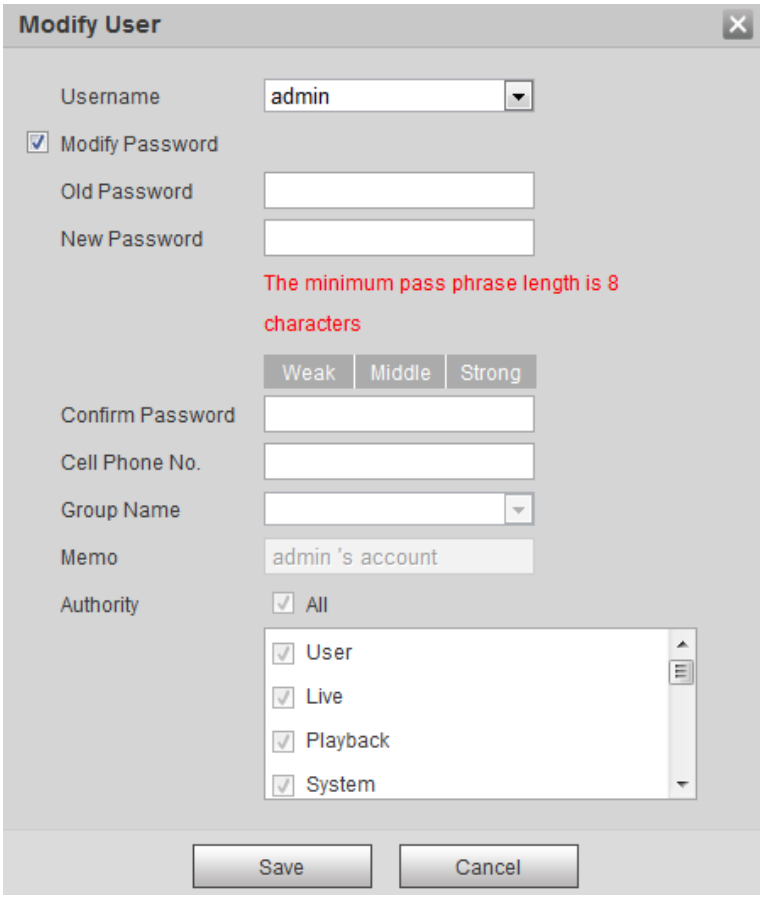
Figure 4-74 Modify user (1)



Step 3 Select the **Modify Password** check box.

More settings are displayed. See Figure 4-75.

Figure 4-75 Modify user (2)



Step 4 Type old password. Type new password and confirm it.

The password must have 8 to 32 digits and at the same time have at least two of the four types: capital letter, lowercase letter, number and special characters.

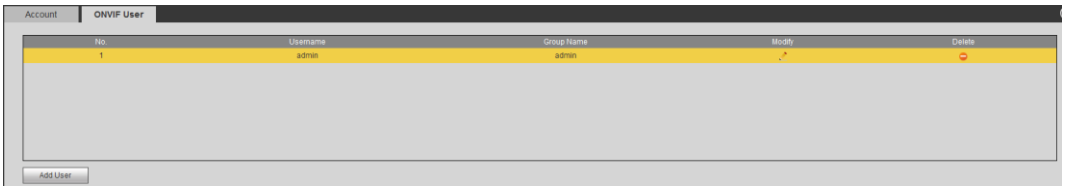
Step 5 Click **Save** to finish password modification.

4.7.3 Adding ONVIF User

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

The **ONVIF User** interface is displayed. See Figure 4-76.

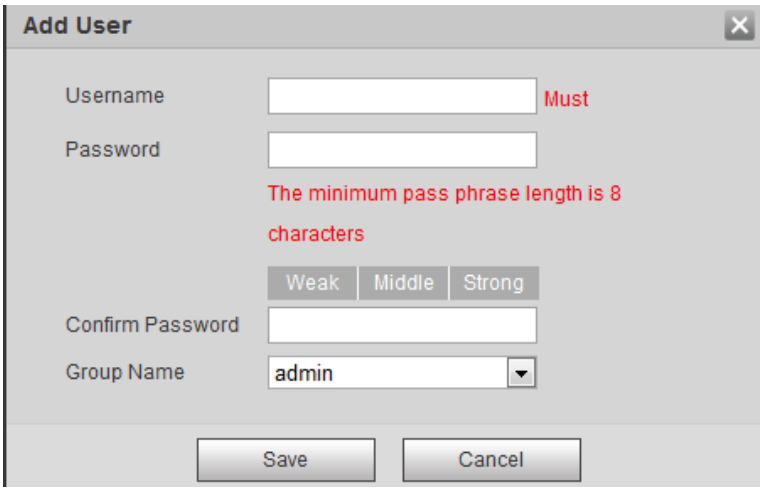
Figure 4-76 ONVIF user



Step 2 Click **Add User**.

The **Add User** interface is displayed. See Figure 4-77.

Figure 4-77 Add user



Step 3 Enter username, password and confirm the password. Then, select group name.

Step 4 Click **Save** to finish configuration.

4.7.4 Safety Management

Set RTSP authentication, IP filter, system service and HTTPS to secure data transmission and prevent data leakage.

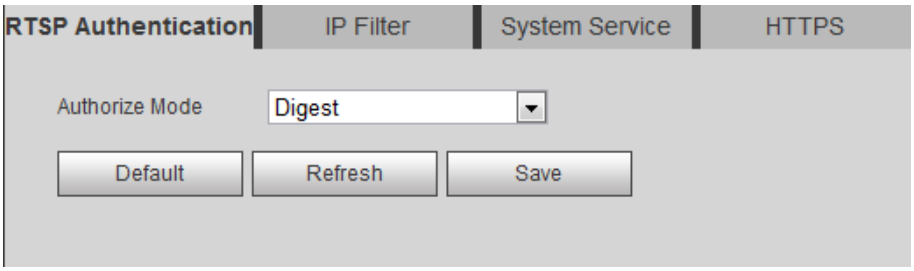
4.7.4.1 Configuring RTSP Authentication

RTSP (Real Time Streaming Protocol) is to secure transmission of streaming media.

Step 1 Select **Setting > System > Security > RTSP Authentication**.

The **RTSP Authentication** interface is displayed. See Figure 4-78.

Figure 4-78 RTSP authentication



Step 2 Select an authentication mode.

Step 3 Click **Save**.

4.7.4.2 Configuring IP Filter

To secure the network environment and protect your data, you can use IP filter to set who can and who cannot access your device.

- White list: Only users whose IP/MAC are on the white list can access your device.
- Black list: Only users whose IP/MAC are on the black list cannot access your device.
- Only when IP addresses of both your device and your PC are located in the same LAN, can MAC verification takes effect.

- When accessing through WAN, you can only use MAC of your router to limit MAC verification.
- You cannot enable white list and black list at the same time.
- You cannot add your device IP/MAC to the white list.

Step 1 Select **Setting > System > Safety > IP Filter**.

The **IP Filter** interface is displayed. See Figure 4-79.

Figure 4-79 IP filter

Step 2 Select the check box of **Enable**.

- Add an IP/Mac address to the white list.

1) Click the **Trusted Sites** tab.
   The **Trusted Sites** interface is displayed.
2) Click **Add IP/MAC**.
   The dialogue box of **Add IP/MAC** is displayed.
3) Set IP/MAC address. See Table 4-40.

Table 4-40 IP/MAC address parameters description (trusted sites)

Parameter	Description
IP address	IP address you are going to authorize.
IP segment	Start address and end address of the IP segment.
MAC address	MAC address you are going to authorize.

4) Click **Save**.

- Add an IP/Mac address to the black list.

1) Click the **Banned List** tab.
   The **Banned List** interface is displayed.
2) Click **Add IP/MAC**.
   The dialogue box of **Add IP/MAC** is displayed.
3) Set IP/MAC address. See Table 4-41.

Table 4-41 IP/MAC address parameters description (banned list)

Parameter	Description
IP address	IP address you are going to prohibit.
IP segment	Start address and end address of the IP segment.
MAC address	MAC address you are going to prohibit.

4) Click **Save**.

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

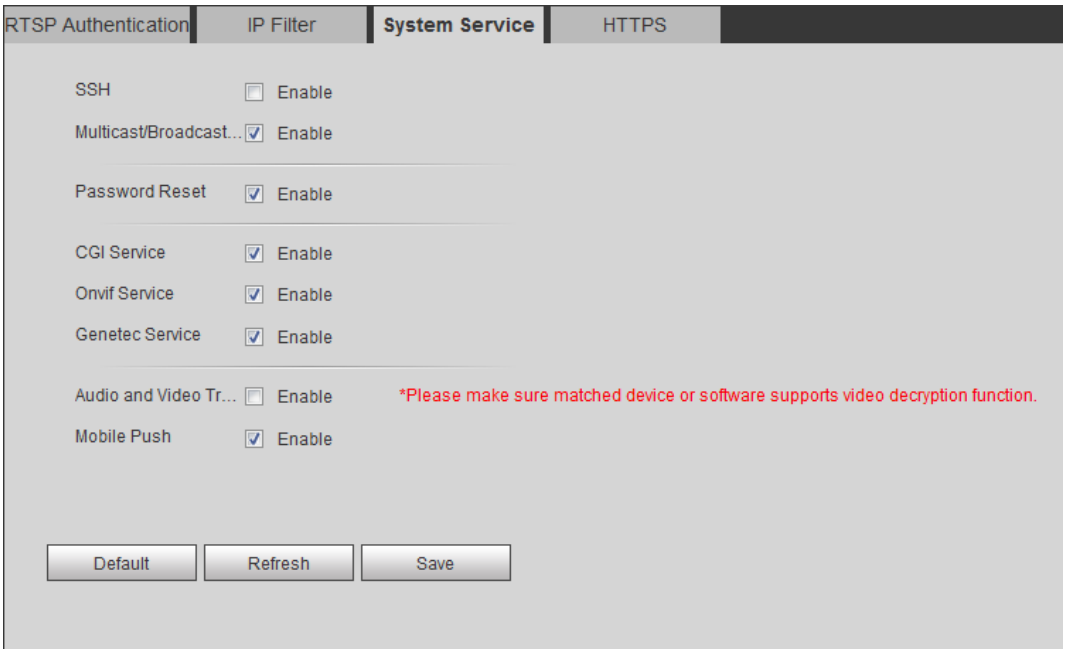
4.7.4.3 Configuring System Service

You can set functions such as SSH, password reset, CGI service, Onvif service, genetec service, audio and video transmission encryption and mobile push.

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

The **System Service** interface is displayed. See Figure 4-80.

Figure 4-80 System service



Step 2 Enable functions on the **System Service** interface. See Table 4-42.

Table 4-42 System service parameters description

Parameter	Description
SSH	Disabled by default. SSH (Secure Shell) can encode your data for its transmission. By this way, data leakage can be prevented when you manage your device remotely.
Password Reset	Enabled by default. If you choose to disable this function, then you can only restore hardware to reset password.
CGI Service	Enabled by default. Enable CGI（Common Gateway Interface）and then you can use your browser to get data from the server.
Onvif Service	Enabled by default. Enable Onvif service to connect your device to network video products (front ends of both vidicons and video recorders, and video recorders included) by other manufacturers.
Genetec Service	Enabled by default.
Audio and Video Transmission Encryption	Disabled by default. ● If you enable this function, ensure the matching devices or software can decode audio and video you have encoded. ● Transmission of audio and video between your device and the third-party platform cannot be encoded. So, for data security, we recommend you to disable CGI service and Onvif service.

Parameter	Description
Mobile Push	Enabled by default. Snapshots under alarm condition can be delivered to your phone.

Step 3 Click **Save**.

4.7.4.4 Configuring HTTPS

With HTTPS, you can install customized certificates or signed certificates. You can also obtain and install a root certificate.

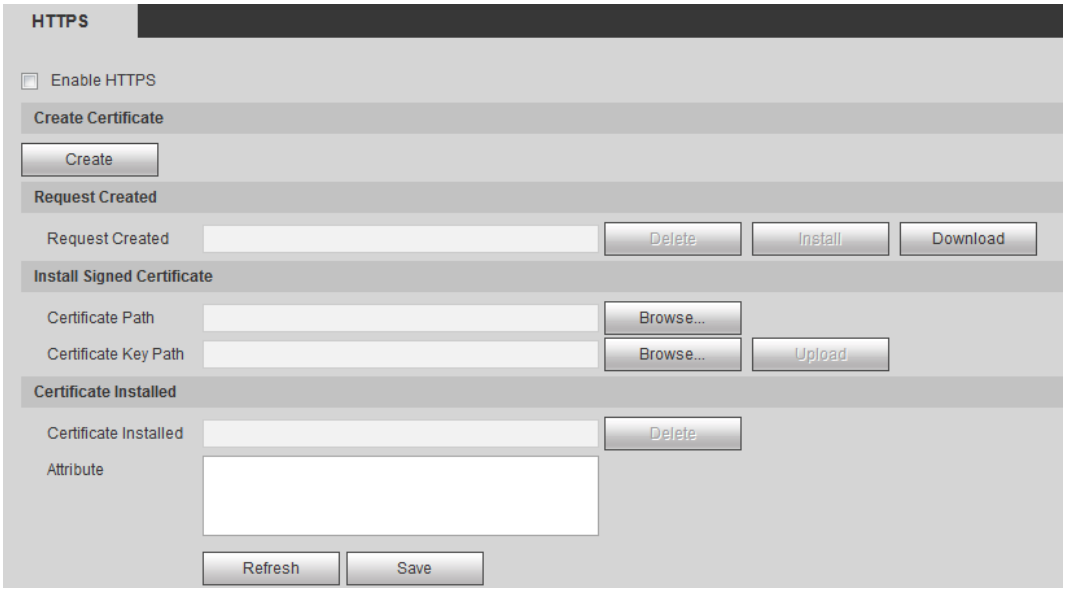
After installing customized certificates or signed certificates to your device, you need to install a root certificate to your PC. By this, your PC will log in the Device normally through HTTPS and guarantee your data security.

4.7.4.4.1 Creating and Installing Customized Certificates

Step 1 Select **Setup > Network > HTTPS**.

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

Figure 4-81 HTTPS

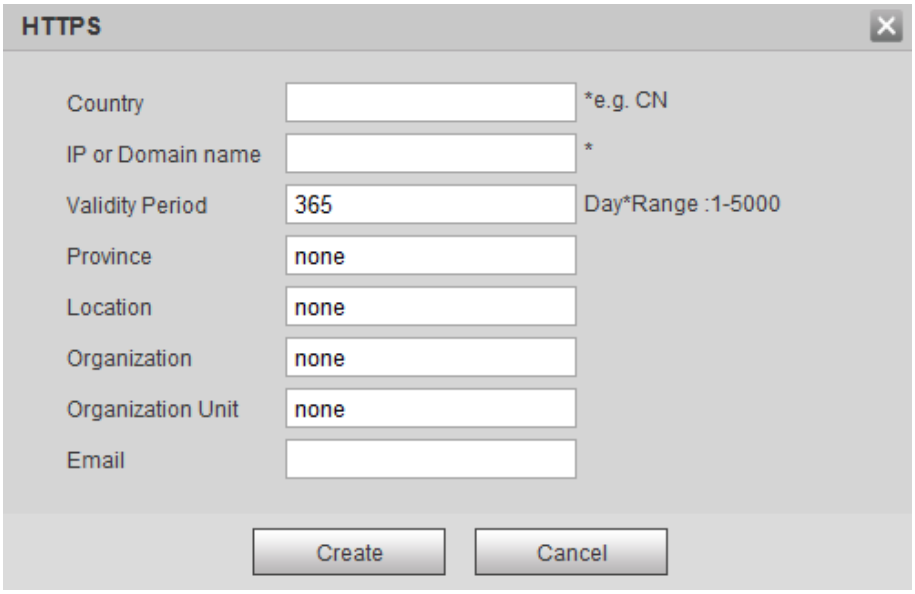


Step 2 Create a certificate.

1) Click **Create**.

The dialog box of HTTPS is displayed. See Figure 4-82.

Figure 4-82 Certificate creating



2) Configure HTTPS parameters. See Table 4-43.

Table 4-43 Parameters description

Parameter	Description
Country	Abbreviation of a country. Limited to 2 capital letters.
IP or Domain Name	IP address or domain name of your device
Validity period	Validity period of the certificate.
Province	Province where you use this certificate.
Location	Location where you use this certificate.
Organization	Organization that uses this certificate.
Organization Unit	Name of organization unit that uses this certificate.
Email	Email of a person or a company who uses this certificate.

3) Click **Create**.
Requests created will be displayed.

Step 3 Click **Install** to start installation. After that, certificate property will be displayed in the **Certificate Installed** bar of the **HTTPS** interface.

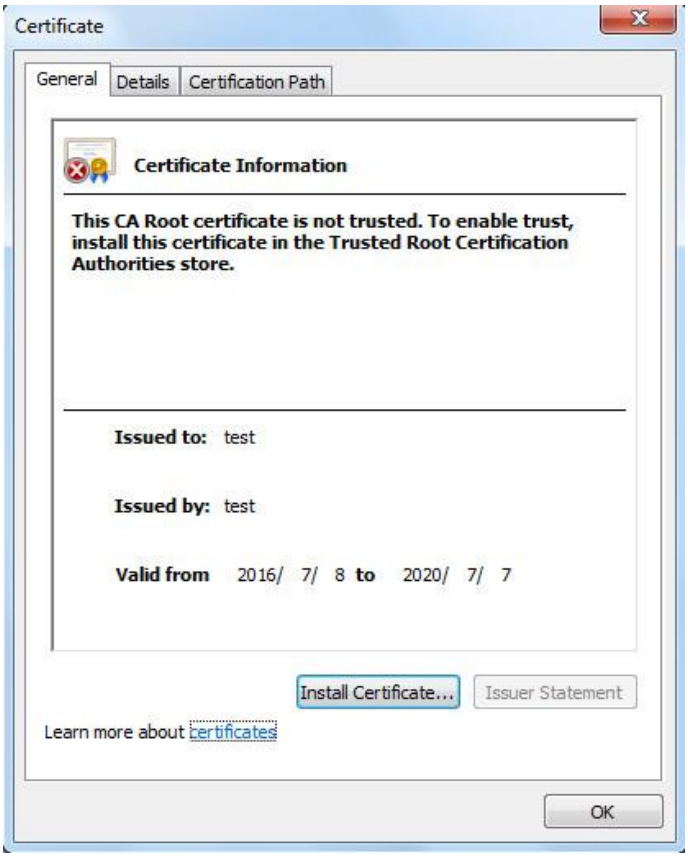
Click **Delete** near the **Certificate Installed** bar of the **HTTPS** interface to delete an installed certificate.

Step 4 Click **Save** to store the root certificate.

Step 5 Install the root certificate.

1) Double-click RootCert.cer you have saved.
The dialog box of **Certificate** is displayed. See Figure 4-83.

Figure 4-83 Certificate



2) Click **Install Certificate**.

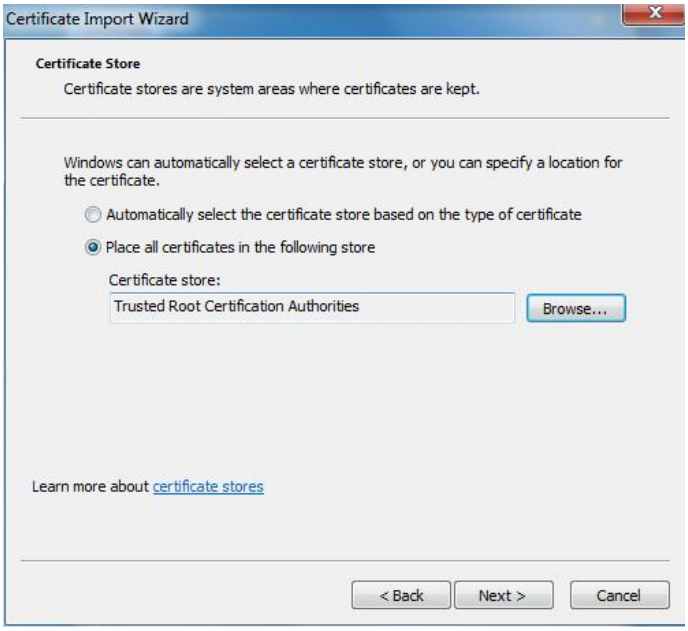
The **Certificate Import Wizard** interface is displayed. See Figure 4-84.

Figure 4-84 Certificate import wizard

3) Click **Next**.

The certificate store selection interface is displayed.

Figure 4-85 Certificate store

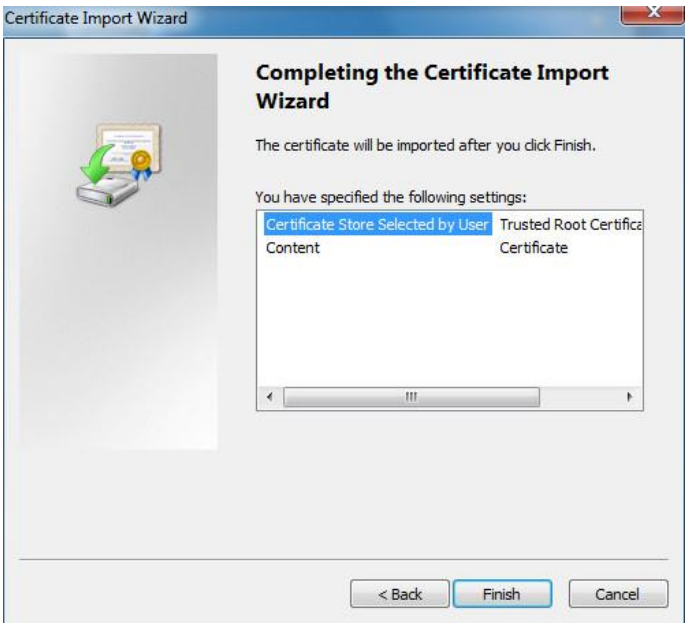


4) Select "Place all certificates in the following store." Click **Browse** and set the "Trusted Root Certification Authorities" as certificate store.

5) Click **Next**.

The certificate import completing wizard is displayed. See Figure 4-86.

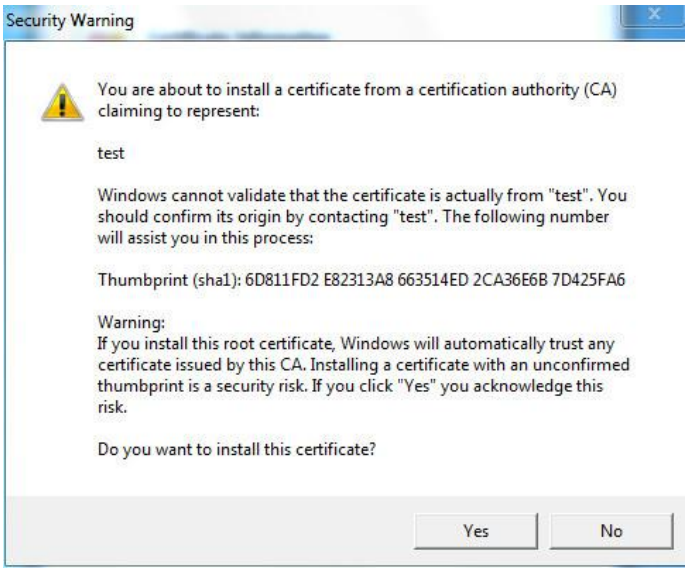
Figure 4-86 Certificate import wizard completing



6) Click **Finish**.

The security warning interface is displayed. See Figure 4-87.

Figure 4-87 Security warning



7) Click **Yes**.

The system pops up a messaged that indicates the import was successful. See Click **OK** to finish certificate importing.

Figure 4-88 Successful import prompt

8) Click **OK** to finish installation of root certificate.

Step 6 Enable HTTPS and a prompt that the Device needs to be rebooted is displayed. After your device reboots, type IP address of the Device in your browser and access the Device through HTTPS protocol.

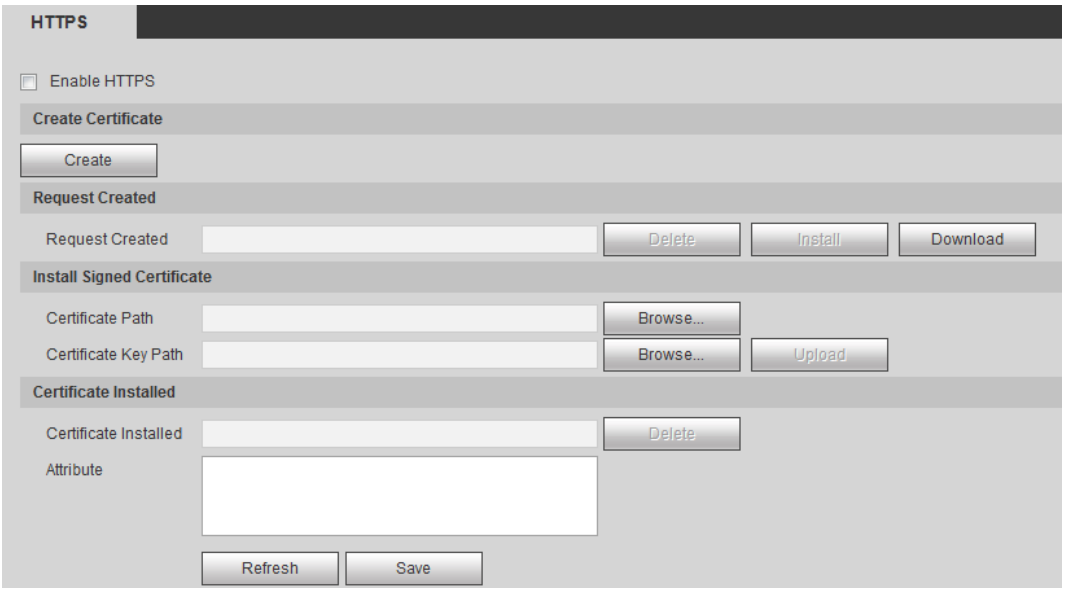
4.7.4.4.2 Installing Signed Certificate

Get a signed certificate and its password from the digital signature institute. And import the certificate and its password to the Device.

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

The **HTTPS** interface is displayed. See Figure 4-89.

Figure 4-89 HTTPS



Step 2 Install a certificate that has been signed.

1) Click **Browse** on the right side of **Certificate Path** bar to select a certificate you are to upload**.**
2) Click **Browse** on the right side of **Certificate Key Path** bar to select the certificate password you are to upload**.**

Step 3 Click **Upload**.

Installation begins. After that, certificate property will be displayed in the **Certificate Installed** bar of the **HTTPS** interface.

Click **Delete** near the **Certificate Installed** bar of the **HTTPS** interface to delete a certificate installed.

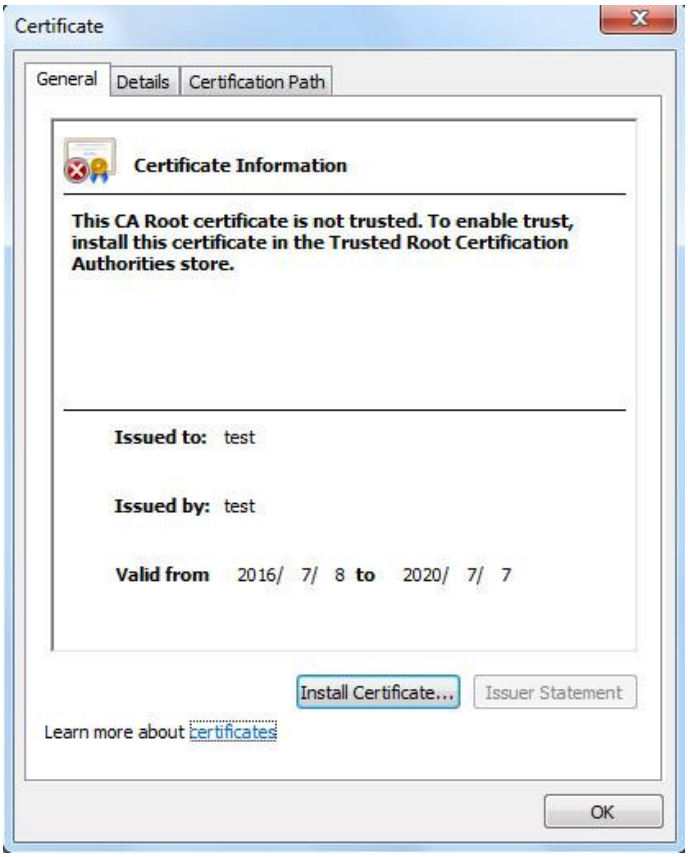
Step 4 Click **Save** to store the root certificate.

Step 5 Install the root certificate.

1) Click RootCert.cer you have saved.

The dialog box of **Certificate** is displayed. See Figure 4-90.

Figure 4-90 Certificate



2) Click **Install Certificate**.

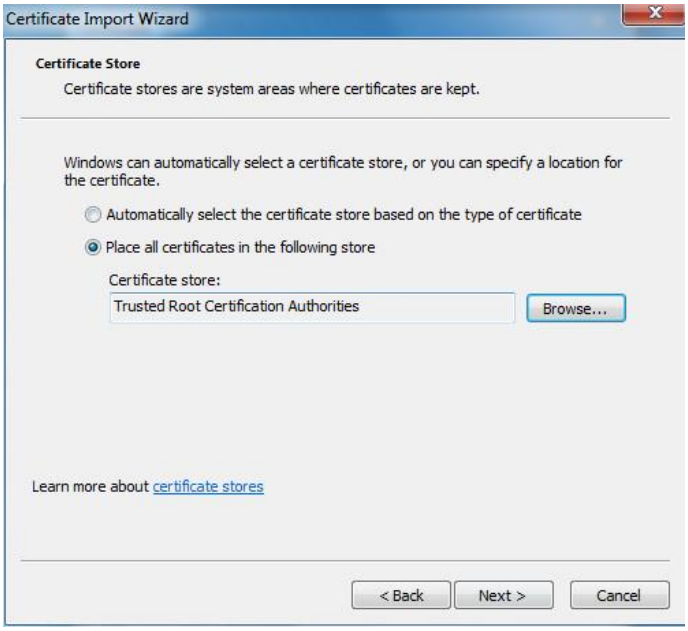
The **Certificate Import Wizard** interface is displayed. See Figure 4-91.

Figure 4-91 Certificate import wizard

3) Click **Next**.

The certificate store selection interface is displayed. See Figure 4-92.

Figure 4-92 Certificate store

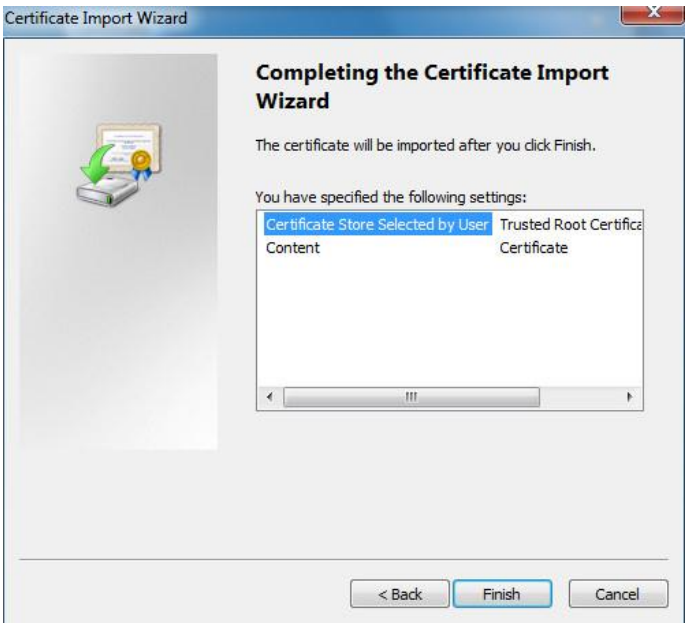


4) Select "Place all certificates in the following store." Click **Browse** and set the trusted root certificate authority as certificate store.

5) Click **Next**.

The certificate import completing wizard is displayed. See Figure 4-93.

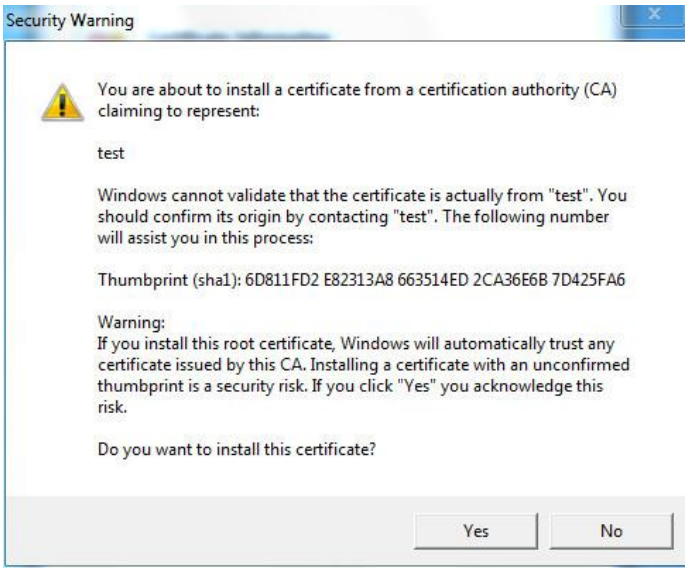
Figure 4-93 Certificate import wizard completing



6) Click **Finish**.

The security warning interface is displayed. See Figure 4-94.

Figure 4-94 Security warning



7) Click **Yes**.

The system pops up a messaged that indicates the import was successful. See Figure 4-95. Click **OK** to finish certificate importing.

Figure 4-95 Successful import prompt

8) Click **OK** to finish installation of root certificate.

Step 6 Enable HTTPS and a prompt that the Device needs to be rebooted is displayed. After your device reboots, type IP address of the Device in your browser and access the Device through HTTPS protocol.

5 System Maintenance

5.1 Maintenance Requirements

For the system's good and safe running, it's recommended to manage and maintain the system, backup files with the following methods.

- Check surveillance images regularly.
- Clear regularly user and user group information that are not frequently used.
- Modify your password every 3 months.
- Check your system logbook regularly. Handle problems as soon as possible.
- Backup your configuration of system regularly.
- Regularly check your files and delete the old ones.
- Upgrade firmware regularly.

5.2 Auto Maintenance

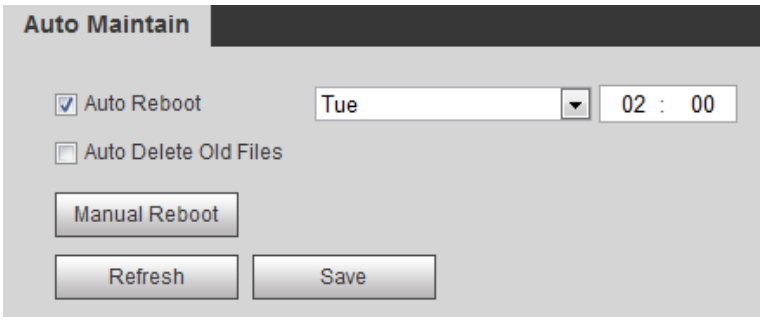
You can configure settings such as "time of when to self-reboot" "rebooting device manually" and "deleting files automatically."

5.2.1 Rebooting Device

Step 1 Select **Setting > System > Auto Maintain**.

The **Auto Maintain** interface is displayed. See Figure 5-1.

Figure 5-1 Auto maintain



Step 2 Reboot this Device.

- Auto reboot: Select **Auto Reboot** and set a reboot time you need. Then click **Save**.
- Manual reboot: Click **Manual Reboot** and a dialogue box is displayed. Click **OK** in this dialogue box and your Device is rebooted at once.

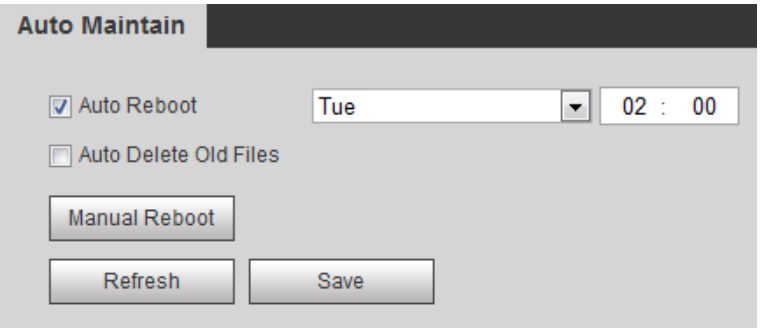
5.2.2 Deleting Old Files

You can enable this function to delete recorded videos or images saved in SD card, FTP or NAS server regularly according to the time gap you have set.

Step 1 Select **Setting > System > Auto Maintain**.

The **Auto Maintain** interface is displayed. See Figure 5-2.

Figure 5-2 Auto maintain



Step 2 Enable **Auto Delete Old Files** and select on your own the time gap of deleting the old files. Ranges from 1 to 31 day(s).

Step 3 Click **OK** to finish configuration.

5.3 Backing Up and Restoring

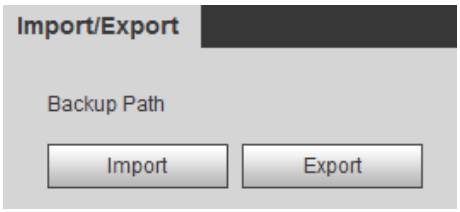
5.3.1 Importing and Exporting

Files that are exported do not contain presets. To import and export presets, see "3.2.3 Configuring Preset Backup"

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

The **Import/Export** interface is displayed. See Figure 5-3.

Figure 5-3 Import/Export



Step 2 Import/Export files.

- Click **Export** and paths of backing up files are displayed.
- Click **Import** to import files that you have exported and backed up.

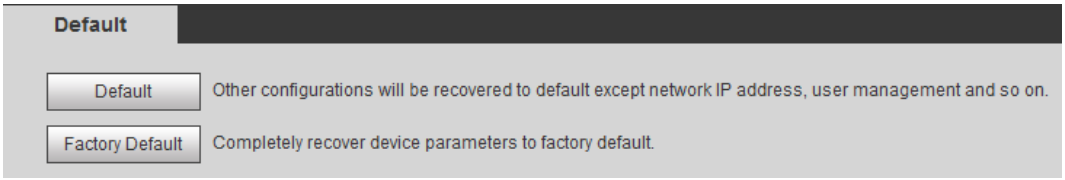
5.3.2 Default Settings

Be careful when implementing operations such as “restored to default” and “restored to factory default”. The operations will result in data loss.

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

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

Figure 5-4 Default setting



Step 2 Restore the Device to default setting.

- Click **Default**, and all the configurations except IP Address and Account are reset.
- Click **Factory Default**, and all the configurations are reset.

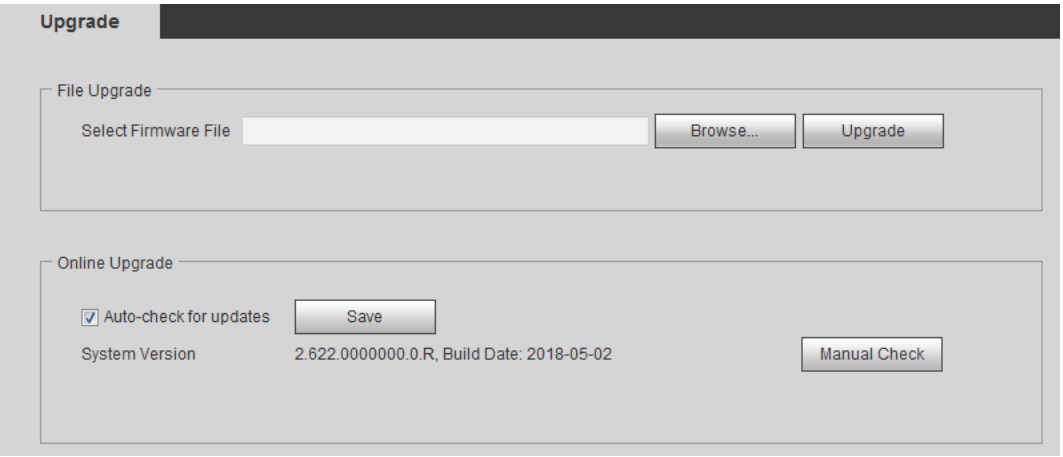
5.4 Upgrading Firmware

- If a wrong upgrade file has been used, please reboot the device, otherwise some functions might not work properly.
- When upgrading, do not cut off power/network, reboot or turn off the Device.

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

The **Upgrade** interface is displayed. See Figure 5-5.

Figure 5-5 Upgrade



Step 2 Select an upgrading method you need and upgrade the system.

- File Upgrade

1) Click **Browse**, and upload upgrade file.
   The upgrade file should be a .bin file.
2) Click **Upgrade** to start the process.

- Online Upgrade

Only when this thermal camera and your computer are both connected to network, can online upgrading be implemented.

Detect your system version.

◇ Auto detection: Select **Auto-check for updates** and click **Save**. The version is detected automatically.

◇ Manual detection: Select **Manual Check** and the system begins to check the version information.

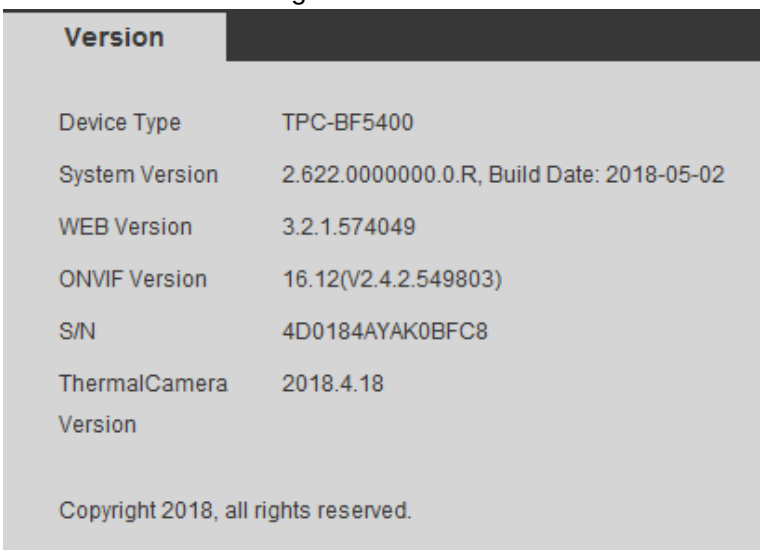
5.5 Version Information

View device hardware information, system version and web version.

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

Select **Setting > Information > Version**, and the **Version** interface is displayed. See Figure 5-6.

Figure 5-6 Version



5.6 System Log

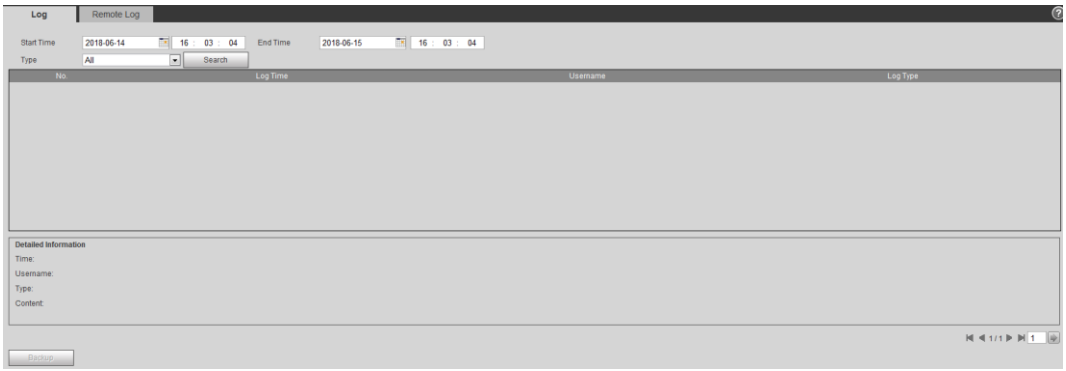
5.6.1 Searching System Logs

The log type includes "all, system, setting, data, event, record, account and safety."

Step 1 Select **Setting > Information > Log**.

The **Log** interface is displayed. See Figure 5-7.

Figure 5-7 Log



Step 2 Set start time and end time, and then select log type.

Table 5-1 Parameter description of system log

Parameters	Description
Start Time End Time	Select a time period which you want to search. The earliest start time is January 1, 2000, and the latest end time is December 31, 2037.

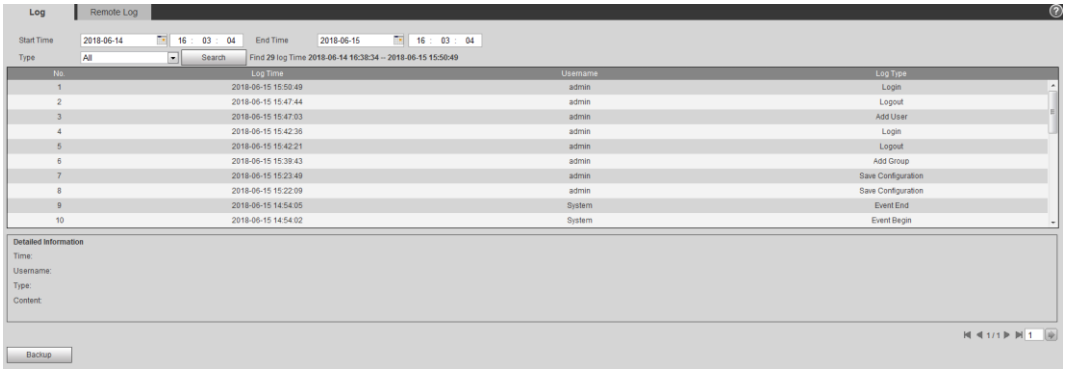
Parameters	Description
Type	The log type includes "all, system, setting, data, event, record, account and safety." ● All: All log information. ● System: Includes program launch, force exit, exit, program reboot, device turn off/reboot, system reboot and system upgrade. ● Setting: Includes save configuration and delete configuration file. ● Data: Includes configure disk type, erase data, hot swap, FTP state, NAS state, record mode, SD card error and hard disk error. ● 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. ● User Management: Includes log in, log out, add user, delete user, modify user, add group, delete group and modify group. ● Safety: Includes password reset and IP filter.

Step 3 Click **Search**.

The needed logs are displayed. See Figure 5-8.

- Click a log, and then you can view the detailed information in **Detailed Information** area.
- Click **Backup**, and then you can back up all the found logs to your PC.

Figure 5-8 Log information



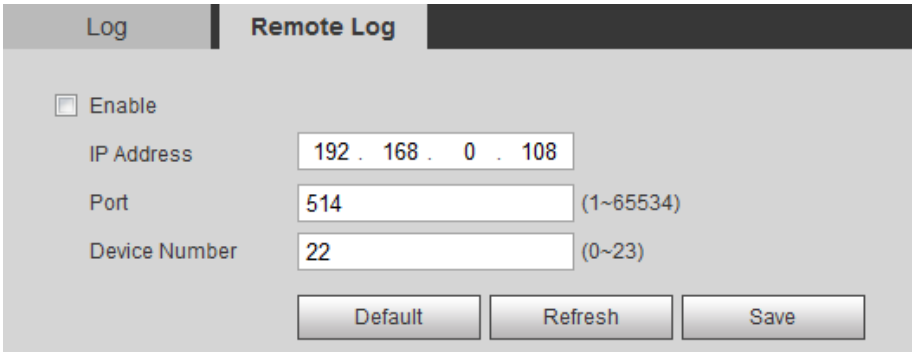
5.6.2 Remote View

Enable this function to remotely check logs in your device.

Step 1 Select **Setting > Information > Log**.

The **Remote Log** interface is displayed. See Figure 5-9.

Figure 5-9 Remote Log



Step 2 Select the **Enable** check box.

Step 3 Set I**P Address**, **Port** and **Device Number.** Then click **Save.**

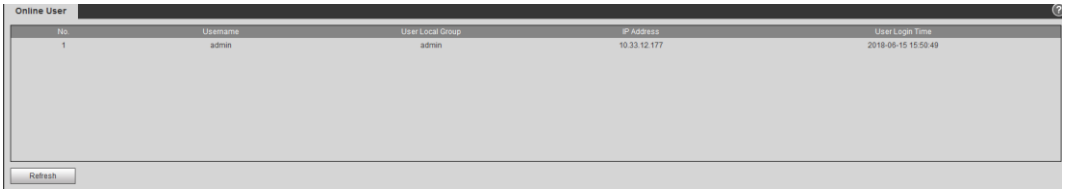
You need to type remote computer's IP address here.

5.7 Online User

View all the current Web users.

Select **Setting > Information > Online User**, and the **Online User** interface is displayed. See Figure 5-10.

Figure 5-10 Online user



6 Additional Accessing Methods

6.1 Accessing through NVR

Connect this camera to NVR (Network Video Recorder) through Wi-Fi or Ethernet. Then you can set and manage this camera through the NVR's web client.

Preparation

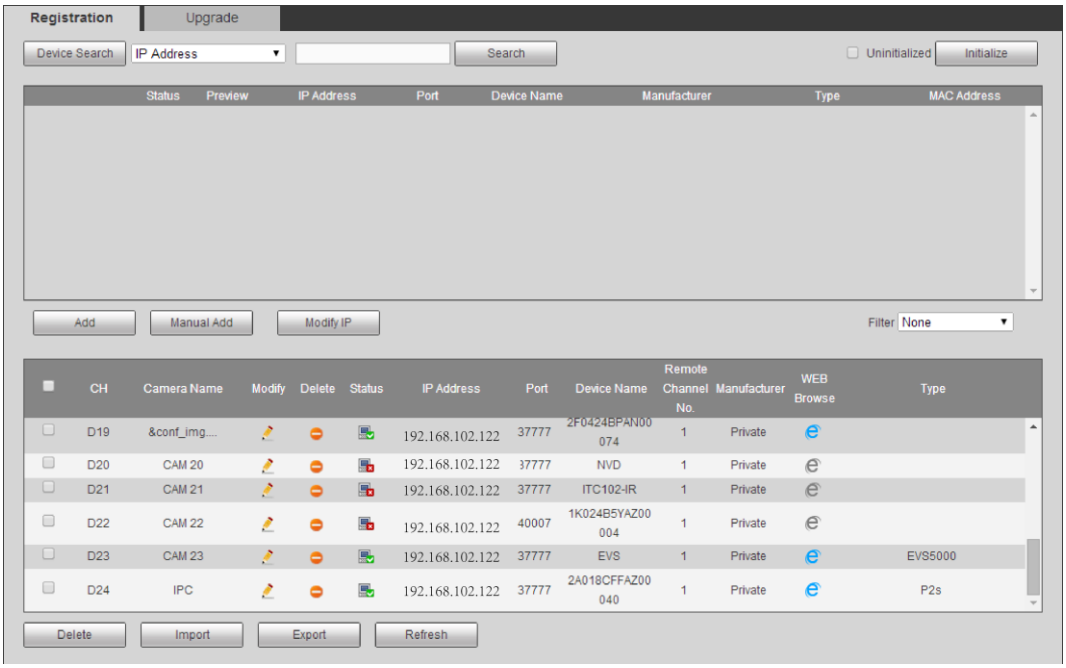
- Your PC, NVR and your thermal camera are all connected to network.
- You have enabled platform accessing function.
- You have logged in the NVR's web client.

Procedure

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

The **Remote Log** interface is displayed. See Figure 6-1.

Figure 6-1 Registration



Step 2 Click **Search**.

After the search, the system displays devices that have been searched.

Step 3 Select devices whose IP address needs to be modified and click **Add**.

The following list will display information of tunnel with devices. When you log in the device successfully, the connection condition displays .

Web client of NVR recognizes by default that username and password for logging in the Device are both "admin." If you have modified your password, add your device manually.

6.2 Accessing through SmartPSS

You can set up and manage this thermal camera through SmartPSS client.

Preparation

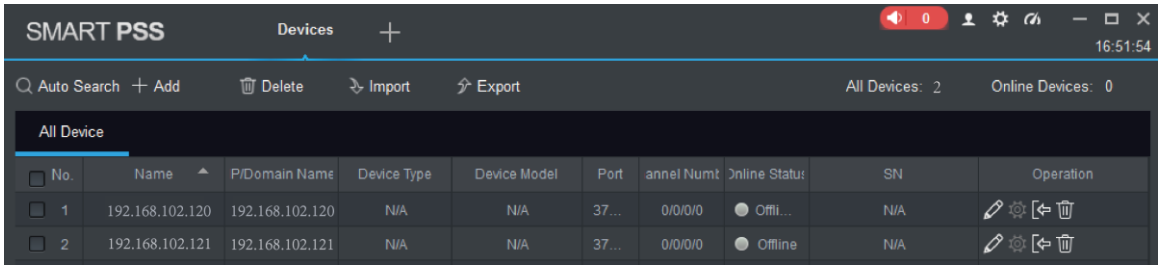
- You PC (with SmartPSS installed) and your thermal camera have been both connected to network.
- You have installed and opened SmartPSS.

Procedure

Step 1 Click **Devices** in the homepage.

The **Devices** interface is displayed. See Figure 6-2.

Figure 6-2 Device list



Step 2 Type the network segment the Device is in, and then click **Search**.

After the search, the system displays devices that have been searched.

Step 3 Select devices whose IP address needs to be modified and click **Add**.

The following list will display devices that have been added. When you log in the device successfully, the connection condition displays **Online**.

It's set by default that username and password for logging in the client side of SmartPSS are both "admin." If you have modified the password or device port, please add device manually.